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**STRATEGIC
MERGERS & ACQUISITIONS:
VALUE CREATION AND
THE MARKET FOR CORPORATE CONTROL**

by
Bjørge Gretland

Dissertation for the degree dr.oecon

Norwegian School of Economics and Business Administration
(Norges Handelshøyskole)
July 1991



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To my parents

DINNER PARTY

In a cacophony of competition,
Brilliance waltzes arrogance
Around a table of words.
Wine glasses, brightened by darkness,
Shine reflections of candles
Across unnoticed necklaces,
While a quiet man's mind,
Freed from the necessities of talk,
Quietly undresses a quiet woman

J.G. MARCH (1985)

ABSTRACT

This study provides a theoretical and empirical analysis of profitability for stockholders of buying and selling firms in strategic mergers and acquisitions (M&As). The theoretical model examines the relationship between product-market effects (corporate strategy) and financial market effects (corporate finance) in strategic M&As; general and specific synergies, takeover premiums and overbidding are important variables in the model. The firm's strategic core is specified, and it is argued that the core variable is important when setting firm boundaries. Moreover, M&As are theoretically compared to alternative methods of economic organization: direct entry, strategic alliances and markets. The empirical part of the study is more limited in scope than the theoretical model. Based on a large sample of U.S. takeovers during the period 1970-1987, the empirical analysis investigates the link between type of synergy (general/specific), competition in the takeover markets and abnormal returns for stockholders of bidding and target firms (as measured by using a market model). Results from the time series analysis largely confirm theoretical expectations; strategic core bidders, related, not core bidders and unrelated bidders realize positive, zero and negative returns respectively. Cross-sectional regression analysis suggests similar effects after controlling for effects of competition in the market for corporate control, method of payment and time period. According to virtually all M&A studies, stockholders of target firms realize large positive gains. Targets in unrelated M&As realize higher abnormal returns than targets in core M&As in the time series analysis. However, no differences among strategic groups are revealed for targets in the cross-sectional analysis.

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Stanford, July 1991

Bjørge Gretland

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I. INTRODUCTION

1. PROBLEM FORMULATION AND PURPOSE

The main purpose of this dissertation is to analyze when mergers and acquisitions¹ are profitable for stockholders of buying and selling companies. Virtually all empirical studies show that stockholders in selling firms realize a significant positive abnormal return in the period around the announcement of a merger or a tender offer. However, the evidence regarding abnormal returns for stockholders in buying companies is mixed. This result means that in some cases the total gains from a merger (or tender offer) may be negative even though there is no doubt that the shareholders of the selling companies are better off. My starting point is therefore that mergers and acquisitions should be done selectively. Accordingly, the aim of this study is to contribute to the understanding of M&A profitability.

A basic assumption in this thesis is an objective of maximizing stockholder value.² In such a setting, mergers and acquisitions (hereafter M&As) can create shareholder value by increasing the company's risk adjusted returns. This effect can arise if (1) income is increased, (2) costs are reduced and/or (3) the systematic risk is reduced. Managing value (Copeland, Koller & Murrin 1990) is the name of the game! And that is what this study is about.

¹Mergers and acquisitions represent one element of the concept of corporate restructuring and control. Other important elements of restructuring and control are joint ventures, proxy fights, greenmail, voting rights, standstill agreements, takeover defenses, exchange offers, share repurchases, going private transactions, leveraged buyouts, voluntary liquidations, spinoffs (splitoffs and splitups), divestitures and equity carveouts (see for example Smith (1986), Copeland & Weston (1988) and Weston, Chung & Hoag (1990) for overviews).

²Of course, non-maximizing behavior will often take place. Even though this is a very interesting issue, it will not be discussed extensively in this study. However, this kind of behavior will be an implicit element in decisions concerning strategic types of mergers and acquisitions.

Following Jemison (1988), I divide the gains from M&As into two main groups: value capture and value creation. Value capture is seen as a one-time event resulting from the transaction itself; for example asset stripping or tax benefits. Value capture is predictable in scope and timing and is relatively easy to measure. On the other hand, value creation is associated with long term phenomena like synergies, market power, transaction costs (Williamson 1985),etc. The effects of these phenomena are more uncertain and problematic to predict. I will focus on value creation gains. Put differently, the emphasis will be on how M&As can create sustainable competitive advantage such that stockholders in both buying and selling companies realize a positive abnormal return.³ The concept of strategy will therefore be important here.⁴ But, as noted by Porter (1985:25), one should remember that "acquisition and vertical integration are not strategies but means of achieving them."

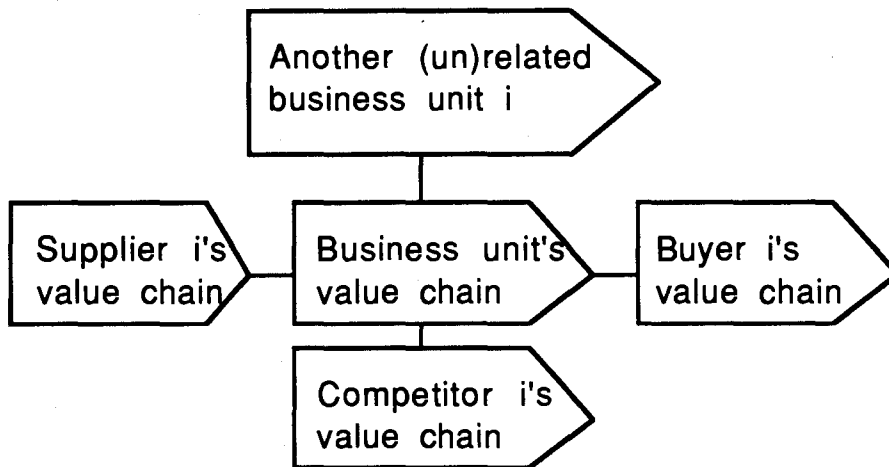
The basic question is whether the firm should make the product itself, buy spot in the market or rely on some kind of alliances (make-buy-contract philosophy). Where should the firm set its boundaries? Using Porter's (1985) value chain concept,⁵ the problem is illustrated by using the value system in which the firm is embedded:

³ Before a takeover decision, one must, of course, also take into consideration the value capture effects.

⁴ Porter (1980) defines competitive strategies as "positioning to maximize the value of the capabilities that distinguish it (the firm) from its competitors" (p. 47). See Pennings (1985) and Mintzberg (1988) for further discussion of the strategy concept.

⁵ A value chain is a systematic way of examining all the activities a firm performs. See Porter (1985:chap. 2) for detailed discussion.

VALUE CHAIN SYSTEM

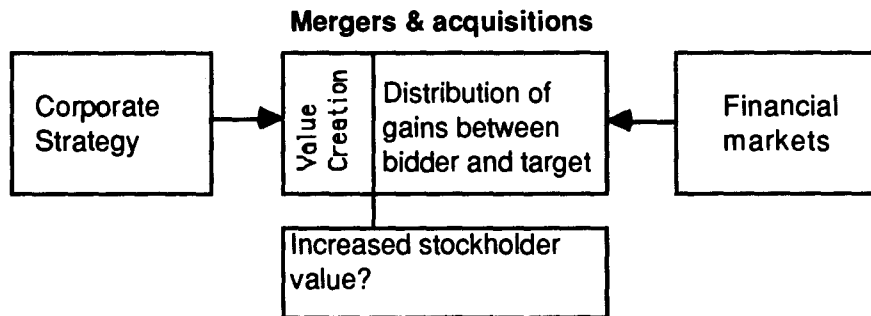


The fundamental idea is to choose a mode of economic organization that creates the most shareholder value through sustained competitive advantage.

M&As can be regarded as capital investments where the takeover price is the investment outlay. It is therefore essential for the buying company that the present value of the change in total future cash flow as a result of takeover is greater than the takeover price. Even if the total net gain from a merger is positive, the shareholders in the buying company are not necessarily better off. The distribution of gains between buying and selling companies is therefore important. It does not help the stockholders of the bidding firm much that the total gains from merger is positive if the takeover premium outweighs this gain.⁶ The interaction between financial markets (takeover price = investment outlay) and takeover gains (corporate strategy) should therefore be analyzed when trying to find the most profitable M&A strategies. Accordingly, my way of approaching the problem

⁶ By examining 681 takeovers in the 1963-1985 period, Nathan & O'Keefe (1989) find that premiums in the 1974-1985 period are approximately double those for 1963-1973. The mean cash tender takeover premium rose from 41 % to 75 %, the mean cash merger premium rose from 29 % to 70 % and the mean stock premium rose from 32 % to 67 %.

can be illustrated like this:



The effects of corporate strategy and financial markets will be evaluated simultaneously. In addition, different perspectives in the strategy area (especially industrial organization economics, strategic management and transaction cost theory) will be discussed.

There are many **motives and explanations** for mergers and acquisitions.⁷ (1) **Synergy** is often stated as an objective in M&As. The concept of synergy has many definitions - many of which lack concrete content (cf., "the 2 + 2 = 5" -effect). However, Wells (1984) and Porter (1985) make the synergy concept clear by dividing business units into a set of activities (value chain) and by analyzing how these activities are performed and coordinated. Every firm is a collection of activities that are performed to design, produce, market, deliver and support its products. Porter (1985) divides the value activities into two broad types: primary and support activities. Primary activities include inbound logistics, operations, outbound logistics, marketing & sales and service. Support activities include firm infrastructure, human resource management, technology development and procurement. Synergy effects can be realized through economies of scale and scope⁸ in the performance of those activities. (2) **Increased market**

⁷For a recent survey of merger motives, see Trautwein (1990)

⁸These concepts will be defined later.

power and thus higher sales prices/ lower input prices can also be a motive (Stigler 1950). This hypothesis is empirically tested and rejected by Eckbo (1983,1985), Stillman (1983), Eckbo & Wier (1985) and James & Wier (1987). (3) **Diversification** may sometimes create value, for example, in a company with only a few undiversified owners. Williamson (1985) argues that M&As can be used (4) to **minimize the sum of production and transaction costs** in exchange relations characterized by uncertainty, high frequency and idiosyncratic investments. In a similar vein, Klein, Crawford & Alchian (1978) claim that "vertical integration is examined as means of economizing on the costs of avoiding risks of appropriation of quasi rents in specialized assets by opportunistic individuals". Furthermore, M&As can be used to protect rent created from (5) **innovations**. Integration is here a means to avoid owners of specialized resources or imitators appropriating the rent stream from innovation, cf. Teece (1985(1984), 1986,1987). M&As can be an important way to (6) **enter** a market (Yip 1982) and will also affect a firm's exit options (Harrigan 1985b). (7) The **redistribution** theory of corporate acquisitions implies that shareholder gains from M&As represent a transfer from holders of senior securities. Empirical evidence provides little support for this theory (see Asquith & Kim 1982, Dennis & McConnell 1986, Eger 1983 and Marais, Schipper & Smith 1989). Another type of redistribution is the one among stockholders and other types of stakeholders than bondholders. As argued by Shleifer & Summers (1988) and Franks & Mayer (1990), takeovers may abrogate "implicit contracts" of companies with their workers, suppliers, the government and the surrounding community - in the form of layoffs, lower wages, termination of pension plans, renegotiated supply contracts and lost tax revenues. (8) **Tax** motives sometimes exist in M&As (e.g., Auerbach & Reishus 1988 a and b and Hayn 1989). (9) The **corporate raiding** hypothesis implies that a raider seeks control over the targets assets in order to divert them to his own benefit at the expense of other shareholders. This hypothesis is rejected by Bradley (1980). Often bidders believe that the market (10) **undervalues** the company such that the bidder

can offer substantial premiums for target firms while still paying far below the intrinsic value of the corporation. The empirical evidence tends to reject such a hypothesis (see Bradley, Desai & Kim 1983 and Pound 1988). (11) **Displacement of inefficient management** is often a major motivation in M&As. Takeover is one way to displace management. However, it might be cheaper to displace inefficient management by proxy fights, replacement of operating managers by the board of directors or simply replacement of directors by stockholder vote (Roll 1987). Sometimes M&As reflect (12) **a conflict of interest between the management and the stockholders** in the buying company (see Journal of Financial Economics vol. 20, No. 1 and 2, 1988 (special issue), and You, Caves, Smith & Henry 1986). Large takeovers often give prestige to managers in spite of the fact that they detriment stockholder value. Following this line of argument, Jensen (1986, 1988, 1989 a and b) establish a (12.1) **"free cash flow theory"** for mergers and acquisitions. According to Jensen, this theory can explain much of the merger and acquisition activity that takes place today. Free cash flow is cash flow in excess of that required to fund all of a firm's projects that have positive net present values when discounted at the relevant costs of capital. Such free cash flow must be paid out to shareholders in order to maximize value for shareholders. However, such payment of cash to shareholders reduces the resources controlled by managers. This can reduce the managers' power and potentially subject them to the monitoring by capital markets that occurs when firms must obtain new capital. Managers often have incentives to expand their firms beyond the size that maximizes shareholder wealth. Growth increases managers' power by licensing the resources under their control. Moreover, changes in management compensation are often positively related to growth. Empirical support for "the free cash flow hypothesis" can be found in Lang, Stulz & Walkling (1990). They find that bidder returns are significantly negatively related to cash flows for bidders with low Tobin q but not for high q bidders. A final explanation of M&As is Roll's (1986, 1987) (13) **"hubris hypothesis"**. The implication of

this hypothesis is that bidders tend to overestimate the true value of the selling company and therefore pay too much such that no positive abnormal return is realized. The difference between hypothesis (12)/(12.1) and (13) is that (13) accepts that "bidding firm managers intend to profit by taking over other firms, possibly because they believe that synergy is present, that the target has inefficient management, etc." (Roll 1987:86). However, the problem is that the buyer exaggerates his ability to estimate the true value of the target and therefore tends to pay too much for the company.⁹

"Value creation" is especially associated with the 4 first motives of M&As (synergy, market power, diversification and transaction costs). This thesis will therefore focus on these elements (in addition to understanding the role of financial markets in the distribution of gains between the bidder and seller). Furthermore, my focus will be on the "formulation" aspects of M&As. Process constraints in implementing the takeover will, even though most important, not be discussed extensively here.¹⁰ As an exposition, I illustrate the whole M&A process, as I perceive it, on the next page.

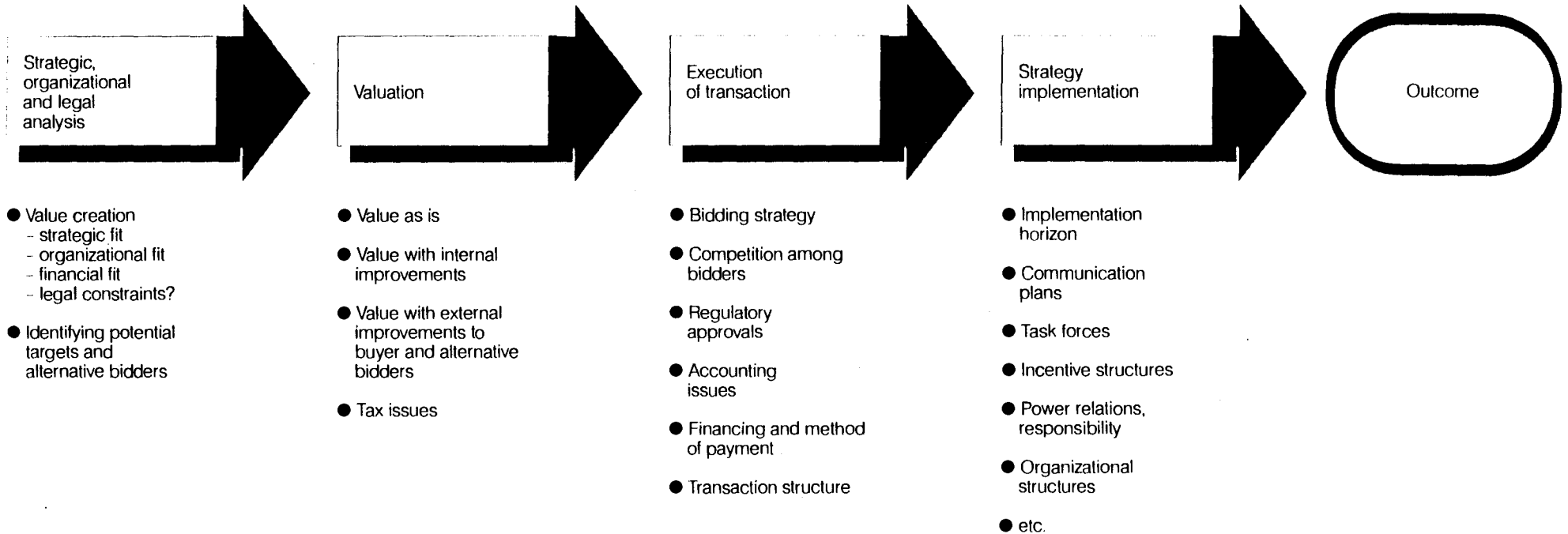
2. DEFINITIONS

The market for corporate control (Manne 1965) is the market for the right to control the management of corporate resources. In a takeover, an outside party seeks to obtain control of a firm (minimum 50 %). There are several types of takeovers, including mergers, hostile and friendly tender offers and proxy contests. In a **tender offer** a bidder makes an offer directly to shareholders to

⁹This is related to the concept of "the winner's curse" used in auction theory. Put simply, this means that whoever makes the winning bid for a valuable object is likely to be a bidder with a positive valuation error.

¹⁰For discussion of these topics confer Jemison & Sitkin (1986), Jemison (1987,1988) and Marks (1990) with further references.

MERGERS & ACQUISITIONS PROCESS



buy some or all of the stocks of the target firm.¹¹ A "friendly" tender offer refers to offers that are supported by target management. Vice versa, "hostile" offers are opposed by target management. Moreover, tender offers can be classified into "any-or-all", "two-tier" or "partial" (see Comment & Jarrell 1987): (a) **any-or-all** offers specify no maximum and accept all shares tendered, or none if the conditions of the offers are not met; (b) **two-tier** offers specify a maximum number of shares to be accepted and are accompanied by at least the announced intention to obtain the remaining shares in a follow up merger if the conditions of the offers are met; (c) **partial** offers specify a maximum number of shares to be accepted but are not accompanied by any disclosed intention to acquire the remaining shares in the near future. In a **merger** the bidder negotiates an agreement with target management on the terms of the offer for the target and then submits the proposed agreement to vote of the shareholders.¹² In a **proxy contest**, a dissident group attempts through a vote of shareholders to obtain control of the board of directors.

For our purposes, it is necessary to establish an M&A classification scheme that can be useful when discussing profitable merger strategies. At this point, M&As are divided into 5 distinct categories:

(1) **Horizontal merger** - merger between companies that are

¹¹Gilson (1986:581) puts it this way: "The essence of a tender offer is that the proposal for business combination is made directly to the shareholders without the necessity of prior approval by the board of directors of the target company. Moreover, because the offer is advanced to the shareholders in their individual capacities, no action by shareholders as a group is necessary either. At this formal level, corporate law treats the technique as if a separate, unrelated offer has been made to purchase the stock of each target stockholder without acknowledging that the effect of aggregating these individual purchases is the transfer of control of the target company, i.e. corporate acquisitions".

¹²Since support from both management teams is required, "mergers" are considered "friendly".

operating in approximately the same product-market.¹³

(2) **Vertical integration** - integration with companies upstream or downstream in the value chain.

(3) **Related merger** - merger between related companies (same product or market, and/or technology and/or competence).

(4) **Unrelated merger** - merger between unrelated companies (companies without any major commonalities when it comes to product, market, technology or competence).

3. RESEARCH APPROACH

In this thesis I develop a model for M&As. Based on this model and an M&A classification system, hypotheses on M&A profitability are developed and tested by using an event study methodology. Event studies measure the effects of unanticipated events (such as takeovers) on stock prices, after correcting for overall market influence on security returns. Any finding of abnormal returns shows how the stock market views the impact of the event on the firm's common stockholders.

4. REVIEW OF SUBSEQUENT CHAPTERS

The rest of the thesis is organized as follows: **Chapter 2** provides the necessary theoretical background and gives a review of previous studies. First, the concept of synergy is discussed. Different kinds of synergies are analyzed in relation to Porter's value chain analysis and are related to M&A type (horizontal, vertical, related, unrelated). Important empirical results and price/quantity effects are also discussed. This analysis is followed by a discussion of the market power hypothesis of M&As. The power concept is analyzed with respect to the company's

¹³It is not necessary that the companies are using the same technology and/or competence in order to be classified as a horizontal merger - same product-market is sufficient.

environment, industry structure and merger types. The next section explores financial and corporate diversification problems. Based on Williamson's suggestions about transaction costs, new institutional economics is also discussed. A following analysis of costs of integration and mergers vs. strategic alliances focuses on relative advantages of different forms of economic organization. Furthermore, existing empirical results from the market for corporate control are presented. The end of chapter 2 deals with information in financial markets, auctions and the bidders ability to realize positive abnormal returns from M&As.

Chapter 3 focuses on theory and hypotheses development. The theoretical model examines the relationship between product-market effects (corporate strategy) and financial market effects (corporate finance) in strategic M&As; general and specific synergies, takeover premiums and overbidding are important variables in the model (these variables are defined later in this study). The firm's strategic core is specified, and it is argued that the core variable is important when setting firm boundaries. Moreover, M&As are theoretically compared to alternative forms of economic organization: direct entry, strategic alliances and markets. The empirical part is more limited in scope than the theoretical model. A main focus when developing hypotheses is to emphasize the relationship between strategic core, takeover premiums and abnormal returns. The degree of asset specificity (and implicitly different types of synergies) are taken into account when classifying transactions such that one gets some insights into the degree of diversification of the transaction. **Chapter 4** presents the data, sample selection and methodology while **Chapter 5** gives the empirical findings and discussion of results. **Chapter 6** concludes the thesis and provides suggestions for future research.

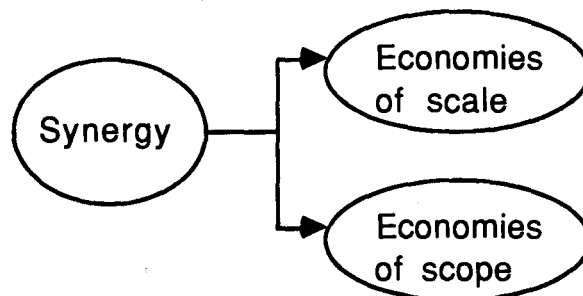
II. THEORETICAL BACKGROUND AND PREVIOUS STUDIES

1. SYNERGY

1.1. The concept

Synergy is often a major motivation in mergers and acquisitions. In business literature synergy is frequently described as the "2 + 2 = 5"-effect to denote the fact that the firm seeks a product-market posture with a combined performance that is greater than the sum of its parts.¹ Wells (1984) and Porter (1985) give synergy concrete content and provide a very good systematization and discussion of synergy possibilities and effects. The reader should refer to these two studies for specific examples.

Following most of the literature, I divide the synergy concept into economies of scale and scope:



Economies of scale are present when efficiencies arise from the expanded production of a specific product. Put differently, economies of scale occur when increase in production volume of a specific product reduces average costs (Yao 1989). Early studies in

¹Supplement 1 gives an overview over definitions of the synergy concept in several recent studies.

the industrial organization literature focused much on the notion of scale economies. Stigler (1958), Pickering (1974), Hanoch (1975), Scherer (1974,1980), Scherer,Beckenstein,Kaufer, Murphy & Bougeon-Massen (1975), McGee (1975) and Hay & Morris (1979) all provide industry studies and concrete examples. One type of economies of scale is reduced set up costs. Sometimes it takes several days to set up a metal- stamping press to produce a particular automobile fender, roof or door panel. A high-volume factory which can assign each press full time to a single part will incur this set up cost infrequently. Cost savings may also be attributable to specialization both with respect to labor and physical capital. In the automobile industry for instance, a large automobile engine plant can save millions of dollars annually by investing in automated cylinder boring, valve seating, and work-piece transfer machines, while the low volume producer must opt for slower, more labor-intensive general-purpose machine tools (Scherer 1980).

While scale is a static concept, there may be dynamic benefits of scale through what has been described as the experience or learning effect.² The high volume that helps a firm to exploit scale benefits also allows it to accumulate learning which leads to a progressive cost reduction as the firm moves down its learning curve. Put differently, scale economies may be realized if cost declines are realized through an increase in the production rate (movement along a given long-run average cost curve). The learning effect reduces costs over time because of cumulative production volume (movement of the long run cost curve).

Economies of scope are present if the cost of the joint production of two or more products is less than the cost of producing them separately (Ghosal 1987, Singh & Montgomery 1987), that is an increase in the number of products offered

²See Amit (1986) for a discussion of experience curves and cost leadership strategy.

decreases average cost.³ Suppose, for example, that the variability of output of one product leaves an expensive machine idle for some time. Economies of scope can be captured if that machine is used to produce another product during its low-usage periods. It is important to note that scope economies can occur outside of the production area. Distribution systems and intangible assets like brand names can be a source of scope economies if they are used for more than one product. Another source of scope economies is sharing of specialized know-how (Teece 1982). Due to market imperfections this know-how may be unavailable at the same cost to other firms in the market place. In general, economies of scope can be realized through complementary products and shared technology, knowledge and external relations.

As noted by Porter (1985), synergy effects in mergers and acquisitions can enhance the company's competitive advantage by lowering its costs and/or by increasing differentiation (and therefore income).⁴ This is important because value is what buyers are willing to pay for; superior value stems from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price. According to Lubatkin & O'Neill (1987) synergies may also reduce the firm's systematic risk. Therefore synergies can have both important cost, revenue and risk effects. All of these effects should be considered thoroughly when analyzing future effects of a merger.

Since realizing synergies involves costs of sharing (e.g., Porter 1985:chap. 9 and Ghoshal 1987), it is important that the benefits from sharing outweigh the costs. It is also important that the

³The term scope economies is both a newer concept and not as clearly defined concept as scale economies. This has led to some confusion in the literature. For instance, Teece (1980) seems to define economies of scope in a way that also includes scale economies.

⁴Synergies can affect differentiation in two separate ways: either by increasing the uniqueness of the activity or by reducing the cost of being unique.

synergy potential may have a significant impact on the firms' competitive advantage. Merger proponents should therefore concentrate on strategic synergies, that is focusing on activities in the value chain that have a large potential for synergy effects⁵ and where the activity constitutes a large percentage of operating costs or assets.

1.2. Synergies and value chain analysis

Porter (1985:33) defines the value chain as a "systematic way of examining all the activities a firm performs and how they interact".⁶ By coordinating the activities in separate value chains, economies of scale and scope can be realized. Empirically (see later discussion), the synergy hypothesis is one of the hypotheses that is not rejected in M&As. A detailed examination of benefits and costs through value chains analysis is therefore often a key factor for M&A success.

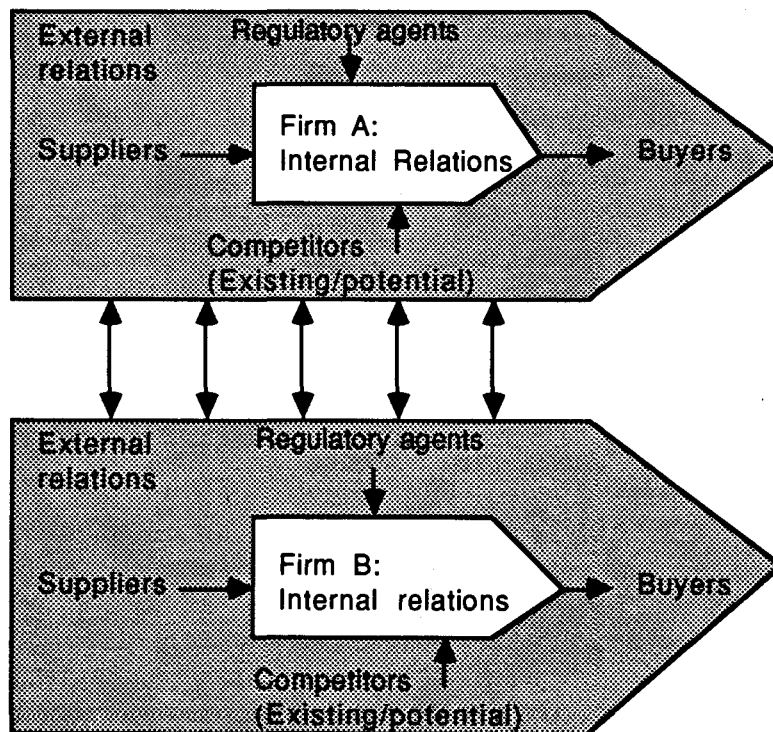
By using the value chain analysis one can disaggregate the synergy effects in different value-creating activities of the firm. This is important, not only to identify the relevant activities, but also because the efficient scale may differ depending on type of activity. A disaggregated view (in contrast to a unitary view of scale) permits the firm to configure different elements of its value chain to attain optimum scale economies in each. A business unit can potentially share any value activity with another business unit in the firm including primary and supporting activities. Based on Porter (1985:chap.9), supplement 2 sums up synergies connected to different value activities.

⁵Activities that have large scale,scope and learning sensitivities.

⁶For detailed discussion of the value chain concept, see Porter (1985,1986,1987b).

In M&As the focus is on shared activities **between** strategically distinct value chains.⁷ Synergy effects from shared activities can lead to a sustainable competitive advantage. It is required, though, that the advantage is to some degree sustainable. Another important point is whether synergy effects can be realized more cheaply by using some kind of strategic alliances instead of full integration. All these issues will be discussed later in this study.

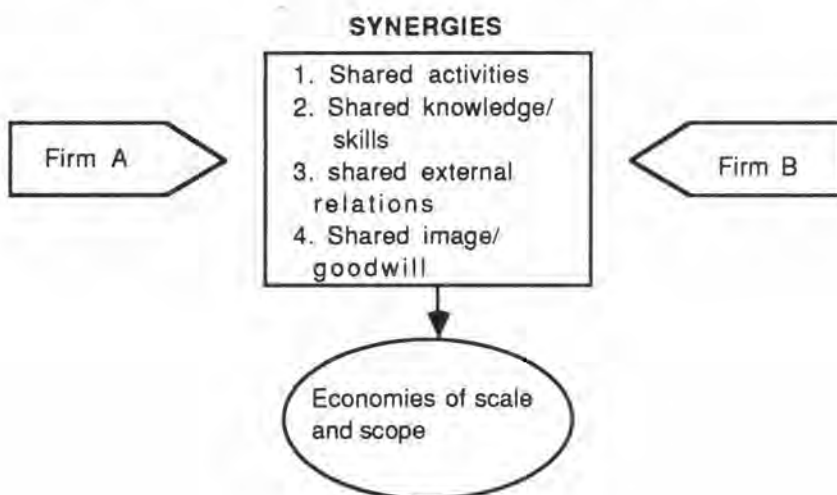
Much of the synergy literature focuses on shared activities between two distinct value chains. In my view, **shared external relations** (networks and strategic alliances, see section 6 below) have not been emphasized enough. When searching for synergies, one should analyze interrelationships both between the value chain activities performed by the merging firms and the environments in which the firms are embedded:



⁷A related, but different kind of problem is linkages **within** the value chain. Such linkages exist because the value chain is a system of interdependent activities. Even though such interdependencies are both important and interesting to study, they will not be discussed further here.

Having access to strong strategic alliances often creates competitive advantage (e.g., Jarillo 1988, Reve 1990). Giving a merger partner access to these alliances might create significant synergy effects. Analogous to Teece's (1980,1982) discussion of know-how, I will argue that the marginal cost of giving access to these alliances for a merger partner is often likely to be much less than the average costs of sustaining the alliances. The value of these alliances can often be transferred to a merger partner without impairing the inherent value of the alliance. Synergies created by shared external relations therefore deserve careful attention in a merger setting. One must, however, be aware of problems that can easily arise when sharing external relations. Relationships with customers, suppliers, competitors and regulatory agents can easily be disrupted during the process which in turn may cause damage to the value of business (negative synergies).

In my view, a good way of classifying the concept of synergy is to divide into 4 main ways of realizing economies of scale and scope: (1) shared activities, (2) shared knowledge/skills, (3) shared external relations and (4) shared image/reputation:



Shared activities refer to economies of scale and scope in primary activities (inbound logistics, operations, outbound logistics, marketing and sales and service) and in support activities (firm infrastructure, human resource management, technology management and procurement). Transfer of knowledge/skills may create substantial synergy effects by increasing efficiency or quality in different activities that are performed. Shared external relations may create synergy effects in the interrelationships with suppliers, buyers, competitors and regulatory agents. Finally, synergy can be realized through transfer of reputation and brand name. Reputation (see Weigelt & Camerer 1988 and Nayyar 1990) is a key factor in competition and is especially important for goods and services for which quality cannot be physically ascertained before purchase and when after sales service is important.

Finally, as already indicated, different classes of synergies seem to have quite different potentials for economies of scale and scope and different costs associated with implementation. In general, one should expect that when synergies are based on **tangible** assets, the excess capacity available for scale and scope economies are exhausted relatively fast. By contrast, some intangible resources, such as brand names and reputation can sometimes be repeatedly used with little cost in the effectiveness of original operations.

1.3. Synergies and M&A type

The potential for significant net positive synergy effects seems to be different for various types of M&As. Presumably, horizontal and related M&As have the biggest opportunity for realizing significant synergy effects followed by vertical and unrelated mergers.

In horizontal/related M&As there are several mechanisms available for the combination of the two firms to be more valuable

than the sum of their premerger values (Chatterjee 1986, Singh & Montgomery 1987, Lubatkin 1987). In such cases there will often be opportunities to reduce costs or enhance differentiation in virtually any activity in the value chain (Porter 1985). However, the notions of "fit" or "commonalities" are often viewed too broadly leading to an overvaluation of the synergy effects.

Synergy effects in **vertical integration** are, in most cases, expected to be smaller than in horizontal/related mergers. Nevertheless, vertical linkages⁸ may sometimes lead to enhanced competitive advantage if they are exploited. Competitive advantage can be a result of lower costs or enhanced differentiation by coordinating and jointly optimizing supplier and channel linkages (see Porter 1985 pp. 50-52, 55, 76-78, 103, 125 for concrete examples and further discussion). As noted by Waterson (1984), it is quite often the case that vertical activities are subject to scale economies: "For example, both the glass and the gearboxes which go into a motor car probably come from processes involving substantial scale economies, but while engines are commonly produced by the car assembler, glass is usually not" (p.95). According to Scherer (1980), many firms have integrated too much upstream. He therefore argues for some kind of "vertical disintegration" If a given production process requires a scale of production larger than the smaller firms in an industry can achieve, this process tends to be separated off from the downstream companies. In such cases there will often first be a vertical disintegration followed by horizontal mergers upstream in order to achieve a more efficient scale at that stage.

The gains available in **unrelated** acquisitions are expected, *ceteris paribus*, to be lower than those for related acquisitions (Singh & Montgomery 1987, Lubatkin 1987). Gains in unrelated acquisitions, if any, result from infrastructure interrelationships (Porter 1985).

⁸Vertical linkages are linkages between a firm's value chain and the value chains of suppliers and channels.

These synergies can stem from shared financing, cash utilization, accounting, legal department, government relations, hiring and training. Such effects may result in reduced financing costs (due to lowered bankruptcy risk or internal financing arrangements), increased administrative efficiencies, or superior utilization of human capital not specific to products or businesses (Singh & Montgomery 1987). Lewellen (1971) argues that lender risk is often reduced in M&As while Galai & Masulis (1976) use option-pricing theory to show that this reduced lender risk will result in a change in the relative position between creditors and shareholders: debt value increases and equity value decreases.⁹ In an extension of Galai & Masulis' model, Shastri (1982) discusses various theoretical scenarios where the net effect on equity value is uncertain. Such scenarios are created by allowing the merging companies to have different cash flow variance, different leverage and different debt maturity.

Williamson (1975), Teece (1982) and Jones & Hill (1988) postulate that multidivisional firms can establish internal capital markets with resource allocation properties superior to those obtained by the external capital market. The reason for this effect is investors' inferior access to inside information and weak control instruments exercised by the financial intermediaries and the stock market. Often it is costly to obtain and transmit information about investment opportunities, making it difficult to utilize the capital markets efficiently. In addition, control disadvantages give scope for managers to behave opportunistically, maximizing their own utility functions rather than those of shareholders. Unrelated M&As can therefore create economies of internal capital markets by internal audits (enhanced control) and achieve a better allocation of resources.

⁹Theoretically this effect can be neutralized by increasing the leverage.

In an important paper, Myers & Majluf (1984) put forward another rationale for conglomerate mergers. They present a model where given asymmetry in information between managers and shareholders, a firm with insufficient financial slack may not undertake all valuable investment opportunities. Myers & Majluf suggest that value may be created in a merger when firms rich in financial slack acquire slack poor firms. The value created through such a merger stems from the additional positive NPV investment taken by the merged firm that the slack-poor firm might pass up.

Porter (1985:348/349) claims that infrastructure interrelationships have a rather small effect on competitive advantage. In some cases though, infrastructure synergies and economies of internal capital markets might have significant effects. It is, however, difficult to interpret the empirical evidence in this area.

1.4. Sustainability, industry structure and empirical results

Synergy effects do not lead to above average performance unless they are sustainable. Positive effects can be nullified by rapid imitation from competitors or new entrants. Even worse, if imitation of a move from competitors has the effect of wrecking industry structure, then every one is worse off (Porter 1985:8). It is therefore important to analyze the total dynamic effects of M&As on the industry structure. Will the threat of new entrants increase? Will the rivalry among existing competitors be more intense? What about the threat of substitute products? Caves & Porter (1977), Spence (1977), Dixit (1980), Porter (1979,1980) and Tirole (1988) discuss these problems in detail.

In order for synergy effects to create sustainable competitive advantage, it is required that a firm possesses some barriers that make imitation difficult. Such barriers to imitation may stem from

some kind of uniqueness, like reputation or goodwill (Demsetz 1973) or team production/knowledge (Alchian & Demsetz 1972). As Demsetz points out, it is often difficult to understand the reasons for difference in performance between firms or to know to which inputs to attribute the performance of the successful firm. Lippman & Rumelt's (1982) theory of **uncertain imitability** explains the origin and persistence of interfirm differences in efficiency.¹⁰ In short, uncertain imitability will exist when the creation of new production functions is inherently uncertain and when either causal ambiguity or property rights in unique resources impede imitation and factor mobility. According to Lippman & Rumelt "it may never be possible to produce a finite unambiguous list of the factors of production responsible for the success of firms..... Factors of production cannot be mobile unless they are known" (p.420). In addition to ambiguity, factor immobility can be explained by uniqueness combined with enforceable rights to the exclusive use of the unique resource (for example patents or ownership of a special resource). Reed & DeFillipi (1990) discuss how **causal ambiguity** can create barriers to imitation. They argue that competitive advantage based on competencies that have causally ambiguous characteristics will be difficult for competitors to imitate. Tacitness, complexity and specificity tend to produce such ambiguity. Tacitness is implicit and non-codifiable accumulation of skills that results from learning by doing. Complexity results from having a large number of interdependent skills and assets. Specificity refers to the degree to which an asset can be redeployed to alternative uses without sacrifice of productive value. Moreover, in an interesting article, Yao (1988) argues that failures of the competitive market are necessary conditions for expected positive abnormal returns. Yao refers to market failures as "impediments to economic

¹⁰One of the interesting results from Lippman & Rumelt's model is the generation of equilibria in which there are stable interfirm differences in profitability, an above-normal industry rate of return and a lack of entry even when firms are atomistic price takers.

activity". Specifically, three fundamental causes of market failures are identified: production economies and sunk costs, transaction costs and imperfect information.¹¹ Sunk costs and transaction costs are highly correlated with specificity. Imperfect information implies that actors in the market place have differential information about prices and quality.¹² The causes of market failure (causal ambiguity, sunk costs, transaction costs and imperfect information) give a more systematic way to assess the significance or importance of a barrier in any particular application. All types of entry barriers should be evaluated with respect to these four causes of market failure to identify profitable markets and appropriate strategies for those markets. For further discussion of connections among impediments and entry barriers, see Yao (1988:65 ff.).

Since the imitation in many situations is only imperfect, producer rents will not be fully eliminated. Peltzman (1977:232) provides a graphical analysis of the dynamics in that respect. For an extreme view in the opposite direction, see Baumol's (1982) discussion of contestable markets.¹³

Sustainability of cost advantage varies for different cost drivers and from one industry to another. According to Porter (1985:112) some cost drivers tend to be more sustainable than others: scale, interrelationships, linkages, proprietary products or process

¹¹Even if the market failure concept seldom is explicitly discussed in the entry barriers literature, the notion is necessarily implicit in the discussion.

¹²See Nayyar (1990) for an interesting discussion on information asymmetries.

¹³Baumol defines a "contestable market" as a market where entry is absolutely free and exit is absolutely costless. Free entry is here meant to imply that the entrant suffers no competitive disadvantage in terms of facing higher costs or less ability to differentiate. The theory of contestability holds that, in circumstances where entry and exit are instantaneous and devoid of sunk costs, the equilibrium price would approach (or equal in the polar case) the competitive price, regardless of the number of actual competitors.

technology. Similarly, sustainability of differentiation depends on two things: its continued perceived value by buyers and the lack of imitation by competitors. Differentiation will be more sustainable when (Porter 1985:159) (1) the firm's sources of uniqueness involve barriers,¹⁴ (2) the firm has a cost advantage in differentiation, (3) the sources of differentiation are multiple and (4) a firm creates switching costs at the same time as it differentiates. A firm should, *ceteris paribus*, most aggressively pursue those synergies that its competitors will find the most difficult to match. Basically, competitors face two types of options in matching the competitive advantage of a synergy: either duplicating the synergy or offsetting through other means such as gaining market share in the affected business area¹⁵ or exploiting other types of synergies. However, it is important to note that many of these effects can be realized by relying on market transactions or on strategic alliances instead of fully integrating. As noted by Teece (1982), synergies explain joint production, but they do not explain why joint production must be organized within a single firm. This issue will be elaborated below in section 4 and 6.

Empirical studies of synergy effects mostly stem from three fields: industrial organization, financial economics and strategic management. Early empirical studies in industrial organization use different approaches: survival tests (Stigler 1958), profitability as a function of size, the engineering approach and statistical cost analysis (Scherer 1980).¹⁶ Demsetz's (1973) results indicate that increased concentration leads to more efficient production (consistent with synergy hypothesis) and lower (instead of higher) prices. Maloney & McCormick (1988) conclude that there is

¹⁴For example proprietary learning, linkages, interrelationships and first mover advantages.

¹⁵Prescott, Kohli & Venkatramen (1986) find that gaining market share seems to be most profitable in "mature, declining and the fragmented with auxiliary services environments".

¹⁶These tests will not be discussed further here.

a link between multiproduct diversification, economies of scale and mergers.

In financial economics there have been many studies on abnormal returns for shareholders based on stock prices. This event studies seem to be the best method to analyze the profitability of "events" like M&As.¹⁷ Jensen & Ruback (1983), Eckbo (1987,1988), Jarrell, Brickley & Netter (1988), Copeland & Weston (1988:chap. 20), Jarrell (1988), Roll (1986,1987,1988) and Magenheim & Mueller (1988) all give good surveys of recent empirical results from financial economics. Also 4 studies from strategic management use stock market data to test profitability of mergers & acquisitions (Chatterjee 1986, Lubatkin 1987, Singh & Montgomery 1987 and Shelton 1985,1988).¹⁸ Many of the studies tend to conclude that M&As create value (that is, create positive abnormal returns). However, almost all of these studies fail to analyze whether these abnormal returns stem from synergies (productive efficiency) or collusion (market power). Important exceptions are Eckbo (1983,1985), Eckbo & Wier (1985) and Stillman (1983). By using a special test method they are able to test the collusion hypothesis. All these studies reject the collusion hypothesis, but since the total gains from M&As do not seem to be negative, they are not able to reject the synergy hypothesis.

In summary, synergy effects created by economies of scale and scope can increase competitive advantage by lowering costs or enhancing differentiation. Such synergy effects can be obtained by coordinating various activities in the value chain, and the synergy potential seems to differ between various M&A types. The synergy hypothesis is one of the few hypothesis in M&As that is not empirically rejected.

¹⁷The event study methodology is discussed later in this study.

¹⁸All these studies will be discussed in section 7: empirical results.

2. M&As AND INCREASED POWER

One hypothesis is that M&As increase a firm's power in relation to actors in the environment. The purpose of this section is to analyze M&As, power and industry structure.

2.1. The power concept

Emerson (1962) defines power as the inverse relation of dependence: "The dependence of actor A upon actor B is (1) directly proportional to A's motivational investment in goals mediated by B and (2) inversely proportional to the availability of those goals to A outside the A-B relation" (p.32). Drawing on Pfeffer & Salancik (1978:46 ff.) A's power over B will be determined by 3 factors: (1) resource importance, (2) control over resource allocation and use and (3) concentration of resource control. Emerson's power concept is fuzzy and difficult to delimit. His power concept is much broader than "market power" or "collusion" from the area of economics. Collusion is anticompetitive and creates monopoly rent if individual rivals within an industry are able to coordinate their production rates. In extreme, the combined profits of the entire set of firms in an industry are maximized when they act together as a monopolist (Stigler 1964). The focus for section 2 (M&As and increased power) will be on "market power". However, I will try to put the power concept into perspective by discussing the relation between "power", "market power" and "industry structure". As we will see later on, important elements of the broader power concept is captured by the notion of synergy as defined in section 1 above.

2.2. Power, synergy and industry structure

Organizations are open systems that make transactions with actors in their environments. The organization's choice of domain (products, markets, technology and competence) defines its task

environment (suppliers, customers, competitors and regulatory agents), cf., Reve (1986). The industry structure forms the basis for power relations between the firm and actors in the environment. Following Porter (1980,1985), an organization's power over actors with whom it makes transactions is determined by (1) bargaining power of suppliers, (2) bargaining power of buyers, (3) intensity of rivalry among incumbent firms, (4) threat of substitutes and (5) threat of new entrants. The power concept is therefore very closely linked to my discussion about entry barriers and market failures (see section 1.4 above). A firm can through M&As increase its power both by changing the industry structure and its own position in the market.

Collusion is extensively discussed in the economics literature. For our purpose, the interesting issue is how M&As can enhance the degree of collusion. Following Stigler (1950,1964), increased collusion will lead to better coordination of the production rates of the individual rivals within an industry. Effective collusion creates monopoly or monopsony rents and is dependent on the "cartel members" not cheating by increasing output.

While market power (collusion) focuses on how rivals can increase rent by coordinating production rates, the broader concept of power defined above includes all power relations as determined by industry structure and the firm's position in the industry structure. If synergy effects lead to lower cost or enhanced differentiation that are sustainable, the power vis-a-vis suppliers, buyers, competitors and/or potential entrants may increase.¹⁹ Therefore the concept of power is implicit in the discussion of synergies above. Accordingly, one should be aware of the

¹⁹As noted by Chamberlin (1933) there will always be both monopolistic and competitive elements present in the field of differentiated products. Synergy effects that enhance differentiation will therefore affect the monopolistic elements and therefore power.

distinction between the broader concept of "power" and the more restrictive notion of "collusion" or "market power".

2.3. Market power and merger types

The traditional market power argument focuses on the coordination of the production rates of individual rivals within an industry. One hypothesis is that M&As can enhance market power by reducing the number of independent producers in the industry. Mergers that increase market power include mergers for monopoly, mergers that create a dominant firm and mergers that facilitate anti-competitive price-collusive behavior with large rivals (Jarrell 1988). For microanalytic discussions of market power, merger types and market structure, see Stigler (1950,1964), Williamson (1968), Spence (1978), Perry & Porter (1985) and Blair & Kaserman (1985).

Presumably, potential changes in market power from M&As will differ between various merger types. **Horizontal** mergers can increase profits by enabling the industry to price at noncompetitive levels. However, there are many problems related to collusion: problems of entry, problems of cheating, problems of unequal costs and problems of partial conspiracies (see Stigler 1964, Blair & Kaserman 1985). On the other hand, structural conditions,²⁰ product homogeneity, demand inelasticity and fewness of sellers may be conducive to collusion (Blair & Kaserman 1985). It is unlikely that price fixing will be successful when there are many firms in the industry. Small numbers of firms are much more conducive to collusion than large numbers. When the number of firms is small enough, the actors are more likely to recognize their mutual interdependence. In other words, each

²⁰For example, government buyers are often required by law to ask for sealed bids and have formal bid openings. This, of course, makes collusion easier because a cheater cannot hide his price cut or his identity.

firm in the industry is aware of the other firms' presence, and each is concerned about the price and output decision of those firms. M&As may, in certain cases, facilitate collusion by reducing the number of competitors by one.

Even if M&As facilitate collusion and entry is to some degree controlled, there are other effects that may nullify gains from collusion. As noted by Stigler (1950), it will become increasingly more expensive to acquire independent firms when "merging for monopoly". The reason for this is that firms which do not participate in a merger may benefit more than the participants. When a merger occurs, the new firm will typically reduce its production below the combined output of its constituent firms. As a result, industry price will increase.²¹ Nonparticipants will then expand output and profit from the higher industry price. Thus, merger participants do not capture all the profits that result from their merger.

Apriori, there are fewer reasons to expect that vertical mergers will lead to increased collusion (Eckbo 1983). The reason for this is that vertical mergers do not necessarily change industry structure.²² In fact, in some cases vertical integration will lead to lower prices. It can be shown that under the case of successive monopoly, vertical integration increases total profits while reducing output price and increasing the quantity of the final product sold; Both producers and consumers are made better off through vertical integration in such a setting (cf., Blair & Kaserman 1985:chap. 11). The concept of vertical market foreclosure is closely related to market power. As discussed in Comanor (1967) and Williamson (1985:98 ff.), the basic idea behind the foreclosure doctrine is that an input supplier, by merging with one of its customer firms effectively removes that firm's purchases

²¹This assumes that the cost reductions associated with merger are not too large

²²More specifically, there will seldom be any direct changes of concentration in the product-markets.

from the open market.²³ By doing so, vertical integration reduces the size of the market that is available to other nonintegrated firms in the industry.

Diversifying mergers may also have market power effects (Singh & Montgomery 1987), even though most of the theories in these cases are somewhat more dubious.²⁴ There are four principal theories of diversifying mergers that may imply price increases: (1) the theory of potential competition (limit pricing), (2) cross-subsidization (predatory pricing), (3) multipoint competition and (4) reciprocity. The most interesting theory is probably the theory of multipoint competitors. Market power can be increased when a firm actually or potentially competes with diversified rivals in more than one business unit (Porter 1985, Wernerfelt & Karmani 1985). The basic idea underlying the theory of multipoint competitors is that a firm that shares more than one market with a rival firm may refrain from aggressive price competition in one or more of these markets in an implicit exchange for restraint on the part of the other markets that they share. This kind of behavior closely resembles tacit collusion. Moreover, this can to some extent be related to Pfeffer (1972) and Pfeffer & Salancik (1978) who argue that diversification is a strategy for avoiding interdependence.

Empirically, there is hardly any evidence supporting that M&As lead to enhanced collusion. Demsetz (1973) and Peltzman (1977) do not find any support for the market concentration doctrine.²⁵

²³Correspondingly, an input customer can by merging with one of its suppliers remove that firm's sales from the open market.

²⁴Blair & Kaserman (1985:chap. 17 & 18) surveys the antitrust issues in diversifying mergers.

²⁵These studies use accounting measures and fail to discriminate between the collusion hypothesis and other hypothesis. There are for example no correction for cross-industry differences in risk or average costs of production. Furthermore, they regress profitability against the level of industry concentration instead of measuring today's market value of an increase in industry concentration.

Using capital market data and a special test method, Eckbo (1983,1985), Eckbo & Wier (1985), Stillman (1983) and James & Wier (1987) all reject the market concentration doctrine.²⁶ These studies are, however, not able to reject the synergy hypothesis. Synergy effects may therefore be a viable explanation for abnormal returns in M&As.

2.4. Mergers, power and risk

If M&As in some cases increase market power, systematic risk may be reduced (cf., Lubatkin & O'Neill 1987). Subrahmanyam & Thomedakis (1980) and Moyer & Chatfield (1983) find evidence supporting that as market power increases, systematic risk decreases.

3. DIVERSIFICATION MOTIVES

3.1. Financial diversification

A popular saying in business is that one should not "put all one's eggs in one basket". This saying is based on the fundamental premise of portfolio theory: whenever the cash flows of individual business units are not perfectly correlated, the total risk is reduced by diversification. However, Levy & Sarnat (1970) show that in a perfect capital market there is no economic gain from pure conglomerate mergers.²⁷ Investors can diversify more cheaply themselves. Actually, based on Levy & Sarnat's assumptions, investors may be hurt by a firm's diversification policy because they can no longer invest in the proportions they want in the individual businesses, but are restricted to the proportion of

²⁶This applies to any type of merger.

²⁷A pure conglomerate merger is a merger without any changes in the underlying cash flows.

investment made by the consolidated firm. In order to create value for stockholders in a perfect capital market, diversifying mergers must reduce the variability of returns or increase returns to investors to a greater extent than what is available through simple portfolio diversification (Salter & Weinhold 1979:chap.5).

If one introduces some "frictions" into the financial markets, there may be financial motives for conglomerate mergers.²⁸ First, in a "closely held corporation" (Fama & Jensen 1985, Gilson 1986) diversification must take place at the company level if the owner(s) want(s) a rearrangement of portfolios. Second, **market imperfections** like bankruptcy costs and conflict between debt and equity may have some effects. Lewellen (1971) argues that merger reduces the probability of bankruptcy of the combined unit and thereby increases debt-capacity.²⁹ As noted by Higgins & Schall (1975), the reduction in the probability of bankruptcy is insufficient for an increase in stockholders' wealth. An additional requirement is the existence of taxes³⁰ and/or bankruptcy costs. Even if there are tax advantages and reduction in bankruptcy costs from pure conglomerate mergers, an increase in stockholder value is not necessarily expected. This can be explained by the "co-insurance" effect (Higgins & Schall 1975) which indicates that the bondholders receive more protection since the stockholders of each firm have to back the claims of the bondholders of both companies.³¹ Galai & Masulis (1976) use option pricing theory to show that reducing the risk to bondholders represents a redistribution of value from shareholders to bondholders (given that there are no synergy effects, etc.). However, empirical studies

²⁸In most cases these effects are expected to be small and can hardly alone justify the high takeover premiums in M&As.

²⁹It is not necessarily true that a pure conglomerate merger with less than perfectly correlated cash flows reduces the probability of bankruptcy. For instance, if a merger takes place between a small firm with stable cash flow and a large firm with volatile cash flow, expected bankruptcy costs may increase.

³⁰US taxes favor, to some extent, high leverage.

³¹This is the same as saying that their limited liability is weakened.

indicate that leverage often increases following a merger and thereby tends to nullify this redistribution effect (see Michel & Shaked 1985). Shastri (1982) extends Galai & Masulis (1976) study by allowing the merging firms to have different variances, different debt ratios and different debt maturities. In his model the effects of conglomerate merger on stockholder value can be both positive and negative.

In sum, in order to obtain a potential increase in stockholder value as a result of a pure conglomerate merger one must assume that there are bankruptcy costs/corporate taxes and that the combined firm increases the amount of debt after the merger.

Empirical studies of conglomerate mergers may give some indications on the effects of financial diversification. Nevertheless, such studies also capture other effects that do not represent "pure" diversification effects. The empirical results are affected by costs of integration (eg. Porter 1985, Williamson 1985), multipoint competitors - effects (Wernerfelt & Karmani 1985), synergies in firm infrastructure (Porter 1985) and gains from internal capital markets (Williamson 1975, Teece 1982). Furthermore, the definition of **unrelated** merger is often vague or differ among various studies (Williams, Paez & Sanders 1988).

The evidence provides little support for the redistribution theory. Conglomerate firms seem to increase leverage after a merger; a potential decline in business risk resulting from the diversified nature of the post-merger operating income stream is usually offset by a simultaneous increase in financial risk. Asquith & Kim (1982) and Dennis & McConnell (1986) find that bondholders neither gain nor lose in M&As, while Eger (1983) finds that bondholders realize significant gains in pure exchange mergers.³² Lehn & Poulsen (1987) study 108 leveraged buyouts from 1980 to

³²While Asquith & Kim's and Dennis & McConnell's studies were concerned with all types of mergers, the results of Eger's study cannot be considered applicable to mergers in general.

1984. They find no evidence that the shareholder value created by the leverage buyouts comes at the expense of preferred shareholders or bondholders.

Bankruptcy avoidance is a plausible motive for mergers. However, it is difficult to evaluate how great importance one should attach to this motive. Warner (1977) provides evidence suggesting that the **direct** costs of bankruptcy are small.³³ Since Warner does not measure **indirect** bankruptcy costs, his study underestimates reduction in total expected bankruptcy costs.³⁴ On the other hand, Altman (1984) finds that total bankruptcy costs (direct + indirect) may be sufficiently large to give credibility to a motivation for conglomerate mergers.³⁵

Recent studies in the strategic management area provide some evidence related to stockholder value in conglomerate mergers. Lubatkin & O'Neill (1987) find that unrelated mergers increase leverage while changes in risk are small (not significant). Chatterjee (1986), Lubatkin (1987) and Singh & Montgomery (1987) all find that shareholders in acquired companies realize significant positive abnormal returns in unrelated mergers. Lubatkin (1987) also finds that acquiring firms realize significant positive abnormal returns in unrelated mergers, while Chatterjee (1986) and Singh & Montgomery (1987) find no significant abnormal returns for shareholders in acquiring firms. For further discussion of empirical results, see section 7 below.

³³The evidence indicates that direct cost are trivial, averaging about 1 % of market value of the firm seven years prior to bankruptcy.

³⁴Direct bankruptcy costs include legal, accounting, filing and other administrative costs, while indirect bankruptcy costs are costs like losses in asset value due to forced sales, opportunity costs of funds tied up during bankruptcy, lost sales and profits, higher cut of credit or possibly the inability of the enterprise to obtain credit or issue securities to finance new opportunities (Warner 1977, Altman 1984).

³⁵Indirect bankruptcy costs are opportunity costs and are therefore difficult to estimate. Apparently, more research needs to be done on this topic.

3.2. Corporate diversification

Corporate diversification is a broader concept than financial diversification.³⁶ Corporate diversification focuses on creating sustainable competitive advantage (Porter 1985) by reducing risk or increasing returns more than investors can do themselves by a portfolio diversification in stocks (Salter & Weinhold 1979). The effects from corporate diversification will be different from traditional financial portfolio effects discussed in modern financial theory. The reason for this is that the firms' underlying risk-return profile is affected in a merger because of tangible, intangible and competitor interrelationships (Lubatkin & O'Neill 1987), reduced transaction costs (Williamson 1985), costs of integration (Hill & Hoskisson 1987) and takeover premiums (Nathan & O'Keefe 1989).

Corporate diversification may be divided into related and unrelated diversification. The motives behind **related** diversification can be several: reduced transaction costs, synergies, market power, multipoint competitors effects, financial diversification effects and easier entry. **Unrelated** diversification seems to create fewer possibilities for significant economies: infrastructure synergies, financial synergies and economies from internal capital markets/asymmetric information. Altogether, diversification based on interrelationships has the highest possibility to enhance the firms competitive advantage (Porter 1985,1987a). Synergies between value chains create opportunities for cost leadership and/or enhanced differentiation.

Theoretically, corporate diversification seems to be right when there is a potential for (1) synergy effects (Porter 1985,1987a), (2)

³⁶ For a short overview of corporate restructuring and diversification, see Bowman & Singh (1990).

transaction costs prevent an efficient market in relevant factors (Teece 1980,1982),³⁷ and (3) there are limits on obtaining increased factor utilization by expanding the output of any single end-product (Rumelt 1982). Without synergies there can be no gain in expanded use. If there are no transaction costs, the firm could use market transactions. Finally, if a firm can exhaust all synergies in the core factors with any single product, there is no need for diversification.³⁸

Competitive advantage in any market is best achieved when a firm combines distinct business units that are linked by certain core skills. Such constrained diversification often indicates specific factors which normally yield competitive advantage (Montgomery & Wernerfelt 1988). Although unrelated diversification may provide financial synergies, it is less able to provide tangible and intangible efficiencies (Porter 1985), collusive gains (Chatterjee 1986) and multipoint advantages (Wernerfelt & Karmani 1985).

The relationship between diversification strategy and profitability has been subject to several recent empirical studies. I have summed up the most important studies in table 1 below.³⁹

Rumelt finds in his classical 1974-study that related diversification is associated with a higher profitability than unrelated diversification, and that more narrowly focused related-constrained diversification is more profitable than loose related-linked diversification. This result fits nicely with the theory presented above. Rumelt's findings have been confirmed by many subsequent studies, see table 1. However, some studies point out that the differences in profitability between strategic categories

³⁷Transaction cost theory will be discussed in section 4 below.

³⁸Efficient expansion of single products can be limited by product markets that are differentiated, oligopolistic or otherwise constrained.

³⁹The studies are listed chronologically. Supplement 3 reviews some classification schemes used in some major M&A and diversification studies.

TABLE 1 - DIVERSIFICATION STUDIES

| STUDY | TIME PERIOD | SAMPLE | MEASURE OF PROFIT-ABILITY | MEASURE OF RISK | ADJUSTMENT FOR INDUSTRY/FIRM VARIABLES? | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|---------------------------------|-------------|---|---|------------------------|---|--|--|
| US STUDIES: | | | | | | | |
| Melisher & Rush(1973) | 1966-71 | 45 congl. noncong. | Accounting Market | Beta | No | F-test | No significant differences between the congl. and the non-congl. groups in either accounting or market based measures. |
| Rumelt (1974) | 1949-69 | 500 industrial comp. | Accounting | Variability in returns | No | F-test t-test | High performers: Dominant-constrained, related constrained Medium performers: Related-linked, single, acquisitive congl. Low performers: Dominant-vertical, Unrelated passive |
| Mason & Goudzwaard (1976) | 1962, 1967 | 22 congl. port-folios of specialized firms | Accounting (ROA) Market specialized (accum. stockh. wealth) | None | No | Welch t-test | Returns higher for portfolios of specialized firms than for the conglomerates. |
| Christensen & Montgomery (1981) | 1972-77 | 128 Fortune 500 comp. (subsample from Rumelt) | Accounting | St.dev. ROIC | Industry structure variables | t-test F-test | High performance: Dominant-constrained, dominant linked and related constrained. Low performance: Vertically integrated Market structure variables major influence. High performance of related constrained firms due to location in profitable, growing and concentrated markets. Unrelated firms were located in stagnant, unprofitable, unconcentrated markets. |
| Bettis (1981) | 1973-77 | 80 Fortune 500 comp. (subsample from Rumelt) | Accounting | St.dev. ROA | Firm var.: Advertising, R&D, plant inv., size | Scheffe method of mult. comparisons Analysis of variance Two regression models | Related-constrained firms more profitable than unrelated. Performance differences result from impacts of advertising, R&D, risk and capital intensity. |

TABLE 1 - DIVERSIFICATION STUDIES, CONTINUED

| STUDY | TIME PERIOD | SAMPLE | MEASURE OF PROFIT-ABILITY | MEASURE OF RISK | ADJUSTMENT FOR INDU-STRY? FIRM VARIABLES? | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|-------------------------|-------------|--|---------------------------|------------------|--|---|--|
| Bettis & Hall (1982) | 1973-77 | Same as Bettis (1981) | Accounting | St.dev. ROA | Hypothesis tested both with and without pharmaceutical firms in sample | --"--- | Higher profitability of related firms due to the presence of 4 pharmaceutical companies in the related group. Superior returns to related diversification may be due largely to industry effects. |
| Rumelt (1982) | 1955-74 | 273 Fortune 500 comp. (extension of Rumelt's 74' sample) | Accounting | None | Control for industry membership | t-test Analysis of var. | Before adjustment for industry structure: Above average: Related-constrained Below average: Dominant-vertical, unrelated business After adjustment for industry structure: Above average: Single business, dominant-constrained Below average: Unrelated firms The high ROC of the RC group was primarily an industry effect |
| Michel & Shaked (1984) | 1975, 1981 | 51 comp. from Fortune 250 | Market | Beta and st.dev. | No | t-test F-test | Unrelated diversifiers earned higher returns on sales than related diversifiers. |
| Palepu (1985) | 1973-79 | 30 food product comp. | Accounting | None | No | t-test Median test Mann-Whitney U-test | Firms with related diversification show significantly better profit growth than firms with predominantly unrelated diversification. Low diversifiers were more profitable than high diversifiers. |
| Bettis & Mahajan (1985) | 1973-77 | Same as in Bettis 1981 | Accounting | St.dev. ROA | Industry indic., Cluster individual firm's analysis sustainable growth indic., innovation, product differentiation | | Related diversified firms (especially related-constrained) outperform unrelated diversified firms |

TABLE 1 - DIVERSIFICATION STUDIES, CONTINUED

| STUDY | TIME PERIOD | SAMPLE | MEASURE OF PROFIT-ABILITY | MEASURE OF RISK | ADJUSTMENT FOR INDUSTRY/FIRM VARIABLES? | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|--------------------------------|-------------|--|---|---------------------|---|--|--|
| Montgomery (1985) | 1972-77 | Same as in Christensen & Montgomery (1981) | Accounting | None | Market growth | t-test | Highly diversified firms have lower average profitability than less diversified firms. After correcting for industry profitability and market share, the diversification variable was not significant. |
| Varadarajan & Ramanujam (1987) | 1980-84 | 216 firms | Accounting | None | No | two-way analysis of variance Chi-square stat. | Related diversified firms significantly better performance than unrelated firms |
| Dubofsky & Varadarajan (1987) | 1975, 1981 | Same as in Michel & Shaked (1984) | Market Accounting | Beta and Std.dev. | No | Duncan's multiple range test | Market measure: Low-relatedness group significantly outperform those in the high-relatedness group. Accounting measures: no significant differences |
| Porter (1987a) | 1950-86 | 33 large US companies | Number of units retained by the company | None | No | ---- | Successful diversifiers made a disproportionately low percentage of unrelated acquisitions, unrelated being defined as having no clear opportunity to transfer skills or share important activities |
| Hoskisson (1987) | 1942-83 | 62 firms | Accounting | Variance in ROA | Industry eff., movement to M-form, size, growth rate, change in GNP, company trends | F-test | Related diversifiers outperformed both vertically integrated and unrelated diversified firms |
| Montgomery & Wernerfelt (1988) | 1960-77 | 246 firms | Tobin's q | q implic. uses beta | Concentr., market share | t-test | Find that the wider a firm diversifies, the lower average rents |

TABLE 1 - DIVERSIFICATION STUDIES, CONTINUED

| STUDY | TIME PERIOD | SAMPLE | MEASURE OF PROFIT-ABILITY | MEASURE OF RISK | ADJUSTMENT FOR INDUSTRY/FIRM VARIABLES? | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|------------------------------------|-------------|--|---|---------------------------------------|---|---|---|
| Wernerfelt Montgomery (1988) | 1960-77 | Same as in Montgomery & Wernerfelt (1988) | Tobin's q | q impli- cately uses beta | Industry eff., market share | F-test | Industry effects account for the majority of the explained variance. Narrowly diversified firms do better than widely diversified firms. |
| Amit & Livnat (1988a) | 1977-84 | 400 large firms | Accounting Tobin's q Market/ book- equity | Variab. in stock return Beta | Leverage, R&D intensity, advertising | Cluster analysis | Related diversification:high return-high risk Unrelated diversification:low return-low risk |
| Amit & Livnat (1988b) | 1977-84 | ---"--- | Accounting | Std.dev. No of ROA | | Correlation analysis t-test | Pure financial diversification is associated with (a) lower operating risk, (b) increased levels of leverage and (c) lower profitability than related diversified firms |
| Capon,et.al. (1988) | 1978-80 | 112 firms | Accounting | None | With and without pharmaceutical firms in sample | t-test | Firms which concentrate in one market area (consumer or industrial), at given levels of diversification, achieve superior performance. Different types of markets require different sets of skills for success. |
| Chang & Thomas (1989) | 1977-81 | 64 firms | ---"--- | Variance of ROA | Industry risk/ return Firms size | F-test | Differences in performance between diversified firms can be attributed to differences in market profitability and firm size (rather than differences in diversification strategy). |
| Lubatkin & Rogers(1989) | 1940-70 | 144 firms | Market | Beta | No | Analysis of variance Scheffe mult. range test Chi-square | Firms that diversified in a constrained manner realized significantly lower levels of systematic risk and significantly higher levels of shareholders returns than firms employing other strategies |

TABLE 1 - DIVERSIFICATION STUDIES, CONTINUED

| STUDY | TIME PERIOD | SAMPLE | MEASURE OF PROFIT-ABILITY | MEASURE OF RISK | ADJUSTMENT FOR INDUSTRY/FIRM VARIABLES? | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|------------------------------------|-------------|---|---------------------------|-----------------|---|---|---|
| Simmonds (1990) | 1975-84 | 73 firms | Accounting | None | None | Mann-Whit. U-test, Kruskal-Wallis an. of variance | For both related and unrelated diversification, firms relying on internal development were higher performers than firms relying on M&As. However, differences were not significant. |
| UK STUDIES: | | | | | | | |
| Grant, Jammine & Thomas (1988) | 1972-84 | 304 large British manufacturing companies | Accounting | None | Industry groups firm size leverage | F-tests | Product diversification did not increase profitability. There was limited evidence that profitability promoted diversification. Industry membership was far more important than firm effects in determining interfirm differences in accounting rate of return. |
| Grant & Jammine (1988) | 1972-84 | ----- | Accounting | Leverage | Industry membership, firm size capital intens. Leverage | F-test t-test | Diversification strategy has no significant effect. Diversified firms outperformed specialized firms. Industry effects major influence. |
| CANADA: | | | | | | | |
| Seror & Devinney (1990) | 1980-83 | 133 manuf. firms | Accounting Market | Beta | Ind. conc., entry barriers, market share, size growth, foreign own. | t-test | Extent of technologically related diversification is significantly and positively related to firm profitability. Some industry and firm specific effects. |
| MULTINATIONAL FIRMS: | | | | | | | |
| Kim, Hwang & Rogers (1989) | 1982-85 | 62 multi-nationals | Accounting | Std. dev. | No | Orthogonal planned comparison t-test | Related diversifiers outperform unrelated diversifiers in the case of low global market diversification |
| Geringer, Beamish & daCosta (1989) | 1977-81 | 100 largest MNEs from the US and Europe | Accounting | None | No | F-test | High performance: dominant-constrained, related constrained Medium performance: active conglomerates, related-linked and single business Low performing: unrelated passive, dominant-vertical |

that Rumelt observes can be attributed to other influences. Put differently, a key question when interpreting the different profitability among various diversification strategies, is whether these differences stem from the chosen diversification strategy or if they are a result of other factors correlated with the diversification strategy. Some studies find that industry structure variables (e.g., market share, concentration, market growth, firm size) and/or firm variables (e.g., advertising, R&D, plant investments, size) explain most of performance differences between various diversification categories (see Christensen & Montgomery 1981, Bettis 1981, Bettis & Hall 1982, Montgomery 1985, Wernerfelt & Montgomery 1988, Grant, Jammine & Thomas 1988, Grant & Jammine 1988 and Chang & Thomas 1989). For example, Christensen & Montgomery (1981) report that unrelated firms have lower market shares, tend to be positioned in less profitable and less concentrated markets and are significantly smaller than other firms in the sample. Related constrained firms, on the other hand, tend to be in more profitable, faster growing and more highly concentrated markets than other firms. Interestingly, in updating his earlier study, Rumelt (1982) confirms that, even after adjustment for interindustry differentials, related constrained diversifiers earned the highest returns on assets.

Most studies seem to confirm the hypothesis that competitive advantage in any market is best achieved when a firm combines distinct business units that are linked by certain core factors (Bettis 1981, Rumelt 1982, Palepu 1985, Montgomery 1985, Hopkins 1987, Montgomery & Wernerfelt 1988, Wernerfelt & Montgomery 1988, Amit & Livnat 1988b, Capon, Hulbert, Farley & Martin 1988, Lubatkin & Rogers 1989, Geringer, Beamish & daCosta 1989). On the other hand, in their study of diversification strategies in British firms, Grant & Jammine (1988) and Grant, Jammine and Thomas

(1988) find that diversified firms on average have higher profitability than more specialized firms.⁴⁰

Findings concerning relationships between diversity and profitability appear to be highly susceptible to choices of profitability measures and time period. Diversified firms seem to increase their profitability over time (Grant & Jammine 1988, Grant, Jammine & Thomas 1988). This supports the predictions that management technology (portfolio analysis, PIMS analysis, organizational innovations) and learning have increased the effectiveness and efficiency with which diversified corporations are managed. Furthermore, most of the diversification-profitability studies use accounting measures. Such measures are associated with problems. Specifically, accounting rates of returns are distorted by a failure to consider differences in systematic risk, temporary disequilibrium effects, tax laws, arbitrary accounting conventions and by not including human capital in the asset base. For further elaboration, see Fisher & McGowan (1983) and Benston (1985).

The diversification studies give an indication of the profitability of different diversification strategies. Even if a particular diversification strategy seems to be profitable, it does not imply that a merger is profitable. The net gains from diversification must be larger than the takeover premium. Since these studies do not consider the effects of bidding in financial markets, they cannot be used directly in an M&A context.

The relationship between diversification strategy and risk seems to be complex. From financial theory we know that passive investors take the systematic risk for given. In corporate

⁴⁰Interestingly, Williams, Paez & Sanders (1988) document that conglomerate firms have increased their degree of business relatedness in the period 1975-84. This is most likely an indication of restructuring away from unprofitable conglomeratization that took place in the 60s and 70s.

diversification the underlying cash flow and risk profile for the combining firms will be altered in a way that cannot be obtained by ordinary portfolio diversification. Studies show that systematic risk is positively correlated to cyclicality, operating leverage and financial leverage (see Brealey & Myers 1984) and negatively correlated with market power (Moyer & Chatfield 1983). Furthermore, systematic risk is affected by synergies (Porter 1985, Lubatkin & O'Neill 1987). Firms that achieve competitive advantage through exploiting synergies can sometimes expect their level of systematic risk to be lowered.⁴¹ Lubatkin & O'Neill give an example on this point:

"It is reasonable to presume that IBM, by virtue of its interrelationships has distinctive options to combat economic decline. They may include raising buyers' switching costs through offering a complete line, discounting the prices of complementary products, increasing promotion and introducing a new technological breakthrough. To the extent that such options help insulate IBM's returns from overall economic risk, IBM's systematic risk should be lower than its competitors (p.670).

In general, strategic M&As may reduce systematic risk because related mergers are more synergistic, are more able to exploit market imperfections and can buffer market movements (Chatterjee & Lubatkin 1990).

Empirical studies indicate that conglomerate firms and conglomerate-type merger activity tend to result in higher systematic risk (Melicher & Rush 1973, Joehnk & Nielsen 1974, Montgomery & Singh 1984, Barton 1988 and Lubatkin & Rogers 1989). This may be caused by conglomerate firms having higher financial leverage (Melischer & Rush 1974, Montgomery & Singh 1984, Barton 1988) or lower market power (Montgomery & Singh

⁴¹That is, a reduction in systematic risk that more than offset a potential reduction in expected returns.

1984, Barton 1988). Lubatkin & O'Neill (1987) find that related mergers are associated with significant decline in systematic risk⁴² and total risk. No other merger strategy reveals a significant decline in systematic risk in their study. Furthermore, Chatterjee & Lubatkin (1990) find that mergers among firms that share the same core technology are able to reduce the systematic variability in the returns to their securities.

4. TRANSACTION COST THEORY AND M&As

4.1. The foundations of TC theory

Transaction costs theory⁴³ focuses on how a firm should organize its boundary activities with other firms and attempts to explain why institutional structures other than markets are often necessary for efficient governance of economic activity. The theory regards the transaction⁴⁴ as a basic unit of analysis and holds that organization of economic activity is largely to be understood by considering certain attributes of the transaction. The central paradigm is whether a given transaction should be undertaken via spot market transactions, strategic alliances or within a hierarchy (make-buy- contract). Transaction costs theory builds on Coase's (1937) fundamental insight that firms exist because it is costly to use the price system to coordinate economic activity:

⁴²The decline in systematic risk appeared for related acquisitions despite an increase in leverage.

⁴³Coase (1937), Williamson (1975,1985) and Teece (1980,1982) are some of the most important contributions to this area. For a mathematical approach to transaction costs economics, see Grossman & Hart (1986). Caves (1982), Galbraith & Kay (1986), Teece (1981,1986b), Hill & Kim (1988) and Gatignon & Anderson (1988) apply transaction cost principles to multinational enterprise, while Teece (1986,1987,1989), Kay (1984), Lundgren (1990) and Pisano (1990) use the theoretical perspective to analyze innovations and firm boundaries.

⁴⁴A transaction can be defined as an exchange of goods or services from one party to another (Jones & Hill 1988).

"A firm will tend to expand until the costs of organizing an extra transaction within the firm become equal the costs of carrying out the same transaction by means of exchange as the open market or the costs of organizing in another firm" (Coase 1986:87).

Transaction cost theory considers firms as governance structures in contrast to neoclassical microeconomic theory which considers firms as production functions.⁴⁵ The key argument is that transactions imply transaction costs in addition to production costs. Transaction costs are "costs of running the economic system" (Arrow 1969:48) or as Williamson (1985:19) puts it: "the economic equivalent of friction in physical systems". Williamson divide transaction costs into ex ante and ex post transaction costs. Ex ante transaction costs are "costs of drafting, negotiating and safeguarding an agreement", while ex post transaction costs include "(1) the **maladaption** costs incurred when transactions drift out of alignment....., (2) the **haggling** costs incurred if bilateral efforts are made to correct ex post misalignments, (3) the **set up and running** costs associated with the governance structures (often not the courts) to which disputes are referred, and (4) the **bonding** costs of effecting secure commitments" (Williamson 1985:21).⁴⁶ It is important to note that transaction costs are likely to result in a loss of efficiency and not just a wealth distribution effect that to some extent could be handled by investors through financial diversification. For example, one part requires contract execution because it is profitable for him even though the "total value" of the contract is negative owing to

⁴⁵In view of this, Coase's original hypothesis says that institutions serve the purpose of facilitating exchange and can best be understood as optimal accommodations to contractual constraints rather than production constraints.

⁴⁶As we will see later on, ex post transaction costs are very important in transaction cost theory. Maladaption costs seem to be especially important, see Williamson (1988b).

change in exogenous factors. Such independent maximization of profits leads to lower combined profits than joint optimization (Gomes-Casseres 1985).⁴⁷

Transaction costs depend on type of transactions and thereby create a need for different governance structures. The basic argument in transaction cost theory is to minimize the sum of production- and transaction costs (Williamson 1985:61) by aligning transactions with governance structures in a discriminating way (Williamson 1988a:73).

Transaction cost theory builds on certain behavioral assumptions (bounded rationality and opportunism) and certain dimensions of the transaction (asset specificity, uncertainty and frequency). **Bounded rationality** implies that individuals have psychological limitations (cognitive and perceptual limitations). As pointed out by Williamson (1988a), bounded rationality does not imply irrationality on behalf of the actors; the human agents are assumed to be "intendedly rational, but only limitedly so" (Simon 1961:24). **Opportunism** is self seeking interest with guile. More specifically, opportunism refers to incomplete or distorted disclosure of information in order to mislead, distort, disguise and otherwise confuse (Williamson 1985:47). These two behavioral assumptions have (together with transactional dimensions) important implications for economic organization. As Williamson (1990) puts it, given bounded rationality, all complex contracts are unavoidably incomplete. Given opportunism, contract-as-promise unsupported by credible commitments is hopelessly naive.

Asset specificity, uncertainty and frequency are important dimensions of the transaction. **Asset specificity** refers to the degree to which an asset can be redeployed to alternative uses without sacrifice of productive value. Specialized assets cannot be

⁴⁷Klein, Crawford & Alchian (1978) touch a discussion about this in their printing press example.

redeployed without sacrifice of productive value if contracts should be interrupted or prematurely terminated. There are four main types of asset specificity (Williamson 1985, Joskow 1988): (1) **site specificity** (buyer and seller are located in a "cheek-by-jowl" relation to each other in order to economize on inventory and transportation expenses), (2) **physical asset specificity** (investments in equipment and machinery that are specific to the transaction), (3) **human asset specificity** (relationship-specific human capital that is often created through a learning-by-doing process) and (4) **dedicated assets** (general investments by a supplier that would not otherwise be made for the prospect of selling a significant amount of the product to a particular customer). Transaction cost theory assumes that **uncertainty** is present in a nontrivial degree. Uncertainty refers to the condition of being unable to predict relevant contingencies. This implies that contracts are incomplete. Incompleteness of contracts exists because some contingencies are unforeseeable, or because there are too many of them to specify in writing, so that cost minimization requires the original contract to define only the broad lines of the relationship.⁴⁸ Increased uncertainty makes it important to devise a machinery to "work things out" when assets are specific. The reason for this is that contractual gaps are expected to be larger and the need for sequential adaption increases when uncertainty increases (Williamson 1985). High **frequency** (how often a transaction occurs) coupled with high uncertainty and asset specificity create a need for specialized governance structures.

⁴⁸It is impossible or prohibitively costly to write, execute, and enforce complete, fully contingent contracts. Accordingly, the relationships between transacting parties cannot be fully described by a court-enforceable formal document that the parties have signed. The contracts are incomplete because uncertainty implies the existence of a large number of possible contingencies. It may be very costly to know and specify in advance responses to all of these possibilities. Therefore, breach of contracts may often be difficult to prove to the satisfaction of a third party enforcer - if one happens to exist.

By combining behavioral assumptions (bounded rationality, opportunism) and dimensions of the transactions (asset specificity, uncertainty and frequency), one can describe the **fundamental transformation** (e.g., Williamson 1985, 1988a, Joskow 1988): Even though there is a large number bidding at the outset ("ex ante competitive bidding"), the situation will be transformed into a condition of bilateral monopoly after entering into an agreement ("ex post bilateral monopoly"). Ex post bilateral monopoly indicates a situation where a supplier may not find alternative contracts and a buyer may not be able to contract with a new supplier on time.⁴⁹ This is, however, dependent on the asset in question being transaction specific. Where no specialized investments are incurred, ex post competition will be fully efficacious.

If we assume bounded rationality, opportunism and that uncertainty is present in sufficient degree to pose an adaptive, sequential decision requirement (Williamson 1985:72), we can focus on asset specificity and frequency. The major premise of transaction cost theory is then that the behavioral assumptions and the dimensions of transaction are determinants of efficient governance structures (Source: Williamson 1985):

| | | ASSET SPECIFICITY | | |
|-----------|------|-------------------|-----------------------|-----------------------|
| | | Low | Medium | High |
| FREQUENCY | Low | Market governance | Trilateral governance | Trilateral governance |
| | High | Market governance | Bilateral governance | Unified governance |

⁴⁹Under bilateral monopoly, each party wants to appropriate the common surplus ex post, thus jeopardizing the efficient realization of trade ex post and the efficient amount of specific investments ex ante (Tirole 1988).

There is no need for specialized governance structures in nonspecific transactions.⁵⁰ For occasional transactions of medium and high asset specificity **trilateral** governance seems to be an efficient solution. In this case market governance is not efficient because of specificity and problems related to the fundamental transformation. **Bilateral** governance/unified governance will be too expensive in such cases because of "set up costs" (Williamson 1985:75). **Bilateral** governance seems to be the best solution when asset specificity is medium and frequency is high. Hierarchy is not chosen since the specificity is not high enough; scale economies can be realized through interfirm trading and outside procurement maintains high power incentives and limits bureaucratic distortions (see Williamson 1985:chap. 6). **Unified governance** (hierarchy) is predicted when asset specificity and frequency is high. High specificity often implies that there are no obvious scale economies to be realized through interfirm trading. Furthermore, integration reduces transaction costs compared to market or bilateral governance. Therefore, transaction costs theory predicts that M&As will take place when the transaction has high frequency and is characterized by high asset specificity. Such highly specific assets bear large losses in value if switched to other uses. To avoid opportunism when specific assets are required to achieve competitive advantage, integration may be a profitable tactic. Put differently, a low level of ownership is preferable until proven otherwise (Anderson & Gatignon 1986). When competition is strong, market outcomes tend to be efficient. Competitive pressures drive parties to perform effectively at low cost and to deal with each other in fairness, honesty and good faith. Otherwise they will be replaced.

In sum, asset specificity seems to be one of the most important rationales for the firm to exist. Later in this study, when

⁵⁰Ex post competition will be fully efficient in this case.

developing a theory for M&As, we will see that asset specificity plays an important role in classifying profitable merger strategies.

Even though the theoretical arguments provided by the transaction cost perspective seem to be persuasive, they have been fruitfully challenged in an interesting article by Hill (1990). According to Hill, it is important to recognize that the "invisible hand of the market" in many cases will remove opportunistic actors even when the focal exchange relationship is characterized by substantial transaction specific investments and high switching costs. This can be explained by reputation effects that influence future exchange relationships. Every firm is surrounded by a system of markets; opportunistic actors by a firm in any of these markets has ramifications for its ability in other markets since the invisible hand (through reputation) tends to delete actors whose behaviors are habitually opportunistic. The transaction cost rationale for integration has therefore in many contexts been overstated.

4.2. Transaction cost theory and M&A type

Asset specificity is a critical factor when choosing institutional form. The need for governance structures increases when asset specificity increases. Based on this, transaction costs theory can explain different types of M&As.

Economizing on transaction costs seems to be one of the most important factors when evaluating vertical integration (Williamson 1975,1985,1988a, Klein,Crawford & Alchian 1978, Riordan & Williamson 1985, Joskow 1988). When asset specificity is low, market contracting between successive production stages will generally be the most efficient institutional form. The reason for this is that (1) outside suppliers are often able to realize economies of scale and scope by aggregating demand and thereby be more efficient than if the focal firm were to produce at that stage

itself,⁵¹ and (2) that the market promotes high powered incentives and restrains bureaucratic distortions more effectively than internal organization (see Williamson 1985:Chap. 6). On the other hand, internal organization is favored where asset specificity is high. When asset specificity is high, it is difficult to accomplish adaptive, sequential adjustments to disturbances. In such cases, internal organization is less likely to imply scale or scope disadvantages. Furthermore, in internal organization one has access to distinctive governance instruments that may reduce transaction costs. The fundamental point is therefore that internal organization enjoys a progressive governance advantage over market organizations as the condition of asset specificity deepens (Riordan & Williamson 1985). Integration will in such cases economize on transaction costs (Williamson 1985) or, in the same vein, economize on the costs of avoiding risks of appropriation of quasi rents of specialized assets (Klein, Crawford & Alchian 1978).⁵²

I have summarized the major empirical studies on vertical integration and transaction costs theory in table 2 below.⁵³ The studies generally provide strong empirical support for the importance of transaction costs considerations in firm boundary settings (Monteverde & Teece 1982, Masten 1984, Anderson & Schmittlein 1984, Joskow 1985, Hennart 1988, John & Weitz 1988, Masten, Meehan & Snyder (1989) and Pisano 1990). Walker & Weber (1984) and Demsetz (1988) do not find results consistent with the TC perspective. However, their measures of asset specificity seem especially vague, and in the case of Walker & Weber (1984) the components have high simplicity. Empirical results in this area focus on the relationship between economic organization

⁵¹See Williamson 1985:92 footnote 8 for a qualification on this point

⁵²Quasi rents are the difference between an asset's value in its first- best use and its value in its next-highest value.

⁵³Empirical evidence on long term contracts and TC theory will not be discussed here. See Joskow (1988) for a nice summary of these studies.

TABLE 2 - VERTICAL INTEGRATION AND TRANSACTION COST ECONOMICS

| STUDY | SAMPLE | MEASURE OF ASSET SPECIFICITY | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|-------------------------------|---|---|--|--|
| Monteverde & Teece (1982) | 133 automotive components used by GM or Ford | Engineering effort | Probit analysis Maximum likelihood method | Find that "specific" components will have a higher probability of being vertically integrated. |
| Masten (1984) | 34 observations from aerospace industry | Design specificity (questionnaire) Site specificity | -----"----- | Variations in the importance of asset specificity affect the choice between vertical integration and market procurement. The specificity variables have expected signs and are very significant. |
| Anderson & Schmittlein (1984) | 145 sales managers for 16 electronic component manuf. | Human asset specificity (questionnaire). | -----"----- | Vertical integration is more likely 1) as asset specificity becomes more important 2) when it is difficult to evaluate the performance of sales personnel 3) when firms are larger |
| Walker & Weber (1984) | 60 decisions made in a component division of a large US automobile manuf. | Assessed indirectly through the effects of supplier competition and volume and techn. uncertainty | Unweighted least squares procedure | Results show that comparative production costs are the strongest predictor of make-or-buy decisions and that both volume uncertainty and supplier market competition have small but significant effects. |
| Joskow (1985) | US coal mining companies | Mine-mouth plant (site specificity), Physical asset spec. Dedicated assets | Percentage of vertical integration in mine-mouth plant to all vertical integration | Vertical integration is more likely when asset specificity increases |
| Anderson & Coughlan (1987) | 94 product introductions in foreign markets by US semiconductor companies | Human asset specificity (questionnaire) | Logistic regression Maximum likelihood model | Products requiring development of specialized skills and working relationships in order to be distributed tend to be handled by company channels rather than independent organizations |

TABLE 2 - VERTICAL INTEGRATION AND TRANSACTION COSTS ECONOMICS, CONTINUED

| STUDY | SAMPLE | MEASURE OF ASSET SPECIFICITY | METHOD OF ANALYSIS | EMPIRICAL RESULTS |
|--------------------------------|--|--|---|---|
| Demsetz (1988) chap. 10 | Vertical integration in 146 firms | 1) inv. in plant/ current assets 2) inv. in plant/no. of employees 3) gross value of durable assets/no. of employees | OLS | No strong relationship between vertical integration and asset specificity. |
| Hennart (1988) | Aluminium industry in the US | Site specificity Physical asset spec. | Percent integrated | Higher degree of upstream vertical integration in aluminium can be explained by greater scale economies, higher barriers to entry, higher transportation costs and greater asset specificity. |
| John & Weitz (1988) | 87 industrial goods firms | Human asset spec. (required training and experience) | Multiple regression Multinomial logit analysis | Industrial goods manufacturers are more likely to integrate forward into distribution when asset specificity is higher. |
| Masten, Meehan & Snyder (1988) | Components used by Chrysler, Ford and General Motors | Human Physical Site | OLS Two-limit tobit logistic | Investments in specialized technical know-how have strong influence on the decision to integrate production within the firm. |
| Pisano (1990) | 92 biotechnology R&D projects sponsored by 50 major pharmaceutical companies | Number of R&D suppliers | Probit analysis | Small-numbers-bargaining problems motivate firms to internalize R&D |

(make-buy-contract) and asset specificity. Few attempts are made in order to determine the profitability of these strategies. As far as I know, there are no studies that explicitly test abnormal shareholder returns for bidders and targets in M&As classified on the basis of this theoretical perspective.

Transaction cost theory can also be applied to **horizontal, related and unrelated M&As**. Even if there is potential for synergies, market power and diversification economies among two separate firms, integration is not necessarily an optimal solution. But market failure associated with arm's-length transactions in realizing these economies often explain multiproduct firms. As argued by Williamson (1985), one should seek to minimize the sum of production and transaction costs when choosing institutional form. If the firm chooses market solution, the total cost will be the sum of the external price (EP) + transaction costs (TC), while hierarchy solution implies a total internal cost, called (IP). An activity will be integrated when $EP + TC > IP$.⁵⁴ This can obviously hold even in the case of $EP < IC$ (Jarillo 1988). As noted above when discussing corporate diversification, 3 conditions should be met before one decides to diversify: (1) synergy possibilities, (2) transaction costs and (3) limits on obtaining increased factor utilization by expanding the output on any single-end-product. There will be no gain in expanding if there are no synergies. Furthermore, without transaction costs, the factor can be purchased in the market (cf. Kay's (1982) and Galbraith & Kay's (1986) discussion on "trading synergies"). Finally, if a firm can exhaust all synergies in the core factors with any single commodity product, it does not have to diversify in order to obtain increased utilization of the core factor. This claim is in accordance with Teece (1980,1982) who argues that diversification is an efficient way of organizing economic activity if synergies are based upon "common and recurrent use of **proprietary**

⁵⁴Total cost when using strategic alliances (contract) is not contemplated here.

knowhow or common and recurrent use of a **specialized and indivisible physical asset**" (p.223). There are several difficulties associated with transferring **proprietary knowledge**:⁵⁵ (1) recognition, (2) disclosure and (3) team organization. Transfer may fail because of non-recognition, which is a manifestation of bounded rationality (Williamson 1975,1985). There are also severe problems of disclosing value to buyers. In order for the buyer to avoid information impactedness problems and opportunistic representations by the seller, the buyer needs more information about the value of the knowledge. However, as a result of this, a fundamental paradox arises: As Arrow (1971:152) nicely puts it: "its value for the purchaser is not known until he has the information, but then he has in effect acquired it without cost".⁵⁶ If the know-how has a strong tacit and learning by doing character, it might be necessary to transfer the knowledge by team organization (see Alchian and Demsetz 1972). A second reason for diversifying mergers is **specialized and indivisible assets**. As discussed under the vertical integration section, highly specialized assets often lead to bilateral monopoly situations and therefore possibilities for opportunism and appropriation of quasi rents (Williamson 1975,1985 and Klein,Crawford & Alchian 1978). In order to avoid these hazards, multipoint diversification can be engaged (Teece 1980). Using these fundamentals of transaction costs theory, Levy & Haber (1986)

⁵⁵Proprietary knowledge includes proprietary technological knowhow, managerial/organizational knowhow and goodwill (industry brand loyalty), Teece (1980).

⁵⁶This problem is also nicely described in Caves (1982:5): "I have a piece of knowledge that I know will be valuable to you. I try to convince you of this value by describing its general nature and character. But I do not reveal the details, because then the cost would be out of the bag, and you would be free to use the knowledge without paying for it. But you therefore decline to pay me as much as the knowledge would in fact be worth to you, because you suspect that I am opportunistic and overstate my claims. With these conditions present, I cannot collect in an arm's-length transaction the full net-revenue productivity of my knowledge. I will underinvest in knowledge, or I may try to earn the most I can from what knowledge I do acquire by putting it to work myself."

develop a model showing that the multiproduct form of organization provides benefits in terms of added flexibility, in transferring firm-specific capital and also in terms of the informational advantages which facilitate the transfers. In their model the benefits depend on the productivity of firm-specific capital in the firm's output sectors and on the covariances of the derived demand for firm-specific inputs in each of the firm's lines of businesses. However, these benefits must be weighted against the costs of employing less specialized capital, monitoring diverse activities and transferring capital among sectors.

Diversification based on transfer of proprietary knowledge/competence and/or specialized and indivisible physical assets implies that the companies in some way are related. On the other hand, unrelated mergers & acquisitions have fewer opportunities for creating stockholder value. However, some advantages may be created through the mechanism of internal capital markets (Williamson 1975, Teece 1982, Jones & Hill 1988). The basic point is that diversifying M&As can establish internal allocation properties superior to those obtained by the (external) capital market. The reason for this is that external capital markets do not have the same access to inside information or the same control instruments as the top management in the firm (Williamson 1975). First, it is often costly to transmit information about investment opportunities to investors and lenders (Teece 1982, Peavy 1984, Myers & Majluf 1984, Bruner 1988). Second, the head office often has better control instruments than the external markets because of access to internal audits, performance monitoring systems, hire-and-fire policies and reward-and-incentive schemes (Williamson 1975, Jones & Hill 1988). In sum, firms pursuing unrelated diversification might achieve better allocation of resources and reduced opportunism and enhanced efficiency through better control.⁵⁷

⁵⁷ However, in my view, it is extremely doubtful that such a rationale can justify the big takeover premiums that the bidder must pay in order to make a successful takeover bid.

There exist extremely few empirical studies that directly test implications from the transaction cost theory on horizontal, related and unrelated diversification. Teece (1980) analyzes the petroleum industry's diversification into alternative fuels. One of the reasons for these mergers seems to be transfer of proprietary knowhow to a specialized application (p.240). Gatignon & Anderson (1988) analyze the multinational corporation's degree of control over foreign subsidiaries. They find that full integration is more likely when the proprietary content and the level of advertising is high. In analyzing ownership structures of foreign subsidiaries, Gomes-Casseres (1989) finds that transaction costs to a large extent determine what is the most efficient organizational form for cooperation. In addition to these three tests, I argue that many of the diversification studies I reviewed above (in section 3) provide strong indirect support for the transaction cost theory. Generally one would expect lower average rents the wider a firm diversifies because (1) wider diversification indicates less specific factors which normally yield less competitive advantage and (2) a given factor will lose more value when transferred to markets which are less similar to that in which it originated. Since wider diversification is correlated with less specific factors, one should expect lower transaction costs and less need to integrate in these cases (in accordance with transaction cost theory). Put differently, narrow diversification⁵⁸ is expected to be more profitable than wider diversification. Bettis (1981), Rumelt (1982), Palepu (1985), Montgomery (1985), Montgomery & Wernerfelt (1986), Wernerfelt & Montgomery (1988), Amit & Livnat (1988b), Lubatkin & Rogers (1989) and Geringer, Beamish & daCosta (1989) provide results that are consistent with this kind of reasoning.

⁵⁸That is diversification closely tied to the firm's strategic core.

5. COSTS OF INTEGRATION (INTEGRATION VS. MARKET)

Why not organize everything in one large firm? This basic question initially posed by Coase (1937) and Williamson (1985) represents a key issue for this section: costs of integration. The focus here will be on identifying these costs and explain how they affect firms' boundary setting decisions.

Williamson (1985:90) emphasizes the main differences between markets & hierarchies:

"The main differences between market and internal organization are these: (1) markets promote high-powered incentives and restrain bureaucratic distortions more effectively than internal organization; (2) markets can sometimes aggregate demands to advantage, thereby to realize economies of scale and scope; and (3) internal organization has access to distinctive governance instruments."

Point (1) will be discussed here. (Point (2) and (3) were discussed in section 4 above.) If synergies are realized by an outside supplier, why not simply realize them after a merger in which a company buys the outside supplier? One of the problems particular to internal organization is that it often leads to an impairment of incentives. Unlike market organization internal organization can only seldom impose strict cost and efficiency controls to which the firm must adjust. Williamson (1985:chap. 6) gives many examples of problems connected to internal organization such as misleading promises of high capacity utilization, transfer pricing problems, accounting discretion, reduced innovation ability and reduced career opportunities.⁵⁹ *Ceteris paribus*, such internal costs tend to favor a market solution rather than an internal organization-based one.

⁵⁹See Williamson's chap. 6 for concrete examples and discussion on these points.

Even if there is potential for considerable synergies between two firms, these effects do not come without costs. Internal organization incurs administrative costs associated with operating an "internal market"; Generally, the visible hand is more expensive than the invisible hand. Realizing synergy effects usually imposes costs of coordination, costs of compromise and costs of inflexibility (cf. Wells 1984, Porter 1985, Ghoshal 1987). Costs of coordination arise because realizing synergy effects requires that scheduling, priority setting, problem solving, etc., must be coordinated in order to share an activity. Coordination often makes the management processes very complex (Wells 1984) and might in some cases offset positive synergy effects (Porter 1985). Compromise costs arise because "sharing an activity requires that an activity be performed in a consistent way that may not be optimal for either of the business units involved" (Porter 1985:332), while costs of inflexibility reflects increased difficulty responding to competitive moves and may also result in increased exit barriers. The costs of internal organization is also strongly affected by the external task environment and the firms "administrative heritage" (Bartlett 1986). Organizational history and management culture (ingrained values, norms and practices of its management) define administrative heritage and tend to influence the firms ability to realize synergies by coordination value chain activities. Porter (1990) highlights another important "cost" of integration. In a recent study he finds a strong association between vigorous domestic rivalry and sustainable competitive advantage; Domestic rivalry creates pressure on firms to improve and innovate. Rivals push each other to lower cost, improved quality and service, and create new products and processes. Over time this constant struggle to innovate and upgrade tends to create competitive advantage for the firm in the "cluster". If M&As lead to cooperation and cartels with no efficient competition, the self-reinforcing process of innovating and upgrading that grows out of rivalry will be dampened. Even though such a cartel may maintain

profits for a time, it usually marks the beginning of the end of sustainable competitive advantage.

Costs of coordination, compromise and inflexibility can easily outweigh benefits from synergy, reduced transaction costs, etc. However, some of these costs have, relatively speaking, been reduced over the last decades. This trend may, in part, be due to technological development, innovations in strategic planning techniques and organizational innovations (M-form),(see Armour & Teece 1978, Porter 1985:332, Williamson 1985:chap. 11, Hoskisson 1987, Jones & Hill 1988, Grant & Jammine 1988 and Grant, Jammine & Thomas 1988). In addition to these more "permanent" costs of internal organization, costs connected to the implementation process of M&As are extremely important.⁶⁰ A discussion of these phenomena lies outside the scope of this study. The reader is therefore referred to Porter (1985:chap.11), Jemison & Sitkin (1986) and Jemison (1987,1988) for discussion on the implementation process in M&As.

Different M&A types are associated with differences in bureaucratic costs. Building on Thompson's (1967) model of task interdependence,⁶¹ Jones & Hill (1988) argue that related diversification is associated with highest level of bureaucratic costs, while unrelated diversification has the lowest level of bureaucratic costs. Vertical integration is between these strategies in terms of costs. The logic is that increased interdependence requires more resources for performance monitoring and appraisal activities and thereby increases bureaucratic costs. In **unrelated** diversification each division functions as a self-contained unit. This strategy has the lowest need for coordination, and control is handled by standardization and formalization (Thompson 1967). **Vertical** integration is based upon sequential

⁶⁰ Many acquisitions fail because of problems in the implementation process.

⁶¹ Thompson divides interdependence into pooled, sequential and reciprocal interdependence.

interdependence which requires coordination between divisions. Bureaucratic control (rules and procedures) leads to centralization of more activities, less autonomy and less accountability of operating divisions. Monitoring will be more difficult. **Related** diversification requires interdivisional coordination and resource sharing. Linkages must be established between divisions and, as a result, the division will have less autonomy. This makes it difficult to assign accountability for performance and increases the monitoring problems. In addition to related diversification being associated with highest level of bureaucratic costs, Jones & Hill (1988) also argue that costs of integration increase at a geometric rate for the case of related diversification, while costs of unrelated and vertical integration increase only at a linear rate. This leads them to conclude that the optimal level of integration is lower for related integration than for unrelated and vertical strategies.

Costs of integration depend heavily on what kind of organizational structure is applied. Hill & Hoskisson (1987) analyze how M-form organization⁶² can be used to realize different economies of integration. According to Williamson, M-form is characterized by separation of strategic and operating functions, functional autonomy of divisions, reallocation of resources from below-average to above-average divisions and strong focus on profitability. A pure M-form organization seems efficient in unrelated diversification, but may be suboptimal in vertical and related integration (Kay 1982, Porter 1985, Hill & Hoskisson 1987, Jones & Hill 1988). M-form focuses on autonomy and profit responsibility. In a setting with vertical integration, this may create problems of coordination, integration and investments in specialized assets (Hill & Hoskisson 1987). Similarly, related diversification seems also to be inconsistent with pure M-form organization. Realizing synergistic economies⁶³ requires

⁶²See Williamson (1975,1985) and Armour & Teece (1978) for discussion of M-form structure.

⁶³Different types of synergies seem to require different degree of coordination. Specifically, tangible interrelationships often

coordinating and establishing linkages between divisions. Such centralized coordination and sharing violates autonomy and accountability central to the M-form.⁶⁴ To maximize profits here, one cannot apply divisionalized organization in its pure form. In general, one can say that high degree of relatedness encourages U-form (functional) structure while low degree of relatedness encourages M-form structure (Kay 1982:135). Hoskisson (1987) studies the relationship between M-form structure and performance. He finds that M-form implementation increases returns and decreases risk for unrelated diversifiers, while in the case of vertical integration both return and risk decrease. In related diversification there is no significant change neither in returns nor in risk. These findings support the discussion above concerning problems of strict use of the M-form in vertical and related diversification.

6. MERGERS VS. STRATEGIC ALLIANCES

The aim of this section is to discuss the choice between M&As and strategic alliances. Put differently, the question posed here is: when do M&As seem to be a more profitable institutional mode of organization than one based on alliances? Since the focus is on M&As vs. strategic alliances, there will be no attempt here to analyze other aspects of alliances such as sources of power in networks, dynamic processes in networks (entry/exit, positioning/repositioning), life cycle of joint ventures, creation of credibility, reputation building, conflicts, choice between different forms of alliances (form, focus, autonomy and duration), etc.⁶⁵

require more complex coordinating devices than intangible interrelationships (Hoskisson 1987).

⁶⁴How to overcome such increased monitoring problems that appears in related integration is discussed in Porter (1985:chap.11).

⁶⁵For further discussion of these aspects of strategic alliances, see Reve (1986), Thorelli (1986), Contractor & Lorange (1988), Jarillo (1988), Harrigan (1988), Kogut (1988,1988b), Hennart (1988),

I will use the term strategic alliances (or networks) to characterize "two or more organizations involved in long term relationships" (Thorelli 1986:37), that is "long-term purposeful arrangements among distinct but related organizations that allow those firms in them to gain or sustain competitive advantage vis-a-vis their competitors outside the network" (Jarillo 1988:32). If spot transactions and hierarchy are regarded as polar cases of institutional organization, then strategic alliances can be seen as an intermediary organization form between these two extremes.

Strategic alliances require at least a partial overlap in domain (Thorelli 1986).⁶⁶ This eliminates "unrelated alliances" and leaves us with horizontal, related and vertical alliances as alternatives to hierarchy and spotmarket transactions.

Building on **transaction cost theory**, Williamson (1985) argues that strategic alliances are an efficient mode of organization when transactions are recurrent and asset specificity is medium. Hierarchy solution is avoided because outside actors often can realize synergies by aggregating demand and produce more efficiently. Furthermore, strategic alliances do not eliminate high-powered incentives and do not create the same bureaucratic distortions as in a hierarchy solution. Market solution seems to be insufficient because of asset specificity and ex post transaction costs. An expected consequence of strategic alliances is reduced transaction costs (Jarillo 1988) which can lead to a lower degree of integration. This can increase the firm's competitive advantage by allowing the firm to concentrate on its strategic core (see Reve 1990). As argued by Reve, core skills have high asset specificity and should be governed internally, while complementary skills have medium asset specificity and should be governed through

Buckley & Casson (1988), Hamel, Doz & Prahalad (1989) and Borys & Jemison (1989).

⁶⁶ Domain is defined as the business unit's products, markets, technology and competence.

strategic alliances. Firms that are positioned in strong strategic alliances may enhance its competitive advantage by (1) "trading synergies" (cf. Kay 1982)⁶⁷ which is difficult for competitors not positioned in equally strong alliances and (2) by avoiding severe bureaucratic distortions. However, hierarchy often has an advantage when it comes to reducing transaction costs. Point (1) above implies that alliances which reduce transaction costs may have important strategic implications: the company can concentrate on those value activities which it performs well (its strategic core). More distant value activities can be left to alliance partners which in most cases will be able to handle these activities more efficiently than the company itself.

One other reason for choosing strategic alliances over M&As is the costs of divesting or managing unrelated activities (Kogut 1988). Building on the analysis above, strategic alliances and hierarchy seem to be efficient governance modes when asset specificity is medium or high respectively. When choosing between alliances or a hierarchy solution, it is therefore given that the investment to some extent is specific. If a company A only needs a subset of the assets held by company B, selling off the rest of the assets might be precluded by the fact that the assets are firm specific. This is owing to the fact that specialized assets "cannot be redeployed without sacrifice of productive value"(Williamson 1985:54).⁶⁸ An alternative for A would be to keep the assets within the firm but this might not be optimal because of increased bureaucratic costs (see section 5 above). Here lies an incentive to use alliances instead of M&As.

⁶⁷That is, other alliances partners realize synergies by aggregating demand and efficient production.

⁶⁸Hennart (1988:footnote 5) gives an illustrating example: "one example might be a firm, such as Dole, which owns banana plantations and operates a fleet of specialized ships and of refrigerated warehouses. Dole could not sell its distribution network separately from its plantations since....banana firms find it necessary to integrate banana growing, shipping and distribution."

Much of the same reasoning applies to the transfer of unique know-how (see Teece 1980,1982). Such know-how can often be transferred at low costs (public good characteristics) thereby realizing net positive synergy effects. However, a full takeover of the firm which has this knowledge may involve substantial management costs especially if the acquired firm operates in different industries than the acquirer. Furthermore, full integration may make it difficult to keep these unique resources. For example, there are fewer takeovers of small high-tech firms and entrepreneurial R&D companies because unique assets can "walk out the door" (see Lipton 1982, Marks 1982). This finding is in accordance with Gomes-Casseres (1985), Porter & Fuller (1986) and Harrigan (1988) who note that contractual relationships reduce cultural frictions and conflicts between potential partners more than a solution based on full integration. Apparently, one of the reasons for this is that "close coordination may sap the morale and creativity of personnel who are accustomed to greater artistic freedoms" (Harrigan 1988:152) and that a network solution often avoids management and incentive problems often created by M&As (Porter & Fuller 1986).

Industrial organization economics provides alternative, often complementary, explanations for the choice between strategic alliances and M&As.⁶⁹ This perspective posits that firms try to maximize profits by improving their competitive position vis-a-vis rivals. Sometimes this lead may conflict with transaction costs theory which focuses on minimization of production and transaction costs.⁷⁰ Harrigan (1988) notes that M&As (and equity joint ventures) often are too inflexible if the basis for competitive

⁶⁹Industrial organization economics is often associated with Porters' (1980,1985) work. This perspective is often also described as "strategic behavior". I will use industrial organization economics and strategic behavior synonymously here.

⁷⁰The integration of these perspectives will be discussed in the theory development chapter below.

advantage changes frequently. Moreover, she argues that M&As should only be considered in activities that are of high strategic importance for the firm. This approach is taken so the firm can concentrate on its strategic core, avoid tying up too much capital and avoid huge bureaucratic costs when the degree of integration becomes too high. Strategic alliances are often chosen because of high political risk (Porter & Fuller 1986, Gomes-Casseres 1989b). Often home governments are interested in keeping the local firms independent instead of having them acquired by foreign firms. The political risks of expropriation, the blocking of profit repatriation, and so on, seem to be lower in the case of joint ventures than in the case of a wholly owned operation (Buckley & Casson 1988). A coalition can be preferred to M&As because it represents a less irreversible commitment and because alliance partners contribute to the firm's fixed costs (Ohmae 1989). Moreover, another reason for seeking a joint venture is to gain some capacity or competence needed to make the investment succeed (Caves 1982). An especially important factor is the size of takeover premiums (Nathan & O'Keefe 1989). With a 50 % takeover premium, the advantages of M&As over strategic alliances must be very big in order to choose integration. Even though full integration increases revenues, reduces costs and/or reduces systematic risk more than a solution based on alliances, it might still be more profitable to choose alliances. This is because big takeover premiums more than outweigh the net present value of the advantages of M&As over alliances.

Despite the advantages of strategic alliances, this solution also has significant **problems**. One problem is that alliances restrict the firm's expansion into certain future lines of businesses (Contractor & Lorange 1988). Alliances may also make it more difficult to achieve synergies and linkages among separate activities in the value chain. For example, it might be difficult to persuade an alliance partner in a manufacturing coalition to perform enough inspection, because after-sale service costs fall outside the coalition. Problems may arise because of conflicts of interest

between a parent firm and a joint venture partner (Caves 1982, Hladik 1988). For example, assume that a parent firm owns two subsidiary divisions A and B. If either its subsidiary A or its subsidiary B can serve market X, the parent firm will pick the lower-cost supplier (call it A). But if B is a joint venture and can earn a positive profit from serving X (but smaller profit than A), a conflict arises between the parent firm and its local B partner, who will want B to get the assignment. Another example is the case where one of the collaborating firms in a partnership seeks to avoid markets where it sells its own competitive products. This loss of strategic flexibility in a joint venture context is an important pro for full ownership. In an international setting, coordination of activities on a worldwide basis is especially important. Without majority control of the venture, this may cause severe problems. Put differently, asymmetric net benefits tend to be destabilizing and to create conflicts. Under full ownership global optimization should be the lead. * In an alliance relationship, a firm cannot line its pocket without taking into consideration the overall profitability effects for the partner company. In alliances profits and risks have to be shared, and one partner's decisions can negatively influence another partner's profits. In my view, problems in alliance relationships are likely to arise because of contracting problems; alliance partners agree to collaborate in certain areas of their domains. Since most firms pursue different product-market strategies, activities performed in the alliance relationship tend to have important effects on the partner's other domain activities outside the alliance relationship. These side effects might create different (dis)advantages for the various firms in the alliance. Accordingly, conflicts arise from asymmetric benefits. The stability of the alliance is then determined by the net results of "alliance benefits" compared to "side-effect" benefits from other domain activities. Asymmetric benefits often imply that the alliance partners are unable to make decisions that are compatible with an optimization of their current strategy. Since partners in an alliance often have differing objectives, coordination and governance costs tend to increase. It seems

reasonable to expect that the more joint decision making is called for, the more the differences in activities will be highlighted. A golden rule seems to be that partnerships are going to be viable only insofar as the value of the joint results to both partners is superior to the opportunity cost they incur. In strategic alliances one also faces the problem that personal and corporate pride and nationalistic feelings can easily contribute to the termination of a venture, whereas under full ownership stability is more likely to be preserved. Shirking will often be a problem in alliances and joint ventures (see Jensen & Meckling 1976, Alchian & Demsetz 1972, Harrigan 1984). Shirking problems are created because the incentives for a firm to contribute to the alliance are not as strong as in the case of M&As. One example of such shirking is that firm A uses proprietary information acquired from an alliance partner B in its own business and thereby hurts its alliance partner. Presumably shirking tends to be most severe when transaction costs are relatively high. Another important cost of alliances is that the partner may become a formidable competitor in the future (Porter & Fuller 1986, Contractor & Lorange 1988, Hamel, Doz & Prahalad 1989). Firms are often less willing to enter strategic alliances in their core areas because this makes it more difficult to protect the firm's strategic core (see Harrigan 1984). For example, brand labels, technology, or the production or provision of quality are often subject to degradation and undesired diffusion unless controlled through equity ownership. Alliances transfer assets and knowledge and often lower entry barriers which makes it easier for a partner to initiate a competitive move. This problem seems to be more severe if the markets are global as opposed to multidomestic (see Porter 1986, Contractor & Lorange 1988). The challenge is therefore to share enough skills and resources to create advantage vis-a-vis companies outside the alliance while at the same time preventing a full transfer of core skills to the partner (Hamel, Doz & Prahalad 1989). This is consistent with Gomes-Casseres (1989b) who finds that firms are less likely to form alliances in their core business than in fields in which they have less experience and competitive advantage. Furthermore, this fits

nically with the theory proposed in Reve (1990) who argues that core skills should be governed internally while more distant activities should be governed through strategic alliances.

In sum, strategic alliances are most important when asset specificity is medium. In such cases alliance partners can realize economies of scale and scope, and the firm avoids large bureaucratic costs or losses of divesting unrelated activities. The firm can thereby concentrate on its strategic core and create competitive advantage by efficient organization. Alliances often reduce management and incentive problems and reduce the problem of unique assets "walking out the door". Alliances not only sustain flexibility, they represent a less irreversible commitment and do not tie up too much capital. Political risk is often reduced and huge takeover premiums are avoided. However, alliances often create new types of both ex ante and ex post transaction costs as well as reducing freedom in competitive moves (shirking, strategic inflexibility/domain conflicts). Alliances can also create future competitors by transferring unique assets and reducing entry barriers. A company should therefore be very careful when transferring core skills through strategic alliances.

There exists quite a few empirical studies on joint ventures and strategic alliances.⁷¹ However, empirical work on the choice between alliances and full integration (M&As) is largely undeveloped. The studies reviewed in section 4 above give support for the theory that core factors and highly specific transactions are integrated within one unit. In addition to these studies, Kogut & Singh (1986) and Gomes-Casseres (1985,1989 a and b) address directly the distinction between M&As and strategic alliances. Kogut & Singh (1986) find that alliances are used more when the cultural distance between the countries in which the firms operate is large. They explain this tendency by referring to difficulties of managing the post-acquisition process in such situations. Gomes-

⁷¹Kogut 1988 gives a review of some relevant studies in this area.

Casseres (1985,1989a) finds that the choice between alliances and M&As, is likely to depend on contracting costs and of managerial shirking. Alliances seem to be more likely when the contribution needed from the local firm depends on a continued long-term commitment from its owners. The same is true if the cooperation benefits are based on the local firm's continued access to officials, contracts with business groups, etc. Gomes-Casseres (1989 a and b) find that alliances are best suited outside the companies core business. The reason for this is that exploiting existing competitive advantage from core factors is a task that should be done within a hierarchy, while alliances are more appropriate when a firm seeks to expand its capacity into new and more distant fields.

7. TIMING AND FIRST MOVER ADVANTAGES

Timing and first mover advantages introduce the dynamics aspects of corporate strategy in general and of M&As in particular. First mover advantages may influence the way the firm organizes its firm boundaries (mergers & acquisitions, internal development, strategic alliances and market solution) as compared to a pure static analysis. Boundary choices should only be made after careful analysis of both static and dynamic factors that influence the optimal mode of firm organization.

The general types of first mover advantages are: (1) **Reputation:** reputation effects (e.g., Weigelt & Camerer 1988 and Nayyar 1990) can be one of the important sources of competitive advantage gained from early moves. Reputation is maintained through experience by buyers and may create sustainable advantages that are hard to overcome for later movers. (2) **Preemptive positioning:** preemptive positioning may allow the firm to take advantage of a market opportunity it perceives and position itself early. Preemption may also signal a commitment from the firm, especially if the move implies sunk costs (e.g., Yao 1988). (3)

Switching costs: switching costs tend to increase when asset specificity and sunk costs increases. If an early mover locks customers into a relationship that involves sunk costs, potential competition may find it hard to overcome this entry barrier. (4)

Channel access: early movers can also block channel access for other firms especially if the distribution is based on contracts that excludes other products from the channel. (5)

Favorable access: favorable access to facilities, inputs, location and other scarce resources may create at least temporary advantages for early movers. (6)

Economies of scale and learning curve benefits: economies of scale and learning curve benefits (e.g., Amit 1986) may be substantial for early movers. Scale economies may be important when an early move leads to higher market share. Learning curve advantages stem from the fact that in many circumstances accumulated learning leads to a cost reduction as the firm moves down the learning curve. According to Porter (1986:chap. 2), first-mover effects are particularly important in global industries, because of the association between globalization and economies of scale, learning and flexibility achieved through worldwide configuration/ coordination. (7,8)

Definition of standards and institutional barriers: Furthermore, first mover advantages can arise because the firm can define standards for products and input technology and take advantage of institutional barriers (for example patent rights and takeover legislation).

Porter (1985) identifies several first mover disadvantages that must be traded off against the potential benefits from an early move. Such costs are pioneering costs, demand uncertainty, sunk costs, technological discontinuities and low cost imitation.

As in the case of synergies, the importance of first mover advantages is often a function of impediments to economic activity (see Yao 1988, Reed & DeFillipi 1990 and Nayyar 1990). Sunk costs, transaction costs, imperfect information and causal ambiguity are important underlying factors that tend to define the height of

entry and exit barriers and also indirectly the importance of first mover advantages.

To succeed in today's competition, many firms have to base their corporate strategy on continuous innovation, change and a constant search for better positioning. Timing and the ability to adapt to both internal and external changes seem to be of high importance for most corporate strategies.

8. EMPIRICAL RESULTS OF M&A PROFITABILITY

8.1. Introduction

This section reviews the empirical evidence showing how bidding and target firms profit from M&As. I will focus exclusively on studies using capital market data (change in stock prices). The basic idea is that a public announcement of the merger will lead to a stock price change that directly measures the expected net present value of gains (or losses) from the merger.⁷² These merger studies are categorized as "event"-studies which in general focus on the effect of firm specific events on the company's stock prices (see Brown & Warner 1980,1985 and Thompson 1985). Such an approach has important advantages compared to alternative methods (Eckbo 1987,1988). Using the change in factor or output prices to infer the profitability effect of M&As is difficult because it requires us to specify the firm's demand and cost function. Also such a method forces us to determine when the merger will start having an impact on product and factor prices, and what normal change in product prices would have occurred without merger. In addition to the problems mentioned above, if an empirical study is based on accounting data, one will face problems associated with

⁷²See Fama (1976) for a review on how the effects of public announcements about firm profitability is quickly incorporated into stock prices.

measuring systematic risk, temporary disequilibrium effects, tax laws, arbitrary accounting conventions, etc. (Fisher & McGowan 1983, Benston 1985).

The empirical results on mergers and acquisition profitability based on stock price data are found in financial economics and in some recent studies from strategic management/industrial organization economics. A problem with most of the studies in financial economics is that they treat M&As as a homogenous phenomenon when it comes to the strategic background of the integration.⁷³ The recent studies from the strategy area start out with the assumption that different types of mergers have different potential for value creation. They test various hypotheses developed from theory in economics and corporate strategy, using the empirical tool provided from financial economics.

8.2. Measurement problems

Before reviewing existing empirical results, it is important to be aware of the measurement problems associated with the studies. One important problem is that investors **partially anticipate** the takeover announcement (Malatesta & Thompson 1985). If the announcement is partially anticipated, one cannot measure the economic impact⁷⁴ by examining the announcement effect alone. In such cases the observed abnormal return only measures the unexpected component of a merger announcement. This type of measurement problem seems to be especially problematic when a firm announces that it will start a general acquisition program. Schipper & Thompson (1983) find that firms which announce

⁷³Exceptions here are Asquith & Kim (1982), Eckbo (1983,1985), Eckbo & Wier (1985), Schipper & Thompson (1983), Allen & Sirmans (1987) and Morck, Shleifer & Vishny (1990).

⁷⁴Economic impact is the net present value of the event.

acquisition programs realize a significant positive abnormal return indicating that the present value of future anticipated acquisitions will be reflected in stock prices at the inception of the program. Balakrishnan (1988) argues that a merger announcement could be the culmination of a series of related strategic moves by the acquiring firm to enter a new industry, and therefore that a significant fraction of the gains could have been anticipated by the capital market well ahead of the acquisition. Similarly, Ruback (1982,1983b) examines the stock market response to the variety of events that precede takeovers and argues that several of the events could have been anticipated. In general, stock price runups that occur before tender offers are announced may be due to (1) news and speculation in the media about control-related events, (2) acquisition of a foothold block by the perspective bidder before a formal bid is made, (3) the deal's hostile or friendly nature and (4) insider trading (see Jarrell & Poulsen 1989b for discussion).

Another important problem is the "size-effect problem", that is the acquiring companies are often much larger than the target companies. Even though the total gain is split equally between buying and selling companies, the abnormal return will be a much lower percent for the buyer than for the seller. Even large gains relative to the transaction will often be buried in the normal variation of the acquiring company's equity value. If the acquiring company's equity is 100 and the target company's equity is 10, a 1 % abnormal return for the acquiror and a 10 % abnormal return for the target company will imply an equal sharing of the total gains from the transaction. In the US the acquiring firm is often 10 times larger than target firms (Eckbo 1987), which may explain why many studies do not find significant abnormal returns for acquiring companies (see below). For mergers in Canada, Eckbo (1986) documents that merger gains are more equally shared. In Canada bidders and targets are on average about the same size. His study therefore indicates that the size-problem may explain some of the results in the US studies which report no

abnormal return for acquiring firms. Asquith, Bruner & Mullins (1983) also report this in their study of gains to bidding firms from mergers. Asquith et. al divide merger bids into two categories: bids where the equity value of the target firm is less than 10 % of the bidding firm's value and bids where the target value is greater than 10 %. They find that the cumulative excess return are significantly greater when the target firm is larger. This result is consistent with the size effect problems. Similarly, Jarrell & Poulsen (1989) find that the relative size of targets to acquiring firms plays a significant role in disguising the gains to acquiring firms from takeover.

Instead of only measuring the percentage gains, Halpern (1983) suggests that one also should measure the dollar gains. This is done in Malatesta (1983), Dennis & McConnell (1986), Chatterjee (1986) and Bradley, Desai & Kim (1988). However, these methods do not avoid all problems since the error term, e_t , in the market model is homoscedastic while the variance of the dollar error term is heteroscedastic. This problem will be further discussed in the empirical part of this study.

8.3. Empirical results

Tables 3 and 4 at the end of this section give a review of empirical results from financial economics.⁷⁵

(1) Tender offers - announcement effects

In tender offers all studies show that target companies realize a large positive abnormal return (about 20 - 30 %). This is a natural

⁷⁵Jensen & Ruback (1983), Eckbo (1987,1988), Jarrell, Brickley & Netter (1988), Copeland & Weston (1988:chap. 20), Jarrell (1988), Roll (1986,1987,1988), Magenheimer & Mueller (1988) and Jarrell & Poulsen (1990) all discuss empirical evidence from the market for corporate control.

consequence of the high takeover premiums that exist in this market (see Jarrell, Brickley & Netter 1988 and Nathan & O'Keefe 1989). For **bidder** firms the results tend to be positive - even though not all studies are conclusive. Dodd & Ruback (1977), Chamber & Hoffmeister (1978), Bradley (1980), Bradley, Desai & Kim (1988) and Franks & Harris (1986) all find that bidder firms realize significant positive abnormal returns. Bradley, Desai & Kim (1983), Jarrell & Poulsen (1987), Doukas & Travlos (1988) and Eckbo & Langohr (1988) do not find any abnormal returns for bidders in takeovers, while Bradley, Desai & Kim (1988) find significant negative abnormal returns for bidders in the period 1981-84 (see table 4).

(2) Mergers - announcement effects

Target firms also realize large significant abnormal returns in mergers (15-20 %). However, the empirical evidence that the **bidder** firms realize positive abnormal returns in mergers is weaker than in the case of tender offers. Asquith, Bruner & Mullins (1983), Dennis & McConnell (1986), Allen & Sirmans (1987) and Eckbo (1986) find significant positive abnormal returns for bidder firms while Dodd (1980), Asquith (1983), Eckbo (1983), Malatesta (1983) and Morck, Shleifer & Vishny (1990) find zero abnormal returns. None of the studies report significant negative returns. The percentage gain seems to be lower in mergers. One factor that might influence this is that mergers are anticipated more extensively than tender offers.

(3) Post-merger performance

Post-merger performance studies analyze the stock prices for merging firms in the year after the event date. For **tender offers**, Dodd & Ruback (1977) find that there is no abnormal return in the 12 month period after the announcement month.

Similarly, in the case of **mergers**, Mandelker (1974), Malatesta (1983) and Eckbo (1986) find zero abnormal returns for bidding firms in the year following the announcement date. However, it is disturbing that Langetieg (1978) and Asquith (1983) find a significant negative abnormal return in the 12-month period after the event date. These post-outcome negative abnormal returns are inconsistent with market efficiency and suggest that stock price reactions around the announcement date overestimate the future efficiency gains from mergers. If so, investors can consistently beat the market by selling short right after the announcement date and hold this short position until the speculative gains diminish. The results in Langetieg (1978) and Asquith (1983) must however be interpreted cautiously. The problem with these two studies is that they use a pre-merger benchmark to estimate post-merger abnormal returns.⁷⁶ Since bidders on average perform abnormally well prior to a merger announcement, use an abnormal performance as a normal return in the market model by applying a pre-merger benchmark. When trying to measure the abnormal return from merger, one compares these returns to a prior positive return. A likely consequence is therefore an understatement of the gains from merger. Loderer & Mauer (1986) show that the choice of benchmark is important for the statistical results. By changing from a pre-merger benchmark to a post-merger benchmark the post-merger bidder firm's abnormal returns change from significantly negative returns to insignificant abnormal returns. Franks, Harris & Mayer (1988) and Franks, Harris & Titman (1990) report similar results and conclude that findings of poor performance after takeover are likely due to benchmark errors rather than mispricing at the time of the takeover.

It is interesting to note that bidder returns have decreased over time (see table 4). Jarrell & Poulsen (1987) find that takeover

⁷⁶The other studies which report no abnormal return use a post-merger benchmark.

premiums on average were 19 % in the 1960s, 35 % in the 1970s and 30 % in 1980-85. Bidder returns were 4.4 %, 1.22 % and -1.10 % for the periods 1960s, 1970s and 1980s respectively. Similarly, Bradley, Desai & Kim (1988) also document that bidder returns decrease over time: 4.09 % (1963-68), 1.30 % (1968-80) and -2.93 % (1981-84). This development may in part be due to Williams Amendment act, the laissez-fair attitude of the Reagan Administration, sophisticated tactics to repel takeovers (poison pills, targeted share repurchases, lock up provisions and supermajority and fair price amendments) and the advent of investment banking firms that specialize in raising funds to finance corporate takeovers (Bradley, Desai & Kim 1988).

Table 5 sums up recent studies that classify mergers according to some kind of strategic direction or strategic fit. The assumption in these studies is that different M&As have different potential for value creation. Chatterjee (1986) analyzes 157 mergers (no tender offers) and finds that both unrelated and related, non-horizontal bidders realize insignificant abnormal returns, while target companies realize 12.3 % and 17.5 % abnormal returns for related and unrelated mergers respectively. Chatterjee indicates that the "size-effect" problem may be important in his sample. Lubatkin (1987) finds that bidders in product concentric and vertical integration realize significant positive abnormal returns and no abnormal returns for bidders in conglomerate and horizontal/market concentric mergers.⁷⁷ Singh & Montgomery (1987) find zero abnormal returns for bidders in both related and unrelated mergers.⁷⁸ Related targets realize larger abnormal returns than unrelated target companies. Shelton (1985,1988) finds that business fit is important in creating value. Identical, related-complementary and related-supplementary acquisitions create value, while unrelated acquisitions provide no positive gains. Eckbo (1985) finds that

⁷⁷See supplement 3 for classification schemes.

⁷⁸The size effect problem seems to be large in this study.

bidders in horizontal mergers realize positive gains as opposed to bidders in vertical or conglomerate mergers. Morck, Shleifer, & Vishny (1990) find that neither related nor unrelated bidders realize abnormal returns in acquisitions. Finally, Seth (1990 a and b) find that total value created both in related and unrelated acquisitions is positive, that performance differences between related and unrelated diversification strategies depend upon the basis of classifying firms as following one or the other strategy (Seth 1990a) and that the major source of synergistic gains for unrelated acquisitions is linked to the coinsurance effect.

In sum, the empirical results we have indicate that M&As on average create positive gains for both bidders and targets.⁷⁹ Target company shareholders realize huge positive abnormal returns and seem to capture the lion's share of the gains, while bidders abnormal returns are more questionable. Bidders seem to realize positive abnormal returns in tender offers, while they realize zero or positive gains in mergers. Bidder returns have decreased the last years. Related M&As seem to create more value than unrelated mergers. Support for this can be found in Eckbo (1985), Allen & Sirmans (1987), Singh & Montgomery (1987) and Shelton (1988). The next section will discuss the distribution of gains between target and bidder firms in mergers and acquisitions.

⁷⁹One should be careful with such a conclusion. Some studies find significant positive abnormal returns for targets, but zero abnormal returns for bidders. The size-effect problem and the problem with partially anticipated events may here hit back the other way. It is possible that bidders who realize zero abnormal returns in the studies in reality realize significant negative abnormal returns (even though one has not been able to measure this in the studies). Such a negative return may therefore in dollar more than outweigh the positive abnormal return in dollar that the sellers realize. The total effect of those mergers may therefore be negative.

9.DISTRIBUTION OF GAINS

9.1. Competition in the market for corporate control

In section 7 above we saw that empirical results indicated that target shareholders captured the lion's share of gains from M&As. However, the results are complicated by size-effect problems and problems with partially anticipated events. A controversial issue is therefore whether competition in the market for corporate control drives bidder gains towards zero or whether measurement problems hide bidder gains.

Even though the market for corporate control is competitive, both bidding and target firms can realize positive abnormal returns. A competitive takeover market implies that the gains to the successful bidders are bounded by zero and the difference between the target's value to the successful bidder and the target's next highest value (Ruback 1983). In order for there to be a difference in value for the target between the successful bidder and competing bidders, there must exist some kind of "unique" or "specialized" resources.⁸⁰ If the target owns a unique resource, then no other firm in the industry is a close substitute for a particular target. If the gain stems from a specialized resource owned by the bidder, other potential bidders are not feasible substitutes for the actual acquirer. If there is substitutability among targets and bidders, one should expect that the returns to bidders will be positively related to the number of alternative targets available and negatively related to the number of potential bidders (James & Wier 1987).

In addition to specialized resources/unique synergies, other important factors that seem to affect the distribution of gains between bidder and target firms are: (a) method of payment, (b)

⁸⁰I will discuss the content of "unique" or "specialized" resources in chapter 3: theory development and hypothesis.

TABLE 3
REVIEW OF EMPIRICAL EVIDENCE FROM FINANCIAL ECONOMICS

Time 0 = announcement day
In parenthesis: (sample size, t-statistic)
d=days, m=months

| | Sample period | Event period | Abnormal return bidder(%) | Abnormal return seller(%) |
|-----------------------------|---------------|--|---------------------------|---------------------------|
| TENDER OFFERS: | | | | |
| USA: | | | | |
| Dodd & Ruback (1977) | 1958-78 | Offer announcem. month | 2.8(124,2.2) | 20.6(133,25.8) |
| Kummer & Hoffmeister (1978) | 1956-74 | "-" | 5.2(17,2.0) | 16.9(50,10.9) |
| Bradley (1980) | 1962-77 | -20,+20 d | 4.4(88,2.7) | 32.2(161,26.7) |
| Jarrell & Bradley (1980) | 1962-77 | -40,+20 d | 6.7(88,3.4) | 34.0(147,25.5) |
| Bradley, Desai & Kim (1983) | 1963-80 | -10,+20 d | -0.3(94,0.2) | 35.6(112,36.6) |
| Jarrell & Poulsen (1987) | 1980-85 | -10,+20 d | -0.04(159,-0.04) | ----- |
| Huang & Walkling (1987) | 1977-82 | -50,+50 d | ----- | 30.9(204,18.3) |
| Bradley, Desai & Kim (1988) | 1963-84 | 5 d before the first offer to 5 d after the last offer | 1.0(236,2.6) | 31.8(236,51) |
| Doukas & Travlos (1989) | 1975-83 | day 0 | 0.1(301,0.8) | |
| FRANCE: | | | | |
| Eckbo & Langohr (1988) | 1966-82 | offer announcem. week | -0.3(53,0.2) | 16.5(90,37.6) |

UK:

TABLE 3 - CONTINUED

| | Sample period | Event period | Abnormal return bidder (%) | Abnormal return seller (%) |
|----------------------------------|---------------|-------------------------|----------------------------|----------------------------|
| MERGERS: | | | | |
| USA: | | | | |
| Dodd (1980) | 1970-77 | -20,0 d | 0.8(60,0.7) | 21.8(71,11.9) |
| Asquith (1983) | 1962-76 | -19,0 d | 0.2(196,0.3) | 13.3(211,15.7) |
| Eckbo (1983) | 1963-78 | -20,+10 d | 1.6(102,1.5) | 14.1(57,7.0) |
| Asquith, Bruner & Mullins (1983) | 1963-79 | -20,0 d. | 3.5(170,5.3) | 20.5(35,9.5) |
| Malatesta (1983) | 1969-74 | Public announcem. month | 0.9(256,1.5) | 16.8(83,17.6) |
| Eckbo (1985) | | See table 4 | | |
| Eckbo & Wier (1985) | 1963-81 | -20,+10 d | 3.0(60,1.8) | 25.7(87,10.7) |
| Dennis & McConnell (1986) | 1962-80 | -6,+6 d | 3.2(90,3.9) | 13.7(76,2.5) |
| Allen & Sirmans (1987) | 1977-83 | -10,0 d. | 8.5(38,3.1) | ----- |
| CANADA: | | | | |
| Eckbo (1986) | 1964-84 | Public announcem date | 0.8(1138,3.0) | 3.6(413,6.9) |

Post merger/post tender offer studies: bidders' abnormal returns in the period after the announcement

CUMULATIVE ABNORMAL RETURN (%) FOR BIDDER FIRMS IN SUCCESSFUL TENDER OFFER CONTESTS

| | SAMPLE PERIOD | EVENT PERIOD | ABNORMAL RETURN BIDDERS(%) | Jarrell and Poulsen (1987) | | | | |
|------------------------|---------------|------------------------------|-------------------------------------|----------------------------|--|----------------|----------------|------------------|
| | | | | ----- | Sample period | 1960s | 1970s | 1980s |
| TENDER OFFERS: | | | | | | | | |
| Dodd & Ruback (1977) | 1958-78 | 0,+12 m | -1.3(124,-0.41) | | -10,+5 d (t-stat) | 4.40 (4.02) | 1.22 (2.12) | -1.10 (-1.54) |
| MERGERS: | | | | | | | | |
| USA: | | | | | | | | |
| Mandelker (1974) | 1941-62 | 0,+12 m after effective date | 0.6(241,0.3) | | -10,+20 d (t-stat) | 4.95 (3.52) | 2.21 (2.87) | -0.04 (-0.04) |
| Langtieg (1978) | 1929-69 | 0,+12 m after effective date | -6.6(149,-3.0) | | Number of observations | 106 | 140 | 159 |
| Asquith (1983) | 1962-76 | 0,+240 d | -7.2(196,-4.1) | Bradley,Desai & Kim (1988) | | | | |
| Malatesta (1983) | 1969-74 | 0,+12 m after approval | -2.9(121,-1.1) | ----- | Event period: five days before the first offer to five days after the last offer | | | |
| Loderer & Mauer (1986) | 1963-80 | +13,+25 m | -5.2(146,-3.1)*1 -1.1(105,0.3)*2 | | Sample period | 1963-1968 | 1968-1980 | 1981-1984 |
| CANADA: | | | | | | | | |
| Eckbo (1986) | 1964-83 | 0,+12 m | 1.0(1138,1.9) | | Total (236) (z-stat) | 4.09 (5.88) | 1.30 (1.58) | -2.93 (-2.61) |
| | | | | | Single bidders (163) (z-stat) | 4.62 (5.99) | 1.74 (2.04) | -1.08 (-1.14) |
| | | | | | Multiple bidder (73) (z-stat) | 1.62 (1.05) | 0.27 (0.22) | -5.10 (-2.87) |

*1 = Used a pre-merger benchmark
*2 = Used a post-merger benchmark

TABLE 5

EMPIRICAL EVIDENCE FROM STRATEGIC MANAGEMENT/FINANCIAL ECONOMICS THAT CLASSIFIES M&AS BASED ON CORPORATE STRATEGY DIMENSIONS

Day 0 = announcement day

In parenthesis: (sample size, t-statistic)

Chatterjee (1986)*1:

| | Abnormal return bidder (%) | Abnormal return seller (%) |
|--------------------------|----------------------------------|----------------------------------|
| Sample period: 1969-1972 | | |
| Event period: -2,+2 d | | |
| related, non-horizontal | 1.7(16,1.6) | 12.3(17,8.7) |
| unrelated | 2.1(9,1.3) | 17.5(13,10.9) |

Lubatkin (1987)*2:

| | Abnormal return bidder (%) | Abnormal return seller (%) |
|-------------------------------------|----------------------------------|----------------------------------|
| Sample period: 1948-1979 | | |
| Event period: -18,-1 months | | |
| Product concentric | 8.4(102,***) | 17.6(104,***) |
| Horizontal and market concentric | -1.9(56) | 16.5(65,***) |
| Conglomerate | 4.4(153) | 14.4(71,***) |
| Vertical integration | 12.5(39,**) | 27.7(36,***) |

TABLE 5 - CONTINUED

Singh & Montgomery (1987):

| | Abnormal return buyer (%) | Abnormal return seller (%) |
|--------------------------|---------------------------------|----------------------------------|
| Sample period: 1975-1980 | | |
| Event period: -5,+25 d | | |
| Related | -0.6(40,) | 35.9(40,***) |
| Unrelated | -1.9(37,) | 21.9(37,**) |

Shelton (1985,1988):

| | Total effects: |
|--------------------------|----------------|
| Sample period: 1962-1983 | |
| Event period: -1,+1 days | |
| Unrelated | -0.5(?,-0.7) |
| Related supplementary | 2.5(?,-2.19) |
| Related complementary | 1.7(?,-1.26) |
| Identical | 2.6(?,-1.71) |

Eckbo (1985):

| | Abnormal returns bidder (%) | Abnormal returns seller (%) |
|----------------------------|-----------------------------------|-----------------------------------|
| Sample period: 1963-1981 | | |
| Event period: -20,+10 days | | |
| Horizontal mergers: | 1.6(160,1.9) | 18.7(104,12.0) |
| Non-horizontal | | |

Morck, Shleifer & Vishny (1990)

| | Abnormal returns bidder (%) 1975-79 | Abnormal returns bidder (%) 1980-87 |
|-----------|--|--|
| Related | 1.54 (34) | 2.9 (57) |
| Unrelated | 0.2 (120) | -4.1 (115) |

takeover legislation, (c) takeover defenses and the phenomenon of (d) multiple bidding.

(a) Method of payment

Empirical evidence tends to support the hypothesis that target firms in cash tender offers outperform targets in security exchange offers (see Huang & Walkling 1987, Eckbo & Langohr 1989 and Eckbo, Maksimovic & Williams 1990).⁸¹ This difference in abnormal return for target firms in cash vs. security exchange offers may explain some of the difference in returns between tender offers and mergers as reported in section 7 above; Historically, tender offers have been associated with cash payments while mergers have been associated with stock payments. According to Eckbo & Langohr (1989) the difference in abnormal returns for targets in cash compared to security exchange transactions might often be attributed to information asymmetries between the bidder and the target. The intuition behind this is that cash is a costly medium of exchange since the bidder bears the full cost of overpaying for the target. In equilibrium, cash has the advantage of serving to "preempt" competition by signaling a high valuation for the target (Fishman 1989).

For acquiring firms Travlos (1987) finds that pure stock exchange bidders realize significant losses at the announcement of the takeover proposal as opposed to cash-financing bidding firms which show that their shareholders earn "normal" rates of return over the announcement period. Travlos argues that this is consistent with the signaling hypothesis a la (Myers & Majluf 1984) which implies that financing a takeover through exchange of common stock conveys the negative information that the

⁸¹Huang & Walkling find CARs of 29 % to targets in cash mergers/tender offers while only 14 % to targets in security exchange offers. Similarly, Eckbo & Langohr document a 28 % CAR in cash offers vs. only 5 % in stock exchange offers.

bidding firm is overvalued (See Eckbo, Giammarino & Heinkel 1987 for theoretical discussion). Furthermore, by using cash one can avoid a potential negative co-insurance effect that is associated with common stock financing (Lewellen 1971). Using cash may also increase value through reduced agency problems (see Jensen 1986). Finally, according to Fishman (1989) cash can be used as an instrument in making preemptive takeover bids.

To sum up, evidence indicates that both bidders and targets gain higher abnormal returns in cash offers than in stock offers.

(b) Takeover legislation

In July 1968 the Congress passed the Williams Amendment Act. The major provisions of this act are its disclosure requirements, its regulated minimum tender period and its antifraud provisions that give target management standing to sue for injunctive relief. In addition to the Williams Act important state tender offer legislation is often tougher on aspiring acquirers than the Williams Act.⁸²

The disclosure and delay requirements of takeover legislation is likely to increase the purchase price of target firms (takeover premiums) and to decrease return to acquiring firms. Empirical evidence based on US data (Jarrell & Bradley 1980, Schipper & Thompson 1983, Bradley, Desai & Kim 1988 and Nathan & O'Keefe 1989) and French data (Eckbo & Langohr 1988) tend to support such a hypothesis.

(c) Takeover defenses

The concept of takeover defenses includes all actions by managers to resist having their firms acquired.⁸³ Such resistance might

⁸²For detailed discussion of securities law aspects of corporate acquisitions, see Gilson (1986), Gilson & Kraakman (1989) and Karpoff & Malatesta (1990).

⁸³Common takeover defenses are staggered board elections, supermajority provisions, fair price amendments, poison pills, dual

often lead to higher offer prices in M&As. Poison pills and dual class recapitalizations seem to have the most severe influence on the takeover premiums. This potential increase in takeover price should be traded off against the fact that takeover defenses may lower the probability of the company being acquired. Furthermore, takeover defenses can affect the value of the firm even if it is not acquired.⁸⁴

(d) Multiple bidding

Conditions which foster an increase in multiple bidding tend to increase target premiums and reduce bidder returns. The factors discussed above (method of payment, takeover legislation and takeover defenses) will often affect the number of bidders in a takeover context.⁸⁵ Empirical evidence indicates that target companies realize significantly higher abnormal returns in multiple bidder situations (James & Wier 1987, Bradley, Desai & Kim 1988 and Michel & Shaked 1988). The same evidence indicates that acquiring company returns are reduced when there is strong competition among bidding firms (Jarrell & Pouslen 1989). However, as noted by Bradley, Desai & Kim (1988), this does not seem to be a zero sum game; In multiple bidder acquisitions the total

class recapitalizations, targeted repurchases (greenmail), standstill agreements, litigation by target management, acquisition/divestitures and liability restructuring, leveraged cash-outs, scorched earth, pac-man, white knights, disclosure of hidden values and change in state of incorporation. See Ruback (1988), Eckbo (1988), Jarrell, Brickley & Netter (1988), Jensen & Warner (1988), Jarrell & Poulsen (1987b), Gilson (1986), Gilson & Kraakman (1989) and Weston, Chung & Hoag (1990) for overviews of the most common takeover defenses.

⁸⁴ A potential negative effect is that the agency problem (management vs. shareholders) will increase. On the other hand, value might increase as managers stop wasting time and corporate resources worrying about a hostile takeover.

⁸⁵ Furthermore, the existence of multiple bids probably implies that specialized resources were found in the target firm and could be put to use by any bidder so as to increase their expected cash flow (Halpern 1983).

synergistic gains are larger. Thus, the targets in the multiple bidder situations realize greater gains not only at the expense of the acquiring firms shareholders but also from the greater synergistic gains that accompany these transactions.

9.2. The takeover process, auctions and distribution of gains

Current research on takeover bids emphasizes the study of the **process** through which acquisitions might be carried out and the **division** of gains between the various parties involved. Grossman & Hart show in their classic 1980 article that shareholders can "free ride" on the raider's improvement of the corporation, thereby seriously limiting the raider's profit. Dreyfus (1986) notes that the degree of competition taking place in the takeover market (based on various sources of gains) may interact nontrivially with the resolution of the free-rider problem discussed in Grossman & Hart (1980). The reason for this is that the target's reservation values may differ according to the source of gains accruing to bidders given a certain level of allowed dilution. Following this lead, Shleifer & Vishny (1986) analyze a model in which the presence of a large minority shareholder provides a partial solution to this free-rider problem. In their framework, a profit after the costs of a takeover can be realized through an increase in value of shares held by the large shareholder even though the shareholder does not, on average, profit from the additional shares purchased through the tender offer. Furthermore, Bagnoli & Lipman (1988) show that when there are a finite number of shareholders, some stockholders must be pivotal in the sense that they do recognize that they may affect the outcome of the bid. In their model, making some stockholders pivotal is crucial because it forces them to choose whether or not a bid succeeds. Hence, they cannot free-ride, so exclusionary devices such as dilution and two-tier offers are not necessary for successful takeovers.

Bradley, Desai & Kim (1988) analyze the tender offer process and show how bidding firms use front-end loaded two-tier offers⁸⁶ to solve the free-rider problem and argue that the highest valued allocation of the target resources will acquire control of the target. They also show how the potential for competing bids by target managers solves the prisoner's dilemma and ensures that successful tender offers will be value-increasing transactions for target stockholders. Furthermore, collective action on the part of target stockholders or arbitrageurs can also solve the prisoner's dilemma. Finally, fair-price statutes and fair-price amendments may be another solution to the prisoner's dilemma.

Takeover bidding contests are in many respects similar to English auctions.⁸⁷ Bidders submit successively higher bids until a high bid stands. One important difference between takeover bidding contests and English auctions, however, is related to the timing of the auction; while English auctions for art or real estate typically take place over periods as short as several minutes, takeover bidding contests can last for weeks or even months. The time factor involved in takeover contests allows potential bidders to search for information while the auction is under way.

Fishman (1988,1989), Khanna (1986) and Berkovitch & Khanna (1986) provide alternative models for takeover contests. Fishman (1988,1989) builds a model where the takeover bidding process is viewed within a context of asymmetric and costly information. He uses search costs to explain preemptive bidding in tender offers and shows that in equilibrium, a first bidder may make a high-premium initial offer to deter a second bidder from competing. A high initial bid signals a high first-bidder valuation, and it is this

⁸⁶Front-end loaded two tier offers are theoretically equivalent to dilution.

⁸⁷See McAfee & McMillan (1987) and Milgrom (1985,1987) for excellent surveys of the literature and theory of auctions. Milgrom & Weber (1982) is a classic article that covers many aspects of auctions.

information that deters a second bidder from competing. Khanna (1986) explains preemptive bidding through the sequential arrival of bidders, and also studies the effect of resistance by target firms. Based on his model he shows that preemptive bidding is an optimal strategy for the opening bidder. Moreover, expected returns to the winner decrease as the number of rival bidders goes up, while the level of the optimal preemptive bid increases with the number of bidders. Berkovitch & Khanna (1986) model tender offers as an auction where bidders arrive sequentially and payoffs are determined competitively. On the other hand, a merger is modelled as a sequential bargaining game between two managements.

The models briefly mentioned above, all build on the principle of independent, private valuation auctions. It is likely that different bidding firms have different synergy potentials in a takeover situation with a certain target. Of course, this is a matter of degree: some synergies are very general in the sense that most bidders can realize them. Other synergies may, however, be uniquely related to a certain bidder-target relationship. This issue will be further discussed in chapter 3 below. The models above analyze interesting issues connected to the takeover process. However, many interesting aspects are not discussed explicitly. For example, these articles ignore questions such as: Can certain synergies be realized by acquiring other companies? How close "substitutes" are alternative targets? Will one merger exhaust the synergy potential or is it possible that the synergy potential will exist for several takeovers? Is it reasonable to believe that the bidder or target can realize the synergy potential without integrating (for instance internal development)? Will new firms enter the industry such that closer substitutes for the bidder or target will be players in the game? Will the same synergy potential exist n periods from now? Is there an asymmetry in information between bidder and target when it comes to the synergy potentials that exist? Do different types of synergies imply a different degree of asymmetry of information? Do different types of synergies imply

different degree of asymmetry of information? In my view, the questions raised here highlight interesting issues that should be analyzed in a takeover contest. An understanding of these aspects may greatly improve the bidders ability to realize abnormal returns from an M&A transaction.

The winner's curse hypothesis can be related to corporate takeovers (Varaiya 1988, Giliberto & Varaya 1989). This hypothesis states that the winner of an auction tends to be the one who most overestimates the true value of the auctioned object. That is, the winning bidder has, on average, a value estimate which exceeds the true value of the auctioned object. One should, however, note that the winner's curse hypothesis assumes that the auctioned object has the same value to all prospective bidders. This implies that the winner's curse hypothesis may be valid in common value takeover auctions where bidders are expected to be able to realize the same synergies with the target.

III. THEORY DEVELOPMENT AND HYPOTHESES

1. INTRODUCTION

The main purpose of this chapter is to develop a model for strategic mergers and acquisitions. The model will be normative arguing that abnormal stockholder returns are more likely to be realized when choosing an efficient mode of organization that creates shareholder value through sustained competitive advantage. It will be focused on the relative advantages of market organization, hierarchy and solutions based on alliances. The interaction between types of synergy, mode of economic organization, financial markets and profitability is shown to be a key issue in the model. Interesting relationships between theories proposed in the corporate strategy area and in financial economics will be highlighted.

The chapter starts out by integrating perspectives from the strategy area (especially industrial organization economics and transaction cost theory). This is followed by the development of a model for strategic mergers and acquisitions. Value creation, takeover price and the link between strategy and finance are the key elements in the model. The model will then be linked to M&A types (horizontal, related, unrelated and vertical). To measure variations in value created by M&As, we need a classification system that can be used in the empirical testing. Based on such a classification system, hypotheses regarding expected effects of merger strategies are developed.

2. INTEGRATION OF PERSPECTIVES

I will mainly use two different perspectives in developing an M&A model: transaction costs theory and industrial organization economics. It is important to realize that these two perspectives, to a large extent, are complements rather than substitutes. The

perspectives have many common traits, but there are also important differences. Transaction costs theory as developed by Williamson (1975,1985), is driven by cost-minimization considerations. The major premise of this perspective is that firms transact by the mode which minimizes the sum of production and transaction costs. Industrial organization economics¹, on the other hand, emphasizes maximization of profits through improving the firm's competitive position vis- a-vis its rivals. Competitive strategy is the search for a favorable competitive position in an industry. Industry attractiveness is determined by five competitive forces: bargaining power of suppliers and buyers, threat of new entrants, threat of substitute products and rivalry among existing firms. Through their strategies firms can position themselves and often influence some of the five forces. A key issue is creating sustainable competitive advantage through positioning and generic strategies (cost leadership, differentiation and focus).² Since both perspectives address many of the same questions, it seems obvious that there is a need to coordinate the perspectives and identify situations where conflicts among them exist and then "tell a story" about how to solve the problem.

In general, transaction cost theory focuses on efficient boundaries based on minimization of production and transaction costs specific to a particular economic exchange. The analysis seems to be less dependent on competitive positioning and choice of product-market strategy. Cost efficiency is the central theme regardless of timing, entry barriers, collusion and strategic behavior. However, industrial organization economics analyzes efficient boundaries by

¹ I associate industrial organization economics especially with Porter's (1980,1985) work. This perspective also goes under the heading "positioning model".

² Cost leadership is a strategy based on creating competitive advantage through low costs, while differentiation strategy aims at performing some activities in the value chain uniquely such that a price premium that exceeds the cost of differentiating can be obtained. Focus strategies imply that firms concentrate on (a) certain segment(s) in the industry.

using profitability as a starting point. For instance, in some cases integration will be recommended based on a profitability assessment even though integration in the actual situation is not compatible with minimization of the sum of production and transaction costs. It can be the case that benefits from for example timing or overcoming entry barriers outweigh the cost disadvantage of extending the firm's boundaries. Put differently, one chooses a solution that does not minimize the sum of production and transaction costs because other factors outweigh the disadvantage of not doing this. In such conflicting cases one must address both perspectives simultaneously in order to come up with a reasonable solution. Actually, I will argue that transaction cost (TC) theory is largely encompassed (explicitly and implicitly) in the industrial organization economics (IOE) perspective both because cost efficiency is a major factor in the positioning model and because TC theory has important implications for the five determinants of the industry structure. Basically, one cannot use the positioning model without analyzing how TC theory affects for example entry barriers.³ Therefore, in my view, TC theory should be integrated into the positioning model to improve decisions about efficient boundaries.

First of all, choice of generic strategy (cost leadership, differentiation, focus) has important transaction cost implications. As noted by Jones & Butler (1988), a firm's decisions about product/market choices affect transaction costs. Specifically, they argue that differentiation strategy tends to increase transaction costs because the products are more complex and nonstandardized creating a need to reduce customers' performance ambiguity. Often the firm must incur asset-specific investments as more resources are devoted to maintaining customer-specific relations. One example here can be specialized sales teams. In general, when

³On the other hand, TC theory is often used more independently without addressing industry structure and competitive positioning. This might lead to wrong decisions because the emphasis is too narrow.

a firm differentiates by making complex product/market choices, the range and variety of its transactions with customers increase and, thus, transaction costs increase.

As mentioned above, TC theory also has important implications for the five determinants of the industry structure. Most **ENTRY BARRIERS** listed by Porter (1980,1985)⁴ tend to be affected by asset specificity. Consider the **economies of scale** entry barrier. This barrier depends critically on the presence or absence of sunk costs. Without sunk costs, entry and exit become essentially costless and the market is "contestable". Since asset specificity refers to the degree to which an asset can be redeployed to alternative uses without sacrifice of productive value, the element of sunk costs will be important when asset specificity is high. A firm that has made a transaction specific investment will face high exit barriers. Potential entrants, therefore, face strong expected retaliation. **Product differentiation** is another entry barrier which implies brand identification and customer loyalties. As noted earlier, product differentiation is closely related to asset specificity and transaction costs. A third barrier is **capital requirements**. This barrier is most effective when asset specificity and sunk costs exist. Asset specificity implies low exit opportunities because of low resale value. When information is imperfect, lending institutions have problems determining the creditworthiness of the borrower and will often be unable to monitor and control downstream actions of the borrower. **Switching costs** are also closely related to TC theory. In general, when asset specificity increases, switching costs tend to increase. A fifth entry barrier is **access to distribution channels**. High asset specificity tends to imply that wholesale and retail channels for a product are limited. If competitors have these channels tied

⁴Porter lists 8 different entry barriers: Economies of scale, product differentiation, capital requirements, switching costs, access to distribution channels, absolute cost advantages (proprietary learning curve, access to necessary inputs, proprietary low-cost product design), government policy, expected retaliation.

up, it will be harder to enter the channel. **Absolute cost advantages** also seem to be a more effective entry barrier in the case of high asset specificity; favorable access to raw material and favorable locations are closely related to site specificity.

Another main determinant of industry structure is **INTENSITY OF RIVALRY AMONG EXISTING COMPETITORS**.⁵ TC theory seems to affect this determinant too. **Differentiation** strategy and **switching costs** tend to distinguish the firm from competitors. The more unique the firm's strategic core, the easier it is to protect it from competitors. The rivalry will often be more intense when there are high **exit barriers**. One major source of exit barriers is asset specificity.

THREAT OF SUBSTITUTES is a third determinant of industry structure. Product differentiation and switching costs tend to affect the buyer's propensity to substitute.

Asset specificity also influences **BARGAINING POWER OF BUYERS**. When the goods or services are differentiated/non-standardized, there might be a lack of substitutes which lowers bargaining power of buyers. Furthermore, as asset specificity increases, switching costs increase and bargaining power is lowered.

BARGAINING POWER OF SUPPLIERS is a final determinant of industry structure. The factors increasing suppliers' bargaining power mirror those that make buyers powerful. The differentiation and switching costs buyers face tend to increase bargaining power for suppliers.

⁵Porter (1980) divides this component into 8 major factors: Numerous or equally balanced competitors, slow industry growth, high fixed or storage costs, lack of differentiation or switching costs, capacity augmented in large increments, diverse competitors, high strategic stakes and high exit barriers.

As we can see from the analysis above, transaction cost theory has important implications for all five determinants of industry structure. Even though Porter only sporadically mentions asset specificity, a lot of his discussions on industry structure implicitly assume that such investments are done. Put differently, most of the specified determinants of industry structure must be evaluated according to sunk costs, transaction costs and imperfect information.⁶ The identification of how these two underlying factors affect the determinants is important for choosing successful strategies to exploit market failures.

There are many elements in Porter's industry structure analysis that are not mentioned in transaction costs theory. Among the most important are market foreclosure, property rights, learning curves, timing (first-mover advantages), governmental regulation/subsidies, market growth, capacity utilization/fixed costs, "rules of the game" for the industry, market concentration, price sensitivity, product importance for the buyer and buyers' information, signaling and multipoint competitors. Even though some of these elements may be influenced by transaction costs, several of them are unique to the IOE perspective. In my view, one should therefore use TC theory as an integrated part of the broader approach presented in industrial organization economics. In boundary decisions, for example, first-mover advantages may play a decisive part. First movers often reap sustainable cost or differentiation advantages. Important first mover advantages include: rapidly building reputation, preemptive positioning, unique channel access, learning curves, securing patents, definition of standards and switching costs. Many of these advantages focus on how to create income streams that would not be generated unless the firm moves quickly. For instance, if the firm does not already have a position in a strong network such that it has to invest much time in building such a position, M&As might

⁶Sunk costs, transaction costs and imperfect information seem to be the two most important factors of market failure.

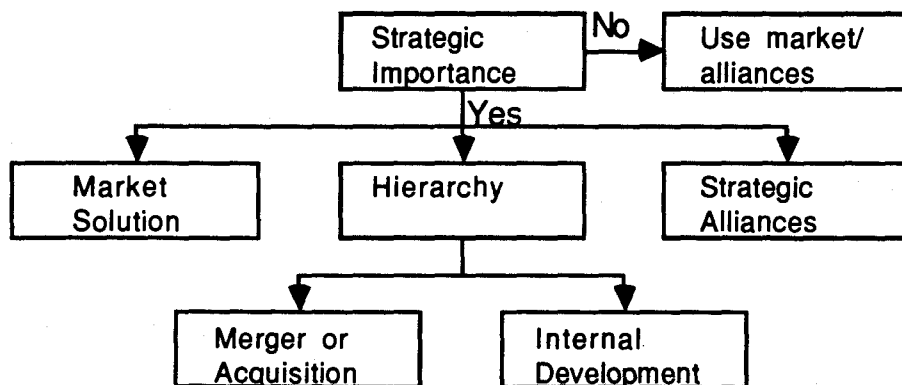
be a more viable strategy. This implies that M&As can be preferred to alliances even though integration implies higher total costs (sum of production and transaction costs).

3. TOWARD A MODEL FOR MERGERS AND ACQUISITIONS

3.1. Value creation, strategic core and efficient boundaries

The aim of this section is to analyze how value can be created through M&As. It will focus on creation of total value from integration.⁷ As we will see later, the concepts of strategic core and efficient boundaries will be key elements in the model.

The goal of the model is to provide some guidance for how to make decisions about efficient firm boundaries. Should the firm make the product itself, buy/sell spot in the market or rely on some kind of alliance? Before making a decision to integrate, one must evaluate the relative advantages/disadvantages of M&As, internal developments, market solutions and strategic alliances. The problem can be illustrated like this:



⁷The distribution of gains as implied from the functioning of financial markets will be discussed under section 3.2. below.

Following the criterion of max stockholder value, the rule should be: merge or acquire only if $M\&A > \text{Max}$ (market, strategic alliances, internal development). Building on this conceptual starting point, we need to identify specific determinants of efficient organization. What are the main factors explaining revenue, cost, risk and investment outlay differences among different forms of organization? How can value be created? What is the role of strategic core ("uniqueness", "distinctive competence", etc) and how is it defined? Economies of scale and scope often explain joint production, but when should such joint production be organized within a single firm?

These are some of the most fundamental and important questions in strategic management. Much research is currently being done in the area, but many questions are unsolved. By inspecting the figure presented above, one sees that boundary decisions are complex and rest on interdependencies between the different forms of economic organization: M&As cannot be analyzed properly without evaluating market solution, strategic alliances and internal development. A decision to rely on strategic alliances should not be made before having analyzed M&As, market solution and internal development, etc. One has to determine what are the opportunity costs. What is the best alternative? It is reasonable to believe that boundary decisions will be improved by using an approach based on the above framework.

As discussed previously in this study, important rational motives for integration may be accounted to synergy, reduced transaction costs, market power and diversification effects. The key issue is how to realize value creation through efficient organization. I will present a general framework here. Under section 3.3. below this framework will be seen in light of different types of M&As (horizontal, related, unrelated and vertical).

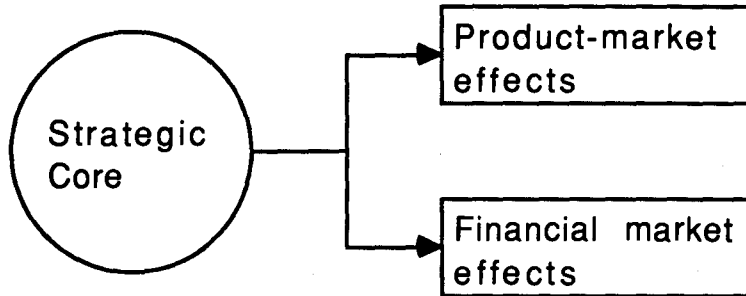
According to Arrow (1974), organizations are a means of achieving

the benefits of collective actions in situations in which the price system fails. My starting point is that a low level of integration is preferable until proven otherwise. This assumption is consistent with the fundamental premise of transaction costs analysis that hierarchy should only be chosen in cases where frequency and asset specificity are high. According to economic theory, economic pressures drive parties to perform effectively at a low cost and to deal with each other in "fairness and good faith" - otherwise they will be replaced. However, when one or both of the parties invest in transaction specific assets, the competitive pressure will be low, ex post, because the parties now are in a bilateral bargaining relationship. The bargaining power strongly depends on degree of asset specificity: high asset specificity indicates a large sacrifice of productive value if the exchange relationship is prematurely terminated and therefore restricts the parties' exit possibilities. In the vein of Williamson (1975,1985) and Klein, Crawford & Alchian (1978), highly specialized assets lead to bilateral monopoly situations and therefore possibilities for opportunism and appropriation of quasi rents: the partner may in an uncertain world extract new contract terms, become inflexible and otherwise violate the letter and spirit of agreement. When asset specificity is high and these assets are very valuable, integration is thought to be the solution. As discussed earlier in this study, strategic alliances are most important when asset specificity is medium. In such cases alliance partners can realize economies of scale and scope because of aggregation of production, and the firm avoids large bureaucratic costs. The firm can thereby concentrate on its strategic core and create competitive advantage through efficient organization. The stronger the strategic alliances are, the lower the expected level of integration. The reason for this is that the stronger the exchange relationship among two partners is, the larger is the reduction of expected transaction costs. Using the language of strategic management, one can say that strong alliances may increase the firm's competitive advantage by allowing the firm to concentrate on its "core skills", "distinctive competence" or "strategic core".

A very interesting outcome of transaction cost theory, is the concept of "strategic core". Williamson established the link between transaction specific investments and integration. Strategic core is what a firm should focus on to create sustainable competitive advantage. Strategic core often forms the basis of abnormal returns and distinguishes the firm from other firms. This implies that in most cases strategic core is highly specific. Following Williamson's lead, the strategic core should therefore be within the firm's boundaries (hierarchy). If a firm wants to merge with or acquire another firm, it is often because the exchange relationship is highly specific. This can be the case if the firm wants to transfer the use of its strategic core to other companies or applications. Low or medium specific exchange relationships seem to be more efficiently handled by relying on markets or strategic alliances.

Since the **strategic core** of a firm has an important impact on efficient boundaries, the concept should be carefully defined and specified.⁸ I define strategic core as highly specific assets that provide the foundation of a sustainable competitive advantage for the firm. Unless there is an advantage over competitors that is not easily duplicated or countered, long term profitability is likely to be elusive. The strategic core consists of production factors that help the firm compete and realize abnormal returns. In many ways one can say that without a strategic core, there is no obvious reason for the firm to exist. Strategic core has important effects on both product- markets and financial markets:

⁸Interesting discussions of the concept of strategic core and its identification can be found in f.ex. Wells (1984), Day & Wensley (1988), Irvin & Michaels (1989) and Reve (1990). See also relevant market failure literature discussed above (Lippman & Rumelt 1982, Yao 1988, Reed & DeFillipi 1990 and Nayyar 1990)



The product-market effects refer to the firm's ability to extract rent from the industry in which it operates. The strategic core will also have important financial markets effects in an M&A context. This section (3.1) will focus on the product-market implications. In section 3.2 a central theme is to analyze how the strategic core affects the profitability for bidders and targets in mergers and acquisitions (financial market effects).

The "core"-concept can be further elaborated by analyzing the underlying factors that create the strategic core: (A) "Internal factors" (physical asset specificity, human asset specificity, site specificity, dedicated assets, image and reputation)⁹ and (B) "External factors" (strong external alliances).

Physical asset specificity refers to assets such as equipment, machinery and processes that are specific to the transaction. Several examples of physical asset specificity are provided in the literature, f.ex. Klein, Crawford and Alchian's (1978) classical stamping machine example (the ownership by automobile-producing companies of the giant presses used for stamping body parts). Production processes and machinery can lead to cost advantages, but the sustainability is inversely related to the competitors' ability to imitate the technologies. In a weak appropriability regime, low-cost imitator manufacturers may end up capturing all of the profits from an innovation (Teece 1987).

⁹The four first factors correspond to Williamson's (1985) determinants of asset specificity. TC theory therefore has direct implications for the application of the strategic core concept.

However, even in a weak appropriability regime, there may exist technological advantages due to first mover advantages (learning curve, etc.).

Human asset specificity is often the most important factor when defining a firm's strategic core. Core skills can be:

- (1) - Specific know-how in any value chain activity
- (2) - Organizational structures and systems
- (3) - Organizational culture.

Skill-based competitive advantages often take a long time to develop, but generally have significant impact on economic performance and are difficult for competitors to replicate.

Examples of skill-based strategic cores:¹⁰

| <i>Company:</i> | <i>Core skills:</i> |
|-----------------|---|
| Marriott Hotels | Consistent high-quality service |
| Wal-Mart | Purchasing, logistics and customer service |
| McDonald's | Site selection, high-quality service, product innovation, communications |
| VF Corporation | Manufacturing, operations/planning and disciplined product line development |

(1) - *Specific know-how in any value chain activity.* According to Winter (1987) there are four important dimensions of knowledge/competence: tacit/articulate, not observable in use/observable in use, complex/simple and an element of a system/independent. Tacit knowledge is knowledge that is extremely difficult to communicate from its possessor to another person in symbolic form. When the knowledge is not observable in use, it is difficult for outside actors to discover the underlying knowledge. The knowledge is complex when the amount of information required to characterize the knowledge in question is

¹⁰Source: Irvin & Michaels (1989)

high. Finally, the knowledge might be just an element of a much larger knowledge set. Strategic cores based on tacit, complex, non-observable, or "an element of a system"-type of knowledge are likely to have the largest impact on competitive advantage because these dimensions tend to imply high specificity and causal ambiguity.

Knowledge is often tacit or has a learning-by-doing character. In a setting with team production this type of knowledge becomes even more important. In team production, several types of resources are used. The output yielded by a team is not the sum of separable outputs of each of its members, and it is often difficult to determine each individual's contributions to the value creation process. The knowledge and organizational routines that are used in team production are often tacit, complex and difficult to specify. Put differently, complete productive knowledge of a firm may not be known to any single member of the firm and is unlikely to be codified in any useful way within the firm. Much of what is going on in the firm is "learned" through experimentation and remembered by being incorporated in corporate culture and organizational routines. Such lack of codified production knowledge makes outside imitation difficult.

(2) - *Organizational structures and systems.* Organizational structures are important in carrying out a chosen strategy. The aim of these structures is to increase profitability by increasing efficiency and/or reducing the complexity of administrative and managerial tasks. Organizational systems provide information, planning, control and rewards to get the job done. Organizational structures and systems may create a competitive advantage for firms. There exists a large literature on these and related topics. For some nice overviews of organizational structures and systems, see Galbraith (1973), Kaplan (1982), Hrebiniak & Joyce (1984), Porter (1985:Chap. 9-11) and Hill & Hoskisson (1987).

(3) - *Organizational culture*. Corporate culture may also be a source of sustainable profits (Barney 1986a). As in the case of tacit knowledge, culture is an important element of production and may be most difficult for any individual to describe or "know". Thus, culture is inherently difficult to imitate and may permit a firm to earn a stream of excess profits. Firms without valuable, rare, or imperfectly imitable culture cannot expect their cultures to be the source of sustained competitive advantages.

Site specificity may create competitive advantage owing to asset immobility conditions. Good locations can attract customers or reduce costs of production. Location of production facilities, access to raw materials and closeness to markets are often a basis for abnormal returns.

Another core factor can be **dedicated assets**. Dedicated assets are investments by a supplier that would not otherwise be made for the prospect of selling a significant amount of a product to a particular customer. One example is preparation of bidding packages in construction (Reve 1990)

Image/reputation (e.g., Weigelt & Camerer 1988 and Nayyar 1990) is a key factor in competition. This factor departs from the "internal focus" on a firm's resources and adopts a more "external focus" on how a firm's products are perceived by the environment. Reputation is especially important for goods or services for which quality cannot be physically ascertained before purchase and when after-sales service from the supplier is important. Because image/goodwill are maintained through the buyer's experience, consistency of product/service quality are critical for any reputation-based strategy. Reputation may be an important source of competitive advantage. In many cases reputation can be applied in related areas by adding new product lines or acquiring related firms and transferring the reputation from the buying to the selling company. One important type of reputation is brand name. Brand name capital creates control problems because it is

especially subject to degradation. Control problems are easily created whenever one party can free ride on the efforts of others, receiving benefits without bearing costs.

Finally, **strong external alliances** may be a core factor for many firms. Distinctive alliances with buyers, suppliers, regulatory agents and sometimes existing and potential rivals, may lead to more efficient organization than other firms. If the firm is able to build and maintain alliances better than its competitors, this might be a strategic core for the firm. Sometimes these alliances can be used in other related areas such that abnormal returns increase by expansion.

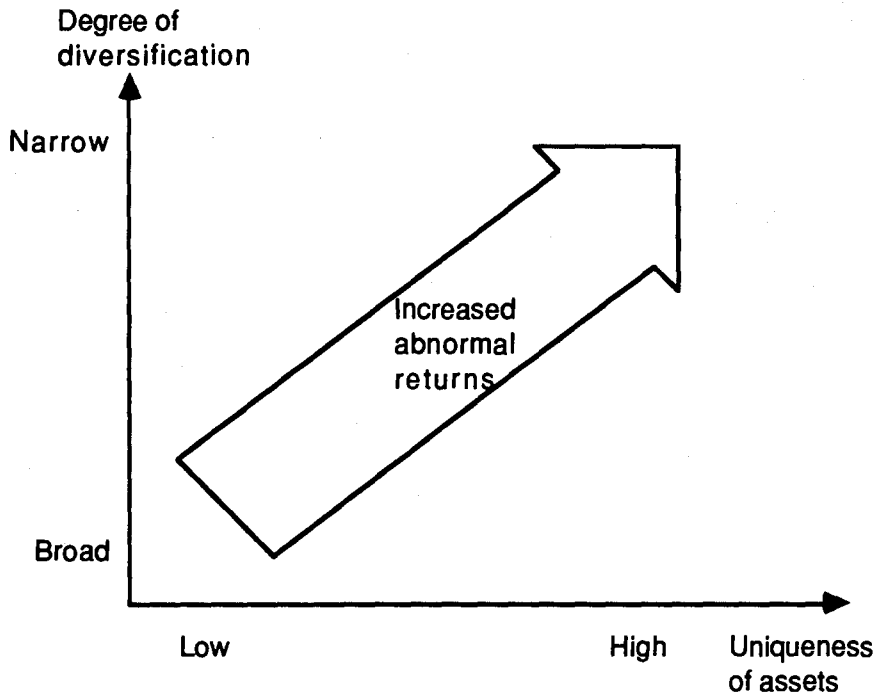
In addition to abnormal returns stemming from a firm's strategic core, interfirm differences in profitability may also be explained by **uncertain imitability** as discussed by Lippman & Rumelt (1982) and Rumelt (1984). Uncertain imitability exists because of uncertainty in the creation of new production functions and acts as an entry barrier. This uncertainty exists because there is ambiguity as to what the factors of production actually are and how they interact. Put differently, the precise reasons for success and failure cannot be determined since it is difficult to know to which inputs to attribute the performance of a successful firm. It should also be noted that there seems to be a close relationship between strategic core and ambiguity. For instance, specific knowledge and corporate culture are often tacit, complex and difficult to specify. Furthermore, many products and processes are unstructured and poorly-understood. Such core skills and assets often tend to be correlated with high ambiguity.

As indicated earlier, differentiation strategy (Porter 1980,1985) is closely related to asset specificity and transactions costs. Differentiation strategies often involve high product quality, advanced features and high levels of service which demand investment in specialized skills and assets as well as continuous change. On the other hand, cost-based strategies often rest on low

factor costs, economies of scale and large initial capital investment (Porter 1990). This implies that a differentiation strategy often creates a more sustainable advantage than those based on cost-based strategies.

Having identified determinants of the strategic core, I now turn to the implications. As discussed earlier, strategic cores are highly specific and should be governed internally (hierarchy), while less specific activities should be governed via strategic alliances or markets. The concept of strategic core has very important implications for M&As.¹¹ Assume that there exists excess capacity in the firm's core factor. Excess capacity means that there is a fixed factor that is not fully utilized or that there exist, what I will call, "public good synergies". Some assets in the firm do not have any upper capacity limits for transfer. This is the case if the underlying factor is intangible. Important examples are transfer of brand name, image, reputation or alliance relationships. The marginal cost of transferring such public good assets is, per definition, less than the average costs of retaining those assets for the firm. When there are possibilities for transfer of the strategic core to related areas in order to realize synergy effects, interesting relationships between degree of diversification, strategic core and transaction cost theory must be analyzed. Strategic core, which yields positive abnormal returns, implies high asset specificity/uniqueness and only potential for narrow diversification. Wider diversification, on the other hand, indicates less specific factors that normally create fewer possibilities for competitive advantage. A given strategic core will lose more value when it is transferred to markets which are distant to the original market where the firm built its core skills. Put differently, abnormal returns will decrease as the firm moves away from its current scope. This phenomenon can be illustrated like this:

¹¹The discussion under this section (3.1) will be general. Under section 3.3. this general theory will be applied to different merger types.



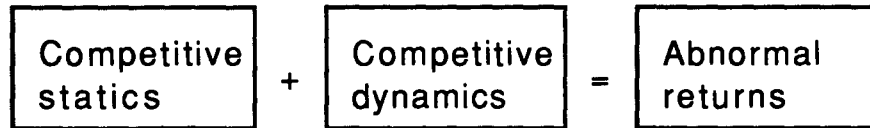
The figure above shows expected abnormal returns from related M&As. If the firm has excess capacity, it should first diversify to the closest market compared to its current business. If the firm still has excess capacity, it should go on to the second closest market. This should continue until the marginal rents become negative.¹²

In sum, the level of abnormal returns stemming from competitive advantage tend to be inversely related to the degree of diversification. The wider the degree of diversification, the less the level of abnormal returns.

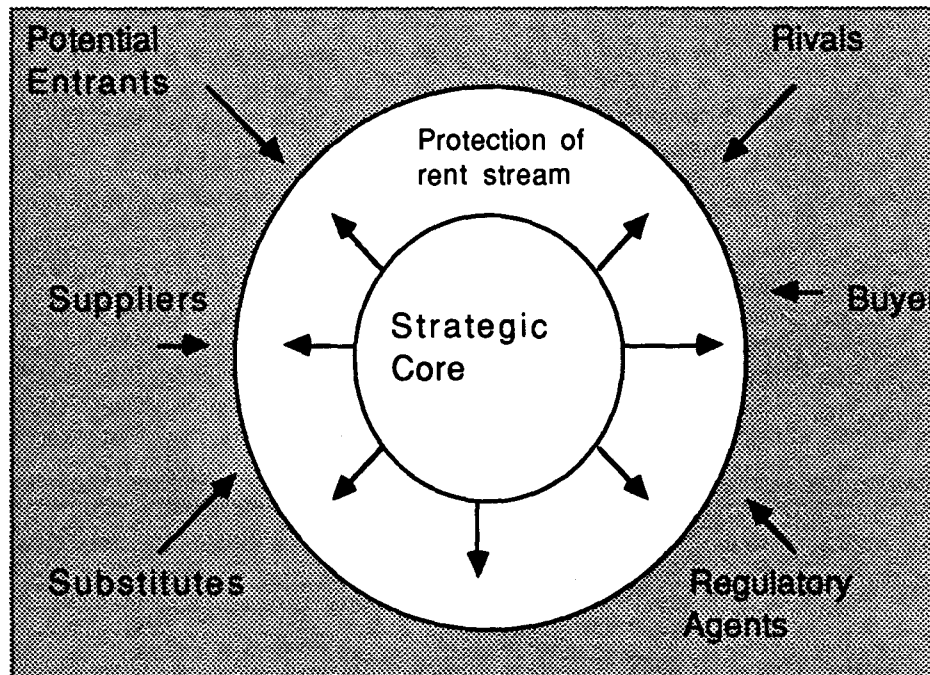
The **sustainability** of competitive advantage is closely related to the concept of strategic core. Sustainability hinges on how easily unique assets can be replicated by competitors. If certain assets cannot be bought in factor markets, rivals may either attempt to imitate them by accumulating similar assets or substitute them by

¹²To be correct one must also take into consideration takeover premiums and competitive bidding in financial markets if integration is the chosen mode of entry.

other assets (Dierickx & Cool 1989). A general theme in corporate strategy is that a firm should implement strategies that cannot be duplicated by rivals. The firm's ability to realize abnormal returns is a function of competitive statics and dynamics:



In such a setting, the concept of strategic core seems to play a vital role. As already discussed above, transaction costs theory (and thereby strategic core) seems to have an important impact on industry structure (see section 2 above). Strategic core increases entry barriers (economies of scale, product differentiation, capital requirements, switching costs, access to distribution channels and absolute cost advantages). It also has important impact on intensity of rivalry among existing competitors, threat of substitutes and on bargaining power of buyers and suppliers. The situation can be illustrated like this:



Physical asset specificity, human asset specificity, site specificity, dedicated assets, image/reputation and strong external alliances are determinants that define the strategic core and are highly specific. Since these underlying factors are also major determinants of the industry structure, a strong strategic core tends to provide sustainable competitive advantage by facilitating the firm's ability to get a strong position in the industry.

Since the basis for creating sustainable competitive advantage changes continuously, the firm must at any time be willing to adapt to the changing conditions. The strategic core should be looked upon as a dynamic concept which should be redefined as the environment evolves. Innovations, change in market demand and competitor attacks are important examples of factors that may affect the firm's ability to realize abnormal returns.

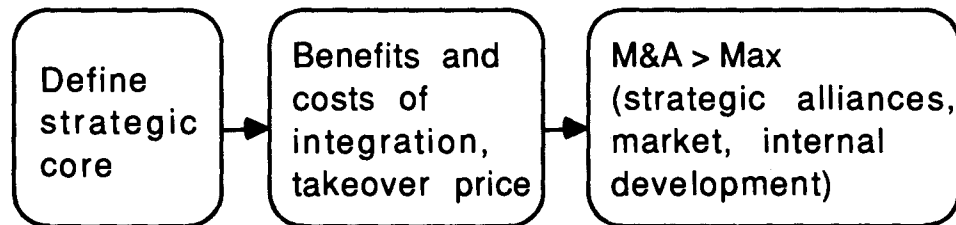
The concept of strategic core provides the foundation for **efficient boundaries** of firms. The firm exists because of its strategic core. Core skills should be governed internally because of their highly specific nature. If a firm forms alliances in their core business, it runs the risk of high transaction costs. The alliance partner may, for example, be able to capture much of the core skills and thereby become a formidable competitor in the future. If the firm has excess capacity in its strategic core, it may be a viable strategy to extend firm boundaries. The basic question is what's the best way of transferring unique resources. In an M&A context, at least four conditions must be fulfilled before one can justify integration: (1) there must be a potential for net positive synergy effects, (2) transaction costs must prevent an efficient market in relevant factors, (3) there need to be limits on obtaining increased factor utilization by expanding the output of any single product and (4) the value creation gains must exceed the takeover premium.

Transactions of medium asset specificity should be governed through strategic alliances. This tends to be more efficient than

hierarchy because outside producers aggregate production and thereby realize synergy effects. In addition, the firm avoids bureaucratic costs that often increase geometrically with the degree of integration. Hierarchy provides an advantage when it comes to transaction costs. However, strong alliances based on trust and mutual benefits may, in the case of medium asset specificity, be an efficient organizational mode for handling such costs.

Transactions of low asset specificity should be governed outside the firm's boundaries. The market ensures efficient production, and the firm avoids increased bureaucratic costs from high degree of integration.

To sum up section 3.1., the acquisition process should be approached like this:



One should first define the firms core skills. Based on this, one has to evaluate the benefits and costs of integration, and the investment must be analyzed in the light of the effects of financial markets (distribution of gains). Before M&A is chosen it must be compared to alternative modes of economic organization/entry (strategic alliances, market, internal development).

3.2. Takeover price and synergies

As pointed out above, the concept of strategic core has important effects on both product-markets and financial markets. The issue

in this section is to highlight how the strategic core affects the distribution of gains between bidders and targets in a takeover contest. Based on a sample of 681 takeovers in the 1963-85 period, Nathan & O'Keefe (1989) find that takeover premiums have approximately doubled from the period 1963-73 to 1974-85. The mean cash tender offer takeover premium rose from 41 % to 75 %, the mean cash merger premium rose from 29% to 70 % and the mean stock merger premium rose from 32 % to 67 %.¹³ Moreover, Bradley, Desai & Kim (1988) document that returns to stockholders of acquiring firms have decreased over time. The mean abnormal return to acquiring firms is 4.1 % (Z=5.9) in 1963- 68, 1.3 % (Z=1.5) in 1968-80 and -2.9 % (Z=2.8) in 1981-84. Possible explanations for this development might be takeover regulation, aggressive investment bankers and the development of junk bond markets. It goes without saying that the premiums observed during the last decade represent a big barrier for bidding firms.¹⁴ Assume a situation where A acquires B. Assume that B's pre-offer value is 100, that the takeover premium is 60 % and that the implementation period¹⁵ is two years. Furthermore, assume that the discount rate is 10 % and let the takeover gains (net present value of future gains at the end of the implementation period) be denoted X. The break-even takeover gains in this example are:

$$60 = X/(1.1)^2 \Rightarrow X = 93.6$$

Required break-even takeover gains increase with takeover

¹³Supplement 4 provides a detailed overview of takeover premiums for 681 successful offers in the period 1963-85.

¹⁴One should, however, remember the measurement problem associated with the empirical studies we have in this area. Partial anticipation and size- effect problems might to some extent hide abnormal returns for bidders.

¹⁵I define the implementation period as the period from when the offer is accepted (payment) to when net positive synergies start becoming realized. In practice it seems that corporate restructurings take a long time to implement, which postpone the realization of takeover gains.

premiums and the length of the implementation period.¹⁶ The problem presented above can in general be described as:

$$TP = \frac{VC}{(1+d)^{IH}}$$

where

TP = Takeover premium

VC = Net present value of takeover gains at the end of the implementation period

d = discount rate

IH = Implementation horizon (years)

This formula may be used when choosing among various ways of organizing economic activity (M&As, internal development, strategic alliances and market).¹⁷ For example, strategic alliances might be a more profitable strategy even though VC is higher in a takeover than in a solution based on alliances. This might be the case because of high takeover premiums (TP) or that takeover is more risky (higher d). On the other hand, takeover might be a quicker way of realizing value gains (reducing IH). Assuming that the acquiring firm has the ability to choose its efficient boundaries, it must be able to understand the bases for realizing abnormal returns. In an M&A setting bidder gains are, as we saw in the discussion above, a function of value creation and takeover premium:¹⁸

$$\text{Bidder gains} = f(\text{value creation, takeover premium})$$

Bringing this a step further, value creation is a function of

¹⁶ Supplement 5 gives an overview based on the example above using various combinations of takeover premiums and implementation horizons.

¹⁷ In the case of internal development or strategic alliances, TP should be changed to IO (IO = Investment Outlay).

¹⁸ The following discussion abstracts from differences in implementation horizon among the different modes of economic organization.

competitive statics and dynamics (see section 3.1. above):

$$\text{Value creation} = f(\text{competitive statics, competitive dynamics})$$

Furthermore, takeover premiums seem to be a function of several factors:

Takeover premium =

f(unique synergies and industry structure, method of payment takeover legislation, takeover defenses, free-rider problem and fraction of shares bought, preemptive bidding, timing, business cycles, agency problems, hubris, capital requirements)

Method of payment may affect takeover premiums because of information asymmetries (Eckbo & Langohr 1988, Fishman 1989). **Takeover legislation** contains disclosure and delay requirements which are likely to increase the purchase price of target firms. **Takeover defenses** often tend to increase offer prices (especially poison pills and dual class recapitalizations). The takeover process itself also has important implications for takeover premiums. According to Grossman & Hart (1980) shareholders can **free ride** on the raider's improvement of the corporation; that is if incumbent shareholders understand the improvement plan, they have incentives to stay on unless they at least get the value of the improvement in return for their shares. This free rider problem can be solved by using front-end loaded offers (Bradley, Desai & Kim 1988) in which the offer price is greater than the expected postoffer price. According to Fishman (1988,1989), high bids (and thereby high takeover premiums) can signal a high valuation of the target and thus serve to **preempt** competition. **Timing** can be important since it is often decisive when it comes to number of potential bidders, their potential for realizing synergies, etc. (see f.ex. Khanna 1984). Takeover premiums can also be affected by **agency problems**. Managers may acquire firms even though they, ex ante, do not expect positive abnormal returns from the investment. This seems especially to be the case when the

corporation has a lot of free cash flow (Jensen 1986,1988,1989 a and b). Managers also run the risk of overbidding (**hubris**), Roll (1986,1987). Even if they intend to make profit on the transaction, the winner of a takeover contest is often the loser because he pays too much.¹⁹ Access to funds for takeovers may also be an important determinant of takeover premiums. The junk bond market has had a significant impact on the takeover market. A final determinant of takeover premiums that I have identified, are **unique synergies**. I will spend much time on this factor since it is closely related to the major theme of this study: mergers and acquisitions in a corporate strategy perspective.

As noted by Barney (1986b,1988,1989), relatedness among a bidder and a target is not a sufficient condition for acquiring firms to realize positive abnormal returns. Put differently, even though big synergy potentials obviously exist, the required takeover premium may be so high that the target captures most of the gains. This result is closely related to the concept of "strategic factor markets" introduced in Barney (1986b). The basic notion behind this concept is that when the cost of resource acquisition equals the value created by implementing a strategy, this strategy generates only normal returns even if it successfully creates imperfect competition in product- markets. A key issue is therefore to identify situations where bidders are also expected to profit from a takeover, that is when the cost of resource acquisition (takeover premium) is less than the value created by the merger.

I will divide synergies into two types: (1) general synergies and (2) specific synergies. **General synergies** are synergies that can be realized by many firms. Synergies are general in the sense that no firm has a sustainable advantage in realizing these synergies, and that several firms are able to realize the same dollar amount of

¹⁹This assumes that there are significant common value elements associated with the target.

synergy potential. A bidder who wants to acquire a company based on general synergies, is not expected to realize positive abnormal returns from the transaction. Even though the synergy potential is large, such synergies are likely to be bid away since many bidders can realize the same synergies. These bidders will enter into a competitive bidding which will drive the takeover price upwards until the abnormal returns for the bidders on the margin become negative. In such a case, the abnormal returns are distributed to the shareholders of the target firm. It can be argued that if one bidder at the outset has private information about the synergy potential, then he may realize positive abnormal returns. Such an argument is, however, very doubtful. First of all, takeover legislation requires that the bidder discloses information about the transaction. Moreover, there is a regulated minimum tender period where alternative bidders can collect information and analyze the target. If other bidders are/expect to be able to duplicate the synergies, they can enter a bidding which will tend to drive bidders' abnormal returns toward zero. The other bidders can also receive information from the target. There exist incentives for the target firm to inform potential bidders about the general synergy potentials in order to unfold competitive dynamics. And, in some cases, the target may be able to realize these synergies by itself. Therefore, as a general rule, bidders can only expect normal returns from M&As based on general synergies.

Specific synergies are synergies based on transfer of some elements of a firm's strategic core (see section 3.1. above). Synergies based on strategic core are highly specific and often provide a foundation of sustainable competitive advantage for the firm. Such synergies are not easily duplicated or countered by competitors because of uniqueness and since strategic core has important effects on entry barriers, rivalry, threat of substitutes and on bargaining power of buyers and suppliers that tend to improve the focal firm's position. Bidders who base their takeover decision on transfer of core factors seem, apriori, to be in a better

position to realize positive abnormal returns. Even if the market for corporate control is competitive, the bidder can realize positive abnormal returns in such a situation. If a certain bidder has a specific synergy potential which is larger than the synergy potential that any other bidder can realize, there is no strong substitutability among bidders. Assume that A has a synergy potential stemming from excess capacity in its strategic core which by definition is difficult to duplicate for other firms. If A can create larger value in a merger with C than any other bidder B, and A is building on its strategic core, one should expect A to have a higher probability of realizing an abnormal return than other bidders. Imperfections in the product-markets are not bid away even though the financial markets are efficient. Sustainable competitive advantage based on strategic core is not likely to be bid away in the takeover market as long as other firms' specific synergy potentials are smaller in dollar terms than the focal bidder's and as long as other mechanisms, such as overbidding by other bidders, are not dominating.

In general, one might say that if target firms own unique resources that generate larger dollar gains with potential bidders than any other targets, a competitive market for corporate control will result in the target capturing much of the gains. If the bidder transfers his core factors, one should expect the bidder to realize some of the gains if the dollar value of his synergy gains is bigger than the gains that competing bidders can realize. This proposition is consistent with the hypothesis that gains to bidders are positively related to the number of alternative target firms available and negatively related to the number of other bidders. James & Wier (1987) provide evidence supporting such a hypothesis.²⁰

There also seems to be an interesting relationship between the

²⁰Bradley, Desai & Kim 1988 and Michel & Shaked 1988 also find evidence indicating that target companies realize higher abnormal returns in multiple bidder situations.

concept of strategic core and preemptive bidding. Fishman (1988,1989) provides a model where high initial bids can signal high valuation and thus serve to preempt competition. In his model, bidders' costs of observing their own valuations of the target, C_i , is an essential factor. These costs are regarded as sunk when they are imposed. The initial bidder's expected payoff increases when competing bidders' costs of observing the target's value are increasing. In other words preemption becomes cheaper for bidder 1, and the target's equilibrium expected payoff decreases. Synergies based on a strategic core are often complex, difficult to describe and difficult to understand (eg., Barney 1986a). This situation tends to increase the costs of observing the target's value (C_i) and therefore increases the initial bidder's equilibrium expected payoff because preemption is cheaper.

As argued above, one should expect the bidder's share of the gains to be larger when the number of similar targets increases. Conversely, when the number of actual or potential bidders grows, a target can expect a rise in its share of the gains. Many bidders relative to the number of targets will increase the targets' reservation prices. This will happen because targets incorporate the possibilities of a competitive bidding among bidders which tend to result in higher takeover premiums. Based on my discussion of general and specific synergies, I will provide three general cases to highlight the issues: case (1) - several bidders, one target, case (2) - one bidder, several targets and case (3) - several bidders, several targets. In most real M&A situations there will exist elements of both specific and general synergy potentials. In the following cases I will assume that all firms are able to realize the same level of general synergies, while the firms have different levels of specific synergies. I will also assume that the market solution with no sharing represents the base case; synergies and costs that are created in M&As, internal development and alliances are evaluated relative to a solution based on market transactions.

Definition of variables:

- V_0 = Target value if there is no takeover. Assume that there exists no private information on V_0
- b_i = bidder i
- t_i = target i
- G = General synergies
- GS_i = Gross specific synergies company i
- CI_i = Increased bureaucratic costs as a result of higher level of integration for company i
- TCl_i = Change in transaction costs of transferring resources company i ^{2 1}
- S_i = Net specific synergies company i
- S_{iti} = Net specific synergies company i target i
- OB_i = Overbidding by bidder i
- B_i = Bid from acquirer i
- TP = Takeover premium
- VC = Value creation (net present value)
- i = 1,.....,n

Overbidding is the difference between takeover premium and value creation:

$$(1) OB = TP - VC$$

Value creation stems from specific and general synergies minus change in bureaucratic and transaction costs because of the transfer:

$$(2) VC = G + GS_i - CI_i - TCl_i$$

Net specific synergies company i is defined as:

$$(3) S_i = GS_i - CI_i - TCl_i,$$

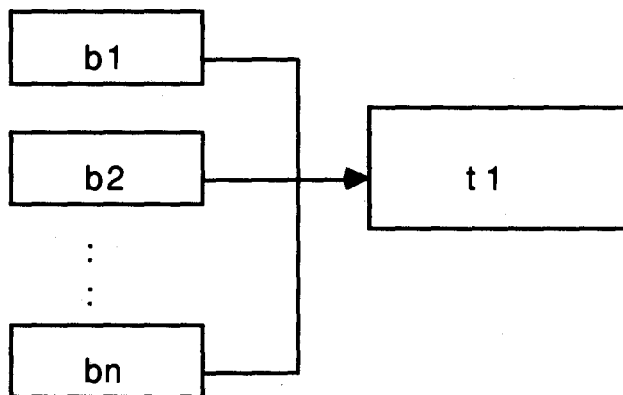
^{2 1}It is assumed that even though hierarchy is chosen, there will be a certain level of transaction costs associated with the internal transfer.

that is gross synergies minus increased bureaucratic costs and transaction costs as a result of the transfer. Value creation can therefore be rewritten:

$$(4) VC = G + S_i$$

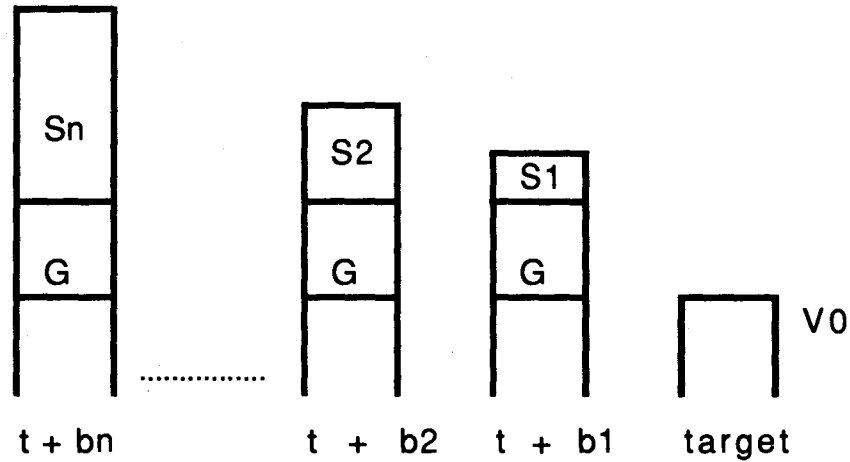
Case 1: Several bidders, one target

The situation can be illustrated like this:



Assuming that different firms can realize different levels of net specific synergies, the firms can be ranked in descending order depending on their value creation potential:²²

²²As showed in the diagrams, bidder n has the highest value creation potential followed by n-1, etc.



In order for bidder n (b_n) to be able to acquire the target, it must at least bid:

$$(5) B_n > \text{Max} (V_0 + G + S_1 + OB_1, \\ V_0 + G + S_2 + OB_2, \\ \vdots \\ V_0 + G + S_{n-1} + OB_{n-1})$$

Bidder b_n must at least pay as much as the next highest bid. At maximum b_n will pay $V_0 + G + S_n$ if he is able to avoid overbidding. The difference between the value created if b_n takes over the company compared to the next highest bid must somehow be distributed among b_n and the target. Formally this difference is:

$$(6) S_n - \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1})$$

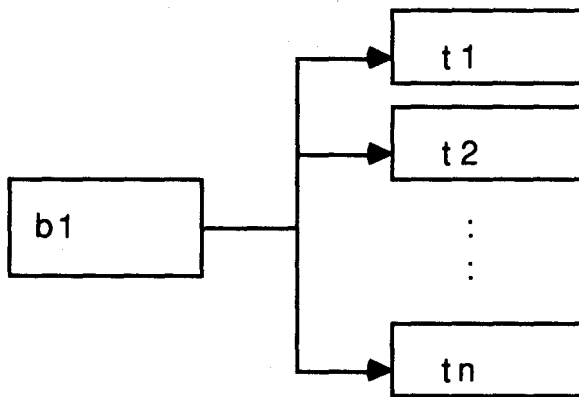
since V_0 and G are common for all companies. It is difficult to determine the distribution of this difference between the winning bidder and the target firm. This will be discussed in general after all the three cases have been presented.

It is interesting to note from the above example that even net specific synergies do not constitute a sufficient condition for a bidder to realize positive abnormal returns. If for example three

firms can realize the same level of net specific synergies,²³ it does not matter that firm 1 realizes synergies based on shared image/product reputation, that firm 2 realizes synergies based on economies of scope in specific machinery while firm 3 builds on the firm's corporate culture. What is important is not how specific synergies are realized, but the expected dollar level of the net synergy effects. Accordingly, in a situation with three bidders, which can realize say 100 in specific synergies, and one target, it is likely that these three firms will enter a competitive bidding process such that the lion's share of the gains goes to the target.

Case 2: One bidder, several targets

I will here assume that all targets are valued at V_0 and that no other bidder can realize specific synergies with any of the targets. Illustration of the situation:



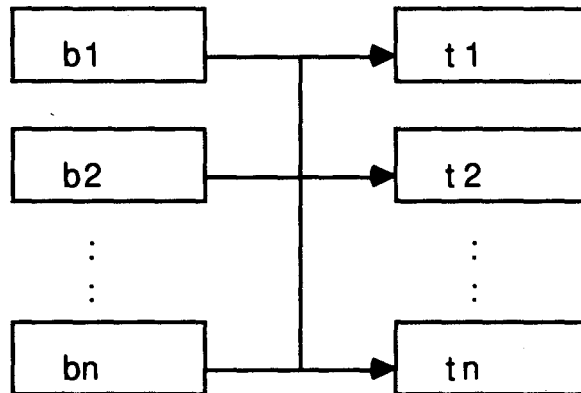
In such a case the bidder must at least pay $V_0 + G$.

Case 3: Several bidders, several targets

In the real world it is likely that there exist several actual and

²³For the moment I assume that overbidding does not take place.

potential bidders and targets with different degree of substitutability:



Consider bidder n's problem in such a situation: b_n is able to realize general and specific synergies with different targets. So are many other bidders. b_n 's strategy in such a case should not necessarily be to choose the target with whom it can realize the largest net specific synergies. Most likely, b_n 's optimal strategy is to find a target where the difference between b_n 's highest possible bid (zero abnormal return bid) and the next highest bid, is largest. Maximizing the difference rather than the absolute level of net synergies seems to be the most viable strategy. Put differently, b_n should look for a target with which the specific synergy potential relative to alternative bidders' synergy potential is maximized. This can be formalized as follows.

Optimal target for b_n is to choose t_i such that:

$$(7) \text{ Max } \{ [S_{nt1} - \max(S_{1t1} + OB_{1t1}, S_{2t1} + OB_{2t1}, \dots, S_{n-1t1} + OB_{n-1t1})], \\ [S_{nt2} - \max(S_{1t2} + OB_{1t2}, S_{2t2} + OB_{2t2}, \dots, S_{n-1t2} + OB_{n-1t2})], \\ \vdots \\ [S_{ntn} - \max(S_{1tn} + OB_{1tn}, S_{2tn} + OB_{2tn}, \dots, S_{n-1tn} + OB_{n-1tn})] \}$$

or equivalently:

$$\text{Max} \sum_{i=1}^n (S_{nti} - \max_{j=1}^{(n-1)} (S_{jti} + OB_{jti}))$$

In sum, the discussion above shows that synergies, per se, do not generate abnormal returns for bidding firms. Synergies must be specific and, in addition, generate dollar value in excess of other bidders' ability to realize specific synergies with the target. Only then is the bidder expected to realize abnormal positive returns. A bidder must therefore, in addition to understanding its own value creating ability in a takeover, have some understanding of the nature of synergy potentials between other bidding firms and targets [see formula (7)].

The final distribution of gains between the winning bidder and the target is a very complex issue. Assume that b_n is the winning bidder. Certain elements of the total value creation are expected to be distributed to the target because of obvious competitive reasons. Specifically, the value of general synergies (G) will most likely be captured by the target. Moreover, the value of the second highest sum of net specific synergies (S_i) and overbidding (OB_i) is also likely to be distributed to the target since these elements (together with G) constitute the value of the second highest bid. Formally, the part of the total value creation that is likely to go to the target is at least (the target's lower bound):

$$(8) G + \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1})$$

The rest-value that is to be distributed between the winning bidder and the target is according to equation (6) above [$S_n - \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1})$]. This seems to be the upper bound of gains for the bidding firm. The distribution of this amount among the winning bidder and the target rests on a complex interaction of different factors. According to a traditional English auction, the winning bidder would only have to pay some small

amount epsilon (e) more than the second highest bid to win the contest:

$$(9) V_0 + G + \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1}) + e$$

This leaves the winning bidder firm with most of the upper bound of the value creation:

$$(10) S_n - \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1}) - e$$

However, other aspects of the bidding process tend to create a more uncertain outcome. Put differently, the target often has a higher reservation price than the second highest bid, implying that the bidder must pay more than the second highest bid plus epsilon (e). Often one ends up in a bargaining situation²⁴ where the outcome is difficult to predict. Many factors might affect the level of the winning bid: facing a "splitting-a-pie" problem, one has to decide whether discounting is appropriate. Bargaining takes time. If the bidder rejects an offer it has to wait for a better offer to appear. It is uncertain whether such an offer will appear and, if it does, when it will appear. With an infinite horizon and a stationary environment, the market value of the target and the synergies will be the same at the beginning of every period. Then the cake does not diminish over time. However, sometimes a synergy potential only lasts for a certain period of time or changes in the environment require rapid realization of the synergies. In such cases discounting seems to be appropriate. The target's expectations also seem to be an important factor affecting its reservation price. Does the target expect bids that are higher than the highest present bid from new entering firms or existing firms? Is there an asymmetry of information between bidder and target when it comes to the synergy potentials that exist? Do different types of synergy imply different degrees of asymmetric

²⁴See Rubinstein (1982), Sutton (1986) and Kreps (1990) for discussions of bargaining theory.

information? Do different target shareholders have different expectations as to what will constitute a successful bid? Does the target have information indicating that other existing or potential bidders face possibilities for developing specific synergy within reasonably short time? What does the target expect about alternative targets for the bidder? These questions are important for the target to analyze; according to Bradley, Desai & Kim (1983) permanent revaluation of the target shares from tender offer announcements requires actual combinations of the target resources with those of the acquiring firm. They find that the targets' positive announcement effects from unsuccessful tender offer bids are completely reversed within five years of the initial unsuccessful bid if no subsequent successful offer occurs. The target must therefore take into consideration the probability of not receiving a subsequent takeover bid. An interesting question for the target when evaluating such a probability, is whether the bidder's ability to realize synergies will be exhausted by one merger or whether it is possible that the synergy potential will exist for several takeovers. As I discussed earlier in this study, "public good synergies" have a very high capacity indicating that synergy may be realized in several mergers. Another factor is whether it is reasonable to believe that the bidder can realize the synergy potential without integrating (eg. through strategic alliances or internal development). If the bidder believes that the takeover premium becomes too high, he may choose another mode of economic organization than integration.

3.3. The M&A model and merger type

Under section 3.2. above it was shown that a bidder is not expected to realize positive abnormal returns unless he can create net specific synergies with the target and unless the value of these net specific synergies outweighs the sum of net specific synergies and overbidding for the highest alternative bid. In the case of bidder n, there is a necessary condition of

$$S_n > 0.$$

Otherwise $S_n - \text{Max} (S_1 + OB_1, S_2 + OB_2, \dots, S_{n-1} + OB_{n-1}) - e$ will not be positive. Merger or acquisition should be chosen when the net benefits from this solution exceed those created in alternative ways of economic organization:

Merger & Acquisition > Max (Market solution, strategic alliances,
internal development)

This requirement can be formalized. Assume that firm n has excess capacity in some of its production factors. The firm wants to find an efficient mode of realizing these synergy potentials. In cases like this, a comparative analysis of institutional modes of economic organization should be undertaken. I assume that the transfer is of a medium or highly specific kind ruling out the spot market alternative as a potentially efficient one.

The net benefits from **integration** (value creation - takeover premium) have been formalized above:²⁵

$$(6a) \text{GS}_n - \text{CI}_n - \text{TCI}_n - \text{Max} (\text{GS}_1 - \text{CI}_1 - \text{TCI}_1 + \text{OB}_1, \text{GS}_2 - \text{CI}_2 - \text{TCI}_2 + \text{OB}_2, \dots, \text{GS}_{n-1} - \text{CI}_{n-1} - \text{TCI}_{n-1} + \text{OB}_{n-1})$$

Similarly, net benefits from **strategic alliances** can be determined. Define:²⁶

CA = Change in bureaucratic costs when using strategic alliances

TCA = Change in transaction costs when using strategic alliances

IOA = Investment outlay strategic alliances²⁷

²⁵As we remember, $S_n = \text{GS}_n - \text{CI}_n - \text{TCI}_n$ (equation 3).

²⁶All these variables can be regarded as net present values of expected future cash flows.

²⁷Building strategic alliances through trust and long term

Net benefits from strategic alliances are:

$$(11) - IOA + G + GS_n - CA - TCA.$$

It is assumed that the same synergies can be realized through strategic alliances as through M&As. Investment outlay, bureaucratic costs, transaction costs and distribution effects are however expected to be different.

A third solution is **internal development**. Assume that the synergy potential is still the same, but that investment outlay (entry costs), bureaucratic costs and transaction costs are expected to be different from M&As or strategic alliances. For instance, bureaucratic costs may be different from those in M&As because in M&As one often has to buy a whole company with all the associated peripheral activities and divisions which may increase the bureaucratic costs more. Transaction costs are also likely to be different. For example in a hostile takeover, there may exist larger barriers of cooperation among the acquiring and acquired company compared to cooperation among the existing firm and a division created by internal development. Define:

CID = Change in bureaucratic costs when using internal development

TCID = Change in transaction costs when using internal development

IOID = Investment outlay internal development

Net benefits from internal development are

$$(12) - IOID + G + GS_n - CID - TCID.$$

relationships implies that the investment outlay is spread out over time. As opposed to the takeover price which is paid at time 0, IOA must be discounted back to the starting point of the cash flow analysis.

Therefore, M&A should be chosen when:

$$(13) \text{GS}_n - \text{CI}_n - \text{TCI}_n - \text{Max} (\text{GS}_1 - \text{CI}_1 - \text{TCI}_1 + \text{OB}_1, \text{GS}_2 - \text{CI}_2 - \text{TCI}_2 + \text{OB}_2, \dots, \text{GS}_{n-1} - \text{CI}_{n-1} - \text{TCI}_{n-1} + \text{OB}_{n-1}) > \\ \text{Max} (-\text{IOA} + \text{G} + \text{GS}_n - \text{CA} - \text{TCA}, -\text{IOID} + \text{G} + \text{GS}_n - \text{CID} - \text{TCID})$$

According to (3), $S_n = \text{GS}_n - \text{CI}_n - \text{TCI}_n$. Similarly, net specific synergies in the case of strategic alliances can be defined as $S_{na} = \text{GS}_n - \text{CA} - \text{TCA}$ and in the case of internal development $S_{nid} = \text{GS}_n - \text{CID} - \text{TCID}$. Hence, expression (13) above reduces to the following expression:

$$(13a) S_n - \text{Max}(S_1 + \text{OB}_1, S_2 + \text{OB}_2, \dots, S_{n-1} + \text{OB}_{n-1}) > \\ \text{G} + \text{Max}(-\text{IOA} + S_{na}, -\text{IOID} + S_{nid})$$

The rest of this section will explore when these requirements are expected to be fulfilled.

As pointed out earlier in this chapter, strategic core seems to be the ultimate reason for having firms. To reiterate, the strategic core consists of highly specific assets that form the basis of sustainable competitive advantage for the firm. These highly specific assets should be governed internally (hierarchy) while less specific activities should be governed via strategic alliances or markets. Excess capacity in the strategic core gives possibilities for realizing synergies. Synergies based on transfer of strategic core are, per definition, highly specific and should therefore be transferred internally. Synergy effects stemming from transfer of core skills are expected to create sustainable competitive advantage for the firm because the strategic core increases entry barriers, and also has important impact on the intensity of rivalry among existing competitors, the threat of substitutes and the bargaining power of buyers and suppliers. There is also a strong relationship between the strategic core and takeover premiums. As established above, a necessary requirement for the bidder to realize positive

abnormal returns is that synergies are specific. The winning bidder's upper bound of gains is determined in equation (10). Using the concept of synergies, strategic cores and takeover premiums as a starting point, different types of M&As can be analyzed. Horizontal, related, unrelated and vertical integration are expected to have different effects for both bidder and target firm. The different types of M&As can best be analyzed in the context of a comprehensive model for corporate takeovers (see figure next page):

According to the model, one should first define the strategic core/type of transaction. Determinants of value creation (synergy, transaction costs, market power, diversification, costs of integration, takeover premiums) are affected by strategic core, industry structure (industry rivalry, suppliers, buyers, substitutes, potential entrants) and M&A type (horizontal, related, unrelated, vertical). Finally, value creation in a takeover must be compared to the net effects of alternative organizational forms (markets, strategic alliances, internal development).

In the following, a systematic approach is applied to analyze the different M&A types. The standard set up is:

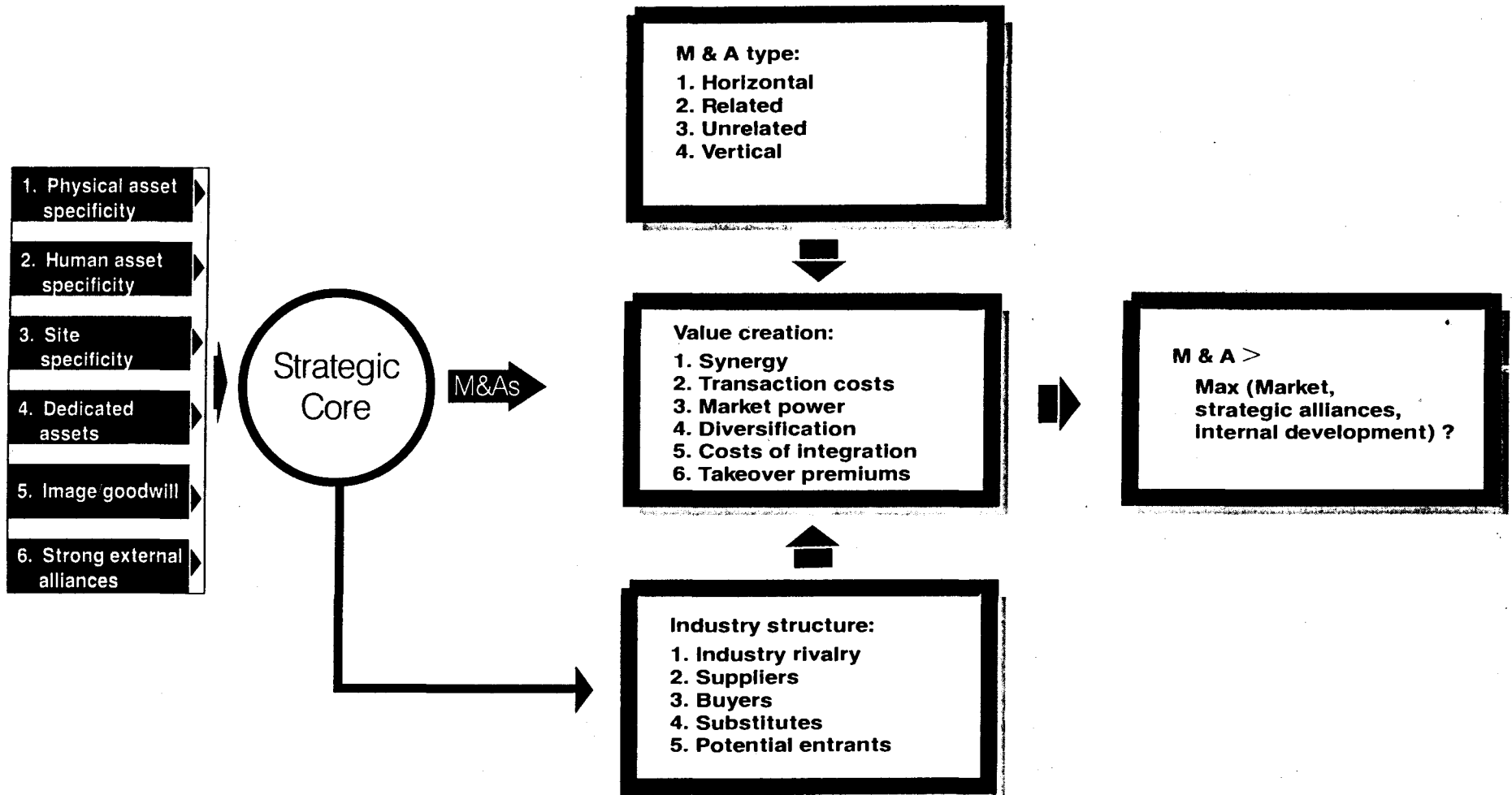
1. Definition of strategic core/ type of transaction
2. Benefits and costs of integration, takeover price
3. M&A > Max (strategic alliances, market, internal development)?

3.3.1. Horizontal and related M&As - bidders²⁸

The total net gain from value creation in a takeover contest is VC -

²⁸Previous in this study **horizontal** merger was defined as a merger between companies that are operating in approximately the same product-market. **Related** merger is a merger between related companies (same product or market, and/or technology and/or competence).

COMPREHENSIVE MODEL: Corporate strategy and takeover premiums



$TP = G + GS_n - CI_n - TCI_n - TP$. As discussed above, a necessary condition for bidder n to realize positive abnormal returns is that $S_n > 0$. Since G is expected to be bid away in the acquisition market, bidder n 's gains from M&A is according to equation (6a). To maximize abnormal returns, b_n needs to maximize this equation (for a given target). Under section 3.1. it was argued that abnormal returns from diversification (GS_n) increase when asset specificity/ degree of uniqueness of strategic core is high and degree of diversification is narrow. Costs of integration are expected to increase with number of linkages among divisions. Given a sufficient degree of uncertainty/complexity implying a need for adaptive and sequential decisions (Williamson 1985), TCI_n is a function of asset specificity. Define:

a = asset specificity/ degree of uniqueness of strategic core.

$0 \geq a \geq 1$, where a close to zero denotes general transactions and a close to 1 denotes highly specific transactions.

d = degree of diversification. $0 \geq d \geq 1$, where d close to zero denotes narrow diversification and d close to 1 denotes wide diversification.

h = number of linkages

GS_n , CI_n and TCI_n can be expressed as functions of a, d and h :²⁹

$$GS_n(a, d)$$

$$CI_n(h)$$

$$TCI_n(a, h)$$

GS_n is expected to increase when a increases and to decrease when d increases. CI_n increases when h increases and TCI_n increases when a and h increase:³⁰

²⁹It should be noted that GS_n , CI_n and TCI_n here are evaluated for a given production rate (quantity level given). For instance, if we assume U- formed cost curves, the absolute level of GS_n (given a and d) will first increase as quantity increases, and after a certain point decrease as economies of scale and scope are exhausted (eg. Jones and Butler 1988).

³⁰When the number of linkages increases, complexity and

$$dGS_n(a,d)/da > 0$$

$$dGS_n(a,d)/dd < 0$$

$$dCI_n(h)/dh > 0$$

$$dTCI_n(a,h)/da > 0$$

$$dTCI_n(a,h)/dh > 0$$

M&A should be chosen according to (13). It is obvious that merger or acquisition is not optimal for the potential bidder n unless highly specific synergies are dominant and outweigh the sum of net specific synergies and overbidding for the highest alternative bid. This result implies that to integrate a must be high and d low, and h must not be so large that CI_n nullifies GS_n . If a is low, GS_n will not be dominant and the transaction costs disadvantage of using alliances or the market will not be large.

1. Definition of strategic core/ type of transaction

The essence of strategic management is the development and maintenance of the firm's strategic core and the selection of competitive strategy such that this core promotes competitive advantage. The strategic core must be carefully defined. A firm must avoid being too general when defining core skills. Furthermore, a firm should focus on only a few core factors. Strategic core generally has significant impact on economic performance and is extremely difficult for competitors to replicate.

2. Benefits and costs of integration, takeover price

The core factors form the foundation of competitive advantage (abnormal returns) for the firm when it is fighting its battles in

uncertainty are expected to increase the number of cases where adaptive and sequential decisions is needed.

the product-markets. Excess capacity in the strategic core defines possibilities for the firm to realize specific synergies by merging horizontally or into related areas. As we recall from earlier discussions, net benefits from integration (value creation - takeover premium) are

$$GS_n - CI_n - TCI_n - \text{Max} (GS_1 - CI_1 - TCI_1 + OB_1, GS_2 - CI_2 - TCI_2 + OB_2, \dots, GS_{n-1} - CI_{n-1} - TCI_{n-1} + OB_{n-1})$$

Specific synergies (GS_n) depend on excess capacity in a highly specific core. Synergy can be realized by sharing both internal and external relations. It is not enough that the synergy potential is highly specific. In order to justify integration, it must also have a large percentage impact on costs, revenues and/or risks. Moreover, the total dollar value of the firm's specific synergies must be significantly larger than alternative bidders' specific synergy potentials. Since strategic core is highly specific, the transfer of excess capacity creates larger value the narrower the diversification. Specific synergies will lose more value when they are realized in markets which are distant from the original market where the firm built its strategic core; as the firm moves away from its current scope, abnormal returns will decrease. Put differently, the strategic core's marginal rent decreases the farther away from its origin it is used.

Since the transfer of core factors to competitors or related areas is highly specific, the transfer should be governed internally to minimize **transaction costs**. Trading specific synergies in the market is very difficult owing to problems of shirking, leapfrogging of technology, etc.

In theory, horizontal and related mergers can lead to increased **market power**. Collusion focuses on how rivals can increase rent by coordinating production rates. However, we have no empirical

support that M&As significantly increase market power.³¹

Costs of integration can easily outweigh even large gross specific synergies. Realizing synergy effects usually imposes costs of coordination, costs of compromise and costs of inflexibility. In horizontal and related M&As, interdivisional coordination and resource sharing is required. In such a case, costs of integration [$CI_n(h)$] tend to increase at a geometric rate with the addition of reciprocal linkages (h). The number of reciprocal linkages is $1/2(h^2 - h) = 1/2 h(h - 1)$. The more synergy links that exist, the higher is $dCI_n(h)/dh$. Therefore, one should expect a lower level of horizontal/related integration than vertical and unrelated diversification.³²

3. *M&A > Max (strategic alliances, market, internal development)*

Assume that the transfer of resources is of high or medium asset specificity thereby ruling out the market solution. M&As and **internal development** are both "hierarchy" solutions. Many aspects may distinguish the two types of economic organizations: internal development is often a more risky way of entry and might be problematic when there are high entry barriers (Yip 1982). Often acquisitions serve as an attractive alternative to investment in R&D and innovations because they offer immediate entrance to a new market and/or a larger share of a market served currently by another firm (Hitt, Hoskisson & Ireland 1990). Put differently,

³¹See Eckbo (1983,1985), Eckbo & Wier (1985), Stillman (1983) and James & Wier (1987).

³²This is consistent with Jones & Hill (1988) who conclude that related diversification is predicted to be more profitable at lower levels of diversification than unrelated diversification. One should, however, be aware that both costs and synergies can increase at a geometric rate. If, for example, certain assets are to a large extent underutilized, the marginal increase in synergies (benefits) may outweigh a large marginal increase in bureaucratic costs. Jones & Hill (1988) provide an interesting discussion on how synergies covaries with changes in bureaucratic costs.

M&As may often be a good substitute for innovations and internal development. However, greater relatedness often facilitates direct entry. Moreover, the more closely related the two markets are, the fewer complements the firm needs for its own tangible and intangible resources. An acquisitive entry in a related market is, therefore, more likely to involve purchase of unwanted assets (Chatterjee 1990). Expected retaliation (Porter 1980) is an important factor. For instance, direct entry adds new capacity to the industry. This might trigger price cutting or other reactions from competitors. Supply and demand conditions are therefore important when choosing entry method. For instance, if the concentration ratio of an entered industry is high, acquisitive entry is more probable than direct entry, especially in cases with low market growth (Chatterjee 1990). According to Teece (1982), choice of acquisition or direct entry may depend on slack. If slack appears gradually over time, direct entry might be more effective. This is because direct entry "can be tailored as an incremental approach to diversification" (p. 58). On the other hand, if slack resources emerge suddenly, then M&As are expected to be advantageous. Furthermore, the availability of takeover candidates might be decisive when choosing entry mode (Yip 1982, Singh & Montgomery 1987). Timing is often to the advantage of M&As especially when first mover advantages are important or when timing influences required takeover premiums or competition in the market for corporate control. In horizontal mergers, M&As lead to one less competitor. Even though this does not increase market power (Eckbo 1983,1985), it may reduce expected retaliation. M&As may be chosen because the firm then gets hold of important complementary resources (Teece 1982). Sometimes a firm, A, is dependent on drawing on another firm, B's, resources because A lacks the necessary resources itself and cannot readily develop them. Put differently, a merger with B may create internal and external (access to network) synergies that do not exist if A pursues internal development. A major difference between internal development and M&As is cost of entry; M&As impose large takeover premiums which, in many cases, offset most of the

value created. Even though both M&As and internal development are classified as "hierarchy", they are likely to be associated with different internal transaction costs. For example, if the takeover is hostile, barriers to cooperation and opportunism among the integrating firms are easily created. Moreover, the two firms may have incompatible corporate cultures making the implementation of the takeover difficult. In most cases, exchange of information and skills is more fluid in start-ups than in acquisitions. Differences in bureaucratic costs are also likely. In the case of integration, A may have to buy a large complex company, B, even though it is only interested in some parts of B. In such a case the increased bureaucratic costs may be larger than the increased costs associated with internal development.

M&As must also be compared to **strategic alliances**. Earlier in this study it was argued that the strategic core is highly specific and should be governed internally while transactions of medium asset specificity should be governed by strategic alliances. When asset specificity is medium, outside actors can often realize synergies by aggregating demand and produce more efficiently. Moreover, strategic alliances do not eliminate high-powered incentives and do not create the same bureaucratic distortions as in a hierarchical solution. Even though hierarchy is associated with lower transaction costs, strong strategic alliances based on trust and long term relationships may partly offset this transaction cost disadvantage in the case of medium asset specificity. In sum, when transactions are medium specific, a firm should rely on strategic alliances to "trade synergies", retain high-powered incentives and avoid bureaucratic distortions. Therefore, to be positioned in strong strategic alliances creates competitive advantage for the firm because it can concentrate on its strategic core and farm out more distant value activities to alliance partners. The key point is that transaction costs lead the firm to integrate. These transaction costs can be reduced by developing trust and long-term relationships. Since outside producers in the case of medium asset specificity often produce more efficiently [external price (EP) <

internal cost (IC)], value is created because of more efficient organization.

On the other hand, horizontal and related M&As seem to be justified only when transferring resources stemming from the strategic core, that is only when highly specific assets are transferred. High specificity often implies that outside actors cannot realize larger synergies than the firm itself. Furthermore, integration is expected to have big transaction cost advantages compared to strategic alliances. However, the transaction cost advantage of integration must be traded off against possibly higher bureaucratic costs and takeover premiums. An important factor affecting the takeover premium (and thereby the choice between integration and alliances) is the other potential bidders' specific synergy potentials ($GS_i - CI_i - TCI_i$). The bidder is expected to realize positive abnormal returns only when he can realize net specific synergies which are larger than the sum of net synergies and overbidding for the highest (potential) alternative bid.

3.3.2. Unrelated M&As - bidders

1. Definition of strategic core

When considering an unrelated takeover, there is no need for defining the firm's strategic core. Since an unrelated merger integrates companies without major commonalities in products, markets, technology or competence, there is no transfer of core skills.

2. Benefits and costs of integration, takeover price

Benefits from unrelated M&As, if any exist, stem from

infrastructure synergies³³ (Porter 1985), reduced bankruptcy costs (Lewellen 1971, Galai & Masulis 1976, Shastri 1982), internal capital markets (Williamson 1975, Teece 1982) or multipoint competitor effects (Wernerfelt & Karmani 1985). Moreover, Myers & Majluf (1984) present a model where given asymmetry in information between managers and shareholders a firm with insufficient financial slack may not undertake all valuable investment opportunities. Synergies can therefore be realized when a merger takes place between a firm rich in cash and a firm poor in financial slack.³⁴ Most of the synergy potentials in unrelated mergers do not seem to generate large synergy effects and they are quite general in nature. In addition to being associated with small synergy effects, unrelated diversification is likely to infer only small additional bureaucratic costs: in unrelated M&As each division functions as a self-contained unit. Such a strategy has the lowest need for coordination and control is handled by standardization and formalization.

Even if there are small expected net positive synergy effects from an unrelated takeover, these effects can hardly justify the large takeover premium required to gain control of a company. First of all, the size of the synergy effects are expected to be small. Second, most of the synergies seem to be quite general (G). Third, the firm is not expected generate larger synergies than other potential bidders. The formal necessary requirements discussed under section 3.2. above do not seem to be satisfied.

3. M&A > Max (strategic alliances, market, internal development)

Strategic alliances require at least partial overlap in domain and

³³These synergies may be created through shared financing, cash utilization, accounting, legal department, government relations, hiring and training.

³⁴See also Lang, Stulz & Walkling (1990) for an interesting test of the free cash flow hypothesis and bidder abnormal returns.

can therefore be ruled out as an alternative to unrelated integration. Internal development should in this case be evaluated as an entrepreneurial venture where the entrepreneur does not have special information or skills/resources. The market alternative, however, seems to be a viable strategy. The market alternative can here be thought of as paying out dividend to stockholders. This is according to Jensen's (1986, 1988, 1989 a and b) "free cash flow theory". Free cash flow is cash flow in excess of what the firm needs for projects with positive net present values. Such free cash flow must be paid out to shareholders in order to maximize value for shareholders.

3.3.3. Vertical M&As - bidders

1. Definition of strategic core/ type of transaction

In vertical mergers, as in the case of horizontal and related integration, it is important first to specify the firms strategic core/ type of transaction. Transaction costs seem to be an especially important determinant in vertical boundary settings.

2. Benefits and costs of integration, takeover price

Vertical integration is in most cases expected to create smaller synergy effects than those in horizontal and related mergers.³⁵ Another rationale for vertical integration is vertical market foreclosure (Comanor 1967): by merging with one of its customers an input supplier can effectively remove this customer's

³⁵ However, sometimes there also exist substantial synergy potentials in vertical integration. Therefore, one should not rule out the synergy rationale as a possible important factor in vertical boundary settings.

purchases from the open market. Conversely, by merging with one of its suppliers an input customer can remove that firm's sales from the open market. The effectiveness of market foreclosure depends on entry barriers in the industry and therefore specific assets, sunk costs, transaction costs and imperfect information (see Yao 1988). Transaction costs are important in vertical relationships. When transactions are highly specific one faces ex post bilateral monopoly situations where competitive pressures are dampened and opportunism are created. An obvious advantage of integration is reduced transaction costs. A higher degree of vertical integration leads, however, to higher bureaucratic costs because of centralization of more activities, less autonomy, less accountability of operating divisions and more difficult monitoring. Assume there are no synergies to be realized in a vertical merger. According to the formal discussions of takeover premiums under section 3.2. above, to realize positive abnormal returns bidder n must reduce transaction costs more than the expected increase in bureaucratic costs ($TCl_n - Cl_n > 0$). In addition, this value creation must be larger than $TCl_i - Cl_i + OB_i$ for all competing bidders i ($i = 1, \dots, n-1$).

3. *M&A > Max (strategic alliances, market, internal development)*

When transactions are highly specific, integration is a better mode of organization than a **market** solution because lower transaction costs are expected to outweigh scale and scope disadvantages³⁶ as well as increased bureaucratic costs. As asset specificity decreases, **strategic alliances** will be relatively more efficient than integration: outside actors can realize synergies, high-powered incentives are retained and bureaucratic distortions and takeover premiums are avoided. When asset specificity is high, integration is expected to be more efficient than strategic alliances. However,

³⁶The disadvantages are supposed to be small because of the highly specific nature of the transactions.

if the differences in transaction costs between integration and alliances are not too large and/or if integration imposes large bureaucratic costs compared to alliances, there might be cases where large takeover premiums cannot be justified. In this case, an alliance solution is better than integration.

The evaluation of **internal development** is described in the above discussion 3.3.1. (horizontal and related M&As). Hierarchy is assumed to be optimal when transactions are highly specific. If the firm needs specific complementary skills provided upstream or downstream in the value chain, it might have problems developing these skills itself. Internal development should be easier when the specific factor can be bought in a market (for example specific machinery). Then the firm can establish a division around their machinery equipment.

3.3.4. Target returns

The difference in profitability for target firms as a function of strategic group is hard to predict because the model indicates that two opposite forces are important. From the model we remember that the winning bidder must pay at least as much as the highest alternative bid. This implies that an unrelated bidder must pay at least as much as other unrelated and horizontal/related bidders. This implies that the premium in unrelated mergers is not necessarily much lower than the one in related mergers. One way of arguing is that when related/horizontal bidders do a successful takeover, specific synergies are important and they are therefore able to bid more than unrelated bidders. Because of bargaining mechanisms discussed above, one may expect that the target shares some of the gains based on specific synergies. Following the same line of argument, if unrelated bidders succeed taking over the target, this outcome may indicate that specific synergies are not that important and the gains to the target is therefore smaller. Based on these arguments one should expect that

horizontal/closely related targets realizes higher abnormal returns than related targets which in turn realizes higher returns than unrelated bidders.³⁷

Overbidding is a factor that may reverse the order of profitability for targets in different groups. It is argued in the literature that unrelated transactions are associated with fewer gains than various types of related transactions. Therefore, it is often argued that, in unrelated takeovers, management acts as empire builders which implies that growth is more important than profitability (agency problem, free cash flow hypothesis), or the takeover is a result of management "hubris" (Roll 1986,1987) or "winner's curse". Put differently, the fact that an unrelated bidder wins a takeover contest may be an outcome of overbidding and that the bid is higher than other (potential) bids from firms that can create specific synergies (in addition to more general synergies); If an unrelated bidder overbids and makes a high enough bid, one may expect that the target realizes more than in horizontal/closely related and related takeovers.

4. MERGER & ACQUISITION CLASSIFICATION SYSTEM AND ITS VALIDITY

The system of classifying M&As into strategic groups is based on SIC-codes. Standard Industrial Classification (SIC) classifies firms by type of activity (see SIC Manual 1988). The structure of the classification makes it possible to analyze data on a division, a two-digit major group, a three-digit industry group or a four-digit industry base.³⁸ Firms or plants that are assigned the same four-

³⁷ Such a conclusion is based on the assumption that horizontal/closely related transactions on average involve higher level of specific synergies than related transactions which in turn involve higher levels of specific synergies than unrelated takeover.

³⁸ First digit = Division (ex.: Mining, construction, manufacturing, etc.)

digit code are expected to have fairly homogenous products or technologies. If firms and plants agree in fewer digits, they are believed to be less homogenous (eg., Clarke 1989).

Two key elements in the takeover model discussed above are strategic core and takeover premiums. Highly specific strategic cores provide possibilities for only narrow diversification if the cores' rent creating capabilities are to be maintained. Wider diversification indicates less specific factors that will normally not create significant competitive advantage. Put differently, a given strategic core will lose more value when it is transferred to markets which are distant from the original market where the firm built its core skills. Furthermore, wider diversification makes it more difficult for the bidder to realize positive abnormal returns because of competitive bidding in the market for corporate control. To analyze central aspects of the model, the classification should be chosen such that one gets some insights into the degree of diversification.

The classification system chosen here is:³⁹

- (1) **Horizontal integration** - integration among companies within the same four-digit SIC code.
- (2) **Closely related integration** - integration among companies

Second digit = "Major group"

Third digit = "Industry group number"

Fourth digit = "Industry number"

See supplement 6 for a brief overview over Standard Industrial Classification Groupings.

³⁹The empirical analysis in this study will focus on horizontal, related and unrelated integration. Vertical integration will not be analyzed because of difficulties of obtaining firm specific data describing asset specificity for large samples of firms. Furthermore, SIC code 6711 which is used for holding companies, is not treated as a separate line of business. For transactions where at least one of the parties has SIC 6711 (in my sample this applies to 23 transactions), the Dun and Bradstreet Million Dollar Directory is used to obtain the 4-digit SIC-codes of the three main lines of business (by sales) that the firm operates in. The transaction is then classified according to the most common SIC-codes among the bidder and the target.

within the same three-digit SIC code (but different four-digit SIC code).

(3) **Related integration** - integration among companies within the same two-digit SIC code (but different three-digit SIC code).

(4) **"Unrelated" integration** - integration across two-digit industries.

For the future, (1) and (2) will be referred to as **strategic core M&As**, (3) as **related, not core M&As** and (4) as **unrelated M&As**

Integration among companies within the same four-digit SIC code (horizontal integration) is believed to be quite homogeneous for products and technologies. Closely related integration indicates integration among companies within the same industry group. This kind of narrow diversification makes it possible to transfer specific core factors and realize positive abnormal returns. Related integration represents integration among companies which are fairly narrowly linked. The abnormal returns for bidders in related integration are expected to be close to zero. The reason for this is that specific synergies in most cases are smaller and thereby make it harder to justify high takeover premiums. "Unrelated" integrations describe M&As across two-digit industries and represent diversification into areas either unrelated to or less closely related to a firm's primary activities and technologies.

An important question is: is the SIC code is a **valid** measure? Is there a strong linkage between the strategic concept (e.g., strategic core) and the way these concepts are measured (SIC-codes)? It is important that the link between concept and measure is strong enough so that we really measure what we want to measure. This can be referred to as content validity (see Venkatraman & Grant 1986).

SIC-codes are associated with many limitations. The SIC definitions tend to be production oriented rather than demand determined.

Furthermore, the definitions include nonhomogeneous products and exclude sales of similar products that are included in different SIC groups or are imported (Benston 1985). However, Montgomery (1982) finds empirical evidence supporting high degree of correspondence between SIC levels of diversity and Rumelt's categorical measures. This indicates convergent validity among these two types of measures.

Another problem is that SIC-classes provide no disaggregate business level data. All of the company's operations are reported in a single four-digit SIC category. That is, each establishment⁴⁰ is to be classified according to its primary activity. Primary activity is determined by identifying the predominant product or group of products produced or handled with a company or enterprise. This is a serious limitation in an age of diversified firms (See Scherer 1980:269-272). Put differently, since many firms produce products in more than one SIC-code, interrelationships among various products/markets and among merging firms are, to a large extent, masked (Young 1989). Since the firms are classified according to the four-digit code that corresponds to the primary activity, this grouping can result in a SIC that is not consistent with the most "reasonable" two- or three-digit classification. An example given by Clarke (1989) is a three product firm, where product 1 (SIC 3211) accounts for 40 % of total value, products 2 (SIC 2842) and 3 (SIC 2845) each account for 30 %. The overall assigned SIC code would be 3211 which implies a three-digit SIC of 321 and the two-digit SIC of 32. This code misleads us because 60 % of the value is created in the 284 three-digit SIC and the 28 two-digit SIC.

The way M&As are classified in this study should, however, give an indication of the degree of relatedness among merging firms. Since firms are compared on the basis of the primary activity,

⁴⁰The Standard Industrial Classification for establishments differs from classifications for enterprises (companies) or products. An enterprise consists of all establishments having more than 50 % common direct or indirect ownership (SIC Manual 1988).

there is a risk that a bidder, A, and a target, B, are grouped as unrelated even though they are related. For example, if A has a primary activity with SIC code 3211 and B has a primary activity 4327 and a secondary activity 3241, this transaction will be classified as unrelated instead of related, not core. On the other hand, since a secondary (or even more distant) activity usually accounts for much less than 50 % of a firm's activity, this classification may make sense. When A buys B, A has to pay a premium on all B's assets. Assume that B operates in two main areas 4327 which account for 80 % of total sales and 3241 which accounts for 20 % of total sales. Even though A's primary activity and B's secondary activity are related, A has to pay a premium X on all B's assets. Since 80 % of the assets are unrelated, it makes more sense to regard this takeover as unrelated, than related. However, there are limitations to such an argument. If A buys B because of B's secondary activity which is related to A and A sells of the rest of B's primary assets shortly after the takeover, A may realize positive abnormal returns. One thing that could be done in future research is to split the unrelated group into those cases where the bidder and target have a related second or third main area, but are unrelated in terms of primary activities. Furthermore, one could account for whether the bidder restructures the target shortly after the takeover - say within 0-3 years after the takeover. If such restructuring takes place, and if the bidder can obtain a sales price which are not much below the takeover price (pretakeover value plus premium) on the divested unrelated assets, there is reason to expect that A can profit from the takeover. In my sample of takeovers (see chapter 4 below) both bidders and targets have to be listed on the NYSE or AMEX stock exchange at the time of the announcement of the transactions. "Raider-type" takeovers in which one or a few private investors/ LBO firms go in and restructure large conglomerates by splitting them up is not that common in this sample. Accordingly, the problem of analyzing unrelated takeovers may be reduced in this study.⁴¹ Another

⁴¹However, it is beyond dispute that a further examination of this

reason to compare primary SIC codes is the size effect problem discussed in chapter 2 above; Acquiring firms are often much larger than the target companies. Even though the total gain is split equally between buying and selling companies, the abnormal return in percent for the buyer is much less than for the seller. This study seeks to reduce this problem by only including those transactions where the target represents at least 10 % of the equity market value of the bidder 2 months prior to the announcement of the transaction (see description of the sample selection process in chapter IV below). Assume that one decides to compare the three or four most important SIC codes among bidder and target, and that the most common SIC code among the firms determines the classification of the transaction. Even though the third most important business areas for the bidder and the target are related, these market values are not, in many cases, readily available. As a result, the adjustment for size-effects are complicated.

One can probably argue that the classification system applied here is to some extent conservative in the sense that transactions will more often be considered unrelated than related since only primary activities are compared. This may cause a problem if the firm's secondary activity is not much smaller than the primary activity. One should notice, however, that this problem is probably reduced because of the big sample applied in the study.

There are also other problems associated with developing hypotheses based on aggregated data. First, there will be no attempt to measure the synergy potential in a specific merger. As discussed earlier, one necessary condition for profitable mergers is that they involve potential for significant synergies. In this study, we will assume that when merging firms are related, the synergy potential is larger than when firms are unrelated. In most cases this will be true. However, there may be related M&As where the

group in terms of analyzing intertemporal restructuring decisions would provide interesting insight into value creation and value distribution associated with these transactions.

synergy potential is negligible because the capacity is almost fully utilized or the potential for synergy exists only in value chain activities which count for only a small percentage of the company's costs or revenues. Secondly, according to the model discussed above, the bidder must be able to realize larger specific synergies with a target than those potentially created by alternative bidders. This would require identification of potential bidders and analysis of their value creating capabilities in all value chain activities with a target. Such information is not readily available and will not be used in this study.

5. HYPOTHESES

The empirical part of this thesis is more limited in scope than the broad and lengthy theoretical model presented above. A main focus when developing the hypotheses is the relationship between strategic core, type of synergies, takeover premiums and abnormal returns; As discussed above, the degree of diversification is expected to provide some insights into the type of synergies that one seeks from a transaction and how these affect the abnormal return for bidder and targets. This is the focus of the empirical part. Specific and general synergies and takeover premiums are important building blocks in the overall model above, and the results from this study are expected to have some implications for how to organize firm activities because of the interdependencies among choice of institutional mode (hierarchy, strategic alliances and markets). There are, however, no explicit attempts in this study to measure the costs/benefits of different types of strategic alliances, internal development, etc. Based on the chosen classification system, certain hypotheses follow directly:

Acquiring firms

Hypothesis 1 (STRATEGIC CORE M&As):
Acquiring firms in horizontal and closely related integration are expected to realize positive abnormal returns.

Horizontal and closely related integration represent narrow diversification which indicates transfer of highly specific assets. Such assets form the foundation of sustainable competitive advantage for firms. Since assets are transferred to areas closely related to the firm's main activities, they are not expected to lose much value. Moreover, since strategic core and synergies based on these assets are highly specific, transaction costs are important and internal transfer (hierarchy) is therefore often a better solution than alternative forms of economic organization. The mechanisms of the market for corporate control also tend to require specific synergies in order for bidding firms to realize positive abnormal returns.

Hypothesis 2 (RELATED,NOT CORE M&As):
Acquiring firms in related integration are expected to realize zero abnormal returns.

In related integration the degree of diversification is not as narrow as in horizontal and closely related integration. This indicates that synergies are often less specific and will normally create less economic rent. Other modes of economic organization (for example joint venture, informal alliances, formal contracts) are often more efficient. Furthermore, the takeover market tends to bid away potential value created in the takeover from bidders to the target.

Hypothesis 3 (UNRELATED M&As): Acquiring firms in "unrelated" integration are expected to realize negative abnormal returns.

In unrelated M&As the value creation potential is expected to be small and quite general in nature. These synergy effects can hardly justify the larger takeover premiums required to gain control of a company. The resources spent in a takeover of an unrelated firm should have been used for other projects with positive net present values or paid out to shareholders in the form of dividends.

Acquired firms

Hypothesis 4: All acquired firms are expected to realize positive abnormal returns from integration

Since the takeover premiums are so big, shareholders in acquired firms are expected to gain significantly from takeovers.

Hypothesis 5: Acquired firms in strategic core M&A are expected to realize higher abnormal returns than acquired firms in related integration which in turn are expected to realize higher abnormal returns than acquired firms in unrelated integration.

One should here remember that the winning bidder in an unrelated takeover has to pay at least as much as any other potential unrelated and related bidder:

$$V_0 + G + \text{Max} (S_1 + \text{OB}_1, S_2 + \text{OB}_2, \dots, S_{n-1} + \text{OB}_{n-1}).$$

This implies that the premium in unrelated mergers is not necessarily much lower than the one in related mergers. All the same, hypothesis 5 is likely to be justified because of bargaining. If a related bidder can create much higher total gains than the next highest bid, then the target will probably capture some of the gains of this "excess value". One should, however, be careful here because the outcome of such bargaining processes is very difficult to predict. Another important point is that if the unrelated bidder overbids, the order of the profitability among targets in different strategic groups may be reversed.

IV. DATA AND METHODOLOGY

1. INTRODUCTION

In this chapter the data and sample selection for the empirical testing of the hypotheses is discussed. There is also a description of data characteristics and distributions of announcements (strategic classification, multiple/single bids, size-effects, calendar year, method of payment). Finally, this is followed by a discussion of the chosen methodology.

2. DATA AND SAMPLE DESCRIPTION

2.1. The data and sample selection

The empirical part of this study is based on M&As that were announced in the period 1970-1987. The data set is compiled in Gretland (1990). As an initial screening, the transactions are identified by searching the **Rosters of Mergers & Acquisitions**.¹ The Roster lists all companies involved in mergers and acquisitions as well as such related activities as foreign acquisitions, sell-offs/divestitures, joint ventures and cooperation agreements.² To be included in the Roster a

¹The calendar years that are searched in this study (ranging from 1970 to 1988) refer to the years in which the transactions are reported in the Roster. Since the Roster operates with effective dates, the actual announcement dates of the transactions might be in a different year. For the transactions reported in the Roster for 1988, only those with announcement dates in 1987 are being used in the study.

²An alternative index to obtain information about M&As that was considered, is the Federal Trade Commission's (FTC's) statistical report on mergers & acquisitions. This index contains information about M&A transactions in the time period 1948-1978. To be included in this series, a merger must involve an acquired company that is primarily engaged in manufacturing or mining and have assets of at least \$ 10 million at the time of the acquisition. There are two main reasons why the FTC index is not being used in

transaction must be valued at \$ 1 million or more.³ Partial acquisitions of five percent or more of a company's capital stock are also included in the Roster if the payments are \$ 1 million or more. Where price data of transactions have not been revealed, the transaction is included if it is believed to meet the price threshold. Furthermore, the Roster only contains transactions that are actually completed. Unsuccessful bids⁴ are not reported. According to Asquith (1983) the market does not seem to distinguish between successful and unsuccessful merger bids before or on the announcement date. However, the success or failure of a merger bid is predicted shortly afterwards, well in advance of the outcome date. In an efficient capital market, increases in the probability of mergers should cause prices of target firms to adjust in one direction and decreases in the probability of merger should cause prices of target firms to adjust in the opposite direction. The results in Asquith (1983) exhibit precisely this pattern.

The Roster includes approximately 85,000 transactions⁵ for the 1970-1987 period implying a relatively extensive search. My sample is restricted to transactions where both targets and bidders are noted on either NYSE or AMEX at the time when the transaction takes place. Therefore, each transaction had to be cross-checked against cusip-lists.⁶ There are several reasons for restricting the

this study: (1) As opposed to the FTC series, the Mergers & Acquisitions Roster provides opportunity for analyzing transactions where the acquired company is primarily engaged in activities outside manufacturing or mining, and (2) I selected a more recent sample period (1970-1987) which is only partially overlapping with FTC's sample period.

³In the 1970s the criterion was "major" transaction. In practice, this implied that transactions down to \$ 750,000 were included.

⁴Unsuccessful takeover bids are bids that are abandoned usually because of the lack of shareholder approval or too few shares tendered.

⁵Both bidders and targets are listed separately.

⁶Cusip lists are lists that contain historical names of firms that at some time have been listed on either NYSE or AMEX.

sample to M&A transactions where both bidders and targets are noted on the exchange. Information about the transaction is more easily available, it makes it possible to compute market values of firms, and the size-effect problem⁷ may be reduced. After screening the transactions in which both bidder and target are on the stock exchange, I check whether the firms in the transaction are actually listed at the time when the transaction takes place. The cusip-lists provide the names of firms that at some time have been listed on the stock exchange. In many cases where both bidder and target names in a transaction are identified from the cusip-lists, either the target or the bidder is not listed at the transaction time (even though it had been listed either before or after the transaction was completed).

Furthermore, the sample is restricted to mergers and acquisitions only. Sell-offs, divestitures, equity carveouts and joint ventures are not included in the sample. Joint ventures are not included because they do not necessarily imply buying control of a firm. Sell-offs are not included because they have certain traits that differ from M&As (see Hirschey & Zaima 1989, Sicherman & Pettway 1987, Jain 1985, Alexander, Benson & Kampmeyer 1984 and Rosenfeld 1984). Usually the acquisition of divested assets is initiated by the seller, and, typically, only one potential buyer actively negotiates to purchase the divested assets (Jain 1985). Thus, there might be reason to believe that the divestiture market often is less competitive than the takeover market.

Given the requirements that the time period for announcements is 1970-1987, that both target and bidder are noted on either NYSE or AMEX at the time of the transaction and that the transaction is an M&A (not sell-off, joint venture, etc.), we identified an initial sample of 578 transactions. This initial sample is reduced for several reasons. First, since this study's aim is to measure

⁷See discussion in chapter 2, section 7.2., about measurement problems.

TABLE IV.1.:
SAMPLE CONSTRUCTION

| | |
|-------------|--|
| 578 | Initial Sample (Requirements: time period 1970-1987, both bidder and target on NYSE or AMEX at the time of the transaction, the transaction is an M&A - not sell-off, joint venture, etc.) |
| - 40 | Listed as M&As in the Roster, but the bidder was already in control |
| - 5 | Not mentioned in the Wall Street Journal Index |
| -219 | Target < 10 % of the equity value of the bidder |
| <u>- 29</u> | Transactions with concurrent major corporate events |
| <u>=285</u> | Sum (number of transactions) |
| <hr/> | |
| 285 | Number of transactions (bidders) |
| <u>- 6</u> | Bidder data missing on the CRSP-tape/ too few observations |
| <u>279</u> | Final sample of bidders |
| 285 | Number of transactions (targets) |
| <u>- 17</u> | Target data missing on CRSP-tape/ too few observations |
| <u>268</u> | Final sample of targets |

announcement effects of changes in control, 40 transactions are deleted because the bidder is already in control (even though the transaction is listed in the Roster). There are often follow-up mergers after tender offers that do not imply any change in control. The sample therefore excludes merger proposals preceded by successful tender offers. Second, five transactions were not mentioned in the Wall Street Journal making it difficult to determine announcement dates. Third, only those transactions in which the target represents at least 10 % of the equity value of the bidder are included. This is done to avoid some of the measurement problems that arise when the target is very small relative to the bidder.⁸ The size of the target (bidder) firms are measured as the value of outstanding equity of each firm two months prior to the target's (bidder's) event date. The value of outstanding equity is calculated as

$$V_n(a_n-2) = P_n(a_n-2) \times S_n(a_n-2)$$

where

$V_n()$ = Value of outstanding equity for security n

$P_n()$ = Closing price security n

$S_n()$ = Number of shares outstanding for security n

a_n-2 = 2 months prior to announcement date for security n

If a_n-2 is not a trading date, the last trading date before a_n-2 is selected. Fourth, to insulate the announcement effects from other contemporaneous corporate events, the Wall Street Journal Index is reviewed for all firms. Twentynine transactions that experienced concurrent major corporate events for the period 20 days before and 20 days after the announcement date are deleted from the sample. Major corporate events are defined as the following events: other takeover activities, divestitures, common stock repurchases, exchange offers, new offerings of securities, large new contracts and announcements of large unexpected changes in

⁸See discussion on measurement problems earlier in this study. For empirical support see Asquith, Bruner & Mullins (1983) and Jarrell & Poulsen (1989).

corporate profits. This sample construction process results in a total of 285 transactions. These 285 transactions form the basis for the analysis of takeover performance. In some cases, however, bidder or target data are not available on the CRSP-tape⁹ (because of too few observations/missing returns). The final sample therefore consists of 279 bidding firms and 268 target firms.

Data on stocks are collected from the Center for Research in Security Prices (CRSP) of the University of Chicago. Errors in this database are not common. All dividend and distribution information, name structures and delisting information from the machine-readable data are checked against second sources such as the Cusip Directory, Moody's Dividend Record, Commerce Clearing Houses's Capital Changes Reporter, Moody's Manuals, the New York Stock Exchange Weekly Bulletin, the American Stock Exchange Weekly Bulletin, Bank and Quotation Record, The Wall Street Journal, and the Commercial and Financial Chronicle. Machine-readable data are checked for internal consistency, and secondary sources are used to check suspect information. Information that is not available in machine-readable form is hand-coded and verified (see Stock File Guide, CRSP; Graduate School of Business, University of Chicago, 1990). FORTRAN programs are used to access the data needed for this study. The programs are written to get the different variable data necessary for my specific purposes.

Data on the degree of diversification (SIC codes) are obtained from the CRSP -file and Dun and Bradstreet Million Dollar Directory (MDD).

Other variables used in this study besides stock returns and strategic classification, are **multiple bidders, method of**

⁹About the CRSP-tape, see section below.

payment and time period.¹⁰ A takeover is classified as a multiple bidder contest if the contest involves an identifiable second bidder, i.e. a firm, an investor group or management team that is mentioned in the press and is actively participating in the contest by engaging in one of the following activities: (1) making formal tender offer or merger proposals including LBO/MBO and going private proposals, (2) negotiating a merger possibility with target management, or (3) announcing a plan to make a bid. One should note, however, that the multiple bidder variable often only represents the possibility of future higher bids. For target firms, the announcement date is the first date on which the news of the merger bid first appears in the Wall Street Journal. At this date it is often uncertain whether there will be later competing bids in the contest. If it turns out to be a multiple bidder contest ex post, this may be only partially anticipated ex ante by the market. The empirical results therefore measure the markets assessment of the probability and the value of future higher bids at the announcement date and the surrounding days around the announcement date (see methodology discussion below). In some cases, though, the second bid appears closely after the first bid. In such cases, by using a measurement window of several days, the effects of multiple bids may be measured more directly. One faces the measurement problems for bidders as well but in somewhat different form. If the first bidder finally wins the contest after a later bidder has submitted a bid, the problem is analogous to the solution of measuring multiple bidder effects for targets. However, often the winning bidder comes in late in the contest as a "white knight". In this case, the market knows that this is a multiple bidder contest (since earlier bidders have already submitted bids) and therefore more directly measures the effects of a multiple bidder situation.

The method of payment is identified from the Wall Street

¹⁰For a discussion of the effect of these variables on the creation and distribution of abnormal returns among bidders and targets, see earlier in this study.

Journal Index and the Journal of Mergers & Acquisitions at the announcement date of the proposed takeover. The takeover is defined as a stock exchange offer if the entire transaction is financed through an exchange of common stock, cash offers if the entire amount is paid in cash and mixed if the amount is paid through a combination of common stock and cash. Some problems exist when bids are revised after the announcement date or if the transactions are multiple bidder contests. If the transaction is a single bidder contest, but this bidder changes its initial bid by changing its method of payment, I use the method of payment in the initial bid. If the transaction is a multiple bidder contest, one faces different situations: (1) If the initial bidder eventually wins the contest, the initial method of payment is used, (2) if a later bidder wins the contest, this bidder's initial bid is used even though it differs from the first bidder's method of payment. This is not strictly correct because the transaction is classified according to the later bidder's method of payment which differs from the target's method of payment. The target's method of payment should have been the same as the initial bidder's method of payment because this is the method of payment at the target's announcement date.¹¹ This problem is, however, not big; only 14 transactions in the sample where the method of payment for the bidder and for the target are different, are identified.

Finally, the time variable dummy indicates whether the transaction is announced in the 70s or the 80s.

2.2. Determining announcement dates

The announcement date is defined as the day on which the news of the merger bid first appears in the Wall Street Journal. It is obtained by searching the Wall Street Journal Index (WSJI) and

¹¹Remember, the announcement date for the target is the day on which the news of the takeover bid from the initial bidder first appears in the Wall Street Journal.

looking for the first day where the takeover plan is first announced. The announcement date is the first date where there is an appearance of a takeover rumor, discussion, proposal, agreement or understanding in the WSJI. Highly speculative rumors, where the name of the bidder (or target) is not mentioned, are not used as announcement dates because they are unlikely to have a strong impact on the markets assessment of the probability that a takeover will take place. However, if the target's (bidder's) management announces that it has received (given) a bid from (to) an unidentified bidder (target), that day is regarded as the announcement date even though the bidder (target) is yet to be identified. It can be argued that it is hard to classify rumors as "highly speculative" or not, and that this difficulty may create problems in interpreting the results. In most cases, however, a more certain proposal or agreement tends to follow a few days after the rumor if the rumor is shown to be credible. Using a window capturing days both before and after the announcement date therefore reduces the importance of this problem. Furthermore, most of the announcements are of the type "agreement in principle" or "announced an offer" whereas the "rumor"-type announcements represent significantly fewer cases. Where rumors and discussions of takeover activity between two (or more) named firms are reported in the WSJI previous to a merger plan, agreement or understanding, the announcement day is considered the day upon which the rumor or discussions are first mentioned.

Target firms are often pursued by more than one bidder. In such cases, the targets' stock prices begin to rise at the announcement date of the first bid. If a second (or later) bidder wins the contest, the announcement date for the target firm may be considerably earlier than that for the bidder. The announcement date for the target is the date of the first announcement, whereas the bidder announcement date is the date upon which the winning acquiror in question first show any interest in the target.

The Mergers & Acquisitions Roster operates with effective dates;

that is the date when the merger is approved by stockholders or control is obtained through tender offer. It would be incorrect to use this date as an announcement date because at the effective date most of the market reaction to the initial announcement preceding the effective date has already been impounded in the stock prices of the bidding and target firms.¹²

Most of the reaction to a takeover occurs on the day before and the day of the announcement day (see Asquith 1983). Therefore, to measure the gains for a takeover as correctly as possible, accurate identification of the announcement date is very essential. Total abnormal returns to targets and bidders will be computed by using parameters for various time periods (windows) around the announcement date which capture leakage of information and changes in expectations.

2.3. Data characteristics and distribution of announcements

Tables IV.2.A-N below present the data characteristics and distribution of announcements for the entire takeover sample.

Analysis of the tables reveal that unrelated M&As are very common in the sample: 62% of all transactions are unrelated, whereas core M&As and related, not core M&As each constitute around 20% of the sample size. Wide degree of diversification in large takeover transactions where both bidder and target are listed on the stock exchange is therefore the rule rather than the exception in this particular sample.

¹²According to Dodd (1980) the date of shareholder approval (= effective date) occurs on average of 102 days after the first public announcement of a merger. Dodd shows that much of the stock price movements take place around the announcement date. In completed merger proposals, the average abnormal return around the date of stockholder approval is generally small.

TABLES IV.2. A - N:

A: DISTRIBUTION BY STRATEGIC CLASSIFICATION

| | Core M&As | Related,not core M&As | Unrelated M&As | Total |
|-----------------|-----------|-----------------------|----------------|-------|
| BIDDERS: | | | | |
| Number | 56 | 48 | 175 | 279 |
| Percentage | 20.1% | 17.2% | 62.7% | 100% |
| TARGETS: | | | | |
| Number | 54 | 47 | 167 | 268 |
| Percentage | 20.1% | 17.6% | 62.3% | 100% |

B: DISTRIBUTION BY COMPETITION

| | Multiple bids | Single bids | Total |
|-----------------|---------------|-------------|-------|
| BIDDERS: | | | |
| Number | 86 | 193 | 279 |
| Percentage | 30.8% | 69.2% | 100% |
| TARGETS: | | | |
| Number | 82 | 186 | 268 |
| Percentage | 30.6% | 69.4% | 100% |

C: DISTRIBUTION BY DECADE

| | 1970s | 1980s | Total |
|-----------------|-------|-------|-------|
| BIDDERS: | | | |
| Number | 123 | 156 | 279 |
| Percentage | 44.1% | 55.9% | 100% |
| TARGETS: | | | |
| Number | 121 | 147 | 268 |
| Percentage | 45.1% | 54.9% | 100% |

D: DISTRIBUTION BY METHOD OF PAYMENT

| | Stock | Cash | Mix | Total |
|-----------------|-------|-------|-------|-------|
| BIDDERS: | | | | |
| Number | 95 | 141 | 43 | 279 |
| Percentage | 34.1% | 50.5% | 15.4% | 100% |
| TARGETS: | | | | |
| Number | 97 | 128 | 43 | 268 |
| Percentage | 36.2% | 47.8% | 16.0% | 100% |

E: DEGREE OF COMPETITION

| STRATEGIC CLASSIFICATION: | Multiple bids | Single bids | Total |
|----------------------------------|----------------------|--------------------|--------------|
| BIDDERS: | | | |
| Core | 26.8% | 73.7% | 100% |
| Related, not core | 29.2% | 70.8% | 100% |
| Unrelated | 32.7% | 67.3% | 100% |
| TARGETS: | | | |
| Core | 25.9% | 74.1% | 100% |
| Related, not core | 29.8% | 70.2% | 100% |
| Unrelated | 32.3% | 67.7% | 100% |

F: DECADE

| STRATEGIC CLASSIFICATION: | 1970s | 1980s | Total |
|----------------------------------|--------------|--------------|--------------|
| BIDDERS: | | | |
| Core | 41.1% | 58.9% | 100% |
| Related, not core | 47.9% | 52.1% | 100% |
| Unrelated | 44.0% | 56.0% | 100% |
| TARGETS: | | | |
| Core | 42.6% | 57.4% | 100% |
| Related, not core | 46.8% | 53.2% | 100% |
| Unrelated | 45.5% | 54.5% | 100% |

G: METHOD OF PAYMENT

| STRATEGIC CLASSIFICATION: | Stock | Cash | Mix | Total |
|----------------------------------|--------------|-------------|------------|--------------|
| BIDDERS: | | | | |
| Core | 51.8% | 32.1% | 16.1% | 100% |
| Related, not core | 33.3% | 52.1% | 14.6% | 100% |
| Unrelated | 28.6% | 56.0% | 15.4% | 100% |
| TARGETS: | | | | |
| Core | 53.7% | 33.3% | 13.0% | 100% |
| Related, not core | 34.0% | 51.1% | 14.9% | 100% |
| Unrelated | 31.1% | 51.5% | 17.4% | 100% |

H: METHOD OF PAYMENT

| DEGREE OF COMPETITION | Stock | Cash | Mix | Total |
|------------------------------|--------------|-------------|------------|--------------|
| BIDDERS: | | | | |
| Single bids | 38.3% | 46.1% | 15.6% | 100% |
| Multiple bids | 24.4% | 60.5% | 15.1% | 100% |
| TARGETS: | | | | |
| Single bids | 40.3% | 44.1% | 15.6% | 100% |
| Multiple bids | 26.8% | 56.1% | 17.1% | 100% |

I:METHOD OF PAYMENT

| DECADE: | Stock | Cash | Mix | Total |
|-----------------|--------------|-------------|------------|--------------|
| BIDDERS: | | | | |
| 1970s | 43.9% | 41.5% | 14.6% | 100% |
| 1980s | 26.3% | 57.7% | 16.0% | 100% |
| TARGETS: | | | | |
| 1970s | 47.1% | 36.4% | 16.5% | 100% |
| 1980s | 27.2% | 57.1% | 15.7% | 100% |

J:DECADE

| DEGREE OF COMPETITION: | 1970S | 1980S | Total |
|-------------------------------|--------------|--------------|--------------|
| BIDDERS: | | | |
| Single | 44.0% | 56.0% | 100% |
| Multiple | 44.2% | 55.8% | 100% |
| TARGETS: | | | |
| Single | 45.7% | 54.3% | 100% |
| Bidders | 43.9% | 56.1% | 100% |

K: DATA CHARACTERISTICS - BIDDERS

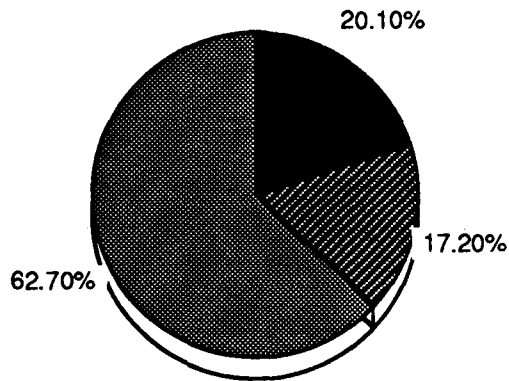
| Strategic Classification | Stock | | | | Cash | | | | Mix | | | | Total |
|-----------------------------|-------|----|-------|----|-------|----|-------|----|-------|----|-------|----|-------|
| | 1970s | | 1980s | | 1970s | | 1980s | | 1970s | | 1980s | | |
| | M | S | M | S | M | S | M | S | M | S | M | S | |
| Core | 5 | 13 | 3 | 8 | 1 | 3 | 5 | 9 | - | 1 | 1 | 7 | 56 |
| Related, not core | 2 | 8 | 1 | 5 | 2 | 7 | 8 | 8 | - | 4 | 1 | 2 | 48 |
| Unrelated | 8 | 18 | 2 | 22 | 16 | 22 | 20 | 40 | 4 | 9 | 7 | 7 | 175 |
| Total | 15 | 39 | 6 | 35 | 19 | 32 | 33 | 57 | 4 | 14 | 9 | 16 | 279 |

L: DATA CHARACTERISTICS - TARGETS

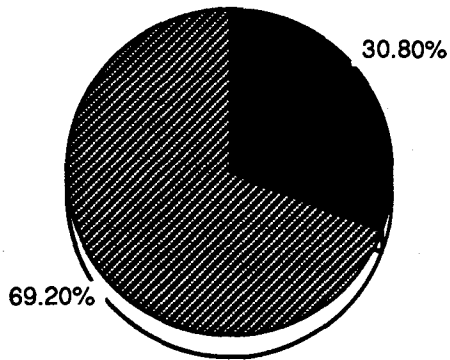
| Strategic Classification | Stock | | | | Cash | | | | Mix | | | | Total |
|-----------------------------|-------|----|-------|----|-------|----|-------|----|-------|----|-------|----|-------|
| | 1970s | | 1980s | | 1970s | | 1980s | | 1970s | | 1980s | | |
| | M | S | M | S | M | S | M | S | M | S | M | S | |
| Core | 5 | 14 | 2 | 8 | 1 | 3 | 5 | 9 | - | - | 1 | 6 | 54 |
| Related, not core | 2 | 8 | 1 | 5 | 2 | 6 | 8 | 8 | - | 4 | 1 | 2 | 47 |
| Unrelated | 8 | 20 | 4 | 20 | 12 | 20 | 18 | 36 | 6 | 10 | 6 | 7 | 167 |
| Total | 15 | 42 | 7 | 33 | 15 | 29 | 31 | 53 | 6 | 14 | 8 | 15 | 268 |

M= multiple
S= single

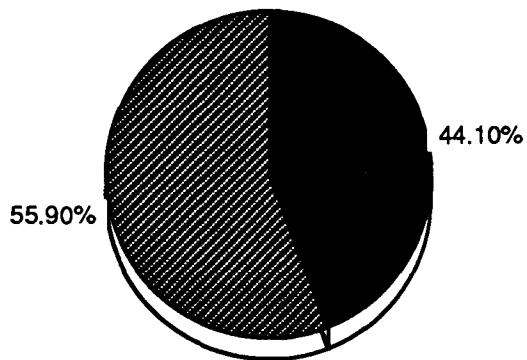
BIDDER CHARACTERISTICS



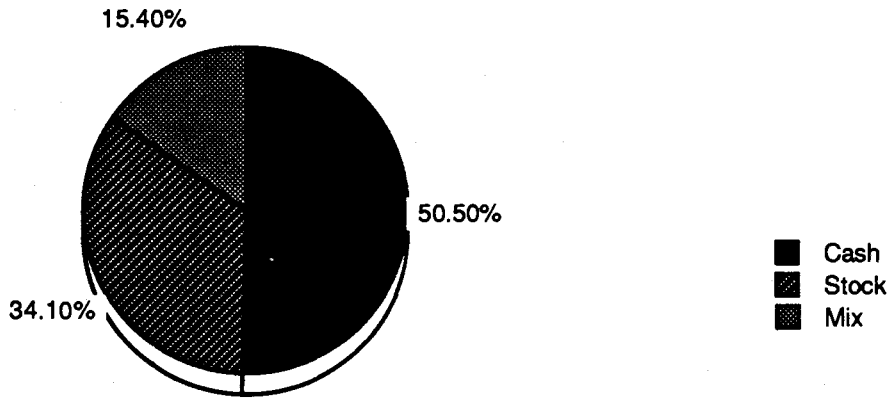
- Core M&As
- Related M&As
- Unrelated M&As



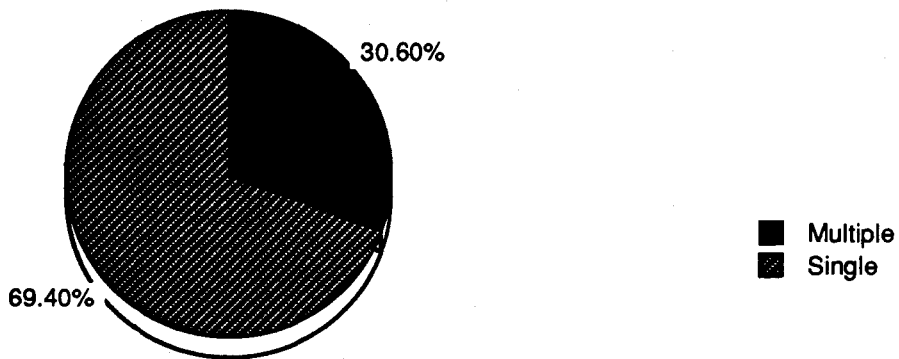
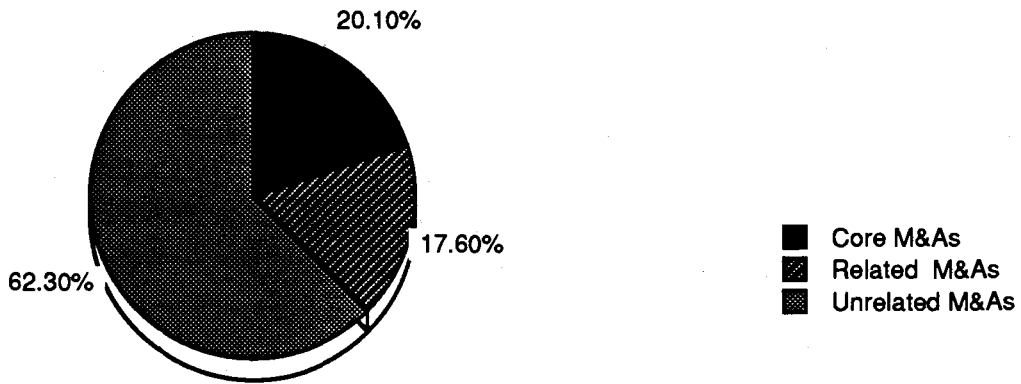
- Multiple
- Single

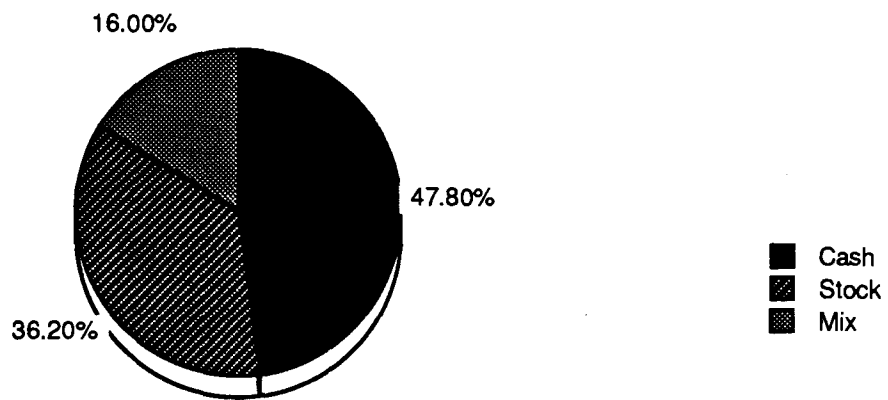
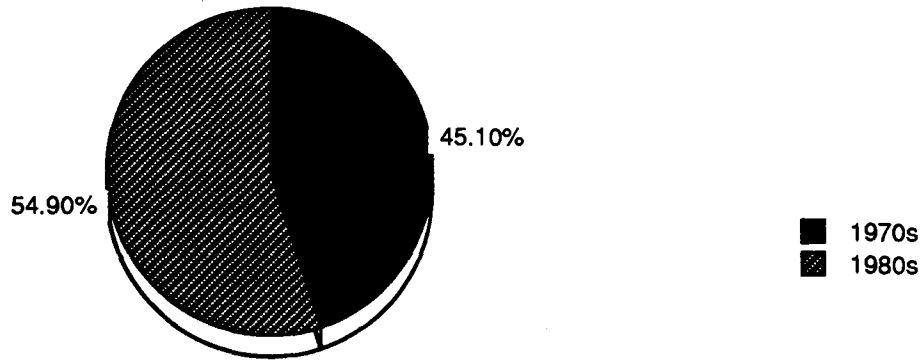


- 1970s
- 1980s



TARGET CHARACTERISTICS





Single bids are more common than multiple bids. In the sample, 2/3 of the transactions involve only one bidder. The other 1/3 of the transactions have another identifiable second bidder, i.e. a firm, an investor group or management team that is mentioned in the press and is actively engaging in the contest.

The transactions are fairly evenly distributed among the two decades involved. Fortyfive percent of the transactions take place in the 1970s and 55% in the 1980s.

Cash represents the major payment method for the entire sample, accounting for about 50% of all observations. Stock is used as means of payment in 34% of the cases and a mix between stock and cash is used in 16% of the transactions.

When one combines degree of competition and strategic classification, the data reveals that multiple and single bids are fairly evenly distributed among core, related, not core and unrelated transactions on a percentage basis. In each of the strategic categories about 1/3 of the bids are multiple and 2/3 single. Similarly, combination of decade and strategic classification indicates an approximately identical distribution of announcements for the three strategic groups as a function of time: around 45% in the 1970s and about 55% in the 1980s. A combination of method of payment and strategic classification reveals, however, that there is a more systematic relationship between type of takeover and method of payment. In core M&As, stock is the major payment method (50%), where cash and mix account for 35% and 15% respectively. On the other hand, cash seems to be the predominant payment method (>50%) in transactions where bidders and targets are related, not core or unrelated. Stock and mix account for around 30% and 15% respectively for these categories. Since cash transactions are usually associated with tender offers and stock exchange offers with mergers (eg., Huang & Walkling 1987), the data indicates that core M&As involve more merger transactions relative to tender

offers than the two other groups. To bring this point a step further, consistent with conventional wisdom, a hostile acquisition appears more likely to be undertaken through tender offer than through mergers and is therefore more likely to be cash offer than a stock offer. If this is true, one should expect fewer hostile offers, in the sample of core M&As than in those for related, not core and unrelated bidders.



Table IV.2.H. combines method of payment and degree of competition. Cash seems to be used more often when the takeover ends up in a multiple bidder contest. However, the difference between single and multiple bids when it comes to the method of payment is not that substantial.

Table IV.2.I. reveals that the payment method has an interesting time dimension. There are clear indications that cash has become more popular in the 1980s; In the last decade, stock exchange offers were applied in only 25% of the cases compared to 45 % in the 1970s.

Finally, if one combines decade and degree of competition, there is no sign of time dependence on the single/multiple bidder variable; approximately 45% of both single and multiple bids take place in the 1970s and the rest (55%) in the 1980s.

In table IV.2.E above, the data indicates that multiple and single bids are fairly evenly distributed among core, related, not core and unrelated transactions on a percentage basis in the entire sample. To gain additional insight into the multiple bidder transactions, data on the attributes of alternative bidders is collected. The alternative bidders are found by searching the Wall Street Journal Index for the time period surrounding the transaction that is analyzed. Based on a total of 86 multiple bidder transactions, 75 have two bidders, eight have three bidders, one has four bidders and two transactions have five bidders. Furthermore, the 86 multiple bidder transactions contain 15 core, 14 related, not core

and 57 unrelated transactions. The distribution of other (non-successful) bidders' relations to the target and the type of takeover transactions in my classification scheme is:

|  Other bidders' relations to target | | | | |
|---|--------|-------------------|-----------|------------------------------|
| Classification of transaction in my sample  | Core | Related, not core | Unrelated | Private investor(s), LBO/MBO |
| Core | 50.7 % | 7.1% | 14.3% | 28.6% |
| Related, not core | 14.3% | 31.6% | 34.5% | 20.2% |
| Unrelated | 19.6% | 10.8% | 57.8% | 11.8% |

In core M&As, 50% of the competing bidders are closely related to the target. Put differently, the winning bidder in the sample core M&As faces other bidders that are closely related in half of those transactions. The remaining part of alternative bidders are related, not core (7.1%), unrelated (14.3%) or private investor(s)/LBO/MBO (28.6%).

When the transaction is classified as related, not core, the alternative bidders' relation to the target is distributed more fairly among the different groups: core=14.3%, related, not core=31.0%, unrelated=34.5% and private investor(s)/LBO/MBO=20.2%.

In multiple bidder contests where the winning bidder is unrelated to the target, 57.8% of the alternative bidders are also unrelated to the target. About 30% of the bidders are related - either core (19.6%) or related, not core (10.8%). The private investor(s)/LBO/MBO group accounts for 11.8%.

In multiple bid transactions in which the winning bidder is closely related to the target (core M&A), many of the alternative bidders

are also closely related to the target. The fact that there are more than one core bidder, may indicate that the target possesses a specialized resource that provides a synergy opportunity for several core bidders, or that the synergy potential is industry specific (as opposed to firm specific). Both of these factors tend to reduce bidder returns. For the unrelated group many of the alternative bidders are also unrelated (57.8%). This may indicate that specific synergies are less dominating in those multiple bidding transactions or that other unrelated bidders tend to enter an auction process when previous bidders are also unrelated.

3. METHODOLOGY

3.1. Regression model

Event studies generally seek to measure abnormal security performance associated with firm-specific events. The assumption is that abnormal returns reflect net present values of changes in expected future cash flows. The event study method was introduced by Fama, Fisher, Jensen & Roll (1969) who found a technique to identify the impact of a specific event on a security's rate of return¹³. Different models (and combinations of them) have been used in empirical studies of mergers and acquisitions¹⁴: ex post CAPM, empirical market line and the market model. The market model, which is widely used in event studies, seems to be well-specified under a variety of conditions (Brown & Warner 1985:25), there is no evidence that more complicated methodologies convey

¹³One of the major implications of the efficient market hypothesis is that stock prices respond rapidly and in an unbiased manner to the announcement of new information. A large body of empirical evidence indicates that stock price changes provide the best estimate of the effect of a specific event on the value of the firm.

¹⁴See Halpern (1983) and Copeland & Weston (1988) for brief discussion of different aspects of event studies. Lubatkin & Shrieves (1986) give a general discussion of market performance measures in strategic management research.

any benefit (Brown & Warner 1980:249) and, finally, the model seems to be as well-specified as a procedure based on generalized least squares (Malatesta 1986:38). As discussed earlier in this study, using an event study methodology provides more benefits than alternative methodologies. First of all, it is difficult to use a change in factor or output prices to infer the profitability effect of M&As because it would require one to specify a firm's demand and cost function. Secondly, it would require an assessment as to when the merger will start having an impact on product and factor prices. Third, one would also have to define the normal change in product prices that would have occurred without a merger. In addition, if an empirical study is based on accounting data, one would face problems associated with measuring systematic risk, temporary disequilibrium effects, tax laws, arbitrary accounting conventions, etc.

In this study, the abnormal returns are estimated by using the following market model:¹⁵

$$R_{jt} = a_j + b_j R_{mt} + \sum_{n=1}^6 y_{jn} d_{nt} + e_{jt}$$

where

- R_{jt} = the continuously compounded daily rate of return on security j on day t
- R_{mt} = the continuously compounded daily rate of return on the CRSP value-weighted market index on day t
- e_{jt} = normally distributed error term of security j on event day t , with an expected return equal to zero, and which is independent of both r_{mt} and d_{nt}
- b_j = $\text{cov}(R_{jt}, R_{mt}) / \text{var}(R_{mt})$
- a_j = intercept term
- y_{jn} = average daily abnormal return for firm j over event period n
- d_{nt} = dummy variable which takes on a value of one if t is in

¹⁵For a description of this version of the market model, see Binder(1985), Thompson (1985), Malatesta (1986) and Eckbo, Maksimovic & Williams (1990).

event period n and zero otherwise

Since the explanatory variables in the return generating process are the same for each of the N stocks, N return equations have to be estimated:

$$\begin{aligned}
 R_{1t} &= a_1 + b_1 R_{mt} + \sum_{n=1}^6 y_{1n} d_{nt} + e_{1t} \\
 R_{2t} &= a_2 + b_2 R_{mt} + \sum_{n=1}^6 y_{2n} d_{nt} + e_{2t} \\
 &\vdots \\
 &\vdots \\
 R_{Nt} &= a_N + b_N R_{mt} + \sum_{n=1}^6 y_{Nn} d_{nt} + e_{Nt}
 \end{aligned}$$

The specification of the market model is based on the assumption that stock returns follow a multivariate normal distribution. This model controls for marketwide variations through the independent variable R_{mt} . The parameter b_j measures the sensitivity of the j th firm's return (R_{jt}) to movements in the market index (R_{mt}). The term $b_j R_{mt}$ is the portion of the return to security j that is due to marketwide factors.

Observed returns for security j at time t are calculated as follows:

$$R_{jto} = (P_{jt} F_{jt} + D_{jt}) / P_{jt-1} - 1$$

where

$$\begin{aligned}
 R_{jto} &= \text{returns security } j \text{ time } t \\
 P_{jt} &= \text{security } j\text{'s closing price at time } t \\
 D_{jt} &= \text{cash adjustment for security } j \text{ time } t \\
 F_{jt} &= \text{price adjustment factor security } j \text{ time } t
 \end{aligned}$$

F_{jt} is used to adjust to stock prices after a distribution (cash dividends, capital adjustments and other distributions) so that a comparison can be made on an equivalent basis between prices before and after the distribution.

The total window of returns used for the regression analysis is -360,+20 days relative to the announcement day (=day 0). The parameters a_j and b_j are estimated in the period -360,+20 whereas the y_{jn} 's are estimated over the period -60,+20 (total of 81 days). The nonoverlapping event periods relative to the announcement date are chosen to be:

event period 1: -60,-41
 event period 2: -40,-21
 event period 3: -20,- 2
 event period 4: - 1, 0
 event period 5: 1, 10
 event period 6: 11, 20

It is worthy to note that in the market model used here, the parameters (a_j and b_j) are estimated from data covering the entire sample period (both the event and the non-event periods). Compared to a market model based on a standard two-step procedure (e.g. Fama 1976), this model slightly increases the efficiency of the estimators (Eckbo, Maksimovic & Williams 1990). The abnormal return parameter y_{jn} is estimated for the specific event period and directly isolates the average daily abnormal return for firm j over event period n that is due to the event. Thus, the parameters in the regression are estimated simultaneously.

Missing observed returns are handled as follows: if a daily return is missing, this day is removed from the time series (and therefore reducing the number of observations for the parameter estimation). This change is then accounted for in the regression analysis and in the test of significance of hypothesis. The window [-1,0] is given special treatment. If both days are missing, the firm is thrown out of the analysis. If only one return observation is missing (either day -1 or 0) then the firm is kept in the analysis. However, when creating portfolios, the firm is only included for event periods other than [-1,0]. When abnormal returns and Z-statistics are computed over two or more event periods, firms that do not have two return observations in the window (-1,0) are

excluded.

3.2. Computing abnormal returns

Abnormal return to firm j over event period n (AR_{jn}) is computed by multiplying the event parameter y_{jn} ($n=1, \dots, 6$) by the number of observations in the event period (h_{jn}):¹⁶

$$AR_{jn} = y_{jn}h_{jn}$$

Since the AR_{jn} reflects the impact of all news in period n (not only the M&A announcement), the firm-specific abnormal return must be aggregated to a portfolio in order to study generalizable performance differences. One collects a sample of takeovers consisting of different firms in different time periods. This is done to randomize impacts of news announcements unrelated to the merger or acquisition announcement. The average abnormal return for a portfolio for the n th event period is computed as:

$$AR_n = \frac{1}{N_n} \sum_{j=1}^{N_n} AR_{jn}$$

where

N_n = number of securities in portfolio (number of independent takeover announcements) for event period n

AR_n = unbiased estimate of average abnormal returns of merger/acquisition announcements over event period n

¹⁶Each firm's event parameter (y_{jn}) must be multiplied with the number of observations in the specific time period for that firm. The reason for this is that the number of period specific missing returns varies among different firms.

3.3. Test of significance of hypothesis

To test whether the y_{jn} 's are statistically different from zero, the following z-statistic is computed:

$$Z_n = \frac{1}{\sqrt{N_n}} \sum_{j=1}^{N_n} \frac{y_{jn}}{S_{y_{jn}}}$$

where $S_{y_{jn}}$ is the standard deviation of y_{jn} . Assuming that the N_n events are independent, Z_n is approximately unit-normal variate under the null hypothesis that $AR_n = 0$.

The Z-value for the sum of two event parameters that measures abnormal returns over periods of different length is computed as (assuming both event periods contain the same number of events):¹⁷

$$Z_{3+4} = \frac{1}{\sqrt{N_n}} \sum_{j=1}^{N_n} \frac{(AR_{j3} + AR_{j4})}{\sqrt{S_{y_{j(3+4)}}^2}}$$

where

$$S_{y_{j(3+4)}}^2 = S_{y_{j3}}^2 h_{j3}^2 + S_{y_{j4}}^2 h_{j4}^2$$

¹⁷This holds because the event period dummies in the regression model above are orthogonal.

3.4. Cross-sectional regression model

To obtain additional insights into the price effects from takeover bids, a cross-sectional model is run for individual announcement-period stock returns. Such a regression model permits me to control for (1) effects of competition in the market for corporate control, (2) method of payment and (3) time period while examining the effects of strategic core and degree of diversification.

The regression model is

$$CAR = X_0 + X_1C + X_2R + X_3M + X_4T + X_5P_1 + X_6P_2$$

where the dummy variables are defined as follows:

- C = 1 if the takeover is a strategic core M&A and zero otherwise
- R = 1 if the takeover is a related, not core M&A and zero otherwise
- M = 1 if the offer is made in a multiple-bidder contest and zero otherwise
- T = 1 if the offer is made after 1980 and zero otherwise
- P₁ = 1 if the method of payment is cash and zero otherwise
- P₂ = 1 if the payment method is mixed and zero otherwise

The first two dummy variables are included to examine the marginal effect of strategic category effects on abnormal returns for bidders and targets. The selection of the additional dummy variables is based on prior studies of takeover activity, and the effects of those variables are discussed earlier in this study. **Method of payment (P₁, P₂)** seems to influence the abnormal returns for both targets and bidders in a takeover contest. Target firms realize on average higher abnormal returns in cash offers than in security exchange offers (see Huang & Walkling 1987, Eckbo & Langohr 1989 and Eckbo, Maksimovic & Williams 1990 for empirical evidence). This result can often be attributed to

information asymmetries between the bidder and target. Cash is a costly medium of exchange since the bidder bears the full cost of overpaying for the target. Using cash therefore signals high valuation of the target. In a security exchange offer, uncertainty about the success of the bid is important to the target shareholders. Stockholders in acquiring firms seem to benefit from using cash in takeovers. Assume that managers possess information about the intrinsic value of their firm which is not fully reflected in the preacquisition stock price, and that they will finance the acquisition in the most profitable way for existing shareholders. In the vein of Myers & Majluf (1984), cash will be the preferred method of payment if the firm is believed to be undervalued, while common stock exchange offer will be offered in the opposite case. This provides a signal to the market in the sense that a cash offer is good news and a common stock offer is bad news about the bidding firm's true value.¹⁸

The M variable indicates whether the takeover bid is a **multiple** or **single** bidding contest. Multiple bidding tend to increase target premiums and reduce bidder returns. Empirical evidence indicates that target companies through an auction effect realize significantly higher abnormal returns in multiple bidding situations.¹⁹ For bidding firms the abnormal returns are reduced when there is strong competition among bidding firms; Bradley, Desai & Kim (1988) show that returns to acquiring firms are significantly positive in single-bidder contests and insignificantly different from zero in multiple- bidder contests.

¹⁸Recent empirical work has shown that, in general, announcements of additional equity issues by public corporations are accompanied by negative share price effects (Smith 1986 summarizes this evidence). In a takeover bid where equity is the payment method, positive announcement effects from the takeover can be offset by information released in the financing decisions (See Travlos 1987).

¹⁹See James & Wier 1987, Bradley, Desai & Kim 1988 and Michel & Shaked 1988.

The dummy variable T is included to take into account time (environment) effects on takeover bids. Jarrell & Bradley (1980) and Bradley, Desai & Kim (1988) find that the financial and regulatory environment, as measured by the decade in which the bid occurs, is important in determining the wealth gains of shareholders of target and acquiring firms. The 80s are distinguished from the 70s in several respects: (1) less intervention by government, (2) development of sophisticated defensive tactics (poison pills, targeted share repurchases, lock-up provisions, supermajority, fair-price amendments etc.) and (3) junk bonds and other means of financing corporate takeovers.

To account for the possibility of heteroskedastisity in the data, all variables are standardized with the standard error of the market model regression (S). This is equivalent to using weighted least squares to estimate the regression parameters where the reciprocal of the standard error of the market model is the relevant weights.

The weighted least square regression model that is run can be expressed as follows:

$$CAR/S = X_0/S + X_1C/S + X_2R/S + X_3M/S + X_4T/S + X_5P_1/S + X_6P_2/S.$$

V. EMPIRICAL RESULTS¹⁶²

1. ABNORMAL RETURNS TO STOCKHOLDERS OF ACQUIRING FIRMS

This section analyzes empirical results based on abnormal returns to stockholders of acquiring firms. The abnormal returns for different event periods (1,.....,6) and combinations of these are examined. Such a time series analysis provides insight into the intertemporal behavior of M&A returns. One should take notice of the fact that when the bid is announced, the eventual outcome of the bid is uncertain. Furthermore, there is also uncertainty associated with whether a takeover bid will be submitted or not before the announcement date (partial anticipation). These types of uncertainties are resolved over time when new information about the offer is revealed to the market. The period over which this uncertainty is resolved varies across the sample and of course affects the abnormal returns. Of particular importance is that this period over which the uncertainty is resolved may vary for different strategic groups (unrelated, related, not core and strategic core M&As). For example, one could imagine a scenario where for unrelated takeovers most of the uncertainty resolution and announcement effects take place close to day zero (the announcement date) as opposed to the core group where the effect seems to be more evenly distributed over a longer time span (as we will see later, the data actually indicates that this is the case).

The abnormal returns for acquiring firms are computed for four different portfolios:(1) all bidders (279 firms), (2) strategic core M&As (56 firms), (3) related, not core M&As (48 firms) and (4) unrelated firms (175 firms).¹ Table V.1. below presents average

¹As discussed in section III.4 above, the classification is based on the following rule: (A) strategic core M&As: M&As among firms within the same three and/or four digit SIC-code, (B) related, not core M&As: M&As among firms within the same two-digit SIC code (but different 3 digit SIC code) and (C) unrelated M&As: M&As

TABLE V.1. - PARAMETER VALUES FOR a'S AND b'S

| | <u>All firms</u> | <u>Bidder firms</u> | <u>Target firms</u> |
|---------|------------------|---------------------|---------------------|
| a | 0.0002 | 0.0002 | 0.0001 |
| Z-stat. | 4.40 | 3.72 | 2.46 |
| b | 0.934 | 0.982 | 0.881 |
| Z-stat. | 152.33 | 129.16 | 85.18 |

alfa (a), beta (b) and Z-values for bidders and targets.

1.1. All bidders

Table V.2. below provides the empirical results for bidder firms and shows that, on average, bidder firms' stockholders realize negative or zero abnormal returns. The abnormal returns are indistinguishable from zero at a 5 % level in all event periods except for event period 4 (-1,0) where bidders realize a significantly negative return -1.09 % ($Z=-7.81$) and event period (-20,+10) where the negative return amounts to -0.97% ($Z=-2.08$). Even though bidders in the sample on average lose from M&As, it is worthy of note that the portfolio of all bidders contains acquiring firms undertaking different types of strategic M&As. Negative returns in one strategic category may outweigh potential positive returns from another strategic category. To analyze this further, the "all bidders"-group is subdivided into three portfolios: (1) strategic core M&As, (2) related, not core M&As and (3) unrelated M&As.

1.2. Strategic core M&As (hypothesis 1)

As hypothesized, bidders in strategic core M&As realize positive abnormal returns. Bidders in this group gain positive abnormal returns in all event periods. For event period (-60,+10) the abnormal return (5.01 %) is almost significantly positive at a 5 % level when a two tailed Z-test is applied ($Z=1.94$). In event period (-40,+10) the abnormal return is 4.21 % ($Z=1.66\%$). For bidders in this group, the M&A seems to be a wealth-increasing event. To a large extent, the sample value creation (abnormal returns) for this group takes place before the actual announcement date. The abnormal return in the period (-60,-2) amounts to 4.20 %. This

across two-digit SIC codes.

TABLE V.2. - RESULTS BIDDER FIRMS

Average abnormal returns (AR_n's) in percent for different strategic categories and event periods. The Z-value (Z_n) and number of firms (N) in portfolio are given in parentheses.

| Event period | All bidders | Strategic core M&As | Related, not core M&As | Unrelated M&As |
|--------------------------------|-------------------------|---------------------|------------------------|-------------------------|
| AR ₁ -60,-41 | 0.32 (0.93,279) | 0.79 (1.03,56) | 0.60 (0.66,48) | 0.09 (0.25,175) |
| AR ₂ -40,-21 | 0.35 (0.55,279) | 1.36 (1.11,56) | 1.07 (0.97,48) | -0.49 (-0.43,175) |
| AR ₃ -20,-2 | 0.14 (0.25,279) | 1.50 (1.16,56) | 0.65 (0.24,48) | -0.43 (-0.46,175) |
| AR ₄ -1,0 | -1.09*** (-7.81,267) | 0.38 (-0.44,53) | -0.56 (-1.42,45) | -1.69*** (-8.84,169) |
| AR ₅ 1,10 | -0.51 (-1.18,279) | 0.34 (0.70,56) | -1.81* (-1.69,48) | -0.43 (-0.95,175) |
| AR ₆ 11,20 | 0.26 (0.52,279) | 0.10 (-0.36,56) | 0.34 (0.93,48) | 0.28 (0.37,175) |
| AR _{3,AR4} -20,0 | -0.97** (-2.08,267) | 1.70 (0.91,53) | 0.07 (-0.14,45) | -2.08*** (-3.01,169) |
| AR _{2,AR4} -40,0 | -0.70 (-1.03,267) | 3.62 (1.37,53) | 0.93 (0.63,45) | -2.50** (-2.36,169) |
| AR _{2,AR5} -40,+10 | -1.05 (-1.21,267) | 4.21* (1.66,53) | -0.74 (-0.19,45) | -2.77** (-2.37,169) |
| AR _{1,AR5} -60,+10 | -0.68 (-0.54,267) | 5.01* (1.94,53) | -0.09 (0.18,45) | -2.63* (-1.84,169) |

* = significantly different from zero at the 10 % level

** = significantly different from zero at the 5 % level

*** = significantly different from zero at the 1 % level

Hypotheses tested using a two-tailed Z-test

upward drift in the stock price before the announcement date seems to be strong for this group. One reason for this might be that strategic core M&As face a larger degree of partial anticipation (Malatesta & Thompson 1985) and insider trading (Jarrell & Poulsen 1989b) than the other groups (this aspect will be discussed more extensively later).

1.3. Related, not core M&As (hypothesis 2)

Related, not core M&As realize zero or negative abnormal returns. The results show that bidder abnormal returns are not significantly different from zero at a 5 % level for any event period. However, in event period five the abnormal return (-1.81 %) is significantly negative at the 10 % level. These results are consistent with the proposition that relatedness, per se, is not sufficient to realize gains for bidders in M&As. Put differently, the premium related bidders have to pay is seemingly higher than the present value of expected future rent created from the takeover. One reason for this may be that other core bidders are able to create large amounts of rent creating (specific) synergies. To win the contest, related bidders must pay an amount that equals the next highest offer plus an amount epsilon. According to the theoretical model in Chapter III above, this amount will often imply that related bidders have to pay too much of a premium to realize a positive abnormal return.

The results support the hypothesis that the expected abnormal return for related bidders is zero. The fact that abnormal returns have a tendency to be negative for this group (contrary to hypothesis) should not be too surprising; related bidders should on average be expected to create less specific synergies than core bidders. But, still, they have to pay at least as much as what core bidders are willing to pay. Hence, negative returns for related bidders should not come as a shock.

1.4. Unrelated M&As (hypothesis 3)

By examining the results for unrelated M&As, one sees that the stockholders of these bidding firms generally realize significant losses. The announcement effect in event period 4 is - 1.69 % and a Z-statistic as large as -8.84. In event period (-20,0) the announcement effect is -2.08 % (Z=-3.01). Event periods (-40,0) and (-40,+10) have abnormal returns of -2.50 % (Z=-2.36) and -2.77 % (Z=-2.48) respectively. For the other event periods, the abnormal returns are not significantly different from zero at the 5 % level. However, the strong support for hypothesis 3 indicates that small expected benefits from unrelated diversification is more than outweighed by the required takeover premiums that must be paid to gain control of a firm.

1.5. Test of equality of means among strategic groups

Table V.3. below provides the tests of equality of means among various bidder strategic groups. These tests analyze whether the difference in mean abnormal returns between two groups is statistically different from zero. The panel shows that returns to strategic core M&As are statistically higher than returns to unrelated bidders. Moreover, strategic core M&As create higher returns than related, not core M&As, but this is only significant at the 10% level. Mean returns in related versus unrelated acquisitions are not statistically different for any of the event periods.

2. ABNORMAL RETURNS TO TARGET STOCKHOLDERS

2.1. All targets (hypothesis 4)

In accordance with virtually every event study on M&As,

TABLE V.3. - TESTS OF EQUALITY OF MEANS - BIDDERS

This table provides the tests of equality of means (t-statistics). Degrees of freedom in parentheses.

SC = strategic core M&As
RC = related, not core M&As
UR = unrelated M&As

| | SC-RC | SC-UR | RC-UR |
|---|---------------|------------------|----------------|
| AR ₄ -1,0 | 0.92 (96) | 2.53* (220) | 1.32 (212) |
| AR ₃ ,AR ₄ -20,0 | 1.03 (96) | 2.54** (220) | 1.32 (212) |
| AR ₂ ,AR ₄ -40,0 | 1.12 (96) | 3.18*** (220) | 1.73* (212) |
| AR ₂ ,AR ₅ -40,+10 | 1.65* (95) | 3.26*** (220) | 0.93 (212) |
| AR ₁ ,AR ₅ -60,+10 | 1.50 (96) | 3.10*** (220) | 1.08 (212) |

* = significantly different from zero at the 10 % level

** = significantly different from zero at the 5 % level

*** = significantly different from zero at the 1 % level

Hypotheses tested using a two-tailed t-test

stockholders of target firms realize large significantly positive abnormal returns on and around the announcement date (see table V.4.). There is a large effect in event period 4 (-1,0) for "all targets" (11.29 %, Z=57.00), strategic core targets (8.42 %,Z=19.05), related, not core targets (11.85 %, Z=24.82) and unrelated targets (12.04 %,Z=47.38). The abnormal returns for event period 3 (-20,-2) are also large where the group "all targets" realizes 8.39 % (Z=13.02), strategic core targets 7.32 % (Z=4.83), related,not core targets 6.16 % (Z=4.42) and unrelated targets 9.36 % (Z=11.40). Taken together, most of the abnormal returns for target firms are impounded in the stock price in event period 3 and 4 (-20,0). The abnormal returns generated for event periods 1 and 6 are statistically indistinguishable from zero (except for unrelated M&As in event period 1).

The significant abnormal returns in event period 3 (before the announcement date) is consistent with partial anticipation of the takeover announcement and insider trading.

2.2. Tests of equality among strategic groups (hypothesis 5)

Hypothesis 5 states that strategic core targets are expected to realize higher abnormal returns than related targets which in turn are expected to realize higher abnormal returns than unrelated targets. Table V.5. shows the tests of equality of means among targets in different strategic groups. The results actually suggest a reverse relationship: unrelated M&As realize higher returns than related, not core M&As which in turn realize higher returns than core M&As. Targets in unrelated M&As realize significantly higher returns than targets in strategic core M&As. The difference between core and related, not core targets, and unrelated and related, not core targets are not statistically different from zero at the 5 % level. Therefore, hypothesis 5 is not supported.

TABLE V.4. - RESULTS TARGET FIRMS

Average abnormal returns (AR_n 's) in percent for different categories and event periods. The Z-value (Z_n) and number of firms (N) in portfolio are given in parentheses.

| Event period | All targets | Strategic core M&As | Related, not core M&As | Unrelated M&As |
|--------------------------------|-------------------------|------------------------|------------------------|-------------------------|
| AR ₁ -60,-41 | 0.70 (1.48,268) | -2.21 (-1.23,54) | 1.18 (0.94,47) | 1.51** (2.07,167) |
| AR ₂ -40,-21 | 1.65*** (2.69,268) | 0.76 (0.46,54) | 3.50** (2.53,47) | 1.41* (1.71,167) |
| AR ₃ -20,-2 | 8.39*** (13.02,268) | 7.32*** (4.83,54) | 6.16*** (4.42,47) | 9.36*** (11.40,167) |
| AR ₄ -1,0 | 11.29*** (57.00,240) | 8.42*** (19.05,47) | 11.85*** (24.82,43) | 12.04*** (47.38,150) |
| AR ₅ 1,10 | 1.26*** (3.35,268) | 1.41* (1.80,54) | -0.30 (0.24,47) | 1.65*** (3.10,167) |
| AR ₆ 11,20 | 0.51 (1.08,268) | 0.45 (0.32,54) | 0.19 (0.18,47) | 0.62 (1.09,167) |
| AR _{3,AR4} -20,0 | 20.90*** (30.59,240) | 17.28*** (11.41,47) | 19.30*** (12.25,43) | 22.49*** (25.75,150) |
| AR _{2,AR4} -40,0 | 22.82*** (23.82,240) | 18.37*** (8.53,47) | 23.34*** (10.65,43) | 24.07*** (19.64,150) |
| AR _{2,AR5} -40,+10 | 23.01*** (21.82,240) | 18.96*** (8.11,47) | 22.54*** (9.46,43) | 24.41*** (17.99,150) |
| AR _{1,AR5} -60+10 | 23.90*** (19.31,240) | 16.58*** (6.11,47) | 24.13*** (8.62,43) | 26.14*** (16.39,150) |

* = significantly different from zero at the 10 % level

** = significantly different from zero at the 5 % level

*** = significantly different from zero at the 1 % level

Hypotheses tested by using a two-tailed Z-test

TABLE V.5. - TESTS OF EQUALITY OF MEANS - TARGETS

This table provides the tests of equality of means (t-statistics). Degrees of freedom in parentheses.

SC = strategic core M&As
RC = related,not core M&As
UR = unrelated M&As

| | SC-RC | SC-UR | RC-UR |
|---|----------------|------------------|----------------|
| AR ₄ -1,0 | -1.25 (88) | -1.69* (195) | -0.08 (191) |
| AR ₃ ,AR ₄ -20,0 | -0.61 (88) | -1.92 (195) | -1.11 (191) |
| AR ₂ ,AR ₄ -40,0 | -1.35 (88) | -1.88 (195) | -0.23 (191) |
| AR ₂ ,AR ₅ -40,+10 | -0.90 (87) | -1.65* (195) | -0.54 (191) |
| AR ₁ ,AR ₅ -60,+10 | -1.67* (87) | -2.62** (195) | -0.52 (191) |

* = significantly different from zero at the 10 % level

** = significantly different from zero at the 5 % level

*** = significantly different from zero at the 1 % level.

Hypotheses tested using a two tailed t-test.

3. DISCUSSION OF RESULTS

3.1. Bidder returns

The most interesting part of the empirical analysis of this study is the examination of bidder returns. One main reason for this is that in the majority of studies in financial economics, scholars have had difficulty finding abnormal returns for bidders that are significantly different from zero (see discussion in chapter II, section 7 and 8 above). This problem has led to a discussion of whether the observed zero abnormal returns are a result of competitive mechanisms in the market for corporate control (e.g. Ruback 1983) or of measurement problems like partial anticipation (Malatesta & Thompson 1985) and size effect problems (Asquith, Bruner & Mullins 1983). Furthermore, in the strategy area researchers have tried to group firms into different strategic categories but have not found any conclusive results (Chatterjee 1986, Lubatkin 1987, and Singh & Montgomery 1987). It is my belief that important reasons for the inconclusive results in the strategy field stem from small samples, size-effect problems and, most importantly, lack of theories that integrate strategy and finance. In light of existing results in the M&A field, the present study provides interesting results that are consistent with important work in the strategy field (Teece 1980,1982, Rumelt 1982, Williamson 1985, Reve 1990) and finance (Ruback 1983). To reiterate, the empirical results of this study show that returns are in the hypothesized direction **and** support my hypotheses which are linked to my theoretical model:

| TYPE OF BIDDER: | ABNORMAL RETURNS: |
|------------------------------|-------------------|
| 1. All bidders | Negative |
| 2. Strategic core bidders | Positive |
| 3. Related, not core bidders | Zero |
| 4. Unrelated bidders | Negative |

The results show that strategic core bidders represent the only group that realize positive abnormal returns in M&As. This group also has higher abnormal returns (equality of means test) than unrelated bidders at the 5 % significance level and related, not core bidders at the 10% level. Unrelated bidders realize significantly negative returns and related bidders realize negative or zero abnormal returns. The results in this study are consistent with the following:

1. Value created and value destroyed - not only redistribution effects
2. Strategy matters
3. Strategic core - major dimension for choice between integration, strategic alliances and markets
 - 3.1. Product-market imperfections
 - 3.1.1. Sunk costs, transaction costs, imperfect information and causal ambiguity
 - 3.1.2. Markets - not fully contestable
 - 3.1.3. Sustainable competitive advantage (vis-a-vis competitors)
 - 3.2. Relatedness, per se, not sufficient for abnormal returns
 - 3.3. In unrelated acquisitions, winner's curse or agency problems may be dominant effects
 - 3.4. Transactions costs theory (Williamson 1985)
 - 3.5. Positioning, industrial org. economics Porter (1980,1985)

4. Market efficiency
5. Competition in the market for corporate control - not perfect.
6. Measurement problems - partial anticipation and size-effects
7. Important link between strategy and finance

1 - Value created and value destroyed - not only redistribution effects

The fact that both strategic core bidders and targets realize positive abnormal returns is consistent with the proposition that M&A announcements are wealth-increasing events for both parties in the transaction. That is, net total benefits (synergy+reduced transaction costs+market power effects+diversification benefits-costs of integration) are positive for firms in core transactions. Furthermore, the bidders are able to capture some of the gains created by only paying a premium which represent less than 100 % of the total value created. One could argue that some of the gains might be a redistribution to stockholders from other stakeholders of the firm, e.g. transfers from holders of senior securities (Dennis & McConnell 1986) or abrogation of implicit contracts with employees, suppliers, customers, etc. (Shleifer & Summers 1988). There has been no attempt in this study to analyze the importance of these effects. Moreover, some of the bidder gains in the core group may stem from increased market power. Even though prior studies tend to reject the market power hypothesis (see Eckbo 1983,1985, Eckbo & Wier 1985, Stillman 1983 and James & Wier 1987), potential gains from increased collusion can not be ruled out as an explanatory factor.

In the case of unrelated takeovers, value is destroyed for bidders, but created (of course) for targets. It is uncertain whether the total gains (bidders and targets together) are positive, negative or zero. However bidders in the unrelated group pay, on average, a premium that more than outweighs a possible gain. The net result is that bidders lose and targets gain from this large premium.

For related, not core bidders the argument is analogous to the one for unrelated bidders. However, the results for the related bidder group are indistinguishably different from zero at a 5 % level.

2 - Strategy matters

There has been some discussion in the literature whether intended strategies (cf., Mintzberg 1988) really matters; that is, if managers really can create sustainable competitive advantage (Porter 1985) through strategic choice and action. Even though there is strong consensus that strategy matters, this study adds to the current empirical evidence that strategy formulation and implementation are important.

3 - Strategic core - a major dimension

The results in this study indicate that the concept of strategic core (Reve 1990) is important in strategy research in general and in M&A research in particular. The lengthy model developed in this study, which uses strategic core as one of the main building blocks, is supported by evidence from a large sample of takeovers from the 1970s and 1980s. This finding has important implications for corporate strategy and M&As. In my view, the best way to look upon strategic M&As is to regard these transactions as **instruments** to implement corporate strategy. Put differently, M&As represent a way of creating competitive advantage through cost advantage or differentiation. For these advantages to be sustainable, the newly formed economies of scale and scope must be sustainable as well. If they are not sustainable, they will not create rents in the product-market. Furthermore, if they are not sustainable, it is expected that bidding mechanisms in the market for corporate control ensures that bidders, at best, realize zero gains. Creating competitive advantage through imperfections in

the product- markets is what strategy is all about, and therefore, is what strategic M&As are all about.

The empirical evidence from this study supports the claim that only strategic core bidders realize positive abnormal returns and lends support to the model discussed in Chapter 3. According to the model, strategic core has two fundamental effects: (1) a product-market effect and (2) a financial market effect. The strategic core influences the degree to which the firm can create a competitive advantage in the product-market via physical asset specificity, human asset specificity (specific know-how, organizational routines/structures/systems and organizational structure), site specificity, image/reputation and strong external alliances. These core assets strongly affect the drivers that create market failures and sustainable competitive advantage. As discussed earlier in this study, the most important underlying drivers for market failure are sunk costs, transaction costs, imperfect information and causal ambiguity. Takeover gains based on the strategic core of a firm are therefore expected to create sustainable rent since they are not easily duplicated or countered by competitors. The empirical evidence supporting the strategic core implications does not support Baumol's (1982) discussion on contestable markets. Core bidders realize synergies based on imperfections in the product-markets where sustainability to some extent is ensured.

The strategic core also has an important financial market effect; even if the market for corporate control is competitive, the bidder can realize an abnormal return. If a certain bidder has a large specific synergy potential (S) which is larger than the specific synergy potential that any other bidder can realize, there is no strong substitutability among bidders.² One should expect that this would hold more often in cases where a firm diversifies narrowly as opposed to widely. The empirical results lend support to this financial market effect.

²For a formal treatment, see model in chapter 3.

In the case of related, not core bidders, the results are again striking. The results support the assertion that relatedness among bidders and targets is not a sufficient condition for acquiring firms to realize positive abnormal returns. If the economies that are created are not unique enough, one should expect that the premium outweigh the benefits for the bidder. This is a result of the competitive bidding mechanism that probably will unfold in the market for corporate control. In general, when the cost of resource acquisition equals the value created by implementing a strategy, this strategy generates only normal returns even if it successfully creates imperfect competition in product markets.

If there are economies to be realized among firms that are related (but not closely), other types of firm organization may be a better solution than a takeover. Examples here might be internal development, formal contracts, joint ventures and strategic alliances.

Unrelated bidders lose significantly in takeovers. Even if there might be small expected net positive synergy effects from an unrelated takeover, these effects can hardly justify the large takeover premiums required to gain control over a company. Furthermore, most of the synergies seem to be quite general (G). The negative results for the unrelated bidders are consistent with the "hubris hypothesis" put forward by Roll (1986) or an agency problem where the management deliberately acts in a way that destroys shareholder value.

The finding that core bidders outperform related and unrelated bidders is consistent with transaction costs theory (Williamson 1985). A firm's strategic core is, per definition, highly specific and should therefore be organized within the firm's boundaries (hierarchy). Synergies based on less specific assets (unrelated and related, not core) should probably be handled through different governance structures. The empirical findings also lend support to

the main argument in industrial organization economics (Porter 1985): a firm should seek to create an advantage in the product-market that is sustainable. M&As based on narrow diversification are expected to be the takeover strategy that most likely satisfies that requirement.

4 - Market efficiency

The results from this study is also consistent with market efficiency in a semi-strong form (Fama 1970,1976). According to this hypothesis, the expected price effects will occur on or before the first public announcement of a takeover. For both bidders and targets in my sample, there is an upward drift in the stock price before the actual announcement date. Information leaking, partial anticipation and insider trading may explain this. In addition, the reaction on the days -1,0 is strong and significant. After the announcement date the abnormal returns converge quickly towards zero again. This pattern of stock price behavior is consistent with semi-strong market efficiency.

5 - Competition in the market for corporate control - not perfect

Many researchers have concluded that the takeover markets are competitive. The microeconomic definition of a perfectly competitive market focuses on firms which face infinitely elastic demand curves for homogeneous products. Since bidding and target firms are heterogeneous, this definition does not seem to apply in the takeover market. The evidence indicates that core bidders actually capture some of the gains created which is consistent with the proposition that bidders are heterogeneous and that the gain a bidder can create in excess of the second highest bidder is not completely bid away by other bidders and arbitrageurs. Furthermore, the fact that unrelated bidders realize significantly negative returns supports the proposition that when

other potential related bidders (that can presumably create higher values with a given target than an unrelated bidder) exist, then the unrelated bidder must pay a premium that reflects the target's higher value use. In this sense, the market for corporate control seems to be competitive.

6 - Measurement problems - partial anticipation and size effects

A major problem in prior research has been measurement problems. One important problem is partial anticipation of the takeover announcement (Malatesta & Thompson 1985) and insider trading (Jarrell & Poulsen 1989b). The data indicates that, for unrelated takeovers, most of the announcement effects take place on days (-1,0). For the core group, however, much of the abnormal returns are realized well ahead of the actual announcement date. The reason for the strong upward drift in the stock price before the announcement date for this group may be that these transactions are easier to anticipate by investors; such takeover announcements may represent a culmination of a series of related strategic moves by the acquiring firm and/or new business or industry specific signals indicate opportunities for value creation through M&A. Another interpretation is that insider trading is more significant for the core group than for the unrelated group.

Another problem can be related to differences in size between bidders and targets (size effect problem). This second problem is to some extent mitigated in this study because of the sample construction; only those transactions where the target represents at least 10 % of the equity value of the bidder are included. This does not imply that the size effect problem is gone - only reduced. Furthermore, partial anticipation is still a problem. Therefore, it is especially encouraging that the results for bidders yield some abnormal returns that are significantly different from zero.

This study indicates the important link between strategy and finance in a takeover context. The takeover market seems to be competitive in the sense that general synergies are bid away from the bidders. Specific synergies that create market-failure are a necessary condition for bidders to create value in takeovers. As formalized in the model in chapter 3, an optimal target would be a target with whom the specific synergy potential **relative** to alternative bidders' synergy potential is maximized (see equation 7 in the model).

3.2. Target returns

According to virtually all event studies in the M&A field, targets realize substantial and statistically significant increases in their stock prices. This applies to the targets both in the strategic core, related and unrelated group. Furthermore, tests of equality of means among targets in different strategic groups indicates that the differences in abnormal returns among core, and unrelated targets are statistically different from zero at the 5 % level. Targets in unrelated M&As realize higher abnormal returns than targets in core M&As. This result contradicts hypothesis 5. Earlier empirical studies provide inconclusive results. Chatterjee (1986) finds that unrelated targets outperform related targets, whereas Singh & Montgomery (1987) find that targets in related acquisitions have higher returns than targets in unrelated acquisitions. Lubatkin (1987) finds no difference between "related" (= product concentric and horizontal & market concentric) and "unrelated" (conglomerate) mergers.

One reason that targets in unrelated takeovers realize higher gains than in core transactions may stem from bidding mechanisms in the market for corporate control. According to the model in Chapter III above, the winning bidder in an unrelated takeover

has to pay at least as much as any other potential unrelated, related or core bidder. This implies that the premium in unrelated mergers is not necessarily lower than the one in related mergers.

Another possible explanation for the different target group results might be that the more related the target, the greater the partial anticipation; the takeover announcement could mark the culmination of a series of related strategic moves by the acquiring firm before the announcement to buy a more or less specified related target. Therefore, a significant fraction of the gains may be anticipated by the capital market well ahead of the acquisition.

4. CROSS-SECTIONAL ANALYSIS

This section provides cross-sectional regression results explaining the effects of strategic categories, multiple-bidder contests, time periods and methods of payment on the abnormal returns for bidders and targets respectively. Table V.6. below shows the matrix of correlation coefficients between the independent variables. The coefficients do not indicate high correlation. If the F-statistic is significant but none of the t-statistics are significant when the dependent variable is regressed on the independent variables, this would be symptomatic of a higher degree of multicollinearity. Examination of results presented later on reveals that this is not the case.

4.1. Returns to stockholders of acquiring firms

Results of the weighted least squares regression for bidder firms for windows (-1,0) and (-1,10) are reported in table V.7. below.³

³Results of the ordinary least squares (OLS) regression are presented in the same table. These results will be discussed under section 6 below (sensitivity analysis). Results for the larger window (-20,+10) are reported in appendix 1.

TABLE V.6. - FIRST ORDER CORRELATION COEFFICIENTS: INDEPENDENT VARIABLES

Table V.5.a. - Correlation coefficients bidder firms

| | Core X ₁ | Related X ₂ | Multiple X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ |
|-------------------------|------------------------|---------------------------|----------------------------|------------------------|------------------------|-----------------------|
| Core X ₁ | 1 | | | | | |
| Related X ₂ | -0.224 | 1 | | | | |
| Multiple X ₃ | -0.022 | -0.036 | 1 | | | |
| Time X ₄ | 0.032 | -0.052 | -0.005 | 1 | | |
| Cash X ₅ | -0.173 | -0.002 | 0.105 | 0.182 | 1 | |
| Mix X ₆ | 0.012 | -0.007 | -0.001 | 0.030 | -0.450 | 1 |

Table V.5.b. - Correlation coefficients target firms

| | Core X ₁ | Related X ₂ | Multiple X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ |
|-------------------------|------------------------|---------------------------|----------------------------|------------------------|------------------------|-----------------------|
| Core X ₁ | 1 | | | | | |
| Related X ₂ | -0.231 | 1 | | | | |
| Multiple X ₃ | -0.030 | -0.002 | 1 | | | |
| Time X ₄ | 0.012 | 0.018 | 0.035 | 1 | | |
| Cash X ₅ | -0.154 | 0.013 | 0.097 | 0.267 | 1 | |
| Mix X ₆ | -0.034 | -0.015 | 0.029 | -0.014 | -0.438 | 1 |

TABLE V.7.

CROSS-SECTIONAL RESULTS BIDDER FIRMS

Weighted least squares (WLS) and ordinary least squares (OLS) regression results explain the effects of strategic category, multiple-bidder contests, time period and method of payment on the abnormal returns to the stockholders of bidder firms involved in 267 completed M&As in the period 1970-1987. The dependent variable is the abnormal returns for period (-1,0). (t-statistics in parentheses)

$$\text{WLS model: } AR_4/S = X_0/S + X_1C/S + X_2R/S + X_3M/S + X_4T/S + X_5P_1/S + X_6P_2/S$$

$$\text{OLS model: } AR_4 = X_0 + X_1C + X_2R + X_3M + X_4T + X_5P_1 + X_6P_2$$

where C=1 if the takeover is a strategic core M&A and zero otherwise, R=1 if the takeover is a related, not core M&A and zero otherwise, M=1 if the offer is made in a multiple-bidder contest and zero otherwise, T=1 if the offer is made after 1980 and zero otherwise, P₁=1 if the method of payment is cash and zero otherwise, and P₂=1 if the payment method is mixed and zero otherwise. S = standard error of the market model regression.

| Dependent variable | X ₀ | Core X ₁ | Related X ₂ | Mult. X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ | R ² | Adj. R ² | F |
|----------------------------------|----------------|---------------------|------------------------|----------------------|---------------------|---------------------|--------------------|----------------|---------------------|------|
| WLS regression: | | | | | | | | | | |
| AR ₄ | -0.0209 | 0.0194 | 0.0143 | -0.0083 | -0.0212 | 0.0312 | 0.0056 | 0.149 | 0.130 | 7.60 |
| (-1,0) | (-3.78) | (2.79) | (2.12) | (-1.45) | (-3.92) | (4.99) | (0.76) | | | |
| AR ₄ ,AR ₅ | -0.0356 | 0.0337 | 0.0059 | -0.0027 | 0.0223 | 0.0490 | 0.0181 | 0.105 | 0.085 | 5.10 |
| (-1,10) | (-3.95) | (2.98) | (0.54) | (-0.29) | (-2.54) | (4.80) | (1.52) | | | |
| OLS regression: | | | | | | | | | | |
| AR ₄ | -0.0296 | 0.0293 | 0.0121 | -0.0069 | -0.0148 | 0.0386 | 0.0078 | 0.143 | 0.123 | 7.21 |
| (-1,0) | (-4.45) | (3.73) | (1.48) | (-1.05) | (-2.40) | (5.48) | (0.84) | | | |
| AR ₄ ,AR ₅ | -0.0532 | 0.0403 | 0.0002 | 0.0046 | -0.0021 | 0.0545 | 0.0156 | 0.101 | 0.080 | 4.87 |
| (-1,10) | (-4.71) | (3.03) | (0.01) | (0.42) | (-0.20) | (4.56) | (1.00) | | | |

Results are essentially the same for both event periods (-1,0 and -1,10). The discussion of the effects of the various explanatory variables will therefore only focus on parameter estimates for (-1,0). However, choice of event period seems to have an impact on the strategic category variables (core and related, not core). For these two variables, there will be an explicit examination of the different event periods.

The intercept term implicitly represents cases where the takeover is unrelated, has one single bidder, is announced in the 1970s and is paid for by using an exchange of stocks. The estimate of the constant is significantly negative ($X_0 = -2.09\%$, $t = -3.78$) which indicates that the average abnormal return to unrelated single bidders in the 1970s who paid by using stock is significantly negative.

Consistent with the results from the time series analysis, we see that the variable **strategic core** has a significant positive impact on the returns to bidder firms. The marginal impact of the core variable is to significantly increase the bidder abnormal returns by 1.94 % ($t = 2.79$) for the window (-1,0). For window (-1,10) the effect is 3.37 % ($t = 2.98$) and for (-20,+10) the impact is 4.19 % ($t = 2.75$) (see appendix 1). Furthermore, the **related, not core** variable also increases returns to bidder firms compared to the base case (unrelated bidders). The marginal impact is statistically significant ($X_2 = 1.43\%$, $t = 2.12$) for event period (-1,0) and not statistically significant ($X_2 = 0.59\%$, $t = 0.54$) for event period (-1,10) and ($X_2 = 0.73\%$, $t = 0.49$) for event period (-20,+10). The impact of the core variable seems to be strong for all event periods. It seems that much of the announcement effects for this group of transactions take place in periods outside (-1,0).⁴ The impact of the core variable becomes relatively more important than the related, not core variable as the length of the event period increases.

⁴This was also apparent in the time series analysis above.

As hypothesized, the marginal impact of **multiple-bidder** contests is to reduce returns to acquiring firms, but this estimate is not significantly different from zero ($X_3 = -0.83\%$, $t = -1.45$). It is worthy of note that this result corresponds to evidence reported in Bradley, Desai & Kim's (1988) cross-sectional study analyzing the marginal impact of having more than one bidder. One reason for not finding a significant impact of this variable may be, as discussed earlier in this study, that on the announcement date of a takeover it is often uncertain whether later competing will arrive. If it turns out to be a multiple bidder contest ex post, this may be only partially anticipated ex ante by the market. What is actually being measured in the regression is the market's assessment of the profitability and the expected value of future higher bids at the day before and on the announcement date. In some cases, however, the winning bidder comes in as a "white knight", and it is therefore already known by the market that this is a multiple bidder contest.

The estimates of the **time** variable is significantly negative ($X_4 = -2.12\%$, $t = -3.92$). This is consistent with the proposition that bidding firms realize significantly lower returns in the 1980s as compared to the 1970s, and is also consistent with prior empirical evidence.⁵ In the 1980s sophisticated defensive tactics developed, investment banks were more aggressively promoting takeovers using junk bonds and bridge loans as powerful instruments and takeovers were to a large extent supported from the Administration of that time.

The last two variables examine the marginal impact of the payment method used in the transaction. Bidders realize 3.12 % ($t = 4.99$) higher returns in **cash** acquisitions as compared to an acquisition where there is exchange of common stocks. When the payment method is **mixed**, bidders realize insignificantly higher returns

⁵See Bradley, Desai & Kim 1988, Jarrell & Poulsen 1989, Morck, Shleifer & Vishny 1990).

than in an stock exchange transaction ($X_G=0.56\%$, $t=0.76$). The significant effects from the cash variable is consistent with empirical evidence presented in Travlos (1987) and lends support to the hypothesis that the method of payment in a takeover provides important signals. Assume that managers have information about the intrinsic value of their firm which is not fully reflected in the preacquisition stock price and that they seek to finance the acquisition in the most profitable way for existing shareholders. In the vein of Myers & Majluf (1984), cash will be the preferred method of payment if the firm is believed to be undervalued, while a common stock exchange offer will be offered in the opposite cases. Cash as a payment method therefore provides a signal to the market that the firm is undervalued. The positive marginal impact of the cash variable is also consistent with Jensen's(1986) free cash flow hypothesis since the use of cash can increase firm value by reducing agency problems. Finally, according to Fishman's (1989) theoretical model, cash can serve as an instrument in making preemptive takeover bids.

4.2. Returns to target stockholders

Results of the weighted least squares regression for target firms are reported in table V.8. below. The results for target firms are reported using two different windows (-1,0) and (-20,+10).⁶ The second window includes a longer period before the bid because of evidence indicating especially strong significant run-up in target stock-prices before formal bid announcements (e.g., Jarrell & Poulsen 1989b). Moreover, the days after the formal announcement (1,10) capture some information about type of contest (single/multiple) and characteristics of bidder (core/related/unrelated). Except for variable P_2 (mixed payment), the results for window (-1,0) and (- 20,+10) are materially the same.

⁶Results for the period (-1,10) are reported in appendix 2.

TABLE V.8.

CROSS-SECTIONAL REGRESSION TARGET FIRMS

Weighted least squares (WLS) and ordinary least squares regression (OLS) results explain the effects of strategic category, multiple-bidder contests, time period and method of payment on the abnormal returns to the stockholders of target firms involved in 240 completed M&As in the period 1970-1987. The dependent variable is abnormal returns for period n. (t-statistics in parentheses).

$$\text{WLS model: } AR_n/S = X_0/S + X_1C/S + X_2R/S + X_3M/S + X_4T/S + X_5P_1/S + X_6P_2/S$$

$$\text{OLS model: } AR_n = X_0 + X_1C + X_2R + X_3M + X_4T + X_5P_1 + X_6P_2$$

where C=1 if the takeover is a strategic core M&A and zero otherwise, R=1 if the takeover is related, not core M&A and zero otherwise, M=1 if the offer is made in a multiple-bidder contest and zero otherwise, T=1 if the offer is made after 1980 and zero otherwise, P₁=1 if the method of payment is cash and zero otherwise, and P₂=1 if the payment method is mixed and zero otherwise. S = standard error of the market model.

| Dep. var. | X ₀ | Core X ₁ | Related X ₂ | Mult. X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ | R ² | adj. R ² | F |
|---|------------------|---------------------|------------------------|----------------------|---------------------|---------------------|--------------------|----------------|---------------------|------|
| WLS regression: | | | | | | | | | | |
| AR ₄ (-1,0) | 0.0747 (4.35) | -0.0138 (-0.70) | -0.0131 (-0.66) | -0.0012 (-0.08) | 0.0018 (0.11) | 0.0823 (4.39) | 0.0305 (1.36) | 0.181 | 0.160 | 8.59 |
| AR ₃ ,AR ₅ (-20,+10) | 0.1371 (5.60) | -0.0127 (-0.45) | -0.0347 (-1.22) | -0.0059 (-0.26) | -0.0038 (-0.16) | 0.1232 (4.60) | 0.1014 (3.17) | 0.142 | 0.120 | 6.44 |
| OLS regression: | | | | | | | | | | |
| AR ₄ (-1,0) | 0.0679 (3.85) | -0.0197 (-0.91) | 0.0008 (0.04) | -0.0144 (-0.81) | 0.0163 (0.94) | 0.0802 (4.11) | 0.0332 (1.36) | 0.099 | 0.076 | 4.26 |
| AR ₃ ,AR ₅ (-20,+10) | 0.1382 (5.71) | -0.0191 (-0.64) | -0.0364 (-1.21) | 0.0061 (0.25) | 0.0010 (0.04) | 0.1295 (4.83) | 0.1082 (3.24) | 0.120 | 0.097 | 5.28 |

Therefore, in most cases only the parameter values and t-statistics of the regression using abnormal returns for window (-1,0), are discussed.

The intercept term is significantly positive indicating that unrelated targets in single-bidder contests that took place in the 1970s where the method of payment is exchange of stocks, earn 7.47 % (t=4.35) in the window (-1,0). In the extended window (-20,+10), targets on average realize a cumulative abnormal return that equals 13.71 % (t=5.60).

The parameter estimates associated with the strategic category variable (**core** and **related,not core**) are consistent with the results obtained in the above time series analysis. On the margin, target abnormal returns are reduced when the successful bidder is related to the targets activities. This reduction is, however, not significantly different from zero.

The estimated coefficient of the **multiple bidder** variable is not significantly different from zero ($X_3=-0.12\%$, $t=-0.08$). In view of the results of Bradley, Desai & Kim (1988), it is maybe somewhat surprising that evidence in this study lacks a significant parameter for this variable. Jarrell & Poulsen (1989) report, on the other hand, insignificant parameter estimates in line with this study.

The **time** variable provides information about the marginal impact of a takeover taking place in the 1980s as opposed to the 1970s. The results indicate that the parameter estimates for this variable is indistinguishable from zero. This is consistent with other studies analyzing this variable for target firms.⁷

The point estimate of the coefficient on the **cash** dummy variable shows a strong positive effect on target abnormal returns. The

⁷See Bradley, Desai & Kim (1988) and Jarrell & Poulsen (1989).

marginal impact on returns in the (-1,0) window is to increase target returns by as much as 8.23 % ($t=4.39$). Put differently, continuously compounded abnormal returns are 8.23 % higher for (-1,0).⁸ The impact of the mixed dummy variable is also significantly positive in the (-20,+10) window. Evidence found in this study regarding the payment method corresponds nicely with results reported elsewhere.⁹

5. DISCUSSION OF RESULTS FROM CROSS-SECTIONAL ANALYSIS

Results from the cross-sectional analysis in this study yield interesting insight into the marginal effect of certain variables in the takeover process. The evidence is by and large consistent with results reported in the time series analysis above (cf., core and related, not core variables) and with other empirical studies examining the marginal impact of time, cash and mixed payment dummy variables. Maybe a little bit surprising is the lack of significantly positive effect of the multiple bidder variable on target abnormal returns. Overall, the parameter estimates lend strong support to the hypotheses that strategic core plays a major role in the takeover situations, that the payment method provides important signalling/agency/ coinsurance/competitive effects and that takeover regulation/defensive tactics/government intervention/financing instruments (as summarized in the time dummy variable) matter.

⁸It is worthy of note that in the (-20,+10) window the difference amounts to as much as 12 %).

⁹See Huang & Walkling 1987, Eckbo & Langohr 1989 and Eckbo, Maksimovic & Williams 1990).

6. SENSITIVITY ANALYSIS

This section analyzes how sensitive the cross-sectional results are to the choice between ordinary least squares (OLS) regression and weighted least squares (WLS).

By and large the results are not very sensitive to whether a WLS or an OLS regression is applied. It is worth noting, however, that a few parameter values are significantly influenced by choice of regression method. For **bidder** firms, the related variable changes from a significantly positive marginal impact (compared to unrelated takeovers) in the WLS (-1,0) regression to an insignificant impact in the OLS (-1,0) regression ($X_2=1.2\%$, $y=1.47$). The same happens to the time variable for window (-1,+10). For **target** firms, the results yield the same conclusions in both methods for all variables in all event periods.

VI. CONCLUSIONS AND IMPLICATIONS

1. INTRODUCTION

This chapter discusses the major findings and contributions of the study. Major theoretical, methodological and managerial implications are highlighted and limitations are discussed. The study ends with suggestions for future research.

2. MAJOR FINDINGS AND CONTRIBUTIONS

This study aims at filling in a step or two in recent theoretical and empirical research in strategic management and financial economics. A major purpose of the study is to analyze when mergers and acquisitions are expected to be profitable for stockholders of buying and selling companies. This purpose implies that one has to deal with both recent developments in the theory of the firm (contract theory, transaction costs theory, industrial organization economics, incentives) and financial market theory (efficient markets, auctions and competitive bidding). Mergers & acquisitions can be regarded as one way of organizing firm activities. Equivalently, by using the vernacular from important works on the theory of the firm, institutions serve the purpose of facilitating exchange and can best be understood as optimal accommodations to contractual constraints rather than production constraints. M&A-research therefore implicitly deals with alternative ways of organizing economic activities and requires an explicit discussion of alternative institutional modes (direct entry, strategic alliances and market solutions). However, the theory of the firm does not alone provide the necessary tools to properly analyze M&A profitability for stockholders. Financial market effects should be evaluated simultaneously with arguments proposed in the theory of the firm area.

Based on the fundamental premises above, the study develops a model for M&As. The model emphasizes value creation, strategic core, efficient boundaries and financial market effects. A main goal of the model is to provide some guidance for how to make decisions about efficient firm boundaries. Furthermore, the model forms a bases for the development of hypotheses that are empirically testable.

The concept of strategic core is an important building block in the model. A strategic core is based on unique assets that provide a foundation a for a firm's sustainable competitive advantage. Physical asset specificity, human asset specificity, site specificity, dedicated assets, image/goodwill and strong external alliances are the key elements in the concept of strategic core and enables firms to create rents because of market failure (sunk costs, transaction costs, imperfect information and causal ambiguity). The same core assets can have important financial market effects because non-replicability in the product-markets influences the outcome of a bidding situation in financial markets.

M&As represent a way of creating a competitive advantage through cost advantage and differentiation. These advantages are sustainable when economies of scale and scope are based on factors that create rents in the product-market. If the synergies are not specific, it is hard to create a rent in the product-market, and one has to expect that bidding mechanisms in the market for corporate control ensure that bidders, at best, realize zero gains. A major theme is therefore to rely on synergy potentials that have the ability to create imperfections in the product markets. In my model, an optimal target for bidder n (b_n) is one for whom the difference between b_n 's highest possible bid (zero abnormal return bid) and the next highest bid, is the largest. Put differently, an optimal strategy for the bidder is to look for a target whose specific synergy potential relative to other bidders's synergy potential is maximized. Using the variable notation presented in Chapter 3 above, this argument can be formalized as

follows:

$$\text{Max} \sum_{i=1}^n (S_{nti} - \max_{j=1}^{(n-1)} (S_{jti} + OB_{jti}))$$

The choice between M&As, strategic alliances and internal development is also formalized in the model. Without using formal notation, the choice of institutional form is shown to depend on investment outlay, change in transaction costs, change in bureaucratic costs, types of synergies and overbidding.

The empirical part of the dissertation applies a market model in the following form:¹

$$R_{jt} = a_j + b_j R_{mt} + \sum_{n=1}^6 y_{jndnt} + e_{jt}$$

and examines a large number of transactions that take place in the U.S in the 1970-1987 period. Based on both time series and cross-sectional analysis, the hypotheses proposed are generally supported. Abnormal returns to bidders in strategic core M&As are significantly higher than gains in unrelated takeovers. Core bidders also realize higher abnormal gains than related, not core bidders (significant at the 10 % level). This finding is consistent with the proposition that strategic core is important in M&As because scale and scope economies that create imperfections in the product markets seem to be necessary in order to create positive abnormal returns for bidders. The results for related, not core bidders indicate (in accordance with the model) that relatedness among bidders and targets is not a sufficient condition for the acquiring firm to realize positive abnormal returns. Unrelated bidders generally realize significantly negative returns. This

¹Notation as defined earlier in this study.

result is consistent with the fact that unfolding competitive bidding mechanisms in the financial markets result in takeover premiums that more than offset potential net benefits from integration.

One problem with a time series analysis is that other factors can disguise the effects of the variables that are used as the basis for classification (in this study these variables are core, related, not core and unrelated). To further examine the strategic classification variables, we ran a weighted least squares cross sectional regression model in which other variables' effects are corrected for. Specifically, we analyze marginal effects of variables for single/multiple bidding contests, time and method of payment (cash, mix, stock) in addition to the strategic classification variables. The results for the cross-sectional regression models provide additional strong evidence that the core variable is important. The intercept term of the regression model represents cases where the takeover is unrelated, has one single bidder, is announced in the 1970s and is paid for by an exchange of stocks. The estimate of the constant is significantly negative. It indicates that average abnormal returns for unrelated single bidders in the 1970s who paid with stock are significantly negative. The variable strategic core significantly increases bidder abnormal returns. The related, not core variable also increases returns to bidder firms but is less significant.

The evidence also indicates that bidding firms realize lower returns in the 1980s than in the 1970s. This may be due to sophisticated defensive tactics, junk bonds, bridge loans, aggressive investment banks, and a supportive Administration.

Bidders realize significantly higher gains when the payment method is cash. This is consistent with hypotheses developed elsewhere in the literature (signaling, free-cash flow hypothesis and preemptive takeover bidding).

For target firms the tendency of the core and related, not core variable is to reduce abnormal returns. This seem to be a logical result based on the model developed earlier in this study: the winning bidder in an unrelated takeover has to pay at least as much as any other potential unrelated, related or core bidder. This implies that the premium in unrelated mergers is not necessarily lower than the one in core and related, not core mergers. Furthermore, the method of payment variable has significant effects on target returns. This is consistent with empirical results reported in other studies.

3. IMPLICATIONS

3.1. Theoretical implications

Theory development and empirical results in this study lend support to several propositions:

(1). It has been extensively argued in this study and elsewhere (see Reve 1990) that a major dimension for choice between integration, strategic alliances and markets is the strategic core of a firm. In the comprehensive model for corporate takeovers presented above, it is argued that core assets influence the gains created in M&As directly and indirectly through effects on industry structure. The study indicates both theoretically and empirically that the concept of strategic core is important in M&A research and, more generally, for theories of the firm.

(2). Core M&As are more likely to create positive abnormal returns for bidding firm shareholders than other strategic M&As. Since economies of scale and scope based on core assets (physical asset specificity, human asset specificity, site specificity, dedicated assets, image/goodwill, strong external alliances) are more often associated with sunk costs, transaction costs, imperfect information and causal ambiguity, they will be more specific and

sustainable. If the synergy effects are positive and specific, it is easier for bidding firms to realize positive abnormal returns.²

(3). Relatedness, per se, is seemingly not enough to create positive abnormal returns for bidders in M&As. Bidding mechanisms tend to imply that bidders in unrelated and related, not core M&As realize at best zero net present value from their investments. Other institutional solutions would often be better under these circumstances.

(4). According to the theoretical model developed in this study, unrelated bidders must pay at least as much as the bidder with the highest alternative valuation of the target. Therefore, to win, the unrelated bidder must overbid. Evidence from this study strongly indicates that this happens in "real life". This may be due to winner's curse or an agency problem (deliberate overbidding). Even in "rational" models one should account for the possibility that alternative bidders overbid. That is why a variable for overbidding is included in the model above.

(5). This study indicates that strategic core and specific synergies are important for bidder abnormal returns. As discussed in the theoretical model in chapter 3, type of synergies and assets that are transferred are important for the choice between M&As, strategic alliances and markets. The core variable is inextricably linked to transaction costs theory (highly specific) and industrial organization economics (sustainable competitive advantage). In that sense, the results are consistent with these perspectives.

(6). Financial market effects should be evaluated simultaneously with propositions from the theory of the firm area. Bidding mechanisms may influence predictions based on theories of firm

²One should also remember that the bidder gains for the core group may partly stem from increased collusion. However, the market power hypothesis is not supported in earlier empirical studies.

organization that do not account for these effects. Furthermore, as argued in the market model developed above, the optimal target for a bidder is the one with which the specific synergy potential relative to alternative bidders' synergy potential is maximized.

(7). Evidence in this study supports the proposition that in the market for corporate control takeover legislation and other exogenous factors have important impacts on shareholders abnormal returns and therefore on firm boundary decisions. These exogenous factors are represented in this study by the time variable.

(8). The method of payment in takeover bids also seems to have an important effect on abnormal returns. Stock price returns to acquiring firms are significantly lower in offers financed with new equity issues than in offers financed with cash.

3.2. Methodological implications

In accordance with most empirical studies that examine abnormal returns in M&As, this study applies a market model. The event study methodology proves more useful than alternative methodologies and, furthermore, the market model seems to be well specified (see Brown and Warner 1980,1985 and Malatesta 1986).

In addition, to conduct a traditional time-series analysis, this study also applies a cross-section analysis which relates the excess returns associated with M&As to theoretically appropriate factors. These factors may explain why M&As differ in the value they create and may help us avoid the hidden effects in the time series analysis.

The fact that this study finds significant effects (which has been a problem in much M&A research to obtain), may partially be attributed to the sample construction process. To circumvent some

of the size-effect problems, the target had to have a market value of at least 10 % of the bidder's market value two months prior to the announcement of the bid.

The time series analysis reveals that partial anticipation and insider trading indeed have important effects on the abnormal returns of both buying and selling firms. The upward drift in stock prices is especially strong for target stockholders, but also seems on average to be important for the core bidder group.

3.3. Managerial implications

The theoretical model and empirical results in this study have strong normative implications for management. Some of the most important implications are:

(1). It is hard to realize positive abnormal returns in M&As. Competitive markets demand high premiums; many hidden bureaucratic costs exist, and synergy potentials are hard to realize.

(2). One major task is to explicitly define the firm's strategic core. What type of assets and skills create sustainable competitive advantage for the firm? Make sure that the strategic core is clearly defined, avoid being too vague. Then look for synergy potentials that may be based on core assets. These synergies may create imperfections in the product market and enable the firm to profit from a takeover. Strategic M&As should aim to create competitive advantage through imperfections in the product-market.

(3). Analyze alternative potential bidders' synergy gains. Predict their potential general and specific synergy gains.

(4). If the specific synergy potential for the focal bidder is large relative to the bidder with the highest alternative specific synergy potential, consider submitting a takeover bid.

- (5). Before making a bid, evaluate alternative institutional modes (internal development, strategic alliances and market solution). Do they provide a more profitable solution? Factors that influence this are discussed in length earlier in this study.
- (6). Do not expect to realize positive abnormal returns in related, not core M&As. Synergy potentials here are in general fewer and less specific and will therefore often be bid away in the financial market.
- (7). Unrelated takeovers are generally unprofitable. To win a takeover contest, the firm must pay a premium that, under most circumstances, outweighs potential net benefits.
- (8). Takeover legislation and other exogenous factors may strongly affect takeover profitability. These factors must be thoroughly examined before a decision is made.
- (9). Financing of a bid strongly affects shareholders' abnormal returns and is therefore an important decision variable.

4. LIMITATIONS OF STUDY

This section considers possible limitations of the study. Specifically, the following aspects are discussed: sample selection, assumptions about the strategic core, content validity of strategic classification measure, aggregated data and confounding variables.

One of the requirements for this study's sample selection process is that both bidder and target are listed on NYSE or AMEX when the transaction is announced. Furthermore, two months prior to the announcement date the target must have a market value of at least 10 % of the bidder's market value. It is uncertain whether this sample requirement introduces a bias compared to samples in

which all takeovers are included. Large transactions often create more publicity, larger degrees of information production and dissemination, arbitrage activity and very competitive bidding situations.

One important assumption in the study is that the firm owns or controls rent-yielding factors (strategic core). This assumption is reflected in the comparison of three and four digit SIC codes for bidder and target. If bidder and target share the three first SIC codes, the transaction is classified as a strategic core M&A. The assumption is that synergy potentials exist in the core business of the bidder, and that this core business creates an imperfection in the product-market. Thus, if a firm does not own or control a rent-yielding factor, then the measure will not apply. However, in large samples with large firms that choose to merge core activities, one should expect to find rent-yielding factors.

The content validity of the SIC codes is a general problem in corporate strategy and industrial organization research. This is discussed above in Chapter 3, section 4. Alternative measurement variables for strategic classification will be discussed below in section 5.2..

Since the data is based on a sample of several hundred firms, the synergy potential in a specific merger is not assessed. Moreover, according to the model discussed in Chapter 3, the bidder must realize larger specific synergies with a target than those potentially created by alternative bidders. This would require identification of potential bidders and analysis of their value creating capabilities in all value chain activities with a target. Such information is not readily available and is not used in this study.

In an empirical study one runs the risk of underlying confounding variables. To investigate this problem future studies might come up with explanatory variables that systematically vary

with different strategic categories.

5. SUGGESTIONS FOR FUTURE RESEARCH

5.1. Theory development

It is beyond dispute that there is a need for further theory development associated with issues discussed in this study. One important aim of this section is to envision possible developments that would sharpen old theories and develop new theories, examine new concepts, and link this theory to other theoretical perspectives.

Future research must elaborate on the concept of strategic core. How do core assets and resources create competitive advantage for the way a firm competes and the way it adapts to its industry structure? An important issue that has not received enough attention in the literature is: how are core factors developed? Can core skills be developed intentionally or are they created through a more random process where luck and historic events determine who can benefit from such skills? Maybe different types of core factors are developed differently in the sense that some core factors can be developed by planning and devotion of resources while others develop via a process that is maybe poorly understood and under weak control of management.

The sustainability of core factors is another issue that deserves more research attention. How do underlying factors (such as sunk costs, transaction costs, imperfect information and causal ambiguity) affect the core factors and the industry structure in which the firm competes? Furthermore, can sustainability be ensured when core skills are transferred to other related areas?

As indicated earlier in this study, there is a strong relationship between core variables and industry structure. This connection

creates interesting static and dynamic effects in light of competition and creation of sustainable competitive advantage. Of particular interest is the question: how does the strategic core affect the determinants of industry structure (rivalry, threat of substitutes and bargaining power of buyers and suppliers). Core factors seemingly affect the industry structure through sunk costs and imperfect information. To choose successful strategies that exploit market failures, it is important to understand how these underlying factors affect the determinants of industry structure.

Theories based on a static view of strategic core can be modified by the timing dimension in competition. More research should be done on how timing and first mover advantages influence the way a firm organizes its firm boundaries (mergers & acquisitions, internal development, strategic alliances and market solution). Boundary choices should only be made after careful analysis of both static and dynamic aspects of the factors that influence the optimal mode of firm organization.

In Chapter 1, the M&As process is divided into five steps: (1) strategic, organizational and legal analysis, valuation execution of transaction and strategy implementation. It would be interesting to consider relationships between M&A type and strategy implementation. Related M&As with complex synergy transfers and organizations create more difficulties in the implementation process than synergies based on less related M&As. Implementation costs are likely to be dependent on the type of synergies that are analyzed. For instance, transferring reputation demands less coordination of activities (links between divisions) than for example sharing logistics or manufacturing processes. Implementation costs are also likely to increase with the number of divisions and reciprocal linkages that exist both before and after a takeover. Related to this aspect is how congruent are the portfolio of businesses internally for each bidder and target; that is, the variation of business activities within each firm. Finally, as noted by Bartlett (1986), organizational history and management

culture (ingrained values, norms and practices of its management) define some kind of "administrative heritage" and tend to influence the firm's ability to realize synergies through coordination of value chain activities.

Another issue to further examine is: do a bidder's abnormal returns depend on the types of synergies involved. Synergies can be divided into shared activities, shared knowledge/skills, shared external relations and shared image/reputation. It seems plausible that these different types of synergies are associated with different types of costs and benefits. The marginal cost of transferring synergies based on shared external relations and shared image/reputation often seems to be less than the average cost of creating these relationship/reputation effects. Moreover, there does not seem to be any clearly defined synergy limits based on these factors. On the other side, sharing activities implies high implementation costs and the synergy potential is more limited. As a result, we may find systematic differences in a bidder's abnormal returns, depending on the type of synergies realized in different transactions.

Another examination of this study would be to focus on international M&As. As discussed in Porter (1986) international business strategies situations have a unique array of dimensions. These dimensions are important when a firm chooses between M&As and strategic alliances.

As argued throughout this study, there is a link between strategy and finance. It would be interesting to analyze whether this link represents a happy marriage or more of a one night stand. How do financial markets and corporate control effects (competitive bidding, information, proxy fights, tender offers, mergers) affect firm organization (M&As, strategic alliances and markets) in the product markets?

There is also a need to better understand: what is the best means

for gaining control of a firm? Is it a merger or a tender offer? What are the relative advantages of one mode as compared to the other? How do each of these modes influence the distribution of gains between bidders and targets, and how does arbitrage interact with this choice? Moreover, how should proxy fights be regarded as a substitute for merger/tender offers?

Finally, Jensen's (1986) free cash flow theory should be examined in relation to strategic categories. One would expect that firms with lots of free cash flow and few investments opportunities are more likely to engage in acquisitions that do not benefit shareholders.

5.2. Measurement variables

A natural extension of this study would be to apply alternative methods to measure the concept of strategic core (and implicitly the degree of diversification) in view of the relationship between bidder and target firms. A major theme in the study is that bidders are expected to realize higher abnormal returns when net synergies are based on factors that create imperfections in the product-markets. One implication of this theme is that bidders should gain more from synergies based on the bidders' strategic cores. To examine this key issue, we must apply measures that have strong links to the analyzed concept (in this case strategic core).

There are obviously many possible ways of measuring firm diversification and relationships among bidders and targets - some of which would be too costly to use in big samples.³ In a study

³For example, one can imagine a measurement method where for each firm its value chain is analyzed - both with respect to activities being performed (and their interrelationships), cost, revenue and risk structures and external relationships (products, markets and the implied industry structure). Actually, this would imply a full strategic analysis of each firm. Evidently, this is not possible when large samples are involved. Case studies may,

based on large firms (as in this current study) any simplified diversification measure will of course be associated with many weaknesses. Large firms often have complex structures with many internal and external relationships that determine the firms' success. Needless to say, the statics and dynamics of what is happening internally in a firm and externally in its industry structure/environments can simply not be measured by one single variable. However, a good measure captures certain traits that we are interested in examining and establishes the necessary link to the concept under scrutiny.

To test the sensitivity of the results to alternative methods of measuring strategic core and bidder-target relationships, different classification schemes should be applied. In my view, there are at least three other measures that have an interesting link to the strategic core concept and therefore deserve further examination: (1) comparing several SIC codes, (2) weighted SIC codes and (3) Rumelt's classification system (see supplement 3).

One suggestion is to compare more than one SIC-code among bidder and target. One example would be to compare the three most important SIC codes among bidder and target. The most common SIC-code among the firms could then determine the classification of the transaction. Such a categorical measure would be problematic in a takeover context; assume, for example, that two firms are core related in the third most important SIC code and that this business area only accounts for 20%. The bidder then buys all or a share of all target's assets. He buys assets associated with the 20% of the core related area, but also assets associated with 80% of the rest of the firm that might be totally unrelated.

Another measure can be based on weighted SIC codes. One rule could be: compare the major SIC code for bidder and target. For

however, be fruitful in order to highlight certain issues that may be of interest in such cases.

each firm, the major SIC code is assigned a weight, for example the percentage of firm i's total sales that take place in a particular market. If the SIC codes are value weighted, one can gain additional insight into the relationship between the firms. If the major SIC codes account for 60% of the bidder's activities and 40% of the target activities, one can compute an index value as $40\% \times 60\% = 24\%$. This index and the relationship between the bidder and target can be used simultaneously to construct a new measure. The advantage of such a measure is that it compares major businesses **and** in addition it accounts for the percentages of the merging firms' activities in these markets.

A third possible way of classifying the M&As is to build upon Rumelt's classification system. This classification is based on a two-tier breakdown to assign a firm to diversification categories. Assignment to a "main" diversification category (single, dominant, related and unrelated) is based on the percentage of a firm's total sales that can be attributed to a "discrete business area". Further differentiation is based on the pattern of linkages among a firm's business lines. One principle subdivision of the major groups is based on the "constrained" vs. "linked" criteria. In other words, is the firm's diversification built on a single or on several strengths and resources. According to Montgomery (1982) this division is associated with the degree of diversification. One implication of this diversification rule is that Rumelt's measure may be applied to the strategic concepts used in my study of M&As.

In addition to measures of strategic classification, there are other explanatory variables that may be of interest (confer discussion in the theory development section 5.1. above). One way to analyze the relative importance of a firm's strategic core and its industry effects is to construct a takeover index. This index should capture information about recent takeover activity in the industry, say two years before and after the announcement date of the analyzed transaction. One should expect that the higher frequency of takeovers in the industry, the lower the abnormal returns for

bidding firms.

Several examples of other variables that may interact with strategic classification variables come to mind. Previous ownership in a firm, ownership concentration and fractions of shares bought may allow us to analyze bidding mechanisms in strategic mergers and acquisitions (see Grossman & Hart 1980, Shleifer & Vishny 1986 and Bradley, Desai & Kim 1988). Industry concentration ratios on both the bidder and seller side and number of rival firms can be used to analyze bargaining relationships in a takeover setting. Free cash flow effects can be examined for instance by defining free cash flow as operating income before depreciation minus interest expense, taxes, preferred dividends and common dividends.⁴ In Chapter 1 the M&As process is illustrated. Strategy implementation is an important side of M&As, and its influence on abnormal returns may be empirically tested. For example, a variable measuring the number of interrelationships (links) among divisions and/ or number of divisions in a firm may capture important information on bureaucratic and implementation costs.

5.3. Methodology

This study applies a market model (see Brown & Warner 1985) for the time series analysis of stock price reactions to takeover bids. The cross-sectional analysis in the study applies both weighted least squares (WLS) and ordinary least squares (OLS) regression models. The WLS model accounts for the possibility of heteroskedastisity in the data by standardizing all variables with the standard error of the market model regression (S). By and large, results are not sensitive to the choice between WLS and OLS regression.

⁴Lang, Stulz & Walkling (1990) apply this definition of free cash flow.

Eckbo, Maksimovic & Williams (1990) argue that if an event is voluntary and investors are rational, then standard OLS estimators are inconsistent. The intuition behind the argument goes like this: assume that it is common knowledge among investors that managers initiate an event only after receiving a private signal indicating that the event has a positive value. This implies that abnormal returns from announcements only occur if management has valuable private information that is not reflected in the market prices prior to the event. Rational outside investors would then use the event announcement and their knowledge of insiders' incentives to infer private information. Consequently, the market uses its knowledge of managers' incentives to evaluate the expected abnormal returns. This inference truncates the residual term that measures the value of manager's private information. In OLS cross-sectional regressions this truncation is ignored implying that the estimators of the cross-sectional coefficients are inconsistent. To avoid this problem, consistent maximum likelihood (ML) estimators can be constructed.

A natural methodological extension of this study would therefore be to construct a consistent estimator using a nonlinear cross-sectional maximum likelihood model.

APPENDIX 1

CROSS-SECTIONAL RESULTS BIDDER FIRMS

Weighted least squares (WLS) and ordinary least squares (OLS) regression results explain the effects of strategic category, multiple-bidder contests, time period and method of payment on the abnormal returns to the stockholders of bidder firms involved in 267 completed M&As in the period 1970-1987. The dependent variable is the abnormal returns for period (-1,0). (t-statistics in parentheses)

$$\text{WLS model: } AR_4/S = X_0/S + X_1C/S + X_2R/S + X_3M/S + X_4T/S + X_5P_1/S + X_6P_2/S$$

$$\text{OLS model: } AR_4 = X_0 + X_1C + X_2R + X_3M + X_4T + X_5P_1 + X_6P_2$$

where C=1 if the takeover is a strategic core M&A and zero otherwise, R=1 if the takeover is a related, not core M&A and zero otherwise, M=1 if the offer is made in a multiple-bidder contest and zero otherwise, T=1 if the offer is made after 1980 and zero otherwise, P₁=1 if the method of payment is cash and zero otherwise, and P₂=1 if the payment method is mixed and zero otherwise. S = standard error of the market model regression.

| Dependent variable | X ₀ | Core X ₁ | Related X ₂ | Mult. X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ | R ² | Adj. R ² | F |
|-----------------------------------|----------------|---------------------|------------------------|----------------------|---------------------|---------------------|--------------------|----------------|---------------------|------|
| WLS regression: | | | | | | | | | | |
| AR ₃ , AR ₅ | -0.0392 | 0.0419 | 0.0073 | 0.0073 | -0.0181 | 0.0454 | 0.0219 | 0.061 | 0.039 | 2.79 |
| (-20, +10) | (-3.24) | (2.75) | (0.49) | (0.58) | (-1.53) | (3.32) | (1.37) | | | |
| OLS regression: | | | | | | | | | | |
| AR ₄ | -0.0574 | 0.0575 | 0.0104 | 0.0134 | -0.0083 | 0.0536 | 0.0248 | 0.071 | 0.050 | 3.30 |
| (-20, +10) | (-3.80) | (3.23) | (0.56) | (-0.90) | (-0.59) | (3.35) | (1.18) | | | |

APPENDIX 2

CROSS-SECTIONAL REGRESSION TARGET FIRMS

Weighted least squares (WLS) and ordinary least squares regression (OLS) results explaining the effects of strategic category, multiple-bidder contests, time period and method of payment on the abnormal returns to the stockholders of target firms involved in 240 completed M&As in the period 1970-1987. The dependent variable is abnormal returns for period n. (t-statistics in parentheses).

$$\text{WLS model: } AR_n/S = X_0/S + X_1C/S + X_2R/S + X_3M/S + X_4T/S + X_5P_1/S + X_6P_2/S$$

$$\text{OLS model: } AR_n = X_0 + X_1C + X_2R + X_3M + X_4T + X_5P_1 + X_6P_2$$

where C=1 if the takeover is a strategic core M&A and zero otherwise, R=1 if the takeover is related, not core M&A and zero otherwise, M=1 if the offer is made in a multiple-bidder contest and zero otherwise, T=1 if the offer is made after 1980 and zero otherwise, P₁=1 if the method of payment is cash and zero otherwise, and P₂=1 if the payment method is mixed and zero otherwise. S = standard error of the market model.

| Dep. var. | X ₀ | Core X ₁ | Related X ₂ | Mult. X ₃ | Time X ₄ | Cash X ₅ | Mix X ₆ | R ² | adj. R ² | F |
|--|------------------|---------------------|------------------------|----------------------|---------------------|---------------------|--------------------|----------------|---------------------|------|
| WLS regression: | | | | | | | | | | |
| AR ₄ , AR ₅ (-1, +10) | 0.0552 (2.74) | 0.0024 (0.10) | -0.0165 (-0.71) | 0.0125 (0.67) | 0.0067 (0.34) | 0.1038 (4.72) | 0.0500 (1.90) | 0.182 | 0.162 | 8.68 |
| OLS regression: | | | | | | | | | | |
| AR ₄ , AR ₅ (-1, +10) | 0.0499 (2.39) | -0.0102 (-0.34) | -0.0088 (-0.34) | -0.0037 (0.17) | 0.0122 (0.59) | 0.1063 (4.59) | 0.0568 (1.97) | 0.106 | 0.083 | 4.61 |

SUPPLEMENT 1

DIFFERENT DEFINITIONS OF THE CONCEPT OF SYNERGY

- | | |
|-----------------------------|---|
| Kitching (1967) | <ul style="list-style-type: none">- production (economies of scale, quantity discounts, increased purchasing power)- technology (sharing R&D, transferring technical processes)- organization (eliminating duplicated functions, motivation)- finance (access to capital, lower borrowing costs) |
| Lubatkin (1983) | <ul style="list-style-type: none">- technical economies (scale economies)- pecuniary economies (market power)- diversification economies (risk red.) |
| Bradley, Desai & Kim (1983) | <ul style="list-style-type: none">- more efficient management- scale economies- improved production technologies- combination of complementary resources- market power |
| Wells (1984) | <ul style="list-style-type: none">- shared activities- shared knowledge and skills- shared image, values |
| Porter (1985) | <ul style="list-style-type: none">- tangible interrelationships (economies of scale, economies of scope, power)- intangible interrelationships (transference of generic skills and knowhow)- competitor interrelationships (rival firms compete in more than one industry) |
| Chatterjee (1986) | <ul style="list-style-type: none">- financial synergy- operating synergy- collusive synergy |
| Hill & Hoskisson (1987) | <ul style="list-style-type: none">- economies of scale- economies of scope- financial economies |

**Singh & Montgomery
(1987)**

- economies of scale
- economies of scope
- market power

**Lubatkin & O'Neill
(1987)**

- tangible interrelationships
- intangible interrelationships
- competitor interrelationships

Ansoff (1988)

- sales synergy
- operating synergy
- investment synergy
- management synergy

Jones & Hill (1988)

- economies of scope
- economies of integration
- internal capital markets

SUPPLEMENT 2: SUMMARY OF SYNERGIES SPECIFIED BY ACTIVITY

1. TANGIBLE INTERRELATIONSHIPS

| | |
|--|--|
| INFRASTRUCTURE INTERRELATIONSHIPS | Shared financing Shared cash utilization Shared accounting Shared legal department Shared government relations Shared hiring and training |
| TECHNOLOGICAL INTERRELATIONSHIPS | Joint technology development Joint interface design |
| PROCUREMENT INTERRELATIONSHIPS | Joint procurement |
| PRODUCTION INTERRELATIONSHIPS | Shared inbound logistical system Shared components Shared component fabrication facilities Shared assembly facilities Shared testing/quality control Shared indirect activities |
| MARKET INTERRELATIONSHIPS | Shared brandname Shared advertising Shared promotion Cross selling of products to each others' buyers Interrelated pricing of complementary products Bundled selling Shared marketing department Shared channels/sales offices Shared service network Shared order processing |
| 2. INTANGIBLE INTERRELATIONSHIPS | Transfer of know how/skills |
| 3. COMPETITOR INTERRELATIONSHIPS | Multipoint competitors |

Source: Based on Porter (1985:chap. 9)

SUPPLEMENT 3 - SOME MAJOR CLASSIFICATIONS OF MERGER/DIVERSIFICATION STRATEGIES

Federal Trade Commission's (FTC's) classification in "Statistical Report on Mergers and Acquisitions:

1. **Horizontal** - An acquisition is horizontal when the companies involved produce one or more of the same, or closely related, products in the same geographic market.
2. **Vertical** - An acquisition is vertical when two companies involved had a potential buyer-seller relationship prior to the merger.
3. **Product extension** - An acquisition is considered to be product extension in type when the acquiring and acquired companies are functionally related in production and/or distribution but sell products that do not compete directly with one another.
4. **Market extension** - An acquisition is considered to be market extension in type when the acquiring and acquired companies manufacture the same products, but sell them in different geographic markets.
5. **Unrelated** - This category involves the consolidation of two essentially unrelated firms.

Singh & Mortgomery (1987): Related and Unrelated

1. **Related** - At least one of the following characteristics (1) similar production technologies, (2) similar science-based research, (3) similar products and/or markets.
2. **Unrelated** - Consolidation of two essentially unrelated firms.

Shelton (1989) builds on Salter & Weinhold (1979):

1. **Identical** - Similar products, similar customers
2. **Related complementary** - New products, similar customers
3. **Related supplementary** - Similar products, new customers
4. **Unrelated** - new products, new customers

Hopkins (1987):

1. **Technology related** - Involves firms which supplement an already established distinctive competence in some product technology or manufacturing process by acquiring firms with the same, or similar, production techniques or product technology.
2. **Marketing related** - Involves firms with an established competence in marketing, often specializing in branded consumer products, which these firms exploit by acquiring companies whose products are sold in the same or similar manner, distributed through the same or similar channels, and use the same or similar forms of advertising and promotion.
3. **Conglomerate strategy** - these firms acquire companies in areas unrelated to their main business.

Williams, Paez & Sanders (1988):

1. **Horizontal restructuring** - Involving a business comprising the same skill in the same market.
2. **Vertical restructuring** - Involving a business forward or backward in the value chain of one of the firm's major lines of business
3. **Complementary (market) restructuring** - Involving a business which enhances one of the firm's major lines of business with a different skill or technology.
4. **Supplementary (market) restructuring** - Involving a business which serves a different market than one of the firm's major lines of business, but which is based on a similar skill or technology used in one of the major lines of business.
5. **Unrelated restructuring** - Involving a business comprising a different skill in a different market.

Rumelt's (1974, 1982) classification has been used in several studies:

1. **Single business** - Any firm which derives 95 % or more of its revenues from one business
2. **Dominant business** - Any firm which derives 70-94 % of its revenues from its largest single business. Divided into four sub-classifications:
 - a) **Dominant vertical** - Any dominant firm with a high vertical ratio
 - b) **Dominant constrained** - Any dominant firm which diversified by building on a single strength or resource associated with the original business
 - c) **Dominant linked** - Any dominant firm which diversified on the bases of one or several strengths or resources. The particular strength or resource varied across the different businesses in the firm.
 - d) **Dominant unrelated** - Any dominant firm whose diversification activities are not related to the dominant business.
3. **Related business** - Any firm deriving less than 70 % of its sales from a single business and possessing a high relatedness ratio. Divided into two sub-classifications:
 - a) **Related constrained** - Any related firm which diversified by building on a single strength or resource associated with the original business.
 - b) **Related linked** - Any related firm which diversified on the basis of one of several strengths or resources. The particular strength or resource varies across different businesses in the firm.
4. **Unrelated business** - Any firm deriving less than 70 % of its sales from a single business and possessing lower relatedness ratios. Two sub-classifications:
 - a) **Multi-business** - Any unrelated firm containing a few large unrelated businesses
 - b) **Unrelated portfolio** - Any unrelated firm containing many unrelated businesses.

SUPPLEMENT 4 - TAKEOVER PREMIUMS FOR 681 SUCCESSFUL OFFERS IN THE PERIOD 1963 - 1985a

| Row | Year | <u>Cash tender premiums</u> | | <u>Cash merger premiums</u> | | <u>Stock merger premiums</u> | |
|-----|-------|-----------------------------|------------------|-----------------------------|------------------|------------------------------|------------------|
| | | Number | Mean premium (%) | Number | Mean premium (%) | Number | Mean premium (%) |
| 1 | 1963 | 2 | 35.6 | 4 | - 7.0 | 12 | 29.4 |
| 2 | 1964 | 3 | 45.7 | 6 | 34.3 | 11 | 32.8 |
| 3 | 1965 | 7 | 41.0 | 2 | 44.5 | 13 | 35.8 |
| 4 | 1966 | 7 | 40.3 | 2 | 49.7 | 17 | 39.9 |
| 5 | 1967 | 7 | 59.6 | 3 | 24.1 | 35 | 25.5 |
| 6 | 1968b | 5 | 39.8 | 2 | 34.9 | 45 | 27.3 |
| 7 | 1968c | 4 | 44.6 | 1 | 0.7 | 6 | 25.7 |
| 8 | 1969d | 0 | -- | 0 | -- | 2 | 20.5 |
| 9 | 1969 | 2 | 19.7 | 0 | -- | 24 | 27.2 |
| 10 | 1970 | 2 | 41.9 | 0 | -- | 12 | 42.5 |
| 11 | 1971 | 3 | 20.2 | 0 | -- | 12 | 41.6 |
| 12 | 1972 | 1 | 51.7 | 0 | -- | 14 | 31.3 |
| 13 | 1973 | 3 | 26.0 | 2 | 31.6 | 16 | 49.3 |
| 14 | 1974 | 7 | 108.4 | 5 | 106.1 | 12 | 62.1 |
| 15 | 1975 | 8 | 99.6 | 2 | 123.9 | 12 | 77.2 |
| 16 | 1976 | 14 | 66.3 | 5 | 30.7 | 17 | 68.1 |
| 17 | 1977 | 9 | 72.9 | 14 | 54.3 | 29 | 73.8 |
| 18 | 1978 | 13 | 76.3 | 17 | 76.8 | 20 | 66.0 |
| 19 | 1979 | 20 | 97.8 | 15 | 77.1 | 13 | 62.2 |
| 20 | 1980 | 8 | 80.9 | 8 | 80.2 | 12 | 81.2 |
| 21 | 1981 | 9 | 72.5 | 8 | 89.2 | 7 | 43.8 |
| 22 | 1982 | 9 | 80.3 | 6 | 89.9 | 9 | 71.5 |
| 23 | 1983 | 7 | 93.2 | 6 | 33.2 | 8 | 66.3 |
| 24 | 1984 | 21 | 52.8 | 6 | 36.2 | 10 | 46.8 |
| 25 | 1985 | 19 | 45.2 | 5 | 58.9 | 4 | 61.9 |

a: Takeover premiums are calculated by dividing the market value of consideration (cash, common stock, or preferred stock) offered per target share minus the target's previous share price (measured 60 calendar days before the offer announcement) by the target's previous share price. If consideration is stock, the value of the acquirer's offer is measured 60 days before the offer announcement.

b: Before passage of the Williams Act (January through July 29, 1968)

c: After passage of Williams Act (July 29, 1968 through December 1985)

d: 1969 takeovers in which the offer was made before the Williams Act was passed

Conclusions: Cash tender, cash merger and stock merger takeover premiums for 1974-1985 are approximately double those for 1963-1973

Source: Nathan & O'Keefe (1989)

SUPPLEMENT 5 - BREAK-EVEN TAKEOVER GAINS FOR ACQUISITION OF CORPORATION "B" WITH A PRE-OFFER VALUE OF 100 AND DISCOUNT RATE OF 10 %

| Implementation horizon (year) | Takeover premium (%) | | | | | |
|-------------------------------|----------------------|------|------|-------|-------|-----|
| | 10 | 20 | 40 | 60 | 80 | 100 |
| 0 | 10 | 20 | 40 | 60 | 80 | 100 |
| 1 | 11 | 22 | 44 | 66 | 88 | 110 |
| 2 | 12.1 | 24.2 | 48.4 | 72.6 | 96.8 | 121 |
| 3 | 13.3 | 26.6 | 53.2 | 79.8 | 106.4 | 133 |
| 4 | 14.6 | 29.2 | 58.4 | 87.6 | 116.8 | 146 |
| 5 | 16.1 | 32.2 | 64.4 | 96.6 | 128.8 | 161 |
| 6 | 17.7 | 35.5 | 70.8 | 106.2 | 141.6 | 177 |
| 7 | 19.5 | 39 | 78.0 | 117.0 | 156.0 | 195 |

SUPPLEMENT 6: BRIEF OVERVIEW OVER THE STANDARD CLASSIFICATION GROUPINGS AS OF 1987

STANDARD INDUSTRIAL CLASSIFICATION GROUPINGS

| Major Group | Description |
|--------------------|--|
| 01-09 | Agriculture, Forestry, and Fisheries |
| 10-19 | Mining and Construction |
| 20-39 | Manufacturing |
| 40-49 | Transport, Communications, and Utilities |
| 50-59 | Wholesale and Retail Trade |
| 60-69 | Finance, Insurance, and Real Estate |
| 70-89 | Other Service Industries |
| 91-94 | Government Services |
| 99 | Nonclassifiable Industries |

Example of Classification Hierarchy

| Class | Description |
|--------------|------------------------------|
| 35 | Machinery, except electrical |
| 351 | Engines and turbines |
| 3511 | Steam engines |
| 3519 | Internal combustion engines |

Example of Four-Digit Expansion

| Class | Description |
|--------------|-----------------------------|
| 36 | Electrical equipment |
| 363 | Household appliances |
| 3631 | Household cooking equipment |

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