Strategy and small firm performance

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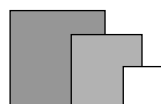
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Contents

Summary

In this report, the relationship between strategy and firm performance of SMEs is studied.

There are different ways to look at strategy and the position strategy takes in an organisation and the management process. For instance, strategy can be studied from a process perspective. This perspective investigates the process of strategy making in an organisation. Questions such as 'Is strategy seen as a constant process or an ad hoc activity?' and 'Does the organisation make a formal plan or is strategy more an implicit way of doing business?' are dealt with in this perspective.

Another important perspective is the content perspective. Based on the activities a company does, the company is said to pursue a certain strategy. The Miles and Snow typology and the generic strategies of Porter are two dominant typologies in this perspective. In the Miles and Snow typologies four distinct groups of companies are identified: prospectors, analysers, defenders and reactors. In the Porter typology three generic strategies are identified, cost leadership, differentiation strategy and focus strategy. If a company does not pursue one of these strategies, it is said that the company is 'stuck-in-the-middle'.

In general, strategy is claimed to be positively related with the performance of a company. However, empirical studies show mixed results on this claim. Furthermore, this claim is mostly based on a sample with large companies. In this study, we focus on SMEs and the way they deal with strategy and the effect of strategy on firm performance. The research questions are:
–   *Can different strategic groups of SMEs be identified?*
–   *To what extent does the selected strategy influence the firm performance of SMEs?*

In this report, (empirical) studies on strategy of SMEs are reviewed and presented. For the Miles and Snow typology the results indicate that prospectors, defenders and analysers outperform reactors. Sometimes additional indicators are taken into account such as the pro-activeness of the management or environmental conditions.

For the Porter typology the results are more mixed for SMEs. First of all, the three generic strategies are further developed. Especially differentiation is further divided into smaller categories such as quality differentiation, marketing differentiation, etc. Second, several studies indicate that there is a positive relationship between strategy and performance, whereas other studies indicate that there is no relationship. Third, also here extra indicators are introduced such as the environment and the fit between the strategy and the available resources to explain the strategy-performance relationship.

In this study, the Porter typology of the content perspective is combined with the process perspective on strategy. To identify if there are different strategic groups and the effect of strategy on firm performance, data is used from the 'EIM SME panel'.

The analysis shows that five distinct strategies can be identified, cost leadership and four distinct differentiation strategies (innovation, marketing, service and process). Using cluster analysis, four different groups of companies are identified: service differentiators, innovation and marketing differentiator, process differentiators and stuck-in-the-middle. The groups differ from each other on the variables that are related to the process perspective of strategy. Process differentiators and innovation and marketing differentiators are relatively close to each other. They are relatively large companies and deal with strategy more professional. They also perform better (although this effect disap-

pears if size is taken into account). Service differentiators and stuck-in-the-middle companies are relatively small and deal with strategy more on an ad hoc basis. This results in lower performance (if size is taken into account, this effect disappears). To a certain extent the findings confirm the claim of Porter that companies with a distinct strategy (service differentiators to a lesser extent) outperform 'stuck-in-the-middle' companies.

Based on a regression analysis, it is studied to what extent the selected strategy influences firm performance of SMEs. The performance of three years is measured by means of the number of employees, total sales and profit. Furthermore, performance is measured by growth in the afore-mentioned variables and a perceptual measure of performance compared to competitors.

The results of the regression show that the selected strategy does not influence performance. The number of employees is only influenced by process variables such as a written down strategy, plan of growth, export, co-operation with other firms, the influence of family members on strategy and the influence of the external environment, this last variable with a negative sign. Sales are influenced by a plan of growth, export and the number of employees. Profit and growth (number of employees, sales and profit) are not influenced by the strategy variables.

The perceptual measure of performance is positively influenced by a marketing differentiation and a process differentiation strategy.

Overall, the conclusion is that there are different strategic groups within the group of SMEs. However, the selected strategy does not influence the performance of SMEs.

1   Introduction

Strategy and the formulation of strategy play an important part in the firms' management process. The strategy gives the direction that a firm has in mind and in which way they want to achieve their goals. Earlier research demonstrated that firms that set out a clear strategy, for example a quality differentiation or a cost leadership strategy, will outperform those firms that deploy a mixed strategy (Baum et al., 2001). There are, however, some indications that SMEs pay little attention to strategy and strategy formulation (e.g. Snuif and Zwart, 1994a). This may have a negative effect on performance. Also in research, there is no all-encompassing theoretical framework suggested capable of explaining and guiding the strategic management of small firms (Gikinski et al., 2002).

The business owner or manager plays an important and perhaps a crucial role in small and medium-sized firms when it comes to the formulation of a firm's strategy. The business owner/manager is responsible for the strategic decisions of the company. The owner/manager's competitive development and personal goals determine the understanding and use of strategic management and planning (Postma and Zwart, 2001). The strategy is often strongly influenced by the distinct competencies and unique knowledge of the owner/manager. Strategy and strategic vision create a clear direction for the company and this proves to be an important input for firm policy and operational decisions (Philipsen and Kemp, 2003). Within small and medium-sized firms the strategy remains often implicit, top-down, informal and intuitive (Mintzberg, 1989). This is because of the important role of the business owner/manager. The owner/manager is usually the person who has the vision. Often, this vision is not disseminated throughout the organisation. Nevertheless, small and medium-sized businesses will probably have a better performance if they set up a clear strategy and if that strategy is dispersed throughout the organisation. With a clear and communicated strategy, employees can take decisions with that strategy in mind.

Which strategy leads to the best performance for small and medium-sized firms? According to the contingency theory, the optimal strategy of a firm depends on many factors, for example availability of qualified employees and other resources (external factors), quality of the current employees and the goals and strategic behaviour of the business owner (both internal factors). Also sustainable competitive advantages are often referred to as important determinants for the selection of the strategy. These factors differ largely between firms. For this reason it is not possible to derive one most favourable strategy for a certain group of firms. Each company has to find its own optimal strategy, which is determined by the external and internal factors of the firm. This theory states that firm performance is mainly determined by the quality of the strategy and the role of the entrepreneur in the formulation of strategy instead of the direction of the strategy.
The environment, the development stage of the industry life cycle and the organisational development also have influence on the strategy selection. Specific for small firms is the potential ability of small firms to adept to changing circumstances. Dean et al. (1998) suggested that small companies might pursue strategies built upon the strength of speed, flexibility and niche-filling capabilities.

Objective and research question

The objective of this research is to contribute to the debate on the relationship between strategy and firm performance, especially of SMEs. This report will research whether existing small and medium-sized companies that pursue one clear and consistent strategy outperform existing small and medium-sized companies that did not make such a clear distinction. The research questions are:

– *Can different strategic groups of SMEs be identified?*
– *To what extent does the selected strategy influence the firm performance of SMEs?*

To answer these questions, first a review of the literature on strategy is performed. Different strategy typologies will be discussed with a special focus on the Porter typology and the Miles and Snow typology.

In the empirical analysis information of the SME Panel of EIM will be used. This panel contains information on the production process and the strategy followed by the firm as well as information on the level and the growth of employment and sales of a number of years for existing firms. Based on statements concerning strategic issues in the Porter typology tradition, different strategies can be identified. Factor analysis is used to combine the different statements to a consistent strategy. By using cluster analysis, different companies can be clustered to a group of homogeneous companies with the same strategic characteristics. Finally, regression analysis is done to test the effect of strategy on firm performance.

Outlay of the report

In chapter 2, different visions on strategy and firm performance are discussed. There is special attention for different typologies that come to the fore in the literature. Focussing on two typologies, the Miles and Snow typology (prospector, defender, analyser and reactors) and the Porter typology (cost leadership, differentiation and focus strategy), empirical studies on these two typologies are discussed in chapter 3. In chapter 4, the research methodology is discussed. In chapter 5, the empirical results are presented. Because only the Porter typology is measured in the SME panel of EIM, only this typology is studied. By means of factor analysis it will be tested if SMEs have distinct strategies. Second, different groups of companies are formed that have similar strategic characteristics. Finally, the relationship between strategy and performance is tested. In chapter 6, the results and implications of this research are discussed.

2 Several visions on strategy and performance

Strategy, strategic planning and strategic management have gained much attention in management literature since 1960. Many would argue that strategic management is a concept which should be reserved for large corporations with planning departments. Small and medium-sized enterprises (SMEs), it is usually argued, are too busy dealing with operational problems and events on a day-to-day basis and devote no time to strategic management (Hanlon and Scott, 1993). A clear strategy on the other hand might enhance business performance and might be important for SMEs as well.
A strategy is a mechanism to focus the efforts of a company. The pursuit of strategic fit has traditionally been viewed as having desirable performance implications (Zajac et al., 2000). Firms with a clear strategy will outperform firms without such a strategy. It is also argued that the size of a company might influence the 'correct' strategy. Pelham (1999) argued that an emphasis on a growth/differentiation strategy will have greater impact on the performance than an emphasis on a low-cost strategy. However, there are also studies suggesting no relationship between strategy and performance (Campbell and Hunt, 2000).

In this chapter a brief review of the literature on strategy and performance in general will be given. The review will not strictly focus on the potential effects of size on the type of strategy. Most strategy literature focuses on large companies and these ideas are used in SME research as well. In chapter 3 the focus will be on studies focussing on SMEs. In section 2.1 different perspectives on strategy will be discussed. Afterwards, in section 2.2, a couple of in the literature well-known typologies of strategy are looked at. In section 2.3 a link between strategy and performance is given.

2.1 What is strategy?

The word strategy comes from the Greek strategos, referring to a military general and combining the words 'stratos' (the army) and 'ago' (to lead). In this section, different perspectives on strategy will be discussed. This results in a definition of strategy that will be used in this study.

Perspectives on strategy
In this section a few perspectives on strategy will be discussed, because there is a wide variety in the meaning of the word strategy. Five different perspectives come to the fore, strategy as: resource allocation, creating a unique position, a process, an integration and a plan for actions. Sometimes these perspectives overlap in the definitions. For example, Chandler (1962) says that strategy is the determinator of the basic long-term goals of an enterprise, and the adoption of courses of action (strategy as plan of action) and the allocation of resources necessary for carrying out these goals (strategy as resource allocation). To some a strategy includes a statement of objectives. Others hold that objectives are separate, and strategy is the meaning of attaining them. Mintzberg (1990) observes that the term strategy will be used in various ways, even in one conversation. To clarify things, the different perspectives of strategy are briefly discussed.

Strategy as resource allocation
Buzzell and Gale (1987) use strategy to mean: The policies and key decisions adopted by management that have major impacts on financial performance. These policies and

decisions usually involve significant resource commitments and are not easily reversible. Resource allocation is the result of the decisions related to the strategy selected. They distinguish between business unit strategy and corporate strategy. Business unit strategy concerns how to compete in a given business. Corporate strategy involves questions of resource allocation among businesses as well as the design of a portfolio of SBUs (strategic business units) that reinforce each other.

Strategy as creating a unique position

According to Porter (1996) strategy is the process of creating a unique and valuable position with means of another set of activities. A strategy can be seen as a combination of activities. Strategy means creating connection in the activities of a firm. If there was only one ideal position, there would be no need of strategy. The essence of strategic positioning is: choose the activities that are different than those of the competitors. Nevertheless, a unique position is not enough to guarantee a permanent advantage. A successful position will stimulate the current competitors to copy one or more of these activities. The success of strategy depends on the performance of a lot of issues - not only a few - and integrates these issues. If the activities do not correspond, there will be no clear strategy and little chance of consolidating the position. Companies are then stuck-in-the-middle (see section 2.2.4).

Strategy as a process

Mintzberg (1990) suggests that the term strategy is used to mean a plan, a ploy, a pattern, a position or a perspective - the 5 Ps. Mintzberg defines strategy in terms of a process. Since strategy has almost inevitably been conceived in terms of what the leaders of an organization *plan* to do in the future, strategy formation has, not surprisingly, tended to be treated as an analytic process for establishing long-range goals and action plans for an organization, that is, as one of formulation followed by implementation. A plan can also be a *ploy* or manoeuvre to outwit a rival or competitor. Mintzberg sees strategy as a *pattern* in a stream of decisions. Streams of behaviour could be isolated and strategies identified as patterns or consistencies in such streams. *Position* strategy relates to the context and external situation: the position in relation to competitors and the cooperative interrelations. The organization is matched against others and the demands of the environment. The use of the term strategy as perspective emphasizes the group of strategy makers. Their views, whims, preferences and predilections are influential in the organization. The strategy makers have a personality and the organization does not have it.

Strategy as an integration

Seth and Thomas (1994) give the following definition of strategy: 'A strategy is the pattern or plan that integrates an organization's major goals, policies and action sequences into a cohesive whole. A well-formulated strategy helps to marshal and allocate an organization's resources into a unique and viable posture based on its relative internal competencies and shortcomings, anticipated changes in the environment, and contingent moves by intelligent opponents'. This definition implies that an organization is a purposive and entrepreneurial entity with specialized unique resources, which interacts with its environment to maintain long-term viability.

Strategy as plans for actions

Van Gelderen, Frese and Thurik (2000) regard strategies at the individual level as plans for actions that influence how people are doing things. When people deal with situations, they are following a strategy of action, regardless of the degree of rationality and

explicitness. The function of a strategy is to deal with uncertain situations, because a strategy presents a template that can be applied to various situations. The concept of strategy emphasizes how an entrepreneur tries to reach a goal.

Towards a definition of strategy

Different perspectives on strategy have been discussed. Central in these perspectives are the words; setting goals, allocation of resources and plans for action. It is now time to give a definition of strategy that will be used in this paper.

> Strategy is a coordinated plan that gives the outlines for decisions and activities of a firm and is focused on the application of the resources that a company has at its disposal in such a way that the activities have an additional value to the environment so that the firm can achieve its own goals.

It is now time to look at the different typologies of strategy that appear in the literature.

2.2   Typologies on strategy

Many authors have developed typologies in their studies on strategy. These typologies classify different strategies or patterns of strategic behaviour. The classification of different approaches is rather difficult and always a subject under discussion.

Three categories of typologies have been distinguished (Nijssen, 1992); the business matrix approach, a theoretical approach and an empirical/statistical approach. The second and third categories are closely related. The second category concerns more generic strategies whereas the third category is more or less an empirical operationalization of the theoretical ideas.

The first is the 'business matrix approach' (including portfolios) in which the corporate activities are placed in a two-dimensional matrix. Typically, one axis refers to the attractiveness of the industry/market. The other axis is connected with the relative position of the firm with regard to competitors. The approach is pragmatic and especially useful for problems concerning the expansion of business or product groups. The most simple business matrix is the growth-share matrix popularised by the Boston Consulting Groups (see e.g. Boston Consulting Group, 1971, and Leeflang, 1994). On the horizontal axis they plotted the relative market share and on the vertical axis the industry growth rate. The aim of the matrix is to help corporate managers determine when they should consider using profits from cash-cows business (high market share and stable market) to fund growth in other businesses. Large and diversified companies especially use the business matrix approach.

Second, there are the typologies which are emphatically related to the strategy of firms in an industry. These typologies are more theoretical although the actual ideas concerning the strategies can be derived from practice (e.g. Chandler, 1962, Porter, 1980, and Miles and Snow, 1978). Within these groups a distinction can be made between authors who stress the strategy itself and those who think in terms of types of organizations. Hanlon and Scott (1993) described this as the distinction between *content* and *process*. Most of the literature on the strategy process concerns the normative model, which seeks to describe how firms should go about formulating their strategies (see e.g. Mintzberg, 1985, Hart 1992, and Fletcher and Harris, 2002). Huff and Reger (1987) de-

scribed process research as focusing on the actions that lead to and support strategy. In the content strategy the studies focus on generic strategies (Porter, 1980, and Miles and Snow, 1978). These content strategies are used in empirical studies and form the approach we discuss in the next section.

A third approach is the empirical-statistical approach. Starting with a relatively large number (20 or more) of variables that measure the strategic behaviour of companies, clusters of companies are constructed with similar strategic behaviour. The underlying strategic factors are further investigated. In this way they try to conduct common strategy typologies often closely related to the generic strategies of the second category (e.g. Dess and Davis, 1984, and Smith and Grimm, 1987).

Although all three approaches have their own place in the philosophy about strategies, the second and third categories are the most important ones for this study. Therefore, these theoretical typologies will be used because of the search for a wide theoretical frame towards strategy and organizational characteristics. In the next sections several typologies of this second category will be discussed. First, we look at the typology of Mintzberg (1985). Mintzberg sees strategy as a process. Afterwards a few content approaches of strategy will be discussed: Chandler (1962), Miles and Snow (1978), Porter (1980) and the resource-based view of the firm (RBV) (Wernerfelt, 1984, and Barney, 1991). In chapter 3, empirical studies using Porter's (1980) typology will be discussed.

2.2.1 *Mintzberg: deliberate and emergent strategies*

Mintzberg has been one of the most articulated and influential of those taking exception to the traditional view of strategy. He defines strategy in terms of a process. Strategy is a stream of decisions.

Mintzberg and Waters (1985) make a difference between intended and realized strategies (see figure 1). Comparing intended strategy with realized strategy, helped to distinguish deliberate strategies - realized as intended - from emergent strategies - patterns or consistencies realized despite, or in absence of, intentions. The fundamental difference between deliberate and emergent strategy is that whereas the former focuses on direction and control, getting desired things done, the latter opens up the notion of strategic learning.

For a strategy to be purely deliberate three conditions must be satisfied: (1) the existence of precise intentions, articulated in concrete detail, (2) the intentions must be shared or completely accepted by all actors within the organization, and (3) the environment must be perfectly predictable, totally benign, or capable of being fully controlled by the organization. For a strategy to be perfectly emergent, there must be order, consistency over time, in the absence of intention about it. No consistency means no strategy or at least an unrealised strategy.

The expectation is to find tendencies in the directions of deliberate and emergent strategies rather than perfect forms of either. Most strategies would tend to fall somewhere between, sharing characteristics of both. A variety of types of strategies that fall along this continuum can be introduced beginning with those closest to the deliberate pole and ending with those most reflective of the characteristics of emergent strategy. Mintzberg and Waters (1985) identified eight strategies lying along the continuum between deliberate and emergent strategies: planned, entrepreneurial, ideological, umbrella, process, unconnected, consensus and imposed. All of them will be briefly discussed.

figure 1   Types of strategy
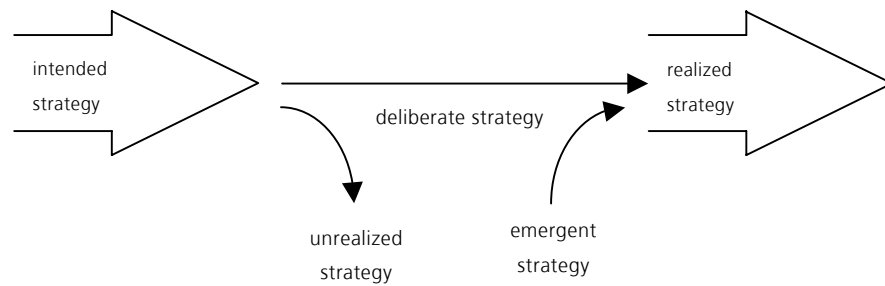
Source: De Wit and Meyer, 1994.

The planned strategy

Leaders at the centre of authority formulate their intentions as precisely as possible and then strive for their implementation with a minimum of distortion. To ensure this, leaders must first articulate their intentions in the form of a plan, to minimize confusion. This plan will be elaborated in budgets, schedules, and so on to pre-empt discretion that might impede the realization of the plan.

The entrepreneurial strategy

In this second type of strategy, Mintzberg relaxes the condition of precise articulated intentions. One individual in personal control of an organization is able to impose his or her vision of direction on it. Because such strategies are common in entrepreneurial firms tightly controlled by their owners, they are called entrepreneurial strategies. These strategies most commonly appear in young and/or small organizations (where personal control is feasible) that are able to find relatively safe niches in their environments.

The ideological strategy

Vision can be collective as well as individual. When the members of an organization share a vision and identify so strongly with it that they pursue it as an ideology, then they are bound in to exhibit patterns in their behaviour, so that clear realized strategies can be identified.

The umbrella strategy

Leaders who only have partly control over other actors in an organization may design what can be called umbrella strategies. They set general guidelines for behaviour and then let other actors manoeuvre within them. In effect, these leaders establish kinds of umbrellas under which organizational actions are expected to fall.

The process strategy

Similar tot the umbrella strategy is what can be called the process strategy. The process strategy is especially relevant for businesses in complex environments that are unpredictable and uncontrollable. But instead of trying to control the strategy content at a general level, through boundaries or targets, the leaders control the process of strategy making while leaving the content of strategy to other actors.

The unconnected strategy

The unconnected strategy is perhaps the most straightforward of all. One part of the organization with considerable discretion is able to realize its own pattern in its stream

of actions. Most of the times these actions come from a subunit or sometimes even a single individual.

The consensus strategy

In this kind of strategy many different actors naturally converge on the same theme, or pattern, so that it becomes pervasive in the organization, without the need for any central direction or control. In other words, the convergence is not driven by any intentions of a central management, nor by prior intentions widely shared among the other actors.

The imposed strategy

Strategies can be imposed from outside as well, that is, the environment can directly force the organization into a pattern in its stream of actions, regardless of the presence of central controls.

Defining strategy as intended and conceiving it as deliberate, as has traditionally be done, effectively precludes the notion of strategic learning. Once intentions have been set, attention is riveted on realizing them, not on adapting them. Mintzberg, however, sees strategy as a process where intentions can be adapted in a process of deliberate and emergent strategies.

In the following sections a few content approaches will be discussed.

2.2.2 Chandler's thesis

Chandler (1962) studied almost 100 of America's largest firms from 1909 to 1959, including firms like General Motors and Standard Oil. Chandler sees strategy in terms of growth and strategic decisions are concerned with the long-term health of the enterprise. The initial stage involves plants, sales offices, or warehouses in a single industry, a single location, and performance of a single function. If it is successful then the company will follow a predictable plan. He distinguished the following types of strategy: volume expansion, geographic expansion, vertical integration and product diversification.

Volume expansion

After the introduction of a successful product, the first logical strategy to follow is that of expanding the existing products or services in its current product-market structure. Volume expansion according to Chandler (1962) means producing, selling and distributing more of their products or services to existing customers.

Geographic expansion

A next logical step is geographic expansion. The firm continues what it was already doing in new geographical areas with new field units. Geographic expansion can also include international coverage.

Vertical integration

Vertical integration is an attempt at increasing value added within a given business base. Companies buy or create other functions. It is the move into new functions. There are two forms of vertical integration: forward, which leads the firm closer to its customers and backward, which moves it closer to its suppliers.

Product diversification

The last step is product diversification. This means involving the firm in new industries either through merger, acquisition or creation (product development).

As a firm moves through each stage, it must change its organizational structure. The initial structure is appropriate for volume expansion of a single product or service in a single industry and stresses low unit cost (efficiency) and maximum resource utilization (production) with relatively low concern for response to change and uncertainty. The change to geographic expansion and ultimately product diversification increases the firm's concern for adaptability and complex environments. Thus, product-based divisions and departments, decentralized authority, and relatively wide spans of control characterize the organizational structures of such firms.

Chandler (1962) concluded that changes in corporate strategy preceded and led to changes in an organization's structure. He concluded that organization structures follow the growth strategies of firms.

2.2.3 *Miles and Snow typology*

One of the typologies, which attracted a lot of researchers (see e.g. Shortell and Zajac, 1990, M.S. Bahaee, 1992, and Nijssen, 1992), is the typology of Miles and Snow (1978). Shortell and Zajac (1990) state that the Miles and Snow typology is widely used in the literature on strategy, because of its ability to measure strategy at a level of abstraction sufficient to apply across a wide variation of organizations and industries.

The organization is considered as a complete and integrated system that interacts dynamically with its environment. Simultaneously, it will be investigated how people in the corporation handle problems of entrepreneurial, technological and administrative nature. First there is the entrepreneurial domain relating to how the organization orients itself to the marketplace. The second problem is the technical (engineering) domain. It is referring to the technology and processes used to produce the organization's products and services. The last domain is the attempt of the organization to coordinate and implement strategies also called the administrative domain. Especially the different distinctive competences that a firm develops for the sake of the strategy have the attention. If the strategy is good, these competences will complement each other.

The typology of Miles and Snow divides organizations into prospector, defender, analyser and reactor types.

Prospectors

Prospectors are usually the causers of changes in the industry. A firm following a prospector strategy frequently adds to and changes its products and services, consistently attempting to be first in the market. Such a firm tends to stress innovation and flexibility in order to be able to respond quickly to changing market conditions. Marketing and research and development are dominant functions. The decision-making is more decentralized and the coordination- and communication structure is simple. A well-known company that follows a prospector strategy is 3M.

Defenders

Defenders are almost the opposite of prospectors. The strategy of a defender is to offer a relatively stable set of services to defined markets (narrow segment). The defender's strategy concentrates on doing the best job possible in its area of expertise. This strategy continually looks for operating efficiencies to lower costs. It emphasizes production

and the improvement of efficiency. It also emphasizes tight control, especially on cost and efficiency issues. Defenders strive aggressively to prevent competitors from entering their limited niche or domain. They accomplish this by standard economic actions such as competitive pricing or production of high-quality products. Defenders tend to ignore developments outside their product line areas. They do little environmental scanning and limited product development. The decision-making process will be dominated by experts of financial and production problems. An example of a company that is a defender is the food service retailer McDonald's.

Analysers

Analysers are in between the two extremes of the stable and efficient defenders and the dynamic and more effective prospectors. They unite the characteristics of both types. An analyser's strategy is to maintain a relatively stable base of products and services while selectively moving into new areas with demonstrated promise. In a more stable market environment they position themselves as defenders and focus on elements like production efficiency and low costs. In more turbulent markets they follow carefully the new developments to leap into these developments as soon as there is view on a successful trend. An analyser tends to emphasize formal planning processes and tries to balance cost control and efficiency with risk taking and innovation. The analyser is not, like the prospector, the first in the market, but tries to be second. They move into new innovations and new markets only after prospectors have proven the viability of the market. They live by imitation. Analysers must have the ability to respond to leading prospectors, but maintain operating efficiency. They tend to have smaller profit margins than prospectors, but are more sufficient. The structure of the analyser strategy is rather complex, because of its hybrid character. IBM maintains an analyser's strategy.

Reactors

Reactors are more or less the 'rest' type in the Miles and Snow typology. A reactor is a firm without a consistent strategy. The strategy of a reactor has characteristics of each of the other type's strategies at different times and thereby it is difficult to categorize clearly. In general, reactors respond inappropriately, perform poorly and are reluctant to commit themselves aggressively to a specific strategy.

A brief summary of the typologies of Miles and Snow is given in table 1.

table 1   Summary of the typologies of Miles and Snow

Strategy type	Characterization
Prospector	Innovative
Defender	Efficient with small product/market domain
Analyser	Efficient and adaptive
Reactor	Without consistent strategy

Source: Nijssen, 1992.

Miles and Snow (1978) discuss that companies support a certain type of strategy for a long period of time. Certain barriers and resistances arise against changes in the strategy, because companies establish organizational routines and skills at a specific orientation.

The typology of Miles and Snow was originally used for the publishers industry, but later also applied to case studies of the electronics industry, health care and the food industry. These studies were evidence for Miles and Snow that the strategy types could also be applied in other branches than the publishers industry. Afterwards many researchers[1] have used the typology to study strategic behaviour in a wide variety of organizations and industries. These researchers (e.g. Segev, 1987, and Zajac, and Shortell, 1989) searched for relationships between the types of strategy of Miles and Snow, their distinct competences and other characteristics. These studies showed that prospectors, analysers and defenders outperformed reactors in competitive but not highly regulated industries. Defenders consistently outperformed prospectors in profitability and cash flow, but that prospectors outperformed defenders in innovative markets.

2.2.4 *Generic competitive strategies*

Michael Porter is one of the most cited authors in strategy-oriented, leading academic journals in the field. Porter's theory of generic competitive strategies is unquestionably among the most substantial and influential contributions that have been made to the study of strategic behaviour in organizations. The theory can be recognized as the dominant paradigm of competitive strategy (see Campbell-Hunt, 2000, for a review). Although Porter's work does not represent the whole strategy field, it is related to major parts of it (Van den Bosch and De Man, 1997). Porter (1985) argues that competition is most prevalent at the business unit level. It is therefore not surprising that most of his writings deal with the basis of strategy at the business level.

Porter's positioning school[2] has been a dominating school of thought in the strategy field. The name positioning school stems from Porter's central idea that a business should try to achieve 'competitiveness through positioning' and to enhance financial performance. Positioning determines whether a firm's profitability is above or below the industry average. The basic assumption of Porter's positioning school is that the industry environment largely determines the firm's freedom to manoeuvre. The environment has far more influence on shaping firms' strategies than the other way around; a company should place most emphasis on adapting the company to its environment. Since the underlying logic of the positioning approach is to first understand the environment and next position the firm, it is also referred to as the outside-in approach.

For a structural analysis of industries, Porter (1980) introduces his five-forces model with the forces bargaining power of suppliers and buyers, the threat of new entrants and substitute products, and rivalry among existing firms. This five-forces framework is then used to identify the three generic competitive strategies to achieve a defendable competitive position. A firm that can position itself well, may earn high rates of return even though industry structure is unfavourable and the average profitability of the industry is modest. The fundamental basis of above-average performance in the long run is sustainable competitive advantage. There are two basic types of competitive advantage a firm can process: low cost or differentiation (Porter, 1985, Hax and Maljuf, 1991). The significance of any strength or weakness a firm possesses is ultimately a function of its impact on relative cost or differentiation. The two basic types of competitive advantage, combined with the scope of activities for which a firm seeks to achieve them, lead to three generic strategies: cost leadership, differentiation and focus. The focus strategy

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[1] Nijssen (1992) gives an overview of studies that used the Miles and Snow typology.

[2] In Volberda and Elfring (2001) an overview on the schools of thought in strategic management is given.

has two variants, cost focus and differentiation focus. The generic strategies are shown in figure 2.

Each of the generic strategies involves a fundamentally different route to competitive advantage. The cost leadership and differentiation strategies seek competitive advantage in a broad range of segments, while focus strategies aim at cost advantage (cost focus) or differentiation (differentiation focus) in a narrow segment. The specific actions required to implement each generic strategy vary widely from industry to industry. While selecting and implementing a generic strategy is far from simple, they are the logical routes to competitive advantage that must be probed in any industry.

figure 2   Three generic strategies
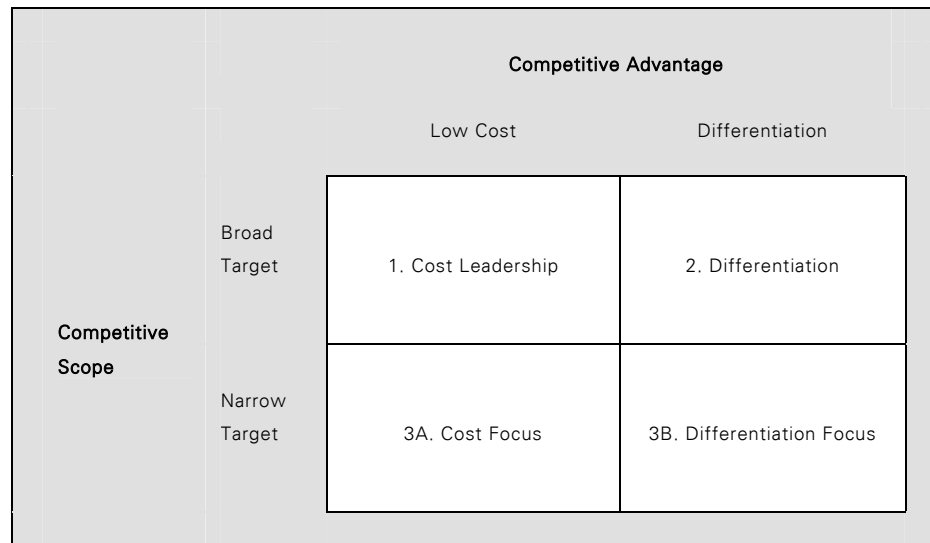
Source: De Wit and Meyer, 1994.

Cost leadership

In a cost leadership strategy a firm sets out to become the low-cost producer in its branch. The sources of cost advantage are varied and depend on the structure of the industry. A low-cost producer must find and exploit all sources of cost advantage. If a firm can achieve and sustain overall cost leadership, then it will be an above-average performer provided it could command prices at or near the average. At equivalent or lower prices than its rivals, a cost leader's low-cost position translates into higher returns. A cost leader, however, cannot ignore the bases of differentiation. If buyers do not perceive its product as comparable or acceptable, a cost leader will be forced to discount prices well below competitors' price to gain sales. This may nullify the benefits of its favourable cost position. The focus on costs concerns all business activities on a permanent basis.

Differentiation

In a differentiation strategy, a firm seeks to be unique along some dimensions that are highly valued by buyers. It selects one or more attributes that many buyers in an industry perceive as important and uniquely positions itself to meet those needs. It is rewarded for its uniqueness with a premium price. Differentiation can be based on the

product itself, the delivery system by which it is sold, the marketing approach and a broad range of other factors. A firm that can achieve and sustain differentiation will be an above-average performer in its industry if its price premium exceeds the extra costs incurred in being unique. A differentiator, therefore, must always seek ways of differentiating that lead to a price premium greater than the cost of differentiating. In order to do so, the firm needs resources and distinctive competencies that can create a sustainable competitive advantage (Postma and Zwart, 2001). A differentiator cannot ignore its cost position, because its premium prices will be nullified by a markedly inferior cost position.

Focus

The focus strategy is quite different from the cost leadership and the differentiation strategy, in that a focuser selects a segment or group of segments in the industry and tailors its strategy to serving them to the exclusion of others. The essence of focus is the exploitation of a narrow target's differences from the balance of the industry. If a focuser's target segment is not different from other segments, then the focus strategy will not succeed. By optimising its strategy for the target segments, the focuser seeks to achieve a competitive advantage in its target segments even though it does not possess a competitive advantage overall. The focus strategy has two variants. In cost focus a firm seeks a cost advantage in its target segment, while in differentiation focus a firm seeks differentiation in its target segment. Both variants of the focus strategy rest on differences between a focuser's target segments and other segments. Cost focus exploits differences in cost behaviour in some segments, while differentiation focus exploits the special needs of buyers in certain segments. The focuser can achieve competitive advantage by dedicating itself to the segments exclusively.

Stuck-in-the-middle

A firm that engages in each generic strategy but fails to achieve any of them is so-called 'stuck-in-the-middle'. It possesses no competitive advantage and will be no match for companies that concentrate on one of the generic strategies. This strategic position is usually a recipe for below-average performance. If a firm attempts to achieve an advantage on all fronts it may achieve no advantage at all. For example, if a firm differentiates itself by supplying very high quality products, it risks undermining that quality if it seeks to become a cost leader as well. Even if the quality did not suffer, the firm would risk projecting a confusing image. For this reason, Porter argued that to be successful over the long-term, a firm must select only one of the generic strategies. Porter also argued that firms that are able to succeed at multiple strategies often do so by creating separate business units for each strategy. By separating the strategies into different units having different policies and even different cultures, a corporation is less likely to become 'stuck-in-the-middle'.

The sustainability of the three generic strategies demands that a firm's competitive advantage resist erosion by competitor behaviour or growth. The sustainability of a generic strategy requires that a firm possesses some barriers that make imitation of the strategy difficult. It is usually necessary for a firm to offer a moving target to its competitors by investing in order to continually improve its position. Each generic strategy is also a potential threat to the others.

Dess and Davies (1984) and Beal (2000) further develop the differentiation strategy of Porter. Beal distinguishes four different differentiation strategies, i.e. innovation differentiation, service differentiation, marketing differentiation and quality differentiation.

According to Beal, especially differentiation is a viable strategy for SMEs. They are too small to pursue a cost strategy.

2.2.5 Resource-based theory

The key issue in strategy content research is conventionally seen as the creation and sustainability of firm-level competitive advantage. The perhaps dominant contemporary approach to the analysis of sustained competitive advantage is the resource-based view. Companies have to combine different resources in order to compete successfully in the market. The resource-based view of the firm (RBV) has been growing in popularity in the strategy literature since the mid-1980s, initiated by Wernerfelt (1984), Rumelt (1987) and Barney (1986). Like other strategy content approaches (e.g. Porter, 1980), the RBV is built on an economics foundation. The RBV has proven to be an influential and useful analytical structure for the analysis of many strategic issues (Foss and Knudsen, 2001). For strategy formulation, the inside-out perspective originates from the RBV. An organisation should ground their strategy on the available resources and capabilities. First of all, the organisation has little or no control over the pace of the external change, it is far more reasonable to trust the stability of the firm's own organisational assets, as their developments can be controlled to much more detail. Second, frameworks and conceptual models to analyse the external environment are common knowledge. Therefore, it is much more difficult to create a unique position based on these external aspects. The RBV also addresses the importance of managerial and entrepreneurial capabilities for formulation of a strategy, strategic vision and the success of an organisation.

The basic logic of the RBV starts with the assumption that a company has a unique resource or a bundle of resources (distinctive competencies) (Barney 1997). Management has an important role in creating a sustainable competitive advantage (e.g. low costs/prices, better service, innovativeness) based on these distinctive competencies. A firm is said to have sustained competitive advantage when it is implementing a value-creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy (Barney, 1991). This will result in a set of unique product-market combinations based on the resources and specific strategic decisions concerning the business. The advantage-creating resources must meet the following conditions: competitive superiority/value, rareness, inimitability, durable, appropriability and non-substitutability.

Firm resources include all assets, capabilities, organizational processes, firm attributes, information, knowledge, etc. controlled by a firm that enable the firm to conceive of and implement strategies that improve its efficiency and effectiveness (Barney, 1991). In the language of traditional strategic analysis, firm resources are strengths that firms can use to conceive of and implement their strategies. According to Barney (1991) these numerous possible firm resources can be conveniently classified into three categories: physical capital resources, human capital resources and organizational capital resources. In Lichtenstein and Brush (1997) two resource categories were added: social capital of the entrepreneur or manager and financial capital.

A sustainable competitive advantage can be obtained if the firm effectively deploys these resources in its product markets. Therefore, the RBV emphasizes strategic choice, charging the firm's management with the important tasks of identifying, developing and deploying key resources to maximize returns. Gaining a competitive advantage through the provision of greater value to customers can be expected to lead to superior firm performance measured in conventional terms such as market-based performances (e.g. market share, customer satisfaction) and financial-based performance (e.g. return

on investment, shareholder wealth creation). Where the advantage is sustained, superior performance can be expected to persist in a manner analogous to the notions of super-normal profit or rent in economics. In the next section, the focus will be on performance and performance measurement.

2.3 Performance and its measurement

Performance is an essential concept in management research. Managers are judged on their firm's performance. Good performance influences the continuation of the firm, etc.

Much of the research on performance measurement has come from organization theory and strategic management (Murphy et al., 1996). For instance, Porter (1980) defines good performance as the above-average rate of return sustained over a period of years. For an empirical study, it is necessary to specify how a firm's performance will exactly be measured.

Venkatraman and Ramanujam (1986) have pointed out that firm performance is a multidimensional construct. They proposed three general levels of firm performance. These general levels are represented in figure 3. The three general levels of firm performance indicated by Venkatraman & Ramanujam (1986) are briefly discussed.

1   *Financial performance*
    Financial performance is at the core of the organizational effectiveness domain. Such performance measures are considered necessary, but not sufficient to define overall effectiveness (Murphy et al., 1996). Accounting-based standards such as return on assets (ROA), return on sales (ROS) and return on equity (ROE) measure financial success (see e.g. Parker, 2000). These indicators really tap current profitability.

2   *Business performance*
    Business performance measures market-related items such as market share, growth, diversification, and product development (see e.g. Gray, 1997). There appear to be two dimensions here: a) those indicators related to growth/share in existing business (e.g. sales growth and market share) and b) those indicators related to the future positioning of the firm (e.g. new product development and diversification).

3   *Organizational effectiveness*
    Organisational effectiveness measures are closely related to stakeholders (other than shareholders). Examples of such measures are employee satisfaction, quality and social responsibility. There also seem to be two dimensions here: a) those indicators related to quality (e.g. product quality, employee satisfaction, overall quality) and b) those indicators related to social responsibility (e.g. environmental and community responsibility).

figure 3   Circumscribing the domain of business performance
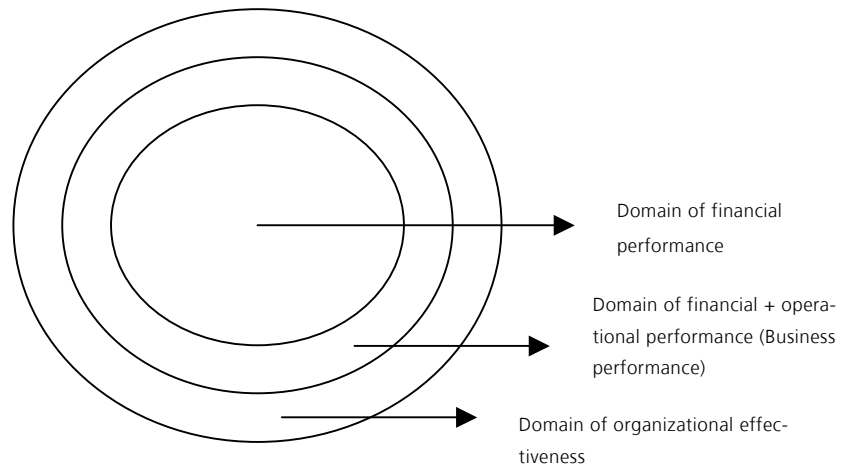
Financial performance   The domain of performance construct in most
                                         strategy research

Financial + operational Performance   The enlarged domain reflected in recent strategy
(business performance)   research

Organizational effectiveness   The broader domain reflected in most conceptual
                                        literature on strategic management and organization
                                        theory

Source: Venkatraman and Ramanujam, 1986.

Thus, five dimensions of firm performance are proposed: (1) current profitability, (2a) growth/share, (2b) future positioning, (3a) quality, and (3b) social responsibility. Given the distinctive orientations of the five strategy-making modes, each should relate to particular aspects of performance (Hart, 1992).

Although firm performance plays a key role in strategic research, there is a considerable debate on the appropriateness of various approaches to the concept utilization and measurement of organizational performance. The complexity of performance is perhaps the major factor contributing to the debate (Beal, 2000). Despite such debate there is general agreement among organization scholars that objective measures of perform-ance are preferable to subjective measures based on manager perceptions (Beal, 2000). However, objective data on the performance of SMEs is usually not available because most SMEs are privately held and the owners are neither required by law to publish fi-nancial results nor are they usually willing to reveal such information voluntarily to out-siders. Furthermore, when financial statements and accounting data are available, they may be inaccurate because they are usually unaudited. On the other hand, CEOs or owners of SMEs are inclined to provide subjective evaluations of their firms' perform-ance. For example, Chandler and Hanks (1994) used such perceptual performance measure by asking on six items. Three items were used to measure growth: perceived growth in market share, perceived change in cash flow and sales growth. Three items also were used to measure business volume: sales, earnings and net worth.

The correct performance measures might be influenced by the size of the firm and the ambition of the management/entrepreneur. There is evidence in the literature that many SMEs establish businesses for reasons other than wealth creation (Boyd & Gumpert, 1987, and Peacock, 1990). The entrepreneur often starts a business with the declared intention of becoming independent and (then) maintains independence by keeping operational control (Gray, 1997). This is supported by an EIM study in which most entrepreneurs responded that the most important objective is perpetuation/survival, the second most objective is independence. Growth comes in third place (Meijaard et al., 2002). Therefore, measures of profitability (cash flow) may not be the first objective of the entrepreneur and therefore not measure success (defined as achieving the objectives) adequately. Moreover, sometimes in SMEs subjective goals can be considered more important than objective measures of performance. On the other hand, a certain level of profitability is required to remain independent and/or for the continuation of the firm. As a result, several researches (see e.g. Postma and Zwart, 2001) argue that in order to measure the multidimensional performance construct, both objective and subjective measures should be included in the measurement instrument.

2.4   Linking strategy to performance

In this section we give arguments how strategy will influence firm performance.
It is often argued that firms with a clear and consistent strategy will outperform firms without such a strategy. This is the main argument for Porter to define his generic strategies. Also in the Miles and Snow typology it is argued that at least prospectors, defenders and analysers perform better than reactors.

Firm success is manifested in attaining a competitive position or series of competitive positions that lead to superior and sustainable financial performance (Porter, 1991). To explain firm success, the literature on strategy defined three essential conditions (Porter, 1991). The first is that a company develops and implements an internally consistent set of goals and functional policies that collectively defined its position in the market. The second condition for success is that this internally consistent set of goals and policies aligns the firm's strengths and weakness with the external (industry) opportunities and threats. The third condition for success is that a firm's strategy be centrally concerned with the creation and exploitation of its so-called distinctive competences. These are unique strengths a firm possesses, which are seen as central to competitive success. If these conditions are met, it will result in a consistent strategy and eventually good firm performance.

The firm size and the environment might influence the 'right' strategy. The strategic prescriptions suggested by Porter's (1980) concept of generic strategies tend to link entrepreneurial-type activities much more closely with differentiation strategies than with low-cost leadership strategies. To be successful, differentiators rely on strong marketing abilities, creative flair, product-engineering skills, and effective coordination across functional areas, whereas low-cost leaders emphasize tight cost controls, process-engineering skills, efficient distribution systems, and structured sets of organizational responsibilities. These distinctions suggest that firms seeking to renew or strengthen themselves by being more entrepreneurial should adopt differentiation-type strategies rather than cost-leadership strategies (Dess, Lumpkin and McGee, 1999). These entrepreneurial firms are often relatively small in size. Also Pelham (1999) argued that an emphasis on a growth/differentiation strategy would have greater impact on the performance than an emphasis on a low-cost strategy for SMEs as this coincides with a cul-

ture of market orientation. Dean et al. (1998) argued that SMEs are adept at pursuing strategies built on flexibility, the strengths of speed and niche-filling capabilities. Therefore, one might argue that SMEs should focus more on differentiation strategies.

Others argue that the process of strategy formulation is important, not the strategic plan itself (Van Gelderen, Frese and Thurik, 2000). Strategy is dynamic. The feedback mechanism from performance to strategy is justified as follows: failure may lead to specific strategies, because crisis and stress put additional strain on the decision-making process. Moreover, success may lead to specific strategies involving more sophisticated management and control techniques, because of expanding activities and hiring new employees.

Related with the previous argument is the finding of Teach and Schwartz (2000) that strategies are changed over time and that in turbulent environments a change in strategy might be positive for the development in performance. In stable industries, some strategies should persist to enhance performance. The strategy is therefore influenced by the external environmental conditions as well (heterogeneity, uncertainty).

Before, the relationship between strategy and performance has been discussed. However, there are also studies suggesting no relationship between strategy and performance (Campbell-Hunt, 2000). In this meta-study, several studies on strategy and performance were analysed. A consistent generic strategy does not outperform a mixed (or stuck-in-the-middle) strategy. In this study, it was not possible to control for all kind of variables that might influence the relationship between strategy and performance (e.g. turbulence as discussed before).

In this study, we empirically test the relationship between strategy and firm performance. Prior empirical studies on this relationship will be discussed in the next chapter.

2.5 Conclusion

In this chapter the different perspectives on strategy have been discussed. Strategy can be seen, amongst others, as a resource allocation mechanism, the formulation of goals, creating a unique position or a plan for action.

In the literature several typologies come to the fore of which the typology of Mintzberg, Chandler, Miles and Snow, and Porter are the most prominent ones. Mintzberg focuses on the process of strategy (deliberate versus emergent strategies) whereas the other three focus on the content of the strategy. Chandler distinguishes volume expansion, geographic expansion, vertical integration and product diversification. Miles and Snow divide organizations into prospectors, defenders, analysers and reactor types. Finally Porter distinguishes three generic strategies and introduces a cost-leadership strategy, differentiation strategy and a focus strategy.

It is often argued that a consistent and persistent strategy results in better performance. There are indications that reactors perform worse than prospectors, defenders and analysers; generic strategies perform better than mixed strategies. On the other hand, there are also suggestions that there is no relationship so the direct relationship leaves an open question.

Different strategy typologies are frequently used in empirical studies. In the next chapter, these empirical studies will be discussed with a specific attention for the relationship between strategy and performance and SMEs.

3 Empirical studies on strategy and performance in SMEs

3.1 Introduction

While much has been written on the nature of business strategy, little of the literature has focused on the specific situation of small and medium enterprises (SMEs) and there is still imperfect understanding of the strategy process and the relation between internal factors and the environment for this group of companies (Hanlon and Scott, 1993, and Pelham, 1999). SMEs are according to Hanlon and Scott (1993) too busy dealing with operational problems and events on a day-to-day basis to devote time to strategic management. Small business managers do not value formal planning, strategic thinking and a long-term vision (Pelham, 1999). Barring a few exceptions, research on how strategies are actually formed in entrepreneurial, small firms (like in Mintzberg's theory) is virtually non-existent. Hanlon and Scott (1993) therefore conclude that while some SMEs do make formal plans, this model is not sufficient to account for the behaviour of most small and medium-sized companies. Moreover, the applicability of rigid planning models to the entrepreneurial context is highly questionable.

Managers of entrepreneurial firms (owners as well as hired managers) are influential in projecting and developing a certain strategic orientation for their firms (Bahaee, 1992). Some SME owner/managers are able to identify clearly and name the competitive strategies they prefer. D'Amboise (1993) states that it is often said that managers of small and medium-sized companies do not pursue any particular strategy. However, once there is a direct conversation with the owner/managers of these firms, it becomes immediately obvious that they do have competitive strategies (d'Amboise, 1993). These strategies come to the fore in concrete activities or competitive tactics, in various operations and executed daily within the SME. Obviously, these less formal strategies are not always explicit and hardly correspond to the management models of larger firms. These management models in general do not render justice to the particularities of SMEs (d'Amboise, 1993).

What are the performance implications of this lack of formal attention for strategy in SMEs? Or do have SMEs clear strategies without formal attention for it? How consistent and pertinent are these strategies and does it pay to have such (formal or informal) strategies?

In this chapter, a literature research is discussed to find some empirical studies on strategy and performance. Approximately five volumes of each of the following journals were scanned on empirical studies on strategy and performance in SMEs. The six journals are the Journal of Small Business Management, Entrepreneurship Theory and Practice, International Small Business Journal, Journal of Small Business and Entrepreneurship, Journal of Small Business Strategy, and finally Small Business Economics. A couple of articles were found on the Internet by using a search engine. Also a few older studies with a special attention for strategy and performance were found.

In table 2 a brief summary of the literature is given. The table shows that most authors use the typology of Miles and Snow or Porter's model of generic strategies. Only the

empirical studies using the typologies of Miles and Snow (1978) and Porter (1980) will be discussed[1]. These empirical studies and their results are discussed in section 3.2 and section 3.3. The article of Segev (1987) uses the typology of Miles and Snow (1978), but is concentrated on a business game and is applied on fake firms. Therefore, this study will not be discussed.

table 2   Empirical studies on strategy in SMEs

Author(s) (year)	Type	Period	Country	Strategy typology	Performance measure	
Bahaee (1992)	Regional airline industry	?	USA	Miles & Snow	Load factor (% seats filled) Profit margin	Mismatch between strategic orientation and comprehensiveness of the planning process have implications for performance
Beal (2000)	Manufacturing firms	?	USA	Porter	Profitability – return on sales – return on investment – return on asset Growth – growth of sales – growth of profit Total amount of profit	Combination of environmental conditions and the life cycle stage influence the selection of the effective strategy
Borch, Huse and Senneseth (1999)	All	1995-1997	Sweden	RBV[1]	-	There exists coherence between resources and strategies in small firms
Chandler and Hanks (1994)	Manufacturing firms	1980-1991	USA	Porter/RBV	Growth – perceived growth in market share – perceived change in cash flow – sales growth business volume – sales – earnings – net worth	Fit between the right resource capabilities and strategy (low cost and product/service differentiation) have a positive effect on performance
d'Amboise (1993)	All	?	Canada	Porter	-	A relationship is discussed between competitive strategies and the use of daily tactics devoid of strategic orientation
Dess and Davis (1984)	Paints and allied products industry	1976-1980	USA	Porter	Total firm sales Sales growth Average after tax return on total assets	Generic strategies will result in better performance

[1] The focus in this study is on strategy context. Our existing dataset does not allow to study the other perspectives in great detail. There are also empirical studies on the effect of the strategy process on firm performance. See e.g. Fletcher and Harris (2002), Watts and Ormsby (1990), Mueller and Naffzinger (1999), Ibrahim, Dumas and McGuire (2001), Snuif and Zwart (1994a/b).

Author(s) (year)	Type	Period	Country	Strategy typology	Performance measure	
Gilinsky, Stanny, McCline and Eyler (2001)	Wine industry	1999	USA	Porter	Firm size (output)	The selected strategy is related with size
Gray (1997)	Graduates of NEIS[2] who completed and started business before 1994		Australia	Miles & Snow	Survival Net profit Employment	A positive relationship between proactive business strategy and employment growth
Kean, Gaskill, Leistritz, Jasper, Bastow-Shoop, Jolly and Sternquist (1998)	Rural retail	1980-1990	USA	Porter	Return on sales	A change in population and length of time in the community influences the strategy selection, the business environment influences firm performance
Kemp and Verhoeven (2002)	Medium-sized fast-growing companies	1993-1998, 2001	Netherlands	Porter	Growth in employment and sales	The selected strategy does not influence the growth of the firm
Kickul and Gundry (2002)	Retailing, general services, professional services, manufacturing, construction, finance, insurance and real estate	?	USA	Miles & Snow	-	For companies with a prospector strategy, proactive owners have a direct impact on the goals and direction of the company
Lerner and Almor (2002)	Women-owned firms	1994	Israel	RBV	-	The performance of life-style ventures owned by women depends on marketing and managerial skills rather than on innovation
Luo (1999)	Township and village enterprises (TVEs)	1989-1995	China	Miles & Snow	Market position profitability	Positive relationship between prospector strategy and financial and market performance
Matsuno and Metzer (2000)	Manufacturing firms	?	USA	Miles & Snow	Return on investment Market share Sales growth Percentage of new product sales	Prospector strategy have the best performance, defenders the worst
McCann, Leon-Guerrero and Haley Jr. (2001)	Family firms	1994-1995	USA	Miles & Snow	Gross revenues Market performance	No relationship between competitive strategy and revenues, prospectors have the highest market position, reactors the lowest

Author(s) (year)	Type	Period	Country	Strategy typology	Performance measure	
Miller, McLeo and Oh (2001)	All	1997	USA	Higgins (1994)	-	Managers who practised strategies focusing on extensive planning and control perceived their business to be successful
Mosakowski (1993)	Computer software industry	1983-1984	USA	Porter/RBV	Net income (profit after tax)	A focus strategy can result in better performance
Nijssen (1992)	Computer and furniture industry	1990	Netherlands	Miles & Snow	-	Defenders, analysers and prospectors outperform reactors
Pelham (2000)	Manufacturing firms		USA	Porter	Market/sales effectiveness – relative product quality – new product success – customer retention rate growth/share – sales level – sales growth rate – share of target market Profitability – return on equity – gross profit margin – return on investment	Strategy is only to a small extent related to firm performance. Other variables like market orientation are more important, for small firms there is a strong correlation between performance and the combination of market orientation and growth/differentiation strategy
Spanos and Lioukas (2001)	Manufacturing firms	?	Greece	Porter/RBV	Profitability – return on equity – profit margin – net profit Market performance – market share – absolute sales volume – increase in market share	Strategy has a positive influence on market performance and not on profitability
Teach and Schwartz (2000)	Software firms	1989-1996	USA	Porter/Ansoff	% gain in sales	Strategic persistence and performance are only weakly related, depending on the environmental stability
Upton, Teal and Felan (2001)	Family firms	1996	USA	Porter	-	Growth strategy seems to be related with firm growth

1   Resource-Based View (RBV).

2   NEIS (New Enterprise Incentive Scheme) is a programme aimed at unemployed people who want to start their own business in Australia.

Source: EIM, 2002.

In the discussion of the papers, we describe the context of the study, the measurement of strategy and performance and the major findings of the study.

3.2 Empirical studies using the typology of Miles and Snow

Several researchers have utilized the Miles and Snow typology to classify business strategy in small businesses (Gray, 1997). Empirical studies using the Miles and Snow typology will be discussed. If present, performance implications of strategy will be discussed as well.

3.2.1 *SME owner's personality and strategic orientation*

The first study of Kickul and Gundry (2002) proposed and tested an entrepreneurial process model that examined the interrelationships among a small firm owner's personality, strategic orientation and innovation. In the first part of the model, it was posited that a proactive personality would directly influence a prospector-strategic orientation. The personality of the owner/manager had a strong influence on the strategies and structure of the firm. Miller and Toulouse (1986) found that among the personality dimensions studied, the flexibility of the owner/manager had the most positive consequences for SME performance. The type of strategy that is consistent with their attitudes and beliefs is the prospector strategy of Miles and Snow (1978). Firms that adopt this type of strategy continually search the marketplace for new products, services and technologies. Organizations with a prospector strategy are the creators of change in their industries and businesses.

The sample for this study consisted of 107 small business owners located in the U.S. Midwest. All information was gathered over a three-month period through telephone interviews with the SME owners. In order to determine the strategic orientation of the SMEs, the participants were asked to describe their business strategy and goals. Each description was then content-analysed and the firm was classified as being either prospector or non-prospector, based on Miles and Snow (1978). Because the study is interested in examining the role of the prospector strategy as mediator in determining SME innovations, Miles and Snow's other business strategy categories (defenders, analysers, and reactors) were not used.

The empirical results of the study of Kickul and Gundry demonstrate that an SME owner's proactive personality is linked to a strategic orientation for the small firm that permits flexibility and change in response to surrounding business conditions. By employing a prospector strategy, these proactive owners have a direct impact on the goals and direction of their organizations. There is no attention for the performance implications.

3.2.2 *Family firms*

The article of McCann et al. (2001) focuses on the business strategies of family firms, analysing the relationship between strategy, performance, and business practices. Data collection was based on a survey (n = 231). In addition to business characteristics, the survey measured which family and business priorities and practices were most associated with those competitive strategies.

Firms were asked to identify their overall strategy regarding their relationship to their competition and the introduction of products and services into the markets. Two measures are used to quantify business performance: gross revenue and market position. The

study of McCann et al. confirms concentration in two strategic modes: 42% of the firms described themselves as product or service innovators (prospectors), while 40% preferred to stick to what they know and do well (defenders). The responses of the remaining firms identified them as analysers (11%) or as reactors (8%).

Once the sample firms were categorized by strategy type, the relationships between these categories and the firms' characteristics were tested through analysis of variance. Prospectors were more likely to be smaller and significantly younger businesses. There were no significant differences in the number of family generations currently involved in the business. There was no significant relationship between competitive strategy and revenues. There was a significant relationship between strategy type and current market position. Prospectors rated themselves highest on market position. Reactors had the lowest market position score.

3.2.3 SMEs in Australia

The paper of Gray (1997) addresses the deficiency in the research by examining the relationship between strategy and small business success in Australia. The questionnaire included personal and demographic variables (independent variables) and dependent variables concerning small business success (its performance) including period in business (months)/survival, income (net profit) and number of employees. The questionnaire relied on self-reporting of strategies by managers. The survey resulted in 255 usable responses.

The results show that a positive relationship exists between proactive business strategy and employment growth. The results suggest that managers of growth businesses utilize proactive business strategies most frequently than managers of non-growth businesses.

3.2.4 Township and village enterprises

The study of Luo (1999) examines the environment-strategy-performance relation for Chinese SMEs with a focus on township and village enterprises (TVEs). Data was collected through a survey of TVE managers in southern China. Sixty-three usable responses are gathered. The research measures strategic orientation using a dimensional approach developed by Venkatraman (1989). The survey questions probed the responses related to firm proactiveness (respond quickly to signals of opportunities), innovativeness (constantly seek to introduce new brands or new products in the market) and risk-taking (focus on investments that have high risks and high returns). By means of these questions Luo tried to identify prospectors, defenders and analysers. Profitability and market position are used as measures of performance. Profitability is measured by the mean of net return on sales and net return on assets. Market position is defined as growth in sales and competitive position.

TVEs in southern China behave as prospectors who are essentially adaptive, innovative, and proactive in pursuit of emerging market opportunities, but are deliberate in making strategic decisions involving complicated environmental situations. The multiple regression analysis demonstrates that TVE innovativeness, proactiveness and risk-taking are positively associated with increased complexity. There is also a positive relationship between a prospector strategy and the TVEs' financial and market performance. The two primary characteristics of prospectors, namely innovativeness and proactiveness, are both positively associated with profitability and market position.

3.2.5 *Regional airline industry*

The paper of Bahaee (1992) attempts to establish the applicability of the Miles and Snow typology of strategic orientation to SMEs. It posits that congruence between strategic orientation and decision-making comprehensiveness of the strategic planning process is a superior determinant of firm performance to planning alone. An empirical study in the regional airline industry was conducted to investigate this proposition.

The strategic orientation of the firm was measured by both the traditional instrument developed by Miles and Snow and a more recent instrument developed for this study based on Connant (1986). In their original instrument, Miles and Snow created four descriptive paragraphs corresponding to their four strategic orientations. Subjects selected the paragraph which best characterized their firm. The original instrument has been used in several studies, but has been criticized for lack of validation support (Connant, 1986). Twelve multiple-option questions have been developed. The questions relate to the most important characteristics of Miles and Snow's typology (1978). The strategic orientations were identified. There were 19 defenders, 9 prospectors, 24 analysers and 30 reactors. The small number of prospector firms was expected because of the limited resources available to firms in this industry. Two measures of performance appropriate for the regional airline industry were used: the load factor (percentages of seats filled per mile per aircraft) and the profit margin.

The findings suggest that a mismatch between the strategic orientation of the firm and comprehensiveness of its planning process have implications for its performance. Reactors lack consistent behaviours in dealing with changing situations as a result of not having a long-term focus and articulated strategy. These conditions may have contributed to the poor performance in the industry.

3.2.6 *Computer and furniture industry*

Nijssen (1992) wanted to know if the Miles and Snow typology applied to Dutch industry (computer and furniture industry). He also wanted to know if environmental conditions influence the distribution, strategic posture and performance of the strategic types. Nijssen tried to investigate to what extent companies alter their strategies and what kind of strategies they choose. Nijssen used several criteria to measure performance. Together with the total relative performance, the relative gross profit percentage, the relative sales development and the 'goodwill' of the firm were polled.

The results showed the strategic types of Miles and Snow to be applicable to both branches investigated. Furthermore, all consistent strategic types (defenders, analysers and prospectors) were found to out-perform the reactor strategy. The environmental influence on the distribution, strategic posture and performance of the strategic types was small. No significant influences of the environment on the occurrence of the different strategic types were found. No significant evidence was found to support the idea that defenders perform better in a stable market and prospectors in a turbulent setting. The results indicated defenders do perform equally well in both markets, and prospectors have a somewhat poorer performance in the more stable environment. In the turbulent market an apparently larger number of companies did expect to change their strategy in the near future than in the stable market. The main conclusion of the study of Nijssen is that all consistent strategic types meet the criterion of critical contingency in both environments. Creating a consistent strategic posture is therefore the most important factor in reaching good performance.

3.2.7 *Manufacturing firms*

Matsuno and Mentzer (2000) empirically examined the moderating role of defenders, prospectors and analysers on the relationship between market orientation and economic performance in manufacturing companies. The performance measures in this study were return on investment, market share, sales growth and percentage of new product sales. The strategy type was measured by using a categorical variable. A self-typing measure (see Shortell and Zajac, 1990) asked the respondents to evaluate the strategies of their own organizations using descriptions of the four generic strategies in Miles and Snow's typology. Three hundred sixty four usable responses were gathered.

It was found that the relationships between market orientation and performance measures are not monotonic. Analysers would gain little benefit in any performance dimension by increasing the market orientation level. Matsuno and Mentzer (2000) conclude that analysers aspire to be good, if not the best, in all performance dimensions as theorized by Miles and Snow. Compared with the other types, prospectors and analysers, defenders gain the greatest performance benefit in return on investment by increasing market orientation level. However, compared with the other types, defenders appear to lose most in market share, sales growth and percentage of new product sales by increasing market orientation level. On market share, sales growth, and percentage of new product sales, they are the worst performers. Prospectors benefit from the greatest gain, over both analysers and defenders, in market share, sales growth and percentage of new product sales by increasing market orientation level. Prospectors are the best performance measures in every performance measure.

3.2.8 *Conclusion*

In the previous sections the empirical studies that used the typology of Miles and Snow were discussed. The main conclusion is that consistent strategic types (defenders, analysers and prospectors) outperform the reactor strategy. Creating a consistent strategy posture is therefore an important factor in reaching good performance. Proactive owners/managers can influence the goals and direction of their organization by employing a prospector strategy. This especially influences the growth of a company. Research shows that owners of growth businesses utilize proactive business strategies more frequently than managers of non-growth firms.

The empirical studies using the Miles and Snow typology (1978) when defining strategy have been discussed. Now we will discuss the empirical studies that used Porter's (1980) three generic strategies.

3.3   Empirical studies using the typology of Porter

Since Porter's work does not deal specifically with SMEs, many researchers have deemed it necessary to modify the model accordingly. With the growing interest in this field of research, the reader is confronted with an increasing number of typologies describing a variety of generic strategies. Especially the differentiation strategy is extended in more specific strategies (see e.g. Beal, 2000).

A survey of empirical studies on SME competitive strategies reveals that Porter's model has been used by many researchers in the field (d'Amboise, 1993). Through their work, some have found that many SMEs emphasize, for instance, aspects such as innovation, marketing or service. Some studies have also indicated that SMEs may follow a mixed strategy, emphasizing both efficiency (cost-advantage strategy) and differentiation.

These authors have empirically demonstrated that, contrary to Porter's own assertion, his generic strategies are not mutually exclusive (d'Amboise, 1993, Dess, Lumpkin and McGee, 1999). In the next sub-sections, several empirical studies that use the Porter typology are discussed.

3.3.1 Development of a basic typology

The first empirical study that is discussed is that of d'Amboise (1993). D'Amboise proposes a strategy-identification model adapted to the specific character of SMEs. It attempts to be more in line with the daily experiences of the owner/managers of these firms. The classification scheme is based on Porter's model of generic strategies. The proposed grid helps to classify the competitive strategies of SMEs and identify the underlying logic of these firms. The framework was used to analyse data gathered from 60 Quebec (Canada) manufacturing firms and to distinguish firms according to the competitive strategy pursued. The different findings inspire a model for the classification of competitive strategies adapted for SMEs; see table 3.

To test the proposed grid, data were collected from small Quebec manufactures. Analysis of the 60 questionnaires led to the classification of nearly all of the firms studied according to precise and clearly identified competitive strategies. This grid helps in grouping the tactical strategic activities of a firm; it also allows identification of firms according to their dominant strategic logic (see table 3). It can, therefore, facilitate the study of the orientation of small and medium-sized firms. This new approach is an attempt to bridge the gap between the everyday activities of the practitioner and the various SME competitive strategies suggested by theorists. The most important contribution of this study is certainly the debate that divides those who believe that SMEs have competitive strategies and those who support the theory that SMEs use tactics devoid of strategic orientation. In this study, there is no link with performance.

table 3   Proposed classification model

Target market	Wide	Narrow
Product/cost advantage	3	9
Service/cost advantage		
Product differentiation	2	5
Service differentiation		5
Innovation differentiation	1	4
Marketing differentiation		3
Mixed strategy	7	20
No strategy	1	

Source: d'Amboise, 1993.

3.3.2 Family and fast-growth firms

The second study that will be briefly discussed is of Upton, Teal and Felan (2001). Upton et al. survey fast-growing family firms about their business and strategic planning practices. Available research suggests that while family firms should perform strategic and business planning, most do not. Little is known about the choices that family firms make when considering strategies. Upton et al. (2001) choose to use Porter's generic strategies of cost leadership and differentiation. They also distinguish a time-based strategy. A time-based strategy gains its advantage through good timing in seizing

marketplace and opportunities quickly. Four techniques for implementing a time-based strategy have been suggested. A firm can be: (1) first to market, (2) an early follower, (3) in step with majority and (4) a late follower.

Of the 65 fast-growing family firms surveyed, the majority (71%) prepare written formal plans. Almost 77% of the firms tied their plan to actual performance, and 71% used the plan to adjust management compensation to performance. Of the 65 responses, 18% did not share information about the comparison between actual performance versus goals or business plan with all employees. The majority (66%) of the firms describe their business strategy as a high-quality producer strategy rather than as a low-cost (15%) or time-based strategy (6%). Further, when bringing new products to the market, these fast-growth family firms adopt a first-mover or early-follower strategy.

Although there are no real performance measures, given the research sample of fast-growing firms, one might tentatively conclude that a quality strategy is related with firm growth.

3.3.3 Software firms

The research of Mosakowski (1993) applies a resource-based perspective, which emphasizes a firm's specialized or unique resources, to the question of how the focus and differentiation strategies affect the economic performance of entrepreneurial firms.

Mosakowski distinguishes two focus and two differentiation strategy variables. The two focus strategies are vertical markets focus and a customer-needs focus. Two dimensions along which firms commonly differentiate their products in the computer industry are: technological and service dimensions. With longitudinal data on 86 entrepreneurial software firms, Mosakowski examines the dynamic effects of multiple forms of two focus and two differentiation strategies on a firm's performance. Net income (profit after tax) and sales revenues are used as measures of performance. In addition to the two focus and two differentiation strategy and performance variables, Mosakowski also collects data on firm's formal organization structure, outside contracting and licensing relationships, size, age, and product diversity from product and organizational information.

For the four strategy variables that indicate an established strategic posture - the vertical markets focus, the customer-needs focus, the customer service differentiation and the R&D differentiation strategies - the predictions of Mosakowski generally support the hypothesis that firms that hold these strategies will outperform other firms. The findings of Mosakowski are generally inconsistent with Porter's (1985) argument that focus strategy by itself is not sufficient for generating above-normal returns. The results fail to support the hypothesis that firm performance will decrease when these strategies are adopted.

3.3.4 Paints and allied products

The primary purpose of the paper of Dess and Davis (1984) is to demonstrate the viability and usefulness of categorizing firms within an industry into strategic groups on the basis of their intended generic strategies. In the study, companies were clustered in four groups that were closely related to the generic strategies of Porter.

The performance of the four clusters was compared. Differences among the four strategic groups regarding return on total assets approached statistical significance

(P = 0.069). For sales growth the groups were significantly different. The research findings are generally consistent with Porter's contention that commitment to at least one of the three generic strategies will result in higher performance than if the firm fails to develop a generic strategy (i.e. becomes stuck-in-the-middle). The overall low cost leader had the highest average return on assets. A large number of firms in the sample were identified as pursuing a differentiation strategy, and this may have inhibited the ability of firms in this strategic group to realize as high a level of performance as those in other less populated groups. Lastly, the group of firms identified with a focus strategy may illustrate a potential for trade-offs between growth and profitability. The focus group was the highest performing group on sales growth, but had the lowest level of return on assets.

3.3.5 *Manufacturing firms*

The study of Spanos and Lioukas (2001) examined various manufacturing industries such as food and beverages, wood and furniture products, chemicals, metal products, machinery, electric equipment and appliances. Data were collected through a structured questionnaire dispatched to CEOs. Finally, 147 questionnaires were found usable.

Measures of Porter's generic strategies were derived and adapted from Dess and Davis' (1984) and Miller's (1988) studies. The scale asks questions regarding the extent of usage of specific competitive tactics relevant to marketing differentiation, innovative differentiation and low cost. Performance was operationalised in terms of two dimensions, namely profitability and market performance (Venkatraman and Ramanujam, 1986). The former was gauged with three perceptual items reflecting return on equity, profit margin and net profits, whereas the later was measured with market share, absolute sales volume, increase in market share and sales. For all these items managers were asked to indicate their firms' relative performance relative to competition.

The structural relations were examined with path analysis using the maximum likelihood estimation (MLE) procedure. Firm strategy appears to influence positively and significantly firm success, but only with respect to market performance and not to profitability. Strategy constitutes prerequisite conditions for above-normal firm performance. The findings of Spanos and Lioukas (2001) seem to indicate that together with strategies both industry and firm asset effects significantly contribute to firm success.

3.3.6 *Environmental scanning in manufacturing firms*

Beal (2000) states that effective scanning of the environment is seen as necessary to the successful alignment of competitive strategies with environmental requirements and the achievement of outstanding performance. This study of small manufacturing firms competing in a wide variety of industries examines the effect of the frequency and scope of environmental scanning on the environment-competitive strategy alignment.

Data were gathered by means of a mail survey that the owner/manager of each firm were asked to compete. Completed questionnaires were returned by 101 owners or managers. Twenty-three items were used to delineate the competitive strategy dimensions. Analysis of the empirical data resulted in a low-cost leadership dimension and four distinct differentiation dimensions (innovation differentiation, marketing differentiation, quality differentiation and service differentiation). For measuring performance, respondents were asked to indicate the degree of importance they attached to each of six financial performance indicators. Included were measures of profitability (return on sales, return on investment, and return on assets) and growth (growth on sales and growth of profits), and total amount of profits.

Results suggest that obtaining information on several aspects of specific environmental actors (e.g. customers, competitors, suppliers) facilitates the alignment between some competitive strategies and the environment. Obtaining information across several different environmental actors appears to be strongly associated with (1) several effective competitive strategies in the growth stage of industry development (innovation differentiation, quality differentiation, marketing differentiation), and (2) several effective strategies in the maturity stage (low-cost leadership, quality differentiation, service differentiation).

3.3.7 *Influence of market orientation in manufacturing firms*

The article of Pelham (2000) seeks to provide managers in small manufacturing firms with results regarding significant factors related to performance. One hundred and sixty firms provided responses from both the president and the sales manager.

Growth/differentiation was measured by one item asking the firm's level of investment in product design and/or marketing to maximize growth and by another item seeking the level to which the firm tries to penetrate new markets with existing products. Low-cost strategy was measured by the respondent's level of agreement with the statement that being the low-cost producer would give the firm an unassailable competitive advantage and with another statement that the firm's objectives were driven primarily by cost reduction. The respondent's growth/differentiation strategy score was divided by the low-cost strategy score to produce relative strategy. The performance dimensions in this study were marketing/sales effectiveness (relative product quality, new product success and customer retention rate), growth/share (sales level, sales growth rate and share of target market) and profitability (return on equity, gross profit margin and return on investment). Eight individual industry characteristics were examined.

Results of the study of Pelham (2000) indicate that, compared to strategy selection, firm size or industry characteristics, market orientation has the strongest positive relationship with measures of performance. Due to the strong relationship between relative strategy and market orientation and the strong relationships between total market orientation and performance, there were no significant partial associations between relatively strategy and any performance variable. The weak strategy-performance associations may be partly attributed tot the limited ability of smaller and medium-sized firms to achieve low-cost producer status due to limited resources. For the same reason it is difficult for these firms to achieve a differentiated product based solely on high levels of R&D investment. Higher correlations between relative strategy and performance were achieved under conditions of high growth, high value added per employee, high average sales/firm and high number of product classes. The relationships between performance and both market orientation and relative emphasis on growth/differentiation strategy are stronger among the smaller firms in the sample.

3.3.8 *Start-up manufacturing firms*

The research of Chandler and Hanks (1994) seeks to identify variables that should be related to new venture performance. The research is cross-sectional and cross-level in nature, designed to look at relationships between new venture performance, market attractiveness, and resource-based capabilities. The sample consisted of all manufacturing businesses started or reorganized in the corporate form between 1980 and 1991. Complete matching performance data were returned by 49 of the primary (founders or CEOs) and secondary (non-founding employee) respondents.

Measures were developed for three competitive strategies: (1) innovation, (2) quality and (3) cost leadership using a seven-point Likert-type scale. Six items were used to measure firm performance. Three items were used to measure growth: perceived growth in market share, perceived change in cash flow, and sales growth. Three items also were used to measure business volume: sales, earnings and net worth.

Perceived market attractiveness and the overall abundance of resource-based capabilities were significantly related to venture performance. Also, in two of three cases, the evidence suggests that specific resource-based capabilities are related to the firm's stated competitive strategies. Finally, although the relationship between 'fit' and performance is not supported in all cases, the performance of manufacturing ventures included in this sample appears to be enhanced when resource capabilities are supportive of a cost-leadership strategy and when firms seeking to differentiate based on product and service quality have the resource-based capabilities to support that strategy.

3.3.9 *Small wine producers*

Gilinsky et al. (2001) examined whether different strategies are associated with different firm sizes. To test this, a survey was held among wine producers in Northern California (n=67). The study is built on two strategic perspectives, i.e. specialization in the firm's task environment and new product/market development. The strategy types are more or less related to Porter.

Strategy is measured by 14 items, resulting in five different strategies: new product/market development, consolidation strategy, niche strategy, proprietary process and flexibility. Performance is measured by the size of the firm (production output). The empirical results demonstrate that small firms focus on a well-defined customer group and serve local markets. Larger companies focus on responding to customer needs and new product, and new (production) technologies. The strategy of new product/market development has a significant positive effect on firm size, the consolidation strategy a significant negative effect.

3.3.10 *Rural retail firms*

Kean, Gaskill, Leisritz, Jasper, Bastow-Shoop, Jolly and Sternquist (1998) investigated the interrelationships among community characteristics, business environment, competitive strategies and business performance of SMEs. According to Kean et al., the size of the industry is a consideration in the selection of strategy. Access to a greater resource base increases the likelihood that cost leadership and differentiation strategies will be more advantageous than a focus strategy for larger firms. Greater access to raw materials, sophisticated technology, economies of scale, and distribution channels permit the larger firm to offer a standardized product to reach a broader range of market segment. SMEs, however, can adapt more quickly and stay in close contact with customers. Therefore, the combination of differentiation and focus is a more appropriate strategy for SMEs. Cost leadership is difficult for SMEs because they cannot attain economies of scale and thus cannot sell at prices lower than their (larger) competitors.

Descriptive statistics were performed to provide insight into community characteristics, the business environment, competitive strategies and retail performance. Return on sales is used as the measure of retail performance (return on sales is equivalent to profit before taxes and owner's compensation). Regression analysis revealed that change in population and the length of time a store was in the community influenced strategy selection. The hypotheses that community characteristics are independent of (1) the business environment, (2) retailers' choice of competitive strategy and (3) the performance

of retail stores were rejected. Evidence was found that the business environment does affect performance of retail stores.

3.3.11 *Longitudinal study for software firms*

The objective of the research of Teach and Schwartz (2000) was to develop a classification scheme for strategies to easily allow for performance comparisons. Annual reports of software firms were collected from 1992 forward. The database contains over 170 annual observations of firm strategies and performance.

The marketing strategies are divided into three sets. The first group of three strategies is Porter's (1980) strategic typologies. The second set of four strategies is Ansoff's (1967) matrix (penetration, market development, product development and diversification) and the third is the technology strategies (innovation, latest technology, quality and unique). The independent variables in this study were fifteen preselected strategies. The dependent variable was percentage gain in sales one year after the strategy statements were made in the firms' annual reports. Related with the previous argument is the finding of Teach and Schwartz (2000) that strategies are changed over time.

The work of Teach and Schwartz (2000) suggests that strategic persistence and performance are at best weakly related. In turbulent environments a change in strategy might be positive for the development in performance. In stable industries, some strategies should persist to enhance performance. The conclusions are very preliminary and the results might be characteristic for this specific industry and not generalizable to other industries.

3.3.12 *Medium-sized fast-growing firms*

Kemp and Verhoeven (2002) studied the relationship between the growth of a fast-growing firm, the consistency of the selected generic strategy, the consistency of the resource bundles and the fit between the selected strategy and resources. It is posited that the selection and consistency of the strategy is influenced by scanning activities of the environment (scope and intensity), intelligence dissemination and responsiveness and proactiveness of the company. It is further posited that the perceived barriers in acquiring the resources, tuning the resources and the difficulty of acquiring the resources, influence the composition of the resource bundles.

Strategy was based on the Porter typology rendering in an innovation/differentiation strategy and a low-cost strategy. Performance is measured by a composite of growth in employment and growth in sales.

The study shows that the innovation strategy is positively influenced by the scanning intensity of customers, the intelligence dissemination and the responsiveness of the company. Low-cost strategy is only influenced by intelligence dissemination. The growth of the firm is to a large extent explained by the growth in the customer base. That is, these fast-growing companies are good in selecting the 'right' markets. The selected strategy does not seem to influence the growth of the firms.

3.3.13 *Conclusion*

The previous sub-sections discussed some empirical studies that used the typology of Porter (1980). It was found that characteristics of the environment and the environment itself are very important for the selection of the strategy and the performance. The environment also has a direct effect on firm performance. There are some indications that suggest that commitment to at least one of the three generic strategies (cost leader-

ship, differentiation or focus) will result in higher performance than if the firm fails to develop a generic strategy. A persistent strategy might be more relevant in stable industries than in turbulent ones.

3.4   Conclusion

Strategy seems to be an important variable explaining the performance of a company. This is studied in a lot of empirical studies especially for large companies. Relatively little research investigated how strategy influences the performance of SMEs. Seventeen studies which relate strategy and performance in SMEs were discussed in this chapter. The conclusions are not straightforward. There seems to be a relationship between the selected strategy and firm performance of SMEs. Especially, the consistency of the strategy (prospect/defender/analyser versus reactor and generic strategy versus stuck-in-the-middle) seems to positively influence the performance of SMEs. Often other variables are studied in combination with strategy. For example, the combination with the right resources and the environmental conditions seems to be important. The need for a persistent strategy seems to depend on the characteristics of the environment.

In the next chapter, we discuss the research methodology and empirical design of this study.

4   Research methodology

The goal of this research is to investigate the linkage between strategy and performance in SMEs. Using a large panel of SMEs in the Netherlands that are active in different industries will do this. In section 4.1 the population and research sample are discussed. In section 4.2 the measurement of the variables is discussed.

4.1   Population and sample

The population in this study consists of small and medium-sized enterprises (SMEs) in the Netherlands. When defining SMEs, the number of employees in a company is often used as a guideline. In the Netherlands, SMEs are defined as companies with no more than 100 employees[1].

The data was collected through the so-called 'EIM SME-panel'. This panel was set up and controlled by the economic research company EIM. Its major objective is to collect information about the knowledge, attitude and opinion of entrepreneurs about various (government) policy-related issues. The panel started in 1999. On average, the firms are interviewed 3 times a year on varying topics (in 2001 on strategy). In each round about 2,000 companies are interviewed by means of computer-assisted telephone interviewing (CATI). The entrepreneur or the general manager of the company provided answers.

The panel consists of Dutch companies with less than 100 employees, equally distributed across three size classes (0-9 employees, 10-49 employees and 50-99 employees) and nine sectors. The nine sectors distinguished are construction, financial services, trade and repairs, manufacturing, accommodation and catering, non-profit, other services, rental and real estate, and finally transport and communication.

4.2   Measurement

In this section, the measurements of the concepts used in this study are discussed. We focus on the Porter typology (context perspective), and more specific, the operational perspective of Dess and Davies (1984). In the Dess and Davies perspective the differentiation strategy is further elaborated. We also include variables of the process perspective, i.e. the presence of a (formal) strategic plan, etc.

Competitive strategy
Twenty-two items were used to measure competitive strategy. These twenty-two items were all based on the operationalization by Beal (2000), see table 6 for the items. Twelve of these items were based on the operationalization by Dess and Davis (1984) and Miller (1988) of Porter's (1980) generic competitive strategies. These items were complemented with a set of additional items to represent a multi-dimensional view of differentiation-based strategies as suggested by Miller (1988) and Mintzberg (1988). Respondents were asked to indicate the extent to which their firms emphasized each of

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[1] This is different from many other countries, where a small company is defined as a company with a maximum of 250 employees and/or on the basis of total turnover.

the 22 competitive methods in the past three years. Data were recorded using three-point scales with 1 = no emphasis, 2 = reduced emphasis and 3 = much emphasis. Entrepreneurs could also answer that they did not know or would not say if they emphasized a certain competitive method.

Performance

A few questions about performance were included in the telephonic survey. The performance measures used in the survey were the number of employees, sales and net profit before taxes. The SME panel contains data of several years. Therefore, analyses can be done for the absolute value in one period or the growth between two periods. A time interval of two years will be used and the years 1997, 1999 and 2001 will be examined for the measures employment and sales. There is no data available for the net profit in 1999; therefore data of 1997, 2000 and 2001 will be used for this performance measure. Because the SME panel consists of longitudinal data, growth will also be used as a measure of performance. Ultimately, the empirical research distinguishes six performance measures: employment, growth in employment, sales, growth of sales, net profit and growth of net profit.

5   Empirical results: sample characteristics, factor analysis and cluster analysis

This chapter presents the empirical results of this study. First, in section 5.1 the characteristics of the research sample that participated in the telephonic survey (see section 4.1) are discussed. Issues such as strategy characteristics and performance measures are discussed. Second, in section 5.2 factor analysis is performed to examine relationships among items that possibly influence the strategy of an entrepreneur. Third, in section 5.3 a cluster analysis was done to develop a typology of strategic firms. The results of the cluster analysis are used to describe the different groups on related strategic and structural aspects of the companies. Finally, in section 5.4 the results of the multiple-regression analysis are presented and discussed.

5.1   Sample characteristics

The firms in the SME panel operate in different sectors. The average age of the companies is twenty-seven years. It appears that 43.5% of the SMEs in the Netherlands co-operate with other firms. Only 20.1% of the firms export their products to other countries. Consequently, almost 80% of Dutch SMEs do not export at all. Approximately 13% of the entrepreneurs say that their firm develops new products several times a year. Almost 13% of the SMEs develop new products less than once a year. The majority of firms answered that they do not evolve new products.

Strategy
Only 20.4% of the interviewed entrepreneurs indicated that they have written down their strategy. This means that approximately 80% of the SMEs do not have a formally written plan of strategy. Most entrepreneurs (25.8%) continually reconsider their strategy, 3.7% reconsider it weekly, 6.2% monthly, 9.6% quarterly, 17.2% annually and 15.4% reconsider the strategy sometimes. Almost 21% of Dutch entrepreneurs do not or never reconsider their strategy.

The entrepreneurs were also asked if they approached strategy as a plan. Approximately 51% of the entrepreneurs confirmed that the strategy was approached as a plan and 49% do not approach strategy as a plan. The short-term goals change weekly (11.6%), monthly (28.8%), annually (13.2%), sometimes (21.7%) and 2.7% do not know or did not respond.

Nearly 75% of the respondents have the intention to expand the firm in the future. It is likely that entrepreneurs consult other people when changing their strategy. In table 4 a ranking is made (more than one answer is possible). Entrepreneurs mostly consult managers or business partners when changing their strategy. Only 9.1% of the entrepreneurs consult nobody.

In some SMEs members of a family determine the strategy of a company. About 36% of the entrepreneurs answered that their family establish the strategy of a company. More or less 17% say that the family does influence the strategy to a certain level and 47% answered that the family barely influences strategy.

table 4   Consult in changing strategy

Persons	Percentage
Managers	38.8
Business partners	32.1
Some employees	29.3
Externals	27.0
Most employees	10.9
Nobody	9.1

Source: EIM, 2002.

The presented findings confirm earlier findings that most SMEs do not have a formally written down strategy. On the other hand, most companies do think about strategy and strategic planning. It is however not as formal as it might be or as in large companies. Furthermore, it is interesting to see that 75% of the companies have a growth intention[1].

Performance

Employment, sales and net profit measure performance in this study (see section 4.2). The mean values of these indicators were calculated and are presented in table 5.

table 5   Average employment, sales and net profit

Performance indicator	1997	1999	2001
Employment	21	28	30
Sales	€ 1,743,217	€ 2,232,799	€ 3,157,903
	1997	*2000*	*2001*
Net profit	€ 69,886	€ 126,529	€ 134,004

Source: EIM, 2002.

In 1997 the SMEs in the panel had on average twenty-one employees. The average number of employees increased to twenty-eight in 1999 and thirty in 2001. During the past few years, average sales augmented each year. In 1997 sales were approximately € 1,750,000 and were almost doubled in 2001 (nearly € 3,200,000). The average net profit was slightly lower than € 70,000 in 1997.

Performance data are available for several years. For this reason the growth of these indicators is also used as a performance measure (see section 4.2). A problem came to light during the calculation of the growth variables. Combining the available data of several years reduced the number of firms considerably. The reduction of the sample size of about 2,000 observations to 300 firms leads to incomparable results. For instance, the average growth of employees of companies that provided information over

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[1] This might be the result of a selection bias. Ambitious companies that pursue growth might be more willing to participate in research and panels because they want to learn from the results and comparison with other firms.

1999 and 2001 equals -4.3%. This percentage is contradictory to the results in table 5. In 1999 firms have twenty-eight employees on average and in 2001 the average number of employees is equal to thirty, a growth rate of 7%. This means that the average number of employees increased between 1999 and 2001. This might have to do with the composition of the panel. Newly included companies might be bigger, companies that disappear from the panel might be relatively small or companies that provide information for both years are not representative for all companies. The cause of the problem is not known; therefore, results for the indicator growth should be interpreted with care.

5.2 Factor analysis

Factor analysis is going to be used to examine the relationships among the strategy items. Two major dichotomies exist regarding factor analysis: exploratory and confirmatory. The determination as to which form to use in an analysis is made based on the purpose of the data analysis. Exploratory factor analysis is used to explore data to determine the number or the nature of factors that account for the covariance between variables when there is not, a priori, sufficient evidence to form a hypothesis about the number of factors underlying the data (Stapleton, 1997). Confirmatory factor analysis is a theory-testing model as opposed to a theory-generating method such as exploratory factor analysis. This model, or hypothesis, specifies which variables will be correlated with which factors and which factors are correlated. In addition, confirmatory factor analysis offers a more viable method for evaluating construct validity[1]. In the next two sections exploratory and confirmatory factor analysis will be performed.

5.2.1 *Exploratory factor analysis*

In this early stage of the empirical research, exploratory factor analysis was undertaken to examine the relationships among the items. The exploratory factor analysis tests if the items are loading on one factor. If necessary, the number of items can be reduced by selecting only high-factor loading items. In evaluating the exploratory factor analysis, several criteria are used: the total variance explained (≥ 0.50), the factor loading (≥ 0.40) and the measure of sampling adequacy (≥ 0.60). Two criteria will be used to decide on the number of factors. The cut-off point was determined by the criterion that eigenvalues were equal to 1 or greater and using a scree plot (Kaiser's criterion). Only variables with factor loadings of at least 0.4 are used in interpreting a set of factors, based on the sample size of firms and a minimum significant correlation coefficient of $p < 0.05$. Before the exploratory factor analysis was started the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy was computed.

Sampling adequacy
Measured by the Kaiser-Meyer Olkin (KMO) statistic, sampling adequacy predicts if data are likely to factor well, based on correlation and partial correlation. There is a KMO statistic for each variable and their sum is the KMO overall statistic. KMO varies from zero to one and KMO overall should be 0.60 or higher to proceed with factor analysis (Hair et al., 1995). If it is not, drop the indicator variables with the lowest KMO statistic value until KMO overall rises above 0.60. The value of KMO overall statistic equals 0.89. This measure is above 0.60, so the sample is adequate for factor analysis.

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[1] For more information on exploratory and confirmatory factor analysis, see e.g. Lewis-Beck (1994) or Stapleton (1997).

Principal component analysis using varimax rotation

Five dimensions of strategic orientation were developed through principal component analysis. A rotated factor matrix using the varimax method was generated to improve interpretation. Results of varimax-rotated principal component analysis are presented in table 6. This analysis resulted in a five-factor solution accounting for 50.0% of the variance that corresponded with the a priori expectation. This percentage is equal to the criteria of 50.0%

Eigenvalues

Each of the five factors had eigenvalues greater than one. Factor 1 was interpreted as innovation differentiation and had an eigenvalue of 5.6. This component accounted for 11.8% of the variance. Factor 2 (marketing differentiation) represented 11.0% of the variation and the eigenvalue of factor 2 was equal to1.7. Factor 3 was interpreted as service differentiation (eigenvalue 1.3) and represented 10.5% of the variation. Factor 4 (process differentiation) had an eigenvalue of 1.3 and represented 8.6% of the variation. Finally, factor 5 was interpreted as cost leadership (eigenvalue of 1.1) and represented 8.1% of the variation.

Factors

As can be seen from table 6, the pattern of loadings suggests that the five-factor resolution represents a cost leadership dimension (factor 5) and four distinct differentiation dimensions: innovation differentiation (factor 1), marketing differentiation (factor 2), service differentiation (factor 3) and process differentiation (factor 4). Of the initial 22 items, three items are deleted because they did not meat our criterion that the factor loading should exceed 0.40. The results are comparable to the results of Beal (2000) on which the items are based and it means that Porter's (1980) generic strategies of cost leadership and differentiation clearly hold in this study.

Innovation differentiation

Innovation differentiation (ID) involves the production and marketing of new products. The four competitive methods that load on this factor are: marketing of new products, research and development of new products, developing new manufacturing processes and improving existing products.

Marketing differentiation

Marketing differentiators (MD) create perceptions in the minds of targeted customers that the firm's products are distinctively different from those of their competitors. The six competitive methods that load on this factor are: selling high-priced products, improvement of sales force performance, building brand or company identification, innovative marketing techniques, producing broad range of products and advertising and promotional programmes.

Service differentiation

Service differentiators (SD) distinguish the firm from its competitors by emphasizing customer services before, during and after purchase. The five competitive methods loading on this factor are: strict product quality control, improving customer services, product improvements in meeting customer expectations, immediate resolution of customer problems, improving customer care.

Process differentiation

Process differentiators (PD) distinguish the firm from its competitors by benchmarking their best manufacturing processes. There are two competitive methods that load high on this factor. These two factors are benchmarking best manufacturing process in the industry and benchmarking best manufacturing process anywhere.

Cost leadership

Cost leaders (CL) want to be the low-cost producers in their industry. At equivalent or lower prices than its rivals, a cost leader's low-cost position translates into higher returns. The two items that load on this factor are reducing overall costs and reducing manufacturing costs.

table 6 Factor analysis of strategy variables - varimax rotation

Variable	Factor 1 (ID)	Factor 2 (MD)	Factor 3 (SD)	Factor 4 (PD)	Factor 5 (CL)
Innovation differentiation (ID)					
Marketing of new products	0.741				
Developing new manufacturing processes	0.588				
R&D of new products	0.783				
Improving existing products	0.575				
Marketing differentiation (MD)					
Selling high-priced products		0.426			
Improvement of sales force performance		0.622			
Building brand/company identification		0.575			
Innovative marketing techniques		0.509			
Producing broad range of products		0.429			
Advertising/promotional programmes		0.697			
Service differentiation (SD)					
Strict product quality control			0.489		
Improving customer services			0.713		
Product improvements in meeting customer expectations			0.466		
Immediate resolution customer problems			0.656		
Improving customer care			0.638		
Process differentiation (PD)					
Benchmarking best manufacturing processes in the industry				0.823	
Benchmarking best manufacturing processes anywhere				0.800	
Cost leadership (CL)					
Reducing overall costs					0.836
Reducing manufacturing costs					0.849

Source: EIM, 2002.

Reliability analysis

Reliability analysis allows studying the properties of measurement scales and the items that make them up. A measurement is reliable if it reflects mostly true score, relative to the error. For each of the five factors Cronbach's reliability alpha's were computed. These alpha's are represented in table 7. The coefficient alpha for each hybrid competitive strategy is above 0.64, indicating sufficient levels of reliability.

table 7   Cronbach's reliability alpha's

Factor	*Cronbach's Alpha*
Factor 1: Innovation differentiation (ID)	0.7156
Factor 2: Marketing differentiation (MD)	0.6826
Factor 3: Service differentiation (SD)	0.6402
Factor 4: Process differentiation (PD)	0.7411
Factor 5: Cost leadership (CL)	0.7476

Source: EIM, 2002.

To evaluate the construct validity of the exploratory factor analysis a confirmatory factor analysis has been performed. The confirmatory factor analysis will be discussed in the next section.

5.2.2 *Confirmatory factor analysis*

Confirmatory factor analysis of the items loading on the five factors was conducted using LISREL 8[1]. Based on the measurement of the observed variables (ordinal), the correlation matrix will be used as input for the confirmatory factor analysis. Maximum likelihood is used as estimation procedure. In order to evaluate the 'goodness' of the model, several criteria can be used (Jöreskog and Sörbom, 1996, and Hair et al., 1995). They are discussed below.

Factor loadings and path diagram

The results of the confirmatory factor analysis (path diagram) are represented in figure 4. The factor loadings of each variable are represented near the arrows of the path diagram. All factor loadings are above 0.4. Comparing the factor loadings of the confirmatory factor analysis with the exploratory factor loadings in table 6, it can be concluded that the loadings are almost similar. It is now possible to test the 'goodness' of the model.

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[1] See K. Jöreskog and D. Sörbom (1996).

figure 4   Path diagram of confirmatory factor loadings

Marketing of new products	0.72	
Developing new manufacturing processes	0.57	ID
R&D of new products	0.73	
Improving existing products	0.47	

Selling high-priced products	0.47	
Improvement of sales force performance	0.55	
Building brand/company identification	0.52	MD
Innovative marketing techniques	0.60	
Producing broad range of products	0.46	
Advertising/promotional programmes	0.46	

Strict product quality control	0.44	
Improving customer services	0.59	
Product improvement in meeting customer expectations	0.48	SD
Immediate resolution customer services	0.44	
Improving customer care	0.55	

Benchmarking best manufacturing processes in the industry	0.76	PD
Benchmarking best manufacturing processes anywhere	0.77	

Reducing overall costs	0.78	CL
Reducing manufacturing costs	0.79	

Source: EIM, 2002.

Overall fit indices

In this study the following overall fit indices were studied: significance of chi-square (should be non-significant), the Root Mean square Residual (RMR ≤ 0.08), the Goodness of Fit Index (GFI ≥ 0.90), the Adjusted Goodness of Fit Index (AGFI ≥ 0.90) and the NonNormed Fit Index/Tucker-Lewis (NNFI ≥ 0.90) (see e.g. Hair et al., 1995, or Lewis-Beck, 1994). Since chi-square is N -1 times the minimum value of the fit function, chi-square tends to be large in large samples if the model does not hold[1]. The expectation is that chi-square statistic will be significant. The goodness-of-fit measures have been proposed to eliminate or reduce its dependence on sample size. The goodness-of-fit measures GFI and AGFI of Jöreskog and Sörbom (1994) do not depend on sample size explicitly and measure how much better the model fits as compared to no model at all. The goodness-of-fit indices were computed and are represented in table 8.

table 8   Overall fit indices

Fit index	Value	Criteria
Chi-square	significant	non-significant
Root Mean square Residual (RMR)	0.05	≤ 0.08
Goodness of Fit Index (GFI)	0.96	≥ 0.90
Adjusted Goodness of Fit Index (AGFI)	0.94	≥ 0.90
NonNormed Fit Index (NNFI)	0.90	≥ 0.90

Source: EIM, 2002.

The chi-square statistic equals 907.88 and its P-value is zero. This could be expected because of the large sample size. If the sample size in LISREL is set to 300, for example, the P-value is equal to 0.73 and the proof against the null hypothesis (model is correct) is non-significant. Because chi-square depends too much on the sample size it will be better to use RMR, GFI, AGFI and NNFI. The Root Mean square Residual (RMR), the Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI) and the Non-Normed Fit Index (NNFI) in table 8 are all significant. These goodness-of-fit indices indicate a good model fit using the discussed factors. The five factors represent the population very well.

Indicator fit indices

After the overall fit indices, the indicator fit is evaluated. Three criteria are used: construct reliability (comparable to Cronbach's alpha) should exceed 0.50; the factor loadings λ should exceed 0.40 and should be significant (t-value ≥ 2.00). The construct reliabilities all exceed 0.50 (ID = 0.72, MD = 0.68, SD = 0.63, PD= 0.74 and CL = 0.76). All factor loadings exceed 0.40 and are significant. These results indicate a good indicator fit.

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[1] Hair et al. (1995: pp. 637) argued that if the sample size becomes too large (> 400), maximum likelihood estimations become too sensitive and almost any difference is detected, making goodness of fit indicate poor fit. Therefore, it is recommended to test the model with a smaller sample size as well, e.g. 200 or 300.

5.2.3 *Conclusion*

Exploratory factor analysis resulted in five factors of competitive strategy. Four dimensions of differentiation could be distinguished: innovation differentiation, marketing differentiation, service differentiation and process differentiation. Finally, a cost leadership dimension could be distinguished. The five-factor solution explained 50% of the total variance. Confirmatory factor analysis consolidated the results of the factor analysis. In the remaining part of this study strategy exists of innovation differentiation, marketing differentiation, service differentiation, process differentiation and cost leadership.

5.3 Cluster analysis

To classify the entrepreneurs to the various strategy types of section 5.2 cluster analysis is a useful instrument. Cluster analysis is the generic name for a wide variety of procedures that can be used to create a classification (Aldenderfer and Blashfield, 1989). The primary goal of cluster analysis is to partition a set of objects into two or more groups based on the similarity of the objects for a set of specified characteristics (Hair et al., 1994). Most commonly used clustering algorithms can be classified into two general categories: (1) hierarchical and (2) non-hierarchical. It is important to note that cluster analysis, unlike most parametric statistical techniques, does not explicitly provide a clearly acceptable or unacceptable solution (Dess and Davis, 1984). In section 5.3.1 the hierarchical cluster algorithm and in section 5.3.2 the non-hierarchical cluster analysis will be discussed and applied to the data of the SME Panel. Finally, the internal and external validity will be checked in section 5.3.3 and section 5.3.4, respectively.

5.3.1 *Hierarchical cluster analysis*

In a hierarchical cluster analysis companies are grouped in such a manner that the differences in scores on the indicators in one single cluster are as little as possible (the group of companies is as homogeneous as possible with respect to their scores on the indicators), and the differences between entrepreneurs from the various clusters are as high as possible. In this way, more or less homogeneous clusters or segments may result that are very different from each other. A hierarchical clustering algorithm produces a dendogram representing the nested grouping relationship among objects. Milligan and Cooper (1987) point out that several hundreds of clustering methods are in existence. Ward's method is generally considered to be an excellent clustering algorithm. A reference is made to Milligan and Cooper (1987) for a detailed discussion on various clustering methods and their applicability in various situations. They conclude that Ward's method generally provides excellent cluster recovery; therefore this method is used.

The estimated factor scores from the five-factor rotated solution (see section 5.2) were utilized as input for cluster analysis. Because the cluster analysis is known to be sensitive to outliers, the data were first examined for outlying observations. Note, the factor scores are standardized variables. Consequently, values exceeding +3.0 and -3.0 are potential outliers (Hair et al., 1994). Upon examination, it was determined that one of the observations could be classified as an outlier on service differentiation. This observation was removed for further analysis. The data are now safe to conduct cluster analysis with the data.

The initial hierarchical cluster analysis using Ward's method of squared Euclidian distances between the cases suggested between two and five clusters. Consequently, using the initial centroid estimates from Ward's method, K-means cluster analysis (non-hierarchical) can be performed.

5.3.2 *Non-hierarchical cluster analysis and internal validation*

The most optimal solution is covered by a K-means cluster analysis. K-means cluster analysis is a so-called 'non-hierarchical method'. It is a clustering method in which the cases (entrepreneurs) are divided into clusters based on their distance to the initial starting points. Some K-means methods use randomly selected starting positions, but in this study the cluster means of Ward's clustering for this purpose. Generally, this method provides more stable and better cluster solutions (Milligan and Sokol, 1980).

K-means cluster analysis was performed for four different cluster values (i.e., n = 2, 3, 4 and 5). Next, the coefficient of agreement between the constrained and unconstrained solution was computed for each of the four alternatives. The two, three, four and five cluster solutions produced *Kappa*, the chance corrected coefficient of agreement, of 0.61, 0.58, 0.62 and 0.49, respectively. Because the decision criterion is to maximize *Kappa*, the four-cluster solution is optimal. By means of cluster analysis four strategic groups were found. Based on the cluster centroids[1] for the derived factor scores the clusters were identified (see table 9).

table 9   A summary of cluster descriptors

Strategy factor	Cluster 1	Cluster 2	Cluster 3	Cluster 4
Innovation differentiation	0.31	-0.33	0.12	-0.01
Marketing differentiation	0.96	-0.79	0.63	-0.30
Service differentiation	-0.57	-0.02	1.99	-0.20
Process differentiation	0.42	0.75	0.05	-0.93
Cost leadership	-0.12	-0.05	0.45	-0.02
Number of cases	510	541	220	677
Percentage of respondents	26.2	27.8	11.3	34.8

Source: EIM, 2002.

The cluster descriptors of table 9 are based on factor scores that have a mean of zero and a standard deviation of one. For instance, -0.02 in the last column indicates just about average activity on the factor cost leadership. Due to the scaling of the variables a positive value indicates, in contrast to what one would expect, below-average activity on a particular factor and a negative centroid means above-average activity on a particular factor.

Cluster number one emphasizes service differentiation and to a smaller extent cost leadership, a niche strategy. The firms mainly focus on service, whereas paying close attention to the costs is also important for this group. Smaller firms often use a niche strategy. The entrepreneurs in the second cluster mainly adopt innovation and marketing differentiation strategies. Cluster number three evidences an apparent lack of commitment to any of the strategies. Therefore, this cluster may be comprised of firms that are 'stuck-in-the-middle'. This does not imply that firms that are stuck-in-the-middle do not emphasize certain competitive methods that are key components of one or more

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[1] The centroid is the average value of the objects contained in the cluster on each of the variables making up each object's profile (Green et al., 1988).

strategies; however, the composite strategy that emerges may lack internal consistency (Dess and Davis, 1984). The entrepreneurs in cluster four apply mainly a process differentiation strategy. A purely cost-leadership strategy was not found. A mainly cost-leadership strategy is unachievable in small firms, because they do not depend upon economies of scale. Although cost leadership appears largely in cluster one it was also a part of clusters two and four. The clusters were labelled as follows:
– cluster 1: service differentiators (26.2% of the population),
– cluster 2: innovation and marketing differentiators (27.8%),
– cluster 3: stuck-in-the-middle, i.e. firms with no clear strategy (11.3%), and
– cluster 4: process differentiators (34.8%).

5.3.3 *Internal validity*

Milligan and Cooper (1987) mention that internal validity is a minimum condition to prove the quality of a typology based on cluster analysis. The clusters should differ significantly on the variables, which were used to identify the strategy types. A one-way analysis of variances (ANOVA) was performed to test for significant differences. The results of the ANOVA are mentioned in table 10.

In table 11 the four types of strategic firms are described and compared in more detail. For every indicator a summary score is presented. Service differentiators stressed the primacy of strict product quality control, improving customer services, immediate resolution customer services, but they also score very well on the items that determine the factor cost leadership: reducing manufacturing and overall costs. As can be seen in table 11 process differentiators have definitely the highest scores on the factor process differentiation. They emphasize benchmarking best manufacturing processes in the industry and anywhere. On average stuck-in-the-middle firms achieve the lowest scores on all factors. This confirms that they don't have a stipulated strategy.

table 10   Significance testing of differences between clusters

	F-value (3,1944)	P-value	Clusters not different*
Innovation differentiation	38.311	0.000	3=4
Marketing differentiation	623.274	0.000	
Service differentiation	786.845	0.000	
Process differentiation	668.305	0.000	
Cost leadership	17.904	0.000	1=2,1=4, 2=4

* Unless indicated, all groups significantly differ from each other.
Source: EIM, 2002.

The one-way analysis of variance procedure indicated that the four clusters were significantly different from each other. For the innovation differentiation factor score, the stuck-in-the-middle cluster and the process differentiators do not significantly differ from each other. For the cost leadership factor score, the service differentiators do not differ from the innovation/marketing differentiators and the process differentiators. Also the innovation/marketing differentiators do not differ from the process differentiators. Stuck-in-the-middle companies perform worse on this dimension than the other groups. The results show a good internal validity of the typology.

table 11   Comparison of the four types of strategic firms

	Service differentiators	Innovation and marketing differentiators	Stuck-in-the-middle	Process differentiators	All firms
Innovation differentiation (ID)					
Marketing of new products	9.4%	46.2%	20.9%	25.8%	26.6%
Developing new manufacturing processes	19.6%	26.4%	13.2%	39.6%	27.7%
R&D of new products	15.7%	46.2%	25.5%	31.5%	30.7%
Improving existing products	54.7%	59.1%	32.3%	59.8%	55.2%
Marketing differentiation (MD)					
Selling high-priced products	12.2%	44.0%	16.8%	34.7%	29.4%
Improvements of sales force performance	14.3%	60.4%	16.4%	52.9%	40.8%
Building brand/company identification	29.4%	70.8%	16.8%	62.6%	51.0%
Innovative marketing techniques	2.4%	22.7%	7.3%	27.6%	17.4%
Producing broad range of products	29.8%	68.0%	22.7%	53.5%	47.8%
Advertising/promotional programmes	6.7%	44.0%	10.5%	31.3%	26.0%
Service differentiation (SD)					
Strict product quality control	83.7%	77.3%	41.4%	88.0%	78.6%
Improving customer services	88.6%	85.2%	17.7%	89.8%	80.1%
Product improvement in meeting customer expectations	66.1%	54.3%	27.7%	74.4%	61.4%
Immediate resolution customer services	97.3%	93.2%	35.9%	93.1%	87.7%
Improving customer care	68.8%	63.6%	11.8%	76.2%	63.5%
Process differentiation (PD)					
Benchmarking best manufacturing processes in the industry	12.7%	7.2%	16.4%	71.9%	32.2%
Benchmarking best manufacturing processes anywhere	7.1%	4.6%	12.3%	59.8%	25.3%
Cost leadership (CL)					
Reducing overall costs	59.4%	62.5%	26.4%	61.7%	57.3%
Reducing manufacturing costs	54.9%	57.3%	30.9%	65.0%	56.4%

Source: EIM, 2002.

5.3.4 *External validity*

The external validity of cluster analysis checks if the strategic groups differ on aspects that are not used in the cluster analysis. These aspects can be context-based or based on hypotheses. For instance, there are no a priori causal relationships between the different clusters and the family influence on strategy. On the other hand, based on theory, one expects that companies in the stuck-in-the-middle group perform worse than companies with a distinct strategy.

Comparison of strategic firms on structural and cultural measures

For a further description of the strategic types, the clusters can be compared on structural and cultural characteristics and economic performance indicators. Before discussing the performance measures, a glimpse is given to the structural and cultural characteristics, for example the existence of a business plan, exporting to other countries and cooperation with other firms. ANOVA was used to test the significance of the differences. In table 12 only the significant results are shown.

table 12   Comparison of the four types of strategic firms on structural and cultural characteristics

Characteristics	Service differentiators	Innovation and marketing differentiators	Stuck-in-the-middle	Process differentiators	All firms
Written down strategy	8.1%	26.0%	7.7%	30.6%	20.8%
Reconsider strategy					
– continually	21.4%	27.2%	13.2%	31.8%	25.7%
– weekly or monthly	6.5%	11.7%	6.3%	13.0%	10.1%
– quarterly or yearly	21.4%	31.1%	20.0%	31.7%	27.5%
– rarely or never	50.0%	29.0%	59.5%	22.5%	35.7%
Approach strategy as a plan	31.6%	56.6%	33.3%	62.2%	51.1%
Change short-term goals					
– weekly or monthly	36.9%	41.5%	29.6%	47.0%	42.8%
– yearly	39.6%	31.7%	40.9%	29.5%	32.3%
– rarely	30.7%	23.4%	25.0%	21.3%	22.1%
Plan of growth	63.3%	81.9%	56.4%	82.9%	74.5%
Consult in strategy-making					
– business partners	33.0%	29.2%	26.3%	36.5%	32.6%
– some employees	22.5%	32.4%	27.8%	31.1%	29.2%
– managers	31.9%	45.2%	26.3%	41.3%	39.0%
– nobody	12.5%	5.3%	16.5%	7.0%	8.6%
Family influences strategy	56.0%	49.8%	53.5%	53.8%	53.2%
External environment influences strategy	67.2%	77.5%	56.9%	82.6%	74.3%
Developing new products	17.4%	35.6%	23.7%	24.5%	25.6%
Cooperation with other firms	38.2%	51.5%	33.3%	45.0%	43.5%

Source: EIM, 2002.

Service differentiators

Service differentiators are companies that do not attract too much attention, not in the positive and not in the negative sense. Compared to the other groups, a relatively little group of the companies has a written strategy. They reconsider their strategy relatively seldom. A majority of the service differentiators (63%) have a growth objective, although this percentage is considerably lower than that of the innovation/marketing differentiators and the process differentiators. The family plays a relatively important role in strategy formulation. The service differentiators score lowest on the development of new products. Perhaps this has to do with the characteristics of services. To conclude,

service differentiators seem to be companies with less ambition than innovation/marketing and process differentiators and also pay less attention to strategic issues. They have a certain strategy and are relatively reluctant to change it.

Innovation and marketing differentiators

Innovation and marketing differentiators and process differentiators are much alike. 26% of the companies in this group have a written strategy and the strategy is periodically reconsidered. The external environment is an important factor that influences the strategy. More than 56% of the companies see strategy as a plan. Innovation/marketing differentiators have a clear growth objective, more that 80% of the companies said that they have pursued growth. Finally as might be expected, the innovation/marketing differentiators have the highest level of companies that develop new products, some 35%. They also have the highest percentage of companies that cooperate with other companies.

Process differentiators

Process differentiators pay the most attention to their strategy of the four types of strategic firms. They have high scores on almost all structural and cultural items. It appears that 30.6% of the process differentiators write down their strategy, while only 7.7% of the firms without a clear strategy (stuck-in-the-middle) have a written down strategy. Process differentiators change their strategy more frequently than the other strategic types do. It appears that 47% of the process differentiators adjust their short-term goals weekly or monthly. More than 80% of the process differentiators stressed that they have a plan of growth. Even more remarkable is the fact that the external environment plays a key role in strategy making for especially process differentiators. To conclude, process differentiators are strategy-conscious companies that see strategy as a plan and they take changes in the environment into account by forming their strategy. The group of process differentiators comprises somewhat bigger and more professional companies.

Stuck-in-the-middle

Finally, companies that belong to the group of stuck-in-the-middle are less strategically active. Only 7.7% of the companies have a written strategy, they rarely reconsider their strategy and only one third see strategy as a plan. They are the least ambitious concerning the growth of the firm. Stuck-in-the-middle companies cooperate relatively little with other companies and the environment does not have a great impact on the strategy. To conclude, stuck-in-the-middle companies do not pay a lot of attention to strategy and are also less ambitious.

Comparison of strategic firms on performance measures

Even more important than the structural and cultural characteristics are the differences on performance measures between the several strategic typologies. Before calculating the scores of the four types of strategic firms on the performance measures, outliers were removed for further analysis. After removing the outliers, the performance indicators for each of the four strategic typologies were computed. The results are presented in table 13.

	Service differ-entiators	Innovation and marketing differentiators	Stuck-in-the-middle	Process differ-entiators	All firms
Employment in 1997	17	23	13	22	20
Employment in 1999	22	32	11	36	28
Employment in 2001	25	29	23	35	30
Sales in 1997	€ 1,127,441	€ 2,135,521	€ 1,006,700	€ 2,930,019	€ 2,007,362
Sales in 1999	€ 1,474,324	€ 3,398,560	€ 950,556	€ 2,922,733	€ 2,399,327
Sales in 2001	€ 2,316,219	€ 3,728,836	€ 2,232,562	€ 3,622,445	€ 3,157,904
Net profit in 1997	€ 70,562	€ 102,256	€ 44,920	€ 86,040	€ 81,700
Net profit in 2000	€ 94,389	€ 106,356	€ 80,876	€ 187,375	€ 126,529
Net profit in 2001	€ 87,626	€ 124,491	€ 59,572	€ 199,316	€ 134,004

Source: EIM, 2002.

It appears that large differences can be observed in the economic performance of the various clusters. An *F*-value was calculated using a one-way analysis of variance to decide whether there were significant differences among the strategic groups (clusters) on the basis of their mean values for the performance measures. To determine where the significant differences emerge, the least significant difference test (LSD) was used to compare all possible pairs of performance means.

In general, innovation and marketing differentiators and process differentiators outperform the other two strategic types as is witnessed by an above-average number of employees, sales and net profit for each year that was investigated. Process differentiators and innovation and marketing differentiators are relatively large, process differentiators somewhat larger than innovation and marketing differentiators.
A process differentiation strategy leads to a payback in higher sales and profits.
The strategy of marketing and innovation differentiators directs to the second-best performance. Marketing and innovation differentiators outperform service differentiators and stuck-in-the-middle firms. In comparison with process differentiators, marketing and innovation differentiators also show very high scores on sales. The number of employees was in 1997 equal for process differentiators and innovation and marketing differentiators, but in 1999 and 2001 marketing and innovation differentiators worked with less employees than process differentiators.
On average, service differentiators and stuck-in-the-middle firms do not show significant differences. Both service differentiators and stuck-in-the-middle firms have a below-average performance. In 1999, stuck-in-the-middle firms had significantly less employees than service differentiators did. Other significant differences between service differentiators and stuck-in-the-middle companies were not found.

The above presented results are strongly related to the size of the company. For this size effect can be controlled for by dividing sales and profit by the number of employees. The number of employees, gross sales and profit are available for several years and for this reason it becomes possible to calculate a rough measure of labour productivity and profit per employee. It turned out that the differences between the several strategic types on labour productivity and profit per employee were non-significant, except for

2001. In 2001, the labour productivity of innovation and marketing differentiators and process differentiators is significant larger than the productivity for service differentiators and stuck-in-the-middle companies. Therefore, a further analysis of labour productivity was not conducted. Also the growth of firms is mostly not different for the different strategic groups, despite the differences between the growth objectives of the different strategic groups (see table 12).

5.3.5 *Conclusion*

Cluster analysis resulted in four distinctive strategic types of firms: service differentiators, innovation and marketing differentiators, firms that are stuck-in-the-middle and process differentiators. Process differentiators are the most successful ones with their strategy. They have the highest scores on the performance indicators, but also on the structural and cultural characteristics. The results demonstrate that service differentiators and stuck-in-the-middle companies have the lowest performance. Innovation and marketing differentiators are somewhere in between. They are definitely performing better than service differentiators and firms that are stuck-in-the-middle. Service differentiators have a below-average performance.
The results confirm the thesis of Porter (1980) that firms with a clear strategy outperform firms that are stuck-in-the-middle.

5.4 Multiple regression analysis

Multiple regression analysis is a general statistical technique used to analyse the relationship between a single dependent variable and several independent variables. The objective of multiple regression analysis is to use the independent variables whose values are known to predict the single dependent variable (Hair et al., 1995). In this study regression analysis is used to estimate the relationship between the independent strategic factors and performance. The factor scores that were computed in section 5.2 are used as independent variables to describe strategy. Beside these strategic variables also some structural and cultural characteristics were included in the regression analysis. Multicollinearity proved to be no problem in all regressions.
The four performance measures used in this study are number of employees, sales, net profit and a perceptual performance measure. Performance indicators measuring growth (employment, sales and profit) resulted in non-significant regression results. Therefore, they are not reported. In the following four paragraphs the regression results of each performance indicator are discussed.

Regression analysis: number of employees
The estimation results of the regression with dependent variable number of employees are presented in table 14. The overall models all had significant F-values. The adjusted R^2 (adjusted coefficient of determination[1]) for the models in 1997, 1999 and 2001 are 0.16, 0.26 and 0.23, respectively. The R^2 is comparable to the R^2 in other studies on the strategy-performance relationship.

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[1] The adjusted coefficient of determination (adjusted R^2) is a modified measure of the coefficient of determination (R^2) that takes into account the number of predictor variables included in the regression equation. The coefficient can vary between 0 and 1. A higher value of R^2 means a greater explanatory power of the regression equation and, therefore, a better prediction of the criterion variable (Hair et al., 1995).

table 14   Regression results for number of employees

Independent variables	1997 coefficient	t-value	1999 coefficient	t-value	2001 coefficient	t-value
Constant	4.118	0.566	-7.727	-0.672	-6.102	-0.532
Factor innovation differentiation	-0.423	-0.353	-0.322	-0.165	0.784	0.419
Factor marketing differentiation	-0.231	-0.205	0.562	0.303	-0.699	-0.391
Factor service differentiation	0.303	0.245	0.574	0.292	-1.140	-0.556
Factor process differentiation	-0.366	-0.340	1.322	0.760	2.411	1.382
Factor cost leadership	1.816	1.659*	1.866	1.011	2.838	1.505
Written down strategy	7.328	2.464**	16.779	3.559***	10.533	2.216**
Reconsider strategy	0.471	0.886	0.512	0.603	1.302	1.531
Approach strategy as a plan	3.793	1.641	4.814	1.294	5.827	1.527
Plan of growth	5.791	2.441**	14.991	3.954***	13.100	3.248***
Influence of family members	0.642	0.557	4.450	2.437**	4.282	2.368**
Influence of external environment	-3.687	-2.309**	-6.249	-2.472**	-3.904	-1.498
Development of new products	2.964	1.738*	4.779	1.761*	3.410	1.272
Cooperation with other firms	7.791	3.621***	8.074	2.353**	11.852	3.474***
Export to other countries	9.866	4.009***	10.270	2.639***	8.568	2.121**
Age of the firm	0.018	0.200	0.185	3.817***	0.094	0.074

* $p<0.10$.
** $p<0.05$.
*** $p<0.01$.
Source: EIM, 2002.

Most coefficients in table 14 are non-significant. In 1999 and 2001 strategy does not predict the number of employees, but in 1997 there exists a weak positive relationship between a cost-leadership strategy and the number of employees (P-value is 0.098). This means that a firm following a cost-leadership strategy will have a larger firm size than firms with another strategy. Firms that wrote down their strategy and have a plan of growth influence the number of employees significantly. Family members have a positive influence on the firm size in 1999 and 2001. Meanwhile, in 1997 and 1999 the influence of the external environment has a negative effect on the number of employees, but in 2001 the external environment does not have any effect on the firm size. There is a weak positive link between the development of new products and the number of employees. Cooperation with other firms leads to a higher number of employees. Firms that export to other countries have a higher number of employees than firms that do not export. An older firm in 1999 has a larger number of employees.

Regression analysis: sales
The sales of the firms in the panel vary largely; therefore, the natural logarithm of sales was taken to perform regression analysis. The same predictor variables as in the previous paragraph were used and the control variable number of employees was added. Again the models for 1997, 1999 and 2001 had significant F-values. The adjusted R^2 are 0.46 for 1997, 0.46 for 1999 and 0.55 for 2001. The estimation results are displayed in table 15.

table 15   Regression results for sales

Independent variables	1997 coefficient	t-value	1999 coefficient	t-value	2001 coefficient	t-value
Constant	13.121	20.183***	12.504	20.351***	13.266	21.552***
Factor innovation differentiation	-0.129	-1.213	0.088	0.849	0.059	0.592
Factor marketing differentiation	0.193	2.046**	0.145	1.503	-0.068	-0.755
Factor service differentiation	0.112	1.034	0.024	0.236	-0.078	-0.709
Factor process differentiation	0.180	1.824*	-0.007	-0.081	-0.115	-1.237
Factor cost leadership	0.171	1.731*	0.147	1.497	0.072	0.734
Written down strategy	0.142	0.565	0.606	2.312**	0.099	0.387
Reconsider strategy	-0.082	-1.732*	-0.005	-0.106	-0.006	-0.137
Approach strategy as a plan	-0.207	-1.000	0.404	2.087**	-0.240	-1.197
Plan of growth	0.311	1.460	0.628	3.222***	0.574	2.699***
Influence of family members	0.036	0.353	0.092	0.966	-0.001	-0.012
Influence of external environment	0.193	1.397	-0.102	-0.743	0.019	0.140
Development of new products	-0.027	-0.182	0.154	1.007	0.037	0.258
Cooperation with other firms	0.105	0.550	-0.006	-0.033	0.016	0.085
Export to other countries	0.367	1.684*	0.776	3.718***	0.665	3.251***
Age of the firm	0.000	0.360	0.013	4.747***	-0.001	-1.361
Total number of employees	0.035	10.359***	0.015	7.806***	0.038	10.896***

* $p < 0.10$.

** $p < 0.05$.

*** $p < 0.01$.

Source: EIM, 2002.

The coefficients of the strategic factors in table 15 are not statistically significant for 1999 and 2001. Only in 1997 marketing differentiation demonstrates a significant posi-tive effect on sales. Process differentiation and cost leadership have a weak positive re-lationship with sales. Firms that approached strategy as a plan in 1999 have a positive effect on sales. In 1999 and 2001 a plan of growth influences sales positively. Export to other countries leads to higher sales. Sales are also influenced by the age of the firm in 1999. The control variable firm size appears to have an important influence on a firm's subsequent performance. This is straightforward, because with a higher number of em-ployees a higher number of sales can be attained.

Regression analysis: net profit

The regression equations for net profit have an insignificant F-value. This means that the adjusted R^2 does not differ significantly from zero. A significant relationship be-tween net profit and strategy could not be found.

Regression analysis: performance compared to competitors

Besides the more objective performance measure as presented above, performance can also be measured by a subjective measure. In the panel, a perceptual performance indi-cator is measured. The performance is only measured for firms that introduced a new product in the last two years. The sample is therefore biased. Two items are used, in

which the general performance and profitability of the company are compared with the most important competitor. The factor analysis shows unidimensionality and Cronbach's alpha is 0.65.

If the variables of the previous regression analysis are included, this leads to a large drop in the number of observations. Therefore, only the strategy dimensions are included (see table 16)[1]. The regression is significant with an adjusted R^2 of 0.04. This is relatively low.

The results indicate that companies that pursue a marketing or a process differentiation strategy perform better than companies that do not pursue such a strategy.

table 16   Significance testing of differences between clusters

Independent variables	Performance compared to competitor	t-value
Constant	-0.056	-0.918
Factor innovation differentiation	-0.060	-1.014
Factor marketing differentiation	0.199	3.349***
Factor service differentiation	0.022	0.346
Factor process differentiation	0.140	2.435**
Factor cost leadership	-0.076	-1.231

*   p<0.10.
**   p<0.05.
***   p<0.01.
Source: EIM, 2002.

Conclusion

The regression analyses show that the selected strategies do not influence the performance of a company. The exception is that marketing and process differentiation have a positive influence on the sales in 1997 and on the perceptual performance measure. This given some indication that the selected strategy may have a positive influence on performance. Also other strategic aspects have a limited effect on the performance. This holds especially for the objective measures of performance. For the subjective performance measure, there are some indications that the selected strategy does influence the performance, but the explained variance is low. This means that the models are rather weak. The multiple regression results demonstrated that strategy is only a limited predictor of performance[2].

Compared to the empirical studies in chapter 3 the results of this study are quite similar. D'Amboise (1993) concludes that there exists no link between strategy and performance. Pelham (2000) finds no significant partial associations between strategy and performance. The study of Kemp and Verhoeven (2002) showed that strategy does not seem to influence growth. Some studies found weak relationships between strategy and performance. Teach and Schwartz (2000) state that strategy and performance are at best weakly related. Gilinsky et al. (2001) found a significant positive effect of a new

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[1] Adding other strategic variables does not influence the results of the regression.

[2] Also an alternative technique, multi-nominal logistic regression, gives the same results. This is an indication for the robustness of the results.

product/market development strategy on firm size. The results of Dess and Davis (1984) show that strategy clusters have a higher performance than firms that fail to develop a generic strategy (i.e., become stuck-in-the-middle). However, Dess and Davis did not carry out a regression analysis. Spanos and Liokas (2001) located with maximum likelihood estimation that strategy positively influences market performance, but not profitability. A regression analysis was not performed in this study.

6 Conclusions

6.1 Conclusion and discussion

In this report, we studied the effect of strategy on firm performance. We used data collected in the SME panel of EIM to test which strategies are used by SMEs and if the selected strategy influences performance. In this chapter, we discuss the main conclusions.

Few SMEs have written down their strategy

First of all, only one out of five companies have a written strategy. This is relatively little compared to big companies but expected based on earlier empirical studies. This does not mean that SMEs are not active on the subject of strategy. Almost 50% reconsider their strategy more than once a year. 20% of the companies do not reconsider their strategy. About half of the companies approach strategy as a plan.

Five distinct strategies

Based on the data, five distinct strategies come to the fore, i.e. innovation differentiation strategy, marketing differentiation strategy, service differentiation strategy, process differentiation strategy and cost-leadership strategy. These strategies are based on the Porter typology and adjusted for SMEs. Differentiation is an important strategy for SMEs, because cost leadership often goes together with large-scale production. SMEs will have cost disadvantages if they chose to compete with other low-cost companies. Within the differentiation strategy, SMEs have several options as mentioned before.

Four strategic groups

Based on the strategies, four different strategic groups can be formed. The first group focuses on service differentiation, with a strong attention to costs. The second group focuses on innovation and marketing. They put a lot of effort in introducing new products and position their existing products. The process differentiators concentrate on an optimal and efficient production process. Finally, there is a group that does not have a consistent strategic focus, i.e. the group of stuck-in-the-middle.

The four groups have different characteristics. In general, the process differentiators are somewhat larger and perform better. They are strategy conscience, i.e. they write down their strategy, they regularly reconsider their strategy, they approach strategy as a plan and they have the ambition to grow. The innovation and marketing differentiators are much like the process differentiators although they perform somewhat less on the strategy indicators. Interestingly, the innovation and marketing differentiators base their strategy less on the external environment than the process differentiators. One should expect that especially the innovation and marketing differentiators would pay a lot of attention to the environment to be able to pick up new trends and developments as an information source for innovation and marketing. As expected, innovation and marketing differentiators cooperate relatively often with other companies and develop the highest percentage of new products.

Service differentiators are relatively close to stuck-in-the-middle companies. They are somewhat more engaged in strategy than stuck-in-the-middle companies but not so much as process and innovation and marketing differentiators. They score the lowest on new product introduction.

Stuck-in-the-middle companies are least active on strategy issues. On most strategy indicators they have the lowest score. They are also the least ambitious in terms of growth objectives. Stuck-in-the-middle companies are relatively small.

The performance of the four different groups is strongly influenced by the average size of the company in the respective group. Process differentiators and innovation and marketing differentiators are relatively large, the other two groups relatively small. The same hold for the sales and profit for different years. If the sales and profit are calculated in terms of sales and profit per employee, the groups do not differ from each other.

Selected strategy does not influence firm performance
Based on the regression analyses performed in this study, one can conclude that the selected strategy does not influence firm performance. In eight out of nine regressions, the selected strategies do not have any significant impact on the absolute value of the objective performance indicators (employment, sales and net profit). Only marketing differentiation has a significant positive effect on the sales in 1997. Also on the growth in employees or sales, strategy does not have any influence. The results are in line with mixed results in the literature discussed. For instance, Spanous and Lioukas (2001), Pelham (2000) and Kemp and Verhoeven (2002) did not find a clear relationship between strategy and performance as well.

For the perceptual performance indicator, performance compared to the competitors, marketing and process differentiation strategy have a positive influence on the performance. However, one should note that the explained variance of this regression analysis is low.

6.2   Suggestions for further research

In this study, we tested the relationship between strategy and firm performance. The study is subject to some restrictions based on the available data in the SME panel. Further research with the SME panel should to a large extent focus on measuring new and relevant variables in the context of the strategy-performance relationship.

In this study, we only empirically tested the Porter typology. The typology is adjusted for SMEs by introducing five distinct differentiation strategies. On the other hand, other typologies may prove more suitable for SMEs, for instance the Miles and Snow typology. Further research is suggested to test also for the Miles and Snow typology and the combination of both typologies, especially in the context of SMEs.

In this study, we were not able to control for differences in the environment. For example, market turbulence, market growth, uncertainty, etc. may influence the appropriate strategy and may influence the strategy-performance relationship. Further research is suggested on this issue. Related with this issue is the importance of persistence and consistency of the selected strategy. Does a certain environment ask for a consistent strategy or for a flexible, often adjusted strategy?

Strategy is not a purpose in itself. Strategy is important to give direction to the company and it should be related to the available resources and capabilities of a company. Especially SMEs may face resource constraints and disadvantages over larger companies.

Therefore, a combination between resources, capabilities and strategy should be studied. Also selecting the right markets, timing and entering these markets are very important strategic issues. The external environment directs which factors are critical. Owners or managers of SMEs have to combine the internal and external perspectives and create sustainable competitive advantages for the company. Based on these advantages, the strategy should be formulated and implemented which will result in good performance. This view on strategy performance should be tested in an integrated way.

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