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CROSS-SECTIONAL ANALYSIS
OF THE PRICING OF PRIVATE EQUITY PLACEMENTS

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By

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*****

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1995

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# TABLE OF CONTENTS

ACKNOWLEDGEMENTS ............................................................................................................................... ii

VITA ......................................................................................................................................................... iii

LIST OF TABLES ........................................................................................................................................ vi

<table>
<thead>
<tr>
<th>CHAPTER</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Introduction</td>
<td>1</td>
</tr>
<tr>
<td>II. Reasons for Issuing Private Equity</td>
<td>6</td>
</tr>
<tr>
<td>A Contracting Process Motivation for Private Equity</td>
<td>6</td>
</tr>
<tr>
<td>Khanna and Moon Information/Signalling Model</td>
<td>17</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>18</td>
</tr>
<tr>
<td>Anti-Takeover</td>
<td>19</td>
</tr>
<tr>
<td>III. Methods</td>
<td>21</td>
</tr>
<tr>
<td>Data Collection</td>
<td>21</td>
</tr>
<tr>
<td>Interfirm equity sales</td>
<td>22</td>
</tr>
<tr>
<td>IV. Data Description</td>
<td>26</td>
</tr>
<tr>
<td>The Data</td>
<td>26</td>
</tr>
<tr>
<td>Types of Product Market Contracts</td>
<td>33</td>
</tr>
<tr>
<td>Control Mechanisms</td>
<td>42</td>
</tr>
<tr>
<td>Warrants</td>
<td>53</td>
</tr>
<tr>
<td>V. Contracting Costs vs Information asymmetry</td>
<td>59</td>
</tr>
<tr>
<td>The existence of product market agreements</td>
<td>59</td>
</tr>
<tr>
<td>Contracting Costs</td>
<td>60</td>
</tr>
<tr>
<td>Private equity can reduce contracting costs</td>
<td>62</td>
</tr>
<tr>
<td>Research &amp; Development Contracts</td>
<td>62</td>
</tr>
<tr>
<td>Sales Agreement Contracts</td>
<td>64</td>
</tr>
<tr>
<td>Joint Venture Contracts</td>
<td>65</td>
</tr>
</tbody>
</table>
LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Appropriability Regimes &amp; Complementary Assets</td>
<td>8</td>
</tr>
<tr>
<td>2. Time Distribution of Private Equity Placements</td>
<td>27</td>
</tr>
<tr>
<td>3. Classification by SIC Codes</td>
<td>27</td>
</tr>
<tr>
<td>4. Summary Statistics on 110 Private Equity Placements</td>
<td>28</td>
</tr>
<tr>
<td>5. Comparison of Pricing of Private Equity Across Different Samples</td>
<td>30</td>
</tr>
<tr>
<td>6. Firm Size measured by Book Value of Assets and Sales for buyers and selling firms</td>
<td>32</td>
</tr>
<tr>
<td>7. Number and types of product market agreements</td>
<td>34</td>
</tr>
<tr>
<td>8. Characteristics of selling firms and private equity sales by product market types</td>
<td>37</td>
</tr>
<tr>
<td>9. Characteristics of selling firms and private equity sales by product market types (Independent sub-samples)</td>
<td>40</td>
</tr>
<tr>
<td>10. Comparison of control mechanisms across different samples</td>
<td>43</td>
</tr>
<tr>
<td>11. Control mechanisms by product market contract type</td>
<td>45</td>
</tr>
<tr>
<td>12. Control Mechanisms by contract types - Percentage of independent subsamples with a specific control mechanism</td>
<td>48</td>
</tr>
<tr>
<td>13. Analysis of mean and median premia across different types of control mechanisms</td>
<td>50</td>
</tr>
</tbody>
</table>
14. Regression analysis of pricing on Private Equity Placements .......................... 52
15. Summary Statistics on the option to purchase additional shares ..................... 54
16. Relative Exercise Prices and Discounts on Warrants ........................................ 55
17. The Aftermath of the Private Equity Sales ...................................................... 111
CHAPTER I

Introduction

In recent years, the private placement market has become increasingly popular for firms issuing equity. According to a study by Carey, Prowse, Rea and Udell (1993), private equity sales by non-financial firms increased from $3.7 billion in 1986 to $6.1 billion in 1992. These authors also find that since 1989, corporate investors have been a major buyer of private equity.

The increased use of the private equity market has not escaped the notice of researchers, and since 1989 several studies have been done on private equity placements. One major finding of most of these studies is that private equity is priced on average at a substantial discount to current market prices. Discounts of 20% are documented by Hertzel and Smith (1993) and 13.5% by Wruck (1988, 1989); both samples consist of US firms. However, Wruck notes that the discount is statistically significant only on unregistered sales. Private equity placements by Japanese firms are also done at discounts (see Kato and Schallheim (1993)). However, Moon (1993) finds a premium of 2.5% in his sample of

---

1 private equity includes private preferred equity.

2 In comparison, Loderer, Sheehan and Kadlec (1991) find the degree of underpricing in seasoned public equity issues to be small (less than 2%).
mixed buyers, but he finds that private equity sales to financial buyers are done at a discount of 32.9%, while sales to non-financial buyers are done at a premium of 11.7% (the pricing in the two subgroups are significantly different from each other at the 1% level). Moon also finds that the difference in pricing on restricted and non-restricted shares are significantly different from each other at the 1% level.

The primary purpose of this dissertation is to examine differences in pricing various types of private equity sales. Central to this examination is the role private equity placement plays in reducing the incentives for ex post opportunistic behaviour in product market contracts between the selling firm and the investor. In this framework, there is perfect information symmetry between the two parties, but there is uncertainty about the future. The other reasons for interfirm equity sales discussed in this paper include: (i) Prelude to merger since Barclay and Holderness (1991) find significant takeover activities following block trades. (ii) Firms could also issue private equity to deter hostile takeover attempts, here the buyer is considered a white knight. (iii) Finally, firms can buy an equity stake in another firm to signal its quality to the selling firm as in the Khanna and Moon (1993) model

The literature posits three different hypotheses that explain private equity placements: (i) increased ownership concentration (Wruck 1988, 1989), (ii) less costly financing (Hertzel and Smith 1993), and (iii) partial integration (instead of takeovers) in the presence of information asymmetries about firm quality (Khanna and Moon 1993). The following describes the first two hypotheses. The third hypothesis is described in Chapter II.

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3 Reasons for interfirm private equity placements are examined in detail, since the focus of this paper is on interfirm equity placements.
Wruck (1988, 1989) examines the hypothesis that increased ownership concentration can result in entrenchment of managers if they own a small fraction of the firm. This would appear to imply a reduction in firm value. On the other hand, increased ownership concentration might boost firm value if it allows large shareholders to monitor managers more effectively (Fama and Jensen (1983), Shleifer and Vishny (1986)).

In contrast to Wruck's ownership hypothesis, Hertzel and Smith (1993) develop an information/signalling model to explain the discount. They extend the Myers and Majluf (1984) model to include the option to issue equity privately. Firms facing large information asymmetries may find it expensive to issue public equity; therefore, the firms forgo positive net present value projects. Private equity placements reduce the high information asymmetry costs of public equity issues since they allow firms to undertake projects they would have otherwise abandoned. Thus, Hertzel and Smith argue that the price discounts represents the investor's cost of gathering information about the firm.

Interfirm equity sales represent a small fraction of the samples used to test Wruck and Hertzel and Smith's hypotheses. Therefore, there is some uncertainty if these two motivations can explain cross sectional differences in interfirm equity placements. In addition, the evidence in Moon (1993) suggests that the pricing of private equity may differ substantially for financial and non-financial buyers.

On the other hand, Barclay and Holderness (1989) provide an empirical basis for studying interfirm private equity sales in depth. The authors conclude that the investors obtain private benefits from owning a block of shares in a particular firm. Barclay and Holderness do not specifically identify what these private benefits are, but they suggest that
these benefits can include consumption of perquisites by individual blockholders, and access to the target's technology for synergies or economies of scale by corporate blockholders (p. 385).

In their empirical work, Barclay and Holderness (1989) find that most of the buyers in block trades (these are secondary block trades) are other firms and that most of these firms are in the same line of business as the firm whose shares they acquire. The authors also find that the trades are done on average at a premium to market prices. They also find that the premium paid is positively correlated to the amount of control the blockholders can exercise, thus the authors conclude that these block premiums reflect the private benefits of voting control.

The empirical results in Wruck (1988, 1989) and Moon (1993) suggest that the pricing of private equity is not uniform, but may depend, inter alia, on the identity of the buyer and the characteristics of the private equity. Specifically, this paper looks primarily at private equity sold to firm buyers, and discusses possible reasons why one firm privately places a block of shares with another firm.

This study argues that the main rationale for interfirm private equity sale is to reduce contracting costs in product market contracts. The contracting cost motivation is based on Klein, Crawford and Alchian (1978) and Teece (1986). The model explains how two firms sign a product market agreement, and in a subsequent period, one firm may have the incentive to renege on the agreement depending on the current state of the world. A private equity sale between the two firms is one way to reduce these incentives to cheat ex post through bonding or monitoring mechanisms.
The bonding mechanism (bonding contracts) involves selling non-tradable equity to a party that has the incentive to cheat ex post. Non-tradable equity reduces the firm's incentive to make decisions that lower the value of the other firm, since this would lower the value of its investment. The equity is sold at a discount as an inducement to enter the contract. As an alternative to bonding, the firm can purchase an equity stake in the firm with the incentive to renege. This allows the buying firm to monitor and control the decisions made by the selling firm which creates a monitoring contract. The premium represents an enticement for the selling firm to sign the contract.

The results of this paper suggest that a product market motivation is the main reason for interfirm private equity placements. The empirical facts fit the contracting costs motivation better than the information asymmetry proposed by Khanna and Moon (1993). However, in some cases, the data is consistent with the Khanna and Moon (1993) information asymmetry model.

The remainder of the paper is organized as follows: Chapter II presents a discussion on the contract cost hypothesis of interfirm private equity placements. Chapter III describes the methodology used in testing the implications discussed in Chapter II. Chapter IV describes the data and Chapter V examines a few product market contracts in detail. Chapter VI summarizes and concludes this study of interfirm private equity placements.
Chapter II

Reasons for Issuing Private Equity

This section examines four motivations for a firm to place a block of shares with another firm. The first motivation explains the contracting cost model based on Klein, Crawford and Alchian (1978) and Teece (1986). The second reason is based on the Khanna and Moon (1993) information/signalling model. A firm will take an equity stake in another firm if its intention is to merge with, or take over, the firm. Finally, a firm will place a block of shares with another firm (white knight) to deter a hostile takeover.

2.1 A Contracting Process Motivation for Private Equity

This section provides a contracting process motivation for private equity sales. Jensen and Meckling (1976) describe the firm as a nexus of contracts between the owners of labour, material and capital inputs, and the users of the output. A private equity contract is simply one of these contracts. The private equity sale is modelled as part of a product agreement contract between the issuing firm and the buyer. When one party makes ex ante contract specific investments, the provisions of the private sale reduce the incentive for the other party to renege on the contract. This model is used to explain private equity sales between two firms.
Teece (1986) develops a framework that uses the characteristics of (i) the technology of the innovator (firm with the unique asset) and (ii) complementary assets needed to make the innovation commercially viable, in order to determine which firm has the power to hold out (that is, renege on any contract on which the two firms agree). Teece (1986) determines each firm's hold-out strength by examining whether the innovation has strong or weak appropriability and if the complementary assets are specialized or generic. An innovation has a strong appropriability regime if the technology has strong legal protection (for example, patents4) and/or the technology is very difficult to copy. A weak appropriability regime is evident by weak legal protection and a technology that is easily copied once it is released (for example, by reverse engineering). Complementary assets are generic if the firm with the innovation can choose among several other firms. Specialized complementary assets such as a highly specialized distribution system, are unique. Table 1 shows the strategies and outcomes for four different scenarios. Table 1 is adapted from Figure 11 on page 297 of Teece (1986).

Table 1 indicates that the innovator will "win" (that is, have greater hold-out power) when the innovation has strong legal protection or the technology is difficult to copy (strong appropriability regime). The innovator will also win when the complementary assets are generic even when the appropriability regime is weak. The innovator will lose when the appropriability regime is weak and the complementary assets are specialized.

4 However, Teece (1986) argues that not all patents provide strong legal protection.
Table 1 - Appropriability Regimes & Complementary Assets

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<tr>
<th>Complementary Assets are not specialized</th>
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<th>Weak Protection</th>
</tr>
</thead>
<tbody>
<tr>
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<td>Innovator will win</td>
<td>Innovator will win</td>
</tr>
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<td>Monitoring</td>
<td>Monitoring</td>
</tr>
</tbody>
</table>

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<thead>
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<th>Complementary Assets are specialized</th>
<th>Innovator should win; may have to share profits</th>
<th>Innovator will probably lose</th>
</tr>
</thead>
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<td></td>
<td>Monitoring</td>
<td>Bonding</td>
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Adapted from Figure 11 Teece (1986).
In the cases where the innovator will win, the owner of the complementary assets may wish to control the decisions that the innovator makes in subsequent periods to reduce any incentive the innovator has to hold out. In the cases where the innovator may lose, the innovator may wish to limit the owner of the complementary assets from holding out in later periods. Thus, the implication from Teece (1986) is that a monitoring contract will be used when the innovator stands to win, and a bonding contract will be used when the innovator stands to lose (assuming the innovator is the selling firm).

The framework in Klein, Crawford and Alchian's (1978) model (KCA) is used to show how both the innovator and the owner of the complementary assets can use private equity to reduce the incentive of one party to "hold-out" in a subsequent period. A brief description of the KCA model follows.

**KCA Framework**

KCA explain why some assets are owned by the firm, while other assets are leased. First the authors define the concept of quasi-rents as the value of the asset in its current use less any salvage value, or the value of the asset in its next best use to another user. They proceed by showing how these rents can be appropriated by one contracting party, and recommend ways to reduce incentives to appropriate the quasi-rents.

The following explains how expropriation of quasi-rents can occur. In period 1, firm B makes contract specific investments and negotiates with firm A for the use of the asset at a price $P_1$. In period 2, firm A reneges on the contract by charging $P_2$ ($P_2 > P_1$). Firm B will pay $P_2$, if variable costs can be recovered. To reduce the incentives for firm A to engage in ex post opportunistic behaviour, KCA suggest the following solutions:
(i) Write very explicit contracts that include detailed and enforceable provisions. However, if period 2 actions are too numerous and/or difficult to assess in period 1, then writing those explicit contracts can be very expensive. Once the cheating party enters the contract, control mechanisms are put in place to limit the opportunities to break the contract at a later date.

(ii) Write contracts offering a premium to the party that has the incentive to cheat. The up-front premium induces the party with the incentive to cheat in order to enter the contract. And control mechanisms put in place by the other party reduces the incentives to cheat.

(iii) When appropriable quasi-rents are very high, joint/common ownership can provide an optimal solution to the problem of ex post opportunistic behaviour. If firm B (as in the example above) realizes that in period 2 firm A will renege and charge a higher price, firm B may decide not to contract in period 1. The combined value of both firms is reduced since the deal will fall through. To avoid forgoing a positive net present value project for firm B and a non-negative net present value project for firm A, both firms should have joint ownership of the asset. Joint ownership can be achieved by one firm merging with the other firm. Here, the quasi-rent is shared by both firms since both own the assets.

**Interfirm private equity placements**

The following describes the contracting environment where a private equity placement can reduce the incentives for one firm to renege on a product market agreement. In period 1, a product market contract is signed by the two firms (for simplicity, assume that both firms are 100% owned by their managers), and at least one firm makes contract specific
investment. In period 2, one firm has incentives to cheat on the contract causing a reduction in the value of the other firm.

Examples of product market contracts include - (i) One firm provides access to markets that are closed to the other firm because of regulation. (ii) The two firms form a joint venture to develop or market a new process. One firm provides the capital, and the other provides non-cash inputs and lowers the risk of the project. Here, it is assumed that each firm brings a unique set of assets (intangible or tangible) which are crucial to the success of the joint venture. (iii) One firm allows the other firm to use its patented technology to increase operating efficiency.

Contract specific investments include - (i) Firm X builds a new factory to produce widgets with the understanding that Firm Y will provide the marketing and servicing functions. (ii) Firm X buys new assets with the understanding that Firm Y will provide the expertise to manage these assets. Examples of ex post cheating may include - (i) In period 2, Firm Y finds that it is optimal to provide Firm X with only marketing functions, which is detrimental to Firm X, or (ii) In period 2, Firm Y finds that it is no longer optimal to provide technical expertise to Firm X, leaving it to manage assets it knows little about.

There are two basic assumptions in this framework. First, the future is highly uncertain and the number of future outcomes is numerous, thus writing explicit contracts is very expensive. The second assumption is that full integration (merger) is not optimal. Non-optimality occurs in full integration under the following conditions: (i) both managers are
needed to operate the firms, (ii) the actions of the managers are non-verifiable, so that control by one manager causes the other manager to expend less than first best efforts\(^5\).

These two assumptions eliminate two solutions in KCA. The remaining solution is to incorporate a premium in the contract so that the present value of the premium and the benefits of the contract are greater than the present value of reneging on the contract. Incorporating a private equity contract with the product market agreement can not only allow for the payment of a premium to the party with the incentive to cheat, but can also reduce the incentives to cheat ex post. This can be done through either bonding or monitoring mechanisms.

**Case 1: Bonding**

Assume there are two firms, X and Y. In period 2, firm Y has the opportunity to renege on the product market contract and reduce the value of firm X. A private equity issue can "bond" firm Y to firm X. If the bonding were perfect, a price discount would represent an up-front payment needed to make the firm with incentive to cheat (Y) give up its option to renege\(^6\). When Y holds a non-tradable fraction of X, Y has the incentive to make decisions that will increase (or at least not decrease) the value of X. The equity must be non-tradeable, otherwise, Y could simply re-sell the equity at an immediate gain and retain its


\(^6\) The payment is required so that the present value of the payoffs from the contract plus the premium received up front is greater than or equal to the present value of payoff of engaging in opportunistic behaviour.
option to renege on the product market contract.

This bonding contract cannot be replicated by Y purchasing shares on the secondary market for at least two reasons. First, Y may find it difficult to negotiate a discount from a third party, since this third party may not benefit from the product market contract between X and Y. Second, shares purchased on the secondary market can be traded, thus Y will not be bonded to X and can simply sell the shares and renege on the contract.

Case 2: Monitoring

Suppose, as in the bonding contract, firm Y has the incentive to expropriate quasi-rents in period 2. In a monitoring contract, X purchases a fraction of Y at a premium and then monitors and controls the decisions that Y makes in period 2. The type of control mechanism that X uses will depend on the nature of product market contract, and the opportunities Y has to cheat. These mechanisms may include election of a director or membership on the management team. In addition, the fraction of Y that will be needed to effectively control Y’s managers will depend on the current ownership structure of Y. If Y’s ownership structure is concentrated, then X will require a large fraction of Y for control. On the other hand, if the ownership structure is diffused, then a smaller fraction of Y will suffice. Firm Y will demand a premium since Y has the incentive to cheat ex post.

The monitoring contract cannot be replicated by purchases on the secondary markets for several reasons. In the private equity contract, X can negotiate for the appropriate control mechanisms which may not be possible with secondary purchases, thus reducing Y’s incentive to renege in period 2. Alternatively, X may have to purchase a much larger stake
to guarantee a representative on the board of directors. In addition, empirical evidence (see Barclay & Holderness, 1989) suggests that secondary block purchases are also done at a premium. Most likely, X would still have to buy the shares at a premium on the secondary markets. Finally, purchasing the equity directly from X may reduce transaction costs in some cases. If Y needs capital to carry out the product market contract, then selling shares directly to X eliminates some costs associated with doing a public offering. X may also save commission fees by buying the shares directly from Y.

The following illustrates an application of case 2:

Firm Y is a small firm on the verge of discovering a cure for the common cold. Firm X is one of many drug manufacturing and distribution firms (currently X manufactures and distributes other drugs). In period 1, firm X injects capital into Y by buying an equity stake. Y uses this capital to further research and development. In subsequent periods, X expects to profit from marketing and distributing the cure. In period 2, either the cure is approved by the regulators or it is not, and Y starts the research process over. In period 2, if the drug is approved, then firm Y's value maximizing period 2 decision is to sell the cure to the highest bidder. Firm Y is prevented from selling out to the highest bidder (without X's permission) since firm X has control of Y's period 2 decisions. The equity is sold at a premium because this is one way in which Y will agree to have its options in period 2 reduced. Y cannot renege by refusing to do additional research since X has sufficient control to replace non-cooperative managers.

7 The premium can also be considered as the value of the option of controlling Y's period 2 decision.
The decision to use bonding or monitoring mechanisms may depend on the relative size of the buyer and selling firms. When the larger firm has the incentive to cheat, a bonding contract may be more practical or more efficient. When the smaller firm has the incentive to cheat, a monitoring contract may be more practical or more efficient. This is so because it may be impractical for a firm with book value of assets of $50 million to hold a 15% stake of a firm with a book value of assets of $3.8 billion.

In addition, when the firm with the incentive to cheat needs capital to carry out the product market contract, the monitoring contract can be more efficient as it can reduce transaction costs. Also for monitoring contracts, the larger firm can afford to buy a large fraction, thus reducing the incentive for the smaller firm to cheat. Since the manager of the smaller firm no longer holds 100% of the firm, he will no longer get 100% of the benefits of cheating.

**Implications**

(1) Premium/Discount: KCA suggest that the amount of premium demanded by the firm with the incentive for ex post opportunistic behaviour will be positively correlated with the size of the appropriable quasi-rents. The quasi-rent will depend on the uniqueness of the assets and the ease of monitoring the actions of the party which has the incentive for ex post opportunistic behaviour.

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8 These values are median values taken from Khanna and Moon (1993).
(2) Types of firms: The scenario described in case 1 (bonding) usually occurs when one firm is contracting for services (for example, marketing services) from another firm. Here, the quality of the service rendered is extremely important, hence the need to align the providing firm's interest to those of the recipient firm. Small firms are expected to be recipients of services since their scale of operations is too small to warrant producing these services in-house. The larger firms in the industry are expected to be the providers, since economies of scale would make it profitable to expand their in-house services departments. Thus, for case 1, small firms will sell restricted equity at a discount to larger firms in a related business and at the same time sign a service agreement.

In case 2 (monitoring), private equity sales are expected to occur when one firm is developing, or has recently developed, a new technology, and the other firm can use the new technology to increase the efficiency of, or expand, its operation. The firm can secure the right to use the other firm's technology by buying a controlling interest in that firm. Thus, it is expected that the selling firm will be characterized by large amounts of human capital relative to tangible assets, high R&D spending, and patents (unique assets). Pisano (1989) finds in his study of the biotechnology industry that equity collaboration was more likely when patents and high R&D spending were involved. These characteristics make it more difficult to specify all future contingencies at the initial contract date. By electing a director, the buyer can control some decisions that must be made when unexpected contingencies arise (Pisano). In addition, ex post opportunistic behaviour is more likely and more difficult to police in these cases. These firms will sell equity at a premium to firms in a related business and with control mechanisms that will monitor the managers of the selling firm.
Finally, the relative firm size (ratio of the buyer to the selling firm) is expected to be larger than 1. This is so because it may be more practical for a large firm to take a stake in a smaller firm rather than a small firm to purchase a fraction of a much larger firm. In addition, monitoring contracts are more likely to be used when the firm with the incentive to renege needs capital to carry out the product market contract.

2.2Khanna and Moon Information/Signalling Model

Khanna and Moon (1993) develop a signalling/information asymmetry model to explain interfirm private equity placements, which is different from Hertzel and Smith's (1993) model. In Khanna and Moon's model, information asymmetries make it difficult for a firm to credibly convey the quality of its assets to another firm. If this difficulty is particularly severe, then an acquiring firm- A may pay for a target firm- T with stock, instead of cash, in a full takeover. Khanna and Moon set up the full takeover model as follows: The acquirer A has intangible assets I, and there is the target firm (T), whose value increases when its asset is used in conjunction with I. In the full takeover model, the combined value of the two firms (A and T) is greater than the sum of the individual firms. The value of the combined firm is known to A (since A knows the value of I), but is unknown to T. Khanna and Moon show that a separating equilibrium exists such that the higher the quality of A's intangible assets, the greater the fraction of the combined firm it can afford to offer to T's shareholders. Thus, T is able to infer the quality of I by observing the fraction it is offered of the combined firm.
In a partial takeover (for example, a private equity placement), firm A signals its quality by purchasing a stake in T. Higher quality firms will purchase larger stakes, since high quality assets correspond to larger increases in the market value of the target. The private equity will be priced at a discount that reflects the quality of the buyer's assets and the relative bargaining power of the two firms.

The empirical predictions of this model of interfirm equity sales include the following: (1) Product market contracts should accompany these equity sales. (2) The intangible assets that form the basis of the product market contract will belong to the buyer. (3) The private equity will be sold at a discount to market prices. (4) The two firms should be in the same or related industries.

2.3 Prelude to Merger

Chowdhry and Jegadeeh (1994) develop a model which shows that the larger the bidder's pre-tender stake the greater the probability of a successful takeover. Barclay and Holderness (1991) find that in their sample of secondary block trades, approximately 40% of the firms were eventually taken over by the block buyer. Mikkleson and Ruback (1985) study Schedule 13D SEC filings by firms that purchase an equity stake in a target firm. They find that about one third of firms in their sample eventually take over the target firm although only 9% had initially indicated that a takeover was the reason for purchasing the equity stake. Thus, one reason for interfirm equity placement is to provide the buyer with an initial stake in the firm it desires to take over (even if the buyer does not admit that it intends to do a takeover). This initial stake may make it easier for the bidder to take over
the target, especially if the bidder can elect directors, or is given warrants or convertible securities with the private equity sale.

Private equity sales used as prelude to merger are expected to have the following characteristics: The buyer is expected to have the option to elect directors on the target's board of directors. The buyer may also buy options to increase its stake (warrants, convertible securities) in the target. Finally, the buyer may purchase a block of shares from another shareholder at the same time, as or close to, the private equity sale.

2.4 Anti-Takeover

The management of the selling firm places a block of shares with investors (white knights) who will not vote against management's decisions. This might be in order to avoid a hostile takeover from a third party, or proxy fights from a dissident shareholder, if management does not own a large fraction of the target. With a block of shares in friendly hands, management will have more discretion over the firm's assets. The types of firms expected to be able to act as white knights include existing shareholders and firms that can glean extra benefits through business contracts with the selling firm. Brickley, Lease and Smith (1988) show that these types of shareholders do not, on average, vote against management proposals, which makes them excellent white knights.

The characteristics of the private equity suited for anti-takeover measures are as follows: The shares should have re-sale restrictions since this prevents the white knight from selling the shares without the selling firm's approval. The white knight may get board representation since this gives the management more influence in major decisions.
The contracting cost, prelude to merger, and anti-takeover reasons for interfirm private equity placements are not mutually exclusive, in that there will be cases where one of the three reasons is applicable. However, the Khanna and Moon model can be tested against the contracting cost motivation. The major difference between these two papers is that this paper identifies two distinct types of private equity sales, while the Khanna and Moon model identifies only one type of private placement. The Khanna and Moon model can only identify private sales where the buyer has intangible assets that increase the value of the selling firm. Thus, their model will predict that private sales will always be done at a discount to market prices and does not require that the equity sold have trading restrictions.
Chapter III

Methods

3.1 Data Collection

The Wall Street Journal On Disc (WSJ) and the Dow Jones News Retrieval Text databases (DJNR) were used to identify public firms that issued private equity from January 1979 to December 1992. The search phrase "private placement" generated over 5,000 documents in the DJNR database. The search was narrowed with the term "equity" or "stock" and that produced over 1,000 documents that include both common and preferred equity placements. The search phrase "stock purchase agreement" was also used to identify firms that made private placements. This search resulted in over 500 documents that include both secondary and primary stock purchase agreements. Additional search terms such as cash and equity infusion were also used to identify private equity sales. To test the interfirm equity sale hypothesis, private sales to institutional, individual, and unknown investors were eliminated. Thus, only sales where the buyer is an industrial firm, or where both the selling firm and the buyer are financial firms, were included in the sample.

The following information on the private equity placements is obtained from news reports: the announcement date (day 0 is the WSJ/DJNR date, for some firms the announcement date is the same as the date the sale was consummated), the placement price,
the identity of the buyer, the number of shares purchased, proceeds of the sale, other securities sold (warrants, preferred equity, bonds and public common shares), and the exchange on which the firm trades. SEC filings (10Q, 6K, 8K, annual reports, proxy statements), Moody's Industrial manuals, Standard & Poor manuals, Ward's Directory of Public and Private firms in the US, and the Lexis/Nexis database were used as additional data sources.

The Compustat industrial files were used to obtain balance sheet data. The Center for Research in Security Prices (CRSP) tapes were used to obtain market prices, and the market value of the selling firms (measured 30 days prior to day 0).

3.2 Interfirm equity sales

This section describes the methodology that is used to test the hypotheses on interfirm private equity placements described in Chapter II. Khanna and Moon test their interfirm private equity model by describing the characteristics of the buying and selling firms and the nature of the product market contracts. They find that, on average, the buying firm was larger (1.8 to 67 times depending on the measure of firm size) and older than the selling firm. The selling firm had higher median market to book value of assets ratios, and research & development to sales ratios than did the buying firm. They also find that in 77% of their sample, the buying and selling firm had the same 3 digit SIC codes, and in 76% of the sample some type of product market arrangement was present. Moon (1993) finds that private equity sales to non-financial firms are done at a premium of 11.7%. He also finds
that restricted shares increase the discount the buyer receives. However, signing a product market agreement does not significantly affect the pricing of the private equity.

The results from Moon and Khanna and Moon provide some support for the interfirm hypothesis. Specifically, interfirm private equity placements tend to occur between firms in related businesses and simultaneously with product market agreements. In his empirical tests, Moon does not separate non-financial buyers from financial buyers\(^9\), nor does he separate the bonding contracts from the monitoring contracts. This may explain why he is unable to get strong results for the relationship between pricing and product market agreements. However, Moon does find that restricted shares are associated with discounts. This is consistent with bonding contracts and also with the notion that investor require additional compensation for holding an illiquid asset.

The empirical work in this paper focuses on showing that the interfirm hypothesis posited in Chapter II provides a possible explanation for interfirm private equity sales. This is done by showing the following: (i) Product market contracts are negotiated at the same time as, shortly before or after, or within six months of the private equity sale. (ii) The contracting costs for these product market contracts are high, or there are opportunities for one firm to cheat ex post. (iii) The features of the private equity can possibly reduce contracting costs, or reduce the incentive to cheat ex post. The variables (in italics) that are used in the empirical work are defined and explained below.

\(^9\) Moon argues that sales to financial buyers represent the ownership concentration and information asymmetry hypotheses, and sales to non-financial buyers represents product market interactions.
The *premium* is calculated relative to the market price 10 days after day 0 (announcement day) \( (P_{t0}) \). Using the market price 10 days after the announcement allows sufficient time for the information about the private equity placement to be reflected in the market price, as many firms in this sample are small and their share may trade infrequently. This is the same definition for discount used by Moon (1993) and Hertzel & Smith (1993), and therefore, comparisons with these studies can be made. Premium = \( (P_s - P_{t0})/P_{t0} \) where \( P_s \) is the placement price.

To determine if the selling firm has a *unique asset*, the news reports and annual reports were searched to ascertain if there are any patents. If either firm owns a patent, then that firm may extract quasi-rents from the other firm. Thus, if the selling firm has a patent, then the buyer will need to monitor the seller. Similarly, if the buyer has the patent then the selling firm will want to bond with the buyer.

*Restricted shares* are found by examining the news reports, annual reports, Registered Offering and Securities (ROS) tapes and Compact D'33 CD-ROM for registration status and restriction on the equity sold in the private placement. If a registration statement is filed (without restrictions) within six months of the offering, then it is assumed that the shares are registered and there are no resale restrictions\(^{10}\).

The selling firm can also protect itself in one of the following ways: (i) include a standstill agreement in the private equity contract preventing the buyer from exerting more

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\(^{10}\) Unfortunately, the ROS tapes have no registration information beyond 1988 and the registration information on Compact D'33 starts at 1990. This means that registration status for placements done in 1989 can only be obtained from new reports and annual reports.
control over the selling firm than is necessary, (ii) use a restricted voting clause, which is also effective in controlling the amount of voting power the buyer gets, and (iii) insert a first right of refusal clause, which allows the selling firm to control how the buyer disposes of the shares bought in the private placement. This forces the buyer to offer the shares to the selling firm before offering them to any other investor.

The *control mechanisms* that the buyer is expected to use include either electing a director who is connected to the buyer, or placing an individual on the management team of the selling firm. The buyer can also obtain warrants or convertible securities which make it easier for the buyer to increase its stake in the selling firm when necessary. In addition, to prevent dilution of the buyer's fraction of the selling firm, the buyer can insert an anti-dilution clause in the private equity contract. This allows the buyer the right to purchase a predetermined fraction of all future private or public equity offerings.
Chapter IV

Data Description

4.2 The Data

Summary Statistics

The DJNR search produced 110 private equity placements done by 106 firms. Placements done by firms whose returns were not available on the CRSP files were eliminated. Also eliminated were placements where the first date of announcement could not be found, or where there were insufficient data. Approximately two-thirds of the firms traded OTC at the time the placement was done and about two-thirds of the placements were done in the last 5 years. A brief description of the private sales and the product market contracts is given in Appendix A. Table 2 gives a breakdown of the time distribution of private equity sales.

Distributions of the industry classification of the 110 private equity firms and 7138 Compustat firms (all firms reported in the Compustat database) are shown in Table 3. Table 3 clearly shows that there are relatively large numbers of private sales in the Chemical & Allied Products (drugs and pharmaceuticals), the Financial Services, and Medical and other Services categories, and a relatively small number in Wholesale and Retail Trade, Food and Tobacco, and Manufacturing. In addition, the selling firms and the buyers tend to be in the
### Table 2
Time Distribution of Private Equity Placements

<table>
<thead>
<tr>
<th>Year</th>
<th>Number</th>
<th>Year</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1979</td>
<td>2</td>
<td>1986</td>
<td>5</td>
</tr>
<tr>
<td>1980</td>
<td>1</td>
<td>1987</td>
<td>5</td>
</tr>
<tr>
<td>1981</td>
<td>3</td>
<td>1988</td>
<td>16</td>
</tr>
<tr>
<td>1982</td>
<td>3</td>
<td>1989</td>
<td>16</td>
</tr>
<tr>
<td>1983</td>
<td>9</td>
<td>1990</td>
<td>16</td>
</tr>
<tr>
<td>1984</td>
<td>3</td>
<td>1991</td>
<td>13</td>
</tr>
<tr>
<td>1985</td>
<td>5</td>
<td>1992</td>
<td>13</td>
</tr>
</tbody>
</table>

### Table 3
Classification by SIC Codes

<table>
<thead>
<tr>
<th>Industries</th>
<th>Private Placement Sample %</th>
<th>Compustat Sample %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, Mining, etc</td>
<td>12.6</td>
<td>11.6</td>
</tr>
<tr>
<td>Food &amp; Tobacco</td>
<td>0.9</td>
<td>2.5</td>
</tr>
<tr>
<td>Textiles, Apparel, etc</td>
<td>2.7</td>
<td>5.7</td>
</tr>
<tr>
<td>Chemical Product etc</td>
<td>11.7</td>
<td>4.8</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>5.4</td>
<td>14.1</td>
</tr>
<tr>
<td>Electric &amp; Electronics</td>
<td>15.3</td>
<td>12.5</td>
</tr>
<tr>
<td>Transportation &amp; Utilities</td>
<td>11.7</td>
<td>9.9</td>
</tr>
<tr>
<td>Wholesale &amp; Retail Trade</td>
<td>3.6</td>
<td>9.9</td>
</tr>
<tr>
<td>Financial Services</td>
<td>18.0</td>
<td>13.3</td>
</tr>
<tr>
<td>Medical &amp; Other Services</td>
<td>17.1</td>
<td>11.6</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>0.9</td>
<td>4.1</td>
</tr>
</tbody>
</table>
same or related industries. A chi-square Goodness of Fit test rejects the null hypothesis that the two samples are from the same population (p value less than 0.5%).

Table 4 presents summary statistics on the 110 interfirm private equity placements. This sample is quite different from the sample used Hertzel and Smith (1993). For example, firms and proceeds are much larger with mean values of $290 million and $60 million, respectively versus mean values of $94 million and $11 million in the earlier studies.

<table>
<thead>
<tr>
<th>Premium1 %</th>
<th>Minimum</th>
<th>Mean</th>
<th>Median</th>
<th>Maximum</th>
<th>% positive</th>
</tr>
</thead>
<tbody>
<tr>
<td>-63.5</td>
<td>13.0*</td>
<td>4.3c</td>
<td></td>
<td>217.6</td>
<td>55</td>
</tr>
<tr>
<td>Premium2 %</td>
<td>-62.9</td>
<td>7.7c</td>
<td>-0.6</td>
<td>157.1</td>
<td>50</td>
</tr>
<tr>
<td>MV of equity3 (millions)</td>
<td>0.06</td>
<td>290.2</td>
<td>59.5</td>
<td>4682.8</td>
<td></td>
</tr>
<tr>
<td>Fraction4 %</td>
<td>.02</td>
<td>20.5</td>
<td>15.3</td>
<td>90.1</td>
<td></td>
</tr>
<tr>
<td>Proceeds (millions)</td>
<td>0.2</td>
<td>65.7</td>
<td>10.6</td>
<td>1974.0</td>
<td></td>
</tr>
</tbody>
</table>

1 Measured relative to the market price ten days after announcement. Premia are positive numbers and discounts negative.
2 Measured relative to the market price one day after announcement. Premia are positive numbers and discounts negative.
3 Measured 30 days before announcement.
4 The ratio of the number of shares sold to the number of shares outstanding after the sales.
* significantly different from zero at the 1% level.
c significantly different from zero at the 10% level.
One possible explanation for this difference is the way in which Hertzel and Smith constructed their sample. They eliminated private equity sales if other types of securities were issued at the same time (for example, warrants), or if there were any material announcement that might affect stock prices in the same news report. The mean fraction sold (measured as the ratio of the number of shares sold to the number of shares outstanding after the sales) is 20.5%, which is larger than the 16% found in both Hertzel and Smith, and Moon, and 11.7% in Kato and Schallheim (1993).

The pricing of the private equity sales, using market values ten days ahead, are similar to Moon (1993) non-financial buyers (he also uses prices 10 days ahead). However, the average premium is lower and less significant when the one day after announcement prices are used to calculate the premium. This would suggest that in the 10 day interval, prices on average increased. Closer examination of the sales, reveals that the changes in premium are driven by private equity sales done by smaller firms that used warrants.

The results in Table 5 show that the private equity sales to industrial buyers, in the US are sold at a premium (this sample: 11%, and Moon's non-financial 11.7%). There were 18 equity sales that were sold to firms in the financial industry, and unlike Moon's financial buyers most of these sales were done at a premium. Moon's non-financial buyers include pension funds and insurance companies and the seller may not be in the financial industry. While the financial buyers in this sample purchase equity from firms in the financial industry. Thus financial buyers in this sample possibly have a different motivation than Moon's financial buyers. Kato and Schallheim's (1993) sample of Japanese interfirm private equity sales are done at a discount. On the other hand, the samples that contained
a mixture of buyers are sold at discounts. The premium on the interfirm equity sales is consistent with the premium (mean 20.4% and median 15.7%) found by Barclay and Holderness (1989) in their study of secondary block trades (most of the buyers were other firms). The data in Table 5 indicate that interfirm private equity sales are priced differently from private equity sales to other types of buyers.

Table 5
Comparison of Premium paid for Private Equity Placements across Different Samples

<table>
<thead>
<tr>
<th>Types of Buyers</th>
<th>Mean</th>
<th>Median</th>
<th>% Premium</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfirm - non-financial</td>
<td>11.0b</td>
<td>2.7</td>
<td>54</td>
<td>92</td>
</tr>
<tr>
<td>Interfirm - financial</td>
<td>23.3c</td>
<td>9.5</td>
<td>61</td>
<td>18</td>
</tr>
<tr>
<td>Moon non-financial</td>
<td>11.7a</td>
<td>na</td>
<td>77</td>
<td>73</td>
</tr>
<tr>
<td>Moon financial</td>
<td>-32.7a</td>
<td>na</td>
<td>0</td>
<td>19</td>
</tr>
<tr>
<td>Kato &amp; Schallheim</td>
<td>-11.7</td>
<td>-9.8</td>
<td>na</td>
<td>71</td>
</tr>
<tr>
<td>Hertzel &amp; Smith</td>
<td>-20.1a</td>
<td>-13.3</td>
<td>na</td>
<td>106</td>
</tr>
<tr>
<td>Non-interfirm</td>
<td>-25.7a</td>
<td>-25.8a</td>
<td>19</td>
<td>238</td>
</tr>
<tr>
<td>Wruck</td>
<td>-4.8</td>
<td>na</td>
<td>na</td>
<td>73</td>
</tr>
</tbody>
</table>

* significantly different from zero at the 1% level.
* significantly different from zero at the 10% level.
1 The buyers in the first three samples are firm buyers. The other samples contain mostly non-firm buyers.
na : not available
Table 6 presents summary statistics on firm size measured by both book value of assets\textsuperscript{11} and sales. Where possible, firm size is measured at the fiscal year end prior to the equity sale. For some buyers it was not possible to obtain book value of assets and sales at the prior year end. In these cases values are obtained as close to the equity sale as possible (within 12 months of the equity sale). Data on foreign and private buyers were the most difficult to obtain and some values given by the various sources are estimates. In addition, for some foreign buyers, the asset values and sales are reported in foreign currency, which were translated to US dollars using the average exchange rate during the calendar year.

Buyers are much larger, on average, than the selling firms. The average (median) buyer had book value of assets of $17.4 ($4.5) billion, compared with the average (median) selling firm which had book value of assets of $2,271 ($78) million. The difference in firm size is not as pronounced when measured by sales. The average (median) buyer had sales of $6,970 ($2,344) million, while the average (median) selling firm had sales of $589 ($48) million.

Panel B of Table 6 presents the ratio of the buyer to selling firm. The mean (median) ratios for book value of assets and sales are 440 (16) and 8910 (22), respectively. The large ratios are consistent with the notion that the larger firm will be the buyer. That is, when the smaller firm has the incentive to renege, it will be a monitoring contract and when the larger firm has the incentive to renege, it will be a bonding contract.

\textsuperscript{11} Book value of assets was used rather than market value of equity because a large number of buyers were either foreign or private firms.
Table 6 - Firm Size measured by Book Value of Assets and Sales for buyers and selling firms

Panel A: Book value of assets and sales of buyers and selling firms. Values for the selling firms are at the fiscal year-end prior to equity sales. Values for the buyer are also taken at the fiscal year end prior to sale when possible, otherwise data are obtained as close to the equity sale as possible. All values are in millions of US dollars.

<table>
<thead>
<tr>
<th>Book Value of Assets:</th>
<th>Min</th>
<th>Mean</th>
<th>Median</th>
<th>Max</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling Firms</td>
<td>1.1</td>
<td>2271.1</td>
<td>78.0</td>
<td>66710.0</td>
<td>105</td>
</tr>
<tr>
<td>Buyers</td>
<td>28.8</td>
<td>17363.4</td>
<td>4500.1</td>
<td>367334.8</td>
<td>57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sales:</th>
<th>Min</th>
<th>Mean</th>
<th>Median</th>
<th>Max</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling Firms</td>
<td>0.01</td>
<td>589.2</td>
<td>48.4</td>
<td>11377.0</td>
<td>106</td>
</tr>
<tr>
<td>Buyers</td>
<td>37.5</td>
<td>6940.0</td>
<td>344.5</td>
<td>63089.0</td>
<td>75</td>
</tr>
</tbody>
</table>

Panel B: Ratio of buyers to selling firms

<table>
<thead>
<tr>
<th>Book Value of Assets</th>
<th>Min</th>
<th>Mean</th>
<th>Median</th>
<th>Max</th>
<th># &lt; 1</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Selling Firms</td>
<td>0.4</td>
<td>440</td>
<td>16</td>
<td>6598</td>
<td>6</td>
<td>55</td>
</tr>
<tr>
<td>Buyers</td>
<td>0.1</td>
<td>8910</td>
<td>22</td>
<td>577500</td>
<td>7</td>
<td>74</td>
</tr>
</tbody>
</table>
The relative firm size measured by book value of assets is less than 1 in only 6 cases and less than 1 in 7 cases when sales is used to measure firm size. However, only in 2 cases both measures of firm size are less than 1. The first case is Triton Energy who sold shares to Crusader Oil (47% owned by Triton Energy). The purpose of this sale was to manipulate the ownership structure of both firms so that Crusader Oil would qualify as an Australian firm for investment purposes. The other case is Travelers Corp who sold shares to Primerica Corp. Primerica's intent was to take control of Travelers who was in financial distress at the time of the sale.

There were 3 other cases where the only measure of firm size was sales and this measure was less than 1. The three firms are (i) Carolco Pictures who sold shares to RCS Video International (a wholly owned subsidiary of RCS), (ii) Delta Airlines who sold shares to Singapore Airlines (however, Delta bought the equivalent dollar amount of Singapore's shares), and (iii) Smithfields Foods sold shares to Carroll's Foods.

**Types of Product Market Contracts**

Table 7 highlights the different types of product market contracts that accompany the 110 interfirm private equity sales (note product market classifications are not mutually exclusive). In this sample, about 75% of the private sales had a product market agreement. This is comparable with Khanna and Moon's (1993), results in which they find that a product market agreement was mentioned in 76% of their sample. The product market agreements that occurred most frequently are Research & Development (12 cases), Sales Agreements (26 cases), Access to New Technology (13 cases), and Joint Venture agreements (15 cases).
Research and development contracts typically involve the selling firm doing research for the buyer in the selling firm's area of expertise. In some contracts, the buyer makes milestone or license payments to the selling firm (in addition to the proceeds of the equity sale). Occasionally, the two firms will simultaneously make a manufacture and sale agreement whereby the buyer will manufacture and sell the product after it has been fully developed.

Table 7
Number and types of product market agreements

<table>
<thead>
<tr>
<th>Product Market Agreements</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research &amp; Development</td>
<td>12</td>
</tr>
<tr>
<td>Sales Agreements</td>
<td>26</td>
</tr>
<tr>
<td>New Technology</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>15</td>
</tr>
<tr>
<td>Service</td>
<td>6</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>7</td>
</tr>
<tr>
<td>Anti-takeover</td>
<td>6</td>
</tr>
<tr>
<td>Asset Sales</td>
<td>4</td>
</tr>
<tr>
<td>Totals¹</td>
<td>84</td>
</tr>
</tbody>
</table>

¹ Note more than one type of product market contract can occur in a single private equity sale.

In the access to new technology contracts, the selling firm provides the buyer with a new technology that is related to the buyer's line of business. Sometimes, the new
technology allows the buyer to enter a new market, for example, AT&T entered the cellular and local telephone markets when it purchased a stake in McCaw Cellular. The major difference between these contracts and the research and development contracts is that the technology has already been developed.

The sales agreement contract allows one firm to use the other firm's distribution system. No distinction is made when the distribution system is owned by the buyer or the selling firm. Usually the selling firm's distribution system is used to afford foreign firms access to the US or North American market. When the buyer's distribution system is used, this usually allows US firms to access foreign markets.

Service contracts are contracts where one firm provides a service to the other firm. The service can be managerial as in Bobbie Brooks or Whitaker Cable or it may be an actual service contract. Again, no distinction is made when the selling firm or the buyer provides the services. Joint ventures contracts occur when the two firms form a joint venture and the buyer purchases a stake in the selling firm in lieu of, or in addition to an ownership interest in the joint venture project.

A product market agreement is classified as a prelude to merger when the buyer specifically states in the news reports that it intends to take over or take control of the selling firm or the takeover occurs shortly thereafter. If the private equity sale was used to deter a takeover attempt, the sale was classified as an anti-takeover contract. Contracts are categorized as assets sales when the private equity is issued as partial or full payment for physical assets belonging to the buyer.
The characteristics of the selling firm and private equity categorized by product market agreement are presented in Table 8. Since equity sales include more than one type of product contract, comparisons across sub-samples cannot be made because the sub-samples are not independent of each other. Almost 75% of the Research & Development and Joint Venture contracts are sold at a premium, and as a group these contracts are sold at a significant premium. The pricing of these contracts would suggest that most are monitoring contracts; that is, the selling firm has the incentive to renege (or has more hold-out power than the buyer).\textsuperscript{12}

The median market value of equity for the Joint Venture contracts is $121 million, which is much larger than the median value of $60 million for the entire sample (see Table 4). Also, the fraction purchased in Research & Development contracts, 9%, is much smaller than the fraction purchased in the entire sample. Finally, the Prelude to Merger contracts had much larger median proceeds ($47.5 million) when compared with the median proceeds of $10.6 million for the entire sample.

Only 7 (6%) of the buyers indicated their intent to take control of the selling firm (Prelude to merger contracts). Surprisingly, only 43% of these 7 contracts were sold at a premium, considering the large premium often associated with takeover/mergers. Barclay and Holderness (1991) find approximately 40%, and Mikkleson and Ruback (1985) find 33% of their secondary block trades end in takeover/merger. Clearly it is not the intent of

\textsuperscript{12} Using the one day after announcement price to calculate the premium does not substantially change Table 8 Panel A, except for Research and Development contract were the premium is lower and not significant.
Table 8
Characteristics of selling firms and private equity sales by product market types

Panel A: Premium % (relative to ask price ten days after)$^{13}$

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th>% Positive</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res &amp; Dev</td>
<td>18.1$^c$</td>
<td>15.0</td>
<td>75</td>
<td>12</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>2.1</td>
<td>0.3</td>
<td>54</td>
<td>26</td>
</tr>
<tr>
<td>New Technology</td>
<td>17.2</td>
<td>3.3</td>
<td>54</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>28.1$^b$</td>
<td>23.8$^b$</td>
<td>73</td>
<td>15</td>
</tr>
<tr>
<td>Services</td>
<td>13.2</td>
<td>6.6</td>
<td>50</td>
<td>6</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>0.7</td>
<td>-11.1</td>
<td>43</td>
<td>7</td>
</tr>
<tr>
<td>Anti-takeover</td>
<td>-5.5</td>
<td>-7.5</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td>Assets Sales</td>
<td>27.1</td>
<td>30.3</td>
<td>75</td>
<td>4</td>
</tr>
</tbody>
</table>

$^b$ significantly different from zero at the 5% level (two-tailed t test).
$c$ significantly different from zero at the 10% level (two-tailed t test).

Panel B: Market Value of Equity of the selling firms (millions)

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res &amp; Dev</td>
<td>110.5</td>
<td>47.1</td>
<td>12</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>352.0</td>
<td>69.2</td>
<td>26</td>
</tr>
<tr>
<td>New Technology</td>
<td>393.7</td>
<td>64.3</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>189.9</td>
<td>121.9</td>
<td>15</td>
</tr>
<tr>
<td>Services</td>
<td>847.3</td>
<td>74.8</td>
<td>6</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>640.4</td>
<td>79.6</td>
<td>7</td>
</tr>
<tr>
<td>Anti-takeover</td>
<td>611.8</td>
<td>35.5</td>
<td>6</td>
</tr>
<tr>
<td>Asset Sales</td>
<td>347.6</td>
<td>16.7</td>
<td>4</td>
</tr>
</tbody>
</table>

$^{13}$Ask price is used in the analysis since the buyers would have had to buy the equity at the ask price on the secondary market. The ask and the closing prices are the same for most of the firms.
Table 8 (cont'd)

Panel C: Fraction (%) of Selling Firm

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res &amp; Dev</td>
<td>9.1</td>
<td>9.0</td>
<td>12</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>16.6</td>
<td>13.4</td>
<td>26</td>
</tr>
<tr>
<td>New Technology</td>
<td>24.7</td>
<td>21.9</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>14.7</td>
<td>11.7</td>
<td>15</td>
</tr>
<tr>
<td>Services</td>
<td>22.9</td>
<td>7.4</td>
<td>6</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>26.0</td>
<td>20.8</td>
<td>7</td>
</tr>
<tr>
<td>Anti-takeover</td>
<td>14.9</td>
<td>12.9</td>
<td>6</td>
</tr>
<tr>
<td>Assets Sales</td>
<td>22.5</td>
<td>23.8</td>
<td>4</td>
</tr>
</tbody>
</table>

Panel D: Proceeds (millions)

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th># of obs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Res &amp; Dev</td>
<td>10.0</td>
<td>7.1</td>
<td>12</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>45.6</td>
<td>11.5</td>
<td>26</td>
</tr>
<tr>
<td>New Technology</td>
<td>286.9</td>
<td>15.0</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>31.5</td>
<td>15.0</td>
<td>15</td>
</tr>
<tr>
<td>Services</td>
<td>31.2</td>
<td>8.6</td>
<td>6</td>
</tr>
<tr>
<td>Prelude to Merger</td>
<td>83.7</td>
<td>47.5</td>
<td>7</td>
</tr>
<tr>
<td>Anti-takeover</td>
<td>35.6</td>
<td>4.8</td>
<td>6</td>
</tr>
<tr>
<td>Assets Sales</td>
<td>30.2</td>
<td>10.0</td>
<td>4</td>
</tr>
</tbody>
</table>
the buyers in this sample of private equity sales to take over the selling firms, since only 6% of the buyers signalled their intention to do so and only 7% actually took control of the selling firm (see Chapter V, subsection 5). Therefore, it does not appear as if the primary reason for interfirm private equity placement is to obtain a toe-hold for future acquisition.

One other reason discussed in Chapter II for interfirm private equity sales, is as a anti-takeover measure. Only 6 (5%) of the selling firms indicated that the private equity sales were for anti-takeover defenses. Of course, it is impossible to determine if the other private equity sales (especially if no reasons were given for the equity sale) were to thwart takeover attempts. Nevertheless, two-thirds of these sales were done at a discount.

It does not appear as if prelude to merger or anti-takeover defenses are primary reasons to issue private equity. However, there are many cases in which other types of the product market agreements (Research and Development, access to New Technology etc) are mentioned with the private equity sale. This would suggest that the Khanna and Moon (1993) model, or this model of contracting cost is applicable in this sample of interfirm private equity sales.

Table 9 presents similar statistics as Table 8, except it uses equity sales where only one type of product market contract is mentioned and the sample sizes are large enough to allow some statistical inferences. The following four sub-samples fit these criteria: Research & Development: 7 contracts; Sales Agreement: 13 contracts; Joint Venture: 13 contracts: and access to New Technology: 8 contracts. The median premium, fraction sold,
Table 9
Characteristics of selling firms and private equity sales by product market types
(Independent sub-samples)

Panel A:

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th># Prem</th>
<th>Mean</th>
<th>Median</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research &amp; Development</td>
<td>17.9</td>
<td>16.1</td>
<td>4</td>
<td>121.7</td>
<td>36.2</td>
<td>7</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>-13.6b</td>
<td>-10.7c</td>
<td>4</td>
<td>323.9</td>
<td>74.1</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>26.2c</td>
<td>14.5c</td>
<td>9</td>
<td>176.8</td>
<td>121.9</td>
<td>13</td>
</tr>
<tr>
<td>New Technology</td>
<td>21.6</td>
<td>17.5</td>
<td>5</td>
<td>1112.9</td>
<td>107.7</td>
<td>8</td>
</tr>
</tbody>
</table>

p-value\(^1\) 0.07 0.65

\(^{b}\) Significantly different from 0 at the 5% level (two-tailed t test).

\(^{c}\) Significantly different from 0 at the 10% level (two-tailed t test).

Panel B:

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Mean</th>
<th>Median</th>
<th>Mean</th>
<th>Median</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research &amp; Development</td>
<td>8.7</td>
<td>8.8</td>
<td>8.9</td>
<td>4.7</td>
<td>7</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>18.1</td>
<td>19.3</td>
<td>43.4</td>
<td>16.8</td>
<td>13</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>14.0</td>
<td>11.7</td>
<td>16.7</td>
<td>15.0</td>
<td>13</td>
</tr>
<tr>
<td>New Technology</td>
<td>27.0</td>
<td>25.4</td>
<td>450.4</td>
<td>25.0</td>
<td>8</td>
</tr>
</tbody>
</table>

p-value\(^1\) 0.03 0.08

\(^{1}\) p-values are from the Kruskal-Wallis Test for testing if the medians in the 4 subsamples are different.
Table 9 (cont'd)

Panel C: Buyer's Firm Size (Millions)

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Book Value of Assets</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>5902</td>
<td>7024</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>76446</td>
<td>9999</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>4295</td>
<td>2141</td>
</tr>
<tr>
<td>New Technology</td>
<td>20501</td>
<td>7549</td>
</tr>
</tbody>
</table>

p-value\(^1\) 0.24 0.50

Panel D: Relative Firm Size

<table>
<thead>
<tr>
<th>Contract Type</th>
<th>Book Value of Assets</th>
<th>Sales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>Median</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>1045</td>
<td>529</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>862</td>
<td>169</td>
</tr>
<tr>
<td>Joint Venture</td>
<td>137</td>
<td>12</td>
</tr>
<tr>
<td>New Technology</td>
<td>87</td>
<td>58</td>
</tr>
</tbody>
</table>

p-value\(^1\) 0.22 0.04

\(^1\) p-values are from the Kruskal-Wallis Test for testing if the median in the 4 subsamples are different.
and proceeds were all significantly different at at least the 10% level across the 4 sub-
samples\textsuperscript{14}.

Of the four types of contracts, only the Sales Agreements contracts are sold at a
discount. The mean discount of 13.6\% is significantly different from zero at the 5\% level,
and the median discount of 10.7\% is significantly different from zero at the 10\% level. The
other contracts were sold at a premium, although only the premium on Joint Venture
contracts is significantly different from zero at the 10\% level. Moon (1993) does not find
that signing a product market contract affects the pricing of the private equity. The fact that
some contracts are priced at a premium and some are priced at a discount could explain why
Moon does not find that product market agreements affect the pricing. Finally, the fraction
sold in the Research & Development contracts is less than the other types of contracts,
and hence the proceeds from the Research & Development contracts are less than the other types
of contracts.

Control Mechanisms

Table 10 compares the use of different types of control mechanisms across different
samples. The primary sample consists of the 110 interfirm private equity placements. The
comparison samples are taken from Wruck (1989), Khanna and Moon (1993), Moon (1993)
and Logan (1994).

\textsuperscript{14} The cross-sectional analyses (uni-variate and multi-variate) results are unaffected by
whether the market price used to calculate the premium is ten days or one day after
announcement. In fact, the p-value for the various statistics using the one day ahead
prices are the same or better than the ten days ahead prices.
Table 10
Comparison of control mechanisms across different samples

<table>
<thead>
<tr>
<th>Control Mechanism</th>
<th>Wruck(^a)</th>
<th>Khanna/Moon(^b)</th>
<th>Moon(^c)</th>
<th>Logan(^d)</th>
<th>Interfirm Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director/Management</td>
<td>17%</td>
<td>24%</td>
<td>32%</td>
<td>9%</td>
<td>37%</td>
</tr>
<tr>
<td>Warrants</td>
<td>13%</td>
<td></td>
<td>31%</td>
<td>29%</td>
<td></td>
</tr>
<tr>
<td>Convertible Securities</td>
<td>8%</td>
<td></td>
<td>5%</td>
<td>7%</td>
<td></td>
</tr>
<tr>
<td>Standstill</td>
<td></td>
<td>25%</td>
<td>29%</td>
<td>0</td>
<td>12%</td>
</tr>
<tr>
<td>Restricted Selling</td>
<td>29%</td>
<td>17%</td>
<td>13%</td>
<td>17%</td>
<td>23%</td>
</tr>
<tr>
<td>Restricted Voting</td>
<td>2%</td>
<td></td>
<td>7%</td>
<td>0</td>
<td>8%</td>
</tr>
<tr>
<td>Sample Size</td>
<td>126</td>
<td>84</td>
<td>167</td>
<td>239</td>
<td>110</td>
</tr>
</tbody>
</table>

Notes:
(1) Wruck, Moon, and Khanna and Moon include all types of equity (i.e. convertible securities, options etc) in their sample.
(2) Unregistered shares are included as restricted shares.
(3) Where no information on a particular control mechanism was given, the cell is left blank (for example, Wruck did not report on standstill agreements).
\(^a\) Wruck's sample is a composite of different types of buyers.
\(^b\) Khanna and Moon's sample includes only firm buyers.
\(^c\) Moon's sample comprises non-financial buyers.
\(^d\) Logan's sample has buyers other than firm buyers.

In the samples where the buyers are other firms, standstill agreements and election of directors/management are used more frequently than in the samples where the buyers are mixed (Wruck) or where the buyers are not other firms (Logan). The Moon and Khanna and Moon samples (firm buyers) show lower percentages of directors/management and restricted shares than the 110 interfirm equity placements in this sample. The lower percentages could...
be a result of these studies including all types of equity. For example, in Khanna and Moon, the percentage of the placements with the option to elect a director or a member of the seller's management team increases to 33% from 24% if only common equity is considered. Overall it appears that interfirm private equity placements have more control mechanisms than other types of private equity placements. However, the use of warrants and restricted shares appear to be common features of private equity placements regardless of the identity of the buyers.

Table 11 gives a more detailed breakdown of the different types of control mechanism used in various product market contracts. Since more than one private equity sale can be included in each product market classification, comparisons across product market group are difficult. The buyer can use at least one of the following measures to exert control over the selling firm: (i) elect directors, or place a representative on the management team (ii) obtain warrants, (iii) buy convertible securities, (iv) insert an anti-dilution clause, or (v) purchase additional shares on the secondary market. Election of directors or placing a representative on the selling firm's management team, and warrants, are the two most commonly used control mechanisms.

The selling firm can also protect its independence and exercise some control over the buyer's actions by doing at least one of the following: (i) incorporating a standstill agreement, (ii) having a first right of refusal clause, (iii) limiting the voting rights of the

---

15 This assumes that only buyers of common equity get the option to elect directors or managers.
Table 11
Control mechanisms by product market contract type
Percentage of control mechanism within each product market category

<table>
<thead>
<tr>
<th>Control Mechanisms</th>
<th>Res &amp; Dev</th>
<th>Sales Agt</th>
<th>New Tech</th>
<th>Joint Ven</th>
<th>Service</th>
<th>Merger</th>
<th>Anti-Take over</th>
<th>Asset Sales</th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director/Mgt</td>
<td>33</td>
<td>31</td>
<td>31</td>
<td>47</td>
<td>17</td>
<td>71</td>
<td>33</td>
<td>75</td>
<td>37</td>
</tr>
<tr>
<td>Warrants</td>
<td>50</td>
<td>46</td>
<td>38</td>
<td>27</td>
<td>17</td>
<td>14</td>
<td>17</td>
<td>0</td>
<td>29</td>
</tr>
<tr>
<td>Convertible Securities</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>Additional Secondary Purchases</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>43</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Anti-Dilution</td>
<td>0</td>
<td>4</td>
<td>8</td>
<td>13</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>Standstill</td>
<td>0</td>
<td>19</td>
<td>31</td>
<td>33</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>First Right of Refusal</td>
<td>0</td>
<td>4</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Restricted Voting</td>
<td>0</td>
<td>15</td>
<td>31</td>
<td>20</td>
<td>17</td>
<td>14</td>
<td>17</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Put Option</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>17</td>
<td>14</td>
<td>17</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Restricted Selling</td>
<td>17</td>
<td>27</td>
<td>8</td>
<td>20</td>
<td>33</td>
<td>0</td>
<td>100</td>
<td>25</td>
<td>23</td>
</tr>
<tr>
<td>TOTALS&lt;sup&gt;1&lt;/sup&gt;</td>
<td>12</td>
<td>26</td>
<td>13</td>
<td>15</td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>4</td>
<td>110</td>
</tr>
</tbody>
</table>

<sup>1</sup> Note the totals do not add up because more than one type of control is used in any one contract.
shares acquired, and (iv) restricting the sale of the shares acquired. The selling firms used restricted shares and standstill agreements more frequently than any other mechanism.

Table 11 shows that the distribution of control mechanisms varies across the different types of product market contracts. A Chi-Square goodness of fit test was used to determine if the distribution of control mechanisms in each product market group is different from the total sample. The differences were all highly significant with the chi-square statistic ranging from 38.5 to over 400. The chi-square statistics should be interpreted with some caution since the sample size of each product market group is fairly small. This means that the number of observations in each cell is very small, thus the estimates of the frequencies may be unreliable. Nevertheless, the following comments can be made. Research and Development contracts tend to have more than the average number of warrants and less than the expected number of standstill clauses. This is plausible since the buyer would only want to increase its stake depending on how the research progress (these contracts also have a lower fraction sold, see Table 9), and would not want to limit its ability to increase its stake in the selling firm depending on the outcome of the research.

New Technology contracts have a higher than expected number of standstill, first right of refusal, and restricted voting clauses. One possible reason is the selling firm may only be interested in licensing its technology and wants to protect its independence. On the other hand, Joint Venture contracts have higher than expected number of standstill clauses and restricted voting. This arrangement is reasonable since many of the buyers do not have an initial ownership in the joint venture; instead, the ownership is through ownership in the selling firm. Therefore, the selling firm will restrict the buyer's voting rights to matters
specific to the joint venture and limit the buyer's right to increase the fraction of the selling firm.

The distribution in Sales Agreement contracts looks similar to the total sample, except for a larger than usual number of warrants. There is no apparent reason for a larger number of warrants in this type of product market contract. Prelude to Merger contracts have a higher number of contracts with directors and purchase of additional equity in the secondary market, and no standstill or restricted selling. These results are consistent with the buyers wanting to easily increase their stake, or disposing of the private equity if the merger falls through. Anti-takeover contracts have a higher than expected number of restricted selling and purchase of convertible securities, and no standstill arrangements. The use of restricted shares in anti-takeover contracts is expected since this prevents the buyer from selling the equity to a hostile buyer without the selling firm's knowledge.

Table 12 describes the control mechanisms for private equity placements that fall in only one of the four types of product market contracts. Research and Development and access to New technology contracts have a much greater percentage of buyer control mechanisms than seller control mechanisms. Thus, the evidence on the control mechanisms and the pricing of Research and Development and access to New Technology contracts implies that these types of contracts are more likely to be monitoring contracts. The use of control mechanisms in the Joint Venture and Sales Agreement contracts are inconclusive, which suggests that these types of contracts can be both monitoring or bonding contracts, or that these contracts contain features of monitoring and bonding contracts.
Table 12
Control Mechanisms by contract types
Percentage of independent subsamples with a specific control mechanism

<table>
<thead>
<tr>
<th>Control Mechanisms</th>
<th>Research &amp; De</th>
<th>New Tech</th>
<th>Joint Venture</th>
<th>Sales Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director/Mgt</td>
<td>43%</td>
<td>38%</td>
<td>46%</td>
<td>28%</td>
</tr>
<tr>
<td>Warrants</td>
<td>43%</td>
<td>50%</td>
<td>15%</td>
<td>39%</td>
</tr>
<tr>
<td>Convertible Securities</td>
<td>14%</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Additional Secondary Purchases</td>
<td>0</td>
<td>13%</td>
<td>0</td>
<td>6%</td>
</tr>
<tr>
<td>Anti-Dilution</td>
<td>0</td>
<td>13%</td>
<td>15%</td>
<td>9%</td>
</tr>
<tr>
<td>At least one of the above</td>
<td>71%</td>
<td>88%</td>
<td>54%</td>
<td>54%</td>
</tr>
<tr>
<td>Standstill</td>
<td>0</td>
<td>25%</td>
<td>31%</td>
<td>17%</td>
</tr>
<tr>
<td>First Right of Refusal</td>
<td>0</td>
<td>13%</td>
<td>0</td>
<td>6%</td>
</tr>
<tr>
<td>Restricted Voting</td>
<td>0</td>
<td>0</td>
<td>15%</td>
<td>17%</td>
</tr>
<tr>
<td>Restricted Shares</td>
<td>29%</td>
<td>0</td>
<td>23%</td>
<td>33%</td>
</tr>
<tr>
<td>At least one of the above</td>
<td>29%</td>
<td>25%</td>
<td>46%</td>
<td>54%</td>
</tr>
<tr>
<td>Premium</td>
<td>16%</td>
<td>18%</td>
<td>15%</td>
<td>-11%</td>
</tr>
<tr>
<td>N</td>
<td>7</td>
<td>8</td>
<td>13</td>
<td>13</td>
</tr>
</tbody>
</table>
Pricing of Control Mechanisms

Examining the pricing of the private equity placements by control mechanisms can provide additional evidence on whether private equity with buyer control mechanisms are priced at a premium (monitoring) and private equity with seller control mechanisms are priced at a discount (bonding). Table 13 presents a uni-variate analysis of the pricing of private equity placements by control mechanisms.

The interfirm data in Table 13 is inconclusive. For the buyer control mechanisms, only election of director/management and the presence of an anti dilution clause support the conjecture that private equity sold with these types of control mechanisms are sold at a premium (however, the medians are not significantly different from zero). In fact, private equity sales with warrants tend to be sold at a discount\(^{16}\). For the seller, control mechanisms, standstill agreements, and restricted voting tend to be sold at a premium rather than at a discount. However, the pricing of control mechanisms in the interfirm sample is very different from the pricing in the non-interfirm sample. Specifically, all control mechanisms are priced at significant discounts. It is interesting to note that the discounts on warrants in the interfirm sample are much smaller than the discounts on the warrants in the non-interfirm buyers. Moon (1993), Hertzel and Smith (1993), and Wruck (1989) all find that equity sales with re-sale restriction have larger discounts.

\(^{16}\) Note, warrants tend to accompany all types of private equity sales. Warrants are discussed in more detail in the next section.
Table 13
Analysis of mean and median premia across different types of control mechanisms

<table>
<thead>
<tr>
<th>Control Mechanisms</th>
<th>Mean</th>
<th>Median</th>
<th>% Premium</th>
<th>N</th>
<th>Mean</th>
<th>Median</th>
<th>% Premium</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Director/Management</td>
<td>16.6&lt;sup&gt;b&lt;/sup&gt;</td>
<td>7.1</td>
<td>56</td>
<td>41</td>
<td>-44.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-38.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>5</td>
<td>22</td>
</tr>
<tr>
<td>Warrants</td>
<td>2.5</td>
<td>-3.4</td>
<td>47</td>
<td>32</td>
<td>-28.7&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-33.3&lt;sup&gt;a&lt;/sup&gt;</td>
<td>11</td>
<td>75</td>
</tr>
<tr>
<td>Convertible Securities</td>
<td>24.8</td>
<td>-0.9</td>
<td>50</td>
<td>8</td>
<td>-42.2&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-51.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>25</td>
<td>8</td>
</tr>
<tr>
<td>Add'l Sec Purchases</td>
<td>20.7</td>
<td>0.0</td>
<td>56</td>
<td>7</td>
<td>-35.0</td>
<td>-35.0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Anti-dilution</td>
<td>5.3</td>
<td>14.2</td>
<td>71</td>
<td>9</td>
<td>-26.4</td>
<td>-26.4</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Standstill</td>
<td>28.2</td>
<td>8.6&lt;sup&gt;c&lt;/sup&gt;</td>
<td>77</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First Right of Refusal</td>
<td>-19.4</td>
<td>-14.8</td>
<td>33</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted Voting</td>
<td>15.4</td>
<td>9.1</td>
<td>78</td>
<td>9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Restricted Selling</td>
<td>4.4</td>
<td>-5.6</td>
<td>36</td>
<td>25</td>
<td>-28.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>-30.1&lt;sup&gt;a&lt;/sup&gt;</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>Put Option</td>
<td>6.8</td>
<td>-6.4</td>
<td>40</td>
<td>5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* significantly different from zero at the 1% level.
*<sup>b</sup> significantly different from zero at the 5% level.
*<sup>c</sup> significantly different from zero at the 10% level.
Multi-variate analysis of the pricing on interfirm private equity is presented in Table 14 (regression #1). The dependent variable is the premium calculated at the ask price 10 days after the announcement date and the dependent variables are \{0,1\} dummies representing contract type and control mechanisms. The results are similar to the uni-variate analysis; that is, the standstill agreements coefficient has the wrong sign and is significant at the 10% level. Restricted voting and warrants have the wrong sign, but the coefficients are not significant.

Regression #2 (Table 14) confirms the uni-variate analysis (see Table 13) that the pricing for the control mechanisms in the non-interfirm equity placements are very different from the interfirm sample; that is, all the control mechanisms are priced at significant discounts. Regression #3 represents the analysis of two samples combined. The dummy representing interfirm private equity sales is positive and significant at the 1% level. In addition, the coefficients on the product market types remained significant (except Joint Venture) and had the same sign as in Regression #1. This provides additional support for the notion that interfirm private equity is priced differently from other private equity sales and that the pricing is also dependent on the type of product market contracts.
Table 14
Regression analysis of pricing on Private Equity Placements (110 interfirm and 239 non-interfirm Private equity sales).

The dependent variable is the premium. The independent variables are \{0,1\} dummies representing contract types, and control mechanisms. Patent is a \{0,1\} dummy variable that is 1 if the selling firm owns a patent, 0 otherwise. Interfirm is a \{0,1\} dummy variable that is 1 if for interfirm equity sales and 0 otherwise.

<table>
<thead>
<tr>
<th>Independent Variables</th>
<th>Interfirm sample Coefficient</th>
<th>Non-Interfirm sample Coefficient</th>
<th>Pooled sample Coefficient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interfirm Dummy</td>
<td></td>
<td></td>
<td>0.233*</td>
</tr>
<tr>
<td>Research &amp; Development</td>
<td>0.520b</td>
<td>0.458*</td>
<td></td>
</tr>
<tr>
<td>New Technology</td>
<td>0.329c</td>
<td>0.236*</td>
<td></td>
</tr>
<tr>
<td>Joint Venture</td>
<td>0.251c</td>
<td></td>
<td>0.192</td>
</tr>
<tr>
<td>Sales Agreement</td>
<td>-0.087</td>
<td>0.307a</td>
<td>-0.118c</td>
</tr>
<tr>
<td>Director</td>
<td>0.850</td>
<td>-0.307a</td>
<td>-0.118c</td>
</tr>
<tr>
<td>Convertible Securities</td>
<td>0.351c</td>
<td>-0.257b</td>
<td>-0.044</td>
</tr>
<tr>
<td>Anti-dilution</td>
<td>0.022</td>
<td></td>
<td>-0.063</td>
</tr>
<tr>
<td>Warrants</td>
<td>-0.147</td>
<td>-0.205a</td>
<td>-0.225*</td>
</tr>
<tr>
<td>Additional Purchases</td>
<td>0.164</td>
<td>-0.350</td>
<td>0.073</td>
</tr>
<tr>
<td>Standstill Agreements</td>
<td>0.274c</td>
<td></td>
<td>0.207</td>
</tr>
<tr>
<td>1st Right of Refusal</td>
<td>-0.604c</td>
<td></td>
<td>-0.522c</td>
</tr>
<tr>
<td>Restricted Selling</td>
<td>-0.023</td>
<td>-0.171*</td>
<td>-0.133b</td>
</tr>
<tr>
<td>Restricted Voting</td>
<td>0.010</td>
<td></td>
<td>0.111</td>
</tr>
<tr>
<td>Patents</td>
<td>-0.340b</td>
<td></td>
<td>-0.326b</td>
</tr>
<tr>
<td>F-value</td>
<td>1.652c</td>
<td>16.833*</td>
<td>5.177*</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>7.66%</td>
<td>24.88%</td>
<td>15.23%</td>
</tr>
<tr>
<td>N</td>
<td>110</td>
<td>239</td>
<td>349</td>
</tr>
</tbody>
</table>
Table 14 (cont'd)

a significantly different from zero at the 1% level.
b significantly different from zero at the 5% level.
c significantly different from zero at the 10% level.

Warrants

It is apparent from the discussion in the previous section that warrants may not be a
buyer control mechanism. First, warrants tend to be sold with all types of private equity, and
second, private equity with warrants are sold at a discount (although warrants have non-
negative values). Thus, the interfirm hypothesis does not explain the use of warrants in
private equity placements17. The remainder of this section describes the features of warrants
sold with the interfirm private equity.

Warrants and convertible securities were used in 40 private equity sales. Conversion
of these options could substantially change the ownership structure of the selling firm. Table
15 presents summary statistics on options (warrants and convertible securities). The options
on average were 'out of the money'. Thus, the value of the selling firm has to increase before
it is optimal for the buyer to increase its stake. By "giving" the buyers warrants, the selling
firms provide a very powerful incentive for the buyers to make decisions that would increase
the value of the selling firm. This incentive is applicable for both monitoring and bonding

17 Other researchers (see Schultz (1993) have suggested that warrants are used as a
form of stage financing, and as additional compensation for riskier firms. It possible that
these explanations are valid in private equity placements.
Table 15
Summary Statistics on the option to purchase additional shares

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exercise Price to Market Price</td>
<td>1.16</td>
<td>1.07</td>
<td>.42</td>
<td>2.35</td>
<td>20</td>
</tr>
<tr>
<td>Exercise Price to Selling Price</td>
<td>1.30</td>
<td>1.15</td>
<td>.67</td>
<td>2.00</td>
<td>20</td>
</tr>
<tr>
<td>Shares to be issued to Shares sold</td>
<td>1.06</td>
<td>.64</td>
<td>.22</td>
<td>7.00</td>
<td>31</td>
</tr>
</tbody>
</table>

* significantly different from 1 at the 1% level.

* significantly different from 1 at the 10% level.

The t test is used to test differences in the means and the sign rank test is used to test differences in the medians.

contracts. The mean (median) exercise price is about 16% (7%) greater than the market price and about 30% (15%) greater than the selling price. The ratio of the exercise price to selling price is comparable to Schultz (1993) who finds the mean and median of these ratios to be 1.37 and 1.25, respectively. If the options are fully exercised, the median buyer would increase its stake by 64%.

Warrants are divided into two groups: 'in the money' warrants and 'out of the money' warrants relative to market prices (10 days after announcement)\(^\text{18}\). Table 16 presents the relative exercise price to both market and selling prices and the mean and median discounts of these two groups. The 6 'in the money' warrants are sold at a surprisingly large discount

\(^{18}\) There were 3 cases where the warrants were at the money relative to market prices. These were excluded from the analysis.
Table 16
Relative Exercise Prices and Discounts on Warrants

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>In the Money Warrants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise Price to Market Price</td>
<td>.80</td>
<td>.86</td>
<td>.42</td>
<td>.95</td>
<td>6</td>
</tr>
<tr>
<td>Exercise Price to Selling Price</td>
<td>1.20</td>
<td>1.08</td>
<td>1.00</td>
<td>1.88</td>
<td>6</td>
</tr>
<tr>
<td>Premium</td>
<td>-32.2%</td>
<td>-28.7%</td>
<td>-57.8%</td>
<td>-11.8%</td>
<td>6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Median</th>
<th>Min</th>
<th>Max</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Out of the Money Warrants</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercise Price to Market Price</td>
<td>1.40</td>
<td>1.41</td>
<td>1.07</td>
<td>2.35</td>
<td>11</td>
</tr>
<tr>
<td>Exercise Price to Selling Price</td>
<td>1.37</td>
<td>1.30</td>
<td>1.00</td>
<td>1.78</td>
<td>11</td>
</tr>
<tr>
<td>Premium</td>
<td>11.2%</td>
<td>7.0%</td>
<td>-31.0%</td>
<td>135.3%</td>
<td>11</td>
</tr>
</tbody>
</table>

(mean 32.2% and median 28.7%). However, these warrants were 'out of the money' relative to the selling price of the private equity. On the other hand the 11 'out of the money' warrants were sold on average at a premium (mean 11.2% and median 7.0%) and only four were sold at a discount. In fact, it seems as if the selling firm sets the exercise price relative to the market price. All except one warrant had its exercise price greater than or equal to the selling price\(^{19}\). Thus, equity sold at discount would have its exercise price relative to market

\(^{19}\) This warrant had its exercise price set equal to the market price.
being less than 1 and equity sold at a premium would have its exercise price relative to market price greater than 1. Even though the median ratio of the exercise price to selling price looks quite different between the two samples, 1.08 vs 1.30, a Mann-Whitney test of equality of the two sample median is rejected (p-value=.451). There were no noticeable differences in the control mechanisms or product market type between the two groups; however, of the 6 in the money warrants, 4 were sales agreement contracts.

Schultz (1993) argues that warrants can be used as a form of staged financing. Thus it is possible that the warrants used in interfirm private equity are used both as an option to increase the buyer's stake (more control later) and as a means of providing financing as the selling firm needs it. Schultz finds in his sample that the firms that use warrants are smaller, the proceeds of the financing smaller, and the firms price their offering at a deeper discount than firms that issue straight equity. In this sample, the firms that use warrants are smaller, the equity is sold at a smaller premium, the fraction sold is also smaller, but the median proceeds are the same as the rest of the sample. Thus, the characteristics of these firms are similar to the ones in Schultz.

Staged financing would be more relevant in Research and Development contracts, since the selling firm may not need all the capital up front and the buyer would prefer to allocate capital to the selling firm only if the outcome of the research warrants more capital. Indeed, 50% of the Research and Development contracts issue warrants compared with 29% for the entire sample (see Table 11). It is unclear why 46% of sales agreement contracts had warrants.
Summary

Interfirm private equity sales are done by small firms (median book value of assets $78 million) that are concentrated in the Pharmaceutical, Financial Services and Medical and other Service industries. Most of the sales are to larger firms (median book value of $4.5 billion) in related businesses and approximately 75% of the private equity sales in this sample are accompanied by product market agreements. The fraction of the firm sold in the private equity placement is large (average 21% of the firm) and the sales are sold on average at a premium of 13% above prevailing market prices. The control mechanisms most frequently used by the buyer are election of directors or a representative on the management team and the option to increase ownership of the selling firm. The selling firms tend to use restricted shares and standstill agreements to control the buyer's incentive to cheat and to protect the selling firm's independence.

The four most common types of product markets agreements are research and development, sales agreement, joint venture and access to new technology contracts. Of these four product market agreements, only sales agreements are sold on average at a discount which is significantly different from zero. The research and development and access to new technology contracts which are sold at a premium tend to have much higher levels of buyer control mechanisms, and lower levels of selling firm control mechanisms that joint venture and sales agreement contracts.

The data presented in this chapter support the Moon (1993) findings that interfirm private equity sales are different from private equity sales to other types of buyers. In this sample, it is clear that mergers or takeovers are not the primary reasons for interfirm private
equity placements. Rather, a product market motivation is the more likely motivation for interfirm private equity, since the pricing of the private equity and control mechanisms are different across the product market types.
Chapter V

Contracting Costs vs Information asymmetry

This chapter uses the data in Chapter IV to show that the private equity sales in this sample are motivated by the desire to reduce contracting costs rather than the information asymmetry or signalling model of Khanna and Moon (1993). A five step approach is used to demonstrate this. The first section shows that product market agreements are negotiated around the same time as the equity sale. The next section presents evidence that these product market agreements have large contracting costs. The following section demonstrates how the features of the private equity reduce the contracting costs. The next section adds support to the contract cost motivation by looking at the relationship between the two firms and the ownership of the selling firm after some time has elapsed. The final section shows that the Khanna and Moon (1993) information asymmetry model does not adequately explain most of the private equity sales in this sample.

5.1 The existence of product market agreements

In this sample, several different types of product market agreements were negotiated in 84 of the private equity sales (see Table 7). Thus, product market agreements accompanied 75% of the equity sales. This finding is consistent with Khanna and Moon who
find that 76% of their sample had a product market agreement. Therefore, the evidence in these two studies suggests that private equity sales are frequently done with product market agreements.

5.2 **Contracting Costs**

Contracting (transaction) costs are defined as the costs of writing and enforcing an agreement between the contracting parties. Williamson (1979) states that "opportunism is a central concept in the study of transaction costs, and opportunism is especially important for economic activity that involves transaction-specific investments in human and physical capital." In addition, Klein, Crawford and Alchian (1978) argue that contracting costs become non-trivial when the provisions of the contract are difficult to enforce or the number of possible outcomes at some future date is numerous or very unpredictable. A large number of uncertain future outcomes make contracting expensive because it becomes very difficult to make provisions ex ante for outcomes that are unpredictable. The following discussion offers evidence that suggests the contracting costs for the product market contracts in this sample are high.

The first indication of high contracting costs is the industries in which many of these private sales occur. This sample of private equity issuers is concentrated in particular industries: Pharmaceuticals, and Financial, Medical and other Services (see Table 3). Pisano (1989) argues that enforcing and monitoring collaboration between two firms in the biotechnology industry (which is a part of the pharmaceutical industry) is more difficult than in other industries. The difficulty arises because (i) one firm tends to accumulate more
information than the other firm over the duration of the project\(^{20}\), or (ii) it may be difficult to control the use of the project, or (iii) there is uncertainty over the scope and usefulness of patents.

Contracting costs are also expected to be high in service industries. In these industries, the value added is usually derived from human actions which may not be easily verifiable. Hence, the provisions of the contracts in these industries may be difficult to police. This conjecture is supported by Monteverde and Teece (1982) who claim that processes that involve human skills tend to be integrated (rather than contracted out), thus eliminating the contracting costs associated with policing these contracts\(^{21}\).

The second indication of high contracting costs is the nature of the product market agreements. More than 20% of the equity sales (or 30% of the product market contracts) involve either research and development or access to new technology contracts. In both types of contracts the future outcome is highly uncertain; thus, writing provisions ex ante to cover future states will be difficult (Pisano, 1989). If the provisions of the contract do not adequately protect the vulnerable party, the other party has the opportunity to cheat by extracting quasi rents.

In joint venture and service contracts, one firm usually has specialized assets that make the venture profitable for both parties. Usually these specialized assets, such as the expertise needed to efficiently manage a specialized plant are intangibles (see California

\(^{20}\) This is especially true in R&D projects.

\(^{21}\) Williamson (1979) argues that when transactions costs (contracting costs) are very large, the internal integration is the optimal governing structure.
Energy or Church & Dwight in Appendix A). Since the success of joint ventures and service in this sample depends on human actions, which often leads to greater opportunism problems (Monteverde and Teece, 1982, Klein et al., 1978), the contacting costs in joint ventures are expected to be non-trivial.

5.3 Private equity can reduce contracting costs

There are two basic features of private equity contracts that are used to reduce contracting costs. The first feature allows the firms to price the equity so that the firm with the incentive to cheat is persuaded to enter the contract. The second feature allows the firms to include certain control mechanisms. To determine if these product market contracts can reduce the incentive to cheat, the pricing and control mechanisms in 10 products contracts are examined. These 10 contracts are selected from the contracts in Table 8 (cases where only one type of product market contract was mentioned).

5.3.1 Research & Development Contracts

(1) Advanced Genetics Sciences (AGS), a developer of plant cell products for agriculture and industrial purposes, sold a 10.8% stake to AB Karlshamns Oljefabriker (KO), a manufacturer of oils and fats. AGS promises to carry out certain research and development activities for KO. The innovation is the research and development project and the complementary asset is the capital needed to do the research. Since the complementary asset is not specialized, the innovator - AGS should have superior hold out power (even if the
innovation does not have strong legal or technical protection; see Table 1). Since AGS has superior hold out power, and KO has made a contract specific investment (capital injection), then KO will want to reduce any incentive AGS has to cheat in the future. Therefore, the appropriate contract in this situation is a monitoring contract. As predicted by a monitoring contract, the equity is sold at a premium of 29.5% and the buyer had the option to elect 1 director and received warrants to purchase additional shares.

(2) Epitope, a developer of pharmaceutical products, sold a 20.3% stake to SmithKline Beecham (SKB), a pharmaceutical firm. Epitope will collaborate with a unit of SKB in certain research projects. Although Epitope has a patent (legal protection), the nature of the collaboration and the type of complementary asset are not known, thus it is uncertain if this should be a bonding or a monitoring contract. The private equity contract has some features of a bonding contract, in that the shares are sold at a discount of 32.2%, but the shares did not have resale restrictions.

(3) Genentech Inc., a developer of pharmaceutical products, sold a 5% stake to Boehringer Ingelheim (BI), a pharmaceutical concern. Genentech will develop anti-cancer agents and BI will manufacture them commercially. Genentech has patents that can afford it some legal protection, if development of anti-cancer agents is a technology that can easily be copied. Manufacturing of pharmaceutical products is unlikely to require specialized assets that other pharmaceutical firms do not have. Table 1 implies that the innovator will win since the innovation has fairly strong protection and the complementary assets are not particularly
specialized. Since Genentech can extract quasi-rents, a monitoring contract is expected in this situation. The private equity was sold at a 16.1% premium as expected in a monitoring contract, but there were no explicit control mechanisms. However, BI may purchase more Genentech shares on the secondary market.

(4) Genelabs Technologies, a developer of products to prevent and treat viral diseases and cancer, sold a 1.2% stake to SmithKline Beecham (SKB). The two firms agree to jointly develop a vaccine for hepatitis E. Since both firms are bringing the product to "market", both firms may have the incentive to renege, so the contract should have features of both monitoring and bonding contracts. The equity was sold at a premium of 73.8% and SKB financed a loan convertible to common stock (option to increase ownership), two attributes of a monitoring contract. For the bonding feature, the equity had resale restrictions.

5.3.2 Sales Agreement Contracts

(1) Arapaho Petroleum (AP), a crude oil and natural gas producer and transporter, sold a 53.6% stake to Intoil Inc (a British firm). Intoil intends to use AP as a toe-hold in the US oil & gas market. There are no innovations in this contract so Table 1 cannot be used. AP may have limited ability to extract quasi-rents (Intoil can always find another oil & gas firm to provide it with a toe-hold in the US market). However, Intoil would need to control AP's actions to be able to position itself in the US market; thus, the contract is expected to be a monitoring contract. The equity was not sold at a premium as predicted for a monitoring
contract, it was sold at a discount of 14.9%\(^{22}\) (since AP has little incentive to cheat, it may not be unable to hold out for a large premium). Nevertheless, Intoil received a 3 year option to buy additional common stock and elected the chairman of the board of AP, control mechanisms that are expected with a monitoring contract.

(2) FiberChem Inc, a developer of fiber optic chemical sensors, sold a 19.3% stake to Mediterranean (MM), an exclusive distributor of liquid petroleum gas import/export in Italy, and also an exclusive distributor of FiberChem products in Italy. FiberChem, the innovator, probably has weak legal (no patent) and weak technical protection for its products and since MM is its exclusive distributor, the complementary assets are crucial. In this case, MM can extract quasi-rents from FiberChem, hence a bonding contract is expected to be used. As expected for bonding contracts, the equity is sold at a discount of 34.8%, and has resale restrictions, but MM received a 3 month option to buy additional shares.

5.3.3 Joint Venture Contracts

(1) Canyon Resources (CR), an explorer, developer and producer of precious metals, sold a 16% stake to Kennecott Exploration (KE). The two firms formed a farm-in joint venture - Briggs Property (BP) - owned by CR. KE is required to initially inject $5 million in BP (in addition to the proceeds of the private equity). Having made a contract specific investment, KE will need to monitor the decisions CR makes concerning BP. KE has little incentive to

\(^{22}\) Arapaho Petroleum, at the time of the private placement was having financial difficulties.
renege on the farm-in agreement since it will lose its initial investment of $5 million. On the other hand, CR is only required to repurchase the shares sold in the private placement at cost if the joint venture is dissolved. Thus, this should be a monitoring contract. The equity is sold at a premium of 135.3% and KR has the option to elect a director now and another director when it purchases more shares in CR and maintains at least a 10% ownership. KR also receives an option to purchase additional shares and will own 51% of BP when it has spent $25 million on the joint venture. The pricing and control mechanisms are consistent with those expected in a monitoring contract.

(2) Cellular Products (CP), a developer of diagnostic and blood screening tests, sold a 50.6% stake to Finsystems S.r.l. The two firms form a joint venture (production facility in Europe) whereby CP provides the science and product development and Finsystems the marketing expertise. The CP innovator has a patent (legal protection) and, even if the complementary asset marketing is unique, CP may still have the incentive to engage in opportunistic behaviour. Thus, a monitoring contract is expected in this case. As expected in a monitoring contract, the equity is sold at 14.2% premium and Finsystems receives warrants to be used to protect against dilution of its stake should CP issue shares to a third party.

5.3.4 Access to New Technology Contracts

(1) Fleet Call, a provider of specialized mobile radio communication, sold a 6.3% stake to Comcast Corp., a cable TV firm. Fleet Call, the innovator, has a technology that has legal protection (there is a regulatory limit on the number of operators that are licensed to use
The complementary asset Comcast brings to this contract is capital, which is not unique; hence Fleet Call has the incentive to renege and a monitoring contract is needed (see Figure 2). The equity was sold at a premium of 23.1% and Comcast received a 5 year option and a 6 month option to purchase additional shares. The pricing and control tools used in this contract are consistent with monitoring contracts.

(2) McCaw Cellular Communications, an operator of cellular systems, sold a 27.7% stake to AT&T, a telecommunication firm. McCaw can provide AT&T with cellular technology (a technology that would fit in AT&T's telecommunication business), and a major foot-hold in the cellular market (McCaw is a dominant player in major metropolitan areas). Since there are a limited number of operators that are allocated radio waves, McCaw has legal protection for its technology; hence it has the incentive to engage in opportunistic behaviour. AT&T has no incentive to renege since its major contribution is capital, which is not unique; thus, a monitoring contract is expected. The equity was sold at a 32.3% premium, and AT&T has the option to elect 3 directors, and increase its voting rights. AT&T also made additional purchases of McCaw's shares on the secondary market.

5.5 The Aftermath

The argument thus far is based on the premise that these interfirm private equity placements are used to reduce the contracting cost of product market contracts. If, in the future, the firms dissolve the product market agreement, then there should be no need for one firm to hold an equity interest in the other firm. Information on whether or not the buyers
still have an equity stake and if the two firms still have some type of business relationship is given in Table 17 - Appendix B. The data in Table 17 were obtained by reading SEC filings (8K, 10K, 13D, proxy statements), annual reports and the Mergers and Acquisition reports in the Lexis/Nexis database. Most of the information in Table 17 is procured from reports/filings done in 1994.

There were 52 cases\(^{23}\) where the buyer still had a stake in the selling firm, and in 22 cases the buyer increased its fraction of the selling firm. In the remaining 30 cases, the buyer held the same stake, reduced its relative holdings, or it was impossible to determine if the buyer increased or decreased its stake. In this study it is more important to determine if the firms that retained their stake also maintained some business relation and buyers that disposed of their stake also terminated the product market contract.

In 33 cases, the buyers that still had a stake also had some type of business relation with the selling firm, while only in 6 cases the buyers had a stake but no business relationship. In addition, there were 15 firms that had no stake and no business relation compared with only 5 firms\(^{24}\) that had no stake but had some business connections. Overall, the evidence suggests that the buyers retained their stake when the two firms maintain some type of business relations.

\(^{23}\) This does not include the selling firms that were taken-over or merged with buyer. There were 8 firms in this category.

\(^{24}\) In 3 of these 5 cases, the original stake was small (4.5%, 5% and 5%). Thus, in 1994 these buyers may no longer be 5% or greater owners, making it difficult to determine if in fact these buyers still have an equity stake.
**Product Market Contracts**

The retention of an ownership stake was not the same across the different types of product market contracts. In Sales Agreement contracts, 65% of the buyers still had an equity stake, while only 33% of the buyers in Joint Venture contracts retained an ownership interest. In equity placements where only one type of product market contract was present, 71% of Research & Development buyers sold their stake, compared with Sales agreement contracts where only 38% of the buyers disposed of their holdings.

The following discussion summarizes how the buyers and selling firms dealt with the product market contracts and the equity stake in contracts that contained only one type of product market contract.

**Prelude to Merger Contracts:** Of the 7 prelude to merger contracts, 3 were merged with the buyer, 3 firms remained independent, and 1 was merged with another firm. In addition, 5 firms that were not Prelude to Merger contracts merged with the buyer, and 13 selling firms merged with other firms. Finally, one buyer (Omega Enterprises) was taken over by the selling firm (Gaming & Technology)!

**Research & Development Contracts:** Most of these 7 contracts did not last. Only 2 buyers still had an equity stake and business relation, 4 contracts were terminated and the stake disposed of, and, in 1 case, the selling firm merged with another firm.

**Joint Venture Contracts:** There were 13 of these types of contracts. In 4 cases, buyers retained their stake and business relation and in 1 case the contract was terminated and the private equity was repurchased from the buyer. In 3 cases, the firms still had some business
relation but the buyer no longer had a stake\textsuperscript{25}. In 1 case the selling firm merged with the buyer and in 2 other cases the selling firms merged with other firms. Finally, in 1 case, the selling firm became bankrupt and in the other case no information was available.

**New Technology Contracts:** Of these 8 contracts only 2 had maintained business relations and the buyers increased their equity stake in the selling firms, and 1 buyer still had a stake but no business connection. There were 3 contracts that were terminated and the shares disposed of. In 2 cases the selling firm was taken-over, one by the buyer and the other by another firm.

**Sales Agreement Contracts:** Of the 13 contracts, 7 still had business relations and the buyer retained an equity stake, while only 1 buyer kept its stake but had no business relation. There were 3 contracts that were terminated and the shares disposed of. In 2 cases the selling firms were taken-over, one by the buyer and one by another firm.

The evidence provides additional support for the notion that the product market contracts and the private equity sales are connected. In most cases where the buyer still had an equity stake, the two firms maintained some kind of business relation. In many cases the shares were disposed of shortly before or after the product market contract was terminated. The termination rate differed across product market contracts with 57% of Research & Development contracts being terminated compared with only 23% of Sales Agreement contracts.

\textsuperscript{25} In two of these cases the original stake was small. See footnote #24
5.5 **Khanna and Moon Information Asymmetry model**

The Khanna and Moon (1993) model is based primarily on two assumptions. First, it is the buyer, not the selling firm that has intangible assets. Secondly, they assume that the selling firm is unable to assess the true value of the buyer's intangible assets. Most of the empirical predictions in Khanna and Moon are consistent with the contracting cost motivation of private equity placements. However, the pricing prediction in Khanna and Moon's model is not always consistent with the data.

The first empirical prediction is that private equity sales will occur in research and development and service industries since intangible assets are important in these industries. The contracting cost motivation also predicts that private equity sales will occur in industries where transaction costs are high. Williamson (1979), Pisano (1989) and Monteverde and Teece (1982) all argue that transaction costs are high in industries involving research and development and human capital (services).

Khanna and Moon also predict that private equity sales will occur between firms in related industries and product market interactions will accompany equity sales, if intangible assets are industry-specific. This contracting cost model assumes that private equity can reduce contracting costs; thus, product market contracts are expected to accompany equity sales. Khanna and Moon's and this study both find that product market contracts are mentioned in about 75% of the private equity sales.

Another prediction of the Khanna and Moon model is that the buyer will be larger (asset values) and older than the selling firm. They explain this by arguing that the selling firms value the intangibles held by the buyer, and these intangibles are developed over time.
through learning and competition. One flaw in this argument is that their model assumes that in all cases, the buyer's intangible assets are at the centre of the product market interaction. This paper also argues that intangible assets are the central point of the product market interaction, but the intangible assets can belong to either the buyer or the selling firm. A close examination of the product market contracts in this sample reveals that, in several instances, the intangible assets in question belong to the selling firm, not the buyer.

Finally, Khanna and Moon predict that the shares will sell below market price (that is, at a discount)\textsuperscript{26}. In this sample, more than half the equity sales were done at a premium. In fact the mean premium is 13\% (significant at the 1\% level) and the median premium is 4.3\% (significant at the 10\% level).

The Khanna & Moon model cannot explain private equity contracts that are done in the cases where the selling firms have the intangible assets, which occurs quite frequently. The analysis in 5.1, 5.2 and 5.3, showed that the features of the private equity contracts are related to and can reduce contracting costs. Thus, it is reasonable to conclude that the contracting cost motivation for private equity sales provides a better explanation for private equity sales in this sample.

\textsuperscript{26} Moon (1993) finds that private equity sales to non-financial buyers are sold on average at a premium of 11.7\% which is significantly different from zero at the 1\% level.
Chapter VI

Summary and Conclusion

This study examines private placements done between 1979 and 1992. The paper focuses on whether interfirm private equity sales are priced differently from private equity sales to other types of buyers, and reasons why firm may have to place equity privately with another firm. The four reasons discussed for interfirm private equity placements are (i) To reduce contract costs, (ii) to reduce information asymmetries, (iii) as an initial stake prior to a merger or takeover, and (iv) as an anti-takeover defense.

Most of 110 interfirm private equity placements were accompanied by product market contracts and very few resulted in a takeover by or merge with the buyer. In addition, very few sales appear to be anti-takeover defenses, thus it seems as if a product market motivation is able to explain most interfirm private equity placements.

The firms that sold in private equity are concentrated in the Pharmaceutical, Financial Services, and Medical and other Services industries. Most of the sales are to firms in related businesses and approximately 75% of the private equity sales in this sample are accompanied by product market agreements. The private equity is sold on average at a premium of 13% above the prevailing market price. The buyers of the private equity are larger (measured by book value of assets or sales) than the selling firms in all but a few cases. The mean
(median) ratio of the buyer's book value of assets to the selling firm's book of assets is 440 (16). The most frequently used control mechanisms for the buyer are election of directors or a representative on the management team and option to buy more shares. The selling firms tend to use restricted shares and standstill agreements to control the buyers' incentive to cheat and to protect the selling firm's independence.

The four most used product market agreements are research and development, sales agreement, joint venture, and access to new technology. Of these four product market contracts only sales agreement is sold on average at a discount. Close examination of the actual product market contracts suggests that most research and development, access to new technology and joint venture contracts tend to be monitoring contracts while the sales agreement contracts can be either monitoring or bonding contracts. The contracts where the selling firm has the incentive to renege are usually sold at a premium and the buyer frequently has the opportunity to elect a director to the selling firm's board or the option to buy additional shares. In the contracts where the buyer may engage in opportunistic behaviour, the shares sold are sold at a discount and are sometimes restricted.

The arguments that support the contracting cost motivation for private equity placements are as follows. The nature of the product market agreements is examined and found to have high contracting costs (contracting costs (or transaction costs) is the cost of writing and enforcing a contract, thus it includes the cost of opportunistic behaviour). The product market contracts often involve one firm making contract specific investment and the other firm promising to provide intangible assets (for example, research and development, access to new technology, or a distribution system). The quality of these intangible assets
is typically difficult to specify ex ante; hence, these types of contracts have high contracting costs.

The main argument against the Khanna and Moon (1993) information hypothesis is the pricing of the private equity and the ownership of the intangible assets. Their model predicts that the private equity will be always be sold at a discount, and the intangible assets will be owned by the buyer, but the evidence shows that sales are frequently done at a premium and the selling firms sometimes own the intangible assets. All the other predictions of Khanna & Moon's model are consistent with the contracting cost motivation for private equity sales. In addition, the pricing and ownership of intangible assets in this sample are consistent with the contracting motivation. Therefore, this contracting costs model can explain more interfirm private equity sales than Khanna and Moon (1993) information asymmetry model.
APPENDIX A

Interfirm Private Equity Contracts
This appendix contains a brief summary of the 110 interfirm private equity placements done between 1979 and 1992. Information on the product market contract, the private equity contracts, and the prior relationship is obtained from news reports, annual reports and SEC filing.

**Selling Firm:** Advanced Genetic Sciences - develops plants, plant cell products for agriculture and industrial uses  
**Date:** Nov 21 1985  
**Buying Firm:** AB Karlshamns Oljefabriker - oil and fats  
**Product Market Contract:** The seller performs research and development activities for buyer.  
**Control:** (1) The buyer elects 1 director. (2) Warrants  
**Categories:** research contract  
**Prior Affiliation:**

**Selling Firm:** Air & Water Technology - environmental treatment firm  
**Date:** May 14 1990  
**Buying Firm:** Compagnie Generale Des Eaux of France - diversified group of service firms providing service for water, power, heating and urban maintenance.  
**Product Market Contract:** The buyer will apply seller's services to its international activities and markets in Europe & the Far East. In addition, the seller will work with the buyer in the US where the buyer's products do not compete with the seller's products.  
**Control:** (1) Standstill agreement which terminates if any investor acquires more than 5% of seller's stock. (2) The buyer cannot control or influence management policy of the seller. (3) The seller has first right to purchase shares acquired under this agreement when the buyer decides to sell.  
**Categories:** sales agreement, new technology.  
**Prior Affiliation:**
Selling Firm: Alta Gold - explores for and produces precious base metals: gold, silver, zinc, leaf and copper
Date: Aug 20 1990
Buying Firm: Magma Copper - produces electrolytic copper products; operates copper smelting refining facilities
Product Market Contract: Joint venture agreement where the seller will provide the managerial skills.
Categories: joint venture
Prior Affiliation:

Selling Firm: American City Business Journals - publishes weekly business newspapers, magazines and directories
Date: May 4 1989
Buying Firm: Shaw Publishers
Product Market Contract:
Control: (1) The buyer elects 2 directors increasing board size to 8, and chairman/Chief Executive elected by buyer. (2) The seller has to repurchase the private equity if the buyer does not acquire certain shares from the seller's co-founder.
Categories: prelude to a merger, financial distress.
Prior Affiliation:

Selling Firm: Arapaho Petroleum - acquires mineral interest, produces and transports crude oil, condensates natural gas liquids and natural gas
Date: Mar 5 1985
Buying Firm: Intoil Inc
Product Market Product: The buyer to enter US market through seller.
Control: (1) The buyer elects chairman. (2) The buyer receives 3 year warrants to purchase an additional 3 million shares for $2.70 to $3.5 million ($0.90 - $1.17 per share).
Categories: sales agreement enters into US market, financial distress.
Prior Affiliation:

Selling Firm: Bell National - savings & loan association; real estate brokers and managers
Date: Jan 6 1984
Buying Firm: firms engaged in development of commercial & residential real estate.
Product Market Contract: A joint venture whereby the buyers provides the land and the seller provide the capital.
Control: (1) The buyers cannot influence managerial decisions, as the seller's board has voting control over these shares. (2) Restricted shares.
Categories: joint venture
Prior Affiliation:
Selling Firm: Big O Tires - operates tyre stores in the US.
Date: Jun 15 1989
Buying Firm: General Tires (parent West German)
Product market Contract: Simultaneously, the two firms sign a 15 year supply agreement. In addition, the two firm will form a joint venture to fund new retail outlets where the buyer will supply private label and brand name products. The general feeling in the trade is that dealers consider brand name and long term supply important. Currently the seller buys 38% of its goods from the seller.
Control: (1) The buyer receives warrants when exercised would increase its stake to 30%.
Categories: sales agreement, joint venture.
Prior Affiliation:

Selling Firm: Biomagnetic Technologies Inc - designs, manufacture and sells biomagnetic imaging systems.
Date: Mar 5 1990
Buying Firm: Sumitomo Metal Industries - has iron, steel and related business, also electronics, and information services
Product Market Contract: The buyer gets exclusive Asian distribution rights of the seller's products for at least 7 years. The seller will develop new technology for the buyer for $1 million. Currently, the buyer purchases 10% of the seller's output.
Control:
Categories: research contract, sales agreement
Prior Affiliation:

Selling Firm: Blockbuster Entertainment - video rental firm
Date: Sept 20 1989
Buying Firm: Cox Cable Communications - owns and operates 24 cable TV systems in 17 states
Product Market Contract: The buyer will operate the seller stores as a franchise owner. The seller provides the buyer with a toe-hold in the video rental market.
Control:
Categories: joint venture.
Prior Affiliation:
Selling Firm: Bobbie Brooks - operated department stores in the medium price range.
Date: Mar 3 1985
Buying Firm: Pubco Corp -
Product Market Contract: The buyer will provide the managerial expertise needed to return the seller to profitability.
Control: (1) The buyer puts a new management team in place. (2) The buyer gains control over the seller's board. (3) The shares are unregistered with registration rights.
Categories: financial distress, service
Prior Affiliation:

Selling Firm: Bobbie Brooks - operated department stores in the medium price range.
Date: Dec 20 1991
Buying Firm: Pubco Corp - Retailer of women coats and outerwear; designs, manufactures and sells women's coats and sportswear
Product Market Contract:
Control:
Categories:
Prior Affiliation: 8,057,013 shares @Aug 1988

Selling Firm: California Energy - geothermal firm
Date: Feb 8 1991
Buying Firm: Peter Kiewit & Sons - among other things develops geothermal and other environmentally responsible power generating facilities
Product Market Contract: The two firms hope to form a joint venture concerning geothermal properties. The seller acquired geothermal properties with proceeds
Control: (1) The buyer elects 3 directors and the CEO. (2) The buyer has the option to buy an additional 3 million shares @$9 after 3 years and another block of 12 million shares @$12 after 5 years. (3) A standstill agreement at 34% was also included in the contract.
Categories: joint venture
Prior Affiliation:

Selling Firm: California First Bank - commercial bank
Date: Sep 15 1981
Buying Firm: Bank of Tokyo - commercial bank
Product Market Contract:
Control: (1) The buyer is the parent of the seller.
Categories:
Prior Affiliation: The buyer held a 74.3% stake prior to sale.
**Selling Firm:** California Real Estate  
**Date:** Apr 3 1989  
**Buying Firm:** Commonwealth Equity Trust - real estate investment trust.  
**Product Market Contract:** The shares are in exchange for mortgage loans collateralized by deeds of trust. The seller will takeover one of the buyer's unit.  
**Control:** (1) The buyer elects 2 directors.  
**Categories:** asset sales  
**Prior Affiliation:**

**Selling Firm:** Canyon Resources - explores for and develops and acquires mineral properties; produces precious metals  
**Date:** Dec 27 1990  
**Buying Firm:** Kennecott Exploration Co. (parent RTZ PLC UK)  
**Product Market Contract:** The two firms will form a farm-in joint venture. The buyer is expected inject $1 million (in addition to shares purchased) on the joint venture.  
**Control:** (1) The buyer elects 1 director. (2) The buyer has the option to buy an additional 2 million shares for $5 mil.  
**Categories:** joint venture  
**Prior Affiliation:**

**Selling Firm:** Carolco Pictures - independent movie producer  
**Date:** Mar 29 1991  
**Buying Firm:** Carlton Communication PLC (UK) - film processing and video duplication firm  
**Product Market Contract:** The two firms sign a 7 year agreement where the buyer does all of seller's film processing.  
**Control:** (1) Shares are registered must vote with board.  
**Categories:** service  
**Prior Affiliation:**

**Selling Firm:** Carolco Pictures - independent movie producer  
**Date:** Nov 4 1991  
**Buying Firm:** RCS Video International - video and TV producer  
**Product Market Contract:** The buyer has various distribution and co-production agreement with seller.  
**Control:** (1) The buyer elects 1 director.  
**Categories:** financial distress  
**Prior Affiliation:** The buyer previously invested in buyer's preferred stock and debentures.
**Selling Firm:** Cellular Products - develops retrieval diagnostic and blood screening tests; produces and sells human cell-derived proteins  
**Date:** Dec 13 1990  
**Buying Firm:** Finsystems S.r.l. (Italy)  
**Product Market Contract:** The buyer will establish a production facility in Europe for the seller. The seller plans to integrate its strong science and product development with the buyer's marketing expertise. The seller holds a patent.  
**Control:** (1) The buyer receives a warrant for 1,318,292 shares to be used to protect against dilution should the seller issue shares to a third party.  
**Categories:** joint venture  
**Prior Affiliation:**

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**Selling Firm:** Champion Part Inc - remanufactures functional replacement parts for automobiles, trucks and farm equipment  
**Date:** Mar 18 1987  
**Buying Firm:** Echlin Inc - produces automotive parts  
**Product Market Contract:** Echlin is Champion Part's supplier. The buyer as a patent. The buyer supplies 8% of the seller's input.  
**Control:** (1) The buyer is a white knight. (2) The buyer gets a put option on the shares. (3) The buyer get warrants  
**Categories:** anti-takeover  
**Prior Affiliation:**

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**Selling Firm:** Chancellor Corp - originates equipment lease transaction directly with equipment users  
**Date:** Dec 24 1986  
**Buying Firm:** Bruncor Inc  
**Product Market Contract:**  
**Control:** (1) The buyer has the right to maintain a certain fraction of the seller.  
**Categories:**  
**Prior Affiliation:**
Selling Firm: Chiron Corp - develops healthcare products which diagnose, treat and prevent human disease
Date: Nov 14 1988
Buying Firm: Ciba-Geigy Ltd - manufactures and sells chemicals
Product Market Contract: No rights, obligations or technology was involved at this time. However the private placement is used to strengthen existing relations with buyer (partnership since 1984). There is a joint venture between these two firms where buyer has invested cash.
Control: No directors.
Categories: joint venture
Prior Affiliation:

Selling Firm: Church & Dwight - manufactures and sells sodium bicarbonate-based (baking soda) products
Date: Sep 22 1986
Buying Firm: Occidental Petroleum - explores for, develops, produces and markets crude oil, natural gas; manufactures and markets a variety of basic chemical, petrochemicals etc
Product Market Contract: The two firms form partnership to produce and market potassium carbonate. The buyer recently bought a potassium carbonate plant. The seller has a patent.
Control: (1) There is a standstill agreement in place. (2) The shares have restricted voting.
Categories: joint venture.
Prior Affiliation:

Selling Firm: Comdial Corp - designs, develops, manufacture and sells telephone telecommunications terminals
Date: Apr 25 1985
Buying Firm: Alltel Corp - a major telephone company
Product Market Contract:
Control: (1) The buyer elects 1 director. (2) The buyer signs an agreement to buy shares from another shareholder.
Categories:
Prior Affiliation:
**Selling Firm:** Crown Cork & Seal - manufactures and sells metal cans, crowns and closures;  
**Date:** Jan 9 1990  
**Buying Firm:** 169077 Inc (Canadian)  
**Product Market Contract:** The buyer receives shares as a partial consideration for sale of Continental Can.  
**Control:**  
**Categories:** asset sales  
**Prior Affiliation:**

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**Selling Firm:** Crystal Oil - explores for and produces crude oil & natural gas  
**Date:** Feb 24 1988  
**Buying Firm:** Crystal Acquisition affiliated with Harken Oil & Gas  
**Product Market Contract:**  
**Control:** The buyer plans to be seller's major investor.  
**Categories:**  
**Prior Affiliation:**

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**Selling Firm:** Cummins Engine Co - manufactures diesel engines and replacement parts  
**Date:** Jul 16 1990  
**Buying Firm:** Ford Motor Co - car maker, Kutota Ltd - & Tenneco - among other things, manufactures and sells farm and construction equipment  
**Product Market Contract:** The seller will supply Ford & Tenneco with engines. The seller intends to broaden its relationship with Tenneco. The seller plans to form a joint venture in Europe with Kutota.  
**Control:** (1) Of the 3 buyers, only Ford will be allowed to increase its stake. (2) Ford & Tenneco will elect 1 director each. (3) All three buyers have agreed to certain voting, standstill and other provisions for at least 6 years.  
**Categories:** anti-takeover, strengthen balance sheet, joint venture, sales agreement  
**Prior Affiliation:** Ford is a significant customer of the seller. Tenneco is already a joint venture partner. Currently the seller manufactures Kutota's engines under license.
Selling Firm: Delta Air Lines - air transportation for passengers and freight
Date: Oct 27 1989
Buying Firm: Singapore Airlines - air transportation and related services
Product Market Contract: The two firms sign a 10 year marketing agreement. They will also coordinate schedules. This agreement gives the seller a toe-hold in the Pacific area which has the best potential for US airlines.
Control: (1) The seller buys an equivalent stake (dollar amount) in buyer (2) The shares have restricted voting and selling.
Categories: sales agreement, anti-takeover.
Prior Affiliation:

Selling Firm: Diodes Inc - manufactures and sells silicon diodes
Date: Dec 13, 1989
Buying Firm: Silitek -
Product Market Contract: The two firms have a non-exclusive distribution agreement, where the buyer is a supplier.
Control: (1) The shares are restricted. (2) The seller elects 2 directors. (3) The buyer has a 2 year option to buy an additional 1 million shares at the same price.
Categories: sales agreement
Prior Affiliation: The seller previously owned 26% of the seller. Currently, the seller buys 32% of its inputs from the buyer.

Selling Firm: Electro-Nucleonics Inc - develops and manufactures biomedical instruments, diagnostic & disposable products for the healthcare market
Date: Mar 7 1986
Buying Firm: Pharmacia AB - develops produces, sells medical science products, pharmaceuticals, diagnostics etc
Product Market Contract: The two firms have agreed to joint R&D cooperation. The seller provides the buyer with presence in the US market. The seller has exclusive marketing right for the buyer's product. The seller has a patent.
Control: (1) The buyer has the right to increase its stake to 20%.
Categories: research contract, sales agreement
Prior Affiliation: The buyer previously held 6.1% of the seller.
Selling Firm: Emerson Radio - distributes consumer electronics
Date: Mar 18 1991
Buying Firm: Semi-Tech (Hong Kong) - distributor of consumer electronics and appliances
Product Market Contract: The buyer expects to enhance presence in North America market through Emerson.
Control: (1) The seller gets control of the seller's board. (2) Subsequent fought control battle to take over seller. (3) The buyer received registration rights in April 1992. (4) The buyer receives warrants to purchase an additional 2 million shares, and under certain circumstances could receive additional warrants to purchase 3 million shares at $5 per share.
Categories: sales agreement
Prior Affiliation:

Selling Firm: Emerson Radio - distributes consumer electronics
Date: May 29 1992
Buying Firm: Asian suppliers
Product Market Contract:
Control
Categories: financial distress, anti-takeover measures
Prior Affiliation: Buyers are suppliers

Selling Firm: Energy Factors - provides alternatives to conventional energy
Date: May 20 1987
Buying Firm: Sithe-Energy: develops, constructs, owns and operates electric generating facilities in the US and Canada
Product Market Contract:
Control: (1) The buyer elects five directors. (2) The buyer does additional open market purchases. (3) Under certain circumstances the buyer will buy an additional 5.25 million shares within the next 11 months.
Categories: prelude to a takeover
Prior Affiliation: The buyer previously owned a 5% stake in the seller.
**Selling Firm:** Enron Corp - gathers, transports and markets natural gas.
**Date:** Jul 23 1992

**Buying Firm:** Electronic Data Systems - data processing and telecommunications

**Product Market Contract:** The seller extends a computer service contract with the buyer. This is to integrate the buyer more closely with the seller's operating structure.

**Control:** (1) The seller get a put option (exercise price equal to the selling price). (2) The seller will get half the profit when the buyer sells the shares. (3) The shares were registered a year later.

**Categories:** service contract

**Prior Affiliation:** The buyer had previous service contract with seller.

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**Selling Firm:** Environmental Systems - provides integrated hazardous waste management services
**Date:** Feb 21 1989

**Buying Firm:** Brambles Industries Ltd (Australian) - transportation and waste management firm

**Product Market Contract:** The seller has a patent

**Control:** (1) The buyer elects directors. (2) Two step funding - later buyer provided a $30 mil convertible loan.

**Categories:** financial distress

**Prior Affiliation:**

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**Selling Firm:** Enzon Inc - provides research, development and commercial of a patented process which chemically modifies enzymes
**Date:** Jan 21 1987

**Buying Firm:** Eastman Kodak - produces photographic supplies and equipment, manufactures chemicals other than photographic supplies

**Product Market Contract:** Part of the proceeds to get FDA approval for seller's product. In addition the buyer gets exclusive marketing rights. The seller has a patent.

**Control:** (1) The shares are restricted, piggy back registration 1 year later.

**Categories:** sales agreement, new technology

**Prior Affiliation:**
Selling Firm: Epitope Inc - develops and markets diagnostic reagents, test kits, pharmaceutical drugs etc
Date: Feb 13 1989
Buying Firm: SmithKline Beecham PLC - pharmaceutical
Product Market Contract: To fund R&D collaboration with another SmithKline unit. The seller has a patent.
Control: (1) Registration pending
Categories: research contract
Prior Affiliation:

Selling Firm: FiberChem Inc - develops, produces, markets and licenses fiber optic chemical sensors
Date: Dec 23 1991
Buying Firm: Medit Mediterranean G.P.L. - privately owned exclusive distributor liquid petroleum gas import/export in Italy.
Product Market Contract: The buyer gets exclusive distribution rights Italy.
Control: (1) Restricted stock registered May 1992. (2) The buyer has a 2 months option to invest an additional 1.5 million shares for $1.95 mil.
Categories: sales agreement
Prior Affiliation:

Selling Firm: Financial Corp of Santa Barbara - savings & loan association
Date: Nov 9 1983
Buying Firm: Vagabond Hotels (controlled by Ivan Boesky) - operates Motor Inns in California
Product Market Contract: Stock purchase agreement terminated June 6 1983
Control: (1) The buyer received a option to purchase additional 804,770 shares @$9.50
Categories: financial distress
Prior Affiliation: The buyer previously owned 9.9% of the seller
Selling Firm: First Capital Holdings - investment & advisory mutual fund firm with a life insurance firm subsidiary
Date: May 5 1988
Buying Firm: Shearson Lehman Hutton Holdings - brokerage and investment banking
Product Market Contract: The seller will benefit from buyer's retail network. The buyer to expand its operations to include life insurance products.
Control: (1) The buyer elects 2 directors. (2) The buyer converts preferred stock into 3.7 million new common stock. (3) The buyer also bought 3.35 million shares plus options from 2 shareholders
Categories: sales agreement
Prior Affiliation:

Selling Firm: First Fidelity Bancorp - provides commercial banking services etc
Date: Mar 18 1991
Buying Firm: Banco Santander of Spain- domestic & international bank
Product Market Contract: The purchase fits into buyer's strategy of corporate investments in the US.
Control: (1) The shares have restricted voting rights. (2) The shares are restricted stock but registration rights. (3) The buyer elects 2 directors. (4) The buyer has the right to buy more shares below market prices, through 4 year warrants up to $242 million.
Categories: sales agreement
Prior Affiliation:

Selling Firm: First Florida Bank - provides commercial banking services etc
Date: June 10, 1980
Buying Firm: Multi-Line - bank holding Co
Product Market Contract: Control; The shares are unregistered.
Categories:
Prior Affiliation: The buyer previously had a 8.1% stake.

Selling Firm: First Republic Bancorp - savings and loan
Date: Nov 20, 1987
Buying Firm: Boston Safe Deposit & Trust Co - institutional investor
Product Market Contract: The two firms expect to explore joint business opportunities
Control: The buyer elects 1 director. The buyer gets a put option on the private equity
Categories:
Prior Affiliation:
Selling Firm: Fleet Call - provider of specialized mobile radio communication
Date: Jun 30 1992
Buying Firm: Comcast Corp - Cable TV firm
Product Market Contract: The buyer wants to enter cellular technology.
Control: (1) The receives a 5 year option to buy additional 25 million shares @ $16. (2) The buyer buy an invest an additional $50 mil in January 1995 @ 90% of the market price.
Categories: new technology
Prior Affiliation:

Selling Firm: Gaming & Technology - operates coin gaming machines
Date: Sept 29 1983
Buying Firm: Omega Enterprises
Product Market Contract: The seller has a patent
Control: (1) Shares are restricted and are placed in voting trust controlled by the board. (2) The buyer elects 3 directors (3) The buyer also bought convertible debentures.
Categories:
Prior Affiliation:

Selling Firm: Genelabs Technologies - discovers, develops and commercializes products to diagnose, prevent and treat viral diseases and cancer
Date: Sept 4 1992
Buying Firm: SmithKline Beecham - researches, develops, manufactures and markets human and animal pharmaceuticals and over-the-counter medicines
Product Market Contract: Two firms to jointly develop vaccine. The seller has a patent. Approximately 9% of the seller's business is with the buyer.
Control: (1) The shares are restricted. (2) The buyer provided convertible loan
Categories: research contract
Prior Affiliation:

Selling Firm: Genentech Inc - develops, manufactures and markets pharmaceuticals, agricultural and industrial products
Date: Feb 28 1985
Buying Firm: Boehringer Ingelheim - pharmaceutical firm
Product Market Contract: The buyer to commercialize the seller's product in Europe & other markets. The seller has a patent
Control: (1) The buyer does not rule out seeking a larger stake
Categories: research contract
Prior Affiliation: Two firms had previous contracts.
**Selling Firm**: Genentech Inc - discovers, develops, manufactures and markets human pharmaceuticals  
**Date**: Feb 6 1990  
**Buying Firm**: Roche Holdings - manufactures and distributes pharmaceuticals  
**Product Market Contract**: Part of the proceeds of sale used to build a research center. The seller has a patent. The buyer intends to takeover the seller.  
**Control**: (1) The buyer makes additional open market purchases. (2) The buyer elects 2 directors.  
**Categories**: prelude to takeover  
**Prior Affiliation**:

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**Selling Firm**: Glasrock Medical - provides in-home health care; manufactures oxygen concentrates  
**Date**: Jan 18 1982  
**Buying Firm**: Airco (subsidiary of a British firm buying US firms)  
**Product Market Contract**:  
**Control**: The buyer elects 2 directors  
**Categories**: prelude to merger  
**Prior Affiliations**:

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**Selling Firm**: Golden Corral Realty Corp - equity real estate investment firm  
**Date**: Nov 20 1991  
**Buying Firm**: CNL Group Inc - privately held diversified real estate investment firm  
**Product Market Contract**: The shares are in exchange for restaurant properties  
**Control**: (1) The buyer may change seller's management team. (2) The buyer to elect 2 directors.  
**Categories**: assets sales  
**Prior Affiliation**:

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**Selling Firm**: Granges Exploration Ltd  
**Date**: Feb 7 1989  
**Buying Firm**: M.I.M (Canada) - gold producer  
**Product Market Contract**: The buyer set up to acquire US and North American mining companies and properties  
**Control**: (1) The buyer elects 6 directors (out of 12) and chief operating officer. (2) An anti-dilution clause was written in the contract. (3) The buyer demands registration rights for 25% of the private equity  
**Categories**:  
**Prior Affiliation**: 
**Selling Firm:** Harwyn Industries - sells and distributes slot machines, and other merchandise  
**Date:** Jan 13 1983  
**Buying Firm:** Save-Way - manufactures & markets personal care products, cosmetics, and electrical appliances  
**Product Market Contract:**  
**Control:** The shares are restricted  
**Categories:**  
**Prior Affiliation:**

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**Selling Firm:** Horizon Corp - property developer  
**Date:** May 9 1984  
**Buying Firm:** MCO Holdings real estate developer; oil & gas; and sewing  
**Product Market Contract:**  
**Control:** The buyer controls board.  
**Categories:** financial woes, anti-takeover  
**Prior Affiliation:**

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**Selling Firm:** IDB Communications - transmits and distributes radio, TV, programs, data and voice communications through an extensive network of satellite 
**Date:** Jan 5 1990  
**Buying Firm:** Teleglobe Canada- provides international telecommunications services  
**Product Market Contract:** The seller will supply international satellite transmission service in a joint venture  
**Control:** (1) The buyer gets registration rights in 2 years. (2) There is an anti-dilution clause. (3) The buyer elects 1 director.  
**Categories:** joint venture  
**Prior Affiliation:**
Selling Firm: ImmuLogic Pharmaceutical Corp - develops products to treat allergies and autoimmune diseases
Date: Nov 20 1991
Buying Firm: Marion Merrel Dow - discovers, develops, manufactures and sells pharmaceutical products
Product Market Contract: The two firms will joint market the seller's product in the US. The buyer will be responsible for marketing & development outside of the US. The seller is responsible for the development and manufacture of the product. The buyer will make licensing and milestone payments to the seller. The seller has a patent
Control: (1) The collaboration will be overseen by a committee consisting of an equal number of senior managers from both firms. (2) The buyer has the option purchase an additional 250,000 shares
Categories: research contract, sales agreement
Prior Affiliation:

Selling Firm: IMRE Corp - develops, manufactures and sells products to treat and diagnose cancer
Date: Aug 23 1988
Buying Firm: Takeda Chemical - manufactures and sells pharmaceutical and health related products
Product Market Contract: The buyer will obtain licence for IMRE products. The buyer to make royalty payments. The seller has a patent
Control: (1) The buyer to elect 1 director.
Categories: research contract, financial distress
Prior Affiliation:

Selling Firm: In Focus Systems - develops, manufactures and sells innovative information display products
Date: Aug 24 1992
Buying Firm: Motorola - design, manufactures and sells electronic equipment etc
Product Market Contract: The buyer the technology that the buyer wants. The seller has a patent.
Control: (1) There is a standstill agreement @20%. (2) The buyer received limited anti-dilution protection. (3) The buyer got registration rights. (4) The seller has first right of refusal when the buyer sell the shares.
Categories: new technology
Prior Affiliation:
**Selling Firm**: Informix Corp - designs, develops, and manufacture database management software  
**Date**: Nov 27 1990  
**Buying Firm**: Ascii Corp - publishes software magazines, and sells personal computer software  
**Product Market Contract**: The buyer will distribute seller's product in Japan. The buyer wants to build a strong presence in seller's technology. Less than 8% of the seller's business is done with the buyer.  
**Control**: (1) Standstill @10% for 2 years, then @15% through the fifth year of the contract.  
(2) A year prior the seller took an equity stake in one of the buyer's unit  
**Categories**: new technology, sales agreement  
**Prior Affiliation**: business relationship since 1983

**Selling Firm**: Integrated Resources - owns contract rights of privately offered net lease investment programs; organizes and manages investment programs which invest in real estate and mortgages.  
**Date**: Mar 28 1989  
**Buying Firm**: I.C.H. Resources  
**Product Market Contract**: The buyer intends to take control of the seller.  
**Control**: (1) Some of the common shares are non-voting  
**Categories**: prelude to a takeover  
**Prior Affiliation**:  

**Selling Firm**: International 800 Telecom - markets and provides telecommunication services worldwide  
**Date**: Nov 28 1988  
**Buying Firm**: sales agent for seller  
**Product Market Contract**:  
**Control**: (1) The shares restricted for 11 months. (2) The buyer has the option to purchase an additional 1.5 million shares @ $1.10  
**Categories**:  
**Prior Affiliation**: prior business relationship
Selling Firm: IVAX Corp - manufactures and market specialty chemicals etc; perform pharmaceutical research and development
Date: Aug 11 1988
Buying Firm: SS Pharmaceutical (Japanese)
Product Market Contract: The two firm will enter into cooperative R&D agreement. The seller will grant the buyer exclusive right of first refusal of its in Japan and the Far East. The buyer will also grant the seller exclusive right of first refusal of its product in US. The buyer wants to expand research capacity in prescription drug. The seller has a patent
Categories: research contract, sales agreement
Prior Affiliation:

Selling Firm: Kinark Corp - chemical and steel galvanizing firm; provides bulk chemical storage and packaging
Date: Dec 30 1992
Buying Firm: Altair Corp - diversified manufacturing and agribusiness firm
Product Market Contract: Control: (1) The shares are restricted.
Categories: antitakeover
Prior Affiliation: The buyer previously had a 11% stake

Selling Firm: Komag Inc - develops, manufactures and markets thin-film components for disk drives
Date: Dec 9 1988
Buying Firm: Asahi Glass - manufactures and sells glass products; chemicals, ceramics etc
Product Market Contract: The buyer is tapping directly in US technology & innovation. Control: (1) There is a standstill agreement @20%.
Categories: new technology
Prior Affiliation:

Selling Firm: Komag Inc
Date: Dec 13 1989
Buying Firm: Kobe Steel Inc (Japanese)
Product Market Contract: Earlier the two firms formed a joint venture that produces inputs for the seller. The seller does 13% of its business with the buyer Control: (1) The buyer elects 1 director. (2) The shares are restricted. There is a standstill agreement @20% but can acquire more if change of control looms.
Categories: joint venture
Prior Affiliation: The buyer has made previous investments in the seller
**Selling Firm:** Life Of Indiana - annuities, life, accident insurer  
**Date:** Aug 29 1989  
**Buying Firm:** New Life Corp  
**Product Market Contract:** terminated  
**Control:**  
**Categories:**  
**Prior Affiliation:**

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**Selling Firm:** Mail Boxes Etc - operates service centers specializing in postal and communication operations  
**Date:** Jul 9 1990  
**Buying Firm:** United Parcel Service - provides specialized transportation services mainly delivery of packages  
**Product Market Contract:** The seller gets 40-50% of business from the buyer  
**Control:** (1) There is a standstill @17.5% later increased to 35%. (2) The buyer elects 1 director. The buyer gets 3 year warrants to buy 400,000 shares @$27 - $38.88.  
**Categories:**  
**Prior Affiliation:** business partner

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**Selling Firm:** Management Science America - mainframe software firm  
**Date:** May 25 1989  
**Buying Firm:** IBM - develops, manufactures and markets computer and office equipment  
**Product Market Contract:** The buyer wants a supply of software to run on its computers  
**Control:**  
**Categories:** service  
**Prior Affiliation:**

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**Selling Firm:** Manufacturer Hanover - commercial bank holding firm  
**Date:** Sept 19 1989  
**Buying Firm:** Dai-ichi Kangyo Bank (Japan) - commercial bank  
**Product Market Contract:** The buyer wants to enter US market. The equity sale part of an asset sale agreement (asset moved from seller to buyer).  
**Control:** (1) There is a standstill agreement @4.9%. (2) The shares are registered.  
**Categories:** financial distress, sales agreement  
**Prior Affiliation:**
Selling Firm: McCaw Cellular Communications - constructs and operates cellular systems
Date: Jan 20 1989
Buying Firm: British Telecom PLC - local and long distance telephone company
Product Market Contract: The buyer wants to become a world player in cellular. There will be exchange of technology
Control: (1) The buyer elects 4 directors (out of 19)
Categories: new technology
Prior Affiliation:

Selling Firm: McCaw Cellular Communications - constructs and operates cellular systems
Date: Oct 26 1992
Buying Firm: AT&T Co - long distance telephone company
Product Market Contract: This puts the buyer in competition with regional Bell cos and in the cellular market
Control: (1) The buyer buys British Telecom's stake @$49. (2) Has the option to elect 3 directors. (3) The buyer has the option to increase voting interest (not equity) to 75% for $600 mil.
Categories: new technology
Prior Affiliation:

Selling Firm: Mission Insurance - commercial insurer
Date: Jan 3 1979
Buying Firm: American Financial Corp - among other things underwrite property and casualty insurance
Product Market Contract: Two firms form a joint venture
Control: (1) The buyer intends to influence seller's decisions.
Categories: financial distress, joint venture
Prior Affiliation:

Selling Firm: Molecular Genetics
Date: Dec 17 1982
Buying Firm: Martin Marietta Corp - develops, electronic systems for civil and defence, also cement, chemicals and aluminum
Product Market Contract:
Control: (1) The shares are restricted
Categories:
Prior Affiliation:
**Selling Firm:** Neorx Corp - develops monoclonal pharmaceutical products  
**Date:** May 28 1992  
**Buying Firm:** Boehringer Ingelhiem (German) - pharmaceutical firm  
**Product Market Contract:** The buyer will spend $10Mil on its own facilities. The seller will get royalty payments. The buyer also gets rights to develop other products with the seller. The seller needs partner with manufacturing and marketing muscle. The seller has a patent.  
**Control:** (1) The buyer elects 1 director. (2) The buyer gets warrants to an additional 2.5 million shares for $11.9 million and another seat on the board  
**Categories:** research contract, sales agreement  
**Prior Affiliation:**

**Selling Firm:** Newmont Mining - explores, develops, finances mining and petroleum properties  
**Date:** Feb 3 1983  
**Buying Firm:** Consolidated Gold Fields (Amcon Corp)  
**Product Market Contract:**
**Control:**
**Categories:**
**Prior Affiliation:** The buyer owned a 25.7% stake prior to the sale.

**Selling Firm:** North East Insurance - property and casualty insurer  
**Date:** June 12 1986  
**Buying Firm:** Dusan Mladen  
**Product Market Contract:** terminated  
**Control:** (1) The buyer entered into a separate stock purchase agreement to buy shares from another shareholder  
**Categories:** financial woes  
**Prior Affiliation:**
**Selling Firm:** Octel Communications - designs, manufacture voice and image processing systems  
**Date:** August 12, 1988  
**Buying Firm:** Hewlett-Packard - designs, manufacture and services electronic equipment and systems  
**Product Market Contract:** The purchase of the equity stake is to develop and maintain a strategic partnership in which each company remains independent while working together to market and sell their products.  
**Control:** (1) The buyer does not intend to obtain control. (2) The buyer must engage additional open market purchases. (3) The buyer has the option to acquire an additional 10% of which 5% may be purchased directly from the seller  
**Categories:**  
**Prior Affiliation:** Hewlett-Packard is Octel's largest customer

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**Selling Firm:** OIS Optical Imaging - develops, manufactures active matrix liquid crystal displays  
**Date:** Dec 17, 1990  
**Buying Firm:** Guardian Industries - photo-finish labs and glass products  
**Product Market Contract:** The buyer wants to compete with Japanese  
**Control:** (1) The buyer to elect chairman and the option to elect the majority of the board. (2) The largest shareholder has agree to vote with the buyer. (3) The buyer has the option over 3 years to invest an additional $10.5 mil for a 51% stake  
**Categories:** new technology  
**Prior Affiliation:**

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**Selling Firm:** Ovex Fertility Corp - manages, leases human fertility centre  
**Date:** June 10, 1988  
**Buying Firm:** T st-Nevada L.P.  
**Product Market Contract:** The seller does not any active operations.  
**Control:** The buyer elects 1 director  
**Categories:**  
**Prior Affiliation:**
Selling Firm: Photocom - distributor of solar electric products
Date: Mar 29 1990
Buying Firm: Westinghouse Electric - interests in broadcasting, financial services and defence electronics
Product Market Contract:
Control: (1) The shares are unregistered. (2) The buyer also bought a convertible debenture. (3) The buyer acquired options to purchase additional equity
Categories:
Prior Affiliation: The seller does 40% of its business with the buyer

Selling Firm: Pilgrim's Pride Corp - chicken and producer
Date: May 12 1992
Buying Firm: Archer-Daniels-Midland Co - processes and merchandises agricultural commodities
Product Market Contract:
Control: (1) The shares registered 11 months later. (2) There is a standstill agreement @20%. (3) The buyer received price protection.
Categories: financial distress
Prior Affiliation: The seller does less than 10% of its business with the buyer

Selling Firm: Pop Radio Corp - sells advertising time on an entertainment In-store network
Date: Nov 30, 1988
Buying Firm: Heritage Media Corp - owns and operates radio and TV stations.
Product Market Contract: The buyer may takeover the seller
Control: (1) The buyer to make additional open market purchases;
Categories: prelude to a takeover
Prior Affiliation: The buyer had a 35% stake prior to the equity sale.

Selling Firm: Publisher Equipment Corp - manufactures and sells presses which produce newspapers, flyers etc
Date: August 22, 1988
Buying Firm: Koenig & Bauer (West German firm)
Product Market Contract: The seller is the exclusive agent for buyer. The two firms will expand current marketing & technology agreements. The seller has a patent.
Control:
Categories: sales agreement, new technology
Prior Affiliation: The buyer had a 6% stake prior to sale.
Selling Firm: Ren Corp - provides renal dialysis services to patients
Date: Jul 2 1992
Buying Firm: COBE Laboratories Inc (unit of Gambro) - designs, develops, produces, distributes, sells and service systems and product for renal care, cardiovascular surgery etc
Product Market Contract: The buyer spent $35 to pay off seller's debt & line of credit. The proceeds will be used to aggressively pursue an acquisition strategy in the dialysis service sector. The firms sign a 6 year supply agreement.
Control: (1) An anti-dilution clause was included. (2) The buyer elects 5 directors
Categories: sales agreement
Prior Affiliation: The buyer had a 30% stake prior to sale.

Selling Firm: Resource Exploration - operates wells, pipelines and mineral rights in Ohio and New York
Date: Jun 27 1988
Buying Firm: Bryn Mawr Resources
Product Market Contract: The stock is in exchange for unit purchased from buyer
Control: (1) The shares are restricted with registration rights. (2) A representative from the buyer joins board and management team. (3) The board expanded from 6 to 11 directors.
Categories:
Prior Affiliation:

Selling Firm: Ribi Immunochem - researches, develops biopharmaceutical products
Date: May 13 1991
Buying Firm: SmithKline Beecham - pharmaceutical concern
Product Market Contract: The seller to licence product to buyer to develop commercially. The seller will get royalties if vaccine makes it to market. The seller has a patent.
Control: (1) The buyer elects 1 director. (2) The shares are registered. (3) The buyer gets 566,667 common stock warrants.
Categories: research contract
Prior Affiliation:
**Selling Firm:** Roberts Pharmaceutical - develops and markets pharmaceutical products  
**Date:** Dec 24 1991  
**Buying Firm:** Yamonouchi Pharmaceutical - produces, sells, imports and exports pharmaceutical and related products  
**Product Market Contract:** The buyer wants to enter US market. The private equity sale will give the buyer greater influence over marketing of products in the US than a joint venture or licensing agreement  
**Control:**  
**Categories:** sales agreement  
**Prior Affiliation:**

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**Selling Firm:** Rocky Mountain Helicopters Inc - provides helicopter support services and air medical transport services.  
**Date:** Apr 10 1992  
**Buying Firm:** Jaffe Helicopter Inc  
**Product Market Contract:** The two firm negotiate the terms of a manufacturing, maintenance & joint marketing relationship. The shares are exchanged for 3 of the buyer's helicopters. The seller to exclusively manufacturer & service one type of buyer's helicopter.  
**Control:**  
**Categories:** service contract  
**Prior Affiliation:**

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**Selling Firm:** Roosevelt National Investment  
**Date:** Jan 13 1982  
**Buying Firm:** Commonwealth Industries - provides individual life insurance  
**Product Market Contract:**  
**Control:** (1) The buyer also purchased 1 million preferred stock each carrying 2 votes. (2) Earlier the buyer bought 100,000 common stock from the chairman/CEO who then resigned  
**Categories:**  
**Prior Affiliation:** The buyer owned a 2.9% stake prior to the sale.
**Selling Firm:** Savin Corp - distributes and market office equipment and supplies  
**Buying Firm:** CDC Data Systems (Canadian)  
**Date:** Oct 17 1983  
**Product Market Contract:** The seller has a patent. Prior to the equity sale, the buyer had injected capital in the seller for product development.  
**Control:** (1) The buyer received 5 year warrants to purchase 2.5 million common shares @$7.00  
**Categories:** new technology  
**Prior Affiliation:** The buyer owned a 57% stake prior to the sale  

**Selling Firm:** Skylink America - constructs, installs cable television systems for hotels  
**Date:** Jul 12 1989  
**Buying Firm:** Vantage Cable Assoc & Farm Bureau Life  
**Product Market Contract:**  
**Control:** (1) The buyers elects 2 directors. (2) The seller also issued a $2.5 mil subordinated note convertible into common stock $2.00 per share  
**Categories:**  
**Prior Affiliation:**  

**Selling Firm:** Smithfields Foods Inc - produce and market fresh pork and various processed meats  
**Date:** Sep 15 1992  
**Buying Firm:** Carroll's Foods Inc  
**Product Market Contract:** The seller is required to buy all the hogs buyer produces. 11.6% of the seller's business is done with the buyer.  
**Control:** (1) The shares will be registered when the buyer repays the note (the shares were paid for by a note).  
**Categories:** sales agreement  
**Prior Affiliation:** The buyer owned a 5.7% stake prior to the sale.
Selling Firm: Southeast Banking - commercial and mortgage bank  
Date: Nov 18, 1983  
Buying Firm: First Atlanta Corp - commercial and mortgage bank & Norfolk Southern Corp  
- operates railroads and other services; develops commercial real estate  
Product Market Contract: The equity sales allows the firms to respond quickly to changes in the banking structure in the southeast.  
Control: (1) The buyers also received non-voting preferred stock convertible into 1.3 million shares. (2) The seller intends to make equity investment in one of the buyer over the next several years  
Categories:  
Prior Affiliation:

Selling Firm: Sym-Tek Systems - manufacturer of automatic environmental handling equipment for the semi-conductors  
Date: Apr 26 1988  
Buying Firm: Advantest Corp - supplies semi-conductor test systems  
Product Market Contract: The buyer will market and service the seller's equipment in Japan. 3% of the seller's business is with the buyer.  
Control: (1) The buyer has agreed to buy 50,000 warrants @$12.60 over the next five years  
Categories: sales agreement  
Prior Affiliation:

Selling Firm: Systonetics - designs interactive project management graphic systems  
Date: Feb 9 1988  
Buying Firm: Advanced Logic Research Inc - designs, manufactures and markets microcomputer systems  
Product Market Contract: The seller will develop software for the buyer. The buyer will set up marketing efforts for the seller.  
Control: (1) The buyer elects directors. (2) The buyer gets a 2 year option to acquire 500,000 shares for $375,000  
Categories: new technology, sales agreement, financial distress  
Prior Affiliation:
Selling Firm: Telecom Equipment  
Date: Dec 18, 1981  
Buying Firm: Rank Industries - supplier of commercial & industrial products worldwide  
Product Market Contract: The buyer will find business outside of US and Canada for the seller  
Control: (1) There is standstill agreement @ 25%. (2) The buyer has the right to maintain a 21% ownership  
Categories: sales agreement  
Prior Affiliation:

Selling Firm: Teradata Corp - designs, manufactures database management computer systems  
Date: Feb 15 1990  
Buying Firm: NCR Corp - manufactures computers, semi conductors; engages in business printing  
Product Market Contract: The two firms will form a joint venture, where the buyer provides the funding, and the seller personnel & technology.  
Control: (1) The buyer elects 1 director  
Categories: joint venture  
Prior Affiliation:

Selling Firm: Texon Energy - royalty interest in producing and non-producing oil & gas properties.  
Date: Nov 23 1981  
Buying Firm: Kenaco Commercial Services (Calgary)  
Product Market Contract:  
Control: The buyer has aa 3 year option to purchase 150,000 common shares @$12  
Categories:  
Prior Affiliation:

Selling Firm: Total Asset Protection  
Date: Apr 15 1987  
Buying Firm: Income Group (Australian)  
Product Market Contract: The buyer gets to license to use of seller's technology for a fee.  
Control: (1) The buyer gets warrants to purchase 500,000 shares @$6.00  
Categories: new technology  
Prior Affiliation:
**Selling Firm:** Travelers Corp - insurer  
**Date:** Dec 24 1992  
**Buying Firm:** Primerica Corp - financial conglomerate including insurance  
**Product Market Contract:** The buyer intends to acquired seller.  
**Control:** The buyer elects 2 directors  
**Categories:** prelude to takeover, financial distress  
**Prior Affiliation:**

**Selling Firm:** Treadway Co - owns and franchises Motor Inns and operates 23 bowling centres  
**Date:** Nov 19 1979  
**Buying Firm:** Fair Lanes - operates bowling centers  
**Product Market Contract:** The seller gets all the bowling assets of the buyer (bowling is 62% of the seller's revenue)  
**Control:** (1) The seller has first right of refusal. (2) The shares are restricted for 10 months. (3) The buyer purchases 200,000 voting preferred stock  
**Categories:** antitakover  
**Prior Affiliation:**

**Selling Firm:** Trimedyne Inc - develops, manufactures fiber optic products.  
**Date:** Jan 27 1986  
**Buying Firm:** Nyegaard A.S.  
**Product Market Contract:** The two firms have a product development contract. The buyer will also test and market the seller's products in Europe & Middle East. The seller has a patent. The seller does about 3% of its business with the buyer  
**Control:** (1) Registration for the shares is pending. (2) The buyer receives 237,000 warrants  
**Categories:** research contract  
**Prior Affiliation:** The buyer is the seller's European joint venture partner

**Selling Firm:** Triton Energy - explores and produces crude oil and natural gas  
**Date:** May 24 1983  
**Buying Firm:** Crusader Oil (47% owned by seller)  
**Product Market Contract:**  
Control:  
**Categories:**  
**Prior Affiliation:** seller is the parent firm
Selling Firm: UNC Resources - supplies reactor fuel, produces aluminum and steel vessels, and uranium
Date: Jun 6 1984
Buying Firm: Chevron Corp - develops, transports, refines, markets, and explores for crude oil and natural gas
Product Market Contract: part of a lawsuit settlement
Control: (1) The buyer elects 1 director. The buyer will purchase an additional 2.426 to 5.426 million shares
Categories: Prior Affiliation:

Selling Firm: United Tote - designs and manufacture computerized wagering systems for horse and greyhound race tracts
Date: Nov 14, 1988
Buying Firm: Wembley Inc - UK sport stadium proprietor
Product Market Contract: The buyer is using the seller to enter the US market. The two firms will form a joint venture managed by seller and financed by buyer. The seller has a patent
Control: There is a standstill agreement for 10 years
Categories: joint venture Prior Affiliation:

Selling Firm: Univar Corp - among other things, distributes industrial, textile, agricultural and pest control chemicals
Date: Apr 5 1991
Buying Firm: Dow Chemical Co - among other things manufactures and sells chemicals
Product Market Contract: The equity sale reflects a trend toward closer relations between chemical manufacturers and distributors. The proceeds used to financed joint venture (with a third party) in Europe
Control: The buyer has right to buy more shares under certain circumstances
Categories:
Prior Affiliation:
**Selling Firm:** Video Jukebox Network - provides single channel programming of music video  
**Date:** Aug 2 1990  
**Buying Firm:** Tele-Communications Inc - largest cable operator in the US  
**Product Market Contract:** The buyer in a position to boost seller's growth by distributing channel to wider audience.  
**Control:**  
**Categories:** sales agreement  
**Prior Affiliation:**  

**Selling Firm:** Viratek Inc - develops and licenses pharmaceutical compounds  
**Date:** Jun 20 1988  
**Buying Firm:** ICN Pharmaceutical - develops, manufactures, distributes and sells pharmaceutical products.  
**Product Market Contract:** The buyer increases stake in seller which will allow the buyer to report selling firm by the pooling method to take advantage of tax liabilities of the seller. The seller has a patent  
**Control:**  
**Categories:**  
**Prior Affiliation:** The buyer had a 70% stake prior to the sale.  

**Selling Firm:** Walker Telecommunications  
**Date:** Jun 7 1983  
**Buying Firm:** Nissho IWA American Corp - supplier of electronic key telephone systems  
**Product Market Contract:** The seller is sales rep in US for Japanese parent. 75% of the seller's business comes from the buyer  
**Control:**  
**Categories:** sales agreement  
**Prior Affiliation:** the two firms are business partners  

**Selling Firm:** Warwick Insurance Managers - property and casualty insurer  
**Date:** Jan 11 1990  
**Buying Firm:** Carol Management Corp - real estate managers  
**Product Market Contract:**  
**Control:**  
**Categories:** financial distress  
**Prior Affiliation:**
Selling Firm: Warwick Insurance Managers - property and casualty insurer  
Date: Mar 7 1990  
Buying Firm: GFA International - controlled by insurance company holdings in the UK  
Product Market Contract: terminated May 1990  
Control: 
Categories: financial distress  
Prior Affiliation:

Selling Firm: Whitaker Cable Corp - supplies wiring harness to the automotive industry  
Date: Jun 20 1983  
Buying Firm: Amelco - provides specialty electrical and mechanical subcontracting  
Product Market Contract: The buyer specializes in buying troubled cos and turning them around  
Control: The buyer receives options to buy an additional 1 million shares @$1.53  
Categories: financial distress, service  
Prior Affiliation:
APPENDIX B

The Aftermath
This appendix contains a brief summary of what happened to the 110 interfirm private equity placements done between 1979 and 1992 as at December 1994. Information on the current relationship (product market contracts, and ownership) between the selling firms and the buyers is obtained from annual reports, SEC filings, and the Merger and Acquisition reports in the LEXIS/NEXIS database.

Table 17 - The Aftermath of the Private Equity Sales

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Table 17 (cont'd)

Notes:
R&D : Research and Development
SA : Sales Agreement
NT : New Technology
JV : Joint Venture
PM : Prelude to Merger
S : Service
AS : Asset Sales
AT : Antitakover
NA : Information not available
List of References


Logan, T, 1994, Private Equity Placements, Information Asymmetry or Ownership Concentration, Work in Progress, The Ohio State University.


Myers, S.C., and N.S. Majluf, 1984, Corporate Financing and Investment Decision when Firms have Information that Investors do not have, Journal of Financial Economics 13, 187-221.


