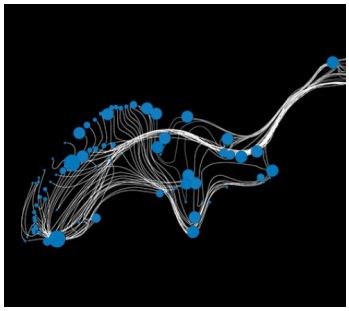

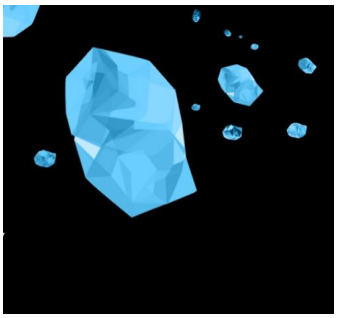

University of Twente

Faculty of Behavioral, Management and Social Sciences

Master of Business Administration

Purchasing & Supply Management

Title

"Attainment discrepancy: its influence on firm's strategic changes to its supplier-related activities"

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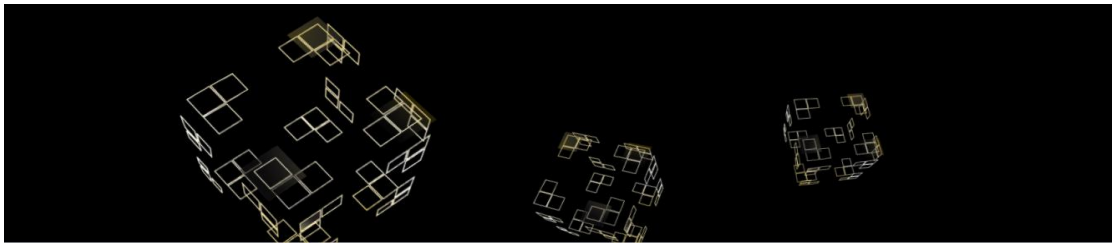

Acknowledgment

This study was conducted as the graduation thesis of my master study of Business Administration following the track of Purchasing and Supply Chain Management. It aimed at examining the relationships between attainment discrepancy of manufacturing firm's financial performances and the firm's strategic changes to its supplier-related activities. I have spent around 9 months on developing the study, since the day when I received such interesting topic from my first supervisor, Dr. Niels Pulles. The development of this graduation thesis was a tough process, considering that I have experienced great difficulty in gathering enough sample for my statistical analyses. Dr. Pulles has supported me a lot and walked me through all the troubles and worries that I have had. Later, he suggested me taking interviews as another research method to collect more useful data. This worked out and I have finally ended up presenting this thesis to all the future readers. Dr. Pulles has given me great guidance in terms of the structure, contents as well as expressions involved in the study. Besides, the almost 90 emails sent between us for communicating about what needed to be done and how should things be improved has further showed his generous patience, understanding and help. Here, I would like to take this opportunity to give him my most humble gratitude. In addition, I would also need to thank Dr. Henry van Beusichem for taking the time for being my second supervisor. Though this study is not so much related to his specialty of Finance, he was still willing to offer me his valuable feedback and suggestions. Next, I need to thank my parents and my friends for always willing to lend me a listening ear when I was frustrated, upset and exhausted by the work. With the help and support of all these persons bearing a nice heart, I have been lucky enough to successfully fulfill this study.

Abstract

This study draws the behavioral theory of the firm (BTOF) to identify how attainment discrepancy as the predictor influences decision makers of manufacturing firms on making strategic changes in terms of their supplier-related activities, including the number and the level of differentiation of their suppliers , as well as their supplier development, supplier involvement, and information sharing activities. The study has been divided into two parts. The first part involved using surveys to collect quantitative data to test 10 hypotheses. An insufficient sample of 15 responses were obtained. Though the statistical analyses failed to draw any solid conclusions to support the hypotheses, the findings of the study provided information that were partially consistent with the common assumptions of firm behaviors. Possible explanations were also given with relevant theoretical support for findings that were inconsistent with those common assumptions. The second part of the study took in interviewing approach to collect qualitative data from decision makers of 6 manufacturing firms from 3 different industrial categories. These interview data have supported the formulation of 9 propositions, confirming that a negative attainment discrepancy of the firm leads to its strategic changes to supplier-related activities; whereas a positive attainment discrepancy of the firm generates the unlikelihood of decision makers in making any further changes. Despite the theoretical and practical implications of this study, future studies with larger sample size would be needed to test and validate both the conceptual model and the conceptual framework.

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Chapter 1. Introduction

1.1 Study Background

Today's intensive global competition and dynamic market environments are bringing many opportunities and challenges to the manufacturing firms. Customers expect products to be affordable, of state-of-art quality and with constantly innovative features. However, while manufacturing firms employ enormous resources and capabilities to satisfy the diverse market needs, they simultaneously look for ways to minimize operational costs, improve production efficiency, capture large market shares and acquire sustainable competitiveness. Product development is not a simple task, as Maffin and Braiden (2001) suggest, it involves many complex processes and structures. Therefore, to deal with customer expectations for superior products and to realize self pursuit for long-term profitability at the same time, it's not enough for manufacturing firms to rely on their own knowledge, skills and technologies alone.

As a matter of fact, many firms opt to engage suppliers in their product design and development processes as a way to achieve advantageous competitiveness (Ragatz, Handfield, & Scannell, 1997). With access to suppliers' specific expertise and capabilities (Ragatz, Handfield, & Petersen, 2002), manufacturing firms are facilitated to enhance product novelty (Handfield, Ragatz, Petersen, & Monczka, 1999), reduce the cycle time of new product development (Handfield et al., 1999), improve product quality (Van Echtelt, Wynstra, Van Weele, & Duysters, 2008), reduce operational costs (Swink, 1999), address product and process technology complexity (Maffin & Braiden, 2001) and strengthen financial performance (Carr & Pearson, 1999). In practice, decision makers are motivated to integrate suppliers in their main organizational activities for these many operational and financial benefits. While in the research field, researchers also have developed growing interests in learning about the performance implications of firms integrating suppliers, and understanding the wider range of positive outcomes suppliers can contribute to the firms. However, it appears that researchers have rarely thought about the fact that the activities taken by decision makers to integrate suppliers in their operational processes do not always stay the same. Decision makers might either change the way how they integrate their suppliers or adjust the level of any of their supplier-related activities. There are many potential reasons explaining for the motivation that decision makers initiate strategic changes to their operational practices

related to suppliers. On one hand, it could be because decision makers attempt to achieve greater benefits and better supplier performances. On the other hand, it may be due to their willingness to generate healthier finance and gain stronger competitiveness. In reality, very rare empirical studies have actually examined the exact reasons why decision makers of the firm are triggered to change their strategic behaviors related to their suppliers. In other words, the causality mechanisms or predictors of a manufacturing firm's strategic changes related to its supplier-related activities are still not thoroughly known. Because of this, it will be such an interesting study where one or some of the potential causes as to why decision makers of the firm exert strategic changes to their operational practices related to suppliers will be examined. Understanding those relevant motivations or the causes is of much value. Only when knowing why decision makers of the firm make certain strategic changes related to their suppliers, can the researchers understand to a more thorough extent the many performance applications and positive influences of integrating suppliers in the firm's operations. Besides, developing such understanding also helps researchers to extend their investigation of organizational decision-making and firm behaviors to the scope of the upstream of the firm's operations. Additionally but also practically, decision makers who by any chances read this paper are able to establish a different perception of their own managerial strategies and practices, which in turn can possibly support them in making more productive and effective strategic changes.

This paper draws the behavioral theory of the firm (BTOF) to identify the reasons why manufacturing firms make changes regarding to their supplier-related activities. BTOF maintains that decision makers set aspirations to reflect their desired performance goals against which they evaluate own actual performances. Scholars have summarized that aspirations can be developed from either the historical perspective or social perspective (e.g. Greve, 1998b; Bromiley & Harris, 2014), with the former reflecting the firm's past experience of exploiting resources and capabilities (Greve, 2003a), whereas the latter provoking benchmarking (Fiegenbaum & Thomas, 1995) between the focal firm and peer firms within the same industry (e.g., Greve, 1998b; Baum, Rowley, Shipilov, & Chuang, 2005). When the actual performances of the firm are not as high as to achieve the performance goals, decision makers would make strategic changes to respond to the attainment discrepancy between their actual and desired performances (Cyert & March, 1963; Gavetti, Greve, Levinthal, & Ocasio, 2012). The attainment discrepancy has been found to trigger strategic changes taking place in various areas such as research and development (R&D) expenditures (Bromiley & Washburn, 2011; Chen & Miller, 2007), capital structure (Miller & Bromiley, 1990), capital investment

(Greve, 2003b), acquisitions (Iyer & Miller, 2008) and product quality and innovation (Greve, 2003a). However, few scholars have looked at the attainment discrepancy as the predictor leading to the firm's strategic changes respecting suppliers or supplier-related activities. Hence. the study intends to make contributions to this, and explores the firm's changing behaviors in terms of its supplier-related practices within the theoretical scope of BTOF.

1.2 Study Objective

This research aims at studying attainment discrepancy, one important BTOF's concept, as the predictor of the strategic changes made by the decision makers of the firm to their supplier-related activities. Through the research, the following research question would be answered: ***How does attainment discrepancy between actual organizational performances and aspirations of the firms determine their strategic changes regarding their supplier-related activities?*** In the context of the study, the strategic changes regarding the supplier-related activities of the firm refer to: (1) changing the supply base complexity that the firm deals with, including the number and the level of differentiation of suppliers; (2) changing the supplier management actions of the firm, including its supplier development, supplier involvement, and information sharing activities.

1.3 Study Contributions

The study is of mixed research methods and divided into two parts. The first part has the decision makers of 15 manufacturing firms fill in a survey about their financial performances in 2015 and strategic changes to their supplier-related activities in 2016. However, due to sample insufficiency, the statistical analyses fail to identify any significant relationships between the theoretically associated variables. As such, interviews are further conducted with another 6 manufacturing firms as the second part of the study to collect more useful data. The interviews mainly inquire information about the firms' financial performances and their exact supplier-related changes in 2016. Questions used in the interviews concern more about "how" and "why" questions rather than "to what extent" questions as in the surveys. By doing so, the interview data supplement the survey data in revealing the relationships between attainment discrepancy of the firm and its strategic changes regarding the supplier-related activities.

Four distinct contributions are made by this study. Firstly, whilst large amount of empirical researches have focused on the performance implications of integrating suppliers in the firm's main organizational activities, this study is one of the first researches that investigates the disciplinary of BTOF's *aspiration* and *attainment discrepancy* concepts in predicting the firms' strategic changes regarding to suppliers. Secondly, unlike many studies examining attainment discrepancy as a single unit, this study separates *internal* and *external* attainment discrepancy and tests the different effects of historical and social aspirations in determining the firm's strategic changes regarding its supplier-related activities. According to the findings, differences do exist between these two types of aspirations, thus, the two types of attainment discrepancies. Explanations in terms of *striving comparisons* and *agency theory* are given, to explain why an external attainment discrepancy would lead to results differing from the common assumptions in terms of firm's strategic change to supplier development. Thirdly, many research instruments have been developed for the purpose of measuring the firm's supply chain management or supplier management, while this study combines the concepts of *supply base complexity, supplier development, supplier involvement,* and *information sharing* to compose a new instrument that can be applied to measuring the firm's strategic changes related to suppliers. Fourthly, this study provides qualitative evidences that generally support the assumption that attainment discrepancy triggers the firm's strategic changes related to suppliers. Last but not least, whereas people tend to believe that firms make constant strategic changes to improve their operational capabilities and financial performances, this study identifies another possibility that firms might enjoy the sense of organizational satisfaction with the performances that they have created, thus, be not willing to make any strategic changes to their current activities any more.

1.4 Study Structure

The structure of this study is arranged as follows. Chapter 1 provides the background, objective, contributions and structure of the study. Chapter 2 presents the literature review in terms of theories about BTOF, supply base and other supplier management concepts. Chapter 3 lays the reasoning and furthermore, the relevant hypotheses between attainment discrepancy and the proposed supplier-related activities. The conceptual model that guides the study will be provided at the end of the chapter. Chapter 4 introduces the methodology for data sampling and collection. Results of validity and reliability testing of the data are presented as well.

Following is Chapter 5 discussing the statistical results and the conclusions drawn to all the hypotheses. Chapter 6 describes the use of interviews as the second research method to collect more sufficient data to supplement the study, followed by Chapter 7 summarizing the interview results and establishing propositions. Finally, Chapter 8 concludes the study by addressing its findings, contributions, limitations and future research suggestions.

Chapter 2. Literature Review

2.1. Miscellaneous of Behavioral Theory of the Firm, Attainment Discrepancy, and Problemistic search

Cyert and March's (1963) *The Behavioral Theory of the Firm* (BTOF) has been one of the most influential earlier works in the field of firm behaviors. Some of its ideas, concepts, implications still sound quite modern nowadays, considering that the theory was established around five decades ago. BTOF proposes that each firm is a coalition of special resources, procedures, and experiences that are not easily imitated by other firms. Out of different organizational or personal interests, decision makers within the firm usually get into disagreements, thus, try to convince other members to listen to their own ideas or decisions (Cyert & March, 1963). However, when individuals make decisions, they either lack the sufficient information of alternatives, are bounded in capabilities to process decision-making, or have limited time to make a decision. Therefore, even for decision makers who intend to make the most rational decisions, they can only compromise by choosing the satisfying solutions that are validated by the firm's capabilities and opportunities, rather than selecting the optimal options (Simon, 1955). The *bounded rationality* of these decision makers and their *satisfycing* behaviors are two important conceptual terms of BTOF (Cyert & March, 1963; March & Simon, 1958; Simon, 1955).

As decision makers can't fully evaluate their organizational performances due to their bounded rationality, they are bound to simplify the performance evaluation by forming aspirations and "benchmarking" their actual performances against aspirations to determine success and failure (March & Simon, 1958). *Aspirations*, as defined by Simon (1955), refer to

the performance goals that serve as the boundaries to help decision makers to distinguish between satisfying performances and unsatisfying ones (Augier & March, 2003). Schneider (1992) defines aspirations in individual decision-making as *"the smallest outcome that would be deemed satisfactory by the decision maker"*. Similarly, when it comes to the decision-making of a firm, decision makers also need to decide on the minimal performance level, which is not only deemed as satisfactory for the firm, but also should be consistent with the firm's resources and capabilities. When organizational performances fall below the minimally satisfying level, a *negative attainment discrepancy* is generated. It induces problemistic search for solutions within the local environment, which are expected to help eliminate the operational errors and restore the organizational performances. As another concept of BTOF, *problemistic search* is a process during which decision makers identify the (usually very specific) problems that lead to their performance discrepancy and seek for satisfying solutions to address the problems (Cyert & March 1963). Firms executing various strategic changes like organizational reorientation (Greve, 2002), adaptation (Gavetti & Levinthal, 2000), risk-taking (March & Shapira, 1987) and organizational innovation (Greve, 2003a) are all considered to be provoked by problemistic search. On the contrary, when organizational performances are deemed satisfactory in relative to aspirations, a *positive attainment discrepancy* is generated, which reinforces organizational satisfaction, and stimulates minor modifications to inter-organizational familiarities (Cyert & March, 1963; Levitt & March, 1988). Despite the fact that decision makers are equally likely to embark on problemistic search for alternatives when their organizational performances are already satisfying, it is believed that problemistic search is essentially stimulated for immediate solutions to resolve problems within the current organizational activities (Wennberg & Holmquist, 2008).

Lately, Posen and Keil (2015) have contributed to *problemistic search* by suggesting that the concept should *"involve two distinct but interrelated processes"* --- *problem definition search and solution search"*. That is to say, when decision makers experience negative performance discrepancy, they should first attend to identify and define the problems and thence seek for solutions to address the problems. Undoubtedly, negative attainment discrepancy can be caused by multiple problems. Thus, a proper diagnosis and definition of the real problems leading to performance discrepancy is critically valuable. Moreover, recent management studies (Nickerson, Yen, & Mahoney, 2012) also propose that more strategic attention should be paid to problem definition search for the value of solution search and problem solving to

be realized. The well-defined problem definition not only assists decision makers in making appropriate strategic changes to their current activities, but also reminds employees of what to do to eliminate such performance discrepancy.

As Cyert and March encourage (1963), solution search takes place alongside the problems within the immediate activities of the organization. Therefore, it is reasonable to assume that the areas where problems are identified would be the areas where solutions are needed and eventual strategic changes are made. For manufacturing firms, suppliers play a very important role in their business operations by providing essential resources, skills and technologies that they rely on for producing products and satisfying customer needs. When a negative performance discrepancy occurs to a particular firm, it is very likely that decision makers would look into its suppliers to seek for possible problems. Either the insufficient supplier performances or the poor supplier management efforts would easily influence on the firm's daily operations, thus, resulting in the unsatisfying organizational performances. Theoretically, if the problems causing negative performance discrepancy of the firm are indicated with the ineffective supplier performances, decision makers are assumed to very naturally seek for solutions within their existing supplier-related activities and thence make specific strategic changes. In other words, if strategic changes are made within the supplier-related activities of the firm for the purpose of restoring attainment discrepancy, one can automatically assume that the problems causing the discrepancy are very likely to be linked to the current dysfunctional supplier performances of the firm.

2.2. Historical & Social Perspectives of the formation of Aspirations

As stated in BTOF ([1963] 1992), (organizational) aspirations are primarily determined based upon the past performances of the firm itself and the performances of comparable firms within the industry. The original aspiration model developed by Cyert and March (1963) is expressed as below:

$$A_{i,t} = a1A_{i,t-1} + a2P_{it-1} + a3C_{i,t-1} \qquad (1)$$

where:

$A_{i,t}$ refers to aspiration level in year t

Ai, t-1 refers to aspiration level in year t-1

Pi,t-1 is organizational performance in year t-1

Ci,t-1 is the performance of comparable firms within the industry in t-1

And, *a1+a2+a3=1*.

Decision makers make strategic decisions and changes based on their understanding of the firm's core resources and capabilities (Albert & Whetten, 1985). The past performances of the firm serve as the indicators for decision makers to comprehend how the firm has evolved to its current situations and to determine the performance goals against which its subsequent performances will be evaluated. Such performance goal that is formed by taking into account the historical performances of the firm is called *historical aspirations* (Greve, 2003c). Depending on how well they have performed, decision makers wish to use that performance level to set aspirations for the upcoming year, which guide their future activities in a way to ensure that their organizational strengths and effectiveness can be best utilized (Kim, Finkelstein, & Haleblian, 2015). In real practices, if decision makers recognize the need to evaluate certain performance variables, they tend to keep track of the historical records of these variables and use their past values as the referents for developing the upcoming aspiration (Greve, 2003c). This is why firms are often seen generating accounting information to conclude the important aspects of the firm's organizational performances by the end of the year that has just passed. Firms capable of maintaining organizational performances that are above their own historical aspirations for a long time expect to remain with that performance level and will not bother themselves by changing their existing operational activities (Gentry, 2006). Alternatively, decision makers would also turn to the performances of comparable firms within the same industry as the performance referents when evaluating their organizational performances. Such performance referents are called *social aspirations* (Fiegenbaum, Hart, & Schendel, 1996). From social aspirations, decision makers get to learn about the alternative behaviors and experiences of their peers. Decision makers normally form a reference group consisting of comparable firms who share similar size, market, production methods, industry characteristics or performances (Greve, 1998b) with their own. The larger degree of the proximity between the focal firm and other comparable firms, the more likely the decision makers are to observe relevant behaviors (Baum, Calabrese, & Silverman, 2000; Greve 1998) that they can learn from. In real practices, the digital databases regularly publish industrial reports or corporate financial information that decision makers can easily access to for performance referencing. However, it can be rather difficult for them to comprehensively

interpret social aspirations and understand how other peer firms have actually done to create such industrial success (Baum & Ingram, 2002). Decision makers aim at creating organizational performances that are better than other comparable firms. Thus, when their performances reach the industry averages, they tend to develop a sense of satisfaction and become less willing to make any strategic changes to their current activities.

There is no single agreed way of forming aspirations against which the actual organizational performances will be compared, which means the measurement of attainment discrepancy can also come from various forms. For example, Mezias et al. (2002) use actual organizational expectations as the standards to develop aspirations. Miller and Bromiley (1990) agree with only using social aspirations when evaluating organizational performances because firms have a high tendency to learn from their peers, and industrial targets can lead them towards the appropriate directions to strive for market competitiveness. On the contrary, Levinthal and March (1981) stress the importance of benchmarking the organizational performances against historical aspirations to assure the firm is properly and effectively employing its resources and capabilities. Greve (2003b) acknowledges that aspirations should be adapted according to the changes of the firm by considering the slowly evolving nature of aspirations and thus, using weighted moving averages of its prior performances in calculating aspirations for the next year. According to others (Bromiley, 1991; Deephouse & Wiseman 2000, Wiseman & Bromiley 1996, Wiseman & Catanach 1997), decision makers refer to self past performances to develop aspirations when their actual performances are above social performance level (e.g. Industrial average), while use social performances to develop aspirations when their actual performances are below that level. Some other scholar (Baum, Rowley, Shipilov, & Chuang, 2005; Fleming & Bromiley, 2002) advocate using historical and social aspirations separately, thus, creating two different types of attainment discrepancy that are respectively self- and social-based. The separate use of historical and social aspirations allows the differences between the two aspirations to be revealed. For example, Harris and Bromiley (2007) find out that performances relative to historical and social aspirations trigger different firm behaviors. As a matter of fact, during a particular year, the way how decision makers evaluate their actual organizational performances varies from firm to firm, where they might either refer to either historical aspirations or social aspirations or even a combination of both.

2.3. Firm's Supply Base Complexity comprising Number, Differentiation and Inter-relatedness of Suppliers

Manufacturing firms purchase from a handful of suppliers raw materials and resources, with which they produce goods that create monetary values for themselves and usability for end customers (Handfield & Nichols, 1999). Part of the supply network are the suppliers whose activities are closely managed and coordinated by firms through contracting, purchasing and other relationship management activities (Choi, Dooley, & Rungtusanatham, 2001). Choi and Krause (2005) define these suppliers as *supply base*. With customers demanding for diverse and customized products, decision makers are more and more pleased to work with suppliers who are capable of facilitating them to develop new technologies, adapt to changing demands and strengthen product quality. However, when the firm has to deal with too many suppliers, who are simultaneously distinct from each other and who have complicated inter-relationships between each other, decision makers of the firm will find it very difficult to manage and ensure the quality of the performances of all these suppliers (Caridi, Crippa, Perego, Sianesi, & Tumino, 2010). Therefore, it is of great value for decision makers to optimize the complexity of their supply base (Choi & Krause, 2005) and only involve a proper number of suppliers with sufficient level of differentiation and inter-relatedness.

2.3.1 Number of Suppliers

Developing a proper number of suppliers is important. Depending on the actual needs of the firms, the size of their supply base can be either small or large. At the current moment, what can be seen is that many firms have started to reduce the number of suppliers that they purchase materials from (Burt, 1989; Helper, 1991). It is assumed that working closely with a smaller number of qualified suppliers will bring the firm remarkable advantages (Christopher & Jüttner, 2000; Higginson & Alam, 1997), including lower administrative costs, stronger bargaining power for volume discounts, better product quality and development cooperation and healthier financial performances. For example, General Motors and General Electric have minimized their supply base as a way to save management costs, while spend the money more smartly on other core businesses (Krause, 1997). Failing to recognize the problem of excessive number of suppliers will constrain the firms in high management expenses, uneven product quality and poor supplier performances. Other benefits provided by a smaller number

of suppliers include capability of handling short notice orders (Chen & Paulraj, 2004); control of inventory management costs (Trevelen, 1987) and logistical costs (Bozarth, Handfield, & Das, 1998); trustworthy information delivery; and market penetration (St. John & Heriot, 1993). What is more, firms cautiously selecting fewer reliable and responsible suppliers for the assignments are also able to form a direct and long-term association with their suppliers. This makes it possible for both parties to closely participate in planning projects, resolving problems (Gunasekaran, Patel, & Tirtiroglu, 2001) and developing each others' technological, production and market advantages (Yoshino & Rangan, 1995).

On the flip side, it is also beneficial for firms to work with more suppliers and have multiple sources for key materials and supplies. In the case of single sourcing, the firm tends to be highly dependent on that supplier. Especially when the suppliers own capabilities or technologies that are critical to the development of the firm, the firm will suffer a lot if the suppliers hold back the offerings (Chakravarty, 2014, p.99) and switch to the firm's competitors or if they threaten the firm by asking more than reasonable rewards or investments. Additionally, when the production and operations of the firm are influenced by the unsatisfying performances of the single supplier, decision makers of the firm has no other immediate choice besides remaining purchasing the materials and services from that supplier. With only fewer suppliers controlling the supplies and technological advancement of the firm, their power grow increasingly and they are likely to influence the production and other decision-making processes of the firm (Agrawal & Nahmias, 1997), which can be rather risky. Unexpected events such as changes of market demand or shortages of material stock also require the firm to develop more than one single sources for some of the important resources, so that the firm can guarantee constant production and smooth delivery of goods to the market. Furthermore, for decision makers aimed at maintaining the firm's sustainable profitability and competitiveness, it is far from sufficient if they take advantage of the expertise and technologies of only few suppliers. They are likely to seek for new suppliers who possess innovative and challenging capabilities and skills in assisting them in fulfilling the long-term goals. Hence, building a larger supply base frees these decision makers from the risk of not being able to access to the new and varied technologies owned by diverse suppliers (Chakravarty, 2014, p.99).

2.3.2 Differentiation of Suppliers

Choi and Krause (2006) define the differentiation of suppliers as *"the degree of different characteristics such as organizational cultures, operational practices, technical capabilities, and geographical separation that exist among the suppliers in the supply base"*. Cross-border barriers such as languages, humanitarian values and informal transaction procedures contribute to the level of differentiation of suppliers as well (Chakravarty, 2014, p.98). Opposite to the differentiated suppliers are the homogeneous suppliers, who share similar organizational cultures and geographical locations (Chakravarty, 2014, p.98). One of the practical example of such homogeneity can be seen from the Japanese keiretsu, where a group of companies who share similar operations, economic environments, working styles and strategic beliefs form a family-like association (Chakravarty, 2014, p.98) to be against market fluctuations and towards long-term prosperity.

Decision makers who manage this kind of homogeneous companies as suppliers can benefit from the smoother exchange of flows materials and knowledge between the firm and the suppliers (Choi & Krause, 2006), avoiding misunderstanding and ineffective communication. When dealing with suppliers implementing similar operations, decision makers can better understand their strengths and weaknesses. So they are able to acquire information, suggestions or performance feedback from the most capable suppliers. Manufacturing firms take advantage of suppliers' technologies in product design and development. Therefore, developing a group of suppliers with equally competitive technological capabilities enables decision makers to effectively centralize their investments. The geographical proximity between suppliers is also a concern for effective supplier management (Tan, 2002), in that decision makers can reduce the transport and labor costs when managing suppliers who are geographically close to each other (Morris, Donnelly, & Donnelly, 2004). When suppliers in the firm's supply base are of high proximity, decision makers can easily substitute one of the under-performing suppliers with another favorable one (Chakravarty, 2014, p.100) without needing to making too many strategic adjustments. Excessive level of supplier differentiation would lead decision makers to misunderstand supplier behaviors, mismanage information exchange and material flows, and defer operational processes and technological development of the firms. Despite this, developing a diverse supply base does increase the innovation level of the supply base (Chakravarty, 2014, p.98). Therefore, decision makers can enjoy the innovative capabilities of their many different suppliers simultaneously and select the most suitable suppliers to participate for each of their projects. Either increasing or decreasing the

diversity of the supply base, decision makers need to understand well the firm's actual needs for the performance characteristics of suppliers before they can decide on the appropriate level of supplier differentiation.

2.3.3 Inter-relationships of Suppliers

Apart from trading and interacting with the firm, suppliers in the firm's supply base would also form working relationships between themselves. This kind of supplier-supplier relationships are known as the *inter-relationships* of suppliers (Choi & Krause, 2006). These inter-relationships can be one-to-one-supplier, one-to-many-suppliers, many-to-one-supplier and many-to-many-suppliers (Chakravarty, 2014, p.98). The basic form of inter-relationships is very often seen in the automobile industry, where one supplier of raw materials supplies to the manufacturer of auto parts and elements, who subsequently supply metal parts to another manufacturer who need those metal parts to produce and supply to the next level of manufacturers (Choi & Krause, 2006). When the one-to-one inter-relatedness transforms to a more complex context such as many-to-one or many-to-many inter-relatedness, it becomes harder for the firm to manage the relationships among its suppliers. Those many suppliers are also very likely to establish a coalition who are more powerful in negotiating with the firm for better contract terms and prices. Choi and Wu (2009) provide the example that suppliers in the aerospace industry who used to compete against each other have formed cooperative association in order to leverage their contracts with the focal firm like Honeywell or Boeing. Besides exchange physical products, suppliers within the same supply base are seen sharing information as well. For examples, two suppliers gather discussing over the technological development of a third supplier and finding strategies to respond to the competition. Or they may share opinions so that they can better coordinate in developing product specification, arranging delivery schedules and planning for production (Choi & Krause, 2006).

It is very important for decision makers of the firm to not only be aware of the inter-relationships between its suppliers, but also engage itself in directly managing those relationships. As Wu and Choi (2005) find out, the interactions between suppliers or a lack of them will eventually influence the overall supply chain performances of the firm. When suppliers are reluctant to work with each other to facilitate the same projects of the firm, the firm could face difficulty in e.g. completing timely production tasks or meeting quality commitments to the customers. On the contrary, decision makers of the firm can encourage

suppliers to actively cooperate by promising them incentives or penalties. For instance, Japanese automotive companies committed *"a long-term relationship combined with a credible threat to switch suppliers"* (Richardson, 1993, p. 347). By closely managing the relationships within the supply base, firms can positively influence the behaviors of their suppliers and creating a favorable supply chain environment where suppliers constantly improve themselves throughout the competition while actively coordinate in providing the firm with satisfying performances.

2.4. Firm's Supplier Management Actions comprising Supplier Development, Supplier Involvement and Information Sharing

Besides purchasing necessary resources from suppliers to support daily production, firms also deploy their capabilities and technologies (Bowersox, Closs, & Stank, 1999) and collaborate with them to ensure the effectiveness of the supply flows (Zhao, Huo, Selen, & Yeung, 2011). During new product development (NPD), decision makers are delighted to listen to suppliers about the adoption of innovative features in product design and the combination of skills and technologies in cost-efficient product development (Monczka, Trent, & Callahan, 1993). Suppliers also regularly update the firms with information about new sources, technological development, industrial trends and market changes, for decision makers to make strategic changes responding to these environmental stimulus. In order to ensure that suppliers can maintain the quality of their performances up to the needs of the firm, decision makers must take continuous actions to help suppliers develop their performances (*"supplier development"*), strengthen supplier integration in the firm's main processes (*"supplier involvement"*) and improve the communication efficiency between both parties (*"information sharing"*). In the current study, these three strategic actions combined will be defined as *supplier management actions.*

2.4.1 Supplier Development

Empirical studies show that more and more firms implement supplier development programs to improve their supplier performances and remain their organizational competitiveness (Modi & Mabert, 2007). *Supplier Development* are the strategic activities joined by both the firm and the suppliers for the purpose of *"increase the performance and/or capabilities"* of

the suppliers (Krause & Ellram, 1997). Increased supplier performances, in turn, also aid the firms in realizing their own *"short-term and/or long-term supply needs"* (Krause & Ellram, 1997). Wagner (2006) propose that supplier development is executed by firms mainly to solve the problems that they encounter with their suppliers, e.g. unsatisfying supplier performances, unavailable supplier capabilities within the current supply base, or supplier incapability to help the firms fulfill their strategic growth (Ahmed & Hendry, 2012).

According to Krause et al. (2000), the supplier development activities can be categorized into the four forms as follows: 1) Creating ***competitive pressure*** to encourage suppliers to constantly improve their product performances, by using multiple supply sources for the same item (Tezuka, 1997) and selecting the best performing supplier to reward the most business (Modi & Mabert, 2007); for the same purpose, firms can also choose to raise the performance goals for their suppliers (Monczka et al., 1993) to motivate them to continuously improve their own performances to satisfy the needs of the firms; 2) Using regular ***evaluation and certification systems*** to inform the suppliers of the firm's expectations, standards and requirements, so that supplier activities can be directed to meet organizational performance goals (Modi & Mabert, 2007); 3) Offering ***incentives*** including a promise of increased future business or awards to appraise supplier's improvements (Modi & Mabert, 2007); 4) Implementing ***direct involvement*** on developing suppliers through investing on the human resources (e.g. personnel training and education) or physical aspects (e.g. equipment or technologies) of the suppliers (Krause, 1999) to help them establish more competitive resources and facilities; or through partially acquiring the supplier firm (Modi & Mabert, 2007). Other forms of supplier development activities of the firm include but are not limited to: developing ***collaborative communication*** with the suppliers (Modi & Mabert, 2007), who are then able to coordinate with the firm in efficiently completing the tasks; paying on-site visits to the supplier firm (Krause & Ellram, 1997) to master a better understanding of supplier's technological capabilities and production processes; or establishing trust with suppliers so that suppliers will be committed to helping safeguard the interests and specialized investments of the firms (Hill, 1995). By implementing these supplier development activities, decision makers of the firm expect state-of-art materials and services from the suppliers that they can depend upon to develop high level of customer satisfaction and favorable financial performances. However, since there are so many strategies that the firm can take to achieve desired outcomes, decision makers would need to understand the strengths and performance discrepancies of their suppliers before they can make and appropriate and effective choices.

2.4.2 Supplier Involvement

Supplier involvement is an important process for decision makers to involve the core competencies (Bowersox et al., 1999) and information (Handfield, 1999) of their suppliers before they take actual decisions in important strategic activities. These core competencies or useful information contributed by suppliers can assist decision makers in planning for product designs and assessing product ideas (Ragatz et al., 1997). Decision makers of the firm may consider either asking for suggestions from their specialized suppliers or assigning complete tasks of design, development and manufacturing of product parts to them (Wynstra & ten Pierick, 2000). Besides, suppliers also provide time-saving and cost-cutting alternative solutions (Ragatz et al.,2002) and more productive product development process (Brown & Eisenhardt, 1995) to the firms.

Involving suppliers early in NPD helps firms to find out potential problems up front (Ragatz et al., 1997) before the decision makers need to spend large amount of money to fix them. In addition, early supplier integration in NPD enables the firm to improve product quality and reduce the time and costs associated with product design and development (Ragatz et al, 1997; Handfield et al., 1999; Hoegl & Wagner, 2005; Van Veele, 2005; Van Echtelt et al, 2008) to increase the market performance of the products (Ragatz et al., 1997). As "80% of the total costs of a new product are determined in the design phase" (Ford, 2011), failing to involve suppliers early enough in the NPD might push manufacturing firms into extensive production and development spending and unfavorable financial situation.

While firms can enjoy the immediate cost reduction, waste minimization and shorter product cycle time thanks to involving the expertise and technologies of their suppliers (Handfield et al., 1999), a long-lasting trusting relationship would be something that benefits both parties to a further level. Through years of supplier involvement activities and common practices, firms and suppliers accumulate knowledge regarding the operational processes, desires and potentials of both parties (Dyer & Ouchi, 1993), which allows them to give more critical and effective solutions aimed at solving each others' specific problems (Clark, 1989). Moreover, suppliers own knowledge and expertise in various aspects. Hence, having easier access to the competencies and information of suppliers facilitates decision makers of the firm to identify future market opportunities, invest on potential technological capabilities (van Echtelt & Wynstra, 2001) and plan on its subsequent NPD projects (Van Weele, 2005; Van Echtelt et al, 2008). that can add value to the firm's future development. Last but not least, decision makers

are facilitated to use the resources and capabilities of the suppliers to a better extent (Handfield et al., 1999; Ragatz et al., 2002).

2.4.3 Information Sharing

Open and effective cross-organizational communication is significant for developing successful relationships between firms and their suppliers (Krause, 1999). The behavior of both parties communicating sensitive information with each other is defined as *information sharing* (Monczka et al., 1998). Paulraj et al. (2008) define sensitive information as those related to the financial, production, design, research and/or competition issues of the firms. Both parties committed to sharing a greater amount of (sensitive) information can be considered as the prerequisite for them to jointly solve material and product design problems (Giunipero, 1990; Carr & Pearson, 1999). Regular information sharing unifies firms and their suppliers (Stein & Sweat, 1998), and fosters greater confidence and trust of both parties on maintaining relational integration (Anderson & Weitz, 1992). Timely and proper information shared by suppliers would benefit decision makers of the firm in speeding up their product time to market, eliminating excess inventory and offering cheaper but higher quality of products to customers (Stein & Sweat, 1998). Moreover, decision makers learn about new knowledge (Kotabe, Martin, & Domoto, 2003) from their suppliers through information sharing. Later on, they are able to diffuse such information across their internal departments to better configure the organizational activities into collaborative actions (Brettel, Heinemann, Engelen, & Neubauer, 2011). It is helpful for decision makers to inform suppliers well in advance of their needs, so that suppliers can arrange their own activities for creating efficiency for the firms. On the contrary, ineffective and delayed communication will prevent the firms from achieving satisfying supplier performances (Lascelles & Dale, 1989). In the study of Newman and Rhee (1990), they find that poor communication has contributed to many supplier product problems. Even though effective and routine information sharing contributes to better performances of both the focal firm and the supplier firm and adds value to the collaborative partnerships, how each of the two parties eventually performs would still largely depend upon how much exact value the individual can capture from the share information (Paulraj, Lado, & Chen, 2008). Therefore, it is very significant for them to share only the information from which they can easily create and retain the values (Bouman & Ambrosini, 2000), otherwise the information sharing activities would only be wasting time and resources, and creating ambiguity that hampers the general supply chain performances.

Chapter 3. Hypotheses Development

Based on the review of the literature, it is found that aspirations of the firm can be developed from either its historical performances (historical-based) or the performances of its peer firms (social-based) within the same industry (e.g. Greve, 1998b; Bromiley & Harris, 2014). Therefore, attainment discrepancy between the firm's actual organizational performances and aspirations can be either historical-based or social-based. Since decision makers of the firm might choose to evaluate their organizational performances against own aspirations or against the performances of comparable competitors or even both combined, it is rather hard to tell which type of these two attainment discrepancy acts as the (true) predictor on determining the strategic changes made by the decision makers to their supplier-related activities. Based on Harris and Bromiley (2007), the different effects of attainment discrepancy created by referring to either the firm's self historical performances or the performances of its other peers lead to different behavioral responses of the firm. In this study, for the purpose of examining the true predicting effect of both types of attainment discrepancy, the use of historical aspirations and social aspirations in defining attainment discrepancy will be clearly separated. Where actual organizational performances of the firm are evaluated against its own historical aspirations, the differences can be termed as ***internal*** attainment discrepancy. Where actual organizational performances of the firm are compared to the performances of the firm's peers or competitors, the performance gaps are termed as ***external*** attainment discrepancy. By doing so, the study gets to identify how these two different attainment discrepancy actually influence decision makers on making their strategic changes.

3.1 Hypotheses: Attainment Discrepancy predicting strategic changes to the firm's Supply Base Complexity

When organizational performances of the firm fall below aspirations, decision makers would look into their supply base and seek for problems leading to the performance discrepancy. Either an improper number of suppliers or inadequate differentiation of these suppliers in the supply base makes it difficult for decision makers to effectively manage suppliers and ensure positive supplier performances. Decision makers should not relentlessly make any strategic changes; instead, they need to first understand the causes of their performance discrepancy.

Literature review has supported the utilization of either a smaller number (Christopher & Jüttner, 2000; Higginson & Alam, 1997; Krause, 1997; Chen & Paulraj, 2004; Trevelen, 1987; Bozarth et al., 1998; St. John & Heriot, 1993) or a larger number (Agrawal & Nahmias, 1997; Chakravarty, 2014) of suppliers. A large supply base can be acknowledged as the root of many operational problems, e.g. expensive administrative costs, uneven product quality or the difficulty in stabilizing supplier performances. Firms suffering from these problems, therefore, would consider decreasing the number of their suppliers. The money and time saved by having less suppliers to manage can be better used on the firm's main strategic focuses, such as innovating customer products or improving production efficiency. All these will contribute to positive supplier and operational performances of the firm. Not to mention that firms attending to strengthen strategic relationships with fewer suppliers and developing an easier access to their knowledge are facilitated to outperform other companies and remain market competitiveness in a sustainable way. Conversely, an inadequate number of suppliers is often linked to production delays, unstable delivery frequency or inventory shortages of the firm. Hence, if the negative attainment discrepancy is diagnosed to be caused by these problems, increasing the number of suppliers is very helpful for guaranteeing smooth production and continuously satisfying customer needs. Besides, nonperformance suppliers will negatively influence on the firm's production. Hence, decision makers would keep more than one source for their critical raw materials as to avoid these suppliers from gaining too much direct control of the their strategies and decision making.

Apart from building a proper size of supply base, decision makers should also configure the adequate level of the differentiation of their suppliers. This could be quite necessary when the firm's negative attainment discrepancy is caused by problems related to excessive supplier diversity like misuse of supplier capabilities, miscommunication, slow information sharing, or expensive long-distance transport costs. The greater differentiation among suppliers, the higher difficulty in managing suppliers and maintaining their performance quality. This is because decision makers need to cope with many different languages, organizational cultures and procedures, technological capabilities and geographical inconveniences (Choi & Krause, 2006; Chakravarty, 2014). Decision makers managing a highly homogeneous supply base are able to share materials with suppliers, understand their suggestions and acquire their technologies more easily. All these will help the firm to create immediate favorable operational performances and market situations. Conversely, a negative attainment discrepancy can also indicate an insufficient diversity of the supply base. Imagine, if decision

makers deal with suppliers who possess merely the same expertise and capabilities, when the firm has to develop projects that require different technologies, decision makers will hardly find any suitable suppliers to assist in the tasks. Or if firm acquires knowledge, suggestions and performance feedback always from a group of suppliers sharing similar operational procedures, it becomes less and less likely that decision makers will hear anything constructive and innovative. So keeping an effectively active supply base to allow for a certain diversity of supplier capabilities and characteristics is equally crucial for solve relevant operational deficiency and turning around unsatisfying organizational performances.

However, when organizational performances of the firm achieve aspirations, a positive attainment discrepancy is generated. Under this circumstance, decision makers are usually led to believe that their current operational strategies and supply base practices are going on the "right" track. They are less likely to change either the size of the supply base or the differentiation level of their existing suppliers, for they expect the effectiveness of their current supply base would continue creating positive supplier performances and eventual satisfying organizational performances for the upcoming periods.

As a negative attainment discrepancy makes decision makers realizes that certain aspects of their supply base such as the number and differentiation of suppliers might not be effective enough, they are more likely to make relevant strategic changes. While a positive attainment discrepancy actually confirms that the firm's existing supplier-related practices are relatively sufficient, decision makers, thus, are less likely to make any strategic changes. Supporting these ideas, the following hypotheses are offered:

H1a/b: Internal/ External attainment discrepancy is negatively associated with the strategic changes of the firm regarding the number of suppliers.

H2a/b: Internal/ External attainment discrepancy is negatively associated with the strategic changes of the firm regarding the differentiation of suppliers.

Choi and Krause (2006) propose that the number of suppliers, the differentiation of suppliers and the inter-relationships among them are three dimensions that decision makers should consider when managing the firm's supply base complexity. But, only the first two dimensions are addressed in this study as part of the supplier-related activities. The reason

why the third dimension is not included is because those relational linkages between suppliers often remain unknown to the firm (Choi & Krause, 2006). If decision makers rarely notice that their suppliers within the same supply base frequently exchange products and information, it is very reasonable that they will not consider making any changes to these suppliers inter-relationships and rather focus on other strategic areas that they are more clearly aware of. Moreover, in certain cases, suppliers tend to form themselves into a cooperative organization to leverage the power of negotiating with the firm (Choi & Krause, 2006). Usually, decision makers intend to obstruct such collusion, however, there is not much that they can do about because, as a matter of fact, suppliers allying with each other is beyond the direct control or influence of the firm. Therefore, the study will not take into account the dimension of inter-relationships among suppliers, and thus, whether decision makers tend to strategically change their suppliers inter-linkages remains out of the scope of this current study.

3.2 Hypotheses: Attainment Discrepancy predicting strategic changes to the firm's Supplier Management Actions

Empirical evidences emphasize the positive influences of firms integrating suppliers on their operational processes, such as desirable operational performances (Das, Narasimhan, & Talluri, 2006), product responsiveness (Dröge, Jayaram, & Vickery, 2004), higher product innovation (Koufteros, Cheng, & Lai, 2007), better product design and financial performances (Petersen, Handfield, & Ragatz, 2005). Other benefits include minimized production time and waste (Balsmeier & Voisin, 1996) and better selection of technological uses (Monczka et al., 1993). However, these benefits do not come out of thin air. When organizational performances of the firm fall below aspirations, decision makers would be led to rethink about their current supplier management actions and seek for potential problems explaining for the attainment discrepancy. Decision makers afterwards make strategic changes aimed at solving these problems and recovering the discrepancy in their organizational performances.

Supplier development activities are taken especially by firms who experience problems with their suppliers (Wagner, 2006). Some of these problems are seen when suppliers without the skills to meet the production needs of the firm bring out incompetent quality and slow responsiveness of their products. Also, suppliers may not possess sufficient financial resources or physical assets to enable themselves to realize their strategic growth goal

(Ahmed & Hendry, 2012). With a low level of supplier development, suppliers would not be able to build up strong capabilities or personnel competitiveness. This is not desired by the firm. Therefore, decision makers should support supplier development to a higher degree and ensure that suppliers are more readily responsive to expectations of both the firm and the markets. As the level of supplier development increases, more potentials of suppliers in terms of operational capabilities and innovative expertise will be gradually unearthed, preparing them to meet greater production challenges and higher performance goals. Researchers (e.g. Krause et al., 2000; Modi & Mabert, 2007; Krause & Ellram, 1997) suggest a wide range of strategies for decision makers to improve supplier capabilities. Depending on the firm's specific needs, decision makers opt to expand their current supplier development and select suitable activities that best accord to their operational scenario. A wide enough scope of supplier development is supposed to effectively resolve different kinds of supplier problems. For instances, decision makers will consider setting higher performance goals (Monczka et al., 1993) of product and delivery quality to inform their suppliers of the necessity of continuous improvements; or, they provide routine performance feedback to make suppliers readily clear of the ultimate expectations of the firms, thus, guiding their performances towards positive organizational outcomes. Clearly, decision makers can expect to receive state-of-art product quality, delivery efficiency as well as technological competitiveness to acquire increased customer satisfaction and performance desirability by implementing these activities.

Supplier involvement has been the main contributor to enable decision makers to acquire the core competencies (Bowersox et al., 1999) and useful information (Handfield, 1999) of their suppliers. These competencies or information are to fuel the abilities of the firm to plan on their product design and development more efficiently. Apart from the exclusive supplier development, decision makers can consider another supplier management actions, which is supplier involvement, when intending to improve supplier performances and restore the negative attainment discrepancy. In situations where decision makers fail to successfully satisfy the market demands for diverse product features, or where the firm inevitably needs to spend large amount of money on fixing bugs during a later stage of product development, the firm's organizational performances will be greatly hampered. As such, decision makers would attempt involving suppliers in their product development process since a very early stage. When working side by side with suppliers through the start till the end of product development, decision makers could find out potential problems before it gets too pricey to fix them (Ragatz et al., 1997). The higher level of supplier involvement, the more likelihood it

is for the firm to achieve improved product quality, reduced financial and physical inputs on product design and development (e.g. Ragatz et al, 1997; Handfield et al, 1999; Van Veele, 2005; Van Echtelt et al, 2008), and better market performances (Ragatz et al., 1997). To make the best out of supplier involvement, decision makers should also expand the scope of the firm's current activities of integrating suppliers in decision-making and production processes. This means adjusting the way or seeking for alternatives as to how the firm involves suppliers in idea generation or product concept development (Walter, 2003). Such expansion may trigger suppliers to contribute their specialties to benefit more strategic areas of the firm's operations, further aiding decision makers in reaching higher degree of customer satisfaction, market competitiveness and eventual organizational performance success.

Furthermore, a high level of information sharing within the supply base is also playing a major role in determining the quality of supplier performances and the collaborative effectiveness throughout the business relationships between both parties. This is because decision makers get to learn about the changing customer needs of competitive technological alternatives in the markets from their suppliers, which can critically guide the firm's actions and influence its ability to develop strategies to maintain competitiveness (Grant, 1996). While on the other hand, decision makers would communicate their specific needs and problems to their suppliers, in which cases, suppliers are more capable of arranging their production to meet the firm's expectations and identifying appropriate solutions to addressing the firm's concerns. The higher level of information sharing in terms of sensitive contents such as financial, production or design issues (Paulraj et al., 2008) of both parties induce them to understand each other better and to become more responsive to each others' product development and production capacities. Regularly sharing information facilitates transfer of new knowledge (Kotabe et al., 2003), which can be further incorporated into the firm's existing operational mechanism to enhance technological development and innovative improvements. Firms who are constantly learning, absorbing, configuring and applying new knowledge are able to stay ahead of the market competition. In a long run, firms and suppliers routinely updated each other with both their internal information and external trends will be unified into integrated and trusting partners (Anderson & Weitz, 1992). However, increasing information sharing alone is not sufficient enough for creating desirable supplier and the firm's own organizational performances. Decision makers should also adjust how they exchange relevant information and performance feedback with their suppliers and figure out the effective way of doing so, in which both parties can capture added values and benefits.

Conversely, when organizational performances go over aspirations, decision makers are convinced that their current supplier management actions are being managed effectively and sufficiently, thus, indicating that nothing should be changed. They are satisfied about the status quo, and less likely to take any unnecessary risks by adjusting the situations.

As a negative attainment discrepancy makes decision makers aware of the potential problems within their existing practices of supplier management, there is a higher likelihood that they are to make strategic changes related to supplier development, supplier involvement or information sharing. But a positive attainment discrepancy convinces the decision makers that how they are managing their suppliers at the moment is effective and sufficient, thus, they are less likely to make any relevant changes while rather put their strategic focuses on other more important areas. Supporting these ideas, the following hypotheses are offered:

H3a/b: Internal/ External attainment discrepancy is negatively associated with the strategic changes of the firm regarding supplier development activities.

H4a/b: Internal/ External attainment discrepancy is negatively associated with the strategic changes of the firm regarding supplier involvement activities.

H5a/b: Internal/ External attainment discrepancy is negatively associated with the strategic changes of the firm regarding information sharing activities.

Figure. 1 provides the conceptual model linking attainment discrepancy between actual organizational performances and aspirations (historical & social) and supplier-related activities in terms of supply base complexity and supplier management actions.

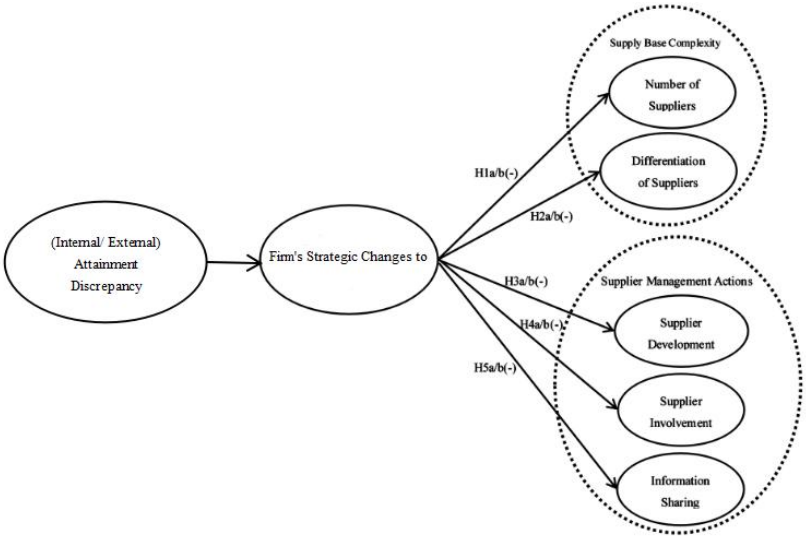

Fig. 1 Concept model of hypotheses

Chapter 4. Methodology Design

4.1 Sampling & Data Collection

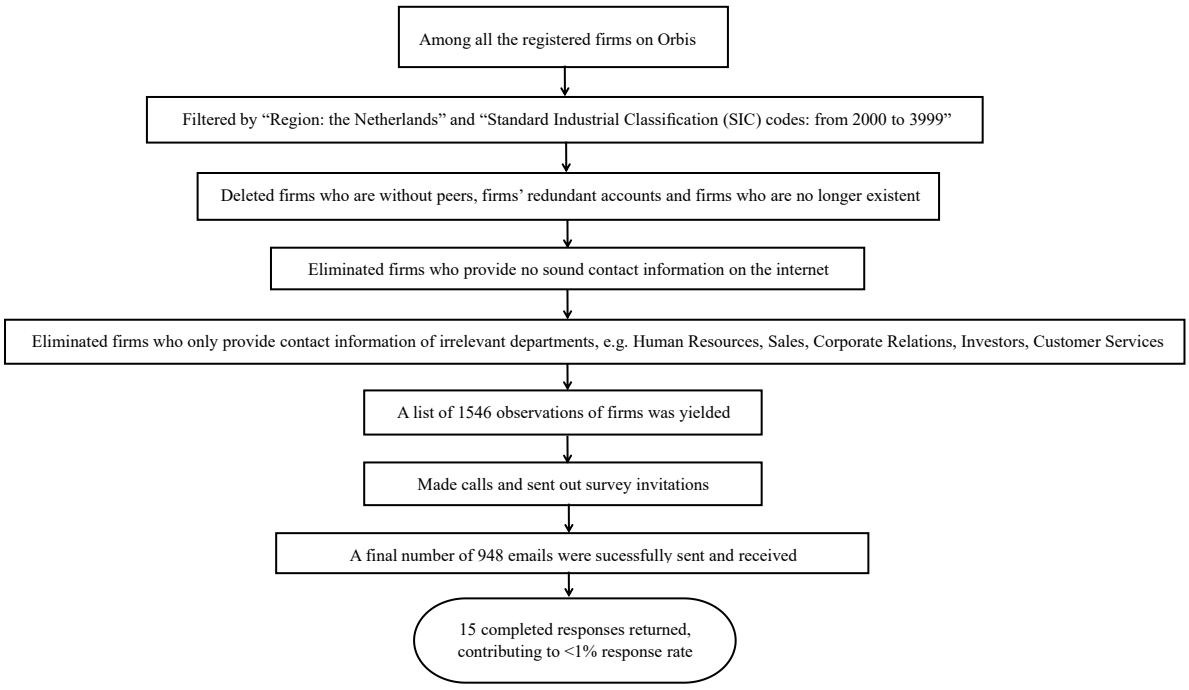

Fig. 2 Process of sample filtering and data collection

Figure 2. tells the process of how sampling and data collection has been made in the study. Before the process of data collection took place, a database was designed and downloaded from the Orbis platform. Orbis is a digital database providing both financial and other regulatory information of over 200 million private companies all over the world who registered accounts on the platform and have published firm-related information to share with the public. It allows users to customize data collection by entering different filtering criterion to let the database to contain only concerned information. I limited the scope of my investigation within the Netherlands, and my study mainly focuses on the organizational behaviors of manufacturing firms. Therefore, "Region: the Netherlands" and "Standard Industrial Classification (SIC) codes: from 2000 to 3999" (Miller & Chen, 2004; Chen & Miller, 2007) were used for the first round of filtering. This yielded 2134 observations of firms. According to the hypotheses, the attainment discrepancy between the firm's performances and the performances of peer firms (social aspirations) is related to the firm's strategic changes related to suppliers. So I needed to ensure that the firms involved in the investigation should at least have one peer firm within the same industry. Subsequently, I ruled out all the firms who did not have any peers sharing the same SIC code in the database. Next, I also eliminated the firms who have registered redundant accounts and whose operations within the country are no longer existent. Firms without contact information (email and telephone) on the internet would be deleted as well, because I would need these information to contact the firms for conducting the research. Among the remaining firms, many of them only showed the contact information of the Human Resources, Sales, Corporate Relations, Investors, or Customer Services departments on their websites. These firms were also be deleted, because I could not obtain information from these departments about the supplier-related activities of the firms. The final list consisted of 1546 observations of firms, out of which around 187 firms could only be accessed by telephones and the rest could be reached by both telephones and emails.

Following, I started phoning the firms and inviting respondents to participate in a survey. Targeted key informants include managers of Purchasing or Supply Chain departments of the firms. However, most of the phone calls actually went to Receptions of the firms. After knowing my purpose of calling, some of the receptionists asked me to email them the survey invitations and they promised to help transfer the emails to the key informants. Some other receptionists refused to help me to either put through the phone calls or transfer the surveys due to the limitation of company policies. Realizing that calling the firms through

receptionists might not be very effective, simultaneously, I also directly emailed survey invitations to the other firms that I did not primarily contact by phone. As a matter of fact, 90% of the emails went to the Receptions of the firms as well. In these emails, I kindly requested them helping to transfer the survey invitations to their Purchasing/ Supply Chain managers. While the other 10% of survey invitations were sent to the email addresses of the targeted key informants whose contact information was exposed on the internet.

The survey[1] was designed on the system of Lime Survey in English. All the key informants received a link in the survey invitations directed them to the survey page. I stated the objectives of the study and made an confidentiality announcement in both the survey invitations and on the first page of the survey. When the surveys were not completed within one week, a follow-up email was sent as an attempt to increase the response rate (Frohlich, 2002). The entire data collection process lasted from September 27 to October 17, 2016. Apart from some of the email addresses that have been set to block outsiders' non-business-related emails, a total number of 948 survey invitations were sent out and successfully reached the firms. However, the strategy of emailing survey invitations to the Receptions and ask them to transfer the emails to the targeted key informants turned out to be rather ineffective and time-consuming. Eventually, the actual number of usable responses collected via the surveys was merely 15. This is an extremely small number, contributing to a response rate as low as less than 1%. These 15 responses were obtained from 14 different industrial sections (by SIC codes), including manufacturers of chocolate(1), other food products(1), non-wovens(1), printing(1), organic chemicals(1), glues(1), other chemical products(1), pharmaceutical preparations(1), plastic packaging(2), agricultural machinery(1), special purpose machinery(1) and spacecraft machinery(1).

4.2 Measurement Development & Assessment

4.2.1 Independent Variables

Attainment discrepancy is the difference between organizational performances and aspirations. When organizational performances are larger than the aspirations, there would be a positive attainment discrepancy, otherwise a negative one.

[1] See appendix A for details about the survey

When measuring *organizational performances,* Venkatraman and Ramanujam (1986) propose the use of financial performances (accounting-based/market-based), operational performances, and organizational effectiveness as the measures. In this study the researcher will select (accounting-based) financial performances to measure organizational performances, primarily because of several reasons. Firstly, accounting-based financial performances are generally measured in the form of ratios and quantitative values which are simple for users to understand. Secondly, they comprise of information about how the firms have performed during the last periods, based on which decision makers can develop future strategies and goals (Horngren & Sundem, 1990). Thirdly, as the nature of any for-profit firms is to make money and realize sustainable profitability, decision makers can directly figure out how far they have been developing and if there are any potential problems by simply reviewing their financial performances. Fourthly, if decision makers need to make performance referencing to peers, they prefer to use accounting information that is more easily acquired from the public channels, compared to other non-financial performances which can be limited only to internal use (Chenhall, 1997). Among all the existing (accounting based) financial performance measures, the researcher selected *sales, sales growth, cash flow, return on investment (ROI)* and *profit margin (PM)* (adapted from Lohrke, Kreiser, & Weaver, 2006) as the indicators. It is assumed that sales, sales growth and cash flow can be easily captured and understood even by decision makers who rarely deal with finance or accounting issues in the firm. The use of ROI in assessing organization performances has been supported by many studies (Beamon, 1999; Neely, 1999; Kathuria, 2000; Medori & Steeple, 2000). As profitability is closely related to risk taking activities and strategic changes (Greve, 2006), it would be useful as well to include PM as the incentive to predict the strategic changes of the firm related to suppliers.

Bromiley and Harris (2014) introduce the commonly used formulas for separately calculating and measuring historical and social aspirations, which enjoy increased popularity but logical complexity. According to them, firm's performances of the previous year (*t-1*) would be utilized as the basis to develop (historical-based) aspirations for evaluating organizational performances of the current year *(t)*, whilst performances of the firm's peers of the current year *(t)* would be used as the basis to develop (social-based) aspirations for the firm's performance evaluation of the same year *(t)*. Out of the need to limit difficulty in carrying out the research, this study does not involve the manual calculation of the attainment discrepancy using the formulas given in Bromiley and Harris' s study (2014). However, the aforementioned principle about drawing the firm's own performances of previous year and its

peer performances of the current year as the basis for respectively developing historical and social aspirations will still be followed. As a result, a much easier form of measuring internal and external attainment discrepancy is adopted in this study. To measure internal attainment discrepancy, a 5-level Likert scale is used in the first survey question asking respondents to rate the degree to which they were satisfied with the firm's performances of 2015 in terms of sales, sales growth, cash flow, ROI and PM (5 items). Here, it is assumed that respondents would compare their 2015's performances to their aspirations that were developed upon their 2014's historical performances, in order to tell if they were satisfied or not. So when assessing actual organizational performances, respondents would refer to their historical aspirations and not consider social aspirations. In this case, by indicating the scale 5 "highly satisfied", respondents stress that they were highly satisfied with their 2015's organizational performances, thus, indirectly showing that their actual performances in 2015 were much higher than their aspirations. Hence, a great level of positive internal attainment discrepancy will be generated. Conversely, if respondents indicate the scale 1 "not at all satisfied", it means that they were not at all satisfied with their 2015's organizational performances, thus, indirectly showing that their actual performances in 2015 were much lower than aspirations. So a great level of negative internal attainment discrepancy will be created. When it comes to measuring external attainment discrepancy, a 7-level Likert scale is employed in the second survey question asking respondents to assess their 2015's performances against the performances of their competitors during the same year in terms of the given five performance indicators (5 items). Here, respondents would use the performances of their competitors as the basis to develop aspirations for themselves to evaluate their actual organizational performances and tell if they were satisfied or not. It is assumed that respondents would, thus, refer to their social aspirations but not their historical aspirations when performing the evaluation. In this regard, if they indicate the scale 7 "much better than competitors", it means that their actual performances in 2015 were much higher than social aspirations and thus, a great level of negative external attainment discrepancy will occur. While if they indicate the scale 1 "much worse than competitors", it suggests that their actual performances in 2015 were much lower than the social aspirations, thus, creating a great level of positive external attainment discrepancy.

4.2.2 Dependent Variables

Five dependent variables **number of suppliers**, **differentiation of suppliers**, **supplier development**, **supplier involvement**, **information sharing** are tested in this study. They involved 2 items, 2 items, 3 items, 3 items, and 3 items, respectively. All the items used to measure these variables are based on a 5-level Likert scale. Decision makers are requested to indicate the degree of changes made by their firms during 2016 to their supply base or supplier management actions. If decision makers indicate the scale 1, it means that they have not at all made any changes in the particular supplier-related activities; if they indicate the scale 5, it implies that their firms have changed the particular supplier-related activities to a very high degree. These variables are retrieved and adapted from Choi and Krause (2012); Walter (2003); and Paulraj et al. (2008). In addition to the Likert-scale based items, decision makers are also asked to indicate whether they increased/ decreased/maintained the same number of suppliers, or the level of supplier differentiation and other supplier management actions during 2016. These questions aim at collecting information to show the tendency of firms' strategic changes.

4.2.3 Control Variables

Five variables were included as the control variables of interest to examine if they exert influences on the dependent variables: **discretionary slack**, **downstream dynamism**, **horizontal dynamism**, **respondent knowledge** and **respondent tenure**. Organizational resources facilitate firms to experiment new strategies, take risks and make strategic choices (George, 2005). When firms have more than the minimum needed resources, they are more willing to initiate new strategies, innovate products, explore alternative ideas and adapt to external pressures (Bourgeois, 1981). The extra resources owned by the organizations are defined as organizational slack (Bourgeois, 1981) or discretionary slack (Troilo, 2014). *Discretionary slack* would motivate decision makers to change their supply base or implement any supplier-related activities and thus it should be controlled for the study. Items used to measure discretionary slack were retrieved from Troilo (2014). Manufacturing firms nowadays have to deal with evolving customer needs and changing competitor behaviors. Such environmental dynamism (Joshi & Campell, 2003) is thought to cause uncertainties in the environment (Bourgeois, 1980). Existing studies suggest that both the downstream (i.e., customer) and horizontal dynamism (i.e., competitors) (Joshi & Campell, 2003) would affect

the closeness (Heide & John, 1990) between manufacturers and suppliers (Lewis, 1995). For example, when competitors continually introduce new products and services into the market, manufacturers might adapt to this by reducing their supply base and partnering with fewer suppliers (Dyer, 1997), in order to access to suppliers' core technologies and strengthen their own competitiveness. Or when customers demand for diverse products, manufacturers would choose to develop their existing suppliers for the purpose of learning new technologies and abilities (Joshi & Campell, 2003) to facilitate themselves to better satisfy customer needs. In other words, either *downstream dynamism* or *horizontal dynamism* would influence manufacturing firms' decisions to adjust their supply base or their current supplier-related activities. Therefore, both factors should be controlled for the study. The items used to measured these two factors were taken from Joshi and Campell (2003). Finally, as this study involves key informants from different manufacturers and acquires firm-specific information related to suppliers, whether or nor these informants are capable of giving qualified information would influence the reliability of the study. Informants who have longer tenure with the firm would be considered more competent in telling about the firm's relationships with other firms (i.e., suppliers) (e.g. Phillips, 1981), or informants who have higher level of knowledge about supplier-related activities would be more trusting (e.g. Cusumano & Takeishi, 1991) in this case. So *respondent tenure* and *respondent knowledge* would also be controlled and the items related to the measurement of these two factors were developed based on Kumar, Stern and Anderson (1993).

Among these five variables, the first four are measured by multi-item (3 items, 2 items, 2 items and 4 items, respectively) based on 5-level Likert scale, while the last variable is measured by an absolute number. For discretionary slack, downstream dynamism and horizontal dynamism, decision makers are required to rate the degree to which they agree with the given statements about the level of the slack resources of the firm and the dynamism of their industries. With scale 1 indicating "completely disagree", the scale 5 indicates "completely agree". According to the agreeing level of the decision makers, the researcher gets to know the exact level of the firm's slack resources and environmental dynamism. For respondent knowledge, decision makers need to indicate how knowledgeable they are with the firm's supplier relationships, purchasing activities and financial performances. The higher level of their knowledge, the more trusting their answers are. Respondent tenure simply asks about the years that the decision makers spend in the firm.

4.3. Validity and Reliability

Content validity measures the correspondence between individual items and the constructs that these items communally represent (Hair, Black, Babin, & Anderson, 2014, p.123). In order to improve content validity, all constructs and their underlying items used in this study were extracted from related literature and validated instruments. A professor in the field of PSM has reviewed them and made small adjustments to the item wordings to the specific need of the study.

A confirmatory factor analysis (CFA) was used aimed at examining the unidimensionality of all the variables used in this study, including the moderating variable and controlled variables. Chau (1997, p. 318) suggest the following rules and indices for an adequate model fit: Chi-square $\chi 2$ ($P \geq 0.05$); goodness-of-fit index ($GFI \geq 0.90$); adjusted goodness-of-fit index ($AGFI \geq 0.80$); normed fit index ($NFI \geq 0.90$); non-normed fit index ($NNFI \geq 0.90$); comparative fit index ($CFI \geq 0.90$); standardized root mean-square residual ($SRMR \leq 0.08$); and root mean square error of approximation ($RMSEA < 0.10$). The IBM SPSS Amos 24.0.0 program was operated to measure the item structure for each of the constructs and the goodness-of-fit for the entire model. However, an error occurred when the program attempted to fit the model, showing that the sample moment matrix possibly contained zero or negative eigenvalues (Rigdon,1997). Based on Amos' diagnoses, the most possible reason for this was that the sample size was too small and linear dependence existed between variables. What's more, the system couldn't produce any usable "fit" figures and model fit was therefore also not achieved. Such outcomes have been already foreseen, as the aforementioned rules and indices tend to lose their power under circumstance of small sample size (Slocum-Gori & Zumbo, 2011). Apart from these addressed rules and indices, eigenvalue-greater-than-one can also be another rule to test unidimensionality. However, this rule is much sensitive to sample size and thought to perform poorly on small size (Slocum-Gori & Zumbo, 2011).

As the small sample size appeared to impose severe influences on many commonly used assessment of construct unidimensionality (Slocum-Gori & Zumbo, 2011), the researcher decided to test it by simply looking at the item loads of the constructs. *Unidimensionality* is defined as the assessment criteria for one single dimension or construct (Slocum-Gori & Zumbo, 2011). More specifically speaking, if items are designed to measure a single construct, it has to be assured that those items only measure that construct, not any other constructs.

Hence, if all the items load high only on their corresponding constructs, it can be considered that the constructs are of unidimensionality. Hair et al. (2014, p.115) regard the value of .70-.75 as a high enough item loading when sample sizes are smaller than 60. was necessary to determine the reliability of decision makers' answers. Generally speaking, unidimensionality of the twelve constructs could be supported.

Table 1. Summary of item loads

	Internal	External	Number	Differentiation	Development	Involvement	Info	Slack	Downstream	Horizontal	Knowledge
Internal 1	0.917										
Internal 2	**0.674**										
Internal 3	**0.565**										
Internal 4	0.948										
Internal 5	0.950										
External 1		0.812									
External 2		0.780									
External 3		0.847									
External 4		0.894									
External 5		0.799									
Number 1			0.976								
Number 2			0.976								
Differentiation 1				0.955							
Differentiation 2				0.953							
Development 1					0.879						
Development 2					0.889						
Development 3					0.833						
Involvement 1						0.866					
Involvement 2						0.832					
Involvement 3						0.954					
Info 1							0.939				
Info 2							0.824				
Info 3							0.801				
Slack 1								0.863			
Slack 2								0.962			
Slack 3								0.920			
Downstream 1									0.711		
Downstream 2									0.939		
Horizontal 1										0.947	
Horizontal 2										0.917	
Knowledge 1											0.982
Knowledge 2											0.980
Knowledge 3											**0.444**

As shown by Table 1, each item loads high enough on its corresponding construct, except item Internal 2 (.674), Internal 3 (.565), and Knowledge 3 (.444). However, these three items were still remain and were not eliminated due to: 1) Internal 2 & 3 (internal attainment

discrepancy for sales growth & cash flow) are practically important concerns when decision makers evaluate their financial performance; 2) Knowledge 3 (being knowledgeable about firm's financial performances) is necessary to determine the reliability of decision makers' answers. Generally speaking, unidimensionality of the ten constructs could be supported.

Convergent validity was measured through evaluating Cronbach's alpha, composite reliability (CR) and average variance extracted (AVE) (Perols, Zimmermann, and Kortmann, 2013). As quoted from Nunally's paper (1978), *"In the early stages of research... that have only modest reliability...of .70 or higher will suffice... in many applied settings a reliability of .80 is not nearly high enough."* Constructs being measured were mainly derived from other well-developed theoretical models and acknowledged as of high reliability, thus they were also expected to have alpha values greater than .80 in this study. However, if alpha is higher than .90, it means that some items within the constructs might redundantly measure the same thing and should be deleted (Streiner, 2003).

Table 2. Cronbach's alpha, with constructs Horizontal and Downstream separated

	Cronbach's Alpha
Internal	0.892
External	0.894
Number	0.951
Differentiation	0.901
Development	0.838
Involvement	0.862
Info	0.819
Slack	0.910
Horizontal	0.850
Downstream	0.597
Knowledge	0.844

When examining the Cronbach's alpha, I noticed that the value of the construct Downstream (.597) was too much lower than the accepted value of .70, as seen in Table 2. This indicated that the two associating items were not really closely related to represent this construct. When I was identifying the reason, I further noticed that the two constructs Downstream and Horizontal were highly correlated with each other with r= .821. Plus, the multi-collinearity problem was also found to be among these two constructs (VIF>5). In order to solve the problem, I tried to combine these two constructs. From a statistical perspective, combining these two constructs was helpful as the previously identified problems were all eliminated. From a theoretical perspective, this was also supported by literature. According to Joshi and

Campell's (2003), the frequently changing customer needs (**Downstream**) and continually changing competitor behaviors (**Horizontal**) should be considered as one combined concept: the firm's downstream environment. Besides, Jaworski and Kohli (1993) also propose that a robust business environment can be characterized by the combination of three dimensions: varying customer needs, turbulent competitor behaviors and technological changes. In sum, I would use a single term as **Industrial Dynamism** combining downstream dynamism and horizontal dynamism to continue with the tests. Ten constructs were eventually retained.

Table 3. Cronbach's alpha, composite reliability and average variance extracted

	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Internal	0.892	0.912	0.682
External	0.894	0.915	0.684
Number	0.951	0.976	0.953
Differentiation	0.901	0.952	0.909
Development	0.838	0.902	0.754
Involvement	0.862	0.916	0.784
Info	0.819	0.893	0.736
Slack	0.910	0.940	0.839
Dynamism	0.860	0.905	0.708
Knowledge	0.844	0.868	0.706

Table 3 presents the Cronbach's alpha, CRs and AVEs of the eventual ten constructs. The Cronbach's alpha of most constructs range from .819 to .894. Three constructs (Number, Differentiation and Slack) have an alpha above .90. According to Streiner (2003), this indicates that certain items within these constructs are measuring the same concepts and therefore should be adjusted or deleted. However, when I looked into the theoretical meanings of all the items, I did not see any pair of items within the constructs happening to measure the same concept; instead, they measured their particular constructs from different theoretical perspectives. So I believed the fact that these three constructs had an alpha value above .90 was very likely caused by other factors such as the sample problem. As a consequence, I decided not to delete any of the items. Referring to Fornell and Larcker (1981), CRs greater than .70 together with AVEs greater than .50 are accepted levels. Table 3 illustrates that all values meet the requirements. Cronbach's alpha separately is utilized to determine construct reliability (Cronbach, 1951), therefore, this study has a good construct reliability.

Table 4. Correlation matrix

	1	2	3	4	5	6	7	8	9	10
1.Internal	-									
2.External	0.537	-								
3.Number	-0.324	0.058	-							
4.Differentiation	-0.155	0.012	0.756	-						
5.Development	-0.222	-0.040	0.401	0.120	-					
6.Involvement	-0.060	0.256	0.306	0.362	0.687	-				
7.Info	-0.125	0.383	0.674	0.519	0.607	0.518	-			
8. Slack	0.431	0.677	-0.017	-0.056	0.187	0.396	0.308	-		
9. Dynamism	-0.314	-0.304	0.461	0.318	0.578	0.394	0.501	-0.227	-	
10. Knowledge	0.411	0.534	0.255	0.239	-0.068	0.001	0.115	0.258	-0.251	-

Discriminant validity was established by having AVE for each construct compared to the squared correlation between that construct and any other constructs. This was to assure that items within a construct share more common variances with that construct than with other constructs; hence, AVE of any construct should be higher than the squared correlations between the construct and all its other constructs (Fornell & Larcker, 1981). Presented in Table 4 are the correlations among any possible pair of constructs. These correlations were squared and then compared to the AVE of each construct in Table. 3. The highest squared correlation was .572 between constructs Number and Differentiation, but was still lower than the AVE for the two variables (.953 respectively .909). It appears that discriminant validity of the constructs being measured was confirmed. Collectively, the above statistical tests supported unidimensionality, construct reliability, construct validity, convergent validity and discriminant validity of all the variables in the research model.

4.4 Measurement of Controlled variables

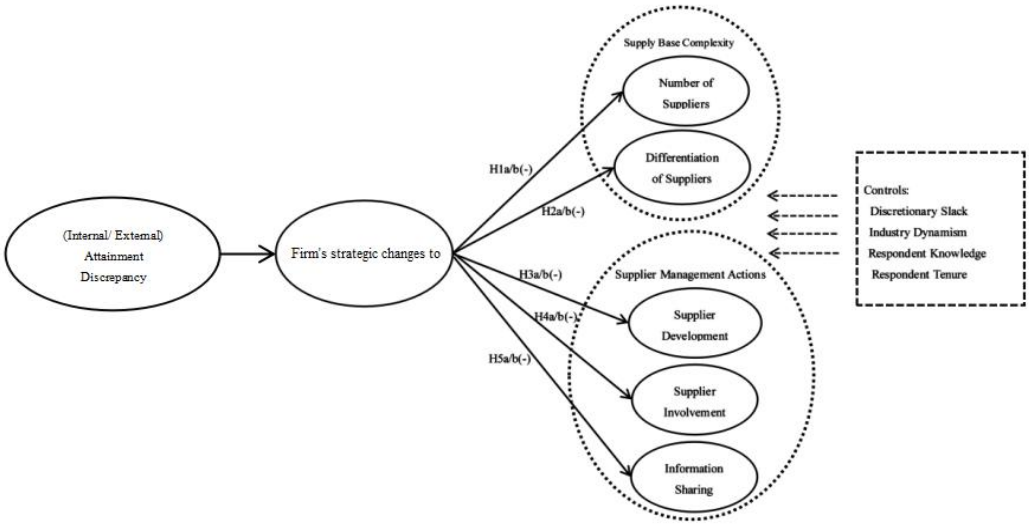

Fig. 3 Concept model together with the influences of control variables

Figure.3 shows the hypothesized conceptual model containing the potential influences of the four control variables Slack, Dynamism, Knowledge and Tenure. Paths were created between each of them and each of the two dependent variables to examined whether they have significant influences on the dependent variables.

Table 4. Path coefficients and significance level for control variables on dependent variables

Paths	Coefficients	T-statistics	P-value	Paths	Coefficients	T-statistics	P-value
Slack-> Number	0.056	0.040	0.968	Knowledge-> Number	0.405	0.331	0.741
Slack-> Differentiation	0.045	0.036	0.972	Knowledge->	0.411	0.352	0.725
Slack-> Development	0.464	0.349	0.728	Knowledge-> Development	0.137	0.092	0.927
Slack-> Involvement	0.458	0.243	0.808	Knowledge-> Involvement	-0.010	0.004	0.997
Slack-> Information	0.158	0.084	0.933	Knowledge-> Information	0.069	0.030	0.976
Dynamism-> Number	0.494	0.629	0.530	Tenure-> Number	-0.292	0.238	0.812
Dynamism->	0.366	0.393	0.695	Tenure-> Differentiation	-0.134	0.125	0.901
Dynamism-> Development	0.615	0.777	0.438	Tenure-> Development	0.136	0.190	0.849
Dynamism-> Involvement	0.491	0.518	0.605	Tenure-> Involvement	0.060	0.069	0.945
Dynamism-> Information	0.629	0.637	0.525	Tenure-> Information	0.127	0.142	0.887

No multi-collinearity issue was identified with VIF for all the constructs smaller than 4: Internal = 1.655; External = 2.927; Slack = 2.144; Dynamism = 1.253; Knowledge = 2.269 and Tenure = 1.294. According to Table. 4, none of the control variables has a significant influence on dependent variables.

Chapter 5. Statistical analysis

5.1 Descriptive Statistics

Table. 5 Descriptive statistics of respondents' knowledge and tenure

	Minimum	Maximum	Mean	Median	Std. Deviation
Knowledge 1	1	5	3.87	4.00	1.123
Knowledge 2	1	5	4.07	4.00	1.163
Knowledge 3	3	5	4.07	4.00	0.884
Tenure	1	20	9.33	9.00	6.565

According to the results shown in Table. 5, respondents tended to have a good knowledge about their firm's relationships with their suppliers (mean= 3.87; median= 4.00) as well as about the purchasing activities (mean= 4.07; median= 4.00). This gave an indication that these respondents were able to provide the study with convincing and reliable information regarding to their supplier-related activities. Plus, respondents also paid close attention to their firm's financial performances (mean= 4.07; median= 4.00). On average, respondents worked for the firm for around 9.33 years.

Table. 6 Descriptive statistics of respondents' firms' 2015 financial performances

	Minimum	Maximum	Mean	Median	Std. Deviation
Internal 1	3	5	3.80	4.00	0.676
Internal 2	2	5	3.40	4.00	0.910
Internal 3	2	5	3.67	4.00	0.976
Internal 4	3	5	3.73	4.00	0.704
Internal 5	2	5	3.73	4.00	0.799
External 1	3	7	4.67	4.00	1.291
External 2	2	7	4.87	5.00	1.457
External 3	2	7	4.47	4.00	1.125
External 4	2	7	4.53	4.00	1.187
External 5	2	7	4.67	5.00	1.234

According to Table. 6, firms performed fairly well in 2015 in terms of the five financial performance indicators thus respondents tended to indicate a slightly higher level of satisfaction, with the mean= 3.80, 3.40, 3.67, 3.73 and 3.73, respectively (all median's = 4.00). Respondents being satisfied with their own financial performances implies that their performances in 2015 were better than their aspirations/ expectations, thus leading to positive internal attainment discrepancy for all the five financial aspects. Similarly, when comparing to the performances of peer firms, respondents were generally satisfied with own performances and believed that they had performed slightly better than competitors with the mean= 4.67, 4.87, 4.47, 4.53, and 4.67, respectively (all median's = 4.00 or 5.00). Respondents rating own financial performances as better than competitors implies that their performances in 2015 were better than their social aspirations, thus generating a positive external attainment discrepancy in terms of the five financial indicators.

Table. 7 Descriptive statistics of changes to supply base and supplier management actions

	Minimum	Maximum	Mean	Median	Std. Deviation
Number 1	1	4	2.20	2.00	1.082
Number 2	1	4	2.13	2.00	0.990
Differentiation 1	1	4	2.53	3.00	0.990
Differentiation 2	1	4	2.60	3.00	0.986
Development 1	1	4	2.47	2.00	0.834
Development 2	1	3	1.87	2.00	0.915
Development 3	1	4	2.53	2.00	1.125
Involvement 1	1	5	2.60	3.00	1.198
Involvement 2	1	5	2.93	3.00	1.100
Involvement 3	1	5	2.60	3.00	1.121
Information 1	1	4	1.87	1.00	1.060
Information 2	1	4	2.27	2.00	1.100
Information 3	1	5	2.13	2.00	1.302

As seen in Table. 7, respondents tended to not to make any strategic changes to the number of suppliers, supplier development activities or information sharing activities (all mean's and median's < 3). While they more tended to make some strategic changes in terms of the level of differentiation of supplier (all median's= 3.00) and their supplier involvement activities (all median's= 3.00). Relating to the results of Table.6, it appears that under the circumstances where firms have created financial performances better than own expectations (a positive internal attainment discrepancy) and social aspirations (a positive external attainment discrepancy), decision makers of the firms generally have become less willing to make strategic changes regarding their supplier-related activities.

Table.8 Frequency of the increased/decreased/ same supplier-related activities

	Increased	Decreased	No change
Number	2	2	11 (73.3%)
Differentiation	4	1	10 (66.67%)
Development	6	0	9 (60%)
Involvement	7	0	8 (53.33%)
Information	5	0	10 (66.67%)

Referring to Table. 8, the majority of respondents did not change the number (73.3%) or the differentiation (66.67%) of the supply size of the firms, nor did they change the level or scope of their supplier development (60%), supplier involvement (53.33%) or information sharing (66.67%) activities. These findings were also consistent with the results of Table. 7. Therefore, in the case where the financial performances of the firm were better than both its own aspirations and its competitors' performances (Table. 6), most respondents tended to keep the same number and differentiation of suppliers, and maintain the same level of other activities such as supplier development, supplier involvement and information sharing.

Table.9 Descriptive statistics of firm's slack resources and industrial dynamism

	Minimum	Maximum	Mean	Median	Std. Deviation
Slack 1	1	5	2.27	2.00	1.163
Slack 2	1	5	2.13	2.00	1.060
Slack 3	1	5	2.67	3.00	1.234
Dynamism 1	1	5	3.20	4.00	1.207
Dynamism 2	1	4	2.73	3.00	1.223
Dynamism 3	1	4	2.27	2.00	1.100
Dynamism 4	1	4	2.27	2.00	0.961

According to Table. 9, respondents did not think that their firms owned more than enough resources to implement the strategic initiatives because the mean values of all the three items were lower than the middle value of 3 (mean= 2.27, 2.13 and 2.67, respectively). Similarly, respondents considered their industries to be partially dynamic where customer needs seemed to change continually (median= 3.00 and 4.00, respectively) while competitor behaviors were changing inactively (mean= 2.27 and 2.27; median= 2.00 and 2.00, respectively)

5.2 Hypothesis Testing

Having confirmed the reliability and validity of the constructs used in the research model, the following step was to examine the relationships between the variables. A partial least squares

(PLS) based structural equation modeling (SEM) was employed by using SmartPLS 3 program. PLS is one of the two SEM techniques, *"generally recommended for predictive research models where the emphasis may be more on theory development"* (Barclay, Higgins, & Thompson,1995, p. 288). Besides, PLS maximizes the variances of the dependent variables explained by the independent variables (predictors) and predicts the chances by which the sample patterns can be seen in the real life practices (Barroso, Carrión, & Roldán, 2010). PLS maintains powerful while imposing minimum demands on the measurement scales, sample and the distribution of the sample data and errors (Fornell & Bookstein, 1982). The primary purpose of this study is to extend the theoretical scope of BTOF to the application in supplier-related activities. Besides, the research model contains predictive relationships between financial performance attainment discrepancy and firm's strategic changes to supply base and supplier management actions. Plus, the sample size of the study was rather small and overall model fit could not be obtained. Considering all these characteristics, PLS was considered suited for the study.

Researchers (Tenenhaus, Amato, & Esposito Vinzi, 2004) propose applying a global goodness-of-fit (GoF) to test the fit of PLS-SEM models because the PLS-SEM does not provide a "fit" figure to validate the model. However, as a CFA was previously operated, only to reveal that neither the measurement model nor the structural model passed the "fit" requirements owing to sample insufficiency. As such, I decided not to apply the GoF to the research model in this case while run the model estimation regardless of the model fit. Subsequently, a PLS model was developed and estimated in the program. Considering the small sample size in hand, I wished to be less rigorous and less orthodox, thus choosing a significance level of 10%, or .10 for the test. With a $p=.10$ rather than the conventional $p=.05$, it would be more likely for the me to catch something potentially valuable while not statistically significant. In this case, an absolute value of t statistic larger than 1.65 would be the accepted value to support the hypotheses.

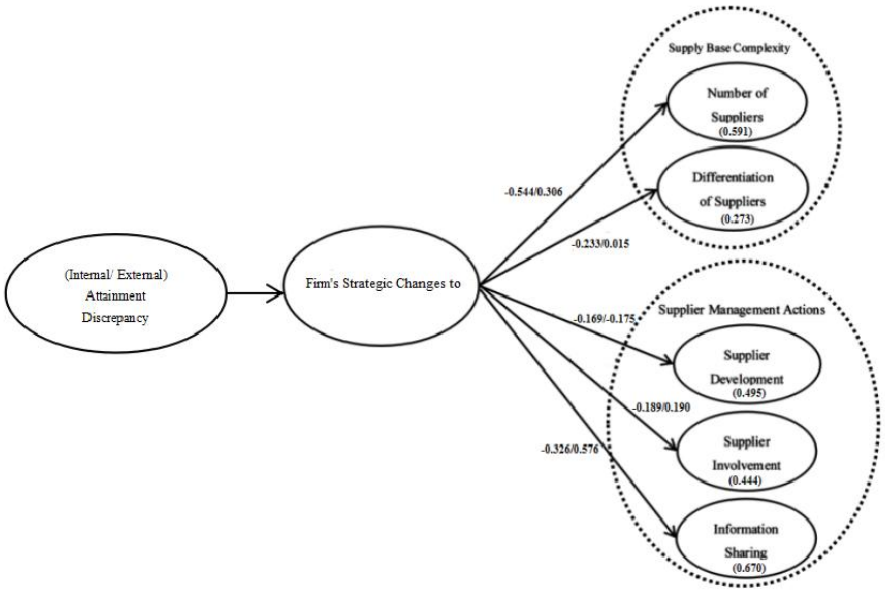

Fig. 4 Conceptual map of hypotheses together with corresponding results

Figure. 4 presents the results of path coefficients and the explanatory power (R^2) for the conceptual model. R^2 shows the percentage of the variances of the endogenous constructs (dependent variables) explained by their explanatory (independent) variables. It reveals that the explanatory power for each construct is as follows: Number (0.591), Differentiation (0.273), Development (0.495), Involvement (0.444), and Information (0.670). As a rule of thumb, Chin (1998, p. 323) describes the R^2 values of 0.67, 0.33, or 0.19 for endogenous latent variables as substantial, moderate, or weak explanatory power. Referring to his definition, this model has a relatively strong explanatory accuracy.

Additionally, Figure. 4 also exhibits that internal attainment discrepancy was negatively associated with the number of suppliers (β= -0.544), the differentiation of suppliers (β= -0.233), supplier development (β= -0.169), supplier involvement (β= -0.189) and information sharing (β= -0.326). These results were consistent with hypotheses H1a, H2a, H3a, H4a and H5a. Therefore, the data gave evidences that when the organizational performances of the firm fall below its (historical) aspirations and a negative attainment discrepancy is generated, decision makers of the firm are more willing to make strategic changes to their current supplier-related activities in terms of supply base complexity and supplier management actions. While when a positive attainment discrepancy occurs, decision makers are less likely to change their existing practices relevant to their suppliers because they enjoy the organizational satisfaction and prefer to stay with the status quo. However, when it comes to the external attainment discrepancy, the situation was a bit different. External attainment

discrepancy was found to be positively related to the number of suppliers (β= 0.306), the differentiation of suppliers (β= 0.015), supplier involvement (β= 0.190), information sharing (β= 0.576), while was positively associated with supplier development (β= -0.175). The findings were consistent with the hypothesis H3b while against H1b, H2b, H4b and H5b. When the organizational performances of the firm fall below its social aspirations and a negative attainment discrepancy is generated, decision makers of the firm are less willing to make any strategic changes to their current activities among the suppliers except increasing their supplier development activities. While when a positive attainment discrepancy takes place, decision makers are more likely to change their existing supplier-related activities but remain the same level of supplier development.

Table 10. Results of path coefficients, significance level and explanatory power for all hypotheses in the conceptual model

Hypotheses	Path coefficients	T-statistics	*P*-value	Supported or not?
H1a: Internal attainment discrepancy --> Number of suppliers	-0.544	0.453	0.651	Not supported
H2a: Internal attainment discrepancy--> Differentiation of suppliers	-0.233	0.231	0.818	Not supported
H3a: Internal attainment discrepancy--> Supplier development	-0.169	0.164	0.870	Not supported
H4a: Internal attainment discrepancy --> Supplier involvement	-0.189	0.160	0.873	Not supported
H5a: Internal attainment discrepancy--> Information sharing	-0.326	0.276	0.783	Not supported
H1b: External attainment discrepancy --> Number of suppliers	0.306	0.124	0.901	Not supported
H2b: External attainment discrepancy--> Differentiation of suppliers	0.015	0.005	0.996	Not supported
H3b: External attainment discrepancy--> Supplier development	-0.175	0.074	0.941	Not supported
H4b: External attainment discrepancy --> Supplier involvement	0.190	0.056	0.955	Not supported
H5b: External attainment discrepancy--> Information sharing	0.576	0.174	0.862	Not supported

Despite that the two explanatory variables were found to be either negatively or positively associated with the five dependent variables, these hypothesized associations, however, could not be supported by the statistical evidences. Referring to Table. 10, the values of the T-statistics for all the hypotheses were far smaller than 1.65 (0.005~0.453), with their p-value being larger than the acceptable value of 10%, or .10 (0.651~0.996), thus, all the hypothesized associations were not statistically significant. Considering that this result was very likely to be caused by the sample insufficiency of the study, future research with larger sample size would be necessary for exploring deeper into the real relationships between the mentioned variables.

5.3 Interpretation of Inconsistent Findings

The previous testing presented findings that internal and external attainment discrepancy have exerted different (opposing) effects on firm's strategic responses in terms of supplier-related activities. While the findings related to internal attainment discrepancy were consistent with the empirical literature, those related to external attainment discrepancy indicated phenomena that were inconsistent with the common assumptions of decision-making rationality (Mishina, Dykes, Block, & Pollock, 2010). Despite the possibility that sample insufficiency may have distorted the results, here, I attempted to propose two reasons to explain why decision makers initiated such different behaviors.

From the perspective of social aspiration, it is argued that firms form their social aspirations based on two types of comparisons --- *competitive* and *striving,* depending on how the firms establish the referent group (Labianca, Fairbank, Andrevski, & Parzen, 2009). In competitive comparisons, decision makers of the firm evaluate their performances against performances of their direct competitors. The higher similarity between the comparable firms and the focal firm, the more likely the decision makers are able to reason the comparisons and learn from the observed behaviors of the competitors (Baum et al., 2000; Greve 1998). If decision makers fail the competitions against their direct competitors, they will take these competitors as the potential threats for them in surviving and staying competitive in the markets (Labianca et al., 2009). So they will be more motivated to make strategic changes in order to enhance their performances and exceed the subsequent social aspirations. However, for decision makers of high performing firms, they believe they are superior to competitors and likely to end up creating better performances. Therefore, they are less motivated to make any further strategic changes to their organizational activities, while developing a sense of inertia and remaining the status quo (Labianca et al., 2009). Without any doubt, the aforementioned phenomena is in line with what has been commonly suggested in BTOF and hypothesized in this study. When it comes to *striving comparisons*, however, decision makers would make decisions and exhibit strategic behaviors in an opposing manner. They compare their performances to those of other companies whom they strive to be like in the future (Labianca et al., 2009). As the firm's performances exceed the current social aspirations, decision makers are made to believe that they are doing relatively well even compared to their imagined future (Labianca & Fairbank, 2005). Considering that the competitive advantages of the firm will very likely to be temporary (Covin & Slevin, 1991), it appears to be quite logical

for high performing firms to initiate new activities and continuous strategic changes as a way to stay ahead of competitors for a longer term (Labianca et al., 2009). For example, Iyer and Miller's study (2008) reveals the high likelihood for high performing firms to initiate risky acquisition activities. Or decision makers of the firm would invest exclusive efforts on frequent seeking for alternatives (Brown & Eisenhardt, 1989), developing new products, and changing the organization's strategies, processes and operational activities (Covin & Miles, 1999). Therefore, it is not so hard to assume, if firms involved in this study happen to be all future-oriented and striving for continuous better performances, even when they preform much better relative to social aspirations, decision makers would still be willing to pursue constant organizational changes and improvements for ever better themselves in near future (Labianca et al., 2009). While for firms performing not as well as social aspirations, decision makers will be clearly aware of the discrepancies between their existing capabilities and those of the competitors whom they strive to be in the future. So they are assumed to be less likely to change their current strategies, processes or activities; the uncertainties and potential risks of bigger failures make them to adhere to their status quo more comfortably.

Besides, *agency theory* would also come into effect in influencing how decision makers make decisions and initiate organizational changes. The core idea is that managers are hired by the firm to take care of the businesses and operations, and their main responsibility is generating profits (Choi, 2005) and maximizing the stock market values (Jerzemowska, 2006) for the firm. However, because managers can access to better information about the firm's operations and the market situations than the principles or shareholders, the latter parties at times are not fully convinced that managers perform to fulfill their ultimate goals (Kraakman, Armour, & Hansmann, 2009). Plus, managers with certain considerations of self-interests, faiths, or value will pursue organizational activities and processes in a way that actually violate the wealth of shareholders (Kraakman, 2009). Therefore, principles would be engaged in managing and controlling the managers' behaviors in order to preserve their own profits and well-fares. A firm exhibiting financial performances better than those of competitors indicates its strong competitiveness in the market and gives a signal to the shareholders and investors of the firm that it is able to create ever higher performances in extended periods. Thus, external parties such as equity analysts (DeBondt & Thaler, 1990) and investors (DeBondt & Thaler, 1985) would develop higher expectations on the firm's subsequent performances. However, as "Red Queen effect" (Derfus, Maggitti, Grimm, & Smith, 2008) indicates, just to maintain the current market position, decision makers already must perform a lot better than previously,

not to mention they want to improve their performances to meet the ever higher expectations. As it is quite likely the firm's performances would peak and then flatten (Mishina, Dykes, Block, & Pollock, 2010), analysts and financial markets tend to react to the firm's inability to commit ever better performances overtly. Their disappointment and dissatisfaction will later turn into the drop in the firm's stock prices (e.g., Beneish, 1999), something that is heavily unfavorable for shareholders and investors. Thus, these shareholders and investors will exert pressures on requiring managers to take risky actions and embarking on strategic changes, as such attempts would possibly help the firm to avoid losses while making no changes but adhering to status quo can only lead to sure losses (Kahneman & Tversky, 1979). Hence, even if the firm's performances has achieved social aspirations, managers/ decision makers of the firm bearing fear and pressures inevitably need to ignore their sense of satisfaction, pursue risky actions and make further strategic changes to their organizational operations such as changing their supplier-related activities. Whereas for low performing firms, shareholders and investors do not impose so much expectations on the firm's performances, so decision makers are less bothered by such pressure and their fear for failures. As a result, they find it beneficial to not make any changes to their current operations and simply remain the present situations.

The given two reasons properly explain why an external attainment discrepancy might be positively related to the firm's strategic changes in terms of the four supplier-related activities engaged in this study, namely, the number of suppliers, the differentiation of suppliers, supplier involvement and information sharing. However, it is found that external attainment discrepancy is actually negatively related to the firm's strategic changes regarding supplier development. The engendering of the different results between supplier development and the other four supplier-related activities remains not so clearly known. It could be due to various possibilities. For example, supplier development is considered as a long-term strategy to enhance supplier capabilities (Watts & Hahn, 1993, p.12) and develop an integrated supply chain (Handfield, Krause, Scannell, & Monczka, 2006). Therefore, once decision makers start to pursue supplier development, they prefer to maintain the same activities for an extended period of time and are unwilling to make any sudden changes in midst of the ongoing process. So when high performing firms are triggered to make further changes for better future performances, they might want to simply keep their current supplier development consistently unchanged. Whilst when low performing firms are demotivated to initiate changes to other supplier-related activities, they might want to continuously adjust their supplier development, in order to assure competitive supplier capabilities and performances in a long run.

Chapter 6. Mixed methods- Interviews

6.1. Rationale for Interviews method and Mixed Methods Research

As seen from the reliability & validity tests and the statistical analyses, the small sample size incorporated in the study failed to provide sufficient statistical power to draw meaningful implications. In order to obtain more useful information to answer the research question, I decided to continue with the study, however, with a different research method. In the survey, I have asked plenty of "what" questions to find out "to what extent does attainment discrepancy determine the firm's strategic changes in its supplier-related activities?" Further in the statistical analyses, I got to notice the associations among the variables of interests, either consistent with or against the theoretical hypotheses. Naturally, it would be quite interesting for me in the next step of the study to tap into the information of how these variables do actually associate with each other and why they are related to each other in such patterns. Therefore, I considered *interviewing* an appropriate research method, for it can provide me with access to a detailed description of decision makers' behaviors regarding to particular events, the contexts in which these behaviors take place and the rationales behind them. Compared to surveys whose responses need to be statistically analyzed to draw conclusions, interviews can provoke evidences and facts in a more straightforward way by directly questioning the interviewees. Through interviewing, I can better understand the attitudes and strategic thoughts of the decision makers towards the various changes they make to respond to the attainment discrepancy.

As two different research approaches (both quantitative and qualitative) were involved in the study to collect and analyze data, this study will eventually be defined as a *mixed methods research* (Johnson, Onwuegbuzie & Turner, 2007). According to Greene et al. (1989), by applying mixed methods, the research would carry the strengths of e.g. triangulation, expansion and complementarity. Data collected by multiple methods help to reveal various facets of the same research problems and extend the width and depth of the study. Moreover, the limitations of one research method can be overcome by another. Thus, combining both methods is supposed to improve the quality and representation of the current study. When designing the mixed methods research, several principles (Creswell & Clark, 2011) need to be clarified. Firstly, it has to be determined whether the use of mixed methods is fixed and/or

emergent. The current study is thought to be a study with *emergent mixed methods,* because the need to involve more than one method for data collection and analysis emerges only after the the previous survey method fails to address the research problem. Secondly, mixed approaches need to be appropriately selected, and thirdly, the selected approaches should be in line with the purpose, problems and sub-questions of the research. While in this study the survey approach quantitatively indicates the associations among the variables (though not statistically significant), the interviewing approach would tap how and why these variables relate to each other in great details. Both approaches contribute to a better understanding of the research topic and thus can be considered in line with the research purpose and problems.

Last but not least, the reasons for deploying different research methods should be identified. In this study, surveys were primarily used since it was low-cost, easy to implement and ideal for revealing the attitudes of a large population towards a targeted topic. While interviews focused on a much smaller sample size and generated rich resources of the behaviors of the respondents, helping to extend the width and depth of the research without requiring exclusive efforts on reaching out to a larger sample. Therefore, the selection of both research approaches was feasible and reasonable.

6.2 Theoretical Background for Interviews

The objective of the interviews is to supplement the survey data in providing more sufficient information for the study of the relationships between attainment discrepancy and firm's strategic changes to supplier-related activities. The previously addressed literature review would remain as the basis for the study. According to the literature, attainment discrepancy of the firm is considered to be related to the firm's decision making and strategic behaviors (Cyert & March, 1963). When the organizational performances of the firm are lower than aspirations, a negative attainment discrepancy occurs, which triggers decision makers to make strategic changes to various operational areas (Bromiley & Washburn, 2011; Chen & Miller, 2007; Miller & Bromiley, 1990; Greve, 1998b; Greve, 2003a,b; Iyer & Miller, 2008). However, when the firm's performances are better than aspirations, a positive attainment discrepancy occurs, which generates a sense of organizational satisfaction and motivates decision makers to stay with the familiarities (Cyert & March, 1963; Levitt & March, 1988).

Among all suppliers that the firm deals with, it tends to develop a closer relationship with its supply base, because the activities and performances of the suppliers within its supply base are to be more frequently and closely managed by the firm (Choi & Krause, 2005; Choi et al., 2001). Hence, the supply base of the firm is seen to be a great concern for decision makers if they are about to make any strategic changes to restore the performance dissatisfaction. In order to ensure the quality of supplier performances, decision makers need to configure a proper size and level of differentiation of suppliers (Caridi et al., 2010), which are the elements of supply base complexity (Choi & Krause, 2005). Apart from examining supply base complexity, decision makers of the firm would also carry out activities to actually manage and develop their suppliers. Suppliers contribute capabilities, technologies and expertise to help the firm with its product design and development (Monczka et al., 1993). Plus, both parties collaborating with each other will create supply flows of high quality and effectiveness (Zhao et al., 2011). Also, suppliers benefit the firm with information that is critical to its competitiveness (Grant, 1996) and with new knowledge (Kotabe, 2003) that supports the firm to continuously improve. Therefore, it is of great value for decision makers to place sufficient and effective strategic efforts on developing supplier capabilities, so that the firm's operational processes will not be hampered by the unsatisfying supplier performances. Additionally, decision makers should also involve suppliers throughout their main projects to avoid potential problems and a waste of time and resources. Developing an efficient communication mechanism also assists the firm in better understanding customers, competition and its own performances. Summing up, supplier management activities such as supplier development (Modi & Mabert, 2007), supplier involvement (Walter, 2003) and information sharing (Paulraj et al., 2008) would all influence how the firm can manage and develop its own operations. Thus, these activities are the critical issues that would raise decision makers' strategic interests when they need to improve their organizational performances. As such, it is presumed that, a negative attainment discrepancy of the firm is related to decision maker's changing their supplier management actions, in terms of supplier development, supplier involvement and information sharing activities. Conversely, a positive attainment discrepancy will convince decision makers that their existing supplier-related activities are sufficient and thus, demotivate them to make any strategic changes. Theses assumptions based on the literature review are captured in the conceptual framework in Figure. 5, serving as the basis for the interviewing research as the second part of the study.

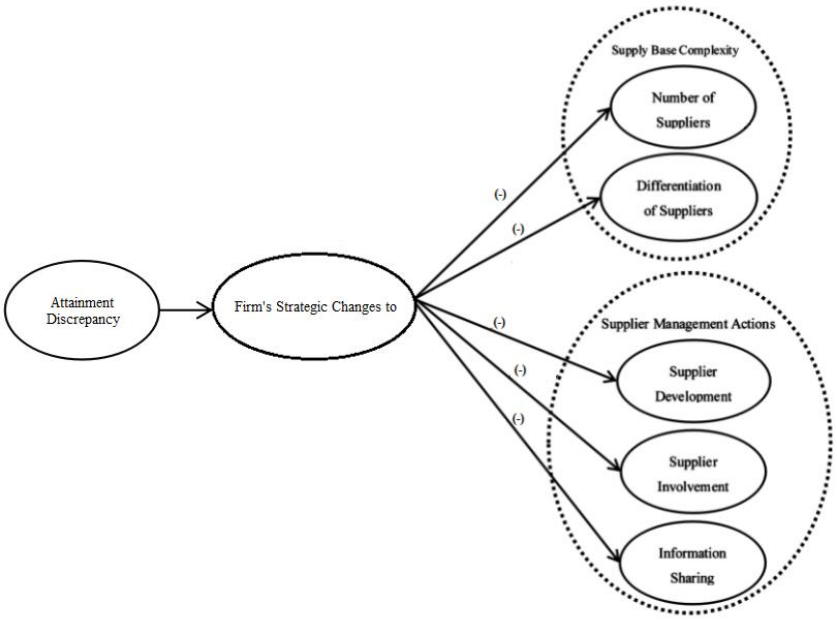

Fig. 5 Concept framework of the relationships between attainment discrepancy and firm's supplier-related activities

6.3 Sampling

Purposive sampling is the most commonly used sampling method and involves researchers selecting a sample who can best answer the research questions based on their knowledge and experience (Marshall, 1996). According to Mack et al. (2005), this kind of sampling entails categorizing the subjects to imply the identified characteristics incorporated in the research problem. This sampling method was adopted because samples needed to be purposely selected in order to provide great insights into the research topic. In the context of the study, the identified characteristics would refer to the specific knowledge and experience of the samples that are related to dealing with suppliers.

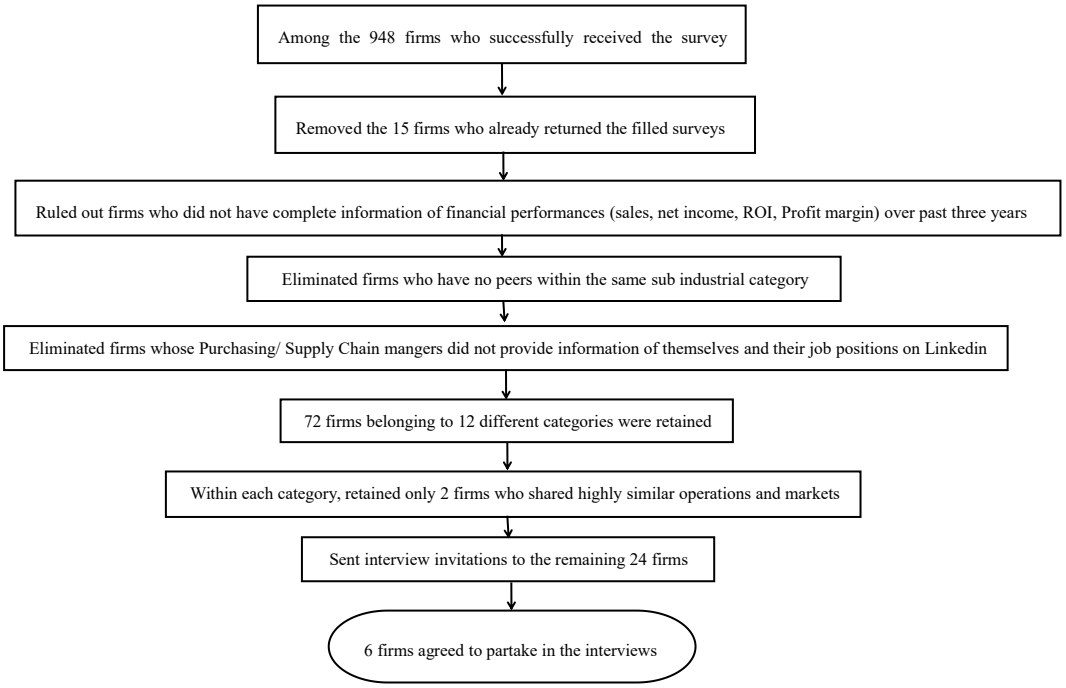

Fig. 6 Process of sample filtering and data collection for interviews

Figure. 6 summarizes the processes of how the sample and data collection has been done. The original list of 948 firms who eventually received the surveys was used as the base to select samples from. This was done basically out of the need for convenience. Firstly, the 15 firms who already returned the filled surveys were removed. Since similar questions would be asked in the interviews as in the surveys, involving the same firms would only yield known information. Following, those firms who did not have complete information of their financial performances (sales, net income, ROI, Profit margin) over the past three years were ruled out. A total of 135 firms were left at this stage comprising 31 different sub industrial categories. Subsequently, firms who did not have any other peer firms within the same category were eliminated, leading to a final number of 122 firms. As the next step, I looked up the possible key informants of these 122 firms on Linkedin. Out of them, I retained 72 firms (belonging to 12 different categories) whose Purchasing/ Supply Chain managers did register their Linkedin accounts and provide basic information about themselves and their job responsibilities. Out of each category, I retained only 2 firms within each of the 12 categories. As it was not possible for me to know whether those firms were performing better or worse than their aspirations (unknown), I could only select one best (better than average) and one worst (worse than average) performing firm from each category, assuming that they represent the firms as with a positive and a negative attainment discrepancy. So 24 firms were retained.

These 24 firms were considered as the suitable samples for the study, because: 1) They provided sufficient information on the internet, based on which I could learn about their general operations and business conditions. Such understanding would be useful for me to better capture the perspectives and opinions of the interviewees; 2) These firms possessed the functions of Supply Chain/Purchasing managers to manage and coordinate practices related to purchasing and supplier management. So I was able to ensure that I would obtain information from these firms about how they dealt with their supplier-related activities; 3) The 2 firms within the same category had opposing financial performances, so they could reflect the conditions of negative or positive attainment discrepancy. The fact that they belonged to the same category assured, that apart from the influences of the attainment discrepancy, no other industry-related factors would possibly influence behaviors of the firms.

Subsequently, 24 interview invitations were sent to the targeted key informants and the invitations were written case by case in a way that showed the informants why I was particularly interested in researching on their firms. This led to 6 positive responses agreeing to partake in the interviews.

6.4 Interview Design & Data Collection

Semi-structured interviews were used. According to Patton (2002, p.343), semi-structured interviews allow researchers to cover predetermined subjects of interests, while the wordings of the conversations and the order in which questions are drawn can be spontaneous; researchers are also free to ask questions and explore deeper into the topics if needed. In this study, the interviews were implemented in a qualitative way that focused on “how” and “why” questions. For example, I asked the interviewees to describe how they carried out their certain supplier-related activities during 2016. The interview was divided into three parts (however, interviewees did not know about this). The first part was about the supply base (number & differentiation of suppliers) of the firm; the second part about the firm’s supplier management actions (supplier development, supplier involvement and information sharing); and the third part related to the firm’s general financial performances. I started the questions of each part in a broad way and let the interviewees formulate their own answers first. For example, I asked them to describe how their supplier base was like in 2016. If they happened to mention the number and differentiation of their suppliers, then I would continue the next

question by questioning whether they changed anything of the number or differentiation of their suppliers. If they failed to mention the two aspects I was interested in on the first place, I would clarify my question by asking them to describe those two aspects. The same with the second part of the interview. First, I asked them to describe how they manged suppliers in 2016. If they did not answer in terms of their supplier development, supplier involvement or information sharing activities, I would further ask questions specific to these three aspects. By doing so, I could avoid narrowing the scope of their answers to what I wanted to hear only and manipulating the interview responses. Apart from asking interviewees to describe their supplier-related activities, I also asked them about the reasons why they made certain changes or no changes. From their answers, I expected to identify the underlying relationships that the unsatisfying financial performances of the firms could lead to their strategic changes to their supplier-related activities. So if interviewees did not name the reason that I was looking for, I would initiate the direct questions of whether or not their financial performances relative to aspirations during/in 2015 have influenced their specific strategic changes during/in 2016.

By “number of suppliers”, I referred to simply the number of suppliers in the firm’s supply base. By “differentiation of suppliers”, I referred to the characteristics of the supplier as a firm: geographical proximity, operational processes, technological capabilities, organizational cultures, and so on (Choi & Krause, 2006). Supplier development was measured by any activities initiated by the firm to improve supplier performances and capabilities (Walter, 2003). Supplier involvement was assessed by any activities related to decision makers involving suppliers in the firm’s main operational processes such as NPD or idea generation (Walter, 2003). Information sharing was evaluated by questioning how interviewees shared information, e.g. sensitive information and performance feedback with suppliers (Paulraj et al., 2008). In the study, “strategic changes” to supplier management actions refer to the changes in the scope or the level of those activities. For example, using different strategies to develop supplier capabilities, or increasing information sharing frequencies can both be the “changes”. To measure attainment discrepancy, I simply asked the interviewees to describe their financial performances in 2015. Most of the basic financial information of the firm was accessible from public channels such as its official website and annual reports. However, I asked this question to simply assure that interviewees were at least aware of their financial performances, so there would be the chance that they were triggered to make strategic changes by the influences of their unsatisfying financial conditions.

Table 11. Overview of manufacturing firm profiles

Firm	Products	Sales revenue in 2015 (world wide)	Employees by 2015 (world wide)	Management focus	Characteristics of the supply base
A	Industrial machinery and equipment e.g. wheel loaders, excavators, bulldozers, rollers, mining dump trucks, etc	US $1.02 billion	> 8.000	Research and Development (R&D); Product innovation; Performance in overseas markets	Purchasing activities used to be centrally controlled and managed. It started in 2016 to develop its suppliers based in the Netherlands and other nearby European countries. It has long been the tradition in the industry to form long term strategic partnerships with key suppliers.
B	Industrial machinery and equipment e.g. wheel loaders, excavators, articulated dump trucks, etc	US $612 million	> 11.000	R&D; Product innovation for smarter and more Eco-friendly designs	Maintaining a stable and mature supply base consisting of suppliers mainly from the Netherlands and other nearby European countries.
C	Plastic sheets, plates, panels, applications and systems	US $210 million	>800	Premium development of high quality of products and services; Reliability of delivery within confirmed lead time; Sustainability	Maintaining the relatively same number of strategic suppliers, because not many suppliers are able to provide the critical resources. A rather big supply base for non-production suppliers.. 1/4 suppliers are locally based, the rest mainly from nearby countries. Its ultimate goal is to continuously minimize the number of suppliers for reducing sourcing and planning complexity.
D	Plastic plates, sheets, tubes, pipes and profiles	US $110 million	>1000	R&D; Innovation and integration of operational processes; Sustainability	Maintaining the relatively same number of suppliers, because the entire supply network is quite stable and mature. Limited number of suppliers are there who are able to provide the important resources. Supply base itself needs not to be changed much, but the process of how to integrate and innovate them should be continuously optimized.
E	Chemical ingredients, functional resins, coatings, bio-medical materials	-[2]	-[3]	R&D; Innovative high quality of products; Innovation of internal coordination and operational processes; Sustainability;	Maintaining a stable and mature supply base. Supplies needed are limited, thus the sources of the supplies are also limited. Strategic suppliers tend to have stronger supply power. It is hard and not beneficial to change the supply base itself.
F	Chemical ingredients, special chemical materials, functional resins, fundamental chemicals	US $460 million	>11000	R&D; Technological innovation; Innovation of operational processes; Sustainability	Maintaining the relatively same number of strategic suppliers, while simultaneously seeking for new suppliers who share strong innovative expertise and technological capabilities. Generally its supply base is growing.

The data were collected from 6 manufacturing firms in the Netherlands, all of which have been purchasing from the local suppliers and produced products in their local production sites. Three different sub industrial categories were engaged in the interviews: manufacturing of

[2] Informant of the firm prefers me not to expose related information in the reporting

[3] Currently the firm is experiencing organizational restructuring, thus no sound information is available

industrial machinery and equipment (Firm A, B); manufacturing of plastic plates, sheets, tubes and profiles (Firm C, D); manufacturing of other chemical products n.e.c. (Firm E, F). Table 11 exhibits the overview of the profiles of the interviewed firms. The interviews took place throughout the month of November in the office of the 6 firms. The purposes for the interviews, scope of the research and related confidentiality issues were declared once in the interview invitations, and once more before the interviews officially started. It was affirmed that, the names of the firms and the key informants, plus any of the identifiable messages delivered during the interviews would remain anonymous throughout the data reporting process. Interviewees were encouraged in general to elaborate on their answers with specific examples. Out of the 6 informants, 1 was the firm's regional director (Informant A), 4 were supply chain managers (Informant B-E) and 1 purchasing manager (Informant F). All of them have been dealing with their suppliers for more than 1 year and undergone several projects that involved interactions and coordination with key suppliers. Each interview lasted for an average of 55-60 minutes, with the entire conversation taped (one interview was not taped as the interviewee requested) and key messages recorded in notes. The interview guidelines[4] were prepared beforehand, however, they were not strictly followed. At the start when selecting the interview samples, my original plan was to find 2 firms within each of the same category to show the maximum likelihood of differences of the population (Mack et al., 2005). That is to say, one firm with financial performances above industrial averages, and one with performances below the averages. It was assumed that the former one possess a positive attainment discrepancy while the latter one a negative attainment discrepancy. However in reality, this was not the case. Within the first category, two firms had opposing conditions of attainment discrepancy as expected, while within the second and third category, firms actually had the same attainment discrepancy (both positive and both negative, respectively).

The credibility concern of the interview data is addressed by: having the measured constructs drawn from literature; asking a set of questions to cover the same constructs; asking only questions relevant to the research topic (Arksey & Knight, 1999, p.51-53). In order to ensure that causality relationships exist between the studied concepts, a conceptual map has already been built to guide the study (Arksey & Knight, 1999, p.51-53). Using firms from 3 industrial categories extends the application of the findings to a bigger population (Ateş, Wynstra, & van Raaij, 2015). To make sure that the results of the study are reliable, the same questions would be asked to different interviewees; the interview data would be taped, otherwise fully

[4] See appendix B for details about the interview guidelines

noted. Examples were requested from the interviewees to elaborate on the answers (Arksey & Knight, 1999, p.51-53).

6.5 Data Analysis

This research followed the approach of *thematic analysis* recommended by Braun and Clarke (2006) to analyze the qualitative data. I chose this approach because it can *"produce an insightful analysis that answers particular research questions"* (Braun & Clarke, 2006), which helps to fulfill the primary objective of the study and reveal the underlying relationships between the studied concepts. According to Jugder (2014), *"thematic analysis is the most widely used qualitative approach to analyzing interviews"*. Through this approach, interview data can be investigated from either a data-driven perspective or a theory-driven perspective (Braun & Clarke, 2006). That is to say, I could not only examine the data against the research questions and seek for essential information to answer those questions, but also induce remaining data that is not directly related to research questions to expose new and interesting findings. With thematic approach, one core consideration is to identify the themes out of the data (Jugder, 2014), which are the embedded information that is specific to the research question and represents the patterns of meanings throughout the data sets (Braun & Clarke, 2006). Many researchers simply describe and rephrase their interview data and use some of the information as the "themes", which, as a matter of fact, involves no actual analyzing activities (Braun & Clarke, 2006). Instead, themes are generated from consistent and thorough coding, refining and summarizing processes (Braun & Clarke, 2006). As suggested by Braun and Clarke (2006), I have done my data analyses in six phases, namely 1) familiarisation with data; 2) generating codes; 3) developing themes; 4) reviewing themes; 5) defining and naming themes; and 6) producing the reports.

Table 12. Preset codes

Preset codes			
Number of suppliers	Supplier performances	Organizational satisfaction	Firm behaviors
Differentiation of suppliers	Problemistic search	Supplier capabilities	Supplier development
Supplier involvement	Information sharing	Performance evaluation	Financial performances

I started the analyses by listening to the audio recordings of the interviews a couple of times and transcribed them into 58-page texts. This time-consuming process helped me to develop

general feelings about the opinions of the interviewees and identify hidden messages through the tones, intonations and pitches of their voices. Reading and re-reading the texts further familiarized myself with the data. I also marked sentences talking about the same or similar contents across the entire data-sets. Next, I coded the texts from both the theory-driven perspective and the data-driven perspective (Braun & Clarke, 2006). Referring to Table 12, a list of 12 preset codes were decided beforehand based on my understanding of the literature and studied concepts, which primarily guided my coding process (Renner & Taylor-Powell, 2003). After coding the data with these predetermined codes, I also gave new codes to information that did not fit my existing codes (Renner & Taylor-Powell, 2003). These codes could be independent from each other or included under other codes as sub codes (Jugder, 2014), indicating the relationships within the data. I kept adding or adjusting the codes from the first interview transcript towards the last one till no new information emerged, reaching the theoretical saturation (Eisenhardt, 1989). The coding process was done firstly on the paper by hand; later, when I was re-reading the texts and codes, I noticed that I had not paid equal information to every piece of the transcripts, nor had I kept the coding consistency by giving similar contents with the same codes. Therefore, I decided to re-code the transcripts on the computer, this time trying to maintain coding consistency and giving full attention to all interview data. There was nearly one month time lapse between the two coding, thus, eliminating the possibility that I still remembered all that I had done previously. Having the transcripts coded twice separately helped to strengthen the reliability of the coding (Raymond, 1992). Eventually, a final list[5] of all the codes were created, extracting the relationships and structures of the interview data.

Following was the third phase of the analyses, theme development. The essence for determining themes is that they shall capture something to answer my research questions. Based on Braun and Clarke's study (2006), reliable themes are consistent throughout the entire data-sets. As different financial conditions lead to different firm behaviors, it would be more reasonable to study the themes of high- and low- performing firms separately. Therefore, I combined and sorted the codes into themes first on the paper. While some codes were turned into themes and sub-themes, some were eliminated for they did not fit into the big picture (Braun & Clarke, 2006). Later, with each of the themes in mind, I referred back to the original texts and tried to distinguish whether the themes more represented the phenomena of high- or low- performing firms. After separating the themes, I used two different theme maps basically

[5] See Appendix C for details of the final list of codes.

to show the relationships between these themes. The next phase was started by reviewing and refining the themes, ensuring there was clear distinction between each pair of themes (Braun & Clarke, 2006). Themes needed to be consistent and those not supported by enough data would be deleted (Braun & Clarke, 2006). Following, I defined all the themes with more representative names. By the end of this phase, as referring to Figure 7, two final theme maps[6] have been developed for firms with different financial conditions, clearly illustrating that low-performing and high-performing firms tend to implement different behaviors regarding the strategic changes to supplier-related activities. As the last phase of the analysis, a report was written to describe the story illustrated by each theme map. More details were shown in the following chapter, together with illustrations of coded data to support the arguments.

Chapter 7. Results & Discussion

7.1 Firm Behaviors of Low-Performing Firms

7.1.1 Problemsitic Search

Table 13. Illustration of coded data for low-performing firm's behavior "problemistic search"

Informant	Quotes
A	"Our previous supply strategy was not very effective....." "Our headquarter office used to centrally control and manage the purchasing activities for all the overseas firms. We informed the headquarter of what our production needs would be.....Then, they would contact our suppliers over there and arranged the deliveries of the raw materials and equipment to us." "Since we already noticed the problems and we figured out where the problems emerged, so we had to take some actions, either to change our previous supply strategy to something more effective and reasonable, or keep such strategy but improve how we manage the practices."
E	"Our financial performances of last year was not so good as expected, but it was not caused by our supply base being ineffective or dysfunctional." "We actually experienced some strategic transformation.....We didn't take many strategic actions trying to stimulate our sales or our market performance.....Also during the same year, many cheaper products entered the markets that were produced by companies from emerging countries and that also imposed threats on our businesses by initiating price wars. The overall market was also rather low already. "So all reasons combined, we did not perform very well during the well. But we knew for sure, that the situation was only temporary....."
F	"So we tried to analyze the problems from the internal aspects. We found out that some of our suppliers have been too content with their organizational achievements, and they became lazier and lazier in innovating products and technologies." ".....we decided to take actions to improve the innovation capabilities of some of our suppliers and look for potential suppliers who possess high technological abilities and outstanding innovation patents....."

Firm A, E and F were identified as low-performing firms because all these firms have not performed as satisfactorily as their aspirations during 2015, thus, experiencing a negative

[6] See Appendix D for the two theme maps.

attainment discrepancy. Decision makers were triggered to seek for reasons that caused their performance deficiency. As extant literature (Posen & Keil, 2015) suggest, organizational performances falling below aspirations motivate firms to first diagnose the problems that are linked to their unsatisfying performances (*"problem search"*) and thence seek for solutions to address the specific problems (*"solution search"*). According to Cyert and March (1963), solution search should start alongside the problems within the immediate activities of the organization. This implies that where problems are identified would be the areas where solutions are needed and eventual strategic changes are made.

Among all low-performing firms, Firm A identified that the real problem was its centralized supply strategy. Because of the ineffectiveness of such strategy, the facility experienced many problems such as delays in delivery and production, several receiving of wrong products and late responses to customer needs, all of which collectively contributed to the unsatisfying organizational performances of the firm. As to respond to this and restore the performances, decision makers of Firm A decided to get rid of such centralized supply strategy but develop a local supply base instead. Referring to the informant. Similarly, Firm F indicated its unsatisfying financial performance as related to suppliers. Despite the fact that its existing strategic suppliers have performed to a high quality of level, it was still believed that the innovation capability of the firm's supply base as a whole has not been competitive enough. This was mainly because some important suppliers have been too content with their own organizational achievements that they started to take things for granted and become inertia and inactive in their product and technological innovation. The unsatisfying organizational performances thus provoked the determination of the firm to seek for solutions.

However, when it came to Firm E, the problems that caused its weaker financial performances and market competitiveness during 2015 considered irrelevant to suppliers in the supply base. Rather, the decision makers believed that the temporary price wars initiated by some of the new entrants in the market as well as the restructuring of the organization itself were the main problems paralyzing their financial capabilities. As a consequence, Firm E has not embarked on any solution search within its existing supply base. Decision makers have not made any strategic changes to the firm's operational practices related to suppliers, either. As Firm E was not bothered by any problems related to suppliers and has not initiated any firm changes to respond to the unsatisfying financial performances, its case was out of the research scope. So in the following discussion, Firm E would be excluded.

7.1.2 Number of Suppliers

Table 14. Illustration of coded data for low-performing firm's behavior "number of suppliers"

Informant	Quotes
A	"We increased the number of suppliers in our local supply base." "2016 was the first year that we have started to purchase large-scale of materials from local and regional suppliers all on our own. We think these local and regional suppliers can bring us many benefits." "We decided to build up our local and regional supply base. This would very naturally increased the number of our suppliers and made our supply base more complicated than before."
F	"We increased the number of suppliers in 2016. Suppliers of strong and competitive innovation capabilities." "Because we wanted to include more suppliers in our current supply base who have outstanding innovation expertise and high level of technological capabilities." "Having the new and innovative suppliers in our supply base is also a way to create competition and encourage our existing suppliers to improve themselves."

Empirical studies propose various benefits to the firms that are associated with having a proper size the supply base, whether large (Agrawal & Nahmias, 1997; Chakravarty, 2014) or small (e.g. Christopher & Jüttner, 2000; Krause, 1997; Chen & Paulraj, 2004). Depending on their specific needs, decision makers should maintain a proper number of suppliers, in which case suppliers are able to support the firm's production and operations in an efficient manner.

In the sample, Firm A and F both opted to change the number of their suppliers as a hope to improve their supplier performances and enhance their operational efficiency. Regarding to Firm A, the number of suppliers in its supply base has been increased in 2016, for the purpose of enjoying many benefits contributed by its new local and regional suppliers, including convenient logistics, lowered costs, flexible delivery, and more importantly, a comprehensive local network. It was held that these immediate benefits altogether would help the firm to eliminate the problems associated with its previous ineffective supply strategy and bring the firm out of the unfavorable financial situations. Similar, Firm F also increased the number of suppliers in its supply base. As recognized by decision makers, the undesirable financial and market performances of Firm F were caused by the inadequate innovation capability in its supply base as a whole. As its development is highly dependent upon few products, having the continuous ability to innovate these products to make them incomparable in the market and to expand their applications to a larger customer population has been considered as very essential for the firm's sustainable profitability and development. To turn around the situation and improve the organizational performances, Firm F decided to look for new suppliers with strong innovation expertise and capabilities. By absorbing these new suppliers into the supply base, decision makers expected to obtain better chances to get access to the outstanding innovation abilities of the suppliers, something that some of the firm's exiting suppliers might

probably fail to provide due to their inactive innovation; simultaneously, the supply chain environment of innovation would also encourage suppliers to keep improving themselves. The case of Firm F is in line with the opinion (Chakravarty, 2014, p.99) that building a larger supply base can free decision makers from being unable to get access to new and varied technologies owned by diverse suppliers.

Concluding the cases of these two firms, the formulation of the proposition is supported:

Proposition 1: A negative attainment discrepancy triggers decision makers of the firm to change the existing number of suppliers to restore their unsatisfying performances. (-)

7.1.3 Differentiation of Suppliers

Table 15. Illustration of coded data for low-performing firm's behavior "differentiation of suppliers"

Informant	Quotes
A	"I think our current suppliers are more diverse than before. Of course, this means that the difficulty in cooperating with and managing these local and regional suppliers is higher than dealing with our suppliers back home." "Our suppliers are from different European countries, we speak different languages, we we see things from different perspectives and we organize businesses in different ways." "These new suppliers are closer to us in location.....This is very helpful for us to effectively manage our suppliers.....Also, we are able to save lots of money if we don't arrange the long-distance delivery anymore."
F	"We increased the level of differentiation of our suppliers in 2016. First, we started to cooperate with suppliers from many more different countries.....Secondly, even if our suppliers spread all over the world...they tend to form clusters among themselves within the same country or region.....And with organizational cultures, for sure, we also increased the level of differences in our supply base." "As a whole, the management of suppliers became more difficult and costly, but we were happy because new suppliers were much more responsive to the customer needs and market stimuli, and more flexible in their production processes and delivery requirements than our existing suppliers." "Only by that can we expect to generate better sales, and build up competitiveness in the market."

Firm A and F were prompted to change the level of differentiation of suppliers to respond to their negative attainment discrepancy in terms of financial performances in 2015. As Firm A used to obtain raw materials and equipment that were centrally arranged by the hindquarter from suppliers based in the the firm's original country, these suppliers tended to share same language, management styles and organizational ethics, thus forming a highly homogeneous supply base of the firm. However, decision makers of the firm started to acquire new suppliers from the Netherlands and other European countries. Compared to previous ones, these new suppliers were of higher level of differentiation in terms of their organizational cultures, operational practices and geographical distributions (Choi & Krause, 2006), which from time

to time caused problems for the firm. For example, decision makers of the firm might get to misunderstand the opinions or behaviors of the suppliers. Despite such problems, decision makers were still convinced that dealing with new (local/regional) suppliers was much more advantageous in many more aspects. For instance, the geographical proximity, which is an important quality that can enable decision makers to effectively manage suppliers (Tan, 2002) and reduce costs associated with transport and labor (Morris et al., 2004). In terms of Firm F during 2016, decision makers also increased the differentiation of suppliers by acquiring new suppliers from all over the world who were of innovative and technological capabilities. Difficulty in managing a high level of differentiated suppliers grew bigger, however, decision makers of the firm were more willing to emphasize the advantages they benefited from the new suppliers. Even if these suppliers varied a lot considering their different geographical locations, organizational cultures and working styles (Choi & Krause, 2006), they tended to form clusters by their operational functions and technical strengths. For some of the new suppliers from Hungary and Poland, they supplemented each other in the same region by providing products and services to support the operations of the entire value chain. By possessing such a group of suppliers who shared common operational strengths and technological capabilities in clusters, decision makers were able to take advantages of the specialties of suppliers in a more efficient manner and centralize their investments on the actual fundamental aspects of these suppliers more easily. Summing up, building a supply base where diverse suppliers with competitive capabilities was considered by the Firm F as an immediate way to obtain benefits to improve their unsatisfying organizational performances.

These evidences altogether support the formulation of the following proposition:

Proposition 2: A negative attainment discrepancy triggers decision makers of the firm to change the existing differentiation of suppliers to restore their unsatisfying performances. (-)

7.1.4 Supplier Development

Table 16. Illustration of coded data for low-performing firm's behavior "supplier development"

Informant	Quotes
A	"Some of our previous suppliers were diagnosed as being unqualified to produce the European standardized machinery parts and elements..... Lacking the supply of these parts and elements, we could not produce enough machinery models to be sold in the market. That was during the year of 2015, when we were not as competitive as our competitors in the market and our sales and revenue all went down by 30%. "We are especially concerned about their abilities to update and upgrade their manufacturing processes and technologies."

	"For example, we invested money on helping suppliers to acquire the certificates to produce products of higher standards, we purchased licensed programs to educate the workers of supplier firms to learn how to apply new skills and technologies, and we also helped them to acquire equipment for their new functions and higher productivity."
F	"We raised the performance goals for all the existing suppliers .....and we required them to perform to meet our higher standards, for example, the number of the innovation-related patents they apply for during the year was higher than before; also, we expected to see that suppliers save more costs by carrying out innovation projects.....So suppliers couldn't stay in their comfort zones anymore, they had to try their best to improve, otherwise they would be eliminated and replaced by others." "We offered financial support.....We also involved their employees in training and development programs so they were able to work more efficiently.....Also, we increased the frequency of our 'Away Day' from once a year to two to three times a year." "Because we wanted to improve the innovation capabilities in our supply base and become as competitive as before."

Ahmed and Hendry (2012) suggest that supplier development can assist firms in solving their problems related to suppliers, such as supplier performances below expectations, supplier capabilities unavailable within the current supply base, or suppliers failing to help the firms to fulfill strategic growths. Among the same, Firm A recognized its unsatisfying financial performances as to a large extent being caused by its undesirable supplier performances (due to the ineffective supply strategy). The fact that some of its previous suppliers have been unqualified to produce parts and elements to be used for machineries of European standards led to the incompetence of its products in the markets. Because of this, decision makers were especially concerned about the qualifications of production abilities of their new suppliers and willing to spend more capital and efforts on developing their new suppliers than how they used to deal with their suppliers back home. By helping unqualified new suppliers to acquire training, equipment and certificates, decision makers assured that the incapability of those suppliers would not get the chance to influence their financial and operational performances in near future. For example, Firm A has financially and physically helped suppliers to upgrade technologies during 2016 not only to meet the emission standards but also to improve the efficiency of their other operational systems. This was as suggested by the literature that direct investments of the firm on the personnel training and equipment or technologies of the suppliers (Krause, 1999) will "increase the performance and/or capabilities" of them (Krause & Ellram, 1997), which are supposedly helpful for restoring the unsatisfying performances. In terms of Firm F, decision makers basically owed their unsatisfying financial performances to its insufficient level of innovation capabilities. Some of the important suppliers were found to have become lazy and inactive in their product and technological innovation due to their content with the consecutive organizational achievements. In this regard, decision makers decided to motivate these suppliers to continuously improve their performances and meet the increasing needs of the firm by raising the performance goals for them, e.g. number of innovation patents, costs saved by innovation projects for the suppliers. This was in line with what is suggested by Monczka et al (1993). Not simply like this, with some of the new

suppliers whose productivity did not achieve the average levels in the supply base, decision makers initiated high level of strategic actions to help improve their capabilities. Besides the common strategy of direct financial control, the firm also provided quality inspection to help suppliers to identify their problems and facilitate the problem-solving. Additionally, Firm F involved suppliers in social activities from once two to three times a year to help increase the mutual understanding and establish solid trust and relationships between both parties. By implementing all these supplier development activities, as proposed by scholars, Firm F expected to have better supplier products, positive market performances (Wagner, 2006), sustainable economic development as well as long-lasting competitive advantages (Li et al., 2007). These cases altogether back up the formulation of the following proposition:

Proposition 3: A negative attainment discrepancy triggers decision makers of the firm to change the existing supplier development activities to restore their unsatisfying performances. (-)

7.1.5 Supplier Involvement

Table 17. Illustration of coded data for low-performing firm's behavior "supplier involvement"

Informant	Quotes
A	"We decided to do things differently in 2016 and we started to involve the participation and efforts of our local and regional suppliers in our product development processes." "So it is very important at that particular moment for our local or regional suppliers to develop a better understanding of our production and operational processes before they were able to share with us ideas and opinions that could be helpful and beneficial to our product design and development." "By involving local suppliers in developing ideas and products, we are willing to see at least 40% increase in our financial numbers, like, lets say, sales revenue and profitability, by the end of 2016."
F	"We hold highest level of compliance with the quality control and process management policies, so we avoided all the possibilities of mistakes and deficiencies. So we used to really take confidence and pride in ourselves." We didn't give suppliers enough chances to propose their opinions. And I think that was also one of the major reasons why we didn't spot the problems arising among our suppliers." "We tried to engage suppliers as much as possible, even at the stage of barnstorming periods, much earlier than any actual actions took place."

Firm A and F responded to their unsatisfying financial performances by changing how they involved suppliers in their operational processes such as developing new ideas and new products. For Firm A, many customers at the current moment started demanding for new products that were of larger sizes than before. Therefore, the firm needed to expand its existing product lines. However, both the firm and its new suppliers did not have sufficient knowledge of each other in terms of resources, skills or technologies, things that were critical for them to cooperate and coordinate in the businesses. Under such circumstances, decision

makers decided to involve these suppliers in helping to design the features and assess the functions for their new product models. During later stages, suppliers would also be engaged in physically developing those models. In the past, as the headquarter used to manage almost all the supplier-related activities for the firm, decision makers did not have the chance to directly control their supplier involvement. Therefore, the actions taken by them to really involve the strengths and capabilities of suppliers in their product development and manage all the processes on own efforts should be considered as an important strategic change. It was supposed that the firm could realize sales increase and better financial performances by changing how it carried out supplier involvement. In terms of Firm F, its development was highly dependent on the production and sales of few products. So decision makers needed to continuously invest strategic efforts and capital on improving their own manufacturing technologies and innovation capabilities, in order to ensure the absolute competitiveness of those products. However, Firm F has possessed great confidence and pride in own innovative competences and operational effectiveness, decision makers thus used to design and develop new products all by themselves and include the expertise and ideas of the suppliers only when certain of their specialties were needed. In this aspect, suppliers were not given enough chances to propose any opinions or suggestions, which eventually caused many problems. In order to avoid any potential troubles and assure that suppliers could understand the needs and expectations of the firm throughout the processes of NPD, decision makers changed how they used to develop new products by engaging the expertise and skills of suppliers as early as during the brainstorming periods. By doing so, the firm not only received the assistance of suppliers in identifying problems and solving the problems before it was too late, but also enjoyed the basis for long-term relationships and trusts. This gave evidences to confirm the literature that early supplier involvement in NPD projects assists firms in finding out potential problems up front (Ragatz et al., 1997). What's more, Firm F also increased the level of their existing supplier involvement activities, by inviting suppliers more often than before to the on-site visits to customer firms to discuss about how to tailor solutions and satisfy their particular needs. By having the information and technologies suggested by suppliers, Firm F could develop more time-saving and cost-cutting alternatives (Ragatz et al.,2002) for their customers and create better market performances. Summing up, these cases support the formulation of the following proposition:

Proposition 4: A negative attainment discrepancy triggers decision makers of the firm to change the existing supplier involvement activities to restore their unsatisfying

performances. (-)

7.1.6 Information Sharing

Table 18. Illustration of coded data for low-performing firm's behavior "information sharing"

Informant	Quotes
A	"We didn't know about their technological strengths or about the technological level. Without those knowledge, we would have difficulty in assigning suppliers to managing projects that they were most capable of.....So that was why we started to actively and closely involve these new suppliers in communicating and sharing information with us." "An open and regular communication mechanism help to build up trusting and reliable relationships between us more effectively and quickly." "We also adjusted our performance systems by doing performance evaluation in a slightly different way.....We have decided to embed such evaluation processes into a daily management and operation system."
F	"We have done some quite basic changes. For example, we increased the frequency to talk with suppliers on the phone about new product development, new supply sources, or the market prices of the raw materials. And we also scheduled supplier meetings from once a year to twice a year." "Our communication strategy in the past was not very effective. We communicated with suppliers too less, so we missed quite some chances to hear from suppliers about useful information related to customers, markets and even their own operations. This was apparently not beneficial for our development." "More than that, we also exchange performance evaluation with suppliers in a different way.....This year, we decided to make the evaluation of supplier performances a joint activity."

Firm A and F responded to their negative attainment discrepancy by adjusting their current information sharing activities. Since Firm A has developed many new suppliers during 2016, its decision makers considered it essential to establish open and regular inter-organizational communication that could promote mutual benefits to both parties like better understanding, integrated relationships and possibility to avoid potential dysfunction (Anderson & Narus, 1990). The decision to start involving suppliers in communication and information sharing of Firm A was driven by its need to learn about the technological strengths and potentials of the new suppliers, because those knowledge was central for employing supplier capabilities to the fullest. Decision makers also aimed at building up trusts and reliable relationships with suppliers via the open and regular communication system. In addition, they also started to develop their performance assessment system from an annual evaluation mechanism into a daily management system. This system engaged the firm and the suppliers in actively keeping track of the performances of each other with the help of detailed checklists; the digital system also made it more efficient for the firm to monitor their supplier performances and receive feedback from suppliers about their own performances. Afterwards, face-to-face meetings would take place three times a year where both parties were present to discuss about their observations of another party's performances, analyze the possible problems and find out the solutions. By doing this, Firm A got to accumulate strategic and/or operational knowledge (Kotabe et al., 2003) that would be valuable for facilitating its own performance success as

well as develop a greater understanding of the important issues that could influence its entire supply chain performances (Grant, 1996). Similarly, Firm F also modified how it shared information with suppliers during 2016. For example, decision makers increased the frequency at which they communicated with suppliers about new product development, new supply sources, or the market prices of some of their important raw materials. Also, they changed their supplier meetings from once a year to twice a year in case some of the suppliers were absent for the first time and could not share about their ideas. As suggested by literature, through the frequent and effective information sharing, suppliers are enabled to provide the firm with strategic information and more sensitive details concerning the firm's material use, product quality and technological innovation (Giunipero, 1990; Carr & Pearson, 1999), which supports decision makers in strengthening their organizational competitiveness (Grant, 1996), Moreover, decision makers are updated by suppliers with information about the changing market trends and customer demands (Mentzer et al., 2000), based on which they alter their product specifications and production processes to satisfy customer needs and enhance market performances. Besides, Firm F altered the way in which the performance feedback has been exchanged. More departments of the firm were included in the process of evaluating supplier performing and proving suppliers with full report containing information of suggestions.

Concluding, these two firms tended to change their information sharing activities, attempting to enhance mutual understanding, reduce errors, improve operational efficiency, eventually restoring their unsatisfying performances. These cases altogether approve of the formulation of the following proposition:

Proposition 5: A negative attainment discrepancy triggers decision makers of the firm to change the existing information sharing activities to restore their unsatisfying performances. (-)

7.2 Firm Behaviors of High-Performing Firms

7.2.1 Problemsitic Search

Table 19. Illustration of coded data for high-performing firm's behavior "information sharing"

Informant	Quotes
B	"We were satisfied with our current situation. So it was not very likely that we would still make any further changes, that was why during 2016 we basically maintained the same marketing and supply chain strategies."

C	"We have done quite well in 2015. If you look into the industry of plastics applications and systems, there were not many manufactures that could create the financial number as we did..... so we didn't need to purposefully look for any problems, which could waste the money and the time of us."
D	-

When organizational performances of the firm are deemed satisfying relative to aspirations, a positive attainment discrepancy will occur, reinforcing organizational satisfaction or minor adjustment within the firm's regularities (Cyert & March, 1963; Levitt & March, 1988). In the sample, Firm B, C and D have created satisfying financial performances during 2015. Decision makers indicated that the strategic actions they were implementing within the firm's production and operations were effective and beneficial. Therefore, it appeared that there was no need for them to spend any time or efforts on seeking for problems or searching for alternative solutions. There were not many quotes of the interviewees in terms of their problemistic search, primarily because when they tended to be satisfied with their current operational activities, it would be quite reasonable that they would not be bothered by any problems; so simultaneously, they did not attempt to recognize or mention anything about that. Informant C was the only one who used simple words to describe his unwillingness to initiate the unnecessary problemistic search.

7.2.2 Number of Suppliers

Table 20. Illustration of coded data for high-performing firm's behavior "number of suppliers"

Informant	Quotes
B	"We didn't change the number of suppliers in 2016." "We have suppliers who can promise us high quality of products, who can give us good discounts and bonuses, and who are strong in innovation and technological development. From our side, we are also able to limit the costs of managing these suppliers and other administrative activities under the budgets." "Our current suppliers are functioning quite well....."
C	"Compared to 2015, we decreased the number of suppliers this year." "We want to have more simplified sourcing and planning processes and try to avoid troubles that are brought by a complicated supply base, so we decided from years ago that the size of our supply base should be constantly reduced and maintained within a healthy level." "When we only have a smaller number of suppliers, we will get more time and money to spend on those suppliers who are really critical to us and who provide us with highest profits. Next to that is, if we have fewer suppliers, we would increase the buying volume from the same suppliers. We would also become important to those suppliers in contacts."
D	"I have to say when it comes to the raw materials suppliers, the number is unchanged, relatively unchanged." "The types of raw materials we need for production are quite limited. In the production point of view, it is always just chemicals going in and plastics coming out. With my own products, the life-cycle is very long. So we have high stability in our product range." ".....we don't have to deal with many different types of raw materials.....the range of suppliers who are able to provide those raw materials also tended to be limited. So we just need to cooperate with the same suppliers. All in all, our industry mostly enjoys a quite stable supply base."

Firm B did not change the number of suppliers. The primary reason for this was that decision makers were convinced that their current number of suppliers was already at an efficient level.

They were considerably satisfied with their existing situations. On one hand, the firm was able to effectively control the costs used to manage supplier activities within the budgets; on the other hand, employees of the firm also appreciated the long-lasting relationships and trusts they built with suppliers. In addition, existing suppliers were helpful as well in assuring high quality of products and regular technological developments, which could further support the firm in creating competitive performances and desirable financial conditions. Therefore, for decision makers, they did not want to spend extra resources to look for new suppliers or suffer from damaged buyer-supplier relationships by changing their current size of supply base.

Firm C revealed a different story from what has been described above. During 2015, the firm has created satisfying financial performances which not only exceeded own aspirations but also were much higher than the performances of competitors. Theoretically speaking, in the case of such a positive attainment discrepancy, decision makers of the firm should be satisfied with their achievements and reluctant to take extra efforts on making any strategic changes to their existing operations. While as a matter of fact, Firm C has been triggered to constantly reduced its suppliers; within the year only, it cut back around 1/3 of its non-production-related suppliers. As decision makers usually had to go through an entire series of activities ranging from negotiation, stage discussion, ordering, quality examination to payment and invoice management for each of its projects, having too many suppliers to deal with would only lead to higher level of risks and uncertainties. As such, decision makers developed the long-term strategy to *constantly reduce suppliers.* By doing so, they got more chances to work closely with their critical suppliers and strengthen the strategic relationships with them (Goffin et al., 1997). Moreover, they also acquired a greater purchasing power through buying larger volume of products from fewer remaining suppliers (Ogden, 2006). Firm C has found it very rewarding to keep reducing suppliers even when its current performances were desirable. Such evidences suggested that the relationship between a positive attainment discrepancy and decision maker's unwillingness of changing the number of suppliers is not always satisfied.

While a positive attainment discrepancy motivates decision makers to maintain an unchanged number of suppliers, there can be other factors that also simultaneously influence such strategic behavior of the firm, thus, weaken the effect of the positive attainment discrepancy. Firm D has been one example in this kind. Considering the positive attainment discrepancy acquired by Firm D, it would not be a surprise that decision makers decided to retain the relatively same number of suppliers. However, its decision of not to change the number of

suppliers was not so deliberately triggered by the positive attainment discrepancy. Instead, the supply base characteristics specific to the industry where the firm was situated actually played a more vital role in determining the firm behaviors. As a matter of fact, decision makers did not have to deal with many different types of raw materials and currently in their supply base, there were not many supplier firms available who were able to provide them with the raw materials in need. Hence, the size of its supply base could be seen as comparatively limited. That is to say, whether a positive or a negative attainment discrepancy in place, Firm D tended to be constrained by the limited availability of suppliers to only select a small number of suppliers and stay closely with them in the business. While existing suppliers have been right to support the operations of the firm, decision makers were unwilling to afford the losses associated with reducing suppliers who happened to be critical to their productions. Therefore, keeping a relatively unchanged number of suppliers throughout the year would be a smart idea for the firm to successfully guarantee stable and sufficient supply of raw materials, information and technologies of required quality. Owing to the influence of the limited availability of suppliers in the supply base, it became rather difficult to clarify if the positive attainment discrepancy in this case still played its role on determining the firm behaviors. To conclude, the case of Firm D has introduced the possibility that the effect of positive attainment discrepancy in predicting decision maker's unwillingness of changing the number of suppliers would be weaken by supply base characteristics specific to industry nature.

Concluding, with all the evidences provided, the relationship between a positive attainment discrepancy and the firm's strategic behavior in maintaining unchanged number of suppliers **can not** be supported.

7.2.3 Differentiation of Suppliers

Table 21. Illustration of coded data for high-performing firm's behavior "differentiation of suppliers"

Informant	Quotes
B	"I don't think we want to make any changes among our suppliers. I mean, especially when we are doing fine.....So I think for any companies, it would be beneficial for us by having a stable supply base." "With the less than 30 strategic suppliers we have, they have strong competitiveness, advanced technologies, financial power, and good reputations, and we do appreciated the long term partnership with them. Other suppliers, they are equally qualified and provide us with good resources and helpful information.....We are quite satisfied with the current formation of suppliers. And i think these different characteristics all contribute to our strengths. So, we want to keep them."
C	"Even though we decreased the number of suppliers, they are still quite diverse as before. With our strategic suppliers, they are equally able to provide us with a wide range of innovation capabilities and operational skills that we can apply to many areas during our product development processes." "So at the moment our supplier diversification is just alright. So it is more a matter of how we choose to spend our time." "We did not see it necessary to change the supplier diversification. Otherwise we have to adjust our investment plans, change our production processes, or we have

	to re-certify again for some of our products. It is not worthy the costs to change the current situation."
D	"In the number of supplier point of view, most of them are local." "I think we are sort of managing the diversity of our suppliers effectively, according to the importance of items supplied by different suppliers. It's not very formal." "Most of our strategic suppliers have strong R&D centers and they are constantly looking for new opportunities and developing new ideas. We are satisfied with their contributions.....So basically, we enjoy a diverse but stable supply base.....Basically we will not make any major changes to the suppliers but only keep how we are doing things. Another part of the reason, is that our supply base is very mature and stable. Normally there are not that many changes going on."

Firm B, C and D chose to retain the same level of supplier differentiation during 2016. Most of the suppliers of these three firms were based in the Netherlands or within Europe, providing the firms with more convenient and easier access to their supply of products, services and information. Also, the shorter distance of delivery helped the firms to save much costs and time. Decision makers of the firms especially were unwilling to change the diversity of their strategic suppliers, who were mainly relationship-oriented and capable of supporting the long-term development of the firms with state-of-art products, specialized skills and innovative competitiveness. Based on Informant B and C, their strategic suppliers have always been active from both a financial and technological perspective in training their own personnel, improving their own production processes and building up reliable quality control systems. Besides the benefits of the geographical proximity of suppliers, the three firms also benefited from their equally high level of technological capabilities; thus it would not be a big concern for them if they needed to take special care of some suppliers who could not live up to their technological standards. Additionally, Firm C and D also emphasized the stability and maturity of their existing supply base, also indirectly reflecting their willingness to maintain a stable formation of supplier characteristics. As referring to these two firms, they tended to manage the diversity of their suppliers in a way that the importance of suppliers as well as their supplied items would be recognized. So decision makers wished for more suppliers whose products were of high influences on the firm's development than those suppliers whose products were strategically unimportant. Concluding, the current level of differentiation of suppliers for all these three firms were deemed sufficient, thus, convincing decision makers that they should not to change anything of it. The proposition is formulated as follows:

Proposition 6: A positive attainment discrepancy develops a sense of organizational satisfaction, and decision makers of the firm are not triggered to change the existing level of differentiation of their suppliers. (-)

7.2.4 Supplier Development

Table 22. Illustration of coded data for high-performing firm's behavior "supplier development"

Informant	Quotes
B	"With our suppliers, we were mostly satisfied with their performances.....For them, it is very normal that they have the ability to recognize the problems arising during their operational processes. And we also believe they would be able to solve these problems based on their own efforts." ".....We were undertaking a sustainability program..... We started this program since few years ago, and each year we tried to extend the list of suppliers to be involved in the programs." "we were very convinced that the total efforts that we spent on improving supplier performances, increasing investments on their sustainability capability were effective. For 2016, our goal was simply to maintain our performances, and continue to focus on our core operations." "we didn't make any specific changes to our supplier development activities.....supplier development as a long-term continuous process. So once we make changes to our supplier development, we are planning to carry out the same activities and programs for at least 3-5 years."
C	"We deal with many suppliers who are performing pretty well in their own industries. They hold lots of pride on their own competences, and therefore, tend to be rather reluctant to share anything about the problems they encounter. It also depends on the products they are supplying." "So in the cases where suppliers are in troubles, normally we will send out personnel to visit the factories of our suppliers to see what was happening..... we also contributed by helping suppliers solve problems through the quality inspection of incoming goods and shared data, information and experiences. But we have done that quite often throughout the years." "The majority of our suppliers did not need our help or they did not want to tell us about their problems.....With those 20% strategic suppliers who sometimes would like to get our help and support, I think what we are doing is quite enough. Most of them, we are just taking the consequences of the changes initiated by suppliers." "When we have the idea of changing activities in supplier areas, like the supplier development activities, we need to make plans for 1 year, 5 years or even 10 years. We can't change things out of a sudden."
D	"We have taken 2 initiatives that we just started this year.....We have planned to maximize the effectiveness and the performances of our supply chain and that has been a long-term goal for us. Every year we are working on it." "Our suppliers are all performing to a high quality level, and we benefit a lot from their commitment and efforts..... They always comply with the service level agreements between us. So that's not a lot of room for improvement when it comes to supplier capabilities." ".....industry of plastics manufacturing can be defined as 'inactive'; we have not been improved that much so far. And plastics products are by nature not as easily innovated as other customer commodities. We have a quite mature and stable supply base. It is also not that big and dynamic." "We push the suppliers a lot alongside the supply chain process or integration, like, by integrating suppliers, improving the coordination and communication with each other, by enhancing the supply chain efficiency. So then we can be united and strong."

For Firm B, many of its suppliers were the leaders in their own industries in terms of product quality, operational efficiency, innovation capability and delivery flexibility already for years. Decision makers of the firm believed that their suppliers have always been able to recognize their own problems and fix them immediately before they even had the changes to notice anything. At the moment when the interview took place, one particular sustainability program that has been initiated since years ago was undergoing and would last for several more years. The aim of this continuous program was to help suppliers become more socially responsible and environmentally caring, in which suppliers would be regularly supported by the firm with financial support on training talents, participating in community activities and purchasing "greener" manufacturing equipment. Decision makers considered the program "*very critical to the health of the overall value chain"*. In a word, Firm B was much satisfied with the performances of its existing suppliers and decision makers held that nothing of their current supplier development activities should be changed. Simultaneously, they agreed that supplier

development should be a ongoing process, that required constant actions and consideration of the firm; thus, it would be unusual that some immediate changes took place in midst of any specific ongoing activities. Very similarly, Firm C mainly dealt with suppliers who have been performing pretty well in their own industries. They were always ready to contribute high productivity, quality and efficiency to facilitate the firm to better manage its production, control operational costs, improve its technological development and satisfy customers with required products. Unsurprisingly, many of these suppliers hold lots of pride on their own competences, and therefore, tended to be rather reluctant to share anything about the problems they encountered. While 80% of Firm C's suppliers refused to share about their problems, the remaining 20% of suppliers were really open to giving insights in this regard. In those cases where suppliers happen to be in troubles, Firm C has done quite enough in helping them. Plus, decision makers also preferred to make plans for supplier development well in advance, trying to avoid any immediate actions or changes. In general, they were convinced that their current supply development was effective and sufficient, thus, nothing should be changed.

An exception was seen from Firm D. Considering its positive attainment discrepancy, decision makers are supposed to be demotivated to make any changes to their current operational activities (Cyert & March, 1963; Levitt & March, 1988). While as a matter of fact, they have initiated new projects to integrate suppliers and innovate the supply chain processes. This has primarily something to do with the nature of the industry. In the perspective of Firm D, the "inactive" nature of the industry made it hard to exclusively develop new products and innovate suppliers. But, product development and innovation were essential for sustaining the competitiveness and profitability of the firm. Therefore, rather than focusing on the exclusive innovation and development of supplier performances, decision makers came to realize that they should innovate the entire supply chain processes and let suppliers within the supply base to spontaneously innovate and improve themselves. So when the supply chain as a whole has been developed and able to remain at an integrated level, each supplier member would feel the pressure by not being efficient and competitive enough and thus take the initiative to enhance their capabilities to keep up with the overall supply chain development. Developing the supply chain efficiency could be regarded as an ongoing process where all the involved suppliers played a specific role of supporting and supplementing each other. Owing to the influence of the industry-specific difficulty in exclusive supplier development, the effect of positive attainment discrepancy in predicting firm behavior was weaken.

Generally, two of the three (the majority of) high-performing firms were demotivated by their sense of organizational satisfaction to make strategic changes to existing supplier development. These cases managed to support the following proposition:

Proposition 7: A positive attainment discrepancy develops a sense of organizational satisfaction, and decision makers of the firm are not triggered to change the existing supplier development activities. (-)

7.2.5 Supplier Involvement

Table 23. Illustration of coded data for high-performing firm's behavior "supplier involvement"

Informant	Quotes
B	".....We tended to involve suppliers at the very early stage of our new product development processes, where we tried to figure out what solutions should be provided to our customers. So they could directly know what specifications or product attributes would be expected in the products they supply us afterwards.....we have been working closely with each other like this for years..." "We were satisfied with the positive outcomes. So we believed that for the current moment, we should just try to maintain the situations and let things get better and better without implementing any further changes. The second reason was that it is not beneficial for developing a stable supply base if we initiated changes. And the last reason was that we wanted to do things consistently and efficiently....."
C	"Involving suppliers in our product design and development has not been new for us. We have involved a number of active suppliers in many things..... We cooperate with each other already for many years. And most of time, they are doing a good job sharing with us valuable knowledge, experiences and information. That helps us a lot with keeping up the high quality and the innovation level of our products. "They help us to validate new ideas and proposals, telling us whether that's possible to get secure supply from them, whether it is possible to produce the products and who can be available to take care of the execution part." "Till now, we have maintained healthy growth of sales and revenue and we also increased the level of customer satisfaction steadily. We want to just continue doing the same thing and receiving the same outcomes. We do not see anything that should be changed."
D	"We have many projects that are developed with joint efforts of the suppliers.....just like machines. When you look into machines, i mean, they are typically something you co-develop with suppliers from the beginning.....Co-development starts more and more upstream in the supply chain, and for us, involving suppliers early in the stage of product development is important. We are constantly making progresses in that every year." "Generally, we are satisfied with our supplier involvement activities. With the information and technologies contributed by suppliers, we are able to develop our products in a more competitive way. So we did not need to change anything.....So we did not need to change anything."

Decision makers acquiring a positive attainment discrepancy indicates that they are able to effectively involve the competencies (Bowersox at al.,1999) and information (Handfield, 1999) of their suppliers, creating an outperforming supply base that leads the firms to superior results in operational and financial performances. When suppliers are given enough chances to engage in the operational processes of the firm, they gain knowledge of the desires and potentials of the firms, facilitating themselves to propose more specific suggestions and solutions to meet the needs of the firm's end customers (Dyer & Ouchi, 1993). As a matter of fact, Firm B, C, D have been already co-developing and co-engineering with suppliers on their key projects for many years; their positive financial performances also reflected the

effectiveness of their performances of managing suppliers and related activities. They tended to be satisfied with their existing supplier involvement activities, leading to no extra actions that should be taken to change the present situations. These findings support the formulation of the following proposition:

Proposition 8: A positive attainment discrepancy develops a sense of organizational satisfaction, and decision makers of the firm are not triggered to change the existing supplier involvement activities. (-)

7.2.6 Information Sharing

Table 24. Illustration of coded data for high-performing firm's behavior "information sharing"

Informant	Quotes
B	"Both parties have been communicative, but it is not like we let each other know about everything or we have to talk all the time. Each company has its own secrets and things to do. So we have developed the communication system that is like we only share necessary information at the necessary moments." "For us, we think that our communication has been quite effective and sufficient, and both our own people and our suppliers are willing to be involved." "We have done this mainly digitally. We have a rating system that can calculate the points for suppliers' performances."
C	"But in practice, we think the best way is to just not tell information that's not irrelevant. We share what's to them the most relevant to know, not more than that." "We did not change anything this year. Again, it was because it was not necessary. Our information sharing activities at the moment are quite effective.....Both of us appreciate that we can so closely communicate and cooperate with each other.....We have very mature commercial agreements and throughout the years we have basically kept an open communication channel. There is simply no particular reason why we had to make any changes to our information sharing activities this year. "We have a formal reporting and performance monitoring system where we look at the service levels of supplier performances and also examine our own performances. We use statistics most of the time to reflect how we are actually behaving and that are factual driven."
D	"You share everything that is needed to develop as effective as possible without compromising in terms of conditions. So that's continuous trade off about what information you want to share and which not. Generally i see that, we are quite transparent because that's the trend in almost every industry, that you will move forward and faster if you develop an effective communication system with your partners. Then both parties can share important information regularly and immediately." "We have effective channels..... And we have organized activities such as the partner day when we bring each other together and strengthen trust and cooperation. We have clear ideas about how we orchestra about sharing information. Besides, we are using an on-timing full report to log all the discrepancies of our performances and supplier performances.....And we discussed that with suppliers to basically measure our performances against what we have had in the service agreements. For this particular year, we did not make any changes to the information sharing activities."

Decision makers of Firm B, C, D all agreed that the essence of any successful buyer-supplier communication was that only production-related information should be shared. Over the year, they have maintained the same level of information sharing, communicating with suppliers about production needs and schedules, so that suppliers could arrange their own production and logistics in a more efficient and responsive manner. Plus, suppliers on the other hand could also supply the firms with new knowledge (Kotabe et al., 2003), and production-related (Carr & Pearson, 1999) and market-related information (Mentzer et al, 2000), which are fundamental for technological development, operational capabilities, market competitiveness

and financial performances of the firms. The most common ways for the three firms to share information with suppliers included telephone talks, supplier meetings, on-site visits, market research conferences, industrial exhibitions and conferences. Long-term trusting relationships could be established between both parties through their regular and close information sharing, which facilitated more satisfying supplier performances and positive financial performances. In terms of performance feedback, decision makers have built formal systems for evaluating supplier performances, reminding suppliers of their performance discrepancies and providing them timely suggestions. Also, they initiated active communication with suppliers to receive feedback from them about how the firms should improve their production and enhance certain manufacturing technologies. As a matter of fact, Firm B, C and D were pleased with their existing information sharing activities. In conclusion, these cases confirm the formulation of the following proposition:

Proposition 9: A positive attainment discrepancy develops a sense of organizational satisfaction, and decision makers of the firm are not triggered to change the existing information sharing activities. (-)

These findings were combined to construct the final conceptual model, which is shown in Figure. 8. Summing up, four primary relationships that needed to be studied were confirmed by the interview data, supporting the relationships that a negative attainment discrepancy triggers firm's strategic changes regarding (the level of) differentiation of suppliers, supplier development, supplier involvement and information sharing; whereas a positive attainment discrepancy fosters organizational satisfaction and encourages decision makers not to make any further changes in those supplier aspects. However, the firm's strategic changes in terms of number of suppliers were found to be also influenced by other factors such as benefits of a constantly reduced supply base, or supply base characteristics specific to the industry.

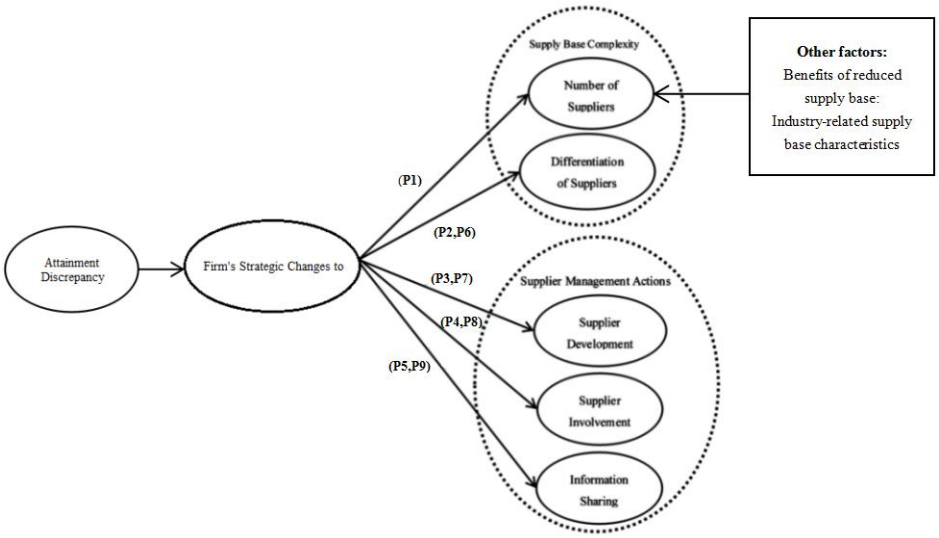

Fig 8. Final research model with propositions

Chapter 8. Conclusion & Limitations

The aim of this study was to examine the influence of attainment discrepancy on predicting the strategic changes made by decision makers of the firm to their supplier-related activities. Attainment discrepancy, as one important concept of BTOF, has been found to motivate managers to take risky actions of or to make major changes to many of their operational and financial activities. However, few extent literature has tried to link the factor of attainment discrepancy to the supplier areas of the firm. This study posited that attainment discrepancy could lead to the firm's strategic changes regarding to the number and the level of differentiation of suppliers in its supply base ("supply base complexity"), as well as its supplier development, supplier involvement and information sharing activities ("supplier management actions"). This study employed mixed research methods to quantitatively and qualitatively analyze the relationships between attainment discrepancy and strategic changes in terms of the aforementioned activities. Firstly, surveys were sent and statistical analyses were implemented testing the hypotheses on 15 sample data. Sample insufficiency of the quantitative part of the study failed to draw reliable conclusions. Therefore, as the second part of the study, qualitative interviews were conducted in the Netherlands with 6 manufacturing firms across 3 industrial categories. By doing so, more useful information were collected

revealing the behaviors and decision-making of firms regarding to their suppliers.

8.1 Discussion of Findings

8.1.1 Quantitative Findings

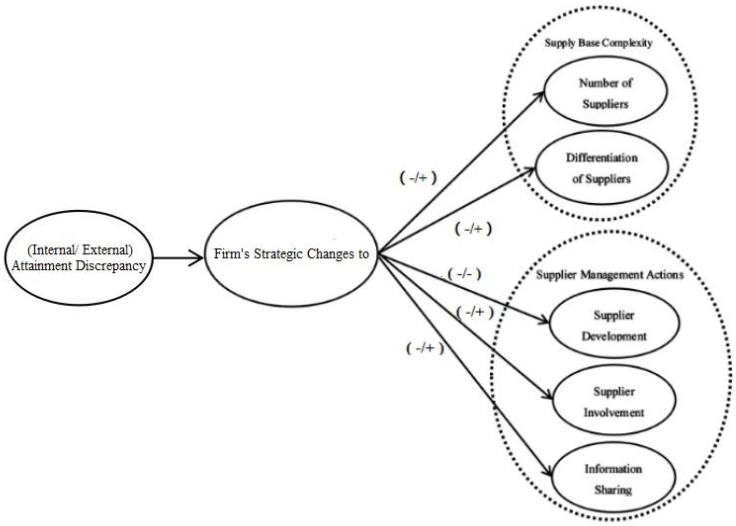

Fig 9. Conceptual map with identified relationships (insignificant)

In this part, the effects of historical and social aspirations were tested separately, creating two types of attainment discrepancy: internal attainment discrepancy between actual organizational performances and historical aspirations; external attainment discrepancy between actual organizational performances and social aspirations. Using a PLS-SEM model, the statistical results indicated that an internal attainment discrepancy was negatively associated with the firm's strategic changes regarding the number of suppliers (H1a), the level of differentiation of suppliers (H2a), supplier development (H3a), supplier involvement (H4a) and information sharing (H5a). They illustrated that, while a negative internal attainment discrepancy can trigger decision makers to take actions to change all these supplier-related activities, a positive internal attainment discrepancy will demotivate decision makers from making certain changes of them. These results were in line with the literature (Cyert & March, 1963; Levitt & March, 1988; Gavetti et al., 2012). In terms of external attainment discrepancy, however, the results were different from the theories. External attainment discrepancy was found to be positively associated with the firm's strategic changes regarding the number of suppliers (H1b), the level of differentiation of suppliers (H2b), supplier involvement (H4b)

and information sharing (H5b), while negatively associated with supplier development (H3b). These findings were consistent with the hypothesis H3b while against the other four. They indicated that, when the actual organizational performances of the firm were above the performances of competitors or other peer firms, decision makers of the firm would be more likely to change their supply base complexity and adjust their supplier involvement and information sharing activities. However, when the organizational performances of the firm were below the performances of competitors, decision makers of the firm would be less likely to change their supply base complexity or adjust their supplier involvement and information sharing activities. Whereas they would be triggered to embark on strategic changes to their existing supplier development. As a matter of fact, the values of the statistical significance of all these hypotheses were far from the appropriateness. Hence, it is impossible to draw any solid conclusions about the actual relationships between the internal/ external attainment discrepancy and the firm's strategic changes to its supplier-related activities. Figure.8 presents the conceptual map of all the hypotheses with the identified insignificant relationships.

8.1.2 Qualitative Findings

In this part, attainment discrepancy was examined as a single concept. The reason lied on the fact that during the interviews, it was considered too hard for interviewees to clearly explain and clarify whether their strategic changes to the supplier-related activities were triggered more towards the internal or the external attainment discrepancy. Through qualitative analysis of the interview data, 9 propositions were established regarding how negative or positive attainment discrepancy of the firm related to its decision makers' strategic changes in terms of supplier-related activities. In the case of a negative attainment discrepancy, as theoretically proposed (Posen & Keil, 2015; Cyert & March, 1963), decision makers are motivated to implement problemistic search, during which they find the problems that cause their performance dissatisfaction and the solutions that can solve those specific problems. Only when problems are identified as related to the firm's suppliers, will the strategic changes be made to the firm's supplier-related activities. That is the reason why Firm E was not included in the discussion of the study. Its problem was indicated by decision makers with other factors unrelated to the supply base; its situation was beyond the current research scope. For the rest of the firms, they exhibited evidences that collectively confirm the extant literature (Cyert & March, 1963; Levitt & March, 1988; Gavetti et al., 2012), that a negative attainment discrepancy leads to the emergence of certain strategic changes of the firm to its immediate

operational activities; whereas a positive attainment discrepancy generates satisfaction and makes decision makers unwilling to make further changes (Cyert & March, 1963; Levitt & March, 1988; Gavetti et al., 2012). Some other factors were also likely to influence the firm's strategic changes to the number of suppliers in the case of a positive attainment discrepancy, such as the firm's willingness to obtain a constantly reduced supply base (for its benefits) and the firm's supply base characteristics related to the industry .

8.2 Theoretical Implications

The findings of the study have several theoretical implications. Firstly, by testing the effects of internal and external attainment discrepancy in the statistical analyses, it was found that these two types of attainment discrepancy differed from each other in influencing decision makers of the firm on making strategic changes to their supplier-related activities. This further implied that the effects of historical aspirations and social aspirations could trigger different firm behaviors as well. Earlier studies (e.g., Singh 1986) have overlooked the differences between historical and social aspirations, while some other researches such as Baum and Dahlin's (2007); Greve's (1998, 2003b); Harris and Bromiley's (2007) have recognized the differences between the two types of aspirations, thus, attainment discrepancy. Others such as Bromiley's (1991) and Wiseman & Bromiley's (1996) suggest comparing to industry averages when the firm's performances are below that social level, however, comparing to self historical aspirations when the firm's performances are above the industry averages. In the recent work of Bromiley and Harris (2014), they illustrate the commonly used form of separate model of measuring attainment discrepancy based on historical and social aspirations. This model allows two types of attainment discrepancy to have different influences depending on whether actual organizational performances are greater than social aspirations or not (Bromiley & Harris, 2014). Theoretically, the separate model is as flexible as complex (Bromiley & Harris, 2014). When manually calculating each of the two types of attainment discrepancy using the model, one needs to consider both the historical aspirations and social aspirations beforehand. In order to keep the simplicity of the research, this study did not involve the calculation of the internal and external attainment discrepancy for each of the sample. Instead, respondents in the sample were asked to directly indicate the level of the firm's financial performances versus its historical (self-) and social (industry-) aspirations. Consistent with the finding of Harris and Bromiley (2007), this study also showed that firms

responded to internal attainment discrepancy and external attainment discrepancy in a varied way: while internal attainment discrepancy was found to be negatively associated with the firm's strategic changes to all the supplier-related activities, external attainment discrepancy was mostly positively associated with these strategic changes.

The second implication of the study is that the qualitative findings have confirmed with the theoretical proposals of *aspirations* and *attainment discrepancy* of BTOF (Cyert & March, 1963; Levitt & March, 1988; Gavetti et al., 2012). When organizational performances are below aspirations, a negative attainment discrepancy is generated, which triggers problemistic search during which problems are found and solutions are identified (Posen & Keil, 2015; Cyert & March, 1963). Conversely, when organizational performances relative to aspirations are positive, problemistic search is not necessarily implemented. Satisficing decision makers are led to believe that their existing operational activities are effective and sufficient, therefore they are less willing to make any further strategic changes. Since the emergence of Cyert and March's BTOF, a great number of studies in different research fields have been inspired and conducted, such as organizational learning (Argote & Greve, 2007; Gavetti et al., 2007), firm risk taking (Lim & McCann, 2013), inter-organizational partnership (Baum et al., 2005), product quality and innovation (Greve, 2003a), capital investment (Greve, 2003b), acquisitions (Iyer & Miller, 2008), and R&D expenditures (Bromiley & Washburn, 2011; Chen & Miller, 2007), etc. It has been found that performances short of aspirations would very likely evoke major strategic changes in those aforementioned areas, however, few extant studies have ever examined the effects of attainment discrepancy on the supplier areas of the firm. This study has been one of the first that demonstrates the effects of BTOF's two important concepts, aspirations and attainment discrepancy, to studying the strategic changes of the firm in its supplier-related activities. The findings of this study would greatly enrich the current level of investigation in terms of firm behaviors, organizational decision making as well as supply chain management.

The third theoretical implication of the study is that it draws theories of behavior economics and corporate governance to explain that, high performing firms relative to social aspirations may reasonably pursue further strategic changes to their organizational operations such as their supplier-related activities. Whereas low performing firms may choose to maintain status quo and avoid uncertainties by making no changes. It is argued that firms using direct competitors as performance referents reason their decision makings in a way that differs from

those who take competitors they strive to be like in the future as the performance referents (Labianca et al., 2009). Current studies of social aspirations and firm behaviors have rarely examined the effects of the different attainment discrepancies on triggering firm responses, in the context of competitive and striving comparisons. Thus, new insights would be contributed by this study to the knowledge in the relevant fields. Besides, the study also took into account the agency theory, in that shareholders of the firm would impose pressures on decision makers when the latter party make decisions and initiate organizational adjustments. Such perspective would contribute to the understanding of the actual roles played by managers/ or decision makers in the firm's decisions and behaviors in terms of strategic changes.

The fourth theoretical implication of the study is that it has developed a conceptual model combining the concepts of supply base complexity, supplier development, supplier involvement, and information sharing into an instrument that can be applied to measuring the firm's strategic changes related to suppliers. This conceptual model is the first in its kind that owns such combination of different supplier-related activities. While empirical studies have tended to examine firm's practices related to suppliers from the perceptive of either the supply base characteristics (Choi & Krause, 2006; Chakravarty, 2004), or the real actions to manage supplier performances such as supplier development (Modi & Mabert, 2007; Krause & Ellram, 1997; Wagner, 2006; Krause et al., 2000), supplier involvement (Bowersox et al., 1999; Wynstra & ten Pierick, 2000; Ragatz et al., 1997) and information sharing (Monczka et al., 1998; Paulraj et al., 2008; Carr & Pearson, 1999), this study has taken a step forward to address firm's strategic changes taking both as the components of supplier-related activities. This helps to draw a fuller picture of the supply base environment of a firm in which more potential aspects related to the firm's specific supplier practices are taken into account.

8.3 Managerial implications

This study also brings several managerial implications. Firstly, suppliers play a significant role in the production and operations of the manufacturing firm, as they provide it with raw materials, services, technologies and information that can facilitate the firm to satisfy customer needs and create monetary values for its own economic development. The results of this study have provided practitioners with the theoretical support of several supplier-related practices that they could consider when needing to enhance supply base effectiveness and

operational performances of the firm. For example, it is important for decision makers of the firm to develop a proper size of supply base if they want to effectively manage their supplier performances. Either a smaller or a larger number of suppliers in the supply base can contribute to the business of the firm depending on its specific needs and expectations. While enlarging the supply base assists firms in obtaining immediate benefits such as easy access to diverse supplier capabilities and innovative technologies of different suppliers, decision makers would be longing for a small but stable supply base containing mainly strategic suppliers for a long while, for the establishment of strategic relationships with reliable partners is fundamental for helping both parties to achieve continuous win-win positiveness and sustainable development. Practitioners who happen to read this study paper can capture such wisdom of e.g. how to effectively manage the size of their supply base and make the best out of the buyer-supplier relationships. Secondly, while practitioners might be aware of the importance of developing supplier capabilities, they would not necessarily be clear of all the possible strategies that they can apply to their real practices. This study has introduced to them several supplier development activities and showed them certain practical examples that were believed to be feasible and actionable. Thirdly, this study has indicated some strategic thoughts that have been commonly held by decision makers of different manufacturing firms. For example, they opted to develop a smaller size of supply base and strengthen the long-term relationships with strategic suppliers. Also, they acknowledged that efficient information sharing with suppliers should be open, regular and only involving production-related information. Practitioners can learn from the attitudes and experiences of these decision makers, which would possibly inspire them as to how to optimize their own strategies and behaviors concerning suppliers. Lastly, it has been shown that even within the same industrial category, firms would very likely adopt distinct strategies and activities for particular consideration. There are hardly any two firms who share exactly identical supplier-related activities to restore unsatisfying performances. Therefore, when practitioners intend to absorb the strategic and operational wisdom of other firms, they should not copy every detail of their development or business model. Instead, they need to first figure out what the real problems are that lead to their performance ineffectiveness and what the real strengths are that other firms can depend upon to create the competitiveness. Even when some of the practices are repetitively proved by other firms to be effective and successful, practitioners still need to consider the true feasibility and actionability of these activities very carefully before they take actions to adopt them in their own action plans.

8.4 Limitations

This study has potential limitations. The greatest limitation is that, due to sample insufficiency, the study failed to draw any statistically significant conclusions to the hypotheses established in the quantitative part of the study. Even though the second part of the study took the approach of interviewing to collect more useful qualitative data for studying the research topic, the relationships stated in the conceptual model between attainment discrepancy and firm's strategic changes in terms of five supplier-related activities still could not be tested in a more visibly quantitative way. Secondly, the sampling problem was also considered to be causing distortion over external attainment discrepancy's effects on firm's strategic responses related to suppliers. Therefore, it remained unknown whether external attainment discrepancy truly differs from internal attainment discrepancy in triggering firm responses, despite that existing studies do offer theoretical support of this. Thirdly, though the validity and reliability of sample data were generally satisfied in this study, these data were still not sufficiently able to validate the utility of the established conceptual model. What is more, this study applied several other factors e.g. discretionary slack, environmental dynamism, respondent knowledge and tenure to test their potential influences on the direct relationships between the independent variables and the dependent variables. These factors were included in the conceptual model as control variables in order to eliminate the potential bias. However, it was shown by the statistical results that these control variables did not have significant influences on the hypothesized relationships. Again, this was very likely to be caused by the sampling problem. Apart from these few factors, considering the complexity within buyer-supplier relationships and the sophistication associated with decision maker's decision making processes, there are supposed to be many other factors that can potentially influence the firm's strategic changes but have not been included in the model. Besides, the interviews were conducted with firms from three different industrial categories, introducing the possibility that the findings could be only specific to the relevant industries. Therefore, the study results might not be able to be generalized in a larger practical context. Also, studying only two firms within the same industrial category would probably fail to address all the possibilities of firm behaviors and decision making processes within that particular industry. Moreover, the study has not involved the formulas suggested by Bromiley and Harris (2014) in objectively calculating historical and social aspirations or measuring internal and external attainment discrepancy. Instead, the study simply used the survey to ask respondents to directly indicate the degree to which they are satisfied with their 2015's financial performances against own

expectations and peer performances. The survey's first section assumed that respondents developed historical-based aspirations and evaluated their performances solely against such historical aspirations. Similarly, the survey's second section assumed that respondents formed social-based aspirations and assessed actual organizational performances by solely referring to those social aspirations. However, the study did not take concrete measures to separate the influences of historical and social aspirations in the context where respondents were asked to evaluate performances. That is to say, there was hardly any guarantee if respondents would actually refer to only historical aspirations in the first scenario and social aspirations in the second scenario. Therefore, it was not so clearly known if the measured effects of internal and external attainment discrepancy in triggering firm responses in this study were impartial or biased. Last but not least, the interviews and coding were entirely done by myself. Lacking previous experience of conducting fact-to-face interviews with management-level persons and sufficient practices of coding would very likely introduce problem of biased understanding of the interview data.

8.5 Future research

Future researches aimed at helping to eliminate all the limitations of this study are encouraged. First, the sampling strategy should be improved in that more than one researcher are included in the study to call and invite informants to take part in the surveys. This can greatly save the time and energy of individual researcher when approaching such a large sample. Moreover, future researchers could try to find the exact contact information of key informants from certain paid channels, so that they can more easily and effectively contact them or forward them the survey invitations instead of unnecessarily going through the company receptionists. Third, more other factors can be included in developing the conceptual model to cover the richer and fuller characteristics of organizational and external environments that would potentially influence the firm's strategic changes in terms of supplier-related activities. Next, the study identified that there might be two reasons (striving comparison and agency theory) why high performing firms would initiate strategic changes while low performing firms would adhere to status quo. Future studies can take into account these two factors and test whether they really impose any influences on decision making rationality and behaviors of the firm. Fifth, when selecting samples of the interviews, informants from as many industrial categories as possible should be invited. Plus for each category, future researchers could

consider including in the interviews firms with truly distinctive characteristics such as clearly positive attainment discrepancy and negative attainment discrepancy (instead of assuming so), so as to to make within-industry comparisons of firm behaviors. Lastly, as the conceptual model of this study was not fully validated, upcoming researches could deploy a larger sample to test the validity and reliability as well as the utility of the this model.

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Appendix A. Sample Survey

Thank you for agreeing to participate in this survey measuring the behaviors of manufacturing firms relating to their supply base! The purpose of this survey is to measure ***how manufacturing firms may behave differently in terms of their supply base complexity and supplier management actions when they are under various financial circumstances***. This is a research project developed conducted by the University of Twente. You are invited to participate in this research project because you are either the Purchasing or Supply Chain manager, or key decision maker with rich supplier experiences and encounters.

We thank you for partaking in this survey. You may choose to withdraw at any time if you decide to do so. However, if you are willing to complete this survey, we provide you with an executive summary of the results. Filling this survey will take approximately **8-10 minutes**. Your answers will be treated completely confidential and will be used for academic purpose only!

Please note that some questions are about your firm's practices in 2015 and some about the practices in 2016.

Financial Performances

Please indicate the extent to which your firm's top managers were satisfied with your business unit' s 2015 performance on each of the following criteria:

	not at all satisfied 1	2	3	4	highly satisfied 5
Sales level	○	○	○	○	○
Sales growth rate	○	○	○	○	○
Cash flow	○	○	○	○	○
Return on investment (ROI)	○	○	○	○	○
Profit margin	○	○	○	○	○

In comparison to your competitors, how did your firm perform in 2015 in terms of:

	much worse than competitors 1	2	3	similar to competitors 4	5	6	much better than competitors 7
Sales level	○	○	○	○	○	○	○
Sales growth rate	○	○	○	○	○	○	○
Cash flow	○	○	○	○	○	○	○
ROI	○	○	○	○	○	○	○
Profit margin	○	○	○	○	○	○	○

Supplier Number & Differentiation

In 2016, our firm:

	no, not at all 1	2	3	4	yes, to a very high degree 5
changed the number of suppliers with whom we have an enduring business relationships	○	○	○	○	○
altered the size of our supplier portfolio	○	○	○	○	○

In 2016, our firm:

○ Increased its number of suppliers

○ Decreased its number of suppliers

○ Did not change its number of suppliers

In 2016...

	no, not at all 1	2	3	4	yes, to a very high degree 5
the degree of supplier differentiation in our firm's supply base changed	○	○	○	○	○
our firm changed the differentiation of our supplier portfolio	○	○	○	○	○

In 2016, our firm:

○ Increased its differentiation of suppliers

○ Decreased its differentiation of suppliers

○ Did not change its differentiation of suppliers

Supply Management Actions

In 2016, our firm:

	no, not at all 1	2	3	4	yes, to a very high degree 5
changed how we involve suppliers in our new product/service development	○	○	○	○	○
searched for new ways to integrate suppliers in our new product/service	○	○	○	○	○

	no, not at all 1	2	3	4	yes, to a very high degree 5
development					
altered how we involve suppliers in idea generation	○	○	○	○	○

（Supplier development refers to the activities that your firm initiates to improve the performance of suppliers）

In 2016, our firm:

○ Increased its supplier involvement in new product/service development

○ Decreased its supplier involvement in new product/service development

○ Did not change its supplier involvement in new product/service development

In 2016, our firm:

	no, not at all 1	2	3	4	yes, to a very high degree 5
changed its supplier development practices	○	○	○	○	○
altered its training and education programs for suppliers	○	○	○	○	○
searched for new ways to help suppliers improve their performance	○	○	○	○	○

In 2016, our firm:

○ Increased its supplier development activities

○ Decreased its supplier development activities

○ Did not change its supplier development activities

In 2016, our firm:

	no, not at all 1	2	3	4	yes, to a very high degree 5
changed how we share sensitive information (financial, production, design, research, and/or competition) with our suppliers	○	○	○	○	○
searched for new ways to inform suppliers about events or changes that may affect them	○	○	○	○	○
altered how we exchange performance feedback with our supplier	○	○	○	○	○

In 2016, our firm:

- Increased the extent to which we share information with suppliers
- Decreased the extent to which we share information with suppliers
- Did not change the extent to which we share information with suppliers

Resources & Search

In 2016, our Purchasing department:

	no, completely disagree 1	2	3	4	yes, completely agree 5
searched for ideas that can take the firm beyond its current product/market domain					
searched for information in new market and technology domains far distant from our current operational domain					
tended to search and integrate novel and varied information into our activities					
tended to use information that helps us experiment in our strategic activities					

Our Purchasing department...

	no, completely disagree 1	2	3	4	yes, completely agree 5
has uncommitted resources that can be used to fund strategic initiatives at short notice					
has a large amount of resources available in the short run to fund our initiatives					
has no problems obtaining resources at short notice to support new strategic initiatives					

Industry Dynamism

In our industry...

	no, completely disagree 1	2	3	4	yes, completely agree 5
customer preferences are continually evolving					

	no, completely disagree 1	2	3	4	yes, completely agree 5
customer demand for our product varies continuously	○	○	○	○	○

In our industry...

	no, completely disagree 1	2	3	4	yes, completely agree 5
major competitors are continually introducing new products to the market	○	○	○	○	○
major competitors are continually devising new selling strategies	○	○	○	○	○

General Information

Please indicate your position-related knowledge level:

	not at all knowledge able 1	2	3	4	highly knowledgeable 5
How knowledgeable are you about your firm's relationships with suppliers?	○	○	○	○	○
How knowledgeable are you about your firm's purchasing activities?	○	○	○	○	○
How knowledgeable are you about your firm's financial performance?	○	○	○	○	○

How long have you been working for your firm (in years)?

Thank you for taking time out to participate in this survey! Your information has been extremely valuable. Please stay tuned for our upcoming updates about how we use your inputs to make theoretical conclusions. And hopefully, the research results that we will be providing you in near future will be beneficial in your strategic decision makings and activities.

Appendix B. Sample of Questionnaire

B.1. Supply Base questions

- Could you describe your firm's supply base in 2016?
- Could you describe the number of your suppliers in 2016? (Any changes than last year?)
- Could you describe the level of differentiation of your suppliers in 2016? (Any changes than last year?)
- Why did you change the number of suppliers/ the level of differentiation of suppliers in your supply base in 2016?

B.2. Supplier Management Actions questions

- Could you describe how you managed your suppliers in 2016?

(If information about supplier development/ supplier involvement/ information sharing not sufficiently answered)

- Could you describe how you helped suppliers to develop their performances and capabilities in 2016? Did you make any changes to your supplier development activities in 2016 compared to those activities in 2015?
- Why did you make such changes? (or any other ways to ask for the reasons)
- How did you involve suppliers in your main operational processes in 2016? Did you make any changes to your supplier involvement activities in 2016 compared to those in 2015?
- Why did you make such changes? (or any other ways to ask for the reasons)
- Could you describe how you share information with suppliers in 2016? Did you make any changes to your supplier involvement activities in 2016 compared to those in 2015?

(If performance feedback not mentioned)

- How about exchanging performance feedback? Did you make any changes to how you exchanged performance feedback with suppliers in 2016 compared to how you did it in 2015?
- Why did you make such changes?

B.4. Financial Performance questions

- Could you describe your general financial performances by the end of 2015?

(If interviewee not mention how the firm responded to the financial performances)

- So how did you responded to your unsatisfying financial performances?

Appendix C. Final list of codes for interview transcripts

Final codes

- Number of suppliers
  - -Increasing trend
  - -Disadvantage of changing the number
    - Extra efforts needed
    - Damaged relationships & trusts
    - Lack of supplies
    - Sourcing difficulty
  - -Advantages of proper size
    - Time& money
    - Business relationships
    - Bonuses
    - Centralized investment
- Benefits of local suppliers
  - Logistics
  - Costs
  - Delivery
  - Inventory
  - Local network
  - Market know-how
  - Direct control
- Problemistic search => Firm changes
  - -Problems due to ineffective supply strategy
    - Delays in production
    - Miscommunication
    - Wrong delivery
    - Long time-to-market
    - Waste of time and money
  - -Supplier-related problems
    - Supplier incapability
    - Supplier' inertia to develop
  - -Problems due to supplier-unrelated areas
    - Internal
      - Marking strategies
      - Organizational restructuring
    - External
      - Economic recession
      - Raw materials prices
      - Market slowdown
      - Product prices
- Organizational performances
  - -Non-Financial performances
    - Weaken productivity
    - Weaken market competitiveness
  - -Financial performances
    - Negative sales
    - Negative profitability
    - Negative/Positive revenue
    - Positive EBIT
- Supply Strategy
  - -Centralized supply strategy
  - -Local-based supply strategy
    - Benefits of local suppliers
    - Industrial tradition
  - -Regional-base supply strategy
- Supplier performances/capabilities
  - -Product quality, Innovation
  - -Efficiency, Cost control
  - -Technological development
  - -Delivery
  - -Problem solving, Communication
  - -Productivity
- Strategic partnership
  - Win-win
  - Long-term strategy
  - Mutual understanding
  - Reputation
  - Financial power
  - Competitiveness
- Differentiation of suppliers
  - -Dimensions of differentiation
    - Geographical proximity
      - Convenient delivery
      - Easy contact
      - Saved time and money
    - Technological levels
    - Operational similarity
      - Effective communication
      - Clusters
    - Organizational cultures
      - Average
    - Language uses
  - -Management difficulty
    - Costs
    - Time
    - Planning & Sourcing complexity
  - -Types of suppliers
    - Open-market
    - Innovative (or as selection criteria)
    - Kralijc
      - Strategic
      - Leveraged
      - Bottleneck
      - Non-critical
- Supplier involvement
  - -Benefits
    - Knowledge of buyer firm
    - Mutual understanding & Trust
    - Better financial performances
    - Improved quality/innovation
    - Efficiency
    - Less time-to-market
    - Customer satisfaction
  - -Strategies
    - Professional consultation
    - Problem identification
    - NPD
    - Idea generation & validation
- Information sharing
  - -Benefits
    - Different technical know-how
    - Reliable relations & trust
    - Better mutual knowledge
  - -Contents
    - Sensitive information
      - Production-related
      - Price-related
      - Delivery-related
      - Technology-related
    - Non-sensitive information
    - Performance feedback
      - Data-driven
      - Discrepancy report
  - -Channels
    - Telephone talks
    - Conferences & exhibitions
    - On-site visits
    - Researches
    - Supplier speech
    - Face-to-face meeting
    - Intranet
- Supplier development
  - -Strategies
    - Technical update
    - Quality & process inspection
    - Professional consultation
    - Direct investment
      - Personnel training
      - Equipment
      - Financial support
  - -Prerequisites
    - Mutual agreement
    - Open to communication
    - Willingness to accept help
- Nature of industry
  - -Raw materials fixed
  - -Sourcing availability
  - -Product range small
  - -Product hard to innovate
  - -Stable supply base
  - -Similar supplier capabilities
  - -Lack of radical supplier development
- Firm behaviors
  - -Change to supply strategy
  - -Change to No.suppliers
    - Increase or decrease
  - -Change to supplier differentiation
    - Control complexity
  - -Change to supplier involvement
    - Strategies
    - Frequencies
  - -Change to information sharing
    - Strategies
    - Frequencies
  - -Change to performance feedback
    - Daily management system
    - Early problem-solving
    - Increase frequency
  - -Change to business structures
    - Survive in severe conditions
- Supplier management
  - -Performance evaluation
  - -Quality inspection
  - -Quality control
  - -Supplier involvement
- Supply chain development
  - -Efficiency & Integration
  - -Supplement supplier development
  - -Continuous Performance development
  - -Long-term competitiveness
- Organizational satisfaction => No change
  - -With supplier cooperation
  - -With financial performances
  - -With supplier differentiation
    - Diverse supplier capabilities
    - Stable
  - -With supplier performances
  - -With supplier involvement
    - Ongoing processes/consistency
  - -With supplier development
    - Ongoing processes/consistency
    - Inter-connect
    - Planning in advanced
  - -With supply base
    - Stable/ no-uncertainties
    - Mature
  - -With information sharing
    - Ongoing processes/consistency
    - Stable

Appendix D. Theme Maps

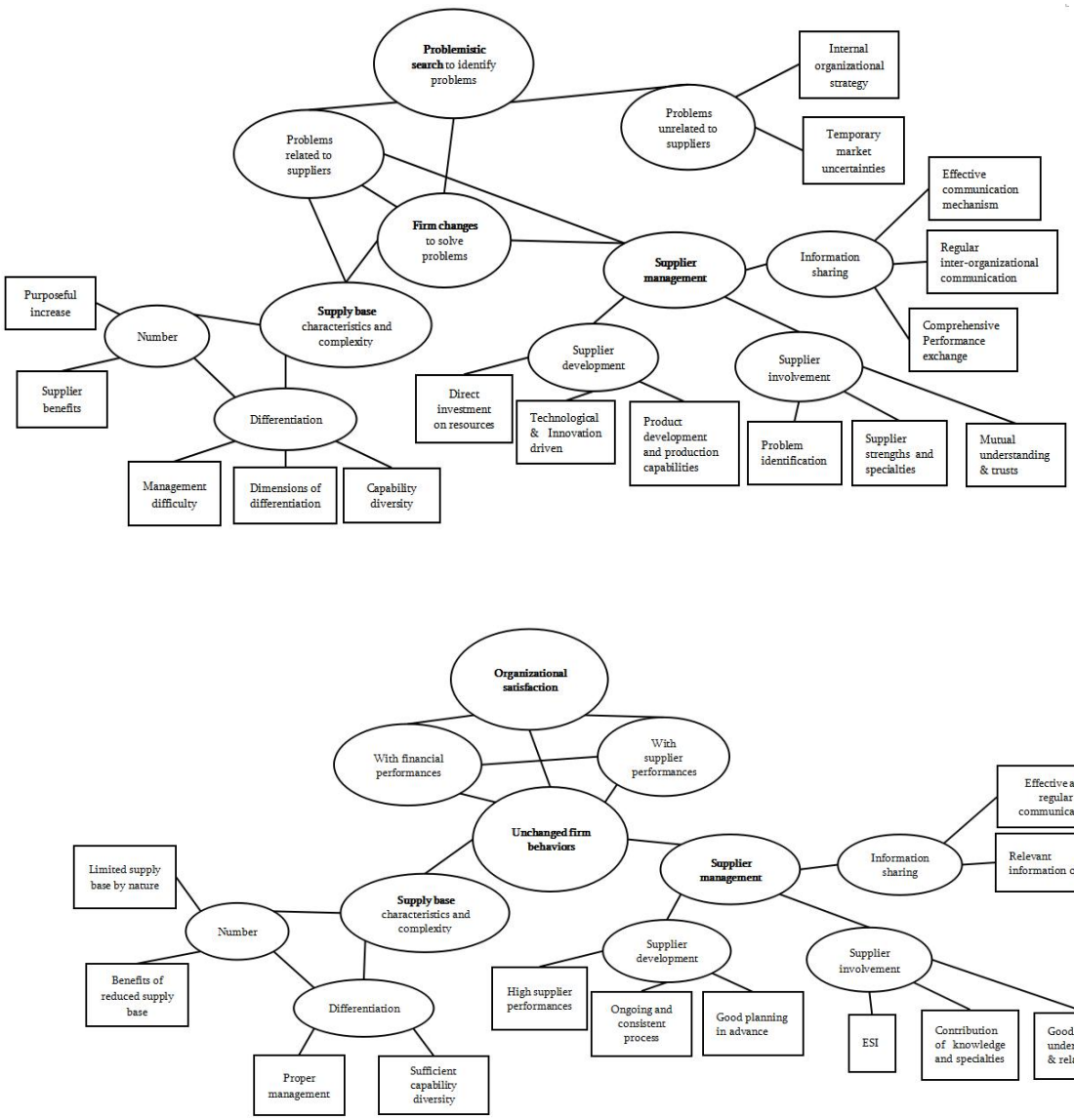

Fig.7 Themes maps for low-performing firms (top) and high-performing firms (bottom)