Managerial Foresight
and Firm Performance
MANAGERIAL FORESIGHT
AND FIRM PERFORMANCE

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Abstract


Purpose – To specify what defines managerial foresight and to assess the association between managerial foresight and firm performance

Methodology/Approach – First, previous research was reviewed and foresight was defined. Second, an instrument for measuring managerial foresight was developed. Third, an empirical case served as an illustration and as an assessment of validity. Fourth, managerial foresight was tested for association with firm performance.

Findings – Foresight was specified as behavior with eight sub-components. A moderate and statistically significant positive relationship between managers’ foresight and firm performance was found.

Research implications – The empirical evidence for the importance of managerial foresight provides a strong rationale for further studies. In distinguishing eight sub-components of foresight, and developing a managerial foresight measurement instrument, the dissertation makes relating foresight to various research fields possible, both on individual managerial and organizational levels.

Practical implications – Managers may consider whether foresight is important to them or to their organization. Managers, practical foresight tools, foresight programs et cetera, may now be assessed and compared in terms of foresight.

Originality/Value – The dissertation provides empirical evidence of the importance of managerial foresight to firm performance. It conceives and advances foresight as a distinct construct. In developing and estimating an instrument for measuring managerial foresight, the dissertation advances foresight into a quantitatively measurable concept.
Preface

Those who cannot remember the past are condemned to repeat it.
(George Santayana)

You cannot escape the responsibility of tomorrow by evading it today.
(Abraham Lincoln)

The future belongs to those who believe in the beauty of their dreams.
(Eleanor Roosevelt)

The reader, whether s/he is a manager or not, certainly has memories of the past, notions of potential futures, dreams or goals, as well as ideas concerning what to do to fulfill them. Presumably, our foresight, our memories, our concept of possible futures, and our goals and plans span diverse time horizons and vary considerably. During the five-year period it took to complete this dissertation, the author has been rewarded with many valuable experiences that can be used in the future. First and foremost, the author wishes to thank his supervisors, Professor Jon Aarum Andersen and Professor Kåre Skallerud. The author also wishes to thank Professor Anders Pehrsson for being available for advice and discussions. The author wants to express gratitude to all the opponents and everyone who has provided comments or feedback.

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1. Introduction

This dissertation addresses the overall research question – “What defines managerial foresight and is managerial foresight associated with firm performance?” (See section 1.2). In doing so, it makes four major contributions. First, a definition of the managerial foresight concept is developed. Second, an instrument for measuring managerial foresight is developed. Third, an empirical case is deployed to assess the validity of the foresight concept developed. Fourth, deploying the instrument for measuring managerial foresight, the relationship between managerial foresight and firm performance is tested.

This dissertation has a main body consisting of four papers. In Paper 1, foresight is defined as a behavior. Considered as behavior, foresight can be exhibited. Importantly, behavior has its own fundamental significance (cf. Catania and Harnad, 1988). It accounts for what a manager does rather than what it has the potential of doing (cf. Boyatzis, 1982) which may be essential for the assessment of the long presumed relationship between managerial foresight and firm performance (e.g. Fayol, 1949; Knight, 1921; Whitehead, 1967). In Paper 2, a quantitative managerial foresight rating scale is developed based on the definition advanced in Paper 1. The development-procedure draws on a sequence (i.e. Churchill, 1979) generally acknowledged for creating scales with good properties (d’Astous and Boujbel, 2007). In Paper 3, the validity of the definition of foresight developed in Paper 1 is assessed by illustrating how past developments of a company may be interpreted in terms of foresight, and how self-reported managerial behavior may be interpreted in terms of managerial foresight. Assessing the validity may be considered one of the most vital aspects of any measurement (A.P.A., 1985; Nunnally and Bernstein, 1994). In Paper 4, the association between managerial foresight and firm performance is statistically tested through the deployment of the rating scale developed in Paper 2. Testing such associations may be considered critical to strategy (Ahuja et al., 2005; Powell, 2003) or strategic management (Barney and Arikan, 2001; Meyer, 1991) and in turn to society (Rumelt et al., 1991).

The future is uncertain. “Nevertheless, some developments can be foreseen and alternatives can be thought of. Therefore, there is the possibility of preparing for the future (with limitations) or to try to shape it actively. This is the background of foresight.” (Cuhls, 2003, p. 93). Indeed, the background of foresight and the importance ascribed to it may be traced as far back as the to early 20th century (Fayol, 1949; Knight, 1921; Whitehead, 1967). Within
academia and consulting, foresight has been linked to performance as a scheme for managing a changing environment. Foresight has also been suggested as a device for promoting innovation and change, rather than or compared to incremental improvements and inertia. The succeeding section of this chapter presents a discourse on such developments, circumstances and issues relevant to foresight that initially prompted this dissertation and that set the stage for the problem discussion (section 1.1).

Looking back at the larger part of the past century, the rate of change has been so slow that viewing time as a straight directional flow has been enough. Extending the past into the future with little deviation has been enough to build an adequate strategy, an application of prediction and planning (McMaster, 1996). For decades the changes companies have faced have more or less been extrapolations of the past; Sears could rely on generations of small town customers to find their catalog the most comfortable medium for shopping. IBM could expect continuously growing revenues as large companies added more and more hertz to their computer departments. Firms have, as it has been put, been run by managers rather than by leaders, by maintenance engineers rather than by architects (Hamel and Prahalad, 1994).

However, few of the firms that started out the 1980s as industry leaders finished the decade as leaders or with their leadership intact (Franko, 2003; Hamel and Prahalad, 1994). Companies saw their success gradually worn away or ruined by the forces of technological, demographical and regulatory change, together with non-traditional competitors’ productivity and quality gains (Hamel and Prahalad, 1994). Likewise, swift and unparalleled change in technological, economical, and political matters resulted in a progressively fluid and borderless environment (Oner and Saritas, 2005) (cf. Eliasson, 2003; Eliasson et al., 2004; Håkansson and Karlson, 2004). Certainly, a process of globalization has been marked by decreasing constraints to the international flow of technology, information, products, values, et cetera. (Kaplinsky et al., 2002), which in turn has brought challenges to the firms (Xu et al., 2007).

In a global environment, some managers turn to a strategy of swift product development (March-Chorda et al., 2002). Indeed, the rate of new products launches has accelerated (Ward, 1996) (cf. MacIntyre, 2004; March-Chorda et al., 2002; Moguilnaia et al., 2005) and there is broad consensus that rapidly changing technology and improved mass communications are two important causes of shorter product life cycles (Bayyigit et al., 1997). For example, the Volkswagen Golf I car-model lasted for nine years before the Golf II replaced, while the Golf III survived merely 6 years before the Golf IV was introduced. New models of cell phones used to appear once a year, but are now attainable much more frequently (Butscher, 1998). Another aspect of our increasingly fluid and borderless environment (Girma and Gorg, 2004; Heshmati, 2003;
Slavens, 2005) is increased fragmentation. Where decreasing trade-barriers and transport costs make it possible to break a production process into parts (Venables, 1999), it has become possible to rapidly arrange production globally in reaction to changing economic conditions (Ethier, 2005).

On the one hand, as product cycles are getting shorter and development times being cut, speed is essential (Bayyigit et al., 1997; Hamel and Prahalad, 1994; March-Chorda et al., 2002). On the other hand, the relevant timeframe for exploring and captivating a novel opportunity may be ten or fifteen years, or even longer, suggesting that perseverance may be equally important to speed (Hamel and Prahalad, 1994). However, it has been argued that although strategic planning is accounted for as a way of becoming more future oriented, most managers, if pressed, will confess that their strategic plans disclose more about present day problems than about tomorrow’s opportunities. At the opening of every planning period, there is often a pristine set of problems confronting managers; hence, focus may change dramatically. With the rate of change quickening in the majority of industries, the predictive horizon becomes increasingly short. As a consequence, planning becomes little more than incrementally projecting the present into the future. Traditional competitor analysis concentrates on the present resources of current competitors; the companies with the resources to hurt margins and market share in the coming planning period are the ones perceived as threats; the speed at which novel competitive advantages are constructed is seldom included. Arguably, typical competitor analysis is, as it has been put it, like a snapshot of a moving vehicle (Hamel and Prahalad, 2005).

The foundations of past success have too often collapsed as the environment has changed more quickly than management has changed its fundamental convictions regarding premises, such as which technologies to excel at, which customers to tend to, and how to maximize the potential of their employees. Indeed, it has been asserted that any company that is a spectator rather than, as it has been put, “...a driver on the road to the future” (Hamel and Prahalad, 1994, p. 6) will eventually find its values, skills and structure less and less matched to a continuously changing business environment. Such mismatch between the rate of change in the external and the internal environment (firm) may create the need for organizational transformation. Looking back, a great number of these companies have found themselves forced to address considerable “organizational” difficulties (Hamel and Prahalad, 1994).

When problems related to competition, expressed by sluggish growth, decreasing margins and tumbling market share, eventually become impossible to avoid, most managers begin restructuring. The organizational transformation schedule usually includes concepts such as downsizing,
overhead reduction, employee empowerment, and portfolio rationalization. Initiatives like these are important, but it has been maintained that they can neither restore a company to a leading position, nor assure that the company, as it has been put, seizes the future (Hamel and Prahalad, 1994). It has been maintained that restructuring, cloaked under concepts such as delaying, de-cluttering, refocusing, and right sizing “always” has the same consequence: fewer employees. Indeed, it has been noted that it is tempting to ask why the right size is “always” smaller (Hamel and Prahalad, 1994; Hamel and Prahalad, 1994b). Certainly, if business structure had been the principal problem facing businesses, then all the restructuring and reorganizing over the past years would have put corporations back on firm ground. Many companies have made large investments in restructuring and downsizing, but generally efforts failed (Want, 1993). According to Want (1993), the real issue is not corporate structure, but rather, the failure of managers to understand and manage change.

It has frequently been marked how firm survival or success has become a problem in the changing environments currently facing firms (SubbaNarasimha, 2001). It has been argued that the harmful convulsions in so many companies during recent years mirror the failure of previously successful managers to keep step with the accelerating rate of industry change (Hamel and Prahalad, 1994b). Indeed, McMaster (1996) claims that the pace of change is ruining our ability to project the future based on the past. Moreover, to survive and flourish in a time of relentless change, Fink and Marr (2005) argue that organizations have to recognize future threats and opportunities early enough and address them in their strategies. It is fundamental to understand future trends with regard to social needs and technology and take them into account (Kameoka et al., 2004). As mentioned, the tasks associated with organizational transformation may be considered important. However, it has been argued that they concern serving today’s businesses more than creating the industries of tomorrow; “…the urgent drives out the important; the future is left largely unexplored…the capacity to act rather than to think and imagine…” becomes the scale of management (Hamel and Prahalad, 1994b, p. 123). The measures associated with restructuring rarely result in significant improvement in business; under the best of conditions they buy time; downsizing seeks to tend to the mistakes of the past, it is trying to catch up instead of trying to get in front (Hamel and Prahalad, 1994).

Put differently, strategic problems may remain hidden behind operational problems. Strategic problems do not automatically call for attention. There is a natural tendency to seek remedies in operational improvements (cost reduction, consolidation, a new manager, et cetera) (Ansoff, 1965). Indeed, it has been observed how managers spend their time on internal questions like
winning the next large contract, dealing with competitors’ price cuts, restructuring, and reengineering, while they in general use less than three percent of their time building a well-founded corporate perspective on the future (Hamel and Prahalad, 1994b). Importantly, powerful driving forces in business and politics that promote short-term thinking and actions may be observed; competition has led to companies facing growing demands for frequent earnings reports; orders gained or lost may be directly reflected in changing share prices; governments may initiate major reform right after elections, and media is expected to deliver to their customers fast, preferably sensational news (Håkansson and Karlson, 2004).

Firms in general are very slow to recognize when concern for operating problems must give way to concern for strategic problems (Ansoff, 1965). Too frequently, serious thinking concerning the future and how to create it take place only after past success has been significantly worn away (Hamel and Prahalad, 1994). The fact that this is not satisfactory may be reflected in the comparatively short life spans of most organizations. Corporations live about half as long as humans do, and dramatic turnover has been observed in the Financial Times top 100, as well as in the Fortune 500 (Duboff, 2004; Stacey, 1992). Rapid organizational turnover is regrettable. Resources are squandered, lives torn, and learning slowed every time an organization perish and a new one has to be created. However, it has been argued that it is becoming clearer why so many organizations perish young. Studies increasingly conclude that managing by existing maps result in imitation, repetition and excess (Stacey, 1992). Likewise, the problematic organizational transformation task a multitude of companies face is often the direct causal result of their failure to recreate their industries and renew their central policies ten or more years ago (Hamel and Prahalad, 1994; Hamel and Prahalad, 2005). Moreover, the aspects and scope of the organizational transformation challenge confronted by the majority of companies were set up by entrants who changed the rules of competition (cf. Stacey, 1992), rather than through the actions of the established companies themselves, i.e., for the majority, the agenda is reactive rather than proactive. And while following rapidly is preferable to following tardily, neither is a formula for outstanding performance. Rather, it has been argued that to “capture the future” firms have to change the essence of the rules of the game in an industry in some essential manner, alter the bounds between industries and/or set up completely novel industries. This behavior, to create new industries and re-create old ones is, as it has been put, a requirement for getting in front and for staying in front (Hamel and Prahalad, 1994).

It has been suggested that the industry environment in which the bulk of strategy and management concepts evolved is vanishing (Kim and Mauborgne, 2005). It has been argued that as “strategy” has bloomed or unfolded, the
strength of Western companies has eroded. In specific, it has been suggested that the employment of ideas like “strategic fit” between resources and opportunities, and “generic strategies” such as differentiation in contrast to focus, as well as the “strategy hierarchy” in terms of goals, strategies and tactics, has instigated the loss of competitiveness (Hamel and Prahalad, 2005). Indeed, Hamel and Prahalad (1994) argue that strategy as instructed in many business faculties and put to practice in most companies appear to be more involved with the existent industry structure than with how to bring forth the structure of the future (cf. Courtney, 2001; Teece and Winter, 1984). Likewise, according to Makridakis (1996), management tools and theories become in vogue like fashion, they rarely survive, they have their moments of fame and die; and sometimes they leave substantial corporate damage. It has been contended that new global competitors have a strategic perspective that is very different from that which supports Western management cognition, and when facing such competitors, marginal adjustments to present conservatives are no more likely to generate competitive resurgence than are marginal betterments in productivity (Hamel and Prahalad, 2005).

According to Makridakis (1996) companies will be much more likely to thrive and perform as desired if they pursue a policy of expecting change, and if they adopt an attitude that acknowledges that future performance is clearly linked to properly anticipating change and properly estimating its implications. Neglecting to anticipate and take part in the opportunities of tomorrow pauperizes firms as well as nations (Hamel and Prahalad, 1985). Regrettably, it is argued, managers in numerous industries work with great effort to match the competitive advantages of new global competitors, production is re-located in the hunt for lower cost of labor, production is rationalized to seize economies of scale, just-in-time production systems are implemented, et cetera. Again, while such ambitions are important, not many of them transcend simple imitation. Despite these efforts, if competitiveness still appears beyond grasp, strategic alliances may be arranged; alliances are frequently arranged with the same companies that disturbed the competitive equilibrium to begin with. Put differently, too many companies spend huge amounts of resources only to reproduce the quality and cost advantages already held by their global competitors. Importantly, it has been argued that imitation will not bring competitive revitalization; strategies founded on imitation are apparent to competitors who have already employed and understood them. Furthermore, prosperous competitors are seldom stationary; hence it may not be surprising that numerous managers find themselves in an apparent “…endless game of catch-up, regularly surprised by the new accomplishments of their rivals” (Hamel and Prahalad, 2005, p. 148).
Company transformation has to be impelled by a viewpoint of the future of the industry (Hamel and Prahalad, 1994b). The aim of contending for industry foresight is, in one sense, to establish the best possible assumption base regarding the future and by means of that base, build the prescience required to proactively shape industry evolution. The challenge is, as it has been put, to penetrate the mist of uncertainty and build foresight into where the markets of tomorrow are located (Hamel and Prahalad, 1994). Similarly, it has been argued that the speed of changes in turbulent environments is such that companies that use emerging strategies endanger their own survival; when they are ready to introduce their new products or services, competitors with more foresight are already on the market (Ansoff, 1991).

When analyzing how smaller companies could prevail against much larger and richer companies, differences in resource effectiveness have been noted that, as it has been argued, cannot be accounted for by incremental discrepancies in operational efficiency or factors like, for example, the cost of capital or labor. As a consequence, it has been concluded that some managers are more foresightful than others (Hamel and Prahalad, 1994). Likewise, it has been noted how companies such as Canon, Honda and Komatsu, which advanced to global leadership over the last 20 years, started with aspirations that were out of proportion relative their capabilities and resources (Hamel and Prahalad, 2005). Indeed, according to Kuwahara (1999), Japan begun its technological and scientific developments later than other nations, but still was rather prosperous; Kuwahara argues that one of the factors that brought this prosperity forth was the deployment of sizable foresight studies in the 1960s. Looking across the behavior of a selection of successful smaller companies (including behavior concerning innovations), a consistency has been noted that, as it has been argued, assumes a view about the future (Hamel and Prahalad, 1994). According to Ansoff (1965), the point is that unless actively pursued, strategic issues may not receive adequate attention (due to operational problems) (Ansoff, 1965), which may influence company innovation.

Companies innovate in several ways, including “…innovations in business models, products, services, processes, channels for maintaining or capturing markets, and reducing costs or prices through greater efficiencies” (Xu et al., 2007, p. 10). Hansen (2006) notes how innovations have been seen as crucial to supporting firm competitiveness and many findings reveal a positive relationship between innovation and firm performance (cf. Becheikh et al., 2006; Gopalakrishnan and Bierly, 2006; Lewis, 2004; McEvily et al., 2004; Nobelius, 2004). Certainly, it has been observed how “radical” new products in, for example, computer, pharmaceutical and biotechnical industries as well as “incremental” new products in various industries have become key in strategic planning (Thieme and Song, 2003). It has been noted how in spite of deviations in definitions, scholars agree that radical innovation in an
organization is very dissimilar from incremental ditto, and that the former is crucial to the longer term performance of firms (McDermott and O’Connor, 2002). It has been argued that competing for current or shrinking markets will not be enough to nurture high performance; firms must transcend competing in established industries. Indeed, “really new” products have been found to excel incremental products in terms of meeting profit objectives and revenues (Kim and Mauborgne, 2005) (cf. Song and Montoya-Weiss, 1998). Similarly proactive behavior has been found to be the best condition for innovative performance rather than inert behavior (Meeus and Oerlemans, 2000).

In short, it has been argued that with fast changes in technology and fierce rivalry in the environment, the importance of nurturing and nourishing foresight in some companies has been driven to levels never seen before (Andriopoulos and Gotsi, 2006). The main issue is that success is difficult to attain and just as difficult to sustain (Duboff, 2004). Not many competitive advantages are durable (Hamel and Prahalad, 2005). Indeed, there is competition between laggards and challengers, incumbents and innovators, between the inertial or imitative and the imaginative; challengers generally devise better working solutions to customer problems. Challengers arguably find novel solutions as they are consent to gaze far past the old. Importantly, being a challenger does not entail being an upstart; foresight implies the competition to visualize fundamentally novel sorts of benefits to offer customers, or radically novel methods of delivering existent benefits (Hamel and Prahalad, 1994).

To challenge entails competing to produce and command opportunities; the aim should not be merely to benchmark and imitate competitors’ offerings and methods, but to build an autonomous viewpoint about future opportunities and how to make use of them. This implies a concept of strategy that acknowledges the necessity for more than incremental yearly planning. It necessitates a strategy that acknowledges that product miscarriages are frequently unavoidable, but that they still grant chances to discover more about where the bulk of future demand may be found. It has been argued that in most strategy textbooks and exercises, it is generally assumed that the service or product is well established, that the dimensions are well delineated and that the borders are stable. But, as it has been put, concentrating on the final phase of market based competition while lacking a comprehension of pre-market competition is like attempting to make sense of childbirth, while lacking an understanding of conception. It has been suggested that “…most managers spend a disproportionate amount of time in the delivering room, waiting for the miracle of birth…too much time managing the present and not enough creating the future” (Hamel and Prahalad, 1994, p. 47). Moreover, it has been contended that no company can flee the necessity to remodel its product portfolio, its processes, air its resources, and re-skill its employees.
The real issue is whether this transformation happens delayed in an emergency or with foresight, calmly and carefully thought over (Hamel and Prahalad, 1994; Hamel and Prahalad, 1994b).

To bring this introduction to a conclusion, it has been observed how in spite of the huge stakes involved, companies tend to launch their programs for building market share without much foresight and with negative consequences (Fruhan, 1972). It has been argued that for contemporary civilizations, the future should be meticulously analyzed, influenced, and preferably planned. Importantly, while the future may not be apprehended with certainty, to the extent it is produced by humans, by foresightful action, i.e., activity that seeks to shape the future, it becomes important and significant to examine. Nations and firms employ foresight studies to handle uncertainty. Certainly, national foresight studies have become more and more prominent in Europe since the early 1990s (Oner et al., 2007). Likewise, nurturing organizational foresight, which for a long time has been recognized as crucial in handling the continual change environment, appears more prevalent than ever (Andriopoulos and Gotsi, 2006; Tsoukas and Shepherd, 2004). It has been maintained that with an accelerating rate of environmental change, the need to focus on auditing what alternatives may be attainable becomes more compelling for everyone, individuals and organizations (Oner et al., 2007). That said, additional knowledge is needed, which is made evident in the succeeding problem discussion.

1.1 Problem discussion

This dissertation addresses a core problem shared with other strategy researchers. A core problem “...for strategy researchers is why some firms outperform others” (Ahuja et al., 2005, p. 792) and strategy research seek to explain why certain firms outperform others (Powell, 2003). Analogous, strategic management is structured around the core question of why certain firms persistently outperform others (Barney and Arikan, 2001); the field has consistently regarded performance as the ultimate dependent variable (Meyer, 1991). Even though within the literature there are contending views concerning the relative significance of industry and firm specific features in deciding performance (Schumacher and Boland, 2005), some firms indeed clearly outperform others and they do so consistently (Bowman and Helfat, 2001; Powell, 1996; Powell, 2003; Rumelt, 1991; Rumelt et al., 1991). The reality of such differences was the birth of the strategy concept (Rumelt et al., 1991). Strategic management as a field of research is founded in practice. It exists on account of the importance of its subject matter (Rumelt et al., 1991). Strategies can be critical to firms, both in terms of their existence and non-existence (Mintzberg, 1987). Strategic management is at the core of wealth
creation in industrial society. Society benefits from well-adapted, effective organizations and strategic management focuses on bringing them forth. The latter in terms of the study of their birth, prosperity, and survival, as well as of their failure, and with their failure associated cost and experience (Rumelt et al., 1991).

There are numerous definitions of the strategy concept (Howard, 1984; Oliver, 2001). For example, strategy is “…rules for decision under partial ignorance” (Ansoff, 1965, p. 121) or "…the essence of strategy is choosing to perform activities differently than rivals do" (Porter, 1996, p. 64). It can be argued that strategic management, frequently named “policy” or plainly “strategy”, pertains to the direction of organizations, and often of business firms. It embraces the matters that are of principal interest to those seeking causes for success and failure among organizations (Rumelt et al., 1991).

The importance of foresight to strategic management and performance has been acknowledged, at least since the early twentieth century (e.g. Fayol, 1949; Knight, 1921); “…if foresight is not the whole of management at least it is an essential part of it.” (Fayol, 1949, p. 43). Foresight is an “…unquestioned element” in commercial success (Whitehead, 1967, p. 88–89), and arguably it has been the goal of the most successful strategic planning and decision-making processes throughout all time (Courtney, 2001). Indeed, “Managerial foresight is the ability to predict how manager’s actions can create competitive advantage. As such it plays a critical role in all major theories of competitive advantage; each of these theories implicitly assumes that managers have some degree of foresight about the emergence of an advantage. Absent foresight, these theories would, in practice, be indistinguishable from luck” (Ahuja et al., 2005, p. 792). From an evolutionary perspective, foresight has been labeled as one unique feature of man: “One unique feature of man, which may or may not have evolved memeically, is his capacity for conscious foresight” (Dawkins, 2006, p. 200). As it has been put, our conscious foresight, our ability to imagine or simulate the future, may save us from the worst egocentric overindulgence of our genetic makeup (Dawkins, 2006). In seeking to act intelligently, members of the species are seeking to ensure adaptation, which entails foresight (as complete as possible) (Knight, 2002).

### 1.1.1 Current knowledge in the field

Journals like *Futures* and *Foresight* bear witness to a growing body of writings in the field of foresight (Major et al., 2001). However, much research on foresight thus far has taken the form of reasoning combined with limited or sometimes no empirical data. A review of the field reveals empirical research that has been limited to case studies. Examples of such studies are: A study
concerning how a top management team develops strategic foresight with regard to launching a bank (i.e. Costanzo, 2004); futures studies techniques in the general insurance industry (i.e. Saul, 2002); studies in public policy making (e.g. Habegger, 2010); how foresight is mobilized in a new product design consultancy firm (i.e. Andriopoulos and Gotsi, 2006); studies regarding innovation in multiple product innovation firms (i.e. Brown and Eisenhardt, 1997) (cf. e.g. Rohrbeck and Gemunden, 2009).

The concept of foresight has been deployed as a tool or an approach in a plethora of contexts (e.g. Burke and Hulse, 2009; Czaplicka-Kolarz et al., 2009; Richardson, 2009; Tucker and Courts, 2010). Indeed, key areas where forward thinking has been seen as especially important include business, education, and government (Slaughter, 1997). It has been argued that the use of foresight as a tool in policy and strategic decision making to improve competitiveness and innovation has grown, and grown increasingly (Alsan and Oner, 2003). There appears to be an increasing need for futures research in all of contemporary society (Uotila et al., 2005). It has been suggested that the future is more uncertain than ever, so paradoxically, the necessity to understand it has never been greater (Shaw, 2002).

Researchers have discussed limitations of foresight (e.g. Hadfield, 2005; McDermott, 1996), biases (e.g. Fischhoff et al., 2005; MacKay and McKiernan, 2004; Winman et al., 1998), uncertainty (e.g. Courtney, 2001; Foo and Foo, 2003), and what could be seen as a sub-dimension; knowledge or the search for knowledge (e.g. Chang Sea, 1996; Uotila et al., 2005). The concept of foresight has been related to other concepts such as core competence (e.g. Major et al., 2001), philosophy of science and technology strategy (e.g. Eto, 2003), strategic technology scanning (e.g. Van Wyk, 1997), horizons (e.g. Lane and Maxfield, 1996), development planning (e.g. Oner and Saritas, 2005), strategy (e.g. Courtney, 2001), product development (e.g. Andriopoulos and Gotsi, 2006; Brown and Eisenhardt, 1997; Saul, 2002).

Authors have focused on foresight techniques or proposing roadmaps for developing foresight (e.g. Alsan and Oner, 2003; Barker and Smith, 1995; Fink et al., 2005; Greenstein, 2005; Horton, 1999; Ishino et al., 1999; Mercer and Wilter, 2002; Reger, 2001; Stout, 1997; Voros, 2003), as well as technology foresight for competitive advantage (e.g. Anderson, 1997). However, there is limited research on the degree of foresight or how managers utilize it (Ahuja et al., 2005). Importantly, while scholars have discussed the meaning or definition of foresight (e.g. Raimond, 1996; Ratcliffe, 2002; Slaughter, 1996b), and many different definitions (some which partly overlap) have emerged (Alsan and Öner, 2003), there is no widely accepted definition of foresight (Horton, 1999; Major et al., 2001). The term is often misunderstood (Horton, 1999; Major et al., 2001) and not defined clearly.
enough to allow measurement. Likewise, studies that empirically test and quantify the relationship between foresight and performance appear non-existent.

1.1.2 Additional knowledge needed

In essence, additional knowledge is needed regarding why some firms outperform others. No systematic study of why some firms perform better than others with managerial foresight as the independent variable hypothetically associated with firm performance has, to the knowledge of the author, up to the time of writing been conducted. The shortage of systematic empirical quantitative studies is evident. Consequently, given the ascribed significance of foresight, knowledge is needed in terms of the specification of the concept to allow it to be measured, and with regard to its presumed effect on firm performance. That is, more knowledge is needed with regard to the meaning or definition of foresight and more knowledge is needed with regard to the proposed (cf. Fayol, 1949; Knight, 1921; Whitehead, 1967) association between managerial foresight and (firm) performance. See Figure 1.1. The question marks in Figure 1.1 signify the additional knowledge needed in terms of the definition of foresight and in terms of the association with performance.

Figure 1.1 Additional knowledge needed

1.2 Overall problem and research question

The overall research problem of this dissertation: The research problem is both theoretical and empirical. The problem is that it is unspecified what defines managerial foresight (theoretically), and whether managerial foresight is associated with firm performance (empirically).

The overall research question of this dissertation: What defines managerial foresight and is managerial foresight associated with firm performance?
1.2.1 Overall purpose

The overall purpose is a logical extension of the overall research question:

The overall purpose of this dissertation: To specify what defines managerial foresight and to assess the association between managerial foresight and firm performance.

The overall purpose, to specify managerial foresight and to assess the association between managerial foresight and firm performance, has four major parts. First, previous research is reviewed and foresight is defined. Second, an instrument for measuring managerial foresight is developed. Third, an empirical case serves as an illustration and as an assessment of validity. Fourth, managerial foresight is tested for association with firm performance.

1.2.2 Broken down research questions

As an extension of the overall research question and following from the current knowledge in the field, this dissertation addresses four broken down research questions. First, knowledge of the nature of foresight and managerial foresight is a prerequisite for assessing any association between managerial foresight and firm performance. Thus the first research question:

Research question 1: What defines managerial foresight?

Next, to allow any comparison between managerial foresight and performance, it must be possible to measure or assess managerial foresight. That is, measuring managerial foresight should be a prerequisite for testing any associations, hence research question two:

Research question 2: How can managerial foresight be measured?

Next, while evidence concerning validity may be considered inherent in the way all the research questions are answered, it has been noted how such evidence should be built up from a range of studies (i.e. Nunnally and Bernstein, 1994). Consequently, to supplement the pool of evidence for validity:
Research question 3: Validity assessment
May developments of a company and managerial behavior be interpreted in terms of foresight?

Finally, concerning the assessment of the proposed association between managerial foresight and firm performance:

Research question 4: Foresight and performance
Is managerial foresight associated with firm performance?

1.2.3 Conceptual model of this dissertation

Figure 1.2 Conceptual model of this dissertation and research questions.

The numbers 1-4 correspond to the research questions as stated above. The line expresses the proposed association between the concepts.

1.3 Definitions of central terms

1.3.1. Foresight

In accordance with the review and the synthesis of usages and definitions into one generic definition, in order to make the concept measurable (cf. Research question 1), “foresight” is defined as a behavior. Specifically, foresight is defined as degree of analyzing present contingencies and degree of moving the analysis of present contingencies across time, and degree of analyzing a desired
future state or states a degree ahead in time with regard to contingencies under control, as well as degree of analyzing courses of action a degree ahead in time to arrive at the desired future state (See Paper 1, Appendix I). Managerial foresight is defined as managers’ ditto.

1.3.2. Performance

In accordance with a semantic meaning of the concept, “performance” is defined as “…how well a person, machine etc. does a piece of work or an activity” (Cambridge Advanced Learner’s Dictionary). Recognizing that performance may be viewed as multidimensional (Govindarajan, 1988; Naman and Slevin, 1993; Neill and Rose, 2006; Siguaw et al., 1998; Wiklund, 1999), this dissertation utilizes an index built up of five measures; net turnover, total assets, net result, return on total assets, and appropriated earnings (See Paper 4, Appendix IV).

1.4 Structure of this dissertation

Four broken down research questions and their associated papers, as shown in Table 1.1, constitute the main body of this dissertation. Papers 1-4 (Appendix I-IV) correspond to the broken down research questions 1-4, as well as steps 1-4 in the research process (See section 3.2 Research process).

Table 1.1 Structure of the dissertation

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<th>Broken down research question</th>
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<th>Paper no.</th>
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<td>1:</td>
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<td>2: How can managerial foresight be measured?</td>
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<td>4: Is managerial foresight associated with firm performance?</td>
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2. Theory

An increasingly dynamic business environment should allow itself to be studied from a dynamic perspective (cf. Barnett and Burgelman, 1996; Powell and Wakeley, 2003). Likewise, it should be evident from the introduction that foresight concerns change and the becoming rather than stasis or the being. Consequently, in this section, an evolutionary perspective is introduced and discussed. Special attention is given to foresight, to performance, to levels of analysis, and to change. A tentative and summarizing model of how foresight can be conceptualized from an evolutionary perspective is proposed. A conceptual model illustrates how foresight fits in the field of business economics. First however, a brief depiction of perspectives with alternative foci sets the stage.

2.1 Alternative perspectives

The body of work pertaining to the field of strategy has become so large, varied, and complicated, that attempting to give a complete synopsis of the field may be futile (Bodwell and Chermack, 2010) (cf. e.g. Mintzberg et al., 1998). However, broad perspectives or approaches may be described, including; prescriptive design, industrial organization, and a resource-based view.

2.1.1 Prescriptive design

As an example on strategy formulation, Ansoff’s (e.g. Ansoff, 1965) strategy formulation tool could be labeled prescriptive in its orientation, treating strategy formation as a process of conceptual design or rational planning, rather than as a process of learning or as a passive process (Ansoff, 1991). More specifically, it may be argued that Ansoff (1965) is trying to synthesize and unify the previous work and historical progress into an analytic approach to solve the total strategic problem of the company. Ansoff discusses variables within and around the firm and identifies relationships between these variables to single out important decisions and to prescribe rules for arriving at decisions. The final result of the discussion can be described as a decision flow scheme, a tool for product-market strategy formulation.

Prescriptive design schools such as Ansoff (1965) have received criticism. Major critique to the prescriptive design schools includes the fact that they see strategy formation as a planned process rather than one of learning, or in other
words the separation of formulation from implementation, a command and control mentality. Moreover, it has been argued that they focus on processes through which strategies should be developed, and say little about the actual content of strategies (Mintzberg, 1990). It has been contended that deliberate (formulated) and emergent strategies can be seen as two ends of a continuum, along which real-world strategies lie (Mintzberg and Waters, 1985). The criticism has sparked debate (cf. e.g. Ansoff, 1991; Mintzberg, 1991).

2.1.2 Industrial organization

Mason’s and Bain’s industrial organization framework, also known as the Structure-Conduct-Performance model (Martin, 2003), focuses on a firm’s profitability and how profitability is determined by the characteristics or structure of the industry. In other words, the characteristics of an industry, rather than the firm, are considered as the principal influences on performance (Martin, 2003; Parnell, 2002). For example, Mason (1939) discusses price policy and argues that the economic age or stage of development of an industry, the size of buying units, the character of distribution channels, etc., may influence the policy and practices of companies in the industry (cf. Mason, 1939). Bain (1956) uses barriers to entry as a central concept. That is, Bain addresses how the structural characteristics of different industries affect the behavior of entrants and established firms. Major sources and their height as entry barriers have been elaborated, for example, economies of large scale, product differentiation advantages of established firms, absolute cost advantages of established firms (cf. Bain, 1956).

However, it has been concluded that it seems doubtful whether any useful generalizations can be made regarding the price and production policies without further specifications of the specific situation in question (Mason, 1939). Likewise, it has been proposed that entry barriers are not only determined by the structure of an industry: Both the entrant and the established firm make decisions based on uncertainty. And the established firm’s actions influence both the entrant’s assumptions about the industry conditions following entry and the (structural) barriers to entry. That is, the entry barriers are partly structural, but also at least partly developed by the specific situation (Caves and Porter, 1977; Seth and Thomas, 1994).

2.1.3 Resource-based view

Viewing firms as a collection of resources may be traced back to Penrose (1959) (Wernerfelt, 1984). From the resource-based perspective, the firm can be viewed as an administrative organization and a collection of productive
resources (Penrose, 1959). Penrose (1959) limits attention to companies that grow, the process of growth, and the rate of growth. Specifically however, Penrose (1959) is not attempting to present a theory that will provide analysis of a firm and to state in advance weather the firm will or will not successfully grow. In practice, this can not be determined in advance; the only way to determine whether or not the firm grows is to wait and see (Penrose, 1959).

In comparison, for example, when exploring the usefulness of analyzing companies from a resource perspective, Wernerfelt (1984) proposes new concepts that have been used to highlight what Wernerfelt calls the new strategic options that naturally emerge from this perspective. In a similar fashion, for instance, Grant (1991) proposes a framework for a resource-based approach to strategy formulation by integrating a number of key themes from the area. It has been argued that the resources and capabilities are central when formulating a strategy. Resources may be seen as primary constants upon which a company can establish its identity and strategy; they are seen as the primary sources of the company's profitability. It has been argued that the key is to understand the relationships between resources, capabilities, competitive advantage, profitability, and the mechanisms. It is also necessary to understand that this demands that the strategy, as far as possible, exploit the company's unique characteristics (Grant, 1991).

2.2 Evolutionary perspective

Evolutionary perspectives have gained support in the social sciences (Jones, 2005). They are concerned with the becoming rather than the being (Foss, 1994). Powell and Wakeley (2003) note that evolutionary business economics is concerned with dynamic systems and behavior within those systems. That is, an evolutionary perspective can be contrasted or compared to schools such as the industrial organizations (e.g. Bain, 1956; Mason, 1939), the prescriptive design school (e.g. Ansoff, 1965; Learned et al., 1965) and the resource-based perspectives (e.g. Penrose, 1959).

The modern popularity of evolutionary economics can be ascribed to Nelson and Winter (1982); but the origin of evolutionary economics can be traced as far back as to the work of Schumpeter (1934), Veblen (1899) and Marchal (1898) (Powell and Wakeley, 2003). Despite a distant past, the evolutionary perspective can be described as relatively young, as reflected by, for example, Dosi (1991) and Massey (1999).

Evolutionary business economics may be contrasted with a neoclassical (cf. Seth and Thomas, 1994) focus on equilibrium, stasis and (non-bounded) rationality (cf. Teece and Winter, 1984). In general, schools of strategy offer
some logical explanation(s) regarding performance differences among organizations. A belief frequently shared among the schools is that theory can be expected to match empirical patterns at a single point in time. The dynamics through which the outcomes develop are not specified. Such thinking is based on what has been called the assumption of historical efficiency, that is, the assumption that the cause and effect relations will play themselves out, and reach equilibrium quickly and independently of the specifics of the particular process. In other words, it is based on the assumption that evolution brings swift optimization or empirical regularities, as if it is automatically consistent with theoretical reasoning (Barnett and Burgelman, 1996).

So far it has been customary to base business economics on such neoclassical thinking. However, neoclassical approaches make it difficult to study, for example, the development of competitive advantage in a dynamic environment (Powell and Wakeley, 2003). Indeed, it has been argued that while existing theories make sense of the structure of an existing industry, they grant little understanding of what is needed to fruitfully remodel an industry. While they may describe the characteristic of a leader, they grant little understanding of what it takes to build a well-founded conception of the future, and even less of how to make it come through (Hamel and Prahalad, 1994). For example, it has been noted how there may be an articulated view of what makes a firm strong or weak at a specific point in time, but it may not be well understood, not even among the managers themselves (Nelson, 1991). Put differently, while observing relative competitive advantage, existing theories do not track the dynamics of building competitiveness (Hamel and Prahalad, 1994).

In contrast to neoclassical thinking, an evolutionary perspective specifically concerns how outcomes develop. That is, the evolutionary perspective treats the assumed swift optimization as part of what is to be examined (Barnett and Burgelman, 1996; Garcia, 1998). Importantly however, there is no exact digital distinction between orthodox and evolutionary economics, rather a continuum. There is a considerable number of scholars from various traditions trying to bring attention to phenomena like non-linear dynamics, history dependence, less than perfect rational behaviors, et cetera (Dosi, 1991) (i.e. e.g. Penrose, 1959).

An evolutionary perspective concerns the dynamic processes themselves (Cui, 1998). More specifically, it implies path dependent patterns which permit potential random variation and selection among and within firms (Barnett and Burgelman, 1996; Jones, 2005). An evolutionary perspective views competition among firms as a fight for survival in an environment where potential customers drive selection; it is the application of general evolutionary
concepts to economic circumstances. In particular, evolutionary concepts such as the principles of variation, selection and retention are applied to economic circumstances. Focus is on explaining the process of change in a system with regard to the interaction between variation, selection and retention: If there is variety in a system, only those which best fit the environment will survive (assuming the survivors are selected according to some criteria of fitness with regard to the environment). Those that survive will continue to display their attributes (with survival value) in the following time period (retention). In contrast, the attributes belonging to those who did not survive die out (Powell and Wakeley, 2003).

In general, the following propositions should hold for an evolutionary perspective. First, only a very small share of opportunities is exploited at any point in time. In other words, the world is full of opportunities. Individuals and economic organizations are primarily constrained by the limitations of their own competences rather than by nature (cf. Penrose, 1959). Second, individuals and/or economic organizations perform behaviors that are much less than maximizing. Norms, biases, slow responses to environmental information amongst other factors mean that routines and routine breaking exist together. Behaviors depend more on perceived rules or constraints rather than consciously optimized acts. Third, interaction between individuals and/or economic organizations is generally not in equilibrium. This gives conditions by which participants learn, are selected, grow or die. Fourth, institutional rules and selection in the market (or other environment) are the driving mechanisms for coordination and change. The process is evolutionary in the sense that a variety of traits and trial and errors are the general case; change is not blindly Darwinian (or independent of the requirements of the organism’s environment). That is, people do learn and create. And the process is not evolutionary as an opposite of revolutionary, abrupt changes may occur. Fifth, the links with research in other social disciplines are very important (Dosi, 1991).

### 2.2.1 Darwinism and Lamarckism

The Darwinian evolutionary model can be compared to the Lamarckian model. It has been observed how the Darwinian model of evolution essentially is dependent on random variation and natural selection; the mutations to the genome that result in “genetic” variability are entirely independent of the demands of the organism’s environment. In other words, the genome of an organism does not consciously anticipate or adapt to the environment. As a contrast to Darwinian evolution, two principles central to the Lamarckian view of evolution are the principle of use and disuse and the inheritance of acquired characters. That is, the increased use of, for example, specific body parts (say
muscles) will result in intensified development of those parts. The opposite can be expected for decreased use. Importantly, the characteristics developed are passed on when the “animal” produce offspring. It has been contended that the Darwinian model does not accommodate the view where an *acquired character* can be passed on to the next generation. According to the Darwinian evolution, it has been argued, only genetic modifications are passed on, not physical development (Massey, 1999). Put differently, it has been observed how, according to Darwin, variation within a population precedes natural selection. The result is the retention of favorable variations and the refusal of unfavorable variation. From the Lamarckian perspective, variation is viewed as a function of the environment with acceptance of inherited as well as acquired characteristics and the emergence of variation under the pressures of difficulties (Jones, 2005).

The idea of Darwinian natural selection tends to fortify a focus on establishing and abolishing to explain organizational change, an event (or selection) perspective, resulting in less focus on the adaptation of existent firms. So called non-Darwinian or Lamarckian theories, in contrast, strive to explain adaptive behaviors from a process perspective (Jones, 2005). For example, when examining the product life cycle concept, Massey (1999) concluded that Lamarckian evolution is appropriate: Efforts to account for or to describe new product development as an essentially random process are not realistic. Obviously, neither the development of novel products, nor product modifications are made on a random basis (Massey, 1999). Indeed, it has been noted how the lion’s share of writings on organizations endorses a position which may be named the adaptation perspective (Lamarckian rather than Darwinian), which may be contrasted to a range of ecological perspectives concentrating on selection (Hannan and Freeman, 1977; Hannan and Freeman, 1984).

The adaptation perspective implies that managers examine the environment and respond to opportunities and threats, and consequently adjust the organization (Hannan and Freeman, 1977). Organizational variability, in accordance with this view, is explained by such adjustments in strategy and structure as a response to environmental changes. In contrast, organizational ecology implies that the majority of organizational variability is explained by the creation of new organizations and new designs replacing previous ones (Hannan and Freeman, 1984). Specifically, the ecologist’s position implies that structural inertia restricts the extent to which organizations can make major adjustments (Freeman and Hannan, 1983).

From an ecologist’s perspective, it has been argued that “adaptation of an organization” mainly takes place at the population level, as one (form of) organization replaces another when the environment changes (Hannan and
Freeman, 1984). There is an illusive kinship connecting selection and adaptation, as adapting for a human being generally implies selection among behaviors, whereas at the population level it implies selection among (forms of) members. Indeed, processes of selection at a higher level can generally be understood as adaptation (Hannan and Freeman, 1977) and likewise, according to Simon (1990), adaption can be rather unconscious or unintended, mirroring Darwininan evolution, as well as conscious and intended, mirroring much problem solving or human learning.

Adaptive change is just as much a question of an organization’s environment as by its internal composition (Simon, 1990). According to Jones (2005), it is not forces in the environment that purely determine the degree of match (or the degree of adaptation), but to an extent the reciprocal influence between the environment and the characteristics of the firm, where the latter are occasionally liable to (internal) change. Moreover, firms with a degree of match may survive or perish contingent on the sources of and preservation of such match; firms enduring a degree of poor adjustment may survive through their capacity to adapt. What is apparent from this stance, according to Jones, is that selection processes take place both externally and internally in relation to the firm and at numerous levels (Jones, 2005) (cf. Garcia, 1998; Powell and Wakeley, 2003).

2.2.2 Levels of analysis

When the principles of variation, selection and retention are applied, it has been observed how they may be applied at several levels (of analysis): In general, evolutionary theory has been seen as a theory of the evolution of populations. In other words, evolutionary theory has in general been perceived as the evolution of a complete population; changes in its composition and its gene pool. This population level (phylogenetics) is in turn built on a theory of individual population members and how they evolve (ontogenetics). The latter level focuses on the development of a particular organism from a set of given “genes” (Powell and Wakeley, 2003) (cf. Foss, 1994). It has been noted that, with no apparent guidelines, there is room for confusion. But the view (i.e. Dawkins, 1976) has been proposed that the basic element of analysis is neither the population, nor the individual, but rather, what can be delineated as information in some form. Information is retained over time and it is the character, management, and most importantly, the reproduction of this information which creates the basis for success or failure (life or death) common to any evolutionary system (Powell and Wakeley, 2003). However, it has been argued that the center of attention in a theory of business evolution is not on factors that grant survival of the population as a whole (the species, i.e. the industry). Rather, the focus is on the survival of one of the members of the
population - the firm (Powell and Wakeley, 2003). Indeed, a significant issue in evolutionary theories concerns the level of the unit selected and or retained. The question of what level to focus attention on is particularly troublesome when the matter under study is evolution of complicated organizations, as structures within structures (cf. Ingram, 1996) allow focusing on the selection of, for example, products, divisions, departments, whole corporations, or even networks (Barnett and Burgelman, 1996). Drawing on the fact that the principles of variation, selection and retention can be applied at several levels of analysis, Figure 2.1 represents a tentative framework of how to structure levels in relation to each other. The logic may be seen as an extension of Jones (2005) above. The model does not propose a limit to the number of possible levels of analysis. In contrast, it proposes that every “individual” can be

**Figure 2.1 Levels of analysis**
analyzed from two sides, *internal* (“genes”) and *external* (“population”). On each side, the evolutionary concepts of variation, selection and retention may be applied. For example, a product can be analyzed with regard how it is built up by attributes or “genes” and how it survives compared to other products in the “population”. The “genes” or attributes may in turn be analyzed in terms of the population they belong to and how they themselves are built up, and so on. This way the elements in the model can move between “genes”, “individual”, and “population”, depending on what level of analysis is chosen. Nested combinations are possible. Accordingly, the combination of the concepts internal and product implies internal selection at product level. The match between internal and external selection consequently illustrates how well the “individual” fits its environment.

### 2.2.3 Evolution, innovation and change

The environment is constantly changing and evolving; this demands that businesses change or lose their competitiveness (Unland and Kleiner, 1996). Consequently, firms innovate in terms of business models, products, services, processes and cetera (Xu et al., 2007). Innovations have been seen as critical to supporting firm performance and competitiveness (Garcia, 1998; Hansen, 2006) (cf. Becheikh et al., 2006; Gopalakrishnan and Bierly, 2006; Lewis, 2004; McEvily et al., 2004; Nobelius, 2004).

From an evolutionary perspective, the innovative deed may be viewed as the offering of mutated duplications for (market) trial. A flow of such duplications with incremental or cumulative mutations is essential. Importantly however, to the degree that evolutionary assumptions are valid, there must be a suitable allotment of resources to unconnected developments (Powell and Wakeley, 2003). Certainly, evolutionary innovation models differ between degrees of innovation; gradual innovations, technological discontinuities, and radical innovations (Garcia, 1998). Moreover, to the degree that the future is unpredictable, planning entails less of selecting than of maintaining valid routes towards an array of well-founded feasible futures. In this sense, the innovation process may be seen as an answer to predicted as well as unpredicted demand (Powell and Wakeley, 2003).

The efforts put on incremental developments may be compared or contrasted to efforts put on more unconnected radical developments; focus on incremental development assumes that future demand is intimately linked to current demand. Such assumptions has been associated with neoclassical models of equilibrium; permitting the forecasting of incremental demand. An acknowledgement of an evolutionary context implies more focus on more unconnected developments (Powell and Wakeley, 2003). In terms of
knowledge assets and search for knowledge (which may sustain innovations), search activities may in the former case not significantly part from prior, already accumulated knowledge (cf. Garcia, 1998). There is however, as mentioned, no exact separation between neoclassical and evolutionary models (Dosi, 1991) Indeed, within evolutionary theory, gradual innovations may be seen as relatively closely associated with Lamarckian (cf. e.g. Massey, 1999) theories of evolution (Garcia, 1998). Unconnected developments may in comparison be seen as insurance measures with regard to the uncertainties in the future market (Powell and Wakeley, 2003). They may be created based on the accumulation of a new source of knowledge dependent on search (Garcia, 1998).

It is a frequent assumption of evolutionary theories of innovation or change that local search significantly restricts the course of research and development (Stuart and Podolny, 1996) (cf. Penrose, 1959). Search activities may be delineated as “…activities that scan the external environment in order to find either alternatives to existing routines or completely new routines” (Saviotti and Mani, 1998, p. 256). That is, the result of search activities grants the creation of new technologies and structures. Well-founded structures commonly evolve incrementally by way of search efforts, but search that deviates from well-founded structures may result in swift (revolutionary) evolutionary changes. If a novel technology is successful, it shows better fit than the previous (Saviotti and Mani, 1998). Indeed, really novel innovations have been found to excel incremental innovations in meeting performance objectives (Kim and Mauborgne, 2005) (cf. Song and Montoya-Weiss, 1998). Importantly however, only a minor part of search efforts result in entirely new technological, firm or industry structures (Saviotti and Mani, 1998).

2.3 Foresight

Foresight has been promoted as a device for enhancing innovation and change, in comparison or in contrast to, incremental improvements and inertia. In fact, foresight has for a long time been recognized as crucial in managing the continuously changing environment (Andriopoulos and Gotsi, 2006; Tsoukas and Shepherd, 2004) that the majority of firms face (Freeman and Hannan, 1983). It has been noted how foresight aims to build the best possible assumption base concerning the future and from that base build the capacity needed to proactively shape evolution (Hamel and Prahalad, 1994). Consequently, the relevance of innovation, change (evolution) and the environment to foresight may be evident.
It has been contended that to grow in a prosperous manner, a firm must closely keep track of its environment for threats and opportunities, and make crucial choices concerning the directions of evolution (Cui, 1998) (cf. Cockburn et al., 2000). More specifically, it has been argued that it is the limited capacities of managers which limits the rate at which a firm can grow over a certain length of time (Penrose, 1959) (cf. Tan and Mahoney, 2005). At any moment in time, the firm may be seen as positioned relative to the environment; this position is not only delimited by time and space, but also by the intellectual horizon. The position gives the reference from which environmental matters are confronted, and it is the starting point for all planning. No firm perceives the full range of services attainable from any resource. The productive opportunity is limited by the extent to which opportunities are perceived. Moreover, when development is not a necessity or not a very apparent choice, a firm has the choice to go on in its current direction or to inquire possible opportunities of which it is not currently attentive to. Profitable opportunities may be viewed as bait or reasons for firms to develop. But this does not say anything regarding their particular significance for a specific firm (Penrose, 1959). Analogous, contingency theory proposes that there is no best strategy for every firm and postulates that the best choices varies depending on circumstances (e.g. Ginsberg and Venkatraman, 1985; Zott and Amit, 2008). Moreover, novel inventions, changes in customer preferences, rising demand for specific products or services may be viewed as external baits to develop only for companies that hold internal resources that either grant the company particular benefits in the opportunity areas or at least do not entail significant hindrance (Penrose, 1959) (cf. Cockburn et al., 2000).

From an evolutionary perspective, foresight has been referred to as our ability to imagine or simulate the future (Dawkins, 2006). Importantly, seeking to ensure adaptation entails foresight as complete as possible (Knight, 2002). Foresight has, as mentioned, been seen as the goal of the best strategic decision making processes (Courtney, 2001); the capacity to predict how actions may lead to competitive advantage and critical to theories of competitive advantage. Theories of competitive advantage imply that managers have some foresight concerning the rising of an advantage (Ahuja et al., 2005; Cockburn et al., 2000), or the alternative is competitiveness based on luck (Ahuja et al., 2005). Presumably, the ability to simulate the future, or predict how actions may create competitive advantage may tentatively be described in terms of variation, selection, and retention.

Turning attention back to Figure 2.1 and adopting the adaptation view, it can tentatively be proposed that analysis of the environment and the firm in terms of variation selection and retention, as well as the match or fit at as many levels as possible, across time, is central to foresight. Notions of nested
relationships in accordance with Figure 2.1, across time, allow for the imagination of the future, and the overall predicted match or adaptation to be sought. The relationships in terms of variation, selection, and retention presumably allow for a notion of positioning of the firm (internal makeup) relative to its environment. The analysis of this positioning - how the environment may change - may be seen as an assumption base, which can be employed as the starting point for proactive shaping. Shaping may be analogously understood in accordance with variation, selection, and retention at various levels over time. Scanning (or searching), for example, the environment to build an assumption base, may be considered as analogous to analysis of the environment.

As mentioned, the above assumes the adaptation view. The fact that theories stressing decision making tend to adopt the adaptation view has been considered natural (e.g. Hannan and Freeman, 1977). Indeed, virtually all evolutionary schools of thought in social science assert that social evolution includes foresight. That is, social evolution may be considered Lamarckian in the sense that it includes learning by experience and consequent behavior rather than merely reflecting randomness (Hannan and Freeman, 1984) (or an ecologist’s selection view). Certainly, managers do conceive strategies and firms do adapt (Hannan and Freeman, 1977). But in contrast, all acknowledged schools of the (biotic) evolution of life assume that innovation or the creation of new strategies or structures is random with regard to potential adaptive or survival value. Innovations are merely produced, and not so due to or depending on whether they are fruitful, therein the process is blind (Hannan and Freeman, 1984).

Moreover, it has been suggested that selection always supports adaptable organizations, but in actuality, evolutionary theory does not assert any such claims. It may be that selection is inclined to support organizations that find it hard to adjust (Hannan and Freeman, 1984). And even though organizations do adapt, there may be no reason to assume that the variability among organizations mirrors only or mostly adaptation. It may be that inertia limits their capability to adapt. It has been observed that the pick between adaptation and selection perspectives is connected to the matter of inertia (Hannan and Freeman, 1977). Thus to the extent that the theoretical foundations for an association between managers’ foresight and firms’ performance draws on an adaptation perspective, it can be argued that they draw on the assumption that inertia is limited.

In addition, an assumption that adaptations with regard to future contingencies in the environment are non-random depends on the assumption that organizational outcomes reflect the intentions of individuals (managers). To the extent that this is not the case, organizational outcomes may still be
random (Hannan and Freeman, 1984). Hence, (while it is possible to question the merit of hypothetical description such as the above with regard its prescriptive use, i.e., even if the criticism to the adaptive perspective above are valid descriptions of the current state of affairs, the current state of affairs may not be the ideal or a must), the presumed association between managers’ foresight and firms’ performance is not necessarily a fact.

The ascribed significance of managers to business performance is reflected in the masses of managerial prescriptions presented for improved business performance (Crilley and Sharp, 2006; Venkatraman and Ramanujam, 1986). Everything else being equal, better adapted managerial behavior should arguably lead to better business performance, while other circumstances or variables can be expected to impact performance (cf. section 3.5 Alternative approaches). Put differently, everything else may not be equal. The proposed cause-effect chain from managerial behavior to firm performance, or in this case, from (increased) managerial foresight to (improved) firm performance, may be significantly tainted by numerous circumstances (some potentially characterized as random, some as more or less associated with inertia). Such circumstances may include, for example, non-managerial behavior, the general environment and firm strategy. Indeed, research indicate that while some managerial characteristics are universally desirable with regards to business unit performance, others may be contingent on the strategy of the business unit (Slater, 1989). Previous empirical studies of the link between managers’ and firm-level performance related characteristics have, for example, tested the associations or correlations between managerial involvement in strategic planning and firm ROI (Eastlack and McDonald, 1970), youthful management and firm growth (Child, 1974), managers’ non-conservatism and financial firm performance (Sturdivant et al., 1985), as well as managers’ intuition and organizational effectiveness (Andersen, 2000) (cf. e.g. Andersen, 2006; Fiedler, 1967; Fizel and D’Itri, 1997; Hersey and Blanchard, 1988; Hosking, 1988). See further Likert (1961) for an array of analogous studies.

From a more practical perspective, it has been argued that foresight performed by, for example, managers in an organizational environment entails looking at possible futures, as well as determining what choices the (managers in the) organization can make in the present to optimize the organization’s future (Horton, 1999). A model of a practical foresight process has been divided into three phases (Figure 2.2 below) in accordance with what has been considered their usual order of occurrence. Phase one comprises the collection, collation and summarization of available information (usually data such as trends, expected developments, brainstorming unusual happenings, and so on, from experts, suppliers, customers, universities, networks et cetera) and results in the production of what has been labeled foresight knowledge. Phase two comprises the translation and interpretation of this knowledge to produce an
understanding of its implications for the future, from the specific point of view of a particular organization. Phase two has been considered to be at the heart of the process Phase three comprises the assimilation and evaluation of this understanding to produce a commitment to action in a particular organization. It has been argued that each phase creates a greater value than the previous phase as the outputs move up the information value chain from information through knowledge to understanding. However, it has been contended that this value is only realized at the very end of the process and often with a significant time lag. Each phase is also more abstract, time demanding and difficult, as well as harder to evaluate than the previous phase. It has been concluded that if the process is prosperous, it brings about decisions and actions different to those which would have been the case without the process (Horton, 1999).

However, it should be apparent from the above model and practical description (while compatible with the definition of foresight developed in this dissertation, cf. Paper 1), and from the overall problem and research
question of this dissertation, that the foresight concept has not been described or defined specifically enough to allow it to be quantitatively measured. Before specific definitions can be outlined, it may be fruitful to structure perspectives. It has been argued (i.e. Ginsberg and Venkatraman, 1985) that an analytical review scheme is vital for methodically discriminating patterns in and assessing contributions from diverse studies in a specific research field. Hence, in the section below, a tentative structure is built that can work as a scheme for structuring previous research. Based on a careful examination of previous theoretical and empirical work, the focus of relevant research include four types; antecedents or causes of foresight, foresight as a phenomenon (foresight itself), consequences of or outcomes as a result of foresight, and foresight as a process or as a tool. The review is limited to articles published in journals since these can be seen as validated and presumably have the ultimate impact in the research field (Hutzschenreuter and Kleindienst, 2006). That is, they constitute the channel that have the highest probability of being inspected by peer researchers and thus influence future research (Alireza and Michael, 1999; Podsakoff et al., 2005). Determining a working definition for

Table 2.1 Antecedents or causes of foresight

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>D</th>
<th>Context:</th>
<th>Key findings/arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Slaughter, 1996a)</td>
<td>T</td>
<td>General</td>
<td>Argues that humans have an innate capacity for foresight. Considers how futures studies can be progressively developed through five distinct layers, or levels (from individual to social capacity).</td>
</tr>
<tr>
<td>(Slaughter, 1997)</td>
<td>T</td>
<td>Education, business and government (Australia)</td>
<td>Outlines aspects of a strategy for creating applied social foresight. And suggests a broad rationale for establishing a national foresight strategy.</td>
</tr>
<tr>
<td>(MacKay and McKiernan, 2004)</td>
<td>T</td>
<td>General</td>
<td>Enhancing foresight, requires a robust understanding of the role played by hindsight and the biases that arise from faulty interpretations of the past.</td>
</tr>
<tr>
<td>(Fischhoff et al., 2005)</td>
<td>Q</td>
<td>September 11\textsuperscript{th} terror attacks.</td>
<td>Looks at bias. If beliefs have changed (i.e. the hindsight state) it poses a potential barrier to reconstructing previous foresight states of belief. Priming emotions can shape both perceptions of a future and a past.</td>
</tr>
</tbody>
</table>
distinguishing examples of relevant articles may be a challenge (Samiee and Walters, 2003). Selection in this case was done through careful search and evaluation in major databases with regard to articles’ relevance. Accordingly, Table 2.1, 2.2, 2.3, and 2.4 illustrate how examples of previous writings can be roughly classified based on their focus, principal form of data (D), (i.e. case “C”, theoretical “T” or quantitative “Q”), main context, as well as key argument(s) or finding(s).

**Table 2.2 Foresight as a phenomena**

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>D</th>
<th>Context:</th>
<th>Key findings/arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Raimond, 1996)</td>
<td>T</td>
<td>General</td>
<td>Diffs between and argues that foresight that is both predictive and creative is needed.</td>
</tr>
<tr>
<td>(Lane and Maxfield, 1996)</td>
<td>C</td>
<td>Telecom.</td>
<td>Distinguishes between three kinds of foresight horizons: the clear, the complicated and the complex. Seeks to formulate a notion of strategy that makes sense for complex horizons.</td>
</tr>
<tr>
<td>(McDermott, 1996)</td>
<td>T</td>
<td>General</td>
<td>Foresight is seen as a caution, not a control. Learning to live with inadequate foresight involves becoming prepared for a future different from present expectations.</td>
</tr>
<tr>
<td>(Major et al., 2001)</td>
<td>C</td>
<td>Small firms; chemicals electronic sensors</td>
<td>Builds a relationship between foresight and strategy, with focus on the core competence view of strategy; argues that this is beneficial for both fields.</td>
</tr>
<tr>
<td>(Hadfield, 2005)</td>
<td>T</td>
<td>General</td>
<td>Hindsight means that all is revealed, while foresight is trickier. Focusing on uncertainty to draw attention to a philosophical vacuum underlying risk assessment.</td>
</tr>
</tbody>
</table>
### Table 2.3 Consequences of or outcomes of foresight

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>D</th>
<th>Context:</th>
<th>Key findings/arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Anderson, 1997)</td>
<td>C</td>
<td>UK government foresight programme.</td>
<td>Illustrates how foresight can have an impact on strategy, while it is too early to assess what the long-term impact of the Foresight Programme will be on wealth creation and the quality of life.</td>
</tr>
<tr>
<td>(Ishino et al., 1999)</td>
<td>C</td>
<td>Beer products</td>
<td>Argues that the foresight of a domain expert should be added to the product concept. A method which adopts a 3-phased interactive computing process is proposed.</td>
</tr>
<tr>
<td>(Foo and Foo, 2003)</td>
<td>Q</td>
<td>Asia</td>
<td>Surveys perceived environmental predictability. Argues that how well the organization is able to cope with uncertainty depends not only on forecasting, but on whether the CEO possesses the foresight.</td>
</tr>
<tr>
<td>(Greenstein, 2005)</td>
<td>C</td>
<td>High-tech markets</td>
<td>Argues that no companies ever escape foresight traps, but some do a better job of avoiding a big and costly one. Focusing on one type of forecasting error, a strategy determined by a single conceptual framework.</td>
</tr>
</tbody>
</table>

### Table 2.4 Foresight as a process or tool

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>D</th>
<th>Context:</th>
<th>Key findings/arguments</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Barker and Smith, 1995)</td>
<td>C</td>
<td>Research, development and engineering.</td>
<td>Successful technology foresight methods should fulfill a number of objectives, which it is argued the roadmap approach does.</td>
</tr>
<tr>
<td>(Stout, 1997)</td>
<td>T</td>
<td>Britain's foresight programme</td>
<td>Argues that the conditions for success of Britain's foresight the program can be summarized as the three &quot;Cs&quot;: Confidence, Communication and Collaboration.</td>
</tr>
</tbody>
</table>
Table 2.4 Continued

<table>
<thead>
<tr>
<th>Reference</th>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Van Wyk, 1997)</td>
<td>T</td>
<td>Technology</td>
</tr>
<tr>
<td></td>
<td></td>
<td>It is argued that the quality of technology foresight shapes the corporate mission in the first place. A procedure for strategic technology scanning which enhances technology foresight is proposed.</td>
</tr>
<tr>
<td>(Horton, 1999)</td>
<td>T</td>
<td>General</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Provides a short and simple guide to the foresight process with the specific aim of deriving practical value.</td>
</tr>
<tr>
<td>(Ratcliffe, 2002)</td>
<td>T</td>
<td>General</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Futures studies and foresight are largely a matter of conjecture; at the heart of conjecture lies conversation. In enabling organizations to look ahead to the future, conversation becomes a key component of strategic planning.</td>
</tr>
<tr>
<td>(Eto, 2003)</td>
<td>C</td>
<td>General (Japan)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluates technology forecasting and foresight methods in relation to users decision systems for science and technology strategies. Lessons from technology forecasting are presented for technology foresight.</td>
</tr>
</tbody>
</table>

From the above review it can be deduced that, while the classification of each writing is certainly not mutually exclusive, foresight has been related to several conceptual levels; societal (e.g. Fischhoff et al., 2005), national (e.g. Anderson, 1997; Slaughter, 1997; Stout, 1997), organizational (e.g. Greenstein, 2005), and individual (e.g. Foo and Foo, 2003; Slaughter, 1996a). And importantly, delineating foresight as behavior at the level of the individual (manager) (See Paper 1, and section 1.3.1 Foresight) arguably may imply the enablement of a more unified future research approach. That is, when foresight is defined at the lower level (individual behavior), it may be possible to aggregate to higher levels (e.g. organizational or national), in essence unifying the levels. Likewise, as the definition covers time (past and future), analysis, as well as the present situation, plan, and goal - elements arguably common across the diverse studies in the field (See Paper 1), it may contribute to unifying the field. In comparison, if it had been established that foresight resides at, for example, the organizational level only, it may have made the de-aggregation to a lower (managerial) level impossible (cf. section 3.5 Alternative approaches).
While the review illustrates and exemplifies the categorization of relevant research along the chosen dimensions, foresight research as a whole may be related to or positioned within the field of business economics as indicated in Figure 2.3 below. The field of business is hypothetically divided up into the subfields of marketing, strategy, and foresight, together with a proposed relationship with performance in accordance with the present dissertation.

![Figure 2.3 Foresight within the field of business economics](image)

### 2.4 Performance

Performance has been considered central to strategy researchers (Ahuja et al., 2005; Barney and Arikan, 2001; Powell and Wakeley, 2003) and it has always been viewed as the final dependent variable (Meyer, 1991). From an evolutionary standpoint, the basic goal of the firm is “…to survive the struggle for survival as time passes” (Powell and Wakeley, 2003, p. 155). Accordingly, a firm that decides to deploy its resources in an unfitting environment may perish (Powell and Wakeley, 2003). And the reasons why firms thrive or perish has been a query at the core of strategy research for almost six decades (Eunni et al., 2005; Porter, 1991). Society is, as previously stated, provided by well performing organizations (Rumelt et al., 1991) and performance measures may be thought of not only as measures of the attainment organizational objectives, but also as measures of its contribution to society (Pollanen, 2005).

However, performance is a complex issue (Naman and Slevin, 1993) (cf. Hofer and Sandberg, 1987). Two general streams of research regarding firms’ ability to adapt to environmental changes may be seen; the success framework and the failure framework. The former seeks to account for the success of firms, while the latter seeks to account for the failure of firms (Eunni et al., 2005). But when discussing success, it is necessary to define what success is (Porter, 1991). In addition, at least three general approaches to assess organizational performance can be observed (Crilley and Sharp, 2006; Lok and Crawford, 2000); goal theory, systems theory, and the shared value or stakeholder theory. In short, performance may be estimated based upon many types of data (e.g. Govindarajan, 1988; Mahoney et al., 1965).
It is also possible to discern a number of expressions employed to denote “performance” (Crilley and Sharp, 2006). Performance includes financial, operational as well as effectiveness measures (Lunnan and Haugland, 2008); for example, return on investment (ROI), return on assets (ROA), earnings per share (EPS) et cetera (Bergh and Lim, 2008; Carpenter and Sanders, 2002; Hull and Rothenberg, 2008; Kabanoff and Brown, 2008; Zott and Amit, 2008). Indeed, it has been observed how conflicting use of performance constructs is a limitation in previous research (Crilley and Sharp, 2006). However, it has been argued that an important advantage of an evolutionary perspective in this context is its conception of performance as a result of the underlying antecedents and effects of the combination of strategies, competitive situations, and market structure (Cui, 1998).

From an evolutionary perspective, it can be maintained that the survival of the firm is critically dependent on possession and development of resources, which are useful in (or fit) the environment. Generally, this translates to possessing resources, which can be employed to match requirements in the market (Powell and Wakeley, 2003). Contingency theory similarly proposes that there is no best strategy for every firm. It postulates that the best choices varies depending on circumstances (e.g. Ginsberg and Venkatraman, 1985; Zott and Amit, 2008). Specifically, “Contingency theory implies that organizational effectiveness (measured, for example, in terms of firm performance) is a function of the fit between contingency factors” (Zott and Amit, 2008, p. 6).

However, possession of significant resources is not on its own enough to guarantee survival since the resources have to be put to use in a way that realizes their potential (or service) for generating profit. Hence, the magnitude of, for example, a firm’s profits are contingent on how efficiently these resources are managed (Powell and Wakeley, 2003) (cf. Penrose, 1959). Theory proposes then, that a main component of a well performing business operation is making sure that the resources of the firm are matched with the environment (cf. Cockburn et al., 2000) and/or choosing a niche in the environment accordingly (Powell and Wakeley, 2003).

At this point attention may be turned back to foresight and Figure 2.1. Tentatively linking performance to foresight, it was proposed that analysis of the environment and the firm in terms of variation selection and retention, as well as the match or fit at as many levels as possible, across time, is central to foresight. Thus, from an evolutionary perspective, performance may arguably be seen as the degree of match (for example, how well the firm matches resources in some form), or put differently, as what reflects a probability for survival (of the unit in question). Hence, in the end, all performance measures
may in this sense tentatively be seen as surrogate measures the potential for survival; of the business unit, of the “individual” and thus potentially at a higher level, survival of the industry or the “species”.

As performance may be considered multidimensional, a selection of variables was selected for the firm performance index (See Paper 4, Appendix IV), involving some arbitrary decisions both from a theoretical and from a practical viewpoint (cf. Graziano and Raulin, 1993). Consequently, an assessment of the amount of resources a firm takes in (net turnover), the accumulation of resources (total assets), resources gained or lost (net result), gained resources related to accumulated resources (return on total assets), and previously gained or lost resources (appropriated earnings) was chosen for the performance index, as they presumably to a degree mirror how well the firm is adapted or adapting and its potential for survival, as well as constitute generally accepted or acknowledged measures (cf. section 1.3.2. and 3.5).

2.5 Uncertainty

The business environment may be changing fast, thus bringing uncertainty (Courtney, 2001). Indeed, one of the principal difficulties managers currently face is dealing with uncertainty stemming from change, in turn resulting from the internationalization of competition, growing pressures to innovate, and new technologies, et cetera (Becker and Knudsen, 2005). The task faced by managers may be defined as to pierce uncertainty and build foresight concerning future markets (Hamel and Prahalad, 1994). Put differently, uncertainty is something that managers must cope with (cf. Pehrsson, 1990). Managers are continuously faced with making choices under different levels of uncertainty (Olafsson, 2003). But importantly, uncertainty brings risk as well as opportunities. Waiting for the uncertainty regarding a potential opportunity to clear may result in avoided mistakes or that first mover advantages are lost to a more proactive competitor (cf. Ansoff, 1991). Hence, choosing strategies under uncertainty is not without problems, but many managers arguably make it more difficult than necessary by deploying, as it has been put, outdated strategic planning and decision making approaches. It has been argued that approaches tailored to facilitate strategic thought in predictable environments consistently fall short in current environments characterized by high uncertainty (Courtney, 2001).

The assumption of foresight is that while the future is uncertain, some evolutions may be foreseen and options conceived, and therefore the future may be prepared for, or actively shaped (Cuhls, 2003). It has been noted how a fundamental purpose of foresight is to minimize uncertainties and risks (Uotila et al., 2005). Moreover, foresight does not equal solely the analysis of
present (market) environments or the deployment of a flawless forecasting device. It concerns making the best possible choices, and it entails accepting the always present uncertainty (Courtney 2001). An alternative assumption is that, in highly uncertain environments the connections between actions and outcomes may not be well understood, i.e. managerial choices may be random with regard to their future adaptive value (Hannan and Freeman, 1984). Indeed, it has been noted how human rationality is bounded, or very tentative relative the complexity organizations face (Simon, 1999). Consequently, the presumed association between managers’ foresight and firms’ performance may not necessarily be an empirical reality. But uncertainty is not a matter of all or nothing. Even under the most uncertain conditions, or in the most uncertain environments, analysis can generally pierce uncertainty and derive significant information. However, and in contrast, there is a tendency to adopt or accept a binary view of uncertainty. According to a binary view, uncertainty is seen as absent in certain situations and in others it is seen as existent, non-transparent as well as impossible to penetrate. Such a binary view may lead to either the sole and complete adoption of point-forecast founded procedures, or the decision to completely abandon methodical and analytical accuracy and rely on intuition (Courtney 2001). Hence, foresight may be thought of as, given the ever present uncertainty, a process of deriving significant information, or analyzing, taking more and more factors into account (See Paper 4, Appendix IV).
3. Method

3.1 Research design

There are various research designs to consider, including naturalistic observation, case study observation, correlational research, differential research, and experimental research (Graziano and Raulin, 1993). At the inception point of this dissertation, a review of the field revealed empirical research that had been limited to case studies (See sections 1.1.1 Current knowledge in the field, and 2.3 Foresight) (e.g. Andriopoulos and Gotsi, 2006; Brown and Eisenhardt, 1997; Costanzo, 2004; Saul, 2002). Indeed, within science there are several ways of acquiring knowledge, ranging from the lowest to the highest demand made on the quality of the information and the character of the treatment of that information. In this sense, some methods may be labeled more demanding than others. That is, choices made may be rather general, leaving questions and procedures relatively vaguely defined. Or in contrast, decisions may involve very precise and refined ideas, questions, or hypotheses. In essence, this is a trade-off between flexibility and precision (Graziano and Raulin, 1993).

Levels of precision or constraints can specifically be understood in terms of research designs. The naturalistic and case study designs represent the lowest levels of constraints. Observation in such flexible ways allows making use of unexpected circumstances and ideas developed during the observations. The constraints or controls are chiefly on the observer, with as little control as possible exercised on the subject under study. The most frequent justification for choosing case study methods is that the research question asked concerns the specific case that is the object of the study. Low-constraint observational research is also appropriate when the research question pertains to natural behavior in natural settings, or at the beginning stages of research in a new area, when it can generate ideas for further and presumably higher constraint research. Low-constraint procedures can be deployed to demonstrate a new research technique, or its application in a new setting. Low-constraint procedures can also be deployed to examine the generalizability of the theories previously developed by higher constraint research. However, naturalistic and case study research is limited to generating certain kinds of information. These approaches are limited to giving new descriptive information on events; to identifying possible relationships among variables; to providing bases for hypotheses to be used in higher constraint research; and to providing observations to negate general propositions. Low-constraint methods cannot establish general propositions or causal inferences. Another significant
weakness in the employment of low constraint methods is poor representativeness. That is, the conclusions drawn in low-constraint studies must nearly always be limited to the subjects studied and cannot be generalized to a broader population. Still another weakness that is associated with the greatest strength of low-constraint methods - flexibility - is the problem associated with trying to replicate such research. Because the observations are made in settings with few if any constraints on the subject, it is often difficult to replicate such research. An additional issue in low-constraint research, concerns the limitations of the observer; in case studies it is hard for observers to control the numerous possible and subtle impacts they may have on the subject (Graziano and Raulin, 1993).

In short, the choice of the appropriate level of constraint or research design depends upon several elements; the weightiest element is the nature of the question being asked, the research question(s). In specific, the research question should be refined so that it can be answered using the highest constraint level possible, given both current knowledge in the field, practical as well as ethical constraints on the researcher (Graziano and Raulin, 1993). While the ethical issues were not deemed highly problematic or significant, the practical and economical implications accompanied with quasi-experimental (i.e. longitudinal) or experimental design meant that such designs were not deemed viable for the dissertation project at hand. Quasi-experimental or longitudinal design was also deemed to disagree with the time constraints of the dissertation project.

As mentioned, current knowledge in the field of foresight has taken the form of previous and growing numbers of theoretical writings, together with case studies. Consequently, as the concept has already been addressed through lower constraint designs, the refinement of research questions to allow higher constraint was considered central. The most constrained design deployed in this dissertation was correlational, i.e. a multivariate cross sectional survey design. As noted, in the search for precision, flexibility is lost. However, trading flexibility for precision allowed for the assessment of the association between managerial foresight and performance. That is, the choice of design culminating in the multivariate correlational ditto was in accordance with the overall research question and purpose, as well as in line with striving towards the highest constraint level. However, the overall research question could not easily be answered with an exclusively high constraint approach; the broken down research questions were devised so that answering each question made the succeeding question possible, in a stepwise fashion, culminating in the multivariate correlational study. The research process can be described in four steps, corresponding to the four broken down research questions, as well as the four papers making up the bulk of this dissertation (See section 3.2 Research process).
3.2 Research process

Step 1: Defining foresight, addressed the first broken down research question – “What defines managerial foresight?”. As more knowledge was deemed necessary with regard to the meaning or definition of foresight (cf. Alsan and Oner, 2003; Horton, 1999; Major et al., 2001), and as the concept was deemed not to have not been given a definition clear enough to allow quantitative measurement, the research process began with a review of previous research, usages and writings in the field, together with the employment of logic to arrive at such a definition. The result of this first step was the article “Managerial foresight: concept and measurement” (See Paper 1, Appendix I). The completion of this step meant that it was possible to address the second research question (step 2 below). In addition, interviews at a case company were initiated. The purpose of the interviews at this stage was to supplement secondary data and potentially negate conclusions, see interview guide in Paper 3, Appendix III.

Step 2: Developing a foresight measurement instrument, addressed the second broken down research question – “How can managerial foresight be measured?”. Drawing on the theoretical definition of foresight (step 1 above) and following the procedure proposed by Gerbing and Anderson (1988) and especially Churchill (1979), a seven step sequence was used to build the scale for measuring managerial foresight. The result of this second step was the article “Managerial Foresight: measurement scale and estimation” (See Paper 2, Appendix II). This step again included low constraint research in the form of interviews with managers in the above mentioned case company. While information from the previous interviews in step 1 were used as a background for item generation in step 2 too, the purposes of the new set of interviews at this stage included measure purification, pre-test testing, and scale validation. However, the main focus of the interviews performed (at the same case company) at this stage was related to the item generation process, see interview guide in Paper 3, Appendix III.

Step 3: Assessing validity, addressed the third broken down research question – “May developments of a company and managerial behavior be interpreted in terms of foresight?”. Evidence concerning validity can be found throughout steps 1 to 4. However, to specifically and qualitatively assess the validity of a definition of managerial foresight an illustrative case was created drawing on all previous interviews, three additional interviews (at the case company) (See interview guide in Paper 3, Appendix III), as well as on the deployment of the foresight measurement instrument (developed in step 2) at the case company. The result of this third step was the article “A valid matter of foresight” (See Paper 3, Appendix III).
Step 4: Assessing the association between managerial foresight and firm performance, addressed the fourth broken down research question – “Is managerial foresight associated with firm performance?”. A sample of firms was generated and limited through a restrictive database search. Employing the scale for measuring foresight developed in step 2, managerial foresight was tested for association with firm performance. Acknowledging performance as a multidimensional concept (e.g. Govindarajan, 1988; Naman and Slevin, 1993; Neill and Rose, 2006; Siguaw et al., 1998; Wiklund, 1999), an index of several performance measures was used. The outcome of this fourth step was the article “Managerial foresight matters” (See Paper 4, Appendix IV). Taken together, the four steps address the overall research problem and overall research question of this dissertation.

3.3 Primary data collection

3.3.1 Interviews

Initial contact with the case company was established through the Head of Production and Development. After a brief and general description of the project and a no disclosure agreement, a list was provided of managers available for interviews (a convenience sample). The interviewees were contacted and scheduled for a session. As follows from section “3.2 Research process”, a total of nine interviews (See reference list, Appendix III) in three clusters were carried out. The interviews were performed in a manner corresponding to Gillham’s (2005) guidelines concerning semi structured interviews. Each interview was scheduled for half an hour. However, as additional time was occasionally needed, additional time was granted. Information given to respondents before (and during) the interviews was kept to a minimum. Questions were answered as brief as possible. Interview guides are available in Paper 3, Appendix III. The interviews were performed in an individual and private setting, at the case-company’s headquarters in Vaxjö, Sweden.

3.3.2 Questionnaires

Preliminary versions of the managerial foresight questionnaires were distributed in association with Step 2 in the research process - Developing a foresight measurement instrument (See section 3.2) to a convenience sample of managers in four companies. The companies were contacted and permissions to distribute the questionnaires were obtained. Managers at two of the companies were posted the questionnaires directly. The questionnaires were
distributed to managers at the other two companies by care of the companies themselves (as requested). To one of the latter companies the questionnaires were sent in bulk for subsequent delivery through their internal post system. The fourth company was running a large-scale internal training session for its managers, and on two separate occasions, the leaders of the training sessions distributed questionnaires to the managers attending the training. The questionnaires were then collected by the leaders of the session and returned in bulk. With the exception of the fourth and final company (where the session leaders were instructed by the researcher to present the instrument to the respondents), the instrument was mailed together with a cover letter presenting the researcher and a pre-paid reply envelope. The respondents’ full anonymity was assured.

Final versions of the managerial foresight questionnaires (resulting from step 2 in the research process) were distributed in association with Step 3 in the research process – Assessing validity (See section 3.2) to each of the individuals who previously had participated in the dissertation project as interviewees (at the case company). Each respondent was contacted and asked to participate in the study. Upon agreement to participate, each respondent was posted the instructions and the managerial foresight instrument together with a pre-paid anonymous reply envelope.

Final versions of the managerial foresight questionnaires were also distributed in association with Step 4 in the research process – Assessing the association between managerial foresight and firm performance (See section 3.2) to a sample of CEOs (of stock companies) in the computer programming industry (SNI 62.010, in accordance with NACE; Classification of Economic Activities in the European Community) (See section 3.5 Alternative approaches). Each CEO was contacted by telephone or email and asked to participate in a study. The respondents’ full anonymity was assured. Upon agreement to participate, each respondent was read or emailed the instructions and asked to complete the managerial foresight instrument. The instrument was either completed over the telephone or distributed and returned over email.

3.4 Data analysis

3.4.1 Qualitatively

Relatively little pre-specification is used at the outset of qualitative research. The researcher is the main measurement instrument (Miles and Huberman, 1994). While there are various approaches to qualitative data analysis, the analysis conducted in this research shared characteristics with what resurfaces
across qualitative approaches, including (Miles and Huberman, 1994): The attaching of codes to notes from interviews; noting reflections and comments; sorting through the material to identify commonalities, relationships between variables, patterns, themes, and common sequences; and confronting the commonalities with formalized knowledge (e.g. annual reports). The term case is not well defined in social sciences (Ragin and Becker, 1992). The illustrative case in this dissertation is viewed as a specific theoretical construct emerging during the course of the research. Rather than being purely empirical, it is progressively imposed on the empirical evidence as it emerges during research. That is, constructing the case does not include conclusions regarding its empirical bounds, but rather illustrates theoretical meaning (cf. Ragin and Becker, 1992).

3.4.2 Quantitatively

Quantitative analysis was undertaken using computer software; the SPSS 12.0.1 package for Windows and the LISREL 8.80 package for Windows.

3.5 Alternative approaches

An alternative to the chosen overall research design could have been to utilize exclusively lower constraint research methods and a general case study approach. However, as mentioned the research question should be refined so that it can be answered using the highest possible level of constraint, while taking into account the knowledge in the field, and the practical as well as the ethical constraints (Graziano and Raulin, 1993). In short, current knowledge in the field and the associated problem discussion resulted in the research questions that allowed the (chosen) higher constraint methods. Again, the most significant element concerning the decision of the proper level of constraint is the type of question being asked (Graziano and Raulin, 1993). However, research using a higher constraint than the (chosen) cross sectional correlation design was not feasible as, as mentioned, the practical and economical implications accompanied with quasi-experimental (i.e. longitudinal) or experimental design were deemed too great.

An alternative approach with regard to Step 1 in the research process - Defining foresight (See section 3.2) concerned the classification of foresight as behavior rather than as a competence, motive, skill or trait. Managers’ qualities have been expressed in the vocabulary of competence (Sadler-Smith et al., 2003) and job competence is a basic quality of a particular person that causes effective performance in a job. It is basic in that it can be a trait, motive, or skill aspect of the person’s self-image or social role, or knowledge that the person
deploys (Boyatzis, 1982). Likewise, “competency” is generally seen as concept in the field of leadership, which includes knowledge, skills, attitudes, and behaviors (Strang, 2007). However, from an evolutionary perspective, the human species, like all other species, is the product of natural selection (Dawkins, 2005; Dawkins and Milner, 2005; Skinner, 1974).

The environment made its first large contribution during the evolution of the species, but exercises a different kind of effect during the lifetime of the individual, and the combination of the two results in the behavior at a given time. The explanations as to why the individual behaves the way it does in a given situation are in the history of that individual, in its past evolution and its experiences (Skinner, 1974). “Behavior itself is its fundamental subject matter; behavior is not an indirect means of studying something else, such as cognition or mind or brain” (Catania and Harnad, 1988, p. 5). In addition, a human being’s collection of competencies account for what the person has the potential to do, not what the person does (Boyatzis, 1982). Thus, appraising foresight as a competence, for example, when testing a possible association with firm performance, would omit the behavior connection. Consequently, classifying foresight as behavior was deemed the most appropriate approach (cf. section 2.4 Foresight, and Paper 1, Appendix I).

Another alternative approach regarding Step 1 concerned the definition of managerial foresight as a behavior at the level of the individual (rather than, for example, at group or organizational levels). While it could have been possible to consider foresight as something characterizing a group or an organization, the drawback with this would have included potential problems when seeking to de-aggregating foresight to a lower (e.g. individual) level (while the opposite could now arguably be done more readily). Moreover, following from the research question (See section 1.2.2), the issue at hand concerns managerial foresight (cf. section 2.4 Foresight, and Paper 1, Appendix I).

Another alternative approach regarding Step 1 concerned the detail of the definition of the foresight concept, and in particular the eight sub-components. Part of defining a construct is determining how finely it is to be divided. On the one hand, an option could have been to create a less generic and more context specific definition (for example, creating another layer of sub-components specifically pertaining to the field of business). However, subdividing is suggested if doing so significantly adds to the explanatory capacity of a theory, and if it can be empirically supported, otherwise it should not be pursued (Spector, 1992). Put differently, the principle of parsimony should be employed; “…the simplest explanation among equal quality explanations is the one that is adopted” (Spector, 1992, p. 17).
On the other hand, an option could have been to create an even more generic and even less context specific (simpler) definition, for example, limiting the definition to merely two sub-components - the time and analysis aspects. Indeed, an argument could be made for this: The (present situation) sub-components (time and analysis) pertaining to the past set themselves apart from the ones pertaining to the future. But the sub-components (across the dimensions; present situation, plan, and goal) pertaining to the future differ (among themselves) in that; firstly, the ones pertaining to the plan and goal pertain to events under the perceived control of the individual, and secondly, in that the goal pertains to the desired end state (whereas the plan pertains to what needs to be done to reach the end state). However, the latter delineation relies on that the process, in theory, is made static - taking into account a certain limited stretch of time. In reality, as time flows or as the stretch of time taken into account grows, what used to be an end state could potentially be considered part of a more extensive plan. Hence in reality or practice, there is some overlapping across the sub-components (See Paper 1 and 2, Appendix I and II).

Still however, the decision whether to subdivide or not, must be based on both theoretical and empirical applicability (cf. Spector, 1992). A theory is not to be assessed solely on its internal simplicity, but also in terms of its pertinence to other theories. Frequently, a more complex hypothesis than is demanded by a specific question is preferred in order to attain relevancy to a larger field of scientific knowledge (cf. Beck, 1943; Elliott, 1981). While a plan may presumably be divided into an in an almost infinitely number of smaller steps, implying that a plan consists of an infinite number of goals, there is arguably value in the separation between plan and goal, as they are presumably separate concept to managers in general. Consequently, based on the review of the previous definitions and usages, the detail and definition adopted (with eight sub-dimensions) was deemed appropriate (See Paper 1, Appendix I).

An alternative approach with regard to Step 2 in the research process - Developing a foresight measurement instrument (See section 3.2) concerned the choice of the 57 preliminary and the resulting 12 final Likert items making up the managerial foresight instrument. As there is no precise method for outlining the domain of variables for a construct correctly (Nunnally and Bernstein, 1994), and there are indefinite and at times contradictory rules of good practice (Marsh et al., 1998), a number of options were considered. While it would have been possible to regard each item on the scale to be a separate dimension or aspect of the construct (on its own), the idea of the summated rating scale is that several items are combined rather than analyzed individually (Spector, 1992). Multiple indicators for each construct are preferred (Anderson and Gerbing, 1988; Nunnally and Bernstein, 1994). At least two indicators should be employed for each estimated construct and each
indicator should in turn be intended as an estimate of only one construct (Gerbing and Anderson, 1988). Importantly, the construct validity should be unaltered if a reflective indicator is dropped (although the reliability coefficients, such as Cronbach’s alpha of the collection of items will decrease) (Jarvis et al., 2003) (cf. section 3.6 Reliability and validity). Consequently, the choice of multiple Likert items was deemed the most appropriate approach (rather than, for example, only the two OForesight items). Likewise, there are well-founded arguments for this or why, for example, separate yes or no questions are insufficient (Gerbing and Anderson, 1988). Such questions are notoriously unreliable. They are imprecise because they restrict measurement to only two levels with no way to distinguish within each level. They lack in scope. Many measured characteristics are broad in scope and not easily assessed with a single question. In contrast, employing several response choices and multiple items increases reliability, precision, and scope (Spector, 1992) (See Paper 2, Appendix II).

An alternative approach regarding Step 2 concerned the model of measurement. Facing two general approaches to developing a measure, conventional (reflective) scale development (e.g. Churchill, 1979; Spector, 1992) and index construction (e.g. Diamantopoulos and Winklhofer, 2001) (Diamantopoulos and Siguaw, 2006; Jarvis et al., 2003), the former was adopted. Certainly, the most prevalently used model-design is reflexive (Diamantopoulos and Siguaw, 2006; Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003), but a number of studies have found constructs which have incorrectly been operationalized as reflective (Diamantopoulos and Siguaw, 2006). Indeed, a survey of the marketing discourse suggests that, by a large margin, the most frequent measurement model specification error in the same field is incorrectly operationalizing a concept as reflective (Jarvis et al., 2003) (cf. Diamantopoulos and Winklhofer, 2001). Moreover, there are only rare examples of when the chosen approach is explicitly motivated (Diamantopoulos and Siguaw, 2006), while in fact data imply that managerial constructs in the marketing discourse are more often formative than reflexive in character. Importantly, incorrect specification of the measurement model can affect the conclusions with regard to the relationships between latent constructs (Jarvis et al., 2003).

Comparing the formative or index approach as an alternative to the scale development approach utilized, both index and conventional scale development scholars view the development of a measure as a multi-step process (cf. Spector, 1992). The methodological guidelines with regard to the first part of measure development (item generation) are similar for both approaches (Diamantopoulos and Winklhofer, 2001). For example, following Churchill (1979) and scale development, the emphasis was to develop a reasonably exhaustive set of items which tapped each of the dimensions of the
construct. And this may be equally or even more important with regard to index construction (Diamantopoulos and Winklhofer, 2001), where the indicators have to cover the whole range of the latent variable in accordance with the content description. However, the writings on formative models display issues crucial to index development (Diamantopoulos and Winklhofer, 2001). Indeed, there are a number of unique problems connected to index construction (Jarvis et al., 2003). For example, while reflective indicators of a construct are to be internally consistent (and if equally reliable, interchangeable, i.e. multicollinearity is a good quality when the measures are reflective) (Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003), and the construct validity unaltered if a reflective indicator is dropped (although the reliability coefficients (e.g. Cronbach’s alpha) of the collection of items will decrease), the formative model, in contrast, neither demand nor presume items to be correlated. Indeed, it would make a complete sense for formative indicators to be entirely uncorrelated (as mentioned, multicollinearity among formative indicators can be a troublesome) (Jarvis et al., 2003). Hence, reliability in the form of internal consistency such as Cronbach’s alpha is not appropriate as a criterion for appraising the adequacy of formative models (Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003) (cf. Diamantopoulos and Siguaw, 2006).

More importantly, it has been noted how a formative measurement model has to be housed within a larger model which includes (reflective) outcomes of the latent variable(s) or it cannot be estimated (i.e. Diamantopoulos and Winklhofer, 2001). Similarly, it has been observed that formative constructs have to express paths to no less than two separate latent constructs with reflective indicators, or to no less than two reflective indicators, or to a combination of the two; one reflective indicator and one latent construct, where the latter has reflective indicators – or they cannot be identified (i.e. Jarvis et al., 2003) (cf. Diamantopoulos and Siguaw, 2006). The advisable solution to this estimation issue is “…to add two reflective indicators to the formative construct, when conceptually appropriate” (Jarvis et al., 2003, p. 213). The advantages of this approach includes the fact that each construct may be identified on its own, that it hence potentially be placed in a different context, rather than by necessity being dependent on another construct (which in turn has to have reflective indicators). While it has been noted how the identification problem may also be solved through setting the error term to zero or by setting it equal to the residual variance of the construct it is presumed to influence, these solutions may not be proper (Jarvis et al., 2003).

Moreover, a formative or index approach as an alternative to the scale development approach utilized in this dissertation and an initial screening of items for their potential for removal from their index would also have required an item that sums up the essence of the construct(s) to which the items can be
correlated. Consequently, for each construct reflective items would be needed. The required supplemental items would have had to be foreseen when the questionnaire was designed (Jarvis et al., 2003). While it may not have been impossible to create such items, it would have been a challenge, and it would have added complexity. With foresight theoretically considered as behavior in its own right, foresight may be assumed to cause the analysis and time constructs, rather than the other way around, which in turn, in the same fashion, may be assumed to cause the measures (items). Indeed, the instrument developed in Paper 2 together with the assessment of the same instrument may be viewed as support for the adequacy of the chosen approach.

Another alternative approach regarding Step 2 concerned the choice of deploying an exploratory and then a confirmatory factor analysis. While there was a theoretical basis for the factors and their relationships that could have been seen as a justification for deploying a confirmatory factor analysis only, the choice was made to conduct the initial exploratory factor analysis as well. Such a two-step procedure (rather than a single confirmatory approach) may presumably result in a more robust model.

Still another alternative approach regarding Step 2 concerned the measurement of the time aspect compared to the absolute or unlimited expression with regard to the time aspect in Paper 1 (See Appendix I). That is, the time aspect measured in step 2 (See Paper 2, Appendix II) was not operationalized to reflect time in an absolute or unlimited sense. A cut-off point of two years was used in Paper 2. A cut-off point was deemed appropriate to allow reasonable items to be formed. A single (rather than several) cut-off horizon (of two years) was deployed as to avoid creating sub-factors in the data (other time horizons could form separate factors).

An alternative approach with regard to Step 3 in the research process – Assessing validity (See section 3.2) concerned choosing a more formalized approach. That is, a more formalized specific qualitative method could potentially have been deployed. However, the general character of the third broken down research question to be addressed as well as the case representing a theoretical example rather than an empirical fact (cf. Ragin and Becker, 1992) meant that a more formalized approach was neither deemed necessary nor appropriate.

An alternative approach with regard to Step 4 in the research process – Assessing the association between managerial foresight and firm performance (See section 3.2) concerned the sample of CEOs (of stock companies) in the computer programming industry (SNI 62.010, in accordance with NACE; Classification of Economic Activities in the European Community). The CEO was chosen as a measure for each company. An alternative approach could have been to assess several or all managers or employees in each firm. However, time, economical
concerns, as well as practical constraints meant that such an approach was deemed unfeasible. Furthermore, a somewhat arbitrary choice had to be made with regard to the choice of industry. As industries (and markets within industries) may vary with regard to predictability, change, and uncertainty, as well as with regard to managerial homogeneity in terms of their degree of foresight (and thus the proposed effect of a higher degree of foresight may vary in terms of, for example, the time it may take for it to potentially impact performance) (and the way the variables are operationalized / measured in relation to such contextual issues may have an impact too), the computer programming industry was deemed appropriate. Presumably, the computer programming industry is neither characterized as extremely predictable, nor as extremely uncertain.

Another alternative approach regarding Step 4 concerned the choice of statistical test for hypothesis testing. As the data was considered ordinal, the requirements for a Chi 2 test was met and surpassed, hence this could have been an alternative. However as the fundamental rule is to choose the most powerful test possible (e.g. Pagano, 1994), a choice was made between Pearson’s r and Spearman’s rho. While parametric tests in general are more powerful than nonparametric tests, the data was neither considered interval nor was the performance data considered normally distributed, hence Spearman’s rho was deemed the most appropriate approach (See Paper 4, Appendix IV).

Another alternative approach regarding Step 4 concerned the assessment of performance as an index consisting of a selection of measures. One option was to deploy a single or several single performance measures rather than an index. However, as firms may prioritize measures differently, and as performance may be considered a multidimensional concept (Govindarajan, 1988; Naman and Slevin, 1993; Neill and Rose, 2006; Siguaw et al., 1998; Wiklund, 1999) an index was deemed the most appropriate approach. Another option was to limit the index to a smaller selection, or to extend it to include a larger selection. A somewhat arbitrary choice had to be made (cf. Graziano and Raulin, 1993). A too small selection could arguably have harmed the idea of a multidimensional measure, and a too large selection would arguably risk that the index would loose meaning and become excessively hard to interpret. The selected measures; net turnover, total assets, net result, return on total assets, and appropriated earnings were deemed the most appropriate as they are presumably widely acknowledged and to a certain degree mirror other forms of comparable concepts with some variations (e.g. returns on various measures, before of after taxes, et cetera) (cf. section 2.5) (See Paper 4, Appendix IV).
Still another alternative approach regarding Step 4 concerned the weighting of the sub-components in the managerial foresight index. If the factors resulting from the exploratory factor analysis (in Step 2, See Paper 2, Appendix II) (subsequently tested through the confirmatory factor analysis) had been used to create an index, the weighting among the items would have been skewed compared to the theoretical definition of foresight (the items in the factors resulting from the exploratory factor analysis were not equally distributed on the theoretical sub-components). Hence, the number of items on each sub-component was taken into account by creating an average (dividing the sum of the score on the items with the number of items), and then an average was created for each factor, which together formed the foresight index. As the units of scaling were identical the scores were not standardized (cf. e.g. Pagano, 1994), as it can be argued that standardization removes information from the data (See Paper 4, Appendix IV).

As a final note, an alternative and preferable approach to the convenience samples in this dissertation would have been stratified random samples. However, time, practical and economical constraints restricted the choice.

3.6 Reliability and validity

Estimation of reliability is to be established when novel measurements are developed (Nunnally and Bernstein, 1994), and validity may be seen as the most consequential aspect in measure assessment (A.P.A., 1985). Consequently, in this section, the relevant steps and measures taken to assess reliability and validity are discussed. While reliability and validity issues concern all the broken down research questions and associated papers in this dissertation, they may have somewhat more practical pertinence to Paper 2 and Paper 4.

Measures are reliable to the extent that they can be repeated (Nunnally and Bernstein, 1994). More specifically, reliability, or the “...degree to which test scores are free from errors in measurement” (A.P.A., 1985, p. 19), i.e. free from random effects causing measurement error (Nunnally and Bernstein, 1994), can be estimated through four essential methods; the retest method, alternative form method, split-halves method, and the internal consistency method (cf. Carmines and Zeller, 1979; Nunnally and Bernstein, 1994).

The managerial foresight scale (See Paper 2, Appendix II) can be thought of as having different reliability coefficients contingent on the sources of (reliability) measurement or evidence employed (cf. Nunnally and Bernstein, 1994), each type evokes a different meaning by presumably being affected by different kinds of error (cf. A.P.A., 1985). That is, what is regarded as error
and what is regarded systematic is contingent on the way (reliability) measurements are made (cf. Nunnally and Bernstein, 1994). Thus, it is vital that the method employed takes into account the sources of error of the most concern for the test at hand (cf. A.P.A., 1985). In addition, at least two types of reliability coefficients ought to be employed for an instrument that is to be used extensively (Carmines and Zeller, 1979).

When deciding on what method(s) to employ it has been noted that the retest method means that similar tests are distributed to the same respondents after some length of time (Carmines and Zeller, 1979), and the correlation between results at the two occasions is the reliability coefficient (Carmines and Zeller, 1979; Nunnally and Bernstein, 1994). However, this approach is accompanied by problems: A low coefficient does not necessarily mean low reliability; it may be that the underlying theoretical concept indeed has changed. The process of measuring can itself cause change in the underlying concept (i.e. reactivity) (Carmines and Zeller, 1979), or the respondents' memories with regard to the first test may influence the second ditto (Carmines and Zeller, 1979; Nunnally and Bernstein, 1994), inflating correlations between the two.

In comparison to the retest method, the alternate form method entails that a different test is given at the second testing, while both tests are designed to measure the same phenomena. This approach is an improvement compared to the simple retest method in that it reduces the magnitude to which respondent's memory can inflate the reliability coefficient (cf. Carmines and Zeller, 1979; Nunnally and Bernstein, 1994). The split-halves approach is different from both the retest and the alternative forms in that it can be run with a single tests occasion. The complete pool of items is split into halves, and the reliability coefficient equals the correlation between the scores in the halves. But the complete set can be split in numerous ways, and each may result in somewhat different reliability estimates. It has been noted however, that this problem is most likely when items are ordered in terms of difficulty. In contrast to split-halves approaches, estimates of internal consistency (among the items) require neither the splitting nor repeating of items, and the most common coefficient is Cronbach's alpha (Carmines and Zeller, 1979).

It has been suggested that the retest method, with some exceptions, generally should not be employed, and while the split half methods have some applications, they are generally outdated (Nunnally and Bernstein, 1994). Hence, the alternative form and coefficient alpha are considered the fundamental estimates of reliability (Nunnally and Bernstein, 1994). Indeed, measurement error can be viewed as belonging to one of two principal types; “…variation within a test produced by such factors as heterogeneity of item content and guessing…” and “…variation between tests as produced by temporal instability” (Nunnally and Bernstein, 1994, p. 290), and alternative
forms together with test of internal consistency can be employed to assess both these types (Nunnally and Bernstein, 1994). However, a fundamental restriction with regard to the alternative form approach is the problem of practically creating two forms (Carmines and Zeller, 1979). It has been noted that while alternative forms are attainable for many commercial tests, they are not so for numerous tests used basic research (Nunnally and Bernstein, 1994). Moreover, it is frequently only feasible to give a test once, and it can be both disproportionately costly as well as unpractical to give a test several times (Carmines and Zeller, 1979), as was deemed the case regarding the present dissertation.

Turning attention to internal consistency, as mentioned (See section 3.5 Alternative approaches), reflective indicators of a construct are to be internally consistent (and if equally reliable, interchangeable, i.e., multicollinarity is a good quality when the measures are reflective) (Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003). Likewise, the construct validity should be unaltered if a reflective indicator is dropped (although the reliability coefficients, such as Cronbach’s alpha of the collection of items will decrease) (Jarvis et al., 2003). That is, reliability in the form of internal consistency such as Cronbach’s alpha is appropriate as a criterion for appraising the adequacy of reflective models (Diamantopoulos and Winklhofer, 2001; Jarvis et al., 2003) (cf. Diamantopoulos and Siguaw, 2006). Consequently, in the present dissertation, due to practical and economical constraints, the reliability of the managerial foresight scale was chiefly assessed through Cronbach’s alpha (See Paper 2, Appendix II).

At least some reliability is a requirement for any form of validity (Nunnally and Bernstein, 1994), and as the managerial foresight scale was found reliable (See Paper 2, Appendix II), attention may be turned to validity. Certainly, while validity is generally a question of degree and not something absolute, in the end, no measure is of use if there is no evidence for its validity, dealing “with how well it measures what it purports to measure in the context in which it is to be applied” (Nunnally and Bernstein, 1994, p. 112). While it has been contended that there is essentially only one type of validity, i.e., construct validity (Nunnally and Bernstein, 1994), the present dissertation assumes three major meanings of the term, each with important differences: construct validity, content validity, and predictive validity (cf. Carmines and Zeller, 1979; Nunnally and Bernstein, 1994). The above said, it should be noted that strict discriminations among the validity forms are impossible; evidence collected relevant to one form is usually relevant also to the other forms (A.P.A., 1985). There are also apparent ways in which one form of validity corroborates validity in another form. The steps that were taken to reach content validity of the managerial foresight scale are closely related to outlining the domain of variables related to construct validity (cf. A.P.A., 1985; Nunnally and
Bernstein, 1994). In addition, an impeccable validation entails evidence across all three forms (cf. A.P.A., 1985), while in practice, the available resort is often to limit assessment to construct and content validity (as a test must be chosen prior any chance to illustrate its predictive validity, since the latter chiefly entails correlating the predictor with a criterion, which often cannot be achieved) (Nunnally and Bernstein, 1994). Generally, the forms that are deemed most crucial and feasible under the specific circumstances at hand make the decision (A.P.A., 1985). However, with regard to this dissertation it was possible to acquire evidence across all three forms.

3.6.1 Construct validity

Construct validity, sometimes referred to as trait or factorial validity (Nunnally and Bernstein, 1994), essentially the “...extent to which a measure performs in accordance with theoretical expectations” (Carmines and Zeller, 1979, p. 27), involves three important phases: Specification of the domain of observables affiliated with the construct; establishing the degree to which observables exhibit proneness to measure the same thing; and executing posterior research to establish the degree to which the presumed measures of the construct conform with expectations (cf. Carmines and Zeller, 1979; Nunnally and Bernstein, 1994).

While this compilation of evidence for construct validity starts with test development (A.P.A., 1985), there is no exact prescription for how to outline the domain of variables related to a construct adequately (Nunnally and Bernstein, 1994). In practice, particularly when numerous measures of the construct are not available, construct validating demands consideration of measurements issues, such as test formats, administration, and language levels. Further evidence can be derived from examinations of respondents’ answers; questioning respondents on their answers with regard to, for example, particular items (A.P.A., 1985). The adequacy of a domain’s outline may be assessed by establishing to what degree the observables intercorrelate empirically (i.e., the degree of internal consistency) (A.P.A., 1985; Nunnally and Bernstein, 1994). However, even if a measure of internal consistency is employed, internal consistency is a requirement but not enough for construct validity (Nunnally and Bernstein, 1994). Established evidence of the degree to which the measure defines the construct would have to draw on establishing how well the former conforms to a (nomological) network of expected relationships (across methods) (cf. A.P.A., 1985; Nunnally and Bernstein, 1994). In addition, a measure should measure something different from existent methods (i.e., exhibit divergent validity, cf. discriminant validity) (Nunnally and Bernstein, 1994).
Moreover, evidence is not substantiated by a single prediction in different studies or many predictions in a single study (Carmines and Zeller, 1979), rather, it accumulates from a variation of studies (Nunnally and Bernstein, 1994), ideally demonstrating a consistent pattern (Carmines and Zeller, 1979). Specifically contributing to such variation, Paper 4 (See Appendix IV) qualitatively illustrates how past developments of a company and self-reported managerial behavior may be interpreted in terms of foresight and in terms of an eight sub-component definition of managerial foresight. Demonstrated evidence for construct validity further include the manner in which the definition of foresight is related to its nomological network (See Paper 1, Appendix I), the specification of the domain of observables affiliated with the constructs, internal consistency (Cronbach’s alpha), convergent and divergent validity of the managerial foresight instrument (See Paper 2, Appendix II), and the final the results in accordance with theoretical expectations (or nomological network) (See Paper 3 and 4, Appendix III and IV).

However, and of general importance, it has been argued that it is more proper to refer to the logic as construct explication, i.e., making an abstract term specific through observable variables, rather than validation, since it is impossible to prove that any group of observables measures a construct (Nunnally and Bernstein, 1994). Thus, specifically, in accordance with Nunnally and Bernstein (1994), in this dissertation, no claim is made for the objective reality of the foresight construct, the construct title is merely employed as a label for the specific group of observable variables.

3.6.2 Content validity

Content validity, occasionally labeled intrinsic validity, circular validity, relevance, or representativeness (Nunnally and Bernstein, 1994) illustrates the extent to which an empirical measurement, e.g., sample or items, tasks or questions can be seen as representative of a specific domain of content (A.P.A., 1985; Carmines and Zeller, 1979). Importantly, there is frequently no distinct border separating test content and construct; conclusions about the former are connected to the latter, and likewise regarding ensuring evidence of content and construct validity (A.P.A., 1985). Indeed, it can be argued that content validity is needed to acquire valid measures of any kind rather than a particular kind of validity on it own. Content validation implies a number of phases: The domain of content at hand must be specified. Existent literature is presumably a start, suggesting how the concept may be adequately conceived with regard to the number of dimensions. Items are constructed that mirror the meaning of each dimension (Carmines and Zeller, 1979) and to secure that the items represent the content, a blueprint should be employed (Nunnally and Bernstein, 1994). Moreover, content validity should be sought
for every empirical measurement (Carmines and Zeller, 1979) and sought the sense of a adequately formulated scheme or plan for test construction preceding the development of the actual test rather than an evaluation ditto succeeding construction (Nunnally and Bernstein, 1994) (See scheme for managerial foresight instrument in Paper 2, Appendix II).

The assessment of content validity frequently relies on expert judgments with regard to parts of the actual test and the defined domain, e.g., the representativeness of the items (A.P.A., 1985; Nunnally and Bernstein, 1994), as well as with regard to the adequacy of the procedures of test construction, e.g., the nature and implementation of the research-plan. In other words, content validity is chiefly based on demands regarding the characteristics of content and how it is presented. Some empirical techniques can be employed (A.P.A., 1985): At least a mediocre degree of internal consistency among the items is due, and scores may be tested for correlation with scores on tests that are supposed to measure the same thing (Nunnally and Bernstein, 1994). Additionally, the indicator coefficients in structural equation modeling (SEM) represent the forthright structural relation between each indicator and latent variable and the strength of the $\gamma$s may be understood as validity coefficients (Diamantopoulos and Winklhofer, 2001). A limited aspect of content validity, face validity, may be seen as of additional relevance here, since it can be chiefly comprehended as demonstrating the degree to which a respondent, most often one who is not educated to assess evidence of validity, perceives that the test measures what it is intended to measure, i.e., appears valid, after the test is constructed (Nunnally and Bernstein, 1994).

Apart from, for instance, specifying the domain of content, building on an extant review of the concept (See Paper 1, Appendix I), a blueprint over items, exploratory interviews, sub-component and item related interviews, respondent judgments, and internal consistency, content validity of the foresight instrument (See Paper 2, Appendix II) was deemed adequate, as the strength of the $\gamma$s in the confirmatory factor analysis may be understood as validity coefficients (See Paper 2, Appendix II). It should be noted, however, that there is no accepted criteria for deciding the extent of content validity; no rigorous way or procedure is supplied for assessing it in practice. Hence, in the end, it is impossible to determine the explicit degree to which a measure should be considered content valid (Carmines and Zeller, 1979). Similarly, face validity can be viewed as a final examination regarding whether anything went wrong in the translation of the plans into the completed instrument. It is not evidence of the usefulness of the measure, but can be important in terms of gaining approval of the test among users and their respondents (Nunnally and Bernstein, 1994).
3.6.3 Predictive validity

*Predictive validity*, occasionally labeled empirical, statistical, or criterion validity (Nunnally and Bernstein, 1994), simply expresses a degree of agreement between a test and a criterion (Carmines and Zeller, 1979). While the procedure is the same (Nunnally and Bernstein, 1994) predictive validity may specifically be assessed through, predictive, concurrent (A.P.A., 1985; Carmines and Zeller, 1979; Nunnally and Bernstein, 1994), or a postdiction approach, depending on whether the criterion respectively occurs before, during or after the predictor is assessed (Nunnally and Bernstein, 1994) (cf. A.P.A., 1985). The character of the problem at hand decides which approach to employ (Nunnally and Bernstein, 1994). Testing for predictive validity implies utilizing the scale to appraise a behavior (criterion) that is not part of the scale. Specifically, when the scores on the criterion has been acquired, the size of the correlation is usually employed as an expression of predictive validity (cf. Carmines and Zeller, 1979; Nunnally and Bernstein, 1994).

Importantly, and sometimes overlooked, the merit of the predictive validity assessment depends as much on the measurement of the criterion as on the actual measurement of the predictor (Carmines and Zeller, 1979), that is, the value of such assessment depends on the adequateness of the criterion measure employed (A.P.A., 1985). While a criterion be comfortably conceived, in practice, acquiring a good criterion may, in fact, be harder than acquiring a good predictor (Nunnally and Bernstein, 1994). Consequently, it has been contended that predictive validity procedures have a quite limited utility in the “…social sciences for the simple reason that, in many situations, there are no criteria against which the measure can be reasonably evaluated” (Carmines and Zeller, 1979, p. 19-20). The processes cannot be utilized under all circumstances. Indeed, the principal limitation is that many or even most of the times, there is no criteria accessible, and if there are, they are plagued with an assortment of flaws (Carmines and Zeller, 1979; Nunnally and Bernstein, 1994). However, with regard to the present dissertation, the result concerning the association between managerial foresight and firm performance (a predictive approach in that the performance variables in the performance index (criterion) occurred before the predictor (managerial foresight) was assessed) in accordance with theoretical expectations (See Paper 4, Appendix IV) may be interpreted as evidence for predictive validity.
4. Summary of the papers

This dissertation consists of four main papers. Paper 1 – “Managerial Foresight: concept and measurement”, addressing the first broken down research question – “What defines managerial foresight?”. The completion of this paper meant that it was possible to address the second broken down research question. Paper 2 – “Managerial Foresight: measurement scale and estimation”, addressing the second broken down research question – “How can managerial foresight be measured?”. Paper 3 – “A valid matter of foresight” addressed the fourth broken down research question – “May developments of a company and managerial behavior be interpreted in terms of foresight?”. The completion of the above papers and the resulting instrument meant that it was possible to address the fourth broken down research question. Paper 4 – “Managerial foresight matters”, addressed the fourth broken down research question – “Is managerial foresight associated with firm performance?”. See Figure 4.1; the arrows illustrate the manner in which the papers relate to each other. The papers 1 through 4 draw on each other in a sequential manner. Paper 3 was developed partly in conjecture with Paper 1 and 2, hence the layout with Paper 3 alongside Papers 1 and 2 (cf. 3.2 Research process).

Figure 4.1
Summary of the papers
Summary Paper 1


**Purpose** – To establish what foresight is, to review past usages and definitions of foresight and to synthesize them into one generic definition, in order to make the concept measurable.

**Methodology/Approach** – A discussion on how to classify variables in the social sciences serves as the starting-point. Next, a review of past definitions and usages of the concept foresight is followed by further analysis and then synthesizing of the generic definition. The generic definition is finally compared and contrasted with the related concepts of forecasting, strategic analysis, and intuition.

**Findings** – Foresight is defined as behavior along three dimensions: 1. Degree of analyzing present contingencies and degree of moving the analysis of present contingencies across time. 2. Degree of analyzing a desired future state or states a degree ahead in time with regard to contingencies under control. 3. Degree of analyzing courses of action a degree ahead in time to arrive at the desired future state.

**Research implications** – The article makes foresight quantitatively measurable which in turn makes it possible to empirically measure the existence of foresight among managers and to test the relationship between foresight and organizational performance.

**Practical implications** – Practical foresight tools and programs, et cetera, can now be assessed and compared by both practitioners and researchers.

**Originality/Value** – In identifying three fundamental behavioral dimensions of foresight, the article conceives and advances foresight as a distinct concept that can be related to several research areas, both on individual (e.g. managerial) and organizational levels.

**Keywords** *Foresight, Definition, Behavior*

**Paper type** *Conceptual paper*
Summary Paper 2

Accepted for publication in Foresight: the journal for future studies, strategic thinking and policy.

Purpose – To develop and assess an instrument measuring managerial foresight.

Design/Methodology/Approach – The article outlines the construction and estimation of the instrument through a seven step process. Fifty-seven preliminary Likert items were developed based on an extant review and synthesis of definitions of foresight. The items were assessed through interviews and pre-testing. A preliminary instrument was administered to a selection of managers. Exploratory and confirmatory factor analyses were employed to assess sub-scales and model fit. The instrument was evaluated in terms of reliability and validity.

Findings – The study demonstrates a valid and reliable 12 Likert item scale for measuring managerial foresight.

Research implications – Managerial foresight can now be assessed and tested for association with, for example, managerial or organizational performance variables.

Practical implications – Managers can now be assessed and compared in terms of foresight.

Originality/Value – In developing and estimating an instrument for measuring managerial foresight, the article advances foresight into a quantitatively measurable concept.

Keywords Foresight, Measurement, Scale

Paper type Research paper
Summary Paper 3

Submitted for publication.

**Purpose** – To qualitatively assess the validity of the managerial foresight concept.

**Design/methodology/approach** – Social, environmental and technological aspects of past developments of a company, as well as self reported managerial behavior are interpreted and analyzed in terms of foresight and in terms of eight sub-components of the managerial foresight concept.

**Findings** – Developments of the company and the managers’ behavior may be interpreted in terms of their foresight. It appears that individuals rather than structured procedures have been the ones who decide and define technology and operations.

**Theoretical implications** – Evidence is provided for the construct validity of a definition of managerial foresight and for the potential significance of specific individuals’ foresight.

**Originality/value** – Qualitative empirical evidence is added to the existent pool of quantitative evidence for the construct validity of the managerial foresight concept. The potential importance of foresight at the level of individual managers’ is illustrated.

**Paper type** – Case study

**Keywords** – *Foresight, Construct validity, Management*
Summary Paper 4

Accepted for publication in *Foresight: the journal for future studies, strategic thinking and policy.*

**Purpose** – To assess the relationship between the foresight of managers and firm performance.

**Design/methodology/approach** – An evolutionary perspective is deployed to specify the presumed relationship between managerial foresight and firm performance measures. A positive relationship between managerial foresight and firm performance is proposed. The hypothesis is tested through Spearman’s *rho*, on Swedish managers, and firms in the computer programming industry. Managers’ foresight as well as performance is assessed as indexes.

**Findings** – A moderate and statistically significant positive relationship between managers’ foresight and firm performance.

**Theoretical implications** – There is support for the theoretical relationship between managerial foresight and firm performance. There is a strong rationale for further studies.

**Originality/value** – The paper provides empirical evidence regarding the importance of managerial foresight for firm performance.

**Paper type** – Research paper

**Keywords** – Management, Foresight, Performance
5. Discussions and conclusions

5.1 Summary of the findings

Managerial foresight has been defined as a behavior and there is a moderate positive statistically significant association between managerial foresight and firm performance.

As stated in the introduction, this dissertation contributes with four major findings. Answering the first broken down research question (See section 1.2), it has defined foresight: Foresight has been defined as behavior along three dimensions: 1. Degree of analyzing present contingencies and degree of moving the analysis of present contingencies across time. 2. Degree of analyzing a desired future state or states a degree ahead in time with regard to contingencies under control. 3. Degree of analyzing courses of action a degree ahead in time to arrive at the desired future state (See Paper 1, Appendix I). Answering the second broken down research question (See section 1.2), this dissertation developed an instrument for measuring managerial foresight: It has demonstrated a valid and reliable 12 Likert item scale for measuring managerial foresight (See Paper 2, Appendix II). Answering the third broken down research question (See section 1.2), an empirical case served as an illustration and as an assessment of validity: It was possible to interpret developments of the case company and self reported managerial behavior in terms of managerial foresight (See Paper 3, Appendix III). Answering the fourth broken down research question (See section 1.2), this dissertation has tested the relationship between managerial foresight and firm performance: A moderate and statistically significant positive relationship between managers’ foresight and firm performance was found (See Paper 4, Appendix IV).

5.2 Limitations

Findings and conclusions are limited to the specific managers and firms included in the studies. In the first and fourth paper, managers were delimited to those with subordinates. In the second paper managers were delimited as managers by the companies participating in the study. In the third paper, managers were delimited to the CEO of each company. The studies draw on for profit industrial firms only, from a limited sample of industries. Generalizability across industries has been considered troublesome to accomplish (e.g. Hambrick, 1983).
Foresight is assessed as and limited to perceived foresight as it is perceived (and reported) by managers themselves. The assessment is confined to the boundaries of the measurement instrument and the selected performance variables. Translation of the theoretical managerial foresight construct into the constraints of the measurement instrument is limited by a tradeoff between flexibility, precision, theoretical and practical considerations (cf. section 3.5 Alternative approaches).

A practical consideration such as gaining access to respondents is a limitation, in that the foresight of the CEO of each firm (rather than, for example the foresight of every single employee) was used as a measure representing each firm, when testing the association between managers’ foresight and firm performance (cf. section 3.5 Alternative approaches). Whether self-reported perceived foresight reflects or to what extent it reflects, for example, sub- or preconscious foresight is not taken into account. The degree of managerial foresight is measured at a single point in time only. The stability of the variables included in the study is not assessed. The duration of time that the managers had held their position was not taken into account.

Findings regarding the association between managers’ foresight and firm performance are limited in that they are built on cross-sectional data. While it is implied that foresight causes greater performance (and the more foresight, the greater the performance), the design do not test for such causality (cf. Chan et al., 1993; Govindarajan, 1988; Hair et al., 2006; Miller and Friesen, 1983).

5.3 Conclusions

Answering the overall research question (See section 1.2) it has been specified what defines managerial foresight and the association between managerial foresight and firm performance has been assessed:

- Foresight has been defined precisely enough to allow quantitative measures to be developed. The definition is more delineated than previous definitions. It has been shown how the definition was reached and it is concluded that it is possible to define foresight in this manner (See Paper 1 and Paper 3, Appendix I and III).

In distinguishing eight basic sub-components of foresight, the dissertation conceives and advances foresight as a distinct construct that can be related to various research fields, both on individual (managerial) and organizational levels. Establishing foresight as
behavior means that some groundwork has been laid. It permits a more unified research approach, and thus the promotion of future progress in the discipline.

- A valid and reliable instrument for measuring managerial foresight has been developed. Managerial foresight can now be assessed and tested for association with other variables. It has been shown how the instrument was created and it is concluded that the instrument is reliable and valid (See Paper 2, Appendix II).

In developing and estimating the instrument for measuring managerial foresight, the dissertation further advances foresight into a quantitatively measurable concept. The instrument can be deployed in various contexts; on individual (managerial) level and the individual scores may presumably be aggregated to organizational levels. Importantly, establishing the instrument implies that additional groundwork has been laid, again allowing a more unified research approach, and in turn the promotion of future progress within the field.

- The validity of the definition has been assessed. It has been illustrated how the validity has been assessed, and it is concluded that developments of a company and managerial behavior may be interpreted in terms of foresight and specifically managerial foresight respectively (See Paper 3, Appendix III).

In providing empirical evidence for the validity of the definition of foresight in this way, the range of evidence for validity is extended (cf. Nunnally and Bernstein, 1994). Importantly, this evidence for validity lends additional confidence to the deployed definition and instrument.

- The instrument for measuring managerial foresight has been deployed and a moderate positive statistically significant correlation between managerial foresight and firm performance has been found. It has been shown how the instrument was deployed and it is concluded that there is support for the theoretically proposed or assumed relationship between managerial foresight and firm performance (See Paper 4, Appendix IV).

In providing empirical support for the theoretical association between managers’ foresight and firm performance, the dissertation advances evidence for the importance of foresight. Importantly, the empirical
evidence for the association between managerial foresight and firm performance lends confidence to the definition developed and the instrument deployed.

Stated in terms of the problem discussion of this dissertation (See section 1.1), additional knowledge has been provided regarding why some firms outperform others. While the findings regarding the association between managers’ foresight and firm performance are limited to correlations, no previous quantitative study of why some firms outperform others, with manager’s foresight hypothetically related to firm performance has, to the knowledge of the author, been performed. In providing this knowledge, the dissertation has addressed a central question for strategy researchers, i.e., why some firms outperform others (cf. Ahuja et al., 2005; Powell, 2003). That is, it has addressed a question central for creating prosperity in modern society (cf. Rumelt et al., 1991).

It has been shown how an evolutionary perspective may be deployed to contribute to the definition of foresight, as well as how an evolutionary perspective may be deployed to specify the theoretically long presumed and implied relationship (i.e. e.g. Ahuja et al., 2005; Courtney, 2001; Dawkins, 2006; Fayol, 1949; Knight, 1921; Whitehead, 1967) between manager’s foresight and firm performance. More specifically, the result lends credence to the proposal that all else equal “…the more analyzed the information pertaining to the present situation in terms of detail, the better the foundation for actions; and the more analyzed the goal and plan in terms of detail, the better the foundation for a closer match between the same and the present situation.” (See Paper 4, Appendix IV). Likewise, it lends credence to the suggestion that all else equal “…the wider the time span pertaining to the present situation (the more and diverse information can be presumed to be covered), the better the foundation for actions; and the wider the time span pertaining to the goal and the plan, the further ahead in time the same are considered (and presumably analyzed), and the higher the probability that mismatches between the present situation and the goal or plan are detected and taken into account.” (See Paper 4, Appendix IV).

Put differently, the result lends support to the suggestion that managers may strive to secure adaptation, which requires foresight, as perfect as possible (Knight, 2002), and that absent foresight theories of competitive advantages “…would, in practice, be indistinguishable from luck” (Ahuja et al., 2005, p. 792). To the extent that the association between manager’s foresight and firm performance reflects firms adapting, it lends support to an adaptation view of evolution rather than an ecologist’s selection view (while the soundness of the latter is not falsified). That is, the result may be interpreted as evidence for that firms are not completely inert (cf. Hannan et al., 1992; Hannan and
Freeman, 1977; Hannan and Freeman, 1984). Likewise, the result may be interpreted in accordance with the notion that while bounded (cf. Simon, 1999), managerial choices may not be random with regard to future adaptive value, as well as that they may have an impact reflected by the firm (cf. Hannan and Freeman, 1984) (See section 2.3 Foresight).

5.4 Practical implications

The precise definition of foresight in terms of the aspects, dimensions and sub-components implies that practical foresight tools, foresight programs, etc, now can be assessed and compared by both practitioners and researchers - overall, or in terms of individual aspects or dimensions, and or in terms of the sub-components. That is, for example, a foresight tool or a program may be structured in accordance with the eight sub-components. The sub-components of foresight may provide a common frame of reference for practitioners assessing the qualities of different programs.

The instrument for measuring managerial foresight implies that managers now can be assessed and compared in terms of foresight. This in turn makes it possible to test managerial foresight for association with various variables, both within a specific organization and in general. A potential future application for the instrument includes the evaluation of applicants when hiring staff; matching potential managers’ behaviors with job descriptions or with the requirements of specific positions within organizations.

The managerial foresight scale may serve as a diagnostic device when establishing aspects and dimensions of foresight on which managers in an organization are weak (or strong). Moreover, a diagnosis of managerial conduct does not of necessity mean the employment of the whole instrument. That is, while managers’ foresight may be of importance, emphasis on, for instance, specific sub-components, aspects, or dimension(s) may be of particular interest or significance in a particular context.

Administering the scale and having managers completing it could potentially be a part of efforts to improve managers’ awareness of their own behavior. In other words, the instrument could be utilized in management training programs. It could be deployed in combination with, for instance, group discussions with the purpose of promoting foresight. The instrument could likewise be utilized to estimate the effectiveness of training exercises developed to enhance foresight.
The empirical evidence for the association between manager's foresight and firm performance may lend credence to practical importance of foresight in various settings. It may imply that managers should consider whether foresight is of importance to them or their organization.

5.5 Suggestions for further research

There is a strong rationale for further studies and several paths for further research may be identified. Suggestions for further research include issues pertaining to the foresight concept, the antecedents and the effects of foresight (cf. Table 2.1, 2.2, 2.3 and 2.4, in section 2.4 Foresight), as well as tools enhancing foresight. Suggested research designs include observational or descriptive, correlation, and experimental:

Further descriptive survey research regarding what characterizes foresight and the sub-components in different contexts may be suggested. Such contexts or descriptions could include, for example, national foresight studies, organizations’ formal procedures, individual managers, industries, various market conditions (such as intensity of competition), specific functions (such as product development), culture, managerial training programs, et cetera. Such research could be longitudinal, and it could include assessments of what have been considered fruitful approaches overall as well as on each of the foresight dimensions. For example, a survey of national foresight programs may include an assessment of each program on foresight and on each of the sub-components, as well as of what has been considered productive, overall as well as on each of the foresight sub-components.

Further quantitative research may be suggested. Such research may specifically imply applying the instrument and estimating differences between managers in, for example, different organizations, industries, countries, or cultures, and the subsequent correlation with various (e.g. performance) variables. Research may be suggested in terms of deploying the managerial foresight scale on different sample populations to further assess the validity and reliability of the instrument. Future research should also ideally assess the validity of the scale through correlating it with other forms of approaches to the measurement of foresight.

While empirical evidence for the association between manager's foresight and firm performance has been found, further research may be suggested regarding the association between foresight and performance. The association should be tested again, in new contexts. Tentatively, managerial foresight could be more or less salient with regard to firm performance depending on industry context, and there may be several reasons for this. Managers in certain industries may
be less or more uniform in terms of foresight and presumably, the more uniform managers are, the less difference in managerial foresight there is to explain any differences in firm performance. In such cases, luck may be a significant factor explaining differences in performance. Some industries may be more or less stable (more or less changing) and or predictable than others, again making the potential effect of increased managerial foresight less salient. Importantly, the length of time expected for a higher degree of managerial foresight to have an effect on performance may be crucial, and the time to be expected could intimately depend on issues such as the above. That is, it may be that a more stable industry could be defined as one in which more time pass before any significant changes occur - changes which in turn may be closely connected to realizing any effect of managerial foresight on firm performance. Ideally, experimental procedures should be devised to assess the effect of foresight.

Further research is needed regarding the antecedents of foresight. Specifically, knowledge is needed regarding what may promote (or negate) behavior on each of the sub-components as well as on (overall) foresight. Research should assess what environmental conditions may promote foresight, how it could be promoted through formal systems, through training programs at the level of the individual, et cetera. An interesting avenue for further research includes assessing, for example, whether a crisis or low performance may spark an increase in foresight; whether there may be baseline of foresight and then depending on various contingencies there may be variation (a temporary increase or decrease). Correlation and experimental research designs should address research questions concerning the relationship between formal procedures and organizational configurations on the one hand and managerial foresight on the other hand. Potential research questions could also relate to the development and testing of foresight training programs and exercises.
References


