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WE DO BECAUSE IT TELLS US SO: INCORPORATING SIGNALING MECHANISM INTO THE BEHAVIOR THEORY OF FIRM GROWTH

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Abstract

Will firms with the same aspiration (e.g., for size or performance) adopt the same growth strategy? Existing research in behavior theory of firm growth could not give a satisfying answer to this question and assume that firms pay sequential attention to size-related growth and performance-related growth based on different levels of aspiration for each goal, however, false conclusion may be drawn due to the lack of understanding about the dynamic nature of firm decision-making. Our research explores the dynamic nature of firm decision making by incorporating an efficiency-based signaling indicator into the behavior theory of firm growth. We suggest that firms? efficient size varies depending on their operation modes and conditions in the external environments; thus firm may use the change of peer-based comparison to interpret the change in the firm?s efficiency. Using this interpreting method, we show that the conditions under which firm will be more likely to focus on the size or performance goal in order to achieve growth. More importantly, we explain how sequential attention rule and size activation rule work simultaneously to explain firm growth in the context of emerging economies.

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ABSTRACT

Will firms with the same aspiration (e.g., for size or performance)adopt the same growth strategy? Existing research in behavior theory of firm growth could not give a satisfying answer to this question and assume that firms pay sequential attention to size-related growth and performance-related growth based on different levels of aspiration for each goal, however, false conclusion may be drawn due to the lack of understanding about the dynamic nature of firm decision-making. Our research explores the dynamic nature of firm decision making by incorporating an efficiency-based signaling indicator into the behavior theory of firm growth. We suggest that firms' efficient size varies depending on their operation modes and conditions in the external environments; thus firm may use the change of peer-based comparison to interpret the change in the firm's efficiency. Using this interpreting method, we show that the conditions under which firm will be more likely to focus on the size or performance goal in order to achieve growth. More importantly, we explain how sequential attention rule and size activation rule work simultaneously to explain firm growth in the context of emerging economies.

KEYWORDS: Firm growth; Decision making; Signaling mechanism; Behavioral theory

INTRODUCTION

The benefits of large firms have been recognized for long. According to resource dependence, large firms enjoy greater market power (Boone, Carroll, & Witteloostuijn, 2004; Haveman, 1993a)

and are more influential in the diffusion of innovations(Haunschild & Miner, 1997; Haveman,1993b). Institutional research suggests that large firms can obtain higher legitimacy, which helps firm to acquire advantages in resources acquisition and set rules for competition. Diversity research posits that large firms may have more complementary assets than small ones. Large firms can balance its business portfolio under highly dynamic contexts, and reduce the likelihood of failure (Geringer, Tallman, & Olsen, 2000).

In concerning how firms growth to be large, existing research provided multiple explanations. The efficient size theory suggests firm may have an optimal size, in order to achieve the best production scale for production technologies, firm will continually invest to increase the scale of production until it have arrived the optimal size, thus results in a growth of firm(Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003), Certain argument overlooked the exists of transaction costs in firms operation, as continued investment on firms new technology can increase coordination costs and other related managerial costs, firm may not able to achieve an optimal size in the long run. Instead, rather than assuming firm have optimal size, Penrose(1959) suggested firm don't have a determinant long term best efficiency, instead, firm may have certain constraints in achieving better efficiency, for example, external dynamics, limited resources and lack of proficient managers et al.In order to deal with external shocks as well as internal managerial problems, firm need to build some specialized skills that enable the managers to collectively coordinate their operational activities. Certain knowledge is specific and tacit, can only be learned by experientially or direct instruction from existing managers. Hence, as firm need to expands, they may recruit new managers, and divert some of the exisiting managers to new divisions. Under this situation, since firms resources are limited, while firm invest more resources in training

new managers rather than exploring the new opportunities in the market, the more it invest in training new managers, the more will firm miss the growth opportunities in the market. Thus, the growth of the firm is a balance between firms knowledge replication and market opportunity exploration.

In contrast to the way of growth through an endogenous investment, the merger and acquisition streams suggest the growth of the firm could be achieved by continually resource acquisition from external(Matsusaka, 1993; Palmer, Barber, Zhou, & Soysal, 1995), by acquiring new and complementary resource from outside, firm may achieve size expansion as well as efficiency improvement. However, the resistance in build a complex and large firms from stakeholders may reduce the credibility of this argument, but it could also be a potential explanation for how firms growth to be large (Davis, Diekmann, & Tinsley, 1994; Zuckerman, 2000; Greve,2008).

While existing research always suggest an efficiency based investment strategy of firm growth in size, existing studies assume there exists an explicit or an observable relationship between firm size and efficiency growth, for example, if the size of the firm is below its efficient size, the investment on size will result in an improvement in efficiency,otherwise, an reduction in efficiency. However, the relation between firm's efficiency and size is not well known especially considering the dynamics of environment, the improvement of efficiency could either be a result investment or a change in external opportunity munificence et al. Under this situation, existing researches may find it is hard to explain whether firm stops an investment because they have arrived the optimal size and failed to explain why firm is able to make such growth decisions(either size goal or performance goal) without clear economic guidance.

Thus, the latest research in behavioral argument about firm growth[1] posits that rather than using a clear economic guidance for firm growth under dynamic situation. Firm may move sequentially between a size or performance related growth strategy(In this paper we will use size goal and size-related growth strategy interchangeably and also for performance goal and performance related growth strategy) based on the aspiration in size and performance formed(Greve, 2008). Aspiration is defined here as "the smallest outcome that would be deemed satisfactory by the decision maker" (Schneider, 1992).

Aspiration in size means the firm eager to grow to be large while the aspiration in performance leads to firm's profit improvement. Changes in either aspiration may result in the firm changing its growth strategy, which cause an improving in cost efficiency or actual growth. Firms form aspiration levels through comparing with organizations that are similar to them (Festinger, 1954, Greve, 2008). Once an aspiration level for size or performance has been set, failure to reach the goal will triggers "problematic search[2]" that leads firms to grow either through size expansion or performance enhancement (Greve, 2008). A size-related growth strategy may be achieved through competitive attacks such as price reduction, product development, and sales campaign(Smith, Ferrier, & Ndofor, 2001), while performance related growth strategy can be achieved by making changes in strategic and operational facet, such as developing and entering new product market, investing more on R&D and innovativeness(Audia, Locke, & Smith, 2000; Audia & Greve, 2006; Greve, 1998, 2003; Lant, Milliken, & Batra, 1992).

While the behavior theory seems to be a reasonable approach to explaining why firm growth to

[1]As indicated in the past research (e.g.,Greve, 2008), the growth of a firm mainly shown in the increasement of efficiency.And it can be achieve both by improving the performance related method or expansion of size.

[2] "search that is stimulated by a problem and is directed toward finding a solution to that problem" (Cyert & March, 1963).

be large, this work suffers from several limitations in explaining *how* managers make decision on firm growth.First, the behavioral theory of firm growth did not consider how firms' behavior will change if firm 's failure to reach the aspirational level for a long period(Greve, 2008). Existing research has suggested that firms would change their behaviors under such circumstances, as severe or long-lasting low performance is seen as a threat or a sign of decline (Cameron, Kim, & Whetten, 1987; Staw, Sandelands, & Dutton, 1981).But the way in which firms will react has not been fully explained.

Second, existing theories have suggested a causal relationship between aspiration level and firm's decision-making,which predicted that firms of similar size and relative performance, which is defined as the difference between firm's performance at the current stage and its aspiration for performance at the previous stage (i.e., RP_t= $performance_t$-$aspiration_{t-1}$),will make similar decisions(Greve,2008). However, in reality, firms with the same size and relative performance can make entirely different decisions on their growth strategy(either a size or performance growth strategy), and firms with various level of relative performance adopt very similar strategies. Existing theories do not explain why relative performance matters for firms' growth decisions making.

Finally, research taking a longitudinal perspective has not examined whether changes in relative performance (i.e.,$\Delta RP_{[t]}$= relative $performance_{[t]}$-relative $performance_{[t-1]}$)is related to decision making, and the extent to which the changes in relative performance influences firms' growth decision.To illustrate the relevance and importance of this issue, let 's consider two firms, A and B in the same industry. They have an identical level of aspiration for performance. According to the conventional wisdom in firm's decision-making research adopting static approach, a positive relative performance feedback would suggest that firms A and B are equally likely to invest resources in

increasing firm size if they have the same level of relative performance, say 10. But what if firm 's relative performance was increased from 5 to 10, whereas firm 's relative performance was decreased from 15 to 10? In other words, they have achieved the seemingly same level of relative performance, but via different routes. In this situation, what would be the implication for their decision-making process?Existing research have not yet sufficiently addressed this question. More refined examination of this dynamic relationship is likely to provide a better validation of existing theory and stronger practical implications (Mitchell & James, 2001).Therefore, the primary purpose of the current research is to delineate and test a new theoretical model explaining the dynamic relationship between firms' relative performance and their decision-making in firm's growth strategy.

Our research provides following contributions.First, we develop a new theoretical framework which leads to a better understanding of how firm grow through building on and integrating existing theories that explain the relationship between firms' relative performance and decision making. In doing so, we seek to provide a more comprehensive theoretical account of why and how changes in firm's relative performance play a unique role in firms' growth decision. Our second contribution is to delineate a model depicting the relationship between firms' relative performance and the switches of firm's strategic goals between size and performance. A signaling indicator is introduced into the behavioral model of firm growth and helps to explain why firms with the same size make entirely different decisions even at the same level of relative performance.

THEORETICAL BACKGROUND

There exists no single theory that could explain the dynamic relationship between changes in firms' performance and their decision making in growth strategy. We propose that various aspects of the prospect theory, size activation theory, sequential attention theory, experiential learning theory

can be integrated to form a new theoretical framework from which a better understanding of the decision-making process can be developed.

Sequential Attention in Decision Making

Sequential attention rule states that decision makers attend to one goal at a time and move on to the next goal when performance on the first is above the aspiration level(Cyert & March, 1963: 117–119). The order to switch to different goals is not the same among various organizations, however, it mainly depending on the firms preferences and satisficing of their "dominant coalition" (Cyert & March, 1963: 26–32).Sometimes, it is reasonable to expect certain goals that directly related to organization survival will have priority, such as performance, and size will receive its attention once performance goal has been satisfied(Greve, 2008). The satisficing of different goals are a result of peer-based comparison, it largely dependent on to what extent related goals can override their peers status. Such comparisons are similar to the social comparison processes in which individuals compare themselves with reference groups of others who are similar on salient attributes (Festinger,1954; Miller, 1982; Wood, 1989). One thing that seems to be missing in this argument is what makes a firm believe that its performance is satisfying, and thus change their goal in sequential. Since an organization chooses to carry out an idiosyncratically meaningful change according to its unique interpretations of its notified changes. Thus, firm may form a unique preferences of their "dominant coalition" and act differently even they may have a very similar growth results. The understanding the missing point about how firms evaluate certain goals will help us solve the problem -whether firms' behavior changes if the failure to reach aspiration levels has been persisted for a long time, especially when considering severe or long-lasting low performance may be seen as a threat or a sign of decline (Cameron, Kim, & Whetten, 1987; Staw, Sandelands, & Dutton, 1981;

Greve, 2008). Failing to explain how will firm make unique interpretations of notified changes makes it hard to answer, why firms may invest on size when they have gone through a long time of low performance. Further, if firms are making decision based solely on this sequential rule, we may expect large firms make no strategic actions such as mergers, acquisitions, and market entry (Boeker, 1997; Haunschild, 1993; Hirsch, 1986; Pfeffer,1972) once their size has been above their aspiration level(Greve, 2008). However, research in sequential rule, do provide an important way to understand why firm growth under a dynamic environment.

Prospect Theory

Researchers in behavioral economics and psychology have a long tradition of understanding the way of individuals making their decisions. They always find that the individuals make their decision not based on the traditional economic rationality assumption. Thus, rather than simply to explain such behavior as irrational or idiosyncratic, researchers have provided multiple methods to explain how such psychological processes which may lead to those seemingly aberrant outcomes is formed. One of the most influencing theory is the Prospect Theory, the key to this theory is the reference point based performance comparison is much meaningful than the absolute levels of performance (Kahneman & Tversky, 1979; Thaler & Johnson, 1990). Certain reference based comparison are meaningful for firm to make their decision making as it will change the way of the individuals to evaluate their outcomes. Tversky and Kahneman(1991) suggested that based on the reference point used, a positive outcomes can be framed as losses while a negative outcomes as gains.

Thus, Prospect theory (Kahneman & Tversky,1979,1984) has been considered as a useful theory to explain decision making under uncertainty. As according to this theory, the decision making in uncertain environments is largely determined by whether decision makers frame decision

choices as gains or losses. The extent to which decision makers frame decisions as gains or losses depends on their frame of reference and individual value function. Thus, based on the reference point used, a positive outcomes can be framed as losses while a negative outcomes as gains, and affect the decision makers choices. Thus, frame of reference helps to understand how individuals evaluate options or current states in a dynamic environment andin turn determining their decisions. The theory has also been applied to explain organizations decision making. For example, Arrfelt, Wiseman and Hult(2013) showed how historical or social comparison-based aspiration level can affect the pattern of resource allocation activities.

Efficient Size Theory

Aspiration on organization's size is based on the believe that a large size of firm will bring organization with high-efficiency and legitimacy. Size of an organization is related to productivity in many industries, most commonly in manufacturing industry but also in service industry(Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003; Greve, 2008). According to efficient size rule, firms focus on improving its sizes large firm could benefit from scale effect, that is to achieve the best efficiency of production technology by reducing the average costs of fixed assets.Thus, an organization below its efficient size can improve its performance by growing to reach the efficient size(Penrose, 1959; Greve,2008). It has been long argued that firms can improve revenue by increasing efficiency through better utilizing current production capacity and acquiring larger and more specialized production assets, which help to increase efficiency in the long run (Penrose, 1959). However, uncertainty in a dynamic environment about when the efficient size will be achieved makes it difficult to assess whether a firm has arrived its best scale. Thus, firms may need to look backward to check the efficiency-related signaling

indicators which can tell whether they have arrived optimal size. However, how to build the efficiency-related signaling indicator is still unknown in a dynamic environment.

Experiential Learning Theory

Experiential learning theory helps to explain how past experiences will evolve into a relative stable organizational routines(Nelson & Winter, 1982). Such routines that indicated as an outcome of experiential learning is a result caused by previous trial and error learning process and also the selection and retention of organizations prior behaviors. As according to previous research, the Experiential learning process is a process of positive and negative reinforcement for prior choices (Levitt & March, 1988). For those choices that have led to positive results will be enhanced, while the choices that have resulted in negative output will be diminished. In this sense, the key to experiential learning is that it provided a backward-looking wisdom for firms decision making(Louis & Sutton, 1991).

Though the selection and retention of organizations prior behaviors is performance based, the lack of information in dynamic environment make it difficult for for firms to make their judgement on to what extent their performance can be measured as gain or loss. Under this circumstance, the incorporating between backward-looking wisdom and Behavior theory of firm growth suggests that firms' behaviors will be driven by the extent to which the adjustment of performance gap relative to aspirations (Cyert & March,1963; Levitt & March, 1988). Firms will act uniquely depending on whether the comparison between the received performance and the aspiration level is positive and negative and thus the historic performance seems to be critical in this vein(Levitt & March, 1988). Under this consideration and the assumption of satisfaction rule from behavioral theory(March & Simon, 1958), feedback about performance compared to aspirational level will determine to what

extent the performance if the firm is acceptable, and in turn determinate firm 's behavior.

Integrative Theoretical Framework

The theoretical perspectives summarized above offer unique and complementary insights into how firms make decisions. To integrate and build from these perspectives, we delineate three propositions regarding the dynamic nature of firms' decision making and differentiate it from the traditional view of static decision-making process.

The first proposition is that *firms regard performance as a signaling indicator for change.*This proposition follows efficient size rule and sequential attention rule. According to sequential attention rule, goals that are directly related to organization's survival (e.g., performance) will have priority(Greve, 2008).Performance goals have its priority also because it is concrete to managerial incentives, and they affect a manager 's value in the job market (Fama, 1980; Mezias, Chen, & Murphy, 2002).In line with efficient size rule, goals are casually linked. An organization below the efficient size will have low performance and can improve its performance by growing its size to the efficient level.Uncertainty about when firm has achieved its efficient size makes firm have to check signaling indicators such as performance to verify the attainment of an efficient size. More importantly, according to behavior theory of firm growth, firms form an aspirational level through peer comparison to reducing uncertainty in cognition.

The second proposition is that *changes in firms' relative performance are more informative than the static value of relative performance in firms' decision-making processes.*This proposition is derived from prospect theory, which posits that reference points can be subjective and change over time. As Kahneman stated "A given state can be assigned quite different utilities depending on the state that preceded it, and quite different states can be assigned approximately the same utility if they

represent the same change relative to the reference level" (Kahneman, 1999: 17).

The third proposition is that *changes in firms' relative performance reflects the results of past action and serve as guidance for firms to make subsequent decision accordingly(either performance goal or size goal).*This proposition is developed based on the argument of experiential learning and efficient size theory, which says casual link between action and outcome in the past leads to more efficacious choices of certain actions. Firms will reinforce the behavior that lead to positive outcomes and diminish those actions that have negative consequences.According to our previous propositions, firm with positive changes in relative performance has not arrived its efficient size, while a negative change in relative performance means firm has arrived its efficient size under current operation mode and environment, and firm will make their decision accordingly. Since firms may have different efficient size even under the same operation mode in a dynamic environment,in line with efficient size rule,firms will continue to expand its size until it arrives its efficient size under its current operation mode.In other words, a firm will focus on size or performance goal depending on the changes in relative performance receives.

We realize the fact that the further proposition of prospect theory and experiential learning will take changes in relative performance as a signaling indicator of the results of goal change and represent the optimal size scale of nowadays operation model. A positive change in relative performance will be seen as an improvement in performance. This could also be true even when a firm has been experiencing long time of low performance(which may also mean that this firm receives a positive marginal return under current size and operation mode, and has not reached its efficient size).A negative change in relative performance will be regarded as a declined in performance.This could also be true when relative performance is positive(which could imply that

firm receive a negative marginal return under current size and operation mode, and has outgrown its efficient size). Thus, rather than making decisions based on absolute level of performance, the changes in firms' relative performance could be more meaningful to a firm, this is because an increase or decline in relative performance could reflect the results of past decision on certain actions(e.g., price reductions, product development, and sales campaigns; entering new market niches, acquiring resources,and increasing R&D et al) and the efficiency of firm's existing scale and operation mode.

HYPOTHESES DEVELOPMENT

Positive Changes in Firms' Relative PerformanceandGrowth Strategy

Rather than making decisions based on a static status and absolute level of performance, we propose that a dynamic change of relative performance is much more meaningful and informative infirms' decision-making process. The theories we reviewed above collectively suggest that changes in firm's relative performance captures deviations of prior performance from aspiration level ,which make firm's decision makers take changes in firm's relative performance as a signaling indicator of the results of the decisions and actions made in the previous stage,and calibrate their decisions in the next phase.According to our propositions, in order to detect whether firms have arrived it efficient size in a dynamic environment, firms will use the change in relative performance as an indicator of the marginal return under different sizes. A positive marginal return may be taken as a sign that the firm hasn't arrived its efficient size while negative marginal return can be considered that the firm has outgrown its efficient size under existing operation mode and environment.

In view of these theoretical perspectives,we expect that changes in firms' relative performance would be contextually related to firms' decision making in growth strategy,that is, a positive change

in relative performance will reinforce firm 's subsequent action of size expansion. A negative change in relative performance will makes firm reduce their subsequent size expansion, and use a performance-related operation in order to achieve a better performance.This is because according to experiential learning theory and efficient size rule(Levitt & March, 1988; Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003), firm will make choices that are able to lead to positive outcomes(e.g.,positive changes in firms' relative performance means firms have not arrive at their efficient size,and thus focus on the size goal).The propensity to engage in actions that have led to negative outcomes will be diminished(Levitt & March, 1988)(e.g.,Negative changes in relative performance means firms have arrived at the efficient size, thus they will be more likely to focus on performance goal). According to the proposed model, when firms experience positive changes in relative performance, they are more likely to reinforce their size expansion as the improved relative performance makes them to believe their size is not at the most efficient scale. It is because according to efficient rule(Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003), the relation between size and efficiency are an invert U shape, when has not arrived its efficient size, size expansion will have a positive effect on efficiency. However, when the size is above the flat region, the increasement of size will induce a size penalty(Penrose, 1959; Greve, 2008).Thus, based on the latest information received from market, firms will reinforce size expansion decision in order to achieve the optimal efficiency. So we may expect that:

Hypothesis 1: Size is negatively related to firm growth when firm experience positive changes in relative performance.

Negative Changes in Firms' Relative Performance and Growth Strategy

When firm experience negative changes in relative performance under size improvement situation, firm will be more likely to transfer their attention to performance goal, as negative changes in relative performance makes firms to believe they have reached the optimal scale with the current organization configuration. Certain results are deduced based on our proposed mode, as prospect theory suggest; a relative performance are more informative than the static value of relative performance in firms'decision-making processes. So according to experiential learning and efficient size theory(Levitt & March, 1988; McNamara, Deephouse,& Luce, 2003),when firms have made a decision last, they are more likely to looking backward to check if the firm has arrived its efficient size by seeing the change in relative performance. As according to the efficient size rule, a negative relative performance change may consider the firm has arrived it efficient size scale, and additional size improvement may induce a size penalty. So based on sequential attention rule and problem search theory(Greve, 2003; 2008), it is better for firm to shift their goal from size to performance, that is to utilize the operation mode under current size scale to improve firms efficiency. Thus, in order to improve firm's performance of the next stage, when firm has perceived a negative relative performance change, it is better to focus on the performance goal or make some configurational utilization rather than focus on size goal. Thus, we may propose that:

Hypothesis 2: Performance is negatively related to firm growth when firms experience negative changes in relative performance.

However, when considering size activation rule, certain negative effects between performance and firm growth will be reduced. The reason for this situation emerge is because both large and small firms are eager to grow large(Penrose,1959; Scherer et al., 1975), since firms may focus on multiple goals and one dominant goal at one time, the thing that they do is to distribute their resources more

efficiently or more appropriately according to their perception of the firm's problem(Greve, 2003; 2008). So rather than focusing on performance goal only, firms may also focus on size-related goals when they receive a negative changes in relative performance. That is, both large and small firms may endure a size goal activation(Bromiley,1991; Lant et al., 1992; Heath et al.,1999). However, large firms may already have advantages due to scale effect, they will benefit more from size expansion in compare with small firms, as large firms may have more complementary resources to improve the efficiency of invested technology, and also more diversified channels in delivering new products(Penrose, 1959). Thus, large firms may able to invest more resources in current production capacity and acquire complementary assets to increase their efficiency in a more efficient way. Certain complementary assets will bring not only scale effect but also scope effect, those effects have been documented in both manufacturing industries(Scherer et al., 1975)and service industries such as insurance(Johnson, Flanigan, & Weisbart, 1981; Khaled, Adams, & Pickford, 2001), thus we may expect that:

Hypothesis 3: With the average level of relative performance held constant, the negative effect of size on firm growth is stronger in firms whose size is above the aspiration level than in firms whose size is below the aspiration level.

We may also expect the decision that firm invest on size under a positive relative performance will be reinforced when firm's size gets bigger. This is because based on size activation rule, firms may focus more on improving size as they believe big size can help them to improve efficiency(Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003).We thus expect large firms will receive more benefit from investment on size, and by this to prove the existence of size activation rule. Thus, we may expect that:

Hypothesis 4: With the average level of relative performance during a given period held constant, for firms with positive changes in relative performance, the negative effect of size on firm growth is equal or weaker than in firms with negative changes in relative performance.

A signaling based Sequential mode

We shall note that firms will continue to change their goal attention as under the condition of being in the highly competitive market and dynamic industry, firm will not focus on only one goal at a time, but will have and focus on a dominant goal at different developmental stages(Greve, 2008).However, based on the resource that they have, they will distribute those limited resources in proportion based on signaling indicator about where the problem happens(Greve, 2003). Thus,according to our proposed model that integrated from prospect theory (Kahneman & Tversky, 1984), size goal activation rule(Deephouse, 1996; DiMaggio & Powell, 1983; Edmunds, 1981; McNamara, Deephouse, & Luce, 2003), sequential attention rule(Gerve, 2008) , and experiential learning perspective(Levitt & March, 1988), in order to achieve better efficiency, firm will transfer their goal attention according to the signaling indicator. according to our theory, when changes in relative performance are positive, firm will be more likely to focus on the size goal, as with the marginal return improves, firms believe they have not yet reached its efficient size. When changes in relative performance are negative, which means firms already in its optimal size scale, a change in operation mode is necessary.

It is important for us to note that, the change or the shift of certain goal under different signaling indicator can be observed through a comparison between the comparable effect size between size on growth and performance on growth when signaling indicator is above and below zero. It is because under different situations of signaling indicator(above and below zero), the

resource available for invest in different goals will differ even for the same firm, but firm will distribute the limited resources properly according to the importance of different goals(Greve, 2003; Harris & Raviv, 1996; Scharfstein & Stein, 2000; Graham & Harvey, 2001). Thus, if the firm believe there is a problem need to fix under certain situation, they may invest more in the division in order to utilize the efficiency of the firm. That is, if firms previously invested 100 in size and performance in total, and with 60 on size while 40 on performance, if the signaling indicator shows to invest in performance may receive a better efficiency change, so firm may change their strategy to invest 40 on size and 60 on performance in the next round of resource distribution. In order to test the comparable effect size between size on growth and performance on growth under negative and positive change in relative performance situation, this paper will first to test the comparable effect size of size on growth and performance on growth under negative and positive changes in relative performance situation separately, then further to test the change of comparable effect size of size on growth and performance on growth under a negative and positive changes in relative performance situation . Based on our previous arguments, we propose that:

Hypothesis 5:With the average level of relative performance during a given period held constant,for firms with positive changes in relative performance, the negative effect of performance on firm growth is weaker than the firms with negative changes in relative performance.

Hypothesis 6:With the average level of relative performance during a given period held constant, for firms with positive changes in relative performance, the negative effect of size on firm growth is stronger than the firms with negative changes in relative performance.

Hypothesis 7: With the average level of relative performance during a given period held constant, for firm with positive changes in relative performance, the comparable effect of size on

firm growth and performance on firm growth is higher than the firms with negative changes in relative performance.

METHODOLOGY

Data

Accounting data from all the listed manufacturing companies in Chinese A stock market between 2000 and 2011 were coded from CSMAR[3] and were supplemented with data from firm annual reports. Data used to calculate market munificence and dynamic were obtained from the National Bureau of Statistics of China[4]. The data have previously been used to examine competition and experience effects on firm survival.

The data set contained 3496 firm-year observations from 437 firms. An additional 140 firms existed in this period but did not enter the analysis because of missing data. Four years of observations were lost because of the variables constructing, such as market munificence and dynamism.

Firm Growth

Multiple methods has been employed to measure firm growth in previous research, include the distribution channel expansion(Shane, 1996), employment growth rate(Evans, 1987), efficiency change(Cabral, 1995; Lippman & Rumelt, 1982). Similar as Cabral(1995), Lippman and Rumelt(1982), in this paper, we will use an efficiency related construct that is total cost change rate to capture firm growth, as it to some extent reflect the firm's efficiency change, but also in reflect the change in firms size. It seems reasonable for us to select this variable to reflect firm growth, as previous research such as efficient size rule(McNamara, Deephouse, & Luce, 2003) and the Penrose

[3] China Stock Market Accounting Research.
[4] http://data.stats.gov.cn/

model(1959) always assume that the growth of the firm may improve the efficiency of firm, thus by using a reverse logic, an improvement in efficiency may also indicate an increasement in firm size when controlling for technological development(Greve, 2008). Especially considering our research setting, as we suggest that, firm invest and making managerial adjustment because the efficiency related signaling indicator suggested so, thus both size and performance related goals will contribute to the improvement of firms efficiency, so, based on our assumption of this work, the way we select our growth measure should work. We shall note that, according to our assumption, size and performance will have a negative effect on firm growth because efficiency improvement may result in a reduction of firm costs.

Size[5] and Performance Variables

Organization size was captured by the fixed assets of the firms in that year. We use fixed assets as firm size it is because for manufacturing firms, if they want to make an expansion in size, mostly they will buy new machines as well as real assets for manufacturing, thus it seem quite feasible for consider fixed assets as a sign of actual investment on firm size. Other than fixed assets, we also use labor as an indicator of the size, however, the indicator seems not fitted well with our expected model. Thus we employ it as a control variable. In order to control the effect of overall size, we divide it by using asset in total. Which the asset in total is measured by a combination of fixed assets, tacit assets, reputation, stock and long term investment. We tested this assumption by also estimating models with a logarithmic linear specification of firms fixed assets, which showed poorer fit to the data than the linear specification used in the analyzes reported in the tables presented here.

Performance was the pure profit that the firm owned in that year. The index was used very often in previous research (Husted & Salazar, 2006; George, 2005). Some other researches also use an

[5]Size indicator here must reflect the actual investment of the manufacturing firms, it is not necessary to reflect a sign of aspiration level here.

ROA as an indicator of performance(Mishina et al., 2010). However, when we use ROA as a performance indicator, it seems that when combine it with the signaling indicator, the model does not fit well. Thus, we choose profit as firms performance, which may indicate the firm may also use the profit as an indicator under our theory assumption. In order to control the effect of size, we divide the performance by using assets in total.

Signaling Indicator(Δ*RP*)

Rather than using the comparison between other firms as an aspiration levels for goal shift.Our research adopts the Δ*RP*($\Delta RP_{[t]}$= relative $performance_{[t]}$-relative $performance_{[t-1]}$) as a signaling indicator of next round action. Since we have chosen profit as a performance indicator, thus we use Δ*RP,* which receives from profit minus aspiration level compared with the previous level as a signaling indicator. We choose this as signaling indicator because according to our previous argument, compare with a static level of aspiration level, Δ*RP* could be more salient in determining the decision of firms.Since firms will make a decision based on Δ*RP* as a signaling indicator, thus our research uses $\Delta RP_{[t]}$ to predict the behavior of the firm in the next year($Year_{[t+1]}$). For instance, in order to predict the behavior of the firm in 2005, we will employ the Δ*RP* in 2004.

In order to build this indicator, we also build an indicator to measure aspiration level.Similar to previous research(Greve, 2008), our research employ the multiple methods in building the aspiration level indicator, including average profit level of all firms, top 5 firms average profit level and top 3 firms average profit level. Finally, set aspiration level as top 3 firm's average profit level seems to be better to fit our model, which may mean firms are more likely to use top 3 firm's average performance as an referent indicator.Thus, this paper use top 3 firm's average profit level as aspiration level of performance.

Relative size[6]

Relative size that receive from firm's size minus their aspiration level of size is a kind of social comparison-based indicator. Thus it must easy to catch the attention of decision makers. We use this variable as a moderator in order to test how firms will behavior when their size grow to large. The aspiration level of size was measured by firm's average cost level minus top 3 firms average cost, here we use this index as instrumental variable for size minus aspiration level because total cost is highly related to fixed assets, with a coefficient high to 0.89, It is also easy to capture firm with high fixed assets investment may have larger cost compare with firm have low level of fixed assets investment. Further, when building an aspiration level at firm level, compare with fixed asset investment, cost and profit is more likely to capture the attention of decision makers(Greve, 2008), which may mean they may using certain indicator to make a social comparison to build their inner aspiration level(Greve, 2008). Finally, when using fixed assets investment minus aspiration level as size minus aspiration level, it is not fitted well with the existing model, which may mean when firms compare with other firms. Our research also employs multiple methods in building indicator for size aspiration level, including average size level of all firms, top 5 firms average size level, and top 3 firms average size level. Finally, set aspiration level as top 3 firm's average size level of seems to be better to fit our model. Thus, this paper use top 3 firm's average size level as aspiration level of size. Our research employs fixed assets in that year as an indicator of size.

Control Variables

Initially, a broad range of economic indicators were considered for inclusion as control variables,as such variables affect manufacturing firms growth directly,through the ability of firm to affect the firm's growth, and indirectly, through the ability of its employees and external

[6]Rather than fixed assets investment reflecting a sign of true size expansion, the indicator may necessarily reflect a sign of social comparison.

environments affect the growth of firm.Variables from industry level include external environment dynamic, munificence are included. As have prior researchers (Bergh & Lawless, 1998; Boyd, 1995; Dess & Beard, 1984), we measured industry munificence and industry dynamism using volatility of sales growth in an industry (based on two-digit SIC code from China statistic yearbook)(Li, Poppo, & Zhou,2008). Industry munificence was the regression slope coefficient (sales over time)divided by the mean value of past five years industry sales. So in our sample larger values indicate higher industry munificence(i.e., greater industry growth). Industry dynamism was calculated by dividing the standard error of the regression slope coefficient (sales over time) by the mean value for the five-year period until the year of decision making. Larger values thus indicate greater industry dynamism(Brauer & Wiersema, 2012).

The following firm-level control variables were included: Age was the years since the firm's founding. Firm type was the firm's ownership belongs to, traditionally there are three types of firm type, we set 1 as state-owned firms, 2 as privately owned firms and 3 as foreign direct investment owned firms. Industry type was based on the SIC code from China statistic yearbook, we set 1-25 for 25 different industries.The data was obtained from the necessary information of list companies. Considering the technological factor that may contribute to the improvement of efficiency, we also include the tacit assets as a control of firm growth, tacit assets was measured by firms patent, business mark the usage property of land et al. The index is started for list company of China from 2000, thus, all the variables will start no earlier than 2000. In order to control the effect of size, we average it by using total assets firm owns. Finally, we introduced total costs as an overall size control, because previous analyses have shown that large firms grow more slowly than small ones (Barnett & Carroll, 1987; Barron, West, & Hannan, 1995).In order to reduce the effect of size on individual

firms, we divide it by using asset in total. In previous research, we using the raw data such as the total cost to fit the mode, the mode show no significant difference between present model. At the individual level, we employ the labor investment of the firm as a control, in order to control the effect of size, we divide it by using asset in total.

Table 1 displays the descriptive statistics.The correlation table yielded no surprises, with the highest correlations being seen in predictable places, such as the intersection of the dynamism and munificence and the intersection of ΔRP and Sizeminusaspiration. Other than those two intersections, other correlations are relative small and seems to be rational. As the analysis shows, these correlations did not affect the stability of the coefficient estimates.

Analysis

We entered variable effect, fixed effects and random effect for firms to control for stable firm differences in growth under different situations. Estimates of variable effects, random effects, and fixed effects gave similar results on the hypothesis tests, but the Hausman test showed statistically significant differences the coefficient magnitudes. The random-effects model was rejected because of significant correlation of firm effects and the covariate matrix when the signaling indicator is below zero, leaving the fixed-effects model as the best fitted model. However, when signaling indicator is higher than zero, the hausman test show that the fixed effect has been rejected. In our analysis, we mainly report the results from variable effect and using a fixed effect and random effect as a comparison.

Because some of the hypothesis tests involved comparison of coefficient estimates, a combination of t-tests for the significance of individual coefficients, *Z*-tests of coefficient differences were used. Hypothesis 3, stating a greater growth for firms above the aspiration level for the size,

was tested by the significance level of the interaction coefficient of size minus aspiration level. If a firm under higher level of size minus aspiration level have stronger growth trend compare with firm under low level of size minus aspiration level, then our hypothesis will be supported(e.g., negative moderating effect).We test this hypothesis under two different contexts based on the sign of signaling indicator. The existance of size goal activation may also be verified if Hypotheses 4 is supported, as Hypothesis 4 stated that, for firms with positive ΔRP, the negative effect between size and growth is equal or weaker than that with negative ΔRP, this paper will test this hypothesis with Hypotheses 6 together. Hypotheses 5 and 6, stating a weaker effect of profit in growth and stronger effect of size in growth when signaling indicator is positive in compare with negative, was evaluated by an *Z-test* of whether the coefficient estimates of profit and size above and below the aspiration level were equal. In order to test the differences of effect size in two different samples.We adopted a technique that is able to compare coefficient differences across equations(Cohen & Cohen, 1983; Hitt, Ahlstorm, Dcin, Levitas & Svobodina,2004; Arrfelt, Wiseman & Hult, 2013) by adjust the standard errors of coefficients using the following formula:

$$Adj\ STE = (STD_{Positive/negative\ performanc\ change}/STD_{Aspiration\ measure}) * STE_{Aspiration\ measure}$$

Here STD is the standard deviation and STE is the standard errors from the regression equation. We then compared performance and size coefficients across Model 2(*negative performance reference to the previous level*) and model 5(*positive performance reference to the previous level*) with an appropriate two-tailed Z-statistic according to the following formula:

$$Z = (B_{positiveperformance} - B_{negative\ performance})/((AdjSTE_{positiveperformance})^{\wedge 2} - (AdjSTE_{negative\ performance})^{\wedge 2})^{\wedge .5}$$

For Hypothesis 7, stating comparable growth between size and profit is higher when change in relative performance is positive compared with the change in relative performance is negative. We

first use a similar technique as used in the Hypothesis 4, 5 and 6, we first compared coefficients of performance and size in Model 2 and Model 5 with an two-tailed Z-statistic according to the following formula:

$$Z = (B_{performance} - B_{size}) / ((AdjSTE_{performance})^{\wedge 2} - (AdjSTE_{size})^{\wedge 2})^{\wedge .5}$$

Then in order to test the comparable differences between size on growth and performance on growth in two different samples, we employed a Fisher-Z test to test their significance of differences in effect size:

$$Z=(Z1-Z2)/[1/(N1-3)+1/(N2-3)]^{\wedge .5}$$

Here the standard error of the Z test is $1/(N-3)^{\wedge .5}$.

Results

Table 2 shows the estimates of the growth models.Model 1 contains only the control variables; in Models 2 and 4 the hypotheses-testing variables were entered one at a time, and Model 3 and 5 a fixed effect, and random effect was introduced based Hausman test for comparison. The findings of these models do not differ, so Model 2 and 4 are interpreted.

In Model 2 and 4, the coefficient estimate for Size is negative and significantly different from 0, and coefficient estimate of Performance is negative and significantly different from 0 when ΔRP is negative, thus Hypothesis 1 and 2 is thus supported. And the interaction between Relative size and Size is negative both when signaling the indicator is negative and positive. Which means the negative relationship between Size and Growth is stronger when Size is above aspiration level in compare with the Size below aspiration level. Hypotheses 3 is thus supported. Organizations grow faster in size the further they are above Relative size, and the size-growth relation is weaker below the Relative size, and which means large firms still eager to become large. In order to show it in a

more visualized way, we followed Aiken and West(1991) by decomposing the interaction terms. Specifically, we conducted simple slope tests, and the relationships obtained from these tests are presented in Figure 1 and 2. In these tests, we split the Relative size variable into two groups—low (one standard deviation below the mean) and high(one standard deviation above the mean)—and estimated the effects of fixed assets on firm growth at both levels. As shown in Figures 1 and 2, for high Relative size group, the negative effect of Size on Growth much stronger in compare with low Relative size group(the slope changed from positive to negative when Relative size changed from low to high). Therefore, Hypothesis 3 is supported. However, in order to test the existence of Size goal activation rule, this paper need further to test Hypothesis 4.

In order to test Hypotheses 4, 5, 6 and 7, this research employs a Z test to test the equality of different coefficients for Size and Performance on Growth when signaling indicator(ΔRP) is above and below zero. For Hypothesis 5, the Z statistical that test the equality of profit between Model 2 and Model 4 is significant($Z=2.17, P<0.05$), which means the negative relationship between Performance and Growth under positive ΔRP is weaker than that with negative ΔRP. Makes reasonable for us to understand firms are more likely to invest at Performance related growth when the signaling indicator is below zero in compare with above zero.

However, considering Hypothesis 6 that is the effect of Size on Growth when signaling indicator(ΔRP) is below and above zero, the Z statistical that test the equality of coefficient between Size and Growth in Model 2 and Model 4 is not significant($Z=0.047, P>0.1$), which means firm may not have differences in investment on Size growth when signaling indicator is above and below zero. This proposition could be true because, according to size activation rules, firm may always focus on size goal, and sometimes focus on multiple goals at one time(Greve, 2008). However, failure to

support Hypothesis 6 does not mean our theory does not work.It is because, firms may make a decision based on the ratio of resources, and allocation the limited resources properly based on the importance of Size and Performance. Thus, based on this test, Hypothesis 4 is supported.

In order to test how the signaling indicator will affect the difference in resource distribution under two different situations. We need further test Hypothesis 7, that is the comparable relationship between Size on Growth and Performance on Growth when firm has positive and negative ΔRP. We use a Fisher-Z statistical to test the comparable coefficient differences between Size on Growth and Performance on Growth in model 2 and model 4. Before we obtained the comparable differences of Size on Growth and Performance on Growth in two different samples, we first test the differences of effect size for Size and Performance on Growth in each sample, the results show significant differences between Size and Performance on Growth when ΔRP is positive($Z=2.20, P<0.05$), but not significant for ΔRP is negative($Z=0.11, P>0.1$). Based on the Z score we obtained from those two samples, we find the comparable coefficient differences between Size on Growth and Profit on Growth in model 2 and model 4 is significant($Z=57.28, P<0.001$).The significance of the results may mean compared with signaling indicator(ΔRP) below zero, firms are more like to invest on Size when signaling indicator is above zero, and however, firms are more likely to invest at performance related growth when signaling indicator is below zero in compare with signaling indicator above zero. Thus, when firm has multiple goals at one time, firm may follow this signaling indicator to allocate the resources it has.

Control variables

Some findings on the control variables are noteworthy.The coefficient estimate of the firm type is significant when signaling indicator is below zero, this could be an interesting results because it

may shows different types of firms may have something different when they are making decisions. Age is also significant in our model setting when signaling indicator is below zero, it is interesting because the results to some extent verify previous arguments, that is, young and small firms may more like to use a size activation rule for growth. Labor investment also has a significant effect on firm growth, it seems reasonable because labor investment could also be deemed as a sign of size expansion. However, the effect of labor investment is not significant when signaling indicator is above zero. External environment variables make no significant effect on firm growth.

Insert Table 1 about here

Insert Table 2 about here

Insert Figure 1 about here

Insert Figure 2 about here

DISCUSSION

The observation that organizations seek to meet aspirations levels on multiple goal variables has long been part of organizational theory (Cyert & March, 1963). Previous research has stated many different types of firm growth model, such as the social comparison based sequential attention rule and size activation rule. However, these two different streams of researches are drawn from different comparison bases. By assuming the uniqueness of efficient size for various firms under different operation modes, this paper introduced a new signaling mechanism to understand firm growth. Based on this model, we extend the behavioral theory of firm growth by introducing the dynamic aspect of firm's decision-making into the model. The theory is of broad interest as it not only helps us to

understand firm growth in a dynamic way, but also helps us to understand how firms may distribute their resources in a dynamic comparison way.Building upon this theory, we then delineated and tested hypotheses regarding the dynamic relationship between changes in signaling indicator and the decisions about firm size and profit goal. Results from listed companies in emerging market largely confirmed our predictions.

THEORETIC CONTRIBUTION

The Combination of Different Theories to Understand Firm Growth

Firm growth has been a long argued phenomenon. Based on different assumptions, we have drawn upon different views on how firms grow. Building on and integrating the theories providing rational on understanding aspiration level change and firm's goal decision making, such as the prospect theory (Kahneman &Tversky, 1984), Size activation rule, sequential attention rule, and experiential learning perspective, our research proposed a brand new model of firm decision making by integrating those different streams of theories. That is firms are more likely to rely on a signaling indicator configured by performance minus aspiration level reference to the previous level(ΔRP) to make a decision. Thus, our research extends previous theories of firm's decision making by providing clearer and more complete theoretical accounts for why, how, and when changes in performance may influence changes in firms goal intentions.

These findings suggest a process whereby systematic improvement or decrement in utilization of firm's operation(captured by profit change) shapes firm 's future operation mode, which in turn influences their inclination to set a size- or performance-related goal in their decision making. An important reason why systematic changes in performance predict size and performance goal change is that they capture prior efficiency of the corresponding operation mode. An increase in firm 's profit

means the efficient scale of the firm has not been achieved, and under this situation firms are more likely to focus on a size goal(In order to achieve efficient size scale).

The Dynamic Nature of Goal Setting

Rather than using a static comparison mechanism, we devote to a dynamic comparison-based model of decision-making. By introducing a dynamic based signaling indicator of behavioral theory of firm growth, we can understand how firms' behavior will change when they fail to reach aspiration levels for a long time(Greve,2008). According to signaling-based model of firm growth, firm are more likely to make decisions based on ΔRP. Certain features make us believe it is necessary to redefine firm's failure or success in different context. Firms may experience external shocks as well as internal constraints, under which firms are more likely to make social comparison for problem search. Thus, even when a firm has unperformed for a long period of time compare to the average level, as long as it has a marginal improvement referent to its previous level, firm may still consider it as a positive feedback and will be more likely to focus on a size goal.

When Firms Are More Likely to Shift Their Attention

Although previous research has long been argued firms may make decision sequentially and the growth of a firm may directly related to its performance and size(Greve,2008), it is not yet known why or when size goal may shift to performance goal or performance goal may shift to size goal. By assuming firms efficient size is unique, our research add new insights on how sequential attention rule may work together with size activation rules to predict the decision-making mode of firms. According to previous research, firm's decision-making process is much more based on a static social comparison process. Certain decision processes may abort the internal factors that induced from historical performance comparison and firm's differences in operation capability. By

considering these two different conditions in our research model, this study extends firm's decision-making process in a dynamic way and explains how firm's attention may shift sequentially. More specifically, our research shows firms are more likely to take ΔRP as a signaling indicator for decision making, a positive ΔRP may means firm not arrive its best efficiency scale under existing operation situation, thus making a size expansion under this situation seems to be rational. Certain decision rules may also change our understanding on how firms will allocating their resources.

IMPLICATION FOR PRACTICE

Our research may also have several practice implications by assuming firm's efficient size is unique under different operation mode and external environment. A signaling indicator has been introduced to help firm to identify the information about the efficiency of their operation mode. It is important for firms in new niche market and dynamic environments under those situations, it is hard to find out the exact efficient scale of different firms, thus by following our theoretic way, firm may be more likely to reach their efficient size and reduce the possibility of experiencing size curse problem which may caused by size above optimal size scale, and increasing the size may lead to an adverse return of investment.

LIMITATIONS AND FUTURE RESEARCH

Our research has several limitations. When we introduce the measurements size, this paper using a fixed assets investment as an instrument. However, when our paper measures size aspiration level, our research introduces a total cost minus top 3 firms average cost as instrument. Even though, we believe those two different measures are reasonable, because when manufacturing firms try to expand their size, they may always need to investment in fixed asset and employ new employees. And for social comparison, firms may always rely on costs, profit of such significant things. The

introduce of those two measures are based on two different effect backgrounds. Apparently, firm may also rely on other indicator for social comparison. Exploring how decision makers will respond to other indicators presents another challenge for future research.

In building our research, our paper only examines annually based results.This is reasonable considering firms are more likely to report to their stakeholders annually. However, firms' decision-making sometimes are based on their project schedules. Thus, it is necessary and easy for us to understand why firm may also include performance and size goal at one time.

For future research, it is necessary to understand how firms allocate resources based on our assumption situation, it is necessary for us to obtain a new model of firms resource allocation as firm have using an alternative way in achieving their size and performance goals. Thus, certain different way of resource distribution methods may have some new insights on why firms will take a seemingly risky action.

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Table 1 **Descriptive analysis related variables**

Variables	Mean	SD												
Growth	0.222	0.697												
Firmtype	1.549	0.588	0.001											
Age	11.683	3.868	-0.078	0.057										
Munificence	0.226	0.130	0.042	-0.039	-0.152									
Dynamic	0.181	0.073	0.059	-0.013	-0.349	0.727								
IndustryType	13.877	6.383	0.045	-0.112	0.068	0.046	-0.004							
Tacitassets	0.042	0.050	-0.049	0.107	0.133	-0.051	-0.095	-0.112						
Cost	0.710	0.458	0.132	-0.150	0.142	0.011	-0.067	0.102	-0.109					
Labor	0.000	0.000	-0.038	-0.004	-0.020	-0.001	0.046	0.003	0.065	0.011				
Size	0.328	0.154	-0.034	0.011	-0.077	0.019	0.009	-0.271	-0.103	-0.050	0.044			
Performance	0.013	0.173	0.006	-0.046	-0.033	-0.008	0.003	-0.048	-0.060	0.091	-0.163	-0.061		
Relative size	-2.07E+09	5.05E+09	0.040	0.047	-0.061	-0.064	-0.007	-0.234	0.021	-0.120	0.005	0.094	0.001	
Δ*RP*	-1.41E+08	6.58E+08	-0.020	0.012	-0.025	-0.046	-0.012	-0.017	-0.021	-0.078	0.046	0.012	-0.010	0.318

Note. Balanced sample with 3494 observations.

Coefficient Higher than 0.033 are all significant at 0.05 level

Table 2 **Regression results for size and performance over Growth**

Variables	Model 1 Growth	Model 2 Growth	Model 3 Growth(Fe)	Model 4 Growth	Model 5 Growth(Re)
Firmtype	0.0687*	0.0566*	0.0224	-0.0275	-0.0275
Age	-0.0192***	-0.0176***	-0.0361***	-0.00441	-0.00441
Munificence	-0.0845	-0.00625	-0.0810	0.182	0.182
Dynamic	0.597^{+}	0.472	0.435	-0.0657	-0.0657
IndustryType	0.00681**	0.00826**	0.103	0.00200	0.00200
Tacitassets	0.136	0.140	0.490	-0.841*	-0.841*
Cost	0.306***	0.333***	0.838***	0.0203	0.0203
Labor	-23825.6*	-31102.6**	-97567.2***	-7564.0	-7564.0
Size		-0.192^{+}	-0.480*	-0.213*	-0.213*

Performance		-0.144^{+}	-0.232*	0.160	0.160
Relative size		2.46e-11***	3.87e-11***	3.56e-11***	3.56e-11***
Size*Relative size		-5.95e-11**	-8.05e-11**	-5.37e-11*	-5.37e-11*
Δ*RP*		8.41e-11*	1.22e-10**	-8.09e-11**	-8.09e-11**
_cons	-0.0237	0.0666	-1.080	0.394***	0.394***
N	2395	2395	2395	1099	1099
F	14.65	10.80	16.41	5.82	
Wald chi2(13)					23.86
Size(Z- test for H4 &6)				0.047	
Performance (Z –test for H5)				2.179*	
Comparable coeffient of size and performance(Z-test for H7)				57.28***	
R^2	0.0468	0.0557	0.0278	0.0652	0.0652
Adj. R^2	0.044	0.051	-0.109	0.054	
Δ*RP*	<0	<0	<0	>0	>0
Hausman			10.13***		0.4898

+ p< 0.1, * p< 0.05, ** p< 0.01, *** p< 0.001

A total of 437 firms and 3494 firm-year observations comprise the data. Variable effects are reported and interpreted; Fixed effect(Fe) and Random effect(Re) are all reported based on Hausman test for comparison.

The significance tests for single coefficients are two-sided t-tests.

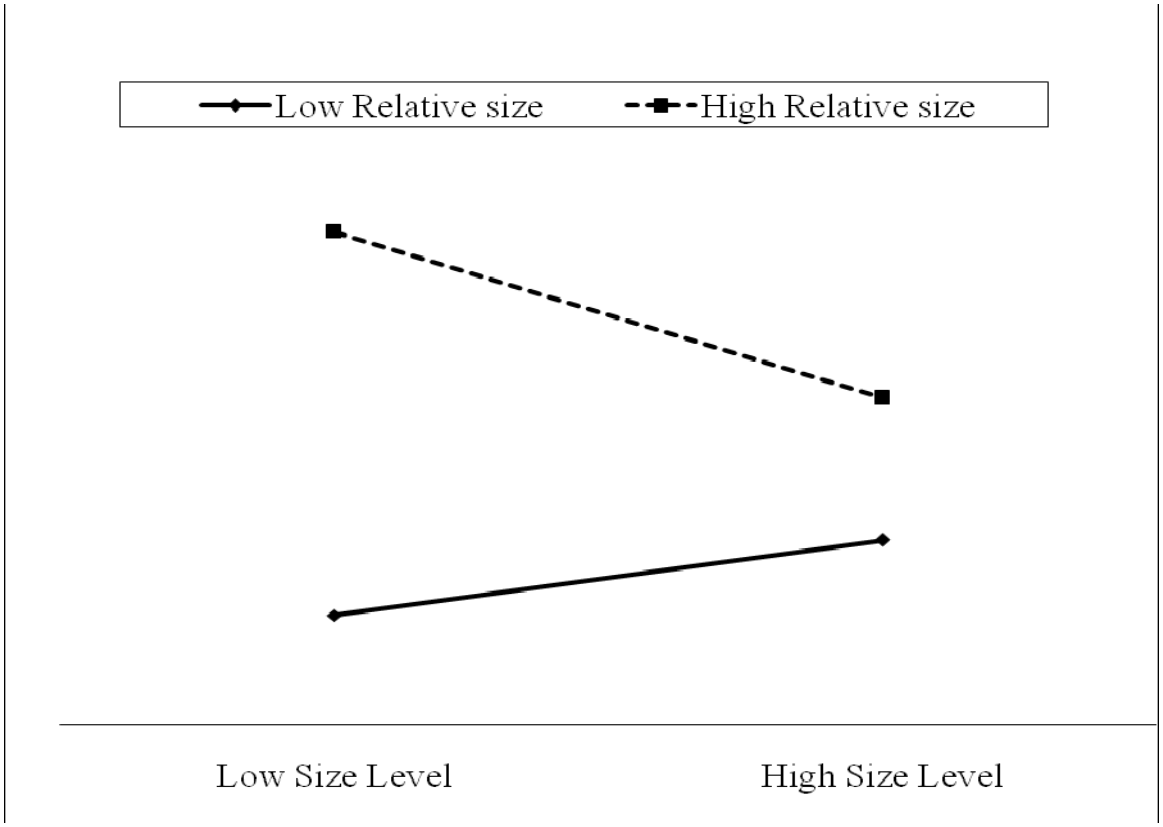

Figure 1 Intention of Size goal under different Relative size level[Positive ΔRP]

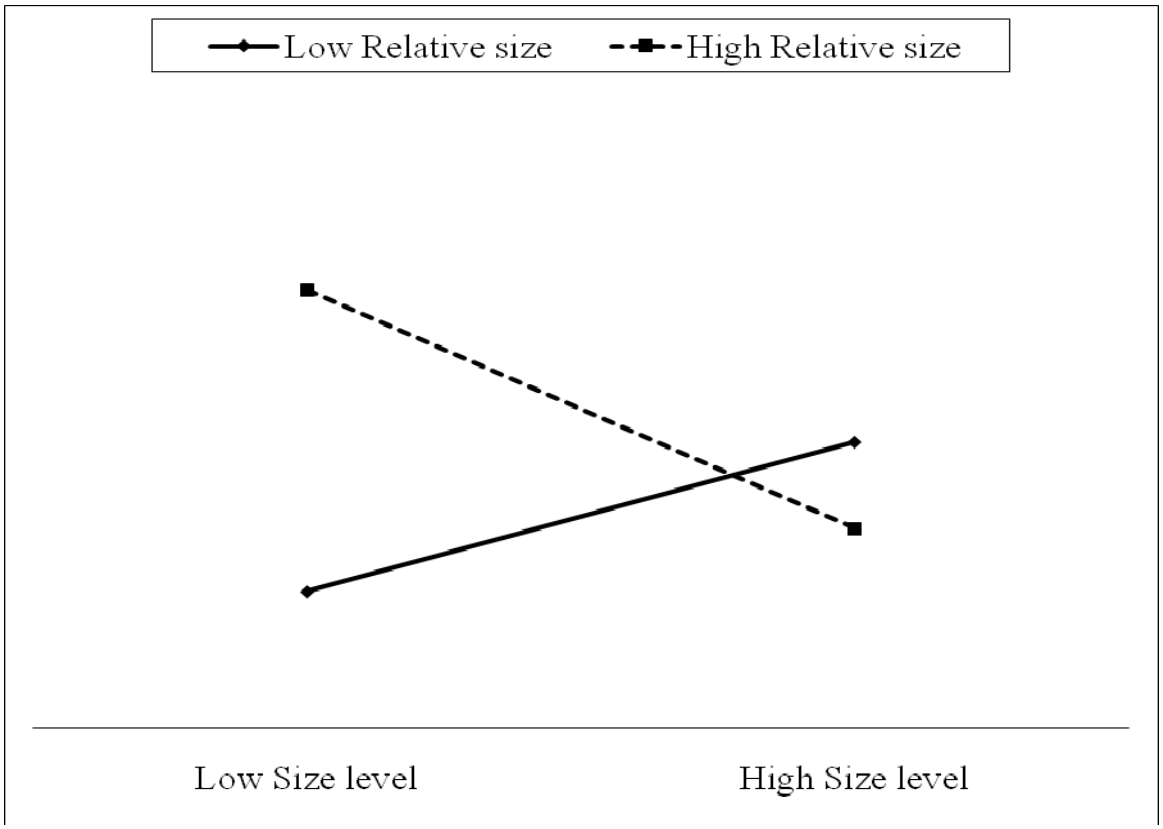

Figure 2 Intention of Size goal under different Relative size level [Negative Δ*RP*]