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WHY FIRMS DIVERSIFY: AN EMPIRICAL EXAMINATION

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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The Ohio State University
1997

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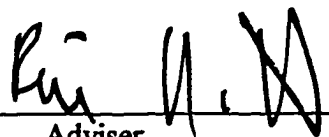
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ABSTRACT

Empirical evidence indicates that diversification is associated with a discount in

firm value over the last three decades. However, many firms diversified anyway. The

goal of this study is to examine why firms diversify and how diversification affects their

value. A sample of firms which change from one industry segment to more than one

segment is examined. Recent research finds that firms with low levels of managerial

ownership are more likely to remain diversified (Denis, Denis, Sarin (1996)). This is

labelled the "agency cost hypothesis" of diversification. This paper examines firms at the

time they actually diversify and find that diversifying firms do not have different

ownership patterns from similar firms which do not diversify.

While firms do not appear to diversify due to managerial ownership differences,

they do have poor operating performance and low internal growth opportunities as

measured by research and development. In addition, these firms have accumulated cash

which they use to diversify.

Empirical research indicates that diversified firms are valued less than similar

non-diversified firms. However, I do not find evidence of a negative market reaction

when firms initially diversify. I find non-negative announcement returns when

specialized firms diversify. I also find that monthly abnormal returns for the 18 months

before and 18 months after diversification are not significantly different from zero. It is possible that the market has already priced the probability that the firm would diversify.

Diversification does not appear to be an industry phenomenon. A significant number of industries are represented in a random sample. In addition, on average, diversifying firms do not come from low growth industries.

Dedicated to my family: Amy, Clark, Delonna, Karen and Michael

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CHAPTER 1

INTRODUCTION

The empirical evidence on the impact of diversification on shareholder wealth

presents a puzzle. On the one hand, the announcement of a diversifying acquisition

generally has a small impact on shareholder wealth which is positive except during the

1980's. (Morck, Shleifer, and Vishny (1990)). On the other hand, there is a growing

literature that shows that diversified firms trade at a substantial discount relative to

comparable portfolios of specialized firms. How can diversification announcements be

viewed positively at announcement while firms which have diversified trade at a

discount? In this paper, I investigate a sample of firms that become diversified to

understand why firms diversify and how diversification affects their value.

I find that firms that diversify are performing poorly to start with, so these firms

already have a discount relative to the median specialized firm before they diversify.

While diversification does not improve performance and hence does not create value, it

does not appear to destroy value relative to the current activities of the firm.

Studies indicate that diversification in the last several decades is associated with a

discount in firm value. Lang and Stulz (1994) find that firm diversification and Tobin's q

are negatively related in the 1980's and late 1970's, and Servaes (1996) finds a

diversification discount in the 1960's. This discount appears to be substantial. Berger and Ofek (1995) find that diversification implies a 10-15% discount in firm value. These studies look at diversified firms at a point in time to determine whether a discount is related to the level of diversification.

Comment and Jarrell (1995) look at the point in time when a firm diversifies and find a negative relation between abnormal stock returns and several measures of diversification. Comment and Jarrell (1995) and Liebeskind and Opler (1995) also find that there was a trend for firms to become less diversified during the late 1970's and 1980's. Most of these studies use the Compustat II Industry segment tapes to define proxies for diversification. The trend was for firms to refocus and the market rewarded the firms which refocused. However, data from the Compustat II Industry Segment tapes show that for every 100 firms that focus during the 1977-1992 time period, approximately 82 diversify.[1] Why would so many firms diversify when the evidence seems to indicate that diversification adversely affects shareholder wealth?

The goal of this study is to determine why firms diversify and how diversification affects their value. I look at a sample of firms from the Compustat II segment tapes which increase their number of industry segments from one to more than one. First I investigate how diversification took place for each firm. I find that the typical firm diversifies by making an acquisition. From the set of firms which make acquisitions and announce their internal growth plans, I can investigate the wealth impact of the diversification announcement. I find that the mean announcement effect of

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[1] Approximately 3,100 out of 185,000 firm-year observations are firm-years when a company increases its number of reported industry segments.

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diversification is a significantly positive 1.3% but that the median announcement effect is insignificantly different from zero. Therefore, there is no evidence that the market consistently views diversification as a value-reducing decision. However, this evidence is not inconsistent with the existence of a diversification discount.

How can we reconcile this evidence? A plausible explanation which I will call the agency view is as follows. Diversifying firms are poorly performing firms in comparison to specialized firms and have lower growth opportunities in their current activities. These diversifiers have accumulated a reserve of liquid assets. They can pay this back directly to shareholders, use the cash to diversify, or invest more in their current activities. The market anticipates that these firms will not return these liquid assets to shareholders and consequently may not be that surprised when these firms make a diversifying acquisition. It might even be better for the firm to make such an acquisition than to use these liquid assets to finance investment in poorly performing operations. With this view, management diversifies to assure firm survival and growth when it faces difficulty competing within its industry.

The agency view of diversification is discussed in Jensen and Meckling (1976). If managers have low ownership, their incentives may not be aligned correctly with shareholders. Managers may wish to grow the firm, even if it is not in the best interest of shareholders. Managers with low ownership may wish to diversify because they do not bear the costs of diversification associated with stock ownership even though they might enjoy benefits associated with a larger firm. Managers with high ownership may also wish to diversify because they have a significant portion of their wealth invested in the firm and have a need for personal diversification. (Amihud and Lev (1981)).

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I test for these agency costs in firms which diversify and a matching portfolio of specialized firms. Specifically, I look at whether diversifying firm managers own less stock than comparable non-diversifying firms. I also look at proxies for monitoring to see if monitoring is an effective deterrent to diversification. In probit models I find no evidence of a relationship between managerial ownership and firm choice to diversify. (Jense and Meckling). In addition to using inside ownership as a linear variable, I also add squared inside ownership to test the hypothesis that higher levels of ownership (Amihud and Lev) managers may wish to diversify the firm because their personal portfolios are heavily concentrated in the firm. I do not find evidence that ownership is related to firm diversification choice as a non-linear variable either.

An additional question is, why would a firm want to grow through diversification? There are two alternative explanations of why a firm would grow through diversification. The first possibility is that the firm may be in a low growth industry and has to find growth in another industry. The second possibility is that the firm may have poor performance and see limited growth in its own industry because it lacks the assets to compete and therefore tries to grow outside its industry. I find evidence that diversified firms have poor performance but are not in low growth industries.

In this dissertation, I also examine the accuracy of the Compustat II segment tapes as a proxy for diversification. Using a sample of large firms which change their number of industry segments from one to more than one, I find that only 72% of the "diversifications" are actually significant economic events. This indicates that there is noise in prior studies using this data and that the prior results using the Compustat

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segment tapes may be even stronger than reported (e.g. Lang and Stulz (1994) and Berger and Ofek (1995)).

1.1 Literature Review

In the following sections I give a brief discussion of existing theoretical reasons for diversification and the associated empirical findings on the value of diversification.

1.1.1 Theory on Benefits and Costs of Diversification

The theoretical literature on diversification suggests both costs and benefits.[2] A firm may benefit from diversification if it can take advantage of economies of scale. Montgomery and Wernerfelt (1988) suggest that firms can benefit from diversification if they have excess capacity in rent-yielding factors. These must be factors that are subject to market failure. For example, a stellar management team might be a rent-yielding factor. These managers might not be able to coordinate a move to another company where they would be paid more. The firm can take advantage of this rent factor if it has additional capacity by diversifying into additional businesses. This assumes that the excess capacity rent-yielding factor cannot be employed in the firm's current activities.

Another potential benefit of diversification would occur if a diversified firm is able to provide a more efficient internal capital market than external capital markets provide. If a diversified firm's internal capital market is more efficient it would allow the

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[2] Mueller (1987 and Berger and Ofek (1995) provide a nice summary of the theoretical costs and benefits of diversification.

firm to avoid passing up positive net present value projects which might exist because of the underinvestment problem described by Myers (1977).

Diversification could also allow a firm to have higher debt capacity and therefore pay lower taxes (Lewellen (1971)). If divisional cash flows are less than perfectly correlated, the divisions provide coinsurance to each other for the situation of low cash flow. This allows the firm to increase its debt and therefore pay lower taxes with less likelihood of bankruptcy. Amihud and Lev (1981) suggest that lower probability of bankruptcy provides some job security to managers by lowering the risk of the firm.

There are also potential costs to diversification. It is possible that firms have agency problems between managers and shareholders. Diversification might allow the firm to be larger than it would be otherwise which allows managers to consume perquisites associated with a larger firm. A larger firm may have discretionary resources which allow its managers to take negative net present value projects (Jensen and Meckling (1976), and Jensen (1986)). It is also more difficult for shareholders to monitor multiple operations which make it easier for managers to consume perquisites. Bates and Bizjak (1997) find evidence that diversification is negatively related to pay-for performance measures. Therefore, diversification might lower the cost to managers of pursuing value reducing activities since they wouldn't suffer as much with low pay for performance.

Stulz (1990) and Shin and Stulz (1996) suggest that diversified firms can cross-subsidize poorly performing divisions. These subsidized divisions are not efficient because they would fail if traded in the external market. Bhide (1990) suggests that there

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has been a decline in the level of diversification due to the increasing sophistication of external capital markets.

Diversification can also cause a misalignment of incentives between central and divisional managers. If a division manager knows that cash flow from her division is likely to be channeled to another poorly performing division, she has less incentive to operate the division as efficiently as possible.

Shin and Stulz (1996) suggest that diversification may cause firms to become bureaucratic and unresponsive to market forces. Shin and Stulz suggest that division allocations are 'sticky', which would make it difficult for a firm to allocate money to a division which comes up with an innovative idea.

Gort, Grabowski, and McGuckin (1985) offer the hypothesis that firms entering a new activity do so because of a relative advantage over what they are currently doing rather than an absolute advantage over competitors. This is similar to the hypothesis that diversifying firms have low growth opportunities in their current activities (Lang and Stulz (1994)).

Since there are benefits and costs with diversification it is not possible to theorize whether diversification is valued positively or negatively. Markides (1995) suggests that firms have an optimal level of diversification and many firms went beyond this level in the 1960's. He finds that at low levels of diversification, diversification is associated with a positive improvement in profitability and at high levels of diversification the relationship is negative.

Another reason for diversification comes from Matsusaka (1996). Matsusaka hypothesizes that diversifying firms have low growth opportunities in their current

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activities but valuable corporate resources which have value as a going concern. Diversification is used by managers to find a better fit for their corporation's assets. Matsusaka starts with the assumption that specialization is the most efficient form of business operation. Firms only diversify to try to pick better activities than what they are currently pursuing. When a firm diversifies and finds a good match for its corporate activities it divests its original activities and becomes specialized again. When the firm first diversifies the market does not know whether the diversification will be successful or unsuccessful in finding a good match.[3] The market will not know which are successful until the firm later refocuses at which point the market realizes that the match was successful. In the Matsusaka model specialized firms are more efficient. Diversification is only used by firms to find a good match for corporate assets. An important thing to note in the Matsusaka model is that even though diversification is an efficient decision from the shareholder's perspective, the market does not realize whether it will be successful or not until later when the firm refocuses. Therefore, the model implies imply a positive market reaction only when the firm refocuses.

Fluck and Lynch (1996) hypothesize that diversified firms exist to finance short term projects that could not be financed as stand alone entities. These projects cannot be financed as stand alone businesses because they are marginally profitable and short-term. They would have difficulty getting funding on their own for these reasons.[4] Diversified firms are able to fund the positive NPV projects and are therefore efficient for

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[3] In the Matsusaka model, the diversification event is a random draw.

[4] Fluck (1995) shows that equity must have unlimited life to be sustainable.

shareholders. However, these diversified firms are less valuable than stand alone firms because they have more marginally profitable projects. This can explain why diversified firms have lower q's than specialized firms and also allows diversification to be an efficient decision for shareholders.

1.1.2 Empirical Evidence on theValue of Diversification

Several empirical studies find that diversification is associated with a discount in firm value. Lang and Stulz (1994) find that diversified firms had lower Tobin's q than comparable non-diversified firms in the late 1970's through early 1990's. Berger and Ofek (1995) impute stand-alone values for multi-segment firms' industry segments, sum them and compare the imputed firm value to the actual firm value in the years 1986-1991. They find that diversified firms' actual values are lower than the summation of the imputed values of the firms' divisions. Diversification is measured by the number of segments and sales and asset Herfindahl measures calculated from Compustat segment data. Berger and Ofek (1995) impute a firm's value from segment data and compare the sum of imputed values to the market value of the firm. Berger and Ofek's sample period is 1986 to 1991. Comment and Jarrell (1995) find a negative relation between abnormal stock return and measures of diversification.

It is possible that the diversification discount is a more recent phenomenon and that diversification was more valued when undertaken in earlier periods like the 1960's. However, Servaes (1996) finds that diversified firms were discounted during the 1960's but the discount decreased to zero during the 1970's. Morck, Shleifer and Vishny (1990) find that firms which make diversifying acquisitions have negative announcement returns

in the 1980's while other studies find that announcement returns for acquisitions are slightly positive or zero.

Mueller (1987) cites 11 merger studies, involving 7 countries, which have failed to find any evidence of increased operating efficiency for the acquiring firm -- 5 of the 11 studies present evidence of a decline in operating performance. Since the typical diversification is a merger or acquisition, this is indirect evidence against the benefit of diversification improving operating performance.

It is difficult to measure whether undiversified firms are avoiding positive net present value projects due to an insufficient internal capital market. However, the Lang and Stulz (1994) evidence on Tobin's q would indicate that undiversified firms have more positive NPV projects than diversified firms. Shin and Stulz (1996) find evidence that smaller divisions of diversified firms invest more than stand-alone firms in the same industry and depend on cash flows of other divisions. This evidence is consistent with cross-subsidization of poorly performing business segments. Lamont (1996) finds evidence within the oil industry that non-oil divisions are dependent on the cash flows of a dominant oil division.

In addition to the evidence that diversification is associated with a loss in firm value, there is also evidence that the market values focus. Comment and Jarrell (1995) find that greater corporate focus is associated with an increase in shareholder wealth. Comment and Jarrell (1995) and Liebskind and Opler (1995) also document that, on average, firms decreased their level of diversification in the late 1970's and 1980's.[5]

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[5]Liebskind and Opler (1995) find no evidence to support the argument that corporate refocusing during the 1980's was motivated by changes in antitrust regulation, or by changes in global competition.

John and Ofek (1995) find that firms improve their performance after divestitures.[6]

John, Lang and Netter (1992) look at firms which voluntarily restructure in response to poor performance. They find that the number one response to negative earnings by firms in their sample was to shrink the firm by selling assets, divesting, or spinning off or selling subsidiaries. Wernerfelt and Montgomery (1988) find that focus is positively correlated with Tobin's q.

1.2 Hypotheses

The existing empirical evidence indicates that on average the costs of diversification exceed the benefits. With this empirical evidence the question must be asked, "Why do firms diversify?" This dissertation addresses the hypothesis that firms diversify due to agency costs between managers and shareholders (Denis, Denis, and Sarin (1996), Amihud and Lev (1981), Jensen (1986, 1989)). Specifically, I test whether diversifying firms have lower managerial ownership than non-diversifying firms. I also test whether proxies for monitoring are effective in preventing firms from diversifying. Denis, Denis, and Sarin examine the agency hypothesis to answer the question, "Why do diversified firms remain diversified." I examine the hypothesis at the time the firm actually diversifies.

Denis, Denis, and Sarin (1996) hypothesize that firms diversify because of agency problems between managers and shareholders. They suggest that managers may wish to

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[6] Alexander, Benson, Kampmeyer (1984), Jain (1985), Hite, Owers and Rogers (1987), Lang, Poulsen and Stulz (1994) and Mayers and Singh (1984) find that firms which sell assets have positive stock returns. This can be interpreted as evidence that focus is rewarded by the market.

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pursue diversifying strategies even if it harms shareholder wealth because of the personal gains managers would receive. These gains come from the increased size of the firm which results in more power, pay, and perquisites for the managers (Jensen (1986), Jensen and Murphy (1990)). Additionally, managers may have a lot of personal capital tied up in the firm. Corporate diversification is the only means by which they can diversify their personal portfolios (Amihud and Lev (1981)).[7] Denis, Denis and Sarin look at levels of diversification and find that the level of firm diversification is negatively associated with insider ownership. They interpret this as evidence that there are agency problems between managers and shareholders. This study analyzes firms at the time in which they diversify and tries to determine whether agency costs are a determinant in the firms' choice to diversify. In addition, this study looks at whether diversification by firms with higher managerial ownership is associated with higher announcement returns.

Managers may also diversify because they have cash available and would rather use it on projects to grow the firm rather than pay it out to shareholders. Jensen (1986, 1989) argues that firms with free cash may use it for value reducing strategies such as diversification because managers reap personal benefits associated with a larger firm. Montgomery (1994) suggests that "there are simply too many results that are consistent with the agency theory of diversification."

In order to examine the agency view of diversification, I look at the level of managerial ownership for diversifying firms and a matching portfolio of non-diversifying

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[7] May (1995) finds that CEOs with more personal wealth vested in the company tend to diversify. May interprets this to indicate that CEOs are acting in their own interest rather than the interest of shareholders. His results are supportive of the Amihud and Lev (1981) hypothesis.

firms. Denis, Denis, and Sarin (1996) look at managerial ownership for firms which are already diversified. I find evidence that at the time firms diversify they have managerial holdings which are similar to non-diversifying firms. This contrasts with the findings of Denis, Denis, and Sarin who find that diversified firms have lower managerial ownership than non-diversified firms. My results are not necessarily inconsistent with Denis, Denis, and Sarin because diversifying firm managers could reduce their ownership levels after the firm diversifies.[8] However, my results indicate that firms do not diversify because of lower managerial ownership than similar non-diversifying firms.

I find evidence of agency problems discussed by Jensen (1986, 1989). To test the Jensen-type agency problem I look at a firm's cash and investments at the time it diversifies. A firm could have poor operating performance and low cash flow but not be using the cash it does bring in to reinvest in its current operations or engage in research and development. This cash could be paid out to shareholders or used to diversify. Diversifying firms have more cash and investments than non-diversifying firms but similar dividend payout ratios. These firms also invest less in research and development. The fact that diversifying firms have more cash could be interpreted as an agency problem. It is also possible that firms are building a cash surplus in order to transact a diversification.

Given the prior evidence (e.g. Lang and Stulz (1994)) that diversification is associated with a discount in firm value, we would expect to find that better monitored

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[8] In addition, Denis, Denis, and Sarin look at firms with varying levels of diversification which become more diversified. In this study I look at firms which start out specialized and then become diversified. It is possible that there are more agency problems with firms that are already diversified.

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firms would be less likely to diversify. In this paper I use proxies for monitoring to determine if monitored firms are less likely to diversify.

We might expect firms with poor performance and low growth opportunities to be more likely to diversify. Managers of firms with good growth prospects and performance may not wish to diversify. Proxies for growth opportunities are used to test this. I find evidence that firms that have low growth opportunities and poor performance are more likely to diversify than their specialized counterparts.

Lang and Stulz (1994) begin to address the question "Why do firms diversify?" by examining a sample of firms which increase their level of diversification from one industry segment to more than one. Lang and Stulz find that firms which choose to diversify have lower q's than firms which do not diversify and lower median q's than firms in their own industry before they diversify.[9] This leaves the question, "Is diversification causing the discount or is diversification an action taken by management to try to reduce a discount that already exists?" Since we know that the discount does not go away, diversification may be a high risk strategy by management. This study tries to determine if diversifying firms are valued at a discount before they choose to diversify instead of diversifying causing the discount as has been interpreted in prior literature.

It is possible that the diversification discount may be an irreversible destruction of value when firms decide to diversify. However, if the discount in firm value and poor

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[9] Lang and Stulz (1994) study firms which choose to diversify and focus. In a sample of 192 firms that increase their level of diversification they subtract the average q in the firm's industry and the average q for firms with the same number of segments before diversifying from the firm's actual q. They find a negative median for both of these measures. They also find a positive but insignificant mean for industry adjusted q.

performance already exists before the firm diversifies, the decision to diversify may not have destroyed any additional value.

Lang and Stulz (1994) hypothesize that diversifying firms have low growth opportunities in their current activities. Gort, Grabowski and McGuckin (1985) suggest that firms entering a new activity do so because of a relative advantage over current activities rather than an absolute advantage over competitors. A closely related reason to diversify is that the firm is performing poorly and is trying to escape the poor performance by attempting different activities. This study tries to determine whether diversifying firms are in low growth industries or whether they have low growth opportunities and poor performance in their current activities.

If we look at measures like q for firm value, diversification seems to be harmful on average. However, there may be situations in which diversification is not harmful. A firm may have abilities which would allow it to be successful in other areas. We might expect firms with low growth opportunities in current activities to diversify more successfully than firms with high growth opportunities. This would be true if a firm has excess capacity in rent yielding factors (Wernerfelt and Montgomery (1988)). Firms which are closely monitored or where managers have more of their own capital at stake might also be expected to make more successful diversifications. This study tries to determine whether some diversifications are less harmful than others by looking at announcement returns along with monitoring and growth proxies that might predict returns.

1.3 Summary

The existing theoretical literature on diversification predicts both costs and benefits to diversification. The empirical evidence must be used to decide whether the benefits exceed the costs. The empirical evidence suggests that, on average, diversification is harmful to shareholder value. In the rest of the dissertation, I look at a sample of firms which start out specialized and then become diversified. I try to answer the question, "Why do firms diversify?"

The rest of the dissertation proceeds as follows. Chapter 2 discusses the evolution of firm diversification. It describes my sample of firms which start out specialized and become diversified. A description of how firms actually diversified over the period 1978-1992 is also given. I pay special attention to the industry composition of diversifying firms in my sample. I test whether the diversification discount comes about because firms which diversify are in low growth industries.

Chapter 3 addresses the question, "Why do firms diversify?" I focus on the hypothesis that firms diversify because there are agency problems between managers and shareholders by looking at managerial ownership at the time firms diversify. Managers do not bear all of the costs of diversification but receive personal benefits. (Denis, Denis, Sarin (1996), and Amihud and Lev (1981)). I also test whether monitored firms are less likely to diversify. Growth opportunities and operating performance around diversification are also explored. Also in Chapter 3, I look at whether we can identify which firms might be able to diversify more successfully than others and whether unrelated diversifications are valued more negatively than related diversification. Chapter 4 concludes.

CHAPTER 2

EVOLUTION OF FIRM DIVERSIFICATION

The diversification literature uses the Compustat Industry Segment tapes extensively to proxy for firm levels of diversification. Studies such as Lang and Stulz (1994), Berger and Ofek (1995, 1996), and Comment and Jarrell (1995) use the number of industry segments and also create Herfindahl indices to proxy for the level of a firm's diversification. In addition, these studies use a change in the number of segments to proxy for a change in the firm's level of diversification. An increase in the number of segments represents a "diversification" and a decrease in the number of segments represents a firm "focusing". In this study, I create a sample from the Compustat Industry Segment tapes and investigate primary sources such as annual reports, news stories and press releases to determine what these changes in industry segments actually represent.

In this chapter I also look at the industry composition of firms which diversify. It is possible that diversifying firms are clustered in certain industries. These industries could face economic shocks which cause firms to diversify. If diversification is clustered within a few industries we would not be very comfortable with generalizations about the impact of diversification. Additionally, it is possible that diversifying firms come from low q industries. In this case it would not be surprising to find that diversified firms have

lower q's than their non-diversified counterparts. Firms in low growth industries might be trying to get into industries with more growth opportunities. The q of a firm with a low growth segment and a high growth segment might be lower than a specialized firm with a high growth segment. I examine the industry composition in my sample. I also look at the q of the industries that firms diversify from to determine if they are in fact low q industries or whether the discount from diversification is firm specific.

2.1 Sample Selection

To determine how firms are diversifying, I start with the Compustat Industry Segment tapes and select firms which increase their number of segments from one to more than one over the period 1978 to 1992.[10] This is the same data used by Lang and Stulz (1994), Berger and Ofek (1995, 1996), and Comment and Jarrell (1995). I use firms which change from one to more than one segment because Lang and Stulz (1994) find that most of the diversification discount occurs between one and two segments. Additionally, this measure should provide a proxy for an undiversified firm which chooses to become diversified.

Firms with primary SIC codes in the finance and banking industries (SIC code 6000-6999) are eliminated from the sample. Finance firms have financial ratios that make them difficult to compare to other firms. Utilities (SIC code 4900-4999) are also eliminated because they are regulated and have different objectives than non-utilities. To

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[10] Financial Accounting Standard Board SFAS No. 14 requires a firm to report information about the industry segments in which it operates. A business segment is required to be reported if revenues, operating profits, or assets are 10% of the consolidated firm. Accounting rules provide guidelines but firms retain some reporting discretion. Segment data is required to be reported after 1978.

get a reasonable sample size with available data, firms are screened to have assets greater than $100 million in 1992 dollars using the GDP price deflator.

Table 2.1 describes the sample. There are 300 firm-year observations involving 296 different firms. Four firms change from one segment to more than one, switch back to one, and then increase their number of segments a second time in the sample period. ADRs are also eliminated. There are 38 firms without information on the Compustat Industrial Tapes. These firms are eliminated from the sample.

After these screens, annual reports, 10Ks, and news stories are examined in order to determine what each segment increase actually represents. This is what makes this sample unique compared to what has been done in prior literature. Prior studies use information straight from the segment tapes to create samples and make proxies for diversification. By looking at the annual reports, 10Ks and news stories I am able to get a clean sample of diversifying events. The study also provides information about what economic events the segment tape proxies actually represent.

Lexis/Nexis is used to determine how the diversification occurred. The annual report or 10K for the year of the change and several years before and after the change are examined to determine and classify the firm's method of diversification. In addition, news stories are examined using the Wall Street Journal Index, IDDMA, M&ANEWS and ALLNEWS on Lexis/Nexis. Many of the firms switched back to one segment during the sample period. These events are discussed in more detail below. Over 1,000 annual reports and 10Ks were examined for this study. Nineteen firms are eliminated due to insufficient information on Lexis/Nexis.

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Based on the annual reports or 10Ks, diversification events are classified as: acquisitions (150), internal growth (23), or reporting changes (54).[11] There are 13 firms with segment information in the annual reports or 10Ks which do not agree with the Compustat Industry Segment Tapes. For example, Chrysler changes from one segment to three segments in 1988 on the segment tapes. Chrysler's annual reports indicate three segments for 1986, 1987 and 1988. These observations are eliminated from the sample.

The distribution of the final sample by year is reported in Table 2.2. The mid 1980's contain more diversifying events than the years before and after. The mid-1980's constituted a large merger wave in the U.S. (Shleifer and Vishny (1991)). In 1988, there are 11 firms which are classified as changing their number of segments due to a reporting change. In 1988, FASB 94 required firms to consolidate some previously unconsolidated subsidiaries.

The three classifications of diversification are described below. During the sample period, 76 of the 227 firms are classified as switching back to one segment by looking at the segment tapes and then investigating the annual reports. Often when a firm increases from one segment to more than one it did not report segment data prior to the change. When it begins reporting a new segment it often adds a corporate or other segment as well. This may help to explain why Lang and Stulz (1994) find most of the discount for diversification to be associated with 2 segments.

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[11] Denis, Denis and Sarin use the Compustat industry segment tapes to form their sample also. For a sample of 140 firms which diversify between 1985 and 1989, Denis, Denis, and Sarin (1996) classify: 66 as making acquisitions, 52 as reporting changes, 7 as divesting businesses, 4 as new businesses and 11 unknown.

2.1.1. Acquisitions

If a diversifying firm acquires, merges, or buys assets from another firm, the observation is classified as an acquisition event. Some of these target companies are private and some are public. There are 150 (66%) observations of firms diversifying by acquisition in the sample. Each acquisition is classified as related or unrelated. Related acquistions are in industries which are similar to the industry the firm is currently in. If the acquisition is related it is classified as horizontal or vertical. A vertical acquisition includes an input or output to the firm's current activities. A horizontal acquisition includes activities that are similar or complementary to the firm's current activities. Other studies such as Berger and Ofek (1995) use SIC codes to determine whether diversification is related or not. In this study firms are actually examined and a judgment is made to determine if the diversification is related or unrelated and vertical or horizontal. By examining over 1,000 annual reports and related news stories, I am able to substitute strict numerical classifications with my own judgment.

An example of an unrelated diversification is American Bakeries. In 1985 this baking company acquired Coast to Coast which is a resort company. Another unrelated acquisition is the railroad company, Amoskeag, which merged with Fanny Farmer candy company in 1980.

Atari is an example of a vertical diversification. Atari, a consumer electronic firm, acquired Federated which is a retailer of consumer electronics. Federated was discontinued the following year. In 1986 Cablevision Systems cable company acquired Rainbow which was in the business of programming. Other vertical diversifications

include an auto parts warehouse company (Cardis) acquiring an auto service chain. A couple of oil and gas exploration companies acquired refining companies.

An example of a horizontal diversification is Gannett, a newspaper company, which acquired a broadcasting company in 1979. Another example of horizontal diversification is Interface, a flooring company which acquired an interior fabrics company in 1986.

2.1.2. Internal Growth

Diversification events are classified as internal growth if a firm begins reporting more than one segment in a year, has no significant acquisitions, and meets the 10% thresholds for at least one new segment. There are 23 (10%) observations of internal growth in the sample. When firms begin to report segments, they often report segments for prior years. If a firm begins reporting segments and all the segments met the 10% thresholds for the prior year, the observation is not classified as internal growth but rather as making a reporting change. It is apparent from these firms' annual reports that the firm was in the same business activity for several years but did not report separate business segments until the year of the diversification event. The internal growth events are also investigated using the Wall Street Journal Index and Lexis/Nexis ALLNEWS. If a firm adds a growing business to its annual report, news stories are examined to determine if this was a new activity for the firm. Some have precise announcement dates available and others do not.

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Examples of internal growth include Federal Express, which spent $23.5 million in 1984 to introduce Zapmail. Two years later, in 1986, Zapmail was discontinued due to losses. AT&T's financial services segment grew from less than 10% of its business in 1989 to 15% of its business in 1990 and is classified as internal growth. Internal growth observations are classified as related or unrelated and vertical or horizontal. In the case of AT&T, the financial service division growth is classified as related and vertical. Integra is another example of internal growth. This hotel owner (Holiday Inn) began franchising Show-Biz Pizza restaurants in 1981. In 1988 the Show-Biz division was spun-off to shareholders.

2.1.3. Reporting Changes

The sample includes 54 (24%) firms which make reporting changes which would be classified as changes in diversification in other studies using the Compustat Industry Segment Tapes. (e.g. Lang and Stulz (1994), Berger and Ofek (1995) and Comment and Jarrell (1995).) Of these, 16 firms made reporting changes which were 2 years after the year indicated by the Compustat Segment Tapes. These firms gave segment data for the two prior years.[12] For example, Applied Power began reporting three segments in 1986 and gave segment data for 1985 and 1984. Compustat indicates that Applied Power switched to three segments in 1984. For this study, the year of the change is considered to be the year the firm actually began reporting separate segments in its annual report.

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[12] Most of the other firms which made reporting changes also gave prior year information on segment changes, but the Compustat segment tapes categorize them as having multiple segments in the same year reported in the annual report.

Examples of reporting changes include Aloha Airlines which, reported one segment in 1983 and three segments in 1984. The annual report says, "[the] reorganization did not change in any respect the operations of the Airline." Another example is Bell Atlantic, which consolidated its previously unconsolidated financial and real estate segments in 1988.

Reporting change firms are eliminated from the analysis because they do not represent economic events. Earlier versions of this paper included reporting change firms in the analysis and the results are very similar.

2.2 Industry Composition of Diversifying Firms

It is important to determine which industries diversifying firms start out in. It is possible that a significant portion come from a particular industry. If this were the case we would need to look at that industry or industries to determine the particular economic circumstances involved. If we find that the diversifying firms are in a broad range of industries we can feel more comfortable in generalizing results about diversification.

In Table 2.3, the one-digit SIC industry classification, as discussed in Kahle and Walkling (1996), is used to determine which industry the firms in the sample were in before they diversified. Only firms which are classified as diversifying through acquisition and internal growth are used in the table. The majority of the firms in the sample are in the manufacturing sector with 93 of the 173 observations. Transportation is second with 21 observations.

Although this tells us that the majority of the firms are in the manufacturing sector, it does not tell us much about industry concentration. Table 2.4 breaks out the

sample further by classifying the sample by 2-digit SIC codes. This is more insightful. Of the 173 firms in the sample, 16 were in the telephone/telecommunications industry. The time period 1978-1992 was a time of telephone deregulation and included the breakup of AT&T which allowed firms to begin to compete in many areas of telecommunications. This was also an era which saw growth in alternative communications such as cellular phone operations and cable television. There is no clear pattern in this industry grouping. For example, one communications firm acquired a natural gas firm. Another communications firm acquired an environmental services firm while two other communications firms acquired cellular phone operations.

Also, in the 2-digit SIC breakout, 14 of the 173 observations are in the oil industry while another 4 are in the oil-Integrated classification. Owen Lamont (1997) studies this industry and the effects of diversification in a recent paper. There was a shock in oil prices in 1986 in which oil prices fell by 50 percent. Of the 18 oil firms in my sample 12 diversified before the 1986 oil shock so it might be difficult to attribute this shock as the cause of diversification for many of the firms in this sample. Lamont finds that oil firms diversified when they had excess cash.

Table 2.5 breaks out the sample according to 3-digit SIC code. There are 96 different SIC codes represented in the sample of 173. SIC code 131 is the most represented 3-digit industry in the sample with 12 observations and includes crude petroleum and natural gas. SIC code 481 is the second most represented with 11 observations. It includes the telephone and radiotelephone industries. There are six observations in SIC code 208. This is the beverage classification and includes, beer, soft

drinks, etc. There are no other 3-digit SIC codes with more than 4 observations represented.

Table 2.6 breaks down the sample by 4-digit SIC classification. There are 119 different industries represented in the sample of 173 firms. There are 12 observations in the crude petroleum and natural gas industry and 8 observations in the telephone communications industry.

From tables 2.3 – 2.6, I conclude that the sample is not excessively concentrated in one or a few industries. With 119 different industry observations out of 173 firms in the sample, we can feel more comfortable about generalizing the results of diversification studies to include a broad range of firms.

2.2.1 Is the diversification discount an industry effect?

Before examining other hypotheses it is important to answer the question, "Is the diversification discount an industry effect?" If diversifying firms are in low q industries while specialized firms are in high q industries, this would help explain why diversified firms trade at a discount when compared to specialized firms. Lang and Stulz (1994) find that diversifying firms have lower q's than the median q firm in their industry.[13] I am interested in whether these firms are in industries with low q's. To test the hypothesis that diversifying firms are in industries with low growth opportunities, I look at the median q of the diversifying firm's industry the year before it diversified compare it to non-diversifying industries. To get a q for non-diversifying industries, I assign each

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[13] Lang and Stulz (1994) find that the mean q for diversifying firms is higher than its industry but this result is not statistically significant.

industry the q of the median company. Non-diversifying industries are then ranked by q and the median q is used to represent the non-diversifying industries.. Non-diversifying industries are industries which do not have firms in the sample which diversify. Industries are determined by a firm's primary three-digit SIC code. An industry is counted multiple times in the analysis if more than one firm from the industry diversifies during the year.

Table 2.7 shows the results of this analysis. If firms are in low growth industries, we would expect that the median q of the diversifying industries would be lower than the median q of the non-diversifying industries in the year of diversification. In panel A, I use all firms in the sample which diversify through acquisition and internal growth. I compare the median q of the diversifying firm's industry to the median q of the median non-diversifying industry. Both the mean and median q of the diversifying firm's industry are significantly greater than the median q for all non-diversifying firms in that year. I find no support for the hypothesis that diversifying firms are in low q industries.

In panel A, an industry can be included multiple times in a given year. For example, two oil companies could diversify during the sample period and this would count as two observations in panel A. Panel B repeats the analysis of Panel A but uses only one observation per industry. The difference in the means is still statistically significant but the difference in medians is no longer statistically significant. The result is positive or statistically zero so we can still say that diversifying firms are not in low q industries.

Panel C repeats the analysis of panels A and B but uses only one segment firms to determine the median industry q in the year of diversification. This allows us to compare

q's of similar firms which are pure plays in the industry of the diversifying firm. The results are even less supportive of the hypothesis that firms are in industries which have low growth opportunities. I find that diversifying firms are in industries with significantly greater median q's than non-diversifying industries in the year of diversification. The results of Table 2.7 allow us to reject the hypothesis that diversifying firms are in low growth industries.

It is possible that 3-digit SIC codes are too narrow to effectively classify industries. In work not shown, I did the same analysis shown in table 2.7 using 2-digit SIC codes for industry. The results are even stronger in rejecting the hypothesis that diversifying firms are in low growth industries.

2.3 Summary

In this chapter, I described the sample of diversifying firms that will be used in the remainder of the analysis. Segment data from the Compustat segment tapes have been used extensively in recent research as a proxy for firm diversification. This chapter provides information about what increases in the number of segments actually represent. For usable data, 5.4% of the increases in segments from 1 segment to more than 1 segment do not agree with annual reports. An additional 6.7% list segment breakouts in a different year than indicated in the annual report. A total of 22.5% are classified as reporting changes. This leaves approximately 72% of the changes where the firm is actually diversifying in a significant way. This indicates that studies which use changes in diversification as a proxy might have stronger results than reported if they were able to eliminate the noise. (e.g. Lang and Stulz (1994), Comment and Jarrell (1995)).

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I also find that diversifying firms on the segments tapes are not primarily concentrated in one or a few industries. In fact, the 173 observations represent 119 different 4-digit SIC industries. It is also possible to reject the hypothesis that diversifying firms are in low q industries. I find support for the alternative hypothesis that diversifying firms are in industries with higher q's than other industries in the year in which they diversify. Thus it is unlikely that firms are in industries with exhausted growth opportunities. Instead, it is likely that they are less successful than other firms in their industry and choose to look for opportunities elsewhere.

Panel A. Sample information	
Initial Sample	300
Firms eliminated without financial information on the Compustat Industrial tapes	(38)
Firms eliminated without annual reports or 10Ks on Lexis/Nexis.	(19)
Firms which are eliminated because the segment change reported does not agree with the firm's annual reports or 10Ks.	(13)
ADRs with Compustat eliminated	(3)
Observations used in analysis (4 firms change to more than one segment twice)	227
Panel B. Classification of reason for increase in diversification.	
Acquisition	150
Internal Growth	23
Reporting Change	38
Reporting Change 2 yrs after Compustat change (firms give segment info. for prior 2 years though)	16

Table 2.1 Description of Sample The firms in the sample were investigated to determine the reason for the increase in segments from 1 to more than 1. The sample started with 300 firms screened to have assets over $100 million in 1992 dollars using the GDP price deflator. All firms switched from 1 segment to more than 1 segment according to the Compustat Segment tapes.

	Acquisition	Reporting	Internal Growth	Total
1978	4	7	1	12
1979	11	1	1	13
1980	10	7	2	19
1981	10	2	5	17
1982	8	3	0	11
1983	8	3	1	12
1984	17	3	4	24
1985	23	2	0	25
1986	17	4	2	23
1987	8	0	1	9
1988	14	11	1	26
1989	1	5	1	7
1990	9	3	4	16
1991	6	2	0	8
1992	4	1	0	5
Total	150	54	23	227

Table 2.2 Diversification by Year. Number of firms which change their segments from one to more than one by year for active and inactive firms on the Compustat segment tapes. The second, third, and fourth columns classify diversification according to whether the firm made and acquisition, reporting change, or internal growth. To be included firms must have more than $100 million in assets using 1992 dollars. The firm must also have segment information on Lexis (annual report or 10K) and financial information on the Compustat Industrial tapes.

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SIC	Industry	# Observations
A	Agriculture	2
B	Mining, Oil, & Gas	16
C	Construction	2
D	Manufacturing	93
E	Transportation	21
F	Wholesale Trade	12
G	Retail Trade	12
I	Services	17

Table 2.3. Observations by 1-digit SIC code. This table only includes firms in the sample which diversify through acquisition or internal growth. Sample size=173.

SIC	Industry	#	SIC	Industry	#
1	Agriculture	2	38	Measuring Instruments	10
10	Metals	1	39	Toys/Leisure	2
12	Coal	1	40	Railroads	3
13	Oil	14	45	Airlines	2
15	Construction	2	48	Telephone/Telecomm	16
20	Food & Beverage	8	50	Durable Goods	6
21	Tobacco	1	51	Food Wholesalers	6
22	Textile Products	5	53	Retail	3
23	Textile-Apparel Mfrs.	2	54	Retail-Food	3
24	Forest Products	1	56	Clothing, Shoes, Wigs	1
25	Home Furnishings	2	57	Home Furnishings	1
26	Paper & Forest Products	3	59	Retail-Drug & Specialty	4
27	Publishing	5	70	Hotels-Motels	2
28	Chemicals	8	72	Laundry, Cleaners, Mortuary, Health Clubs	1
29	Oil-Integrated	4	73	Computer Software	5
30	Tire & Rubber	3	75	Auto & Truck Repair	1
31	Shoes	1	76	Repair other than Auto and Truck	1
33	Steel/Copper/Aluminum	7	78	Entertainment	3
34	Building Materials	4	79	Gaming	2
35	Machinery	9	80	Health Care	1
36	Electrical Equipment/ Electronics	11	87	Architecture, Engineering, Accounting	1
37	Automobile	7			

Table 2.4. Observations by 2-digit SIC code. This table only includes firms in the sample which diversify through acquisition or internal growth. The first column shows the two digit SIC code, followed by its descrition and the number of observations in the sample for that industry. The fourth through sixth columns repeat columns one through three. Sample size=173.

SIC	#	SIC	#	SIC	#
10	2	310	1	451	2
104	1	331	3	481	11
122	1	332	2	483	2
131	12	333	2	484	2
138	2	342	1	489	1
153	1	345	1	501	2
154	1	346	1	504	2
201	1	349	1	505	1
205	1	352	1	509	1
208	6	353	1	512	1
211	1	354	2	514	3
221	2	356	2	517	1
222	1	357	3	519	1
225	1	361	2	531	2
227	1	363	4	533	1
232	1	364	1	541	3
233	1	366	1	566	1
242	1	367	2	570	1
251	1	369	1	594	1
252	1	371	2	596	3
262	2	372	1	701	2
267	1	373	2	720	1
271	1	375	1	735	1
273	2	376	1	736	1
278	2	381	3	737	3
281	2	382	3	751	1
282	1	384	2	760	1
283	2	385	1	781	3
284	2	386	1	794	1
286	1	395	1	799	1
291	4	396	1	806	1
308	3	401	3	874	1

Table 2.5. Observations by 3-digit SIC code. This table only includes firms in the sample which diversify through acquisition or internal growth. Sample size=173.

SIC	#	SIC	#	SIC	#	SIC	#
100	2	2834	2	3663	1	5051	1
1040	1	2842	1	3674	1	5090	1
1220	1	2844	1	3679	1	5122	1
1311	12	2860	1	3695	1	5140	2
1381	1	2911	4	3711	1	5141	1
1389	1	3081	1	3716	1	5172	1
1531	1	3089	2	3728	1	5190	1
1540	1	3100	1	3730	2	5311	2
2015	1	3312	3	3751	1	5331	1
2050	1	3320	2	3760	1	5411	1
2080	4	3330	1	3812	3	5412	2
2082	1	3334	1	3825	1	5661	1
2086	1	3420	1	3829	2	5700	1
2111	1	3452	1	3841	1	5940	1
2211	2	3460	1	3845	1	5960	1
2221	1	3490	1	3851	1	5961	2
2250	1	3523	1	3861	1	7011	2
2273	1	3537	1	3950	1	7200	1
2320	1	3540	1	3960	1	7359	1
2330	1	3541	1	4011	3	7363	1
2421	1	3560	1	4513	2	7370	1
2510	1	3564	1	4812	3	7372	2
2522	1	3571	1	4813	8	7510	1
2621	2	3572	1	4833	2	7600	1
2670	1	3577	1	4841	2	7812	3
2711	1	3612	1	4899	1	7948	1
.2731	2	3613	1	5010	1	7990	1
2780	2	3630	3	5013	1	8062	1
2810	2	3634	1	5045	1	8741	1
2821	1	3640	1	5047	1		

Table 2.6. Observations by 4-digit SIC code. This table only includes firms in the sample which diversify through acquisition or internal growth. Sample Size=173

	Mean	Median
Panel A. Full Sample		
Median q of Diversifying Firm's Industry	1.28	1.18
Median of median q for non-diversifying industries in Year of Diversification	1.14	1.15
Difference between Median Diversifying Industry q and Median q for that year (p-value in parenthesis)	.14 (.0001***)	.03 (.02**)
Panel B. This panel uses only one observation per industry.		
Median q of Diversifying Firm's Industry	1.22	1.12
Median of median q for for non-diversifying industries in Year of Diversification	1.13	1.12
Difference between Median Diversifying Industry q and Median q for that year (p-value in parenthesis)	.09 (.02**)	.00 (.76)
Panel C. This panel uses only one segment firms.		
Median q of Diversifying Firm's Industry	1.44	1.26
Median q for All Firms in Year of Diversification	1.19	1.23
Difference between Median Diversifying Industry q and Median q for that year (p-value in parenthesis)	.25 (.01***)	.03 (.33)

Table 2.7 Analysis of Median q for Industry of Diversifying Firm. This table takes the median q for the industry of the diversifying firm and compares it to the median q of the median industry for all industries which have firms which do not diversify in that year. Industries are determined by the company's primary 3 digit SIC code. The second column shows the mean of the medians and the third column shows the median of the medians.
p-values for the difference in mean and median tests are shown in parentheses. Sample size=173.

CHAPTER 3

WHY DO FIRMS DIVERSIFY?

In this chapter, I examine the performance of firms around the time they diversify. The typical firm in my sample diversifies by acquisition. With the exception of the 1980's, diversifying acquisitions are associated with zero or positive announcement returns (Morck, Shleifer and Vishny (1990). It is possible that the act of diversification is not associated with a drop in firm value. Therefore, it is important to examine firms before they diversify. I look at firm performance for the five years preceding and subsequent to firm diversification. I determine whether the discount in q value found by Lang and Stulz (1994) and Berger and Ofek (1995) exists before the firm actually diversifies. I look at announcement returns and monthly abnormal returns for the 18 months before and after the firm diversifies.

The main hypothesis I test is that firms diversify due to agency costs between managers and shareholders. Specifically I look at whether diversifying firms have lower managerial ownership than non-diversified firms. To test this hypothesis, I look at variables which are associated with agency problems. In particular, I look at managerial ownership and free cash. If managers have low ownership they do not bear all the costs of diversification but receive personal benefits (Jensen and Meckling (1976), Jensen (1986). Another agency reason to diversify comes from Amihud and Lev (1981). If

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managers have high inside ownership they may wish to diversify in order to provide personal portfolio diversification since much of their wealth is tied up in the firm.

Given the prior evidence (e.g. Lang and Stulz (1994), and Berger and Ofek (1995)) that diversification is associated with a discount in firm value, we would expect to find that monitored firms are less likely to diversify. If dividends are effective in disciplining managers, we might expect firms with low dividend payout ratios to be more likely to diversify

In addition to the agency hypothesis, I look at different measures of firm performance before and after firms diversify in order to determine whether diversification is irreversibly destroying value. I also look at announcement returns and monthly abnormal returns around the time in which firms diversify. I also look for additional reasons which would explain the diversification choice. Additionally we might expect firms with poor performance and low growth opportunities to be more likely to diversify.

3.1 Matching Sample of Specialized Firms

One of the things I am interested in finding out is how diversifying firms are valued and perform before and after diversification. To do this I form a matching portfolio of specialized firms. The portfolio is constructed by matching each diversified firm in the sample with a specialized firm for the year before the firm diversifies. At this point both the diversifying firm and matching sample are one-segment firms. The matching specialized firms are one-segment firms from the Compustat segment tapes which are not in the sample. Matches are made by selecting the specialized firm with the same 2-digit SIC code as the diversifying firm. If there are multiple specialized firms

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with the same 2-digit SIC code, the closest in asset size is chosen. If the matching firm's

assets are not within 50 to 150 percent of the sample firm's assets, a 1-digit SIC match is

made. If there are no 1-digit matches within 50 to 150 percent of the firm's assets, asset

size only is used for the match. For 1-digit SIC codes the classification explained in

Kahle and Walkling (1996) is used to avoid spurious matching. It is possible for firms in

the control sample to appear more than once. For example, Measurex is used as a match

for Kratos, Inc. in 1982 and Thermo Instrument Systems in 1990. There is no

requirement on how long the matching firm has to survive. If a firm has only one

segment for the year of the match it is eligible to be in the matching sample. Of the 173

firms, 158 are matched by 2-digit SIC code. An additional 13 are matched by 1 digit

SIC. The remaining 2 are matched by assets only.

Table 3.1 shows univariate statistics for the sample of firms which diversify

through acquisition and internal growth. The matching sample portfolio of specialized

firms which do not diversify is also shown. The statistics shown are for the year before

the firm diversifies. This is a point in time where both the sample and control are one

segment firms. The following variables are examined:

Asset Size: This is measured as total assets and also as the natural logarithm of total

assets. The natural logarithm of total assets is used in most of the remaining analysis.

Berger and Ofek (1996) find that small firms are more likely to focus. I use assets

primarily as a control variable. The mean asset size for the diversifying sample is slightly

smaller than the asset size for the matching portfolio but not statistically different. The

median size of the diversifying firms is slightly smaller than the non-diversifying

portfolio.

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q: This proxies for a firm's value and also growth opportunities. The following proxy from Smith and Watts (1992) is used:[14]

$$Approximate\ q = (MVE + TA - EQ)/TA \qquad (1)$$

where MVE is the product of a firm's share price and number of common shares, TA is the total assets of the firm and EQ is the book equity of the firm. Before the firm diversifies it already has a lower median q than specialized firms. The mean q's are not statistically different.

Debt/Assets: This is used to test the hypothesis that monitored firms are less likely to diversify. Debt can serve as a monitoring device and Berger and Ofek (1996) find that firms with higher debt are more likely to focus. It is also possible that firms with high debt are in financial distress. In this case, stockholders may have an incentive to take risky negative NPV projects because shareholders may be unlikely to receive payoffs anyway. I find that diversifying firms have slightly higher median debt to asset ratios. However, the mean ratios are not statistically different.

Earnings/Assets and *Cash Flow/Assets:* These variables are used to measure a firm's operating performance. Earnings/Assets is measured as earnings divided by total assets. Cash Flow/Assets is measured as cash flow from operations divided by total assets. The mean earnings/assets ratio for the diversifiers is not statistically different. However, the median earnings/asset ratio is lower for the diversifying firms than the matching

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[14] This proxy is used in other studies like Shin and Stulz (1996). Chung and Pruitt (1994) use a similar measure of approximate q and find that at least 96.6% of the variability in Lindenberg and Ross'(1981) q are explained by the approximate q.

portfolio. The mean cash flow measure is lower for the diversifiers, while the median cash flow measures are not statistically different.

Cash and Investments/Assets - I use cash and investments divided by assets to proxy for resources the firm has available to diversify. A firm can have low but positive cash flow but not be reinvesting in current activities, engaging in research and development or paying it out to shareholders. I use this as a proxy for Jensen's (1986,1989) free cash. I find that diversifying firms have significantly more cash and investments/assets than specialized firms for both mean and median measures.

R&D/Assets - Research and development divided by assets is a proxy for growth opportunities. It is also used as a control variable as in Lang and Stulz (1994). I find that diversifiers have significantly lower mean research and development over assets than specialized firms. The median measure for both groups is very small.

Insider Ownership: Insider ownership is collected from Value Line. If Value Line does not cover the firm I examine proxy statements. Inside ownership is available for 167 of the diversifying firms and 156 of the matching sample. I find that diversifiers have significantly higher mean insider ownership than specialized firms. However, the median inside ownership levels are not statistically different for the diversifiers and matching portfolio. Inside ownership is used to test the hypothesis that firms with higher agency costs are more likely to diversify. Looking at the univariate statistics, we find no evidence that managerial ownership is significantly lower for diversified than specialized firms. In fact, the mean level of inside ownership is statistically greater for the diversifying firms.

Block: Block ownerhip is collected from Value Line and proxy statements as well. In much of the analysis later in the paper, block ownership is treated as a dummy variable. It is equal to one if Value Line or the proxy statement lists any large block holders that aren't managers or directors. It is possible that one blockholder could have a lot of influence on firm decisions. All the analysis was also done with Block holdership as a levels variable and the results are similar. I find that block holdership is not statistically different for diversifiers and specialized firms.

Age of Firm - For age of the firm I use the number of years the firm has been listed on the CRSP tapes. Young firms may be controlled by the founders and be less likely to diversify into new areas outside the original owners area of expertise. I do not find any statistical differences in age between diversifiers and non-diversifiers. In much of the analysis the natural log of age is used to be consistent with Denis, Denis, and Sarin (1986). The results are similar with either specification.

Payout Ratio - The agency hypothesis predicts that if firms are less likely to pay out earnings in the form of dividends they might use the cash to make inefficient decisions such as diversifying. We can test whether payout ratios can effectively constrain managers from engaging in diversification. For payout ratio I use dividends for the three years prior divided by earnings over the three-year period. Three years are used to avoid large observations which could come from firms which have temporary one year low earnings. I find that diversifiers have payout ratios which are not statistically different from the matching portfolio of non-diversifiers.

Sales Growth – Sales growth is a four-year average of sales increases (decreases) before the firm diversifies. It is used to determine whether diversifying firms are low-growth

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firms. I find that diversifiers have lower median sales growth than non-diversifiers. However, the means are not statistically different.

To summarize Table 3.1 and how diversifiers are different than specialized firms, I find that diversifiers have lower q's, weaker operating performance, lower research and development, more debt, less sales growth and more cash on hand.[15] In comparison, in Berger and Ofek's (1996) study focusing firms have smaller ROA, less total assets, and more leverage.

3.2 Does the diversification discount exist before firms diversify?

We have some evidence that the diversification discount exists before the firm diversifies both from the results in table 3.1 and from Lang and Stulz (1994). Many studies suggest that the existence of a diversification discount implies that diversification causes the discount. It is possible that the discount already exists before firms ever diversify. Finding that the diversification discount exists the year before the firm diversifies could mean that the market expected the firm to do something harmful, like diversify, and already discounted the firm due to this possibility. For this reason I look up to five years before and after firms diversify to get an idea about what diversification does to firm value.

Table 3.2 presents q values for five years before a firm diversifies and the matching control portfolio of firms which do not diversify over the period. I focus on

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[15] Ferris and Sarin (1996) find that diversified firms have lower analyst coverage than specialized firms.

median q because q does not appear to be normally distributed.[16] The median q value is lower for the four years before the firm diversifies and also for four of the five years after the firm diversifies. The differences are not statistically significant for most years. In the year before the firms diversify the median q value for the diversifying firms is lower than the matching portfolio by the largest amount. This indicates that the diversification discount exists before the firm ever diversifies. Some observations are lost as firms are listed and delisted from the Compustat tapes which may be part of the loss in statistical significance as we move away from the year of diversification. Using the results in Table 3.2, it would be very difficult to say that diversification caused the discount in firm value, as measured by q, to become any greater. While it is possible that the market anticipated the firm's decision to diversify, the results in Table 3.2 imply that the market anticipated the event by four or five years.

One of the problems in comparing the q of firms before diversification with after diversification is that when the firm makes an acquistion, it usually uses purchase accounting to record the transaction.[17] In purchase accounting, the firm records the book value of assets to be the same value the firm paid for the assets. This is effectively adding the same number to both the numerator and denominator. In my sample the mean and median q of diversifying firms is greater than 1. Of the 173 firms in the sample, 117 have q values greater than 1. With purchase accounting we add the same number to both

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[16] The results for the mean q value in table 3.2 show that the diversifying firms have lower q's than the specialized portfolio for the two years before diversifying, but the result is not significant until the year of diversification. The mean q for the diversifying firms is larger than the specialized firms for years three, four, and five before diversification as well as years two and three after diversification. However, these results are not statistically significant.

[17] In my sample only four firms use pooling of interests to record acquistions.

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the numerator and denominator. Consider the following example:

Numerator = 2

Denominator = 1

Q=2/1 = 2

In purchase accounting for acquisitions, the same number is added to the numerator and denominator since the acquired asset is marked to market. In this example the acquisition is equal to:

X=1

So the new *q* value is equal to:

(2 + 1)/(1+1) = 3/2.

This effectively lowers the q value in the year the firm diversifies. For this reason, my analysis is biased against finding firms having q's which are lower before the firm diversifies than after. However, I find evidence that firms have lower q's than specialized firms before they diversify as well as after.

Another bias in q is that often when firms make acquisitions they use risky debt. After diversification q is overstated if risky debt is issued and the firm already has debt outstanding. We would expect a drop in q after firms diversify. However I do not find evidence of this in table 3.2 or in evidence that will be shown later in the paper.

In addition to Tobin's q we are interested in other measures of firm performance to determine diversification's effect on firm value. Table 3.3 compares the diversifying firms' earnings/assets ratios for the five years before and after diversification. Diversifying firms have lower earnings ratios after diversification. However, they also have statistically lower earnings ratios two years before diversifying. This is indicative

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that diversification does not cause poor performance. It is possible that due to agency costs diversifying firms are not being managed very well before they diversify. The performance does not appear to drop further after diversification.

Table 3.4 examines diversifying firms' sales growth with the non-diversified matching sample before and after the firm diversifies. Diversifying firms have lower median sales growth for the four years before diversifying and a lower four year average of sales growth. The year of diversification and year after diversification are not very meaningful numbers because these numbers include sales from new operations and acquisitions.

Another measure we are interested in is cash flow. Cash flow divided by assets should give a measure of the economic performance of the firm. Table 3.5 shows cash flow divided by assets for the diversifying sample and matched portfolio of specialized firms. The year before firms diversify they begin to have lower mean cash flow than their specialized counterparts. The median cash flow measures are not significantly different except for the fourth year prior to diversifying. The cash flow results are consistent with the notion that diversifying firms have poor performance and try to diversify to escape poor performance. However, it is not consistent with the hypothesis that diversification causes an irreversible loss in firm value because it happens before the firm ever diversified.

3.3 Robustness checks of diversification discount

When Lang and Stulz (1994) test the robustness of the diversification discount they control for size, research and development and whether the firm pays dividends.

These variables have been shown to affect q in previous research. Lang and Stulz test the following regression equation:

$$q_i = \alpha + \beta_1 \ln(Assets)_i + \beta_2 DIV_i + \beta_3 R \& D / Assets_i + \beta_4 DIVER + \varepsilon_i$$

where q is as described above for firm i. Ln (Assets) is the natural log of the firm's total assets in year t. DIV is a dummy variable equal to one if the firm pays dividends. R&D/Assets is research and development divided by the firm's total assets. DIVER is a dummy variable equal to one if the firm is diversified. DIVER is the variable of interest because it tests for the diversification discount. Lang and Stulz (1994) find that the DIVER coefficient is statistically negative implying that diversification is associated with a discount in firm value.

I test the Lang/Stulz equation in a pooled cross-sectional regression. The asset, research and development, and dividend dummy variables for the year of diversification and five years before and after diversification are pooled into one regression to explain q over these periods. The pooled cross-section regression (without coefficients) is:

q = Intercept + ln(Asset) + Dividend Dummy + R&D/Assets + Diversification Dummy +

$T_{-5} + T_{-4} + T_{-3} + T_{-2} + T_{-1} + T_1 + T_2 + T_3 + T_4 + T_5 + T_{-5} * ln(Assets) + T_{-4} * ln(Assets) +$

$T_{-3} * ln(Assets) + T_{-2} * ln(Assets) + T_{-1} * ln(Assets) + T_1 * ln(Assets) + T_2 * ln(Assets) +$

$T_3 * ln(Assets) + T_4 * ln(Assets) + T_5 * ln(Assets) + T_{-5} * Dividend \, Dummy +$

$T_{-4} * Dividend \, Dummy + T_{-3} * Dividend \, Dummy + T_{-2} * Dividend \, Dummy +$

$T_{-1} * Dividend \, Dummy + T_1 * Dividend \, Dummy + T_2 * Dividend \, Dummy +$

$T_3 * Dividend \, Dummy + T_4 * Dividend \, Dummy + T_5 * Dividend \, Dummy +$

$T_{-5} * R\&D/Assets + T_{-4} * R\&D/Assets + T_{-3} * R\&D/Assets + T_{-2} * R\&D/Assets +$

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T_{-1} * R&D/Assets + T_1 * R&D/Assets + T_2 * R&D/Assets + T_3 * R&D/Assets +

T_4 * R&D/Assets + T_5 * R&D/Assets + T_{-5} * DIVER + T_{-4} * DIVER + T_{-3} * DIVER +

T_{-2} * DIVER + T_{-1} * DIVER + T_1 * DIVER + T_2 * DIVER + T_3 * DIVER + T_4 * DIVER +

T_5 * DIVER

Where *DIVER* is a dummy variable which is equal to 1 if the firm diversifies in period

zero and zero otherwise. It is always equal to one for the diversifying firms and always

equal to zero for the matching control portfolio. $T_{+/- n}$ are dummy variables which are

equal to one if the observation is from +/- n years removed from the diversification and

zero otherwise. The results are shown in table 3.6.

The coefficient on DIVER is negative and marginally significant which is

consistent with the results of Lang and Stulz. However, when the diversification dummy

is interacted with the time dummy variables none of the observations are significantly

different from zero. These interaction variables are the variables of interest which we can

use to test whether the diversification discount exists before the firm ever diversifies. To

test this, I add the coefficients before diversification and add the coefficients after

diversification and test whether they are different. These results are shown in panel B.

The sum of the coefficients for the five years after diversification are not statistically

different from the coefficients for the five years before diversification. In addition, when

we look at the individual years, the coefficient for the year after diversification is not

statistically different from the year before diversification. In fact, none of the five years

before diversification have coefficients which are statistically different from the

coefficients for the five years after diversification.

This table does present some puzzling results. The time dummy, asset, and R&D variables have more explanatory power for q for the five years before diversification than for after diversification. This seems unusual.

To summarize the results in table 3.6, we are not able to find evidence in support of the hypothesis that diversification causes a reduction in the firm's q value. If diversification was causing irreversible damage to firm value we would expect the interaction coefficients for the DIVER dummy variable and time variable after diversification to be negative and lower than the coefficients before diversification.

Another way to test whether the diversification discount becomes worse after the firm diversifies is to estimate a seemingly unrelated regression. In table 3.7, I use a system of seemingly unrelated regressions (SUR) to test the following system:

$$q_{t-5i} = \beta_{11} + \beta_{21} \ln(assets)_{it-5} + \beta_{31} Dividend Dummy_{it-5} + \beta_{41} R \& D / Assets_{it-5} + \beta_{51} Diver_{it} + \varepsilon_{1i}$$

$$q_{t-4i} = \beta_{12} + \beta_{22} \ln(assets)_{it-4} + \beta_{32} Dividend Dummy_{it-4} + \beta_{42} R \& D / Assets_{it-4} + \beta_{52} Diver_{it} + \varepsilon_{2i}$$

.

.

$$q_{t+5i} = \beta_{111} + \beta_{211} \ln(assets)_{it+5} + \beta_{311} Dividend Dummy_{it+5} + \beta_{411} R \& D / Assets_{it+5} + \beta_{511} Diver_{it} + \varepsilon_{11i}$$

It is likely that the errors from the equations will be correlated. One drawback to this method is that observations have to be available for all 11 years of the estimation period to be tested in the SUR system. This creates a survival bias and leaves 160 observations. However, the bias exists for both the diversifying firms as well as the matching portfolio of non-diversifying firms. The SUR system also allows me to make restrictions to test whether the coefficient on diversification becomes worse after the firm diversifies. For example, to test whether the diversification discount is worse after the firm diversifies I

test the restriction:

$$\beta_{51} + \beta_{52} + \beta_{53} + \beta_{54} + \beta_{55} = \beta_{57} + \beta_{58} + \beta_{59} + \beta_{510} + \beta_{511}.$$

In table 3.7, I find that the discount in q is not different after the firm diversifies as measured by this relation. In addition, all other tests for changes in the diversification coefficient are not significantly different from zero.

The results of table 3.7 further emphasize the result that diversification does not appear to cause an irreversible loss at the time of diversification. Of course the market could have expected the firm to diversify and already discounted the firm.

3.4 Berger/Ofek Methodology

As a further test of whether firms trade at a discount before they diversify, I use the methodology of Berger and Ofek (1995). Berger and Ofek determine a firm's "excess value" by imputing values for each of the firms divisions as if they were stand-alone firms. The divisions are then summed and compared to the firm's actual value. If the actual firm value is greater (less) than the imputed value then the firm has a positive (negative) "excess value". Three excess value measures are determined for each firm. The segment excess value is determined by its assets, sales or EBIT multiplied by the median ratio of capital to that accounting item for its industry. If 5 or more firms with $20 million in sales are available in the firm's 4-digit SIC code, that is the industry classification used. If there are not 5 or more firms in the 4-digit SIC, 3-digit SIC codes are used and 2-digit SIC codes are used if there are not enough firms in the 3-digit classification. I screen the same outliers as Berger and Ofek.

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The excess value measures using the Berger and Ofek methodogy are presented in table 3.8. Berger and Ofek find that diversified firms have negative mean and median excess values for all three measures. In table 3.8 the years t through t+5 represent diversified firms. My results do not appear to agree with the Berger and Ofek results. There could be several reasons for this. Berger and Ofek look at firms which have been diversified for a long period of time as well as recently diversified firms while I only look at recently diversified firms. In addition Berger and Ofek's sample period covers 1986-1991 while my sample covers 1978-1992.[18] In panel B, I test whether the Berger/Ofek multipliers are different after diversification than for the same year before diversification. Of the 30 tests, only the fifth year after diversification appears to be lower than the fifth year before diversification for the asset multplier. The rest of the differences are not statistically different from zero. This indicates that diversification does not appear to be destroying value.

Denis, Denis, and Sarin (1996) also use the methodology of Berger and Ofek (1995). In footnote 8, Denis, Denis, and Sarin report that they found the Berger and Ofek methodology to be sensitive to the method of calculating excess values. In table 3.9, I report Berger and Ofek excess values using mean multipliers for each industry rather than medians. In table 3.9, I find evidence consistent with Berger and Ofek for diversified firms. Using the asset multiplier, diversifiers have negative excess values in the year of diversification and the five years following diversification. Using the Sales multiplier, diversified firms have negative excess values in years two and three after diversification.

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[18] I did the analysis with the 1986-1991 Berger and Ofek subsample and found similar results.

If we focus on the asset multiplier in table 3.9, which gives results most consistent with Berger and Ofek (1995), we also find evidence that diversifying firms have marginally negative excess values before they ever diversify. The median excess value using the asset multplier is negative and significant in each of the three years before the firm diversifies. The mean multiplier values are also negative but not statistically significant. Years four and five before the firm diversifies have negative mean and median excess values but are

not statistically significant. These years have missing observations which might cause the statistical significance to be less strong. In panel B, I test whether the multipliers are different before diversification than after diversification. Of the 30 tests, only the fifth year asset multiplier is statistically lower than the fifth year before diversification using both mean and median differences.

Using the Berger and Ofek (1995) methodology gives mixed results. The results of table 3.8 show that diversifying firms trade at a premium before and after they diversify which is counter to what Berger and Ofek find. Table 3.9 gives results which are more consistent with Berger and Ofek. Diversifying firms trade at a discount after they diversify as well as before. However, using either table it is apparent that diversification does not appear to be causing large drops in firm multipliers. In the 60 statistical difference tests for multiples before and after diversification, only 5 of the tests indicate the multiple is lower after diversification than it was before. This is inconsistent with the hypothesis that diversification is an action which destroys firm value.

3.5 Chop-Shop q Approach

In this section I calculate a firm's chop-shop q to look at the diversification discount before and after the firm actually diversifies. Chop-shop q's are calculated using the methodology of Lang and Stulz (1994). A diversified firm is treated as a portfolio of specialized firms. Each segment of a firm is assigned the mean q of the specialized firms in its 3-digit SIC with sales over $20 million. If there are less than five specialized firms in the 3-digit SIC, 2-digit SIC's are used. The q of each segment is weighted by its contribution to the firm's total assets. The segments are then summed and weighted by the firm's total assets.

Table 3.10 shows the results of the chop-shop q approach. The chop-shop q is subtracted from the firm's actual q to get a measure of the premium (or discount) that the firm trades at. The results of table 3.10 do not provide evidence that diversification is associated with a destruction in firm value. In the years after diversification, these firms have a discount in firm value which is consistent with prior studies (Lang and Stulz (1994). However, it also appears that these firms have a diversification discount before they ever diversify. In panel B, statistical tests are shown for the difference in the diversification discount for before diversification and after. For the pairings +1/-1, +2/-2, +4/-4, and +5/-5, the diversification discount is lower after diversification than before. However, none of these differences are statistically different from zero.

Table 3.11 uses the chop-shop approach but assigns the median q of the specialized firm in each of a firm's segments. Most of the years before and after show positive numbers (diversification premium) for both the mean and median. Some of these premiums are significant as well. In panel B, I show tests for the difference in

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premium or discount from before to after diversification. None of the differences are statistically different from zero.

To summarize, tables 3.8 – 3.11 test for differences in the diversification discount for before firms diversify and after they diversify. Only 5 out of 80 statistical tests show that the diversification discount is greater after diversification than before. Either diversification does not cause a drop in firm value as measured by these measures, or the market discounts the possibility of diversification well before firms ever diversify.

3.6 Returns to shareholders

So far we have looked at various accounting measures to determine if diversification is associated with an irreversible destruction in firm value. In this section we look at the actual returns to shareholders around the time firms diversify. In section 3.6.1 I look at the abnormal returns right around the period firms announce their decision to diversify. In section 3.6.2, I look at monthly returns for the three year period around diversification to see if there are long-run abnormal returns associated with diversification.

3.6.1 Announcement Returns

Announcement dates are collected from Lexis/Nexis by searching the Wall Street Journal, IDDMA, M&ANWS AND ALLNEWS. The earliest date for stories about when the firm announced its diversification plans is used to determine the announcement date. The dates were also investigated for confounding announcements. Of the firms which diversify through acquisition and internal growth 125 have announcement dates which

can be determined and have returns on CRSP. Five of these had confounding announcements and are eliminated from the analysis. However, the results are robust to their inclusion.

Market adjusted and market model returns are estimated as in Brown and Warner (1985). The estimation period for the market model returns is 150 to 30 days before the announcement date. A two day window is used for the announcement return for the day before and day of the announcement (-1,0). Other periods were estimated with similar results. Table 3.12 shows the abnormal announcement returns. In panel A, both the mean for the market adjusted returns and market model returns are positive and significant. The medians are insignificantly different from zero. If the two largest returns (.25 and .32) are eliminated from the analysis the means are still positive, but no longer statistically significant. These results suggest that diversification is not associated with a large irreversible destruction of firm value at the time the firm diversifies.

These results do not agree with the results of Morck, Shleifer and Vishny (1990) (MSV) who find a negative announcement return for unrelated acquisitions over the period 1980-1987.[19] In panel B, I split the sample into three sub-periods and find out the difference between my results and the MSV results are not due to the time periods selected. However, there are several reasons my results are different. In my study, firms start out undiversified and become diversified. The MSV study includes firms which are already diversified and become more diversified, in addition to undiversified firms. It is possible that the choice to diversify is a change in strategy while diversified firms which

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[19] Matsusaka (1993) finds a positive announcement return for diversifying acquisitions in the 1960's and attributes the MSV results to be a reversal in investor sentiment.

increase their level of diversification are implementing a strategy that was chosen earlier. My study includes acquisitions of publicly traded companies as well as private companies, firms which grow internally and acquisitions of divisions of other companies. The MSV study only includes acquisitions of publicly traded companies. Publicly traded companies are likely to be bigger and may have more of an impact on firm value.

3.6.2 Monthly abnormal returns around diversification.

In addition to short run returns, we are also interested in the longer run impact of diversification on shareholders. Comment and Jarrell (1995) show buy and hold returns for diversifying firms for the 18 months before the fiscal year end until 6 months after the fiscal year end in which the firm diversifies. They find a pattern of decreasing buy and hold returns over this period.

I create buy and hold returns for the diversifying firms in my sample using the methodology of Roll (1983). Abnormal returns are the monthly return minus the equally weighted CRSP return for that month. Equally weighted CRSP is used as a benchmark, since firms in my sample are smaller than the typical CRSP firm. Figure 3.1 shows the buy and hold returns for the 18 months before the fiscal year end the firm diversifies until 18 months after the fiscal year end. The buy and hold returns appear to be negative until 6 months after diversification and then recover, which would be consistent with the pattern found by Comment and Jarrell (1995). However, none of the buy and hold returns shown in the figure are statistically different from zero.

Firms leave the sample and enter the sample due to acquistions and being listed or delisted from the tapes. Figure 3.2 shows the same buy and hold monthly returns as

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Figure 3.1 for only the firms which have 37 continuous months of returns around the fiscal year in which firms diversify. The pattern of Figure 3.2 is similar to Figure 3.1. None of the buy and hold returns are statistically different from zero. There are 113 firms with returns available for some 37 months and 96 firms with returns available for all 37 months.

Comment and Jarrell (1995) use fiscal year end to create their buy and hold returns because they have a large sample and do not have announcement dates. In this study, I have precise announcement dates and am able to use the month the diversification is announced. Figure 3.3 shows the monthly buy and hold returns for the diversifying sample using the month the firm announced its decision to diversify. The cumulative returns are positive up until the month of diversification and then drop below zero before recovering. However, none of the buy and hold returns are statistically different from zero.

Figure 3.4 shows the monthly buy and hold returns for the diversifying sample with all 37 months of returns available around the announcement of the firm's diversification. The pattern is similar but none of the cumulative returns are statistically different from zero. There are 113 firms with returns available for some 37 months and 96 firms with returns available for all 37 months.

3.6.3 Summary of Returns to Shareholders

Using announcement returns and monthly returns we do not find evidence that diversification is causing large drops in shareholder value. The announcement two-day returns are positive or at least non-negative if positive outliers are removed. The

cumulative abnormal monthly returns for the 37 months around the month of diversification are not statistically different from zero. I interpret this as evidence that diversification is not associated with an irreversible destruction of firm value at the time it occurs. However, it is possible that these firms have high agency costs and diversification is not unexpected by shareholders.

3.7 Testing the Agency Hypothesis

In this section I test whether diversification is caused by agency problems (Denis, Denis, and Sarin (1996)). I use probit regressions to test what types of firms are more likely to diversify based on ex ante variables. The agency cost hypothesis also predicts negative coefficients for management ownership and monitoring. If managers bear more of the cost of diversification due to higher ownership, they will be less likely to diversify. Another agency problem could occur at higher levels of managerial ownership. Managers have a significant portion of their wealth tied up in the firm and might wish to diversify for personal portfolio diversification even if it hurt the value of the firm's stock (Amihud and Lev (1981)). If the Amihud and Lev hypothesis is true we would expect a non-linear relationship between diversification and managerial ownership. Firms would be more likely to diversify at low levels of managerial ownership and also at high levels of managerial ownership. I use inside ownership from Value Line as a proxy for managerial ownership. If the firm is not covered by Value Line, I use proxy statements.

Another indicator of agency problems is free cash (Jensen (1986, 1989)). In order to diversify, firms need resources to make the transaction happen. They can issue stock or use cash to make acquisitions or acquire assets from other firms. Firms with free cash

would be more likely to diversify so we would expect a positive coefficient for this proxy. I use cash and investments/assets to proxy for free cash.

Firms which do not pay out earnings to their shareholders are more likely to have agency problems. We can test whether a high payout ratio is an effective disciplining mechanism to keep firms from diversifying. We would expect a negative coefficient on the dividend payout ratio for the agency hypothesis. I use a 3 year dividend payout ratio to dampen the effects of small earnings in any one year.

Managers of well monitored firms are less likely to make inefficient decisions. If diversification is an inefficient decision, then well monitored firms will be less likely to diversify. In the case of diversification we can test whether monitored firms are less likely to diversify. We would expect a negative coefficient for monitoring proxies if monitoring is an effective deterrent to diversification. I use debt/assets and block ownership as proxies for monitoring.

In addition to the agency predictions above, it is necessary to control for other variables. I use the industry and size matched control portfolio discussed previously to control for industry variations in diversification. I control for size of the firms by using the natural log of assets. Firms with good growth opportunities and operating performance might not need to diversify to grow the firm. For proxies of growth opportunities I use q and research and development divided by assets.

3.7.1 Probit results

A probit model is estimated using the variables discussed above. Table 3.13 shows Pearson correlation coefficients for the variables of interest in the analysis. The

following probit model is estimated

$$Diver_{it} = \alpha_i + \beta_1 Ln(Assets)_{t-1} + \beta_2 q + \beta_3 Industryq_{t-1} + \beta_4 Debt / Assets_{t-1} + \beta_5 CashFlow / Assets_{t-1} +$$
$$\beta_6 Earnings / Assets_{t-1} + \beta_7 Cash\& Invest / Assets_{t-1} + \beta_8 DivPayout_{t-1} + \beta_9 R\& D / Assets_{t-1} +$$
$$\beta_{10} InsideOwnership_{t-} + \beta_{11} BlockOwnership_{t-1} + \beta_{12} Age_{t-1} + \varepsilon_i$$

where Diver is a variable equal to one if the firm diversifies and zero otherwise. The

other variables are as defined above. The results are shown in Table 3.14 model 1. The

model was also estimated with inside ownership as a squared term and presented as

model 2. The sample of firms which diversify through acquisition and internal growth

are used in the analysis along with an industry and size matched control portfolio of one

segment firms which do not diversify during the period.

In the estimations, the coefficient on inside ownership as a linear variable is not

statistically significant. Denis, Denis, and Sarin (1996) find a negative relation between

levels of diversification and inside ownership. My study looks at the relation at the time

when the firm diversifies. Denis, Denis and Sarin have a sample of larger firms because

they require firms to be covered by Value Line. In model 2, with a squared term for

inside ownership, I find that inside ownership is still not statistically significant. This

does not provide support for the hypothesis that there are agency problems associated

with the firm's choice to diversify. The specification with the squared term does not

provide support for the Amihud and Lev (1981) agency notion that at higher levels of

ownership, managers have a greater need for personal portfolio diversification because a

significant portion of their income is tied up in the firm.

Although I do not find managerial ownership to be related to the firm's choice to

diversify, I do find that the coefficient on cash and investments is significant and

consistent with the agency hypothesis. Managers with available cash can use it to diversify. The coefficient on cash and investments is positive and statistically significant. While this may be evidence of agency problems as discussed by Jensen (1986, 1989) it is also possible that firms are building their cash balances in order to make acquisitions.

If there are agency problems between managers and shareholders, we would expect firms which do not payout excess cash to shareholders to have higher agency problems. I use a three-year dividend payout ratio as a proxy for the firm's likeliness to payout excess cash. If high payout ratios keep firms from using excess cash to diversify, we would expect the sign on the payout coefficient to be negative. In models 1 and 2, it is positive but not statistically significant. This is indicative that higher payout ratios do not prevent firms from diversifying.

If monitoring is effective and diversification is harmful to shareholder value, we would expect monitored firms to be less likely to diversify. I use debt/assets and block ownership as proxies for monitoring. The coefficient on debt/assets has the incorrect sign for us to interpret the results in this manner while the sign on block ownership is as predicted. However, neither coefficient is statistically significant. Therefore, I do not find evidence that monitoring is a significant deterrent to preventing diversification

In the estimations, size is negatively related to the firm's choice to diversify. Research and development, q, and cash flow are also negatively related to the firm's choice to diversify. However, only research and development and cash flow are statistically significant. These variables control for size and growth opportunities of the firm. We would expect firms with low growth opportunities to be more likely to diversify if managers value growth.

3.7.2 Probit Model with alternative specification

In table 3.14, I use inside ownership as a percentage level of firm ownership. However, in large firms, it is very difficult for a manager to own a large fraction of the firm's stock. It is possible for a manager to have a large amount of wealth tied up in the firm, even if it is a small percentage of the total outstanding shares in the company. In table 3.15, I estimate the same probit models discussed in the previous section with total dollars of inside ownership and total dollars of block ownership. The results are similar. Inside ownership as a linear variable is not statistically significant. With a squared term included neither the linear and squared term are statistically significant. Block ownership is still not statistically significant.

3.7.3 Summary of Agency Hypothesis

Diversifying firms have low growth opportunities and poor performance. They invest less in research and development than their specialized counterparts. However, the results from the models are not consistent with the agency hypothesis that diversifying firms have managerial ownership levels which are lower than non-diversifying firms. I find that diversifying firms have managerial ownership which is similar to a matching portfolio of non-diversifying firms. These results hold both as a linear relationship (Denis, Denis, and Sarin (1996)), and a non-linear relationship (Amihud and Lev (1981). However, I do find evidence that diversifying firms have more free cash than non-diversifiers which is consistent with the Jensen (1986, 1989) agency hypothesis. It is

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possible that diversifying firms have just built up their cash balance in order to make acquisitions.

Although I do not find evidence of the agency hypothesis using managerial ownership, it is possible that managerial ownership is not a very good indication of agency problems between managers and shareholders. I do not look at managerial compensation packages or financial institution monitoring. Loderer and Martin (1997) cite existing research and argue that the relationship between managerial ownership and firm performance is not very strong. They do not believe that managerial ownership is a very good measure of agency problems between managers and shareholders. It is possible that managers do not need to own stock to be residual claimants. If a firm is performing well, managers may receive more power, prestige and media attention than if the firm is performing poorly. These incentives might outweigh any incentives that come from higher stock ownership. It could also be the case that higher managerial ownership makes it easier for managers to consume perquisites. This might offset any incentives managers have to maximize share value (Loderer and Martin (1987)).

I do not find evidence consistent with the hypothesis that monitored firms are less likely to diversify than firms with lower levels of monitoring. I also do not find evidence that higher payout ratios are useful in keeping firms from diversifying.

3.8 Predicting Announcement Returns

One of the problems with looking at diversifying firms as a group is that it is possible that some firms are able to diversify more effectively than others. However, when we look at diversifiers as a group we only see the average effect. It would be

interesting to separate out the successful diversifiers from the unsuccessful. In this section I look at announcement returns to determine if it is possible to predict which types of firms will be able to diversify more effectively than others. This assumes that the market will be able to recognize the firms which will be more effective when they announce their decision to do so.

Firms with higher managerial ownership may only diversify if the opportunity is truly a good one. Firms with lower managerial ownership may take on value decreasing diversifications since the loss in firm value would not be felt heavily by managers with low ownership. Firms with low growth opportunities may diversify more successfully than other firms if they have excess rent yielding capacity but no current operations to employ the excess rents. Since their current activities do not use all of their capacity, diversification might be an efficient decision as viewed by shareholders. Firms with high levels of monitoring may diversify more efficiently because the monitoring keeps the firm from making bad decisions, thus allowing the firm to diversify only if it is an efficient decision.

I do not find a relationship between managerial ownership and firm propensity to diversify. Denis, Denis, and Sarin (1996) find that firms with low managerial ownership are more likely to remain diversified but high ownership is not associated with more valuable diversification. For the firms which actually diversify, it is possible that firms with high managerial ownership which diversify are making more efficient decisions for their shareholders but this would get lost when we look at averages. I try to determine whether managerial ownership has an effect on firm value at the time the firm actually diversifies. Table 3.16 shows the abnormal announcement return for diversifying firms at

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different levels of managerial ownership. These are the same levels examined by Morck,
Shleifer and Vishny (1988) who find a non-monotonic relationship between Tobin's q
and managerial ownership. Firms with managerial ownership greater than 25% have
significantly positive announcement returns while those below 25% have returns which
are not statistically different from zero. This is some support for the hypothesis that firms
with higher managerial ownership which diversify are making good decisions for their
shareholders.

To further test whether some firms diversify more efficiently than others, a linear
regression is used. This is shown in Table 3.17. The natural log of assets is used as a
control variable. Tobin's q, sales growth, and research and development divided by
assets are used as proxies for growth opportunities. Debt/Assets and a dummy variable
that is equal to one if the firm has block ownership are used to proxy for monitoring.
Insider ownership and block ownership are taken from Value Line and proxy statements.

Research and development and size are significant in the regression.[20] The
natural log of assets is significant in explaining announcement returns at the one percent
level. Firms with higher levels of research and development which diversify have higher
announcement returns. Perhaps they are able to exploit the advantages of their research
and development in new operations.

As a linear variable, insider ownership is not statistically significant in explaining
abnormal returns when the firm diversifies. Denis, Denis and Sarin find it insignificant in
explaining firm value for firms which are already diversified. Lewellen, Loderer, and

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[20] Several versions of the regression were estimated without certain variables. The results are robust to various
estimations.

Rosenfeld (1989) find that firms which have higher ownership and make diversifying acquisitions have higher abnormal stock returns.[21]   In regressions not shown, I used inside ownership as a quadratic variable. The coefficients on inside ownership and inside ownership squared are not statistically significant. Therefore, I interpret this as evidence that firms with higher managerial ownership do not diversify more efficiently than firms with low managerial ownership.

It may be possible to interpret the results of this section as evidence that diversification does not appear to be viewed as an inefficient decision by the market. Another possibility is that the market has already discounted firms which diversify. This may be the case if there are agency costst for diversifying firms. In addition I find some evidence that firms with higher managerial ownership are making more valuable decisions for their shareholders.

3.9 Are related diversifications more valuable?

In this section I examine whether related diversifications are valued more highly than non-related diversifications. Morck, Shleifer and Vishny (1990) find that unrelated acquisitions have significantly negative announcement returns while related acquisitions do not. Berger and Ofek (1995) find that diversified firms with related segments have smaller value losses than firms with unrelated segments. In these studies, to determine whether a business segment or addition is related, SIC codes are used. In this study, I examined annual reports and news stories for each firm in the sample. It was then

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[21] Morck, Shleifer and Vishny (1988) find a nonlinear relationship between firm value (as measured by Tobin's q) and managerial ownership also.

possible to make a decision about whether the diversification was related or unrelated. Diversifications were also classified as horizontal or vertical. Vertical diversifications are either inputs or outputs for the original firm's products. Horizontal diversifications are in the same type of business but not an input or output for the firm.

Table 3.18, model 1 regresses announcement returns on a dummy variable for whether the diversification was related or unrelated while controlling for size. If the diversification was related the dummy variable is equal to one. It is equal to zero otherwise. In the estimation the dummy variable is not statistically significant. In model 2, an additional dummy variable is included to indicate whether the related diversification was vertical or horizontal. If the diversification is vertical the dummy is equal to one and zero if horizontal. In model 2, neither the related dummy nor the vertical dummy is statistically significant.

In addition to announcement returns, I use q as a proxy for firm value. Table 3.19 shows the results of regressing q in the year of diversification on dummy variable for whether a diversification is related and unrelated and vertical or horizontal. As in table 3.18, the coefficients for related and vertical diversification are not statistically different from zero.

While other studies find that unrelated diversification is valued more negatively than related diversification, I do not find evidence of this with my sample. However, it is important to remember that in my sample all of the diversification events are significant enough to cause the firm to report additional industry segments. It is possible that if a diversification event is significant enough to be reported as a separate business segment, it is not really related.

3.10 Chapter Summary

In this chapter, I do not find evidence that diversifying firms have lower managerial ownership than non-diversifying firms at the time they diversify. This is inconsistent with the agency hypothesis and results of Denis, Denis, and Sarin (1996) and Amihud and Lev (1981). However, it is possible that looking at managerial ownership as an indication of agency problems is not a very good variable (Loderer and Martin (1997)). I do find evidence that diversifying firms have more free cash than non-diversifying firms. This is consistent with the Jensen (1986, 1989) agency hypothesis. However, it is also possible that diversifying firms are simply building cash in order to transact an acquisition. On average, monitoring does not seem to be effective in keeping firms from diversifying while firms with low levels of research and development are more likely to diversify.

Levels of inside ownership are not useful in predicting diversification. In addition, managerial ownership does not predict which diversifying firms will have higher announcement returns. Firms with higher research and development, lower cash flow, and smaller size are associated with higher abnormal announcement returns.

In this chapter, I find evidence that diversification is not associated with an irreversible destruction of value at the time the firm diversifies. I find evidence consistent with Lang and Stulz (1994) and Berger and Ofek (1995) that after firms diversify they trade at a discount and have operating performance that is not as good as specialized firms. However, I find that these diversifying firms trade at a discount before the firms diversify. There is little evidence that diversification causes the diversification

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discount to become worse. This is inconsistent with the hypothesis that diversification causes an irreversible destruction in firm value.

When firms announce their decision to diversify, they have non-negative announcement returns which is also inconsistent with the notion of diversification causing irreversible value destruction. Monthly abnormal returns for 18 months before and after diversification are not statistically different from zero.

Related diversification and horizontal diversification are not associated with more valuable diversification. However, this is likely due to sample selection. If a firm makes a diversification that is significant enough to be reported as a separate business segment, it is probably not very related.

Panel A. Sample of diversifying firms and control sample of all one segment firms.				
	Diversifying Sample Medians (Means)	Control (1 segment firms) Medians (Means)	Difference in Means (t-statistics in brackets)	Difference in Medians (Wilcoxon z-statistics in parentheses)
Assets	208 (969)	255 (1158)	-189 (.45)	-47 (-1.97*)
Ln(Assets)	5.34 (5.49)	5.54 (5.75)	-.26 (-1.82*)	-.20 (-1.97**)
Q	1.19 (1.52)	1.29 (1.63)	-.11 (-.43)	-.10 (-1.92*)
Debt/Assets	.14 (.19)	.11 (.16)	.03 (1.30)	.03 (1.89*)
Cash Flow/Assets	0.00 (.01)	.00 (.03)	-.02 (-1.82*)	.00 (1.37)
Cash & Investments/ Assets	.09 (.14)	.05 (.11)	.03 (2.19**)	.04 (2.56***)
Sales Growth	.11 (.19)	.14 (.22)	-.03 (-.36)	-.03 (-1.67*)
Earnings/Assets	.04 (.06)	.05 (.05)	.01 (.26)	-.01 (-3.01***)
Payout Ratio (Dividends/ Earnings)	.13 (.28)	.12 (.18)	.10 (.27)	.01 (.35)
R&D/Assets	0.00 (.01)	.00 (.02)	-.010 (-3.48***)	-.00 (-2.55***)

(Continued)

Table 3.1 Descriptive Statistics for Diversifying Firms and Matching Portfolio of One Segment Firms. The second column contains median descriptive statistics from the Compustat Industrial tapes about the sample of firms which change their number of segments from one to more than one. Statistics given are for the year before the change unless noted. The third column contains descriptive statistics for a control portfolio of one segment firms. Firms are matched in the year before diversification by 2-digit SIC code and asset size. If there is not a matching firm within 50-150% of the sample's asset size, the 1-digit SIC is used. If no 1-digit match is available within 50-150%, only asset size is used. 158 firms are matched by 2-digit SIC. 13 firms are matched by 1-digit SIC and 2 are matched by asset size only. The matching control is a portfolio which firms can leave due to survivorship. Means are in parentheses. Sales Growth is a four year average of sales growth before the firm diversifies. Payout ratio is 3 prior years of dividends divided by 3 prior years of earnings. There are 173 diversifying firms and 173 control firms.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.1 Continued				
Panel B. Inside ownership and block ownership are taken from Value Line. If the firm is not listed in Value Line, proxies were examined to determine the level of inside ownership and block ownership. There are 167 diversifying firms and 156 matching firms with inside ownership available.				
Block Ownership	0	.05	-.03	-.05
	(.12)	(.15)	(1.00)	(-1.30)
Inside Ownership	.13	.11	.05	-.02
	(.23)	(.18)	(1.65*)	(-.07)
Panel C. This is only for the subset of firms and a matching sample with returns data available on RSP. There are 140 diversifying firms available and 159 matching firms				
Age of Firm (#	11	12	.09	-1
()years on CRSP	(12.21)	(12.12)	(.10)	(.05)

	Diversifying sample Median (Mean) {sample size}	Control 1 segment firms Median (Mean) {sample size}	Difference in Means (t-statistics in parentheses)	Kruskall-Wallis Difference in Medians (Z-statistics in parentheses)
q (t-5)	1.12 (1.56) {120}	1.12 (1.47) {123}	.09 (.62)	.00 (.05)
q (t-4)	1.12 (1.61) {138}	1.20 (1.47) {137}	.14 (1.01)	-.08 (-.75)
q (t-3)	1.18 (1.55) {157}	1.23 (1.54) {151}	.01 (.11)	-.05 (-.56)
q (t-2)	1.21 (1.54) {165}	1.27 (1.55) {162}	-.01 (.04)	-.06 (-1.15)
q (t-1)	1.19 (1.58) {171}	1.29 (1.63) {172}	-.05 (.43)	-.10 (-1.92**)
q	1.16 (1.32) {173}	1.21 (1.49) {172}	-.17 (2.18**)	-.05 (-2.12**)
q (t+1)	1.20 (1.35) {169}	1.25 (1.54) {166}	-.19 (-1.71*)	-.05 (-1.09)
q (t+2)	1.22 (1.44) {161}	1.20 (1.44) {154}	.00 (.05)	.02 (.02)
q (t+3)	1.20 (1.71) {150}	1.21 (1.59) {145}	.12 (.59)	-.01 (-.83)
q (t+4)	1.22 (1.53) {134}	1.24 (1.79) {126}	-.26 (-1.22)	-.02 (-.89)
q (t+5)	1.31 (1.58) {119}	1.25 (1.73) {104}	-.15 (-.68)	.06 (.21)

Table 3.2 Differences in q. The second column contains descriptive statistics from the Compustat Industrial tapes for the sample of firms which change their number of segments from one to more than one. Statistics given are for the year before the change unless noted. The third column contains descriptive statistics for a control sample of one segment firms. Firms are matched in the year before diversification by 2-digit SIC code and asset size. If there is not a matching firm within 50-150% of the sample's asset size, the 1-digit SIC is used. If no 1-digit SIC match is available within 50-150%, only asset size is used. 158 firms are matched by 2-digit SIC. 13 firms are matched by 1-digit SIC and 2 are matched by asset size only. The matching control is a portfolio which firms can leave due to survivorship. Medians are in parentheses. Only firms which diversify through internal growth or acquisitions and their matches are used in this sample. q (t-5) is the 5th year before the change, q (t-4) is the 4th year before the change, q (t+1) is the year after the change, etc.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

	Diversifying sample Median (Mean) {sample size}	Control 1 segment firms Median (Mean) {sample size}	Difference in Means (t-statistics in brackets)	Kruskall-Wallis Difference in Medians (z-statistics in parentheses)
Earnings/Assets (t-5)	.06 (.01) {120}	.06 (.06) {123}	-.01 (-1.95*)	.00 (.83)
Earnings/Assets (t-4)	.07 (.07) {138}	.07 (.06) {137}	.01 (.41)	.00 (.11)
Earnings/Assets (t-3)	.05 (.07) {157}	.06 (.06) {151}	.01 (.45)	-.01 (-.68)
Earnings/Assets (t-2)	.06 (.05) {165}	.07 (.07) {162}	-.02 (-2.11**)	-.01 (-2.14**)
Earnings/Assets (t-1)	.05 (.06) {171}	.06 (.05) {172}	.01 (.29)	-.01 (-1.32)
Earnings/Assets (t)	.03 (.05) {173}	.05 (.05) {172}	.00 (.26)	-.02 (-3.00***)
Earnings/Assets (t+1)	.04 (.01) {169}	.04 (.04) {167}	-.03 (-2.44**)	-.00 (-1.71*)
Earnings/Assets (t+2)	.04 (.01) {165}	.04 (.03) {157}	-.02 (-1.93*)	-.00 (-1.29)
Earnings/Assets (t+3)	.03 (.01) {153}	.04 (.03) {146}	-.02 (-2.00**)	-.01 (-2.16**)
Earnings/Assets (t+4)	.03 (-.01) {134}	.04 (.03) {129}	-.04 (-2.82**)	-.01 (-2.29**)
Earnings/Assets (t+5)	.03 (-.03) {120}	.04 (.03) {107}	-.06 (-1.99**)	-.01 (-2.23**)

Table 3.3 Differences in Earnings/Assets. The second column contains descriptive statistics from the Compustat Industrial tapes for the sample of firms which change their number of segments from one to more than one. Statistics given are for the year before the change unless noted. The third column contains descriptive statistics for a control sample of one segment firms. Firms are matched in the year before diversification by 2-digit SIC code and asset size. If there is not a matching firm within 50-150% of the sample's asset size, the 1-digit SIC is used. If no 1-digit SIC match is available within 50-150%, only asset size is used. 158 firms are matched by 2-digit SIC. 13 firms are matched by 1-digit SIC and 2 are matched by asset size only. The matching control is a portfolio which firms can leave due to survivorship. Medians are in parentheses. Number of observations in brackets. Earnings/Assets (t-5) is the 5th year before the change, Earnings/Assets (t-4) is the 4th year before the change, Earnings/Assets (t+1) is the year after the change, etc.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

	Change sample Median (Mean) {sample size}	Control 1 segment firms Median (Mean) {sample size}	Difference in Means (t-statistics in brackets)	Kruskall-Wallis Difference in Medians (z-statistics in parentheses)
Sales Growth (4 yr average before diversifying)	.11 (.19) {115}	.14 (.22) {121}	-.03 (.36)	-.03 (-1.67*)
Sales Growth (t-4)	.10 (.16) {118}	.13 (.19) {123}	-.03 (.46)	-.03 (-2.34**)
Sales Growth (t-3)	.13 (.28) {136}	.14 (.15) {137}	.13 (1.39)	-.01 (-.21)
Sales Growth (t-2)	.10 (.20) {155}	.15 (.17) {149}	-.03 (-.41)	-.05 (-2.24**)
Sales Growth (t-1)	.11 (.23) {162}	.13 (.17) {161}	.06 (.74)	-.02 (-1.29)
Sales Growth (t)[+]	.37 (.77) {163}	.10 (.13) {172}	.54 (6.00***)	.27 (7.19***)
Sales Growth (t+1)[+]	.15 (.44) {167}	.09 (.09) {166}	.35 (4.88***)	.06 (4.55***)
Sales Growth (t+2)	.08 (.09) {163}	.08 (.05) {156}	.04 (.86)	.00 (.18)
Sales Growth (t+3)	.07 (.07) {149}	.08 (.05) {145}	.02 (.40)	-.01 (-.33)
Sales Growth (t+4)	.05 (.03) {133}	.05 (.01) {129}	.02 (.56)	.00 (.34)

Table 3.4 **Differences in Sales Growth**. The second column contains descriptive statistics from the Compustat Industrial tapes for the sample of firms which change their number of segments from one to more than one. Statistics given are for the year before the change unless noted. The third column contains descriptive statistics for a control sample of one segment firms. Firms are matched in the year before diversification by 2-digit SIC code and asset size. If there is not a matching firm within 50-150% of the sample's asset size, the 1-digit SIC is used. If no 1-digit SIC match is available within 50-150%, only asset size is used. 158 firms are matched by 2-digit SIC. 13 firms are matched by 1-digit SIC and 2 are matched by asset size only. The matching control is a portfolio which firms can leave due to survivorship. Medians are in parentheses. Sales Growth (t-4) is the 5th year before the change, Sales Growth (t-3) is the 4th year before the change, Sales Growth (t+1) is the year after the change, etc.
*,**,*** indicate statistical significance at the 10,5, and 1 percent levels.
+Includes businesses acquired

	Change sample Median (Mean) {sample size}	Control 1 segment firms Median (Mean) {sample size}	Difference in Means (t-statistics in brackets)	Kruskall-Wallis Difference in Medians (z-statistics in parentheses)
Cash Flow/ Assets (t-5)	0 (.0062) {118}	0 (.0014) {122}	.0048 (1.13)	0 (1.10)
Cash Flow/ Assets (t-4)	.0002 (.0118) {137}	0 (.0049) {136}	.0069 (1.38)	.0002 (2.22**)
Cash Flow/ Assets (t-3)	0 (.0140) {155}	0 (.0079) {149}	.0061 (1.34)	0 (-.55)
Cash Flow/ Assets (t-2)	0 (.0143) {161}	.0005 (.0185) {160}	-.0042 (-.54)	-.0005 (-.56)
Cash Flow / Assets (t-1)	0 (.0131) {167}	.0007 (.0255) {170}	-.0124 (-1.82*)	-.0007 (-1.37)
Cash Flow/ Assets (t)	.0013 (.0130) {172}	.0011 (.0268) {168}	-.0138 (-1.91*)	.0002 (-.01)
Cash Flow / Assets (t+1)	.0014 (.0210) {167}	.0044 (.0352) {162}	-.0142 (-1.83*)	-.0030 (-1.68)
Cash Flow/ Assets (t+2)	.0069 (.0299) {159}	.0094 (.0423) {152}	-.0124 (-1.44)	-.0025 (-1.15)
Cash Flow/ Assets (t+3)	.0181 (.0435) {143}	.0205 (.0539) {139}	-.0104 (-1.17)	-.0024 (-.75)
Cash Flow/ Assets (t+4)	.0311 (.0531) {126}	.0396 (.0637) {119}	-.0106 (-.90)	-.0085 (-.89)
Cash Flow/ Assets (t+5)	.0412 (.0508) {114}	.0502 (.0769) {99}	-.0261 (-1.82*)	-.0090 (-1.38)

Table 3.5 Differences in Cash Flow/Assets. The second column contains descriptive statistics from the Compustat Industrial tapes for the sample of firms which change their number of segments from one to more than one. Statistics given are for the year before the change unless noted. The third column contains descriptive statistics for a control sample of one segment firms. Firms are matched in the year before diversification by 2-digit SIC code and asset size. If there is not a matching firm within 50-150% of the sample's asset size, the 1-digit SIC is used. If no 1-digit SIC match is available within 50-150%, only asset size is used. 158 firms are matched by 2-digit SIC. 13 firms are matched by 1-digit SIC and 2 are matched by asset size only. The matching control is a portfolio which firms can leave due to survivorship. Cash Flow/Assets (t-5) is the 5th year before the change. Cash Flow/Assets (t-4) is the 4th year before the change, Cash Flow/Assets (t+1) is the year after the change, etc.

*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Panel A. Pooled cross-section regression. The dependent variable is q.					
Variable	**Coefficient**	**t-statistic**	**Variable**	**Coefficient**	**t-statistic**
Intercept	1.59	6.22***	Dividend Dum*(T-5)	-.18	-1.01
Ln(Asset)	-.03	-.64	Dividend Dum*(T-4)	-.03	-.18
Dividend Dummy	.04	.36	Dividend Dum*(T-3)	-.07	-.38
R&D/Assets	1.73	1.07	Dividend Dum*(T-2)	-.24	-1.37
Diversification Dummy	-.22	-1.91*	Dividend Dum*(T-1)	-.34	-2.01**
(T-5)	.59	1.73*	Dividend Dum*(T+1)	-.06	-.35
(T-4)	.62	1.80*	Dividend Dum*(T+2)	.07	.40
(T-3)	.94	2.75***	Dividend Dum*(T+3)	.15	.85
(T-2)	1.19	3.38***	Dividend Dum*(T+4)	.29	1.55
(T-1)	1.10	3.09***	Dividend Dum*(T+5)	.23	1.16
(T+1)	.10	.26	R&D/Asset*(T-5)	6.93	3.45***
(T+2)	-.14	-.38	R&D/Asset*(T-4)	10.72	5.05***
(T+3)	-.50	-1.31	R&D/Asset*(T-3)	6.57	2.93***
(T+4)	-.40	-1.04	R&D/Asset*(T-2)	4.59	2.10**
(T+5)	-.14	-.34	R&D/Asset*(T-1)	4.09	1.82*
Ln(Asset)*(T-5)	-.13	-2.32**	R&D/Asset*(T+1)	-1.59	-.70
Ln(Asset)*(T-4)	-.17	-3.01***	R&D/Asset*(T+2)	.20	.09
Ln(Asset)*(T-3)	-.19	-3.40***	R&D/Asset*(T+3)	-.49	-.22
Ln(Asset)*(T-2)	-.19	-3.30***	R&D/Asset*(T+4)	-.78	-.38
Ln(Asset)*(T-1)	-.15	-2.58***	R&D/Asset*(T+5)	-.40	-.16
Ln(Asset)*(T+1)	.00	.04	DIVER*T-5	.24	1.43
Ln(Asset)*(T+2)	.01	.18	DIVER*T-4	.24	1.44
Ln(Asset)*(T+3)	.05	.83	DIVER*T-3	.19	1.16
Ln(Asset)*(T+4)	.02	.30	DIVER*T-2	.12	.76
Ln(Asset)*(T+5)	-.00	-.05	DIVER*T-1	.17	1.06
			DIVER*T+1	-.01	-.06
			DIVER*T+2	.15	.90
			DIVER*T+3	.10	.57
			DIVER*T+4	.16	.92
			DIVER*T+5	.07	.39

(Continued)

Table 3.6 Pooled Cross-Sectional Regression to check for the diversification discount before firms diversify and after. Observations for the year of diversification and five years before and after diversification are used in a pooled regression. Only firms which diversified through acquisition and internal growth are used in this table along with a matching portfolio of one segment firms. Firms are matched by year, SIC code and then assets. Approximately 158 are matched by two digit SIC. An additional 13 are matched by 1 digit SIC. The remaining 2 firms are matched by assets only. Dividend dummy equals 1 if the firm paid a dividend and zero otherwise. R&D/Assets is research and development divided by assets. The diversification dummy equals 1 if the firm diversified during the period and is equal to zero otherwise. T-5, T-4, ... , T+5 are dummy variables which equal to one if the observation is from T+ /- n years before or after diversification and zero otherwise. Diver*T-5, Diver*T-4, ..., Diver*T+5, are dummy interaction variables which multiply the DIVER dummy variable and T+/- n dummy variable. Interaction variables are also used for R&D/Assets, ln(assets) and the dividend dummy variable. 2237 observations are used in the regression. The adjusted R^2 is .15.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.6 Continued.	
Panel B. F-test for statistical differences in coefficients. The coefficient test is shown in the first column. The F value is shown in the second column. P-values in parenthesis.	
Diver*(T-5) + Diver*(T-4) + Diver*(T-3) + Diver*(T-2) + Diver*(T-1) = Diver*(T+1) + Diver*(T+2) + Diver*(T+3) + Diver*(T+4) + Diver*(T+5)	1.52 (.22)
Diver*(T-5) = Diver*(T+5)	.73 (.39)
Diver*(T-4) = Diver*(T+4)	.17 (.68)
Diver*(T-3) = Diver*(T+3)	.28 (.59)
Diver*(T-2) = Diver*(T+2)	.03 (.87)
Diver*(T-1) = Diver*(T+1)	1.25 (.26)

Panel A. Estimation of seemingly unrelated system of equations.				
Dependent Variable	Log (Assets)	Dividend Dummy	R&D/Assets	Diversification Dummy
q (t-5)	-.17 (-5.12***)	.05 (.48)	5.08 (4.18***)	-.08 (-.71)
q (t-4)	-.21 (-4.57***)	.01 (.11)	4.06 (2.43**)	.10 (.63)
q (t-3)	-.29 (-6.63***)	-.16 (-1.20)	-2.78 (-3.80***)	-.07 (-.41)
q (t-2)	-.26 (-7.09***)	-.06 (-.62)	-2.09 (-1.91*)	-.13 (-.91)
q (t-1)	-.26 (-6.18***)	-.04 (-.44)	-.93 (-.69)	-.07 (-.44)
q	-.10 (-3.69***)	.14 (2.11**)	.76 (.67)	-.08 (-.80)
q (t+1)	-.10 (-3.61***)	.07 (1.18)	-.97 (-.96)	-.07 (-.75)
q (t+2)	-.10 (-3.45***)	.02 (.36)	-1.37 (-1.20)	-.02 (-.15)
q (t+3)	-.08 (-2.05**)	-.09 (-.97)	-1.89 (-1.16)	.01 (.08)
q (t+4)	-.12 (-4.49***)	.23 (3.20***)	-.58 (-.58)	-.01 (-.08)
q (t+5)	-.17 (-4.34***)	.21 (1.70*)	.08 (.10)	.02 (.13)

(Continued)

Table 3.7. System of Seemingly Unrelated Regressions to Check for the discount before firms diversify and after. Each line represents an equation estimated in a seemingly unrelated regression system. The intercept is omitted. Only firms which diversified through acquisition and internal growth are used in this table along with a matching portfolio of one segment firms. Firms are matched by year, SIC code and then assets. Approximately 158 are matched by two digit SIC. An additional 13 are matched by 1 digit SIC. The remaining 2 firms are matched by assets only. Dividend dummy equals 1 if the firm paid a dividend and zero otherwise. R&D/Assets is research and development divided by assets. The diversification dummy equals 1 if the firm diversified during the period and is equal to zero otherwise. Only the firms with available data for all 11 years are used in this analysis. This leaves 162 observations. *,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

$$q_{t-5i} = \beta_{11} + \beta_{21} \ln(assets)_{it-5} + \beta_{31} DividendDummy_{it-5} + \beta_{41} R\&D / Assets_{it-5} + \beta_{51} Diver_{it} + \varepsilon$$

$$q_{t-4i} = \beta_{12} + \beta_{22} \ln(assets)_{it-5} + \beta_{32} DividendDummy_{it-5} + \beta_{42} R\&D / Assets_{it-5} + \beta_{52} Diver_{it} + $$

.

$$q_{t+4i} = \beta_{111} + \beta_{211} \ln(assets)_{it-4} + \beta_{311} DividendDummy_{it+4} + \beta_{411} R\&D / Assets_{it+4} + \beta_{511} Diver_{i}$$
$$ + \varepsilon_{11i}$$

Table 3.7 Continued	
Panel B. F-Test for differences in coefficients. P-values in parentheses.	
$\beta_{51} + \beta_{52} + \beta_{53} + \beta_{54} + \beta_{55} = \beta_{57} + \beta_{58} + \beta_{59} + \beta_{510} + \beta_{511}$	.11 (.74)
$\beta_{51} + \beta_{52} + \beta_{53} + \beta_{54} + \beta_{55} = \beta_{58} + \beta_{59} + \beta_{510} + \beta_{511} + \beta_{512}$	.00 (.99)
$\beta_{55} = \beta_{57}$	.00 (.99)
$\beta_{54} = \beta_{58}$	.00 (.95)
$\beta_{53} = \beta_{59}$	.67 (.41)
$\beta_{52} = \beta_{510}$	.17 (.68)
$\beta_{51} = \beta_{511}$	.45 (.50)

Panel A. Berger/Ofek multipliers using medians			
Year in relation to diversification	Asset Multiplier Excess Value	Sales Multiplier Excess Value	EBIT Multplier Excess Value
t-5	.12*** (.07**) {85}	.10* (.02) {85}	.13* (.01) {50}
t-4	.08** (.01) {95}	.11** (.08**) {101}	.04 (.00) {60}
t-3	.08** (.00) {111}	.06 (.00) {110}	.05 (-.04) {61}
t-2	.07** (.02) {134}	.09** (.03**) {129}	.02 (.01) {74}
t-1	.07** (.00) {143}	.15*** (.06***) {137}	.05 (.01) {64}
T	.03 (-.02) {139}	.14*** (.13***) {145}	.17*** (.11***) {74}
t+1	.02** (-.03) {139}	.09** (.06**) {152}	.08 (.04) {77}
t+2	.07** (.00) {124}	.10** (.06**) {139}	.06 (.01) {71}
t+3	.01 (-.07) {103}	.07* (.03) {124}	.05 (.04) {60}
t+4	.02 (-.04) {102}	.10** (.00) {113}	.08* (.01) {45}
t+5	.04 (.00) {96}	.13*** (.08***) {103}	-.02 (.04) {42}

(Continued)

Table 3.8 Berger/Ofek Excess Value Measures. Multipliers were determined using the methodology of Berger/Ofek (1995). Excess value is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value equal to the segment's assets, sales, or EBIT multiplied by its industry median ratio of capital to that accounting item. Only firms which diversify through acquisition and internal growth are analyzed in this table. Firms are analyzed for the year in which they diversify (t) and for years before (t-n) and after (t+n) they diversify. The top number in each cell is the mean of the excess value for that year. Medians are in parenthesis. Sign Rank tests are used for median significant differences from zero. Sample size is in brackets.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.8 Continued			
Panel B. Test for differences. The p-value for the difference in means is shown on the first line. The p-value for differences in medians is shown in parentheses.			
	Asset Multiplier Excess Value	Sales Multiplier Excess Value	EBIT Multplier Excess Value
(T+1) − (T-1)	.33 (.23)	.34 (.42)	.41 (.95)
(T+2) − (T-2)	.99 (.97)	.96 (.90)	.53 (.58)
(T+3) − (T-3)	.12 (.16)	.92 (.95)	.96 (.72)
(T+4) − (T-4)	.23 (.20)	.84 (.77)	.56 (.34)
(T+5) − (T-5)	.10* (.10*)	.65 (.50)	.08* (.27)

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Panel A. Berger/Ofek multipliers using means.			
Year in relation to diversification	Asset Multiplier Excess Value	Sales Multiplier Excess Value	EBIT Multiplier Excess Value
t-5	.03 (-.03) {87}	-.02 (-.03) {87}	-.13* (-.02) {51}
t-4	-.03 (-.09) {95}	.01 (.07) {98}	-.01 (-.03) {56}
t-3	-.04 (-.11*) {112}	.00 (-.04) {111}	-.06 (-.11**) {57}
t-2	-.03 (-.06*) {136}	-.01 (.00) {130}	-.09 (-.05*) {70}
t-1	-.05 (-.06*) {144}	.01 (-.01) {139}	-.02 (-.09) {56}
T	-.10*** (-.13***) {139}	-.01 (.03) {146}	.09 (.09) {66}
t+1	-.11*** (-.15***) {139}	-.05 (-.06) {151}	-.06 (-.06) {70}
t+2	-.05 (-.10**) {125}	-.07 (-.08*) {138}	.01 (.02) {65}
t+3	-.10*** (-.15***) {103}	-.10** (-.11**) {124}	.04 (.01) {51}
t+4	-.08** (-.14***) {103}	-.03 (-.04) {111}	-.04 (.01) {37}
t+5	-.08** (-.09***) {96}	-.02 (-.02) {103}	-.04 (-.07) {38}

(Continued)

Table 3.9 Berger/Ofek Excess Value Measures Using Means instead of Medians. Multipliers were determined using the methodology of Berger/Ofek (1995). Excess value is the natural logarithm of the ratio of a firm's actual value to its imputed value. A firm's imputed value is the sum of the imputed values of its segments, with each segment's imputed value equal to the segment's assets, sales, or EBIT multiplied by its industry mean ratio of capital to that accounting item. Only firms which diversify through acquisition and internal growth are analyzed in this table. Firms are analyzed for the year in which they diversify (t) and for years before (t-n) and after (t+n) they diversify. The top number in each cell is the mean of the excess value for that year. Medians are in parenthesis. Sign Rank tests are used for median significant differences from zero. Sample size is in brackets.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.9 Continued

Panel B. Test for differences. The p-value for the difference in means is shown on the first line. The p-value for differences in medians is shown in parentheses.

	Asset Multiplier Excess Value	Sales Multiplier Excess Value	EBIT Multiplier Excess Value
(T+1) – (T-1)	.17 (.12)	.29 (.24)	.65 (.67)
(T+2) – (T-2)	.71 (.59)	.34 (.24)	.27 (.19)
(T+3) – (T-3)	.22 (.32)	.16 (.20)	.28 (.13)
(T+4) – (T-4)	.36 (.21)	.53 (.38)	.75 (.82)
(T+5) – (T-5)	.04*** (.04***)	.99 (.93)	.13 (.23)

Panel A. The panel shows the chop-shop q of the firm subtracted from the firm's actual q.	
Year in relation to diversification	Q minus Chop-Shop q
T-5	.00 (-.03**) {85}
T-4	.00 (-.10) {95}
T-3	-.08 (-.15) {111}
T-2	-.03 (-.09*) {136}
T-1	-.06 (-.09*) {142}
T	-.10* (-.15***) {166}
T+1	-.11** (-.17***) {164}
T+2	-.05 (-.14*) {149}
T+3	-.07 (-.15***) {132}
T+4	-.08 (-.16**) {124}
T+5	-.10* (-.12**) {109}

(Continued)

Table 3.10 Chop-Shop q. This table subtracts the chop-shop (industry) q from firm's actual q. Chop-shop q's are calculated by taking the mean industry q for each of the firm's segments and weighting by the segment's assets. The segments are then summed and divided by the total assets for all of the firm's segments. Industry q is the mean q of specialized firms in the firm's 4-digit SIC industry with over $20 million in sales. 3-digit SIC industries are used if there are less than five firms in the 2-digit SIC. 2-digit SIC industries are used if there are less than five firms in the 3-digit SIC. Outliers outside of four standard deviations are eliminated. Means are listed first, with medians in parenthesis and observations in brackets.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.10 Continued					
Panel B. Differences between years. This panels shows the difference between the measure in panel A t years after diversification and t years before diversification. P-values for statistical significance are in parentheses.					
Year before - Year After	$(T+1) - (T-1)$	$(T+2)-(T-2)$	$(T+3)-(T-3)$	$(T+4)-(T-4)$	$(T+5)-(T-5)$
Mean	-.05 (.43)	-.02 (.76)	.01 (.96)	-.08 (.37)	-.10 (.23)
Median	-.08 (.36)	-.05 (.51)	.00 (.91)	-.06 (.35)	-.07 (.13)

Table 3.11 Continued	
Panel A. The panel shows the chop-shop q of the firm subtracted from the firm's actual q.	
Year in relation to diversification	Q minus Chop-Shop q
T-5	.15*** (.06*) {85}
T-4	.14** (.02) {96}
T-3	.10* (.00) {110}
T-2	.12*** (.02*) {135}
T-1	.11** (.00) {141}
T	.09 (-.01) {116}
T+1	.07* (-.01) {163}
T+2	.12*** (.00) {149}
T+3	.10** (.00) {124}
T+4	.10* (.00) {124}
T+5	.09* (.00) {109}

(Continued)

Table 3.11 Chop-Shop q using medians. This table subtracts the chop-shop (industry) q from firm's actual q. Chop-shop q's are calculated by taking the median industry q for each of the firm's segments and weighting by the segment's assets. The segments are then summed and divided by the total assets for all of the firm's segments. Industry q is the median q of specialized firms in the firm's 4-digit SIC industry with over $20 million in sales. 3-digit SIC industries are used if there are less than five firms in the 2-digit SIC. 2-digit SIC industries are used if there are less than five firms in the 3-digit SIC. Outliers outside of four standard deviations are eliminated. Means are listed first, with medians in parenthesis and observations in brackets.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Table 3.11 Continued					
Panel B. Differences between years. This panels shows the difference between the measure in panel A t years after diversification and t years before diversification. P-values for statistical significance are in parentheses.					
Year before - Year After	$(T+1) - (T-1)$	$(T+2)-(T-2)$	$(T+3)-(T-3)$	$(T+4)-(T-4)$	$(T+5)-(T-5)$
Mean	-.04 (.58)	.00 (.97)	.00 (.99)	-.04 (.55)	-.06 (.38)
Median	-.01 (.43)	-.02 (.87)	.00 (.78)	-.01 (.62)	-.06 (.28)

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	Mean	Median
Panel A. Entire time period.		
Market Adjusted Returns	.014	.000
	(.02**)	(.30)
Market Model Abnormal	.013	.004
Returns	(.04**)	(.31)
Panel B. Market Model Returns over different time periods during the sample period.		
1978-79	-.006	-.01
n=17	(.64)	(.17)
1980-87	.028	.009
n=82	(.0007***)	(.004***)
1988-1992	-.01	-.004
n=35	(-.32)	(-.38)

Table 3.12 Announcement Return Results This table reports two day abnormal return (-1,0) for diversifiying firms for the day before and the day of the firm's announcement to diversify through acquisition. The CRSP equally weighted market index is used as a proxy for the market return. There were five confounding announcements which are removed from the sample. The results are robust to their inclusion. For market model returns, the estimation period for alpha and beta are 150 to 30 days before the event. Panel A shows results for the entire sample period. Panel B shows only market model results for different time periods during the sample period. P-values for the difference from zero are in parenthesis.

*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

	Q	Debt/ Assets	CF/ Assets	Cash/ Assets	Inside Ownership	Block Ownership	Payout Ratio	R&D/ Assets	Age	Earnings/ Assets
Ln (Assets)	-.16	.02	.16	-.30	-.22	-.03	.15	.05	.28	-.09
Q		-.01	.02	.32	.01	-.05	-.01	.17	-.15	.25
Debt/ Assets			-.05	-.13	.09	-.00	-.14	-.20	-.13	-.29
CF/ Assets				.04	.06	.10	.12	.00	.00	.02
Cash/ Assets					.01	.12	-.08	.13	-.14	.20
Inside Ownership						-.28	-.05	-.11	-.28	.05
Block Ownership							.00	.07	-.03	-.08
Payout Ratio								-.15	.05	.24
R&D/ Assets									.05	.07
Age										-.04

Table 3.13 Pearson Correlation Coefficients. This table shows the Pearson correlation coefficients for the sample of diversifying firms and matched portfolio of single segment firms. Industry q is the median q of the firm's 3-digit SIC classification. Age is the natural log of the number of years the firm was listed on CRSP at the time of the diversification. CF/Assets is Cash Flow divided by Assets. Cash/Assets is the firm's cash and Investments divided by assets. Payout Ratio is a 3 year ratio of dividends divided by earnings.

Variable	Model 1	Model 2
Intercept	.14 (.81)	.12 (.84)
Ln(Assets)	-.03 (.67)	-.03 (.69)
q	-.05 (.59)	-.05 (.58)
Debt/Assets	.61 (.25)	.60 (.25)
Cash Flow/Assets	-2.45 (.09*)	-2.42 (.09*)
Earnings/Assets	.62 (.60)	.62 (.60)
Cash & Investments/Assets	2.45 (.002***)	2.45 (.002***)
Dividend Payout Ratio	.02 (.91)	.01 (.92)
R&D/Assets	-8.77 (.005***)	-8.80 (.005***)
Inside Ownership	-.05 (.92)	.11 (.93)
Insider Ownership Squared		-.26 (.89)
Block Ownership	-.23 (.18)	-.23 (.18)
Natural Log of Age of firm (years listed on CRSP)	-.02 (.86)	-.02 (.85)
Number of Observations	247	247
Pseudo R^2	.08	.08

Table 3.14 Probit Analysis to Predict Diversification using firms which diversify and an industry matched control portfolio of one segment firms. This table gives the results of probit regressions run with the firm's choice to diversify as the dependent variable. The dependent variable equals one if the firm diversifies and zero otherwise. All variables are measured the year before the firm diversifies. Inside ownership is collected from Value Line and proxy statements. In model two a squared term for inside ownership is used. Industry q is the median q of the firm's 3-digit SIC industry. Dividend payout ratio is a three year cumulation of dividends divided by earnings. P-values for statistical significance are in parenthesis. Inside ownership is the percentage of managerial ownership taken from Value Line and proxy statements. Block Ownership is a dummy variable equal to one if the firms has any large block holders which are not managers and zero otherwise. Only firms which diversify through acquisition and internal growth are used in this table.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Variable	Model 1	Model 2
Intercept	.04	.05
	(.93)	(.92)
Ln(Assets)	-.01	-.02
	(.85)	(.84)
q	-.04	-.04
	(.61)	(.61)
Debt/Assets	.61	.61
	(.25)	(.25)
Cash Flow/Assets	-2.42	-2.42
	(.09*)	(.09*)
Earnings/Assets	.64	.63
	(.58)	(.59)
Cash & Investments/Assets	2.45	2.45
	(.002***)	(.002***)
Dividend Payout Ratio	.01	.01
	(.93)	(.93)
R&D/Assets	-8.76	-8.77
	(.005***)	(.005***)
Inside Ownership	.00	.00
	(.60)	(.89)
Insider Ownership Squared		.00
		(.92)
Block Ownership	-.22	-.22
	(.19)	(.19)
Natural Log of Age of firm (years listed on CRSP)	-.02	-.02
	(.84)	(.84)
Number of Observations	247	247
Pseudo R^2	.08	.08

Table 3.15 Probit Analysis to predict Diversification Using Total Dollars of Inside Ownership.
This table gives the results of probit regressions run with the firm's choice to diversify as the
dependent variable. The dependent variable equals one if the firm diversifies and zero otherwise. All
variables are measured the year before the firm diversifies. Inside ownership is collected from Value
Line and proxy statements. In model two a squared term for inside ownership is used. Industry q is
the median q of the firm's 3-digit SIC industry. Dividend payout ratio is a three-year cumulation of
dividends divided by earnings. Inside ownership is the percentage of managerial ownership times the
outstanding value of the firm's common stock. Block Ownership is the percentage of block
ownership times the outstanding value of the firm's common stock. Only firms which diversify
through acquisition and internal growth are used in this table along with an industry matched sample
of firms which do not diversify. P-values for statistical significance are in parenthesis.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Ownership Level	Number of firms	Mean Excess Return	Median Excess Return
< 5 %	38	.001 (.95)	-.002 (.93)
5 – 25 %	45	.007 (.45)	.000 (.96)
> 25 %	51	.028 (.05**)	-.001 (.42)

Table 3.16 Abnormal Returns by Ownership Level. Inside ownership is gathered from Value Line. Excess returns are from the (-1,0) event period around the firm's announcement to diversify. P-values are in parentheses to test whether the mean is different than zero. Sign rank p-values are in brackets to test whether the medians are different from zero.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

Variable	Coefficent (t-statistic)
Intercept	.130 (3.17***)
Ln (Assets)	-.018 (-3.39***)
q	-.004 (-.83)
Inside Ownership	.02 (.66)
Block Ownership (Dummy Variable)	-.001 (-.05)
Debt/Assets	-.004 (-.11)
R&D/Assets	.488 (1.83*)
Earnings/Assets	-.039 (-.58)
Cash Flow/Assets	.046 (.87)
Dividend Payout	.009 (.77)
Ln(Age)	-.010 (-1.10)
Cash & Investments/Assets	.046 (.87)
Number of Observations	109
Adj. R^2	.17

Table 3.17 Regressions of Abnormal Returns. This table regresses abnormal returns for one-segment firms which diversify against independent variables. All variables are measured the year before the firm diversifies. Inside ownership is collected from Value Line and proxy statements. Industry q is the median q of the firm's 3-digit SIC industry. Dividend payout ratio is a three year cumulation of dividends divided by earnings. T-statistics are in parentheses.
*,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

	Model 1	Model 2
Intercept	.111	.110
	4.98***	4.91***
Ln(Assets)	-.018	-.018
	-4.67***	-4.58***
Related	-.007	-.010
	-.61	-.79
Vertical		.007
		.54
Adj. R²	.14	.14

Table 3.18 Regressions of Abnormal Return. This table regresses the 2-day abnormal announcement return on the natural log of assets and dummy variables for whether the diversification is classified as a related or vertical diversification. If the diversification is classified as related the related dummy variable equals 1 and zero otherwise. If the diversification is classified as a vertical diversification then the vertical dummy variable is equal to 1 and zero otherwise. Note: If the diversification is classified as vertical it is also classified as a related diversification. T-statistics in parentheses. *,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

	Model 1	Model 2
Intercept	1.17 (5.00***)	1.19 (5.05***)
Ln(Assets)	.02 (.44)	.01 (.37)
Related	.10 (.98)	.15 (1.30)
Vertical		-.11 (-.90)
Adj. R^2	-.005	-.01

Table 3.19 Regressions of q. This table regresses q in the year of diversification on the natural log of assets and dummy variables for whether the diversification is classified as a related or vertical diversification. If the diversification is classified as related the related dummy variable equals 1 and zero otherwise. If the diversification is classified as a vertical diversification then the vertical dummy variable is equal to 1 and zero otherwise. Note: If the diversification is classified as vertical it is also classified as a related diversification. T-statistics in parentheses. *,**,*** indicate statistical significance at the 10, 5, and 1 percent levels.

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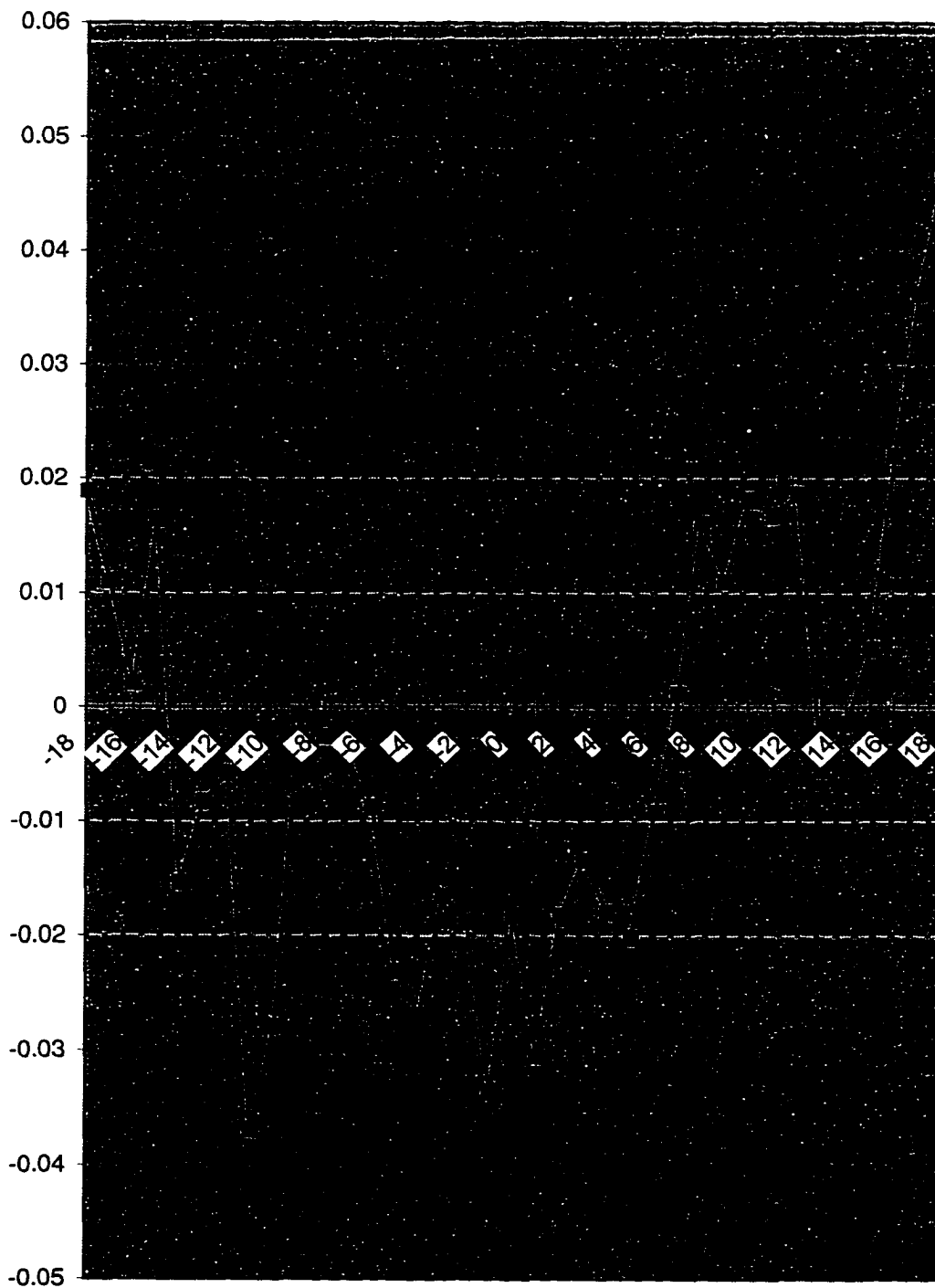
Figure 3.1 Monthly Buy and Hold Abnormal Returns Around the Fiscal-Year End of the Firm's Diversification. This figure shows monthly buy and hold abnormal returns for diversifying firms around the firm's decision to diversify (Roll (1983)). The equally weighted CRSP index is used as benchmark.
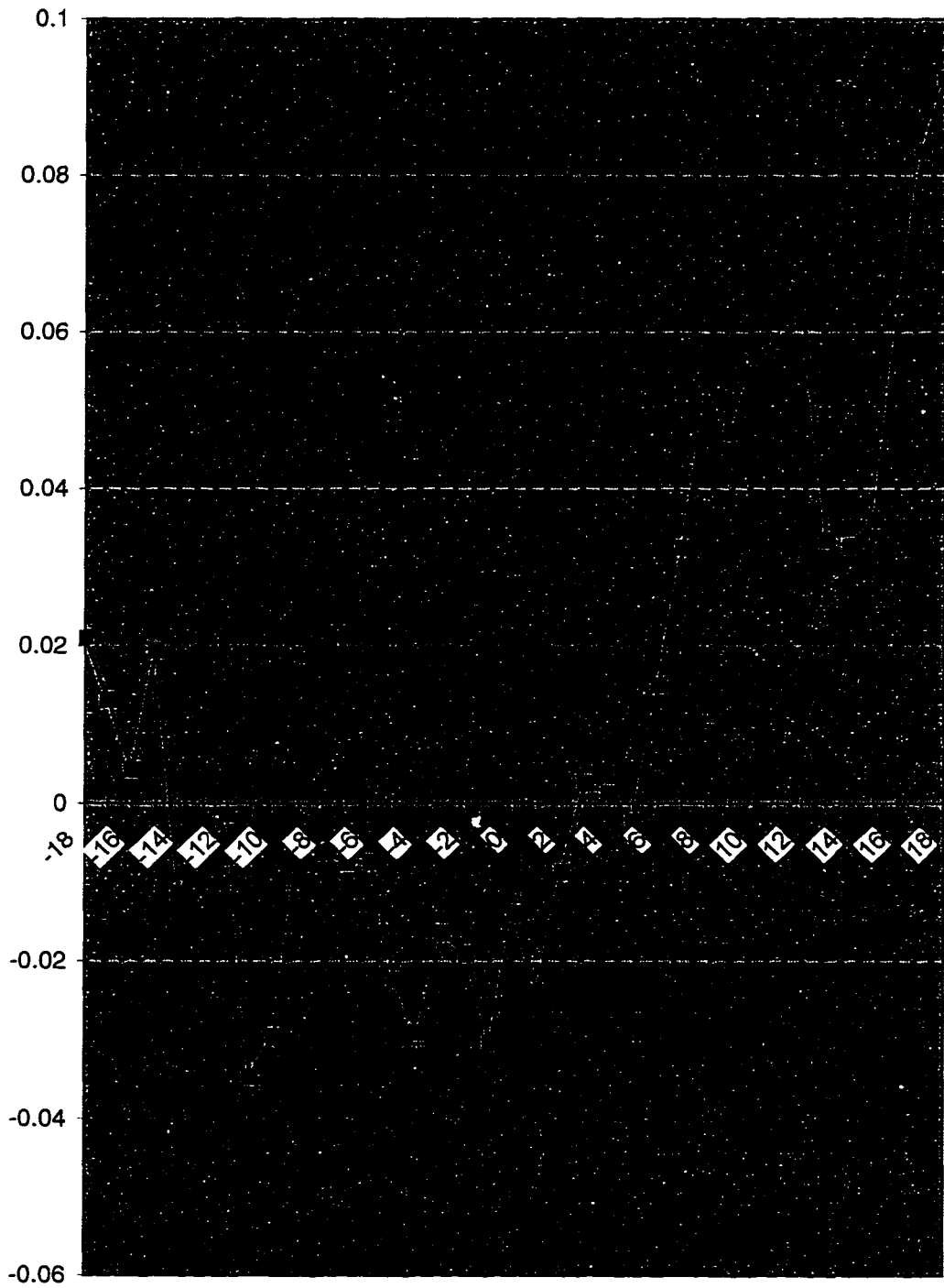
Figure 3.2 Monthly Buy and Hold Abnormal Returns Around the Fiscal-Year End of the Firm's Diversification (only complete returns). This figure shows monthly buy and hold abnormal returns for diversifying firms around the firm's decision to diversify (Roll (1983)). The equally weighted CRSP index is used as benchmark. Only firms with 37 months of data are used.
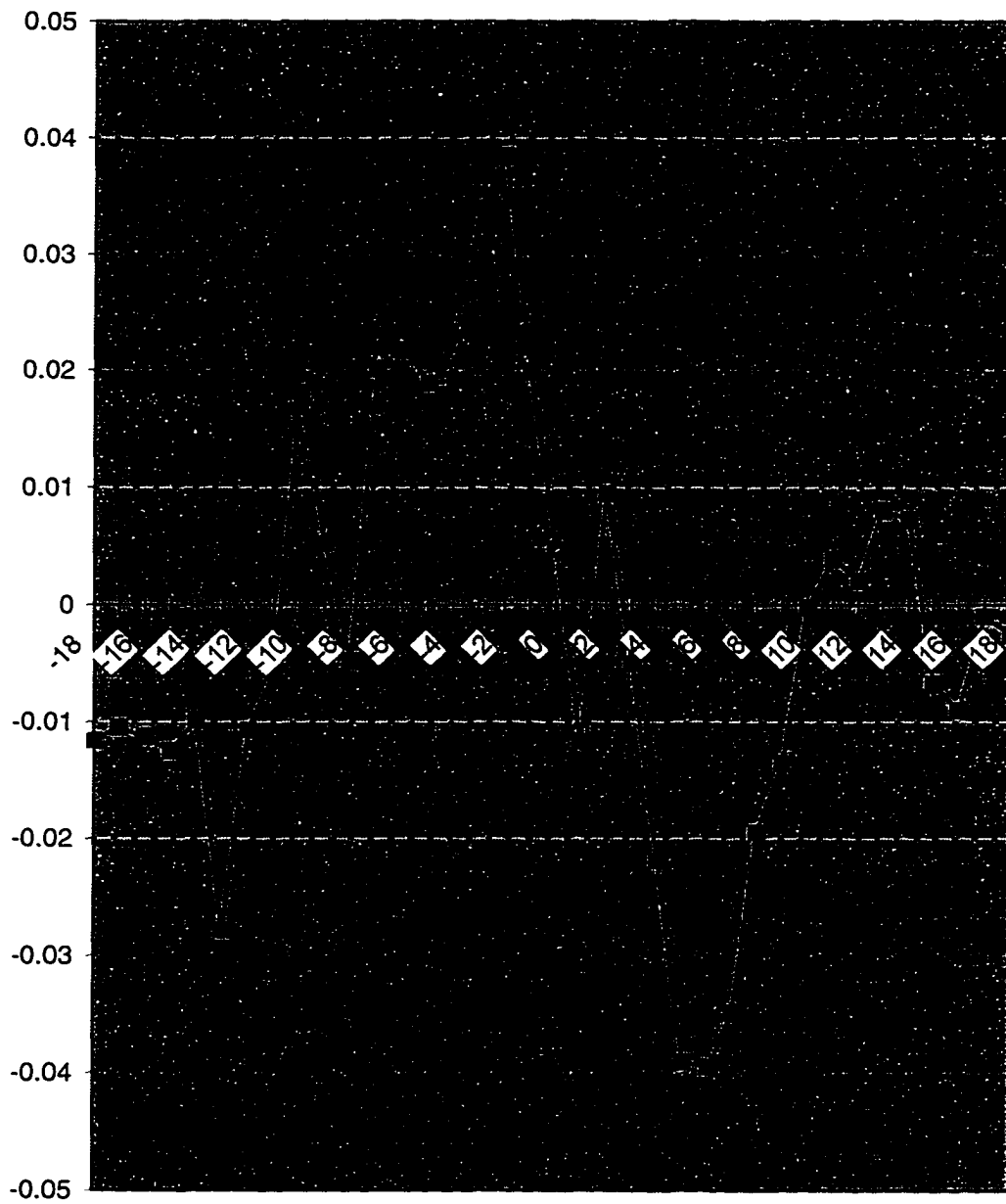
Figure 3.3 Monthly Buy and Hold Abnormal Returns Around Firm's Diversification Announcement. This figure shows monthly buy and hold abnormal returns for diversifying firms around the firm's decision to diversify (Roll (1983)). The equally weighted CRSP index is used as benchmark.
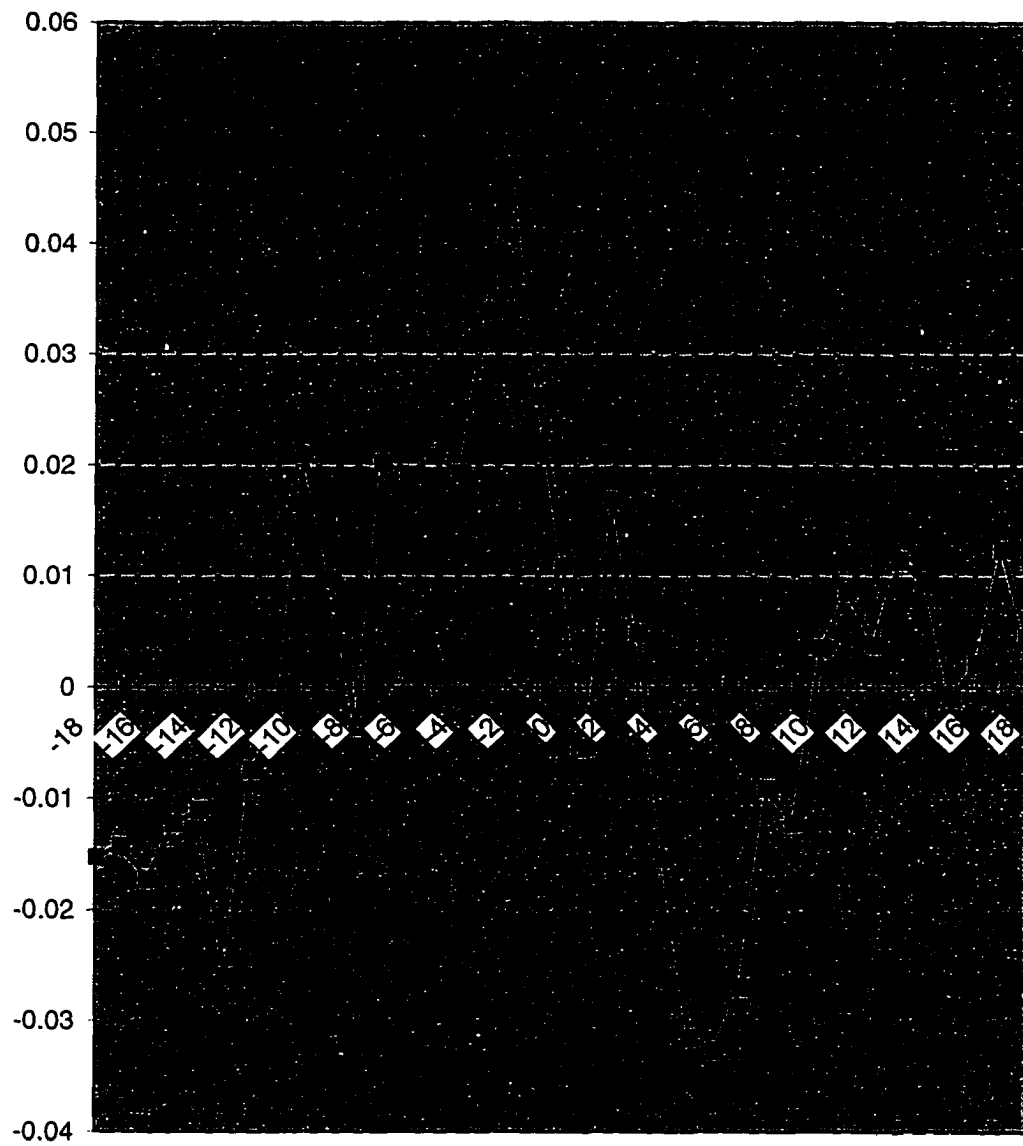
Figure 3.4 Monthly Buy and Hold Abnormal Returns Around Firm's Diversification Announcement. (only complete returns) This figure shows monthly buy and hold abnormal returns for diversifying firms around the firm's decision to diversify (Roll (1983)). The equally weighted CRSP index is used as benchmark. Only firms with 37 months of data are used in this figure.

CHAPTER 4

SUMMARY AND CONCLUSIONS

Segment data from the Compustat segment tapes have been used extensively in recent research as a proxy for firm diversification. This study provides information about what increases in the number of segments actually represent. For usable data, 5.4% of the increases from one segment to more than one segment do not agree with annual reports. An additional 6.7% list segment breakouts in a different year than indicated in the annual report. A total of 22.5% of the diversification events are classified as reporting changes. This leaves approximately 72% where the data correctly identify a significant diversification event. This indicates that studies which use changes in diversification as a proxy might have stronger results than reported. (e.g. Lang and Stulz (1994), Comment and Jarrell (1995)).

The firms that diversify in my sample are not concentrated in a few particular industries. Given the broad range of industries diversifying firms are in, we can feel more comfortable with generalizations about the value of diversification. In addition, the diversifying firms are not diversifying out of low q industries.

I do not find evidence that diversifying firms have managerial ownership levels which are lower than non-diversifying firms. This indicates that there are no agency problems from low managerial ownership in diversifying firms like those discussed in Denis, Denis and Sarin (1996) and Amihud and Lev (1981). However, diversifying firms have more cash than their specialized counterparts. If this cash is considered free cash, we can interpret this to be consistent with the Jensen (1986, 1989) agency hypothesis.

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However, it is possible that these firms are merely building their cash balances in order to make acquisitions and it is not an agency problem. In addition, monitoring does not appear to be effective in preventing diversification.

I do not find evidence of agency problems when looking at managerial ownership. However, it is possible that managerial ownership is not a good measure of agency problems (Loderer and Martin (1997)). It is possible that managers do not need to own stock to be residual claimants. Power, prestige, and media attention which come from strong firm performance may be a better motivator than stock ownership. It is also possible that higher managerial ownership makes it easier for some managers to redistribute and appropriate corporate wealth.

I find evidence inconsistent with the hypothesis that diversification is associated with an irreversible destruction of firm value at the time the firm diversifies. I find evidence of a diversification discount consistent with Lang and Stulz (1994) and Berger and Ofek (1995). However, I find that the discount exists (at least marginally) before the firm ever diversifies. Moreover, there is no significant difference in the discount before and after the firm diversifies.

When firms diversify they do not have negative announcement returns which is what we would predict if diversification causes an irreversible destruction in firm value. However, it is possible that the market expects these firms to do something like diversify and has already compounded this possibility into the price. In addition, monthly abnormal returns in the 37 months surrounding diversification are insignificantly different from zero.

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Other studies find that unrelated diversification is valued more negatively than related diversification (Morck, Shleifer, and Vishny (1990)). I do not find evidence that related diversification is more valuable. However, this is likely due to my sample selection. If a diversification is significant enough for a firm to report additional industry segments in its annual report, it is probably not a very related acquisition.

When firms diversify I examined their announcement abnormal returns. Smaller firms, firms with higher research and development, and firms with higher cash flow are associated with higher announcement returns. The level of managerial ownership and block ownership are insignificant in explaining announcement returns.

So why do firms diversify? I do not find evidence that diversifying firms have managerial ownership levels which would align incentives differently than non-diversifiers. However, I do find evidence that diversifying firms free cash available which they use to diversify (Jensen (1986, 1989). Firms may diversify because they have poor operating performance despite the fact that they are in high growth industries. They also have excess cash available which they can use to diversify. This may be a good investment for shareholders. Evidence suggests that there is no destruction of shareholder wealth and diversification choice is not sensitive to monitoring and managerial ownership.

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Appendix: Sample Description. This appendix lists the firms in the sample. The first column gives the year the firm diversified. The second column is the name of the firm. The third column is the reason the firm increased its number of industry segments. The fourth column indicates whether and reasons why the firm decreased its segments back to one. Doesn't agree means the Compustat segment tapes do not agree with the annual report. ADR stands for American Depository Right. Acctg (2 yrs) means Compustat reports multiple segments for a firm two years before a firm actually reports multiple segments. Acctg means the firm made an accounting change which resulted in an increase in segments. Internal growth means the firm increased spending to create a new segment but did not make an acquisition. Wrong year means the firm changes it number of segments but not in the same year as Compustat indicates. AR stands for annual report. Seg represents the number of segments. Mill stands for Million. Co. stands for company. Fn stands for footnote.

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
78	AMERICAN MICROSYSTEMS	1/78 --Semiconductor co. merged with manufacturer of instruments used in making microprocessors. (Millenium). Note: 77 was only yr co. was 1 segment. It sold LCD operations in 77.	
78	BRIGGS & STRATTON	Acctg -- co. begins reporting engines and locks seperately in 6/30/78 AR.	
78	CARTER HAWLEY HALE STORES	In 78 department store co. acquired 2 specialty retailers (5/3/78 -- John Wanamaker and 8/14/78 -- Thalhimer Brothers).	12/31/86 John Wanamaker sold for $183 mill (pretax loss of 2.2). In 87 remaining specialty stores were sold to Neiman-Marcus.
78	COMMERCIAL INTERTECH	Acctg -- segments given are the major markets the co. serves (same sales force). Not broken out for prior yrs.	
78	ECOLAB INC	Acctg -- While mgmt considers the co. to be in one line of business, . . . its business is divided into 4 market segments.	Sold Chemlawn Division.
78	EQUIFAX INC	Doesn't appear to be 1 segment before 78. 3 segments in 78 and 77 although did make some immaterial acquisitions in 78.	
78	GDV INC	Community Development Co. acquired food service co. (Servomation 9/78), home builders co. (Wood Bros. 4/78) and Mobile Home Co. (Guerdon Industries 4/78).	
78	GLOBAL MARINE INC	Internal growth. In 77 marine drilling was principal segment. In 78 Marine engineering was big enough to be reported.	
78	KAISER STEEL CORP	Acctg -- Steel co. begins reporting separate segments in 78 and gives prior yrs.	In 87 Kaiser is in financial difficulty -- probably bankrupt.
78	M/A-COM INC	2/22/78 Microwave Associates acquired digital products co. (Digital Communications) and changed its name to M/A Com.	87 - "restructuring" - sold M/A Telecommunications for $110 mill in 4th q 87. 9/86 sold cable/home communications business for $220 mill.

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
78	PACIFIC GAMBLE ROBINSON CO	Acctg -- 78 AR began reporting 2 segments. Gives numbers for 77 & 76 also.	
78	PUEBLO INTERNATIONAL INC	Acctg -- Food co. began reporting supermarket and wholesale divisions.	During fiscal 84 & 83 co. sold its bakery ops and ownership in 2 radio stations. Therefore during fiscal 84, the co's primary business was food merchandising.
78	SOLON AUTOMATED SERVICES INC	9/20/78 & 9/30/78 Laundry equipment co. purchased 2 ski resorts (Sugarbush and Glen Ellen Resorts).	
78	WOOLWORTH CORP	Segments are not reported in footnotes. No segment footnote for 79 or 80 either.	
79	CANNON MILLS CO	7/3/78-- Household textile co. acquired another textile co. (Wiscasset Mills). 11/2/78 acquired another textile co. (Social Circle Cotton Mills). Report an 'other' textile segment for 78.	
79	CBI INDUSTRIES INC	2/2/79 Metal plate manufacturer acquired drilling services company (Circle Bar Drilling).	
79	COMSAT CORP	5/14/79 - Communications firm acquired Environmental Services firm (ERT) in 79.	
79	DOME PETROLEUM LTD	During 79 Oil and Gas co. acquired 48.6% of pipline co. (Transcontinental). Acquired 39.5% of Dome Mines. During 79 the Co. acquired assets in several cos. for $311 million. (Siebens).	
79	GANNETT CO	6/7/79 Newspaper co. acquired broadcasting co. (Combined Communications).	
79	GENERAL AUTOMOTIVE PARTS CP	3/1/79 Auto replacement parts co. acquired industrial bearing and transmission co. (Bearing, Chain and Supply).	
79	HAMILTON OIL CORP	In 78 and 79 Oil and Gas co. acquired gas systems co. (Tejas and Exco).	In 88 spunoff Tejas by distributing stock to shareholders -- back to oil and gas exploration.

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
79	INEXCO OIL	1/31/79 Oil and gas co. acquired contract drilling co. (Fred Wilson Drilling).	
79	JAMES RIVER CORP OF VIRGINIA	12/4/78 (FYR 79) -- Specialty paper co. acquired specialty film products division (Scott Graphics division of Scott Paper).	In 81 film division is no longer significant due to acquisition of paper co.
79	KYOCERA CORP - ADR	ADR	
79	MORRISON KNUDSEN CORP	On 12/3/79 construction and engineering co. acquired 50% of stock of National Steel and Shipbuilding segment from Kaiser Industries. (Shipbuilding is new segment).	
79	STANDARD PACIFIC CP	Internal Growth -- Residential housing co. reports office panel subsidiaries as a separate segment. In 78 say predominately builder of homes.	
79	STARRETT HOUSING CORP	Acctg -- Breaks out 2 segments in 80. In earlier ARs says there are 2 segments but doesn't give numbers. In financial distress.	
79	TRICENTROL PLC - ADR	ADR	
79	WESCO FINANCIAL CORP	2/28/79 -- Financial co. purchased steel co. (Precision Steel Warehouse).	
80	AMOSKEAG CO	1/80 --Railroad company merged with Candy Co. (Fanny Farmer).	
80	C TEC CORP	Internal Growth -- Telephone cos. telecommunications supply division grew large enough to be reported.	
80	CAMPBELL RED LAKE MINES	Acctg -- Board has determined that mining and oil and gas are the business segments.	
80	CIRCLE K CORP	Feb 81 -- Convenience store chain reorganized to provide greater flexibility for diversification of investments in oil and gas drilling operations. (Purchased 13% of Nucorp and controlled with 3 board members).	82 -- Circle K loses control of Nucorp due to resignation of director.

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
80	DOME MINES LTD	Acctg -- "Board has determined that mining and oil and gas exploration and production are the business segments of the company."	
80	EASTMET CORP	12/79 Stainless Steel co. acquired industrial metal manufacturer (VIP).	
80	GLEASON CORP	3/80 Machinery co. acquired industrial products co. (Pennsylvania Pressed Metals).	6/5/89 Sold Power Systems division (7.7 gain) 11/9/89 plan to sell components group (including Pennsylvania Pressed Metals).
80	HARLEQUIN ENTERP LTD	No Lexis.	
80	HINES (EDWARD) LUMBER CO	In 80 lumber co. breaks out segments into manufacturing, wholesale and retail. Gives numbers for 79 and 78 also.	In 85 co. has plans to liquidate w/in 3 yrs.
80	ITT CONTINENTAL BAKING INC	Subsidiary of ITT -- no reports	
80	MARSHALL FIELD & CO	Internal Growth - Marshall Field Credit Corp became operational in 3rd q of 1980.	
80	MEI CORP	1/20/80 Soft drink co. acquired candy and nut co. (Los Angeles Nut House).	
80	NORTHWESTERN STL&WIRE	Acctg. (2 yr) -- "The co. believes that the principal operating divisions are becoming sufficiently different in nature to warrant the reporting of financial information as if the divisions were seperate business segments." Gives numbers for 81 & 80 also.	8/16/88 financial restructuring -- co. bought out by ESOP and a group of outside investors -- doesn't break out segments.
80	PAN AM CORP	Acctg -- Began reporting segments in 80 AR.	1/1/89 Airline co. offered World Services division for sale (hotels).
80	ROBERT HALF INTL INC	Wrong Year -- Former name Boothe Financial co. 1/31/80 -- computer leasing co. merged with Realty Trust co. (IDS).	In 1987 merged with Robert Half and real estate and leasing operations are discontinued.
80	SANDERS ASSOCIATES INC	Govt. systems co. acquired graphic systems cos. (California Computer Products and Talos Systems).	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
80	SAUNDERS SYSTEMS INC	3/1/80 -- Truck leasing co. purchase Chemical hauling co. (Chem-Haulers). Also purchased Hudgins Truck Leasing Division of Southland Corp.	
80	SCHOTTENSTEIN STORES CORP	No Lexis.	
80	SEARS ROEBUCK & CO	Acctg -- In 1980 Sears realigned it operations into 3 separate business segments with a total of 8 subsegments.	
80	SQUARE D CO	7/31/80 electrical equipment co acquired copper foil manufacturer (Yates Industries). Call new segment electronic products. Formerly just electrical equipment.	
80	UNIVERSAL CORP-VA	No Lexis.	
80	WALKER (HIRAM) RESOURCES LTD	12/31/79 distilled spirits co. acquired remainder of gas utility (Home Oil).	
80	WOLVERINE EXPLORATION CO	No Lexis for 80.	
81	ALLECO INC	1/30/81 -- Carbonated beverage co. acquired vending and Foodservice co. (Macke). Acquired 35% in 80 and recorded under equity method.	In 87 co. is selling foodservice and laundry service divisions to meet debt payments.
81	AMERICAN PACIFIC CORP	During 81 -- former REIT reorganized as a real estate development co. 12/30/80 (FYR 81) Acquired real estate property and marketable securities from Johncamp Realty.	
81	ARMTEK CORP	Acctg -- Tire firm increased its investment in synthetic rubber subsidiary (Copolymer Rubber and Chemical) from 50% to 66 2/3%.	10/88 Armtek is purchased by Mark IV which sells Copolymer division. (However, Mark IV reports 3 segments).
81	ASSOCIATED DRY GOODS CORP	5/27/81 -- Dept store chain acquired discount dept store chain (Caldor Inc.).	
81	BRAE CORP	No Lexis.	No Lexis.
81	CALLON PETROLEUM CO	Internal growth - oil exploration company merged w/ well servicing (MVN -- newly formed, wholly owned subsidiary).	1987 -- Co. is in financial distress. Sold 51% of well services division. Back to 1 segment.

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
81	CARTER (WILLIAM) CO	Internal growth -- Children's clothing manufacturer began opening factory outlet stores. Met reporting requirement for first time in 81.	
81	HESSTON CORP	Prior to 81 firm manufactured farm equipment. In 81, the co was also engaged in the production of oil field equipment. Substantially all oil field equipment was sold to Sentry Oil Field Equipment.	In 1982 Oil Field equipment manufacturing is immaterial.
81	HON INDUSTRIES	In 80 this office furnture Co. made 3 acquisitions and 2 were unrelated.	In 88 sold construction and materials handling division (Prime Mover) for $27.3 mill (gain of $13.4 mill.). It acquired a materials handling co. in 80.
81	INTEGRA A HOTEL & REST	Internal growth -- Formerly Brock Hotel (Holiday Inns) began franchising Show-Biz Pizza restaurants.	In 88 spun-off Show-Biz restaurant business.
81	KEARNEY NATIONAL INC	1/16/81 -- electrical product manufacturer acquired computer tape and floppy disk manufactuer (Wabash).	
81	MIRAGE RESORTS INC	No Lexis.	
81	NU-WEST INC	No Lexis.	
81	PENTAIR INC	10/19/91 printing co. acquired portable electric tool business (Porter-Cable).	
81	REEVES COMMUNICATIONS	1/23/81 TV programming co. acquired direct marketing co. (Musexport).	In fiscal 85 Board approved divestiture plan for direct marketing businesses. $27.9 million charge to net income.
81	SCRIPPS HOWARD BROADCASTING	In 81 conventional radio & TV co. acquired certain cable television operations. Also acquired 3 new radio stations.	
81	SUNDANCE OIL	10/5/81 -- oil and gas co. purchased chemical and fertilizer co. (Kerley). Also purchased hard rock mill (Bakers Park Mining).	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
81	UNITED CANSO OIL & GAS LTD	Oil and Gas co. made industrial oilfield manufacturing acquisitions in 81,80,&79.	In 84 the co. is in financial trouble -- there is a going concern question. Co. discontinued all oilfield manufacturing and service ops.
81	WESTMORELAND COAL CO	Internal growth -- Coal co's mining supplies division became a separate segment in 81 because this was the first year that over 50% of sales were to non-affiliated customers. In 81 sales were 'primarily' to non-affiliated customers.	
81	WRITER CORP	No Lexis.	In 89 co. says it is discontinuing its commercial operations.
82	AMCAST INDL CORP	3/29/82 -- Plumbing supplies manufacturer acquired metal castings co. (Stanley G. Flagg div. of Eltra).	
82	ANHEUSER-BUSCH COS INC	11/2/82 -- Beer company acquired Food Company (Campbell Taggart).	
82	CENTURI INC	9/1/82 Video games company acquired sporting goods company (Outdoor Sports Headquarters).	84 (Compustat switchback -- Lexis doesn't agree) discontinued video games but purchased 2 other companies (electronics (IEC) and fish (Fass bros.)).
82	CERIDIAN CORP	Acctg -- changed method of acctg for Commercial Credit Co. to consolidation.	85 -- changed commercial credit back to equity method.
82	EMPIRE GAS CORP	No Lexis.	
82	GALEN HEALTH CARE INC	No segment footnotes for 82-84.	
82	INTERMEDICS INC	5/82 -- Medical products co. merged with manufacturer of optical photomask co. (Master Images). 1/81 merged w/ American Pacemaker.	86 -- Sold Master Images for $12 mill (.6 mill gain).

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
82	KRATOS INC	Engineering documentation products co. purchased engineering instrumentation co. (Keuffel & Esser).	In financial distress -- $36 mill working capital deficit & $28.7 mill shareholder deficit. Sold analytical instruments, computer display and aviation products for $16 mill. Also planning to sell instrumentation division.
82	LUKENS INC	3/31/82 Steel plate manufacturer acquired diversified steel products and services co. (General Steel).	
82	NOVO-NORDISK A/S - ADR	ADR	
82	RIVAL MFG CO	2/82 portable appliance co. acquired a portable kerosene heater co. (GLO-International).	In 84 discontinued portable heater business.
82	SCIENTIFIC-ATLANTA INC	Acctg -- In 84 reorganized into 3 strategic operating segments and gave 83 and 82 numbers.	
82	SEABOARD CORP	1/28/83 (FYR 82) Grain merchandising co. purchased 2 bakery divisions from Pueblo International.	
82	TTX COMPANY	No Lexis.	
82	VALMONT INDUSTRIES	Acctg (2 yr) -- Co. begins reporting 3 segments in 84. Gives numbers for 83 and 82.	
83	BROWN-FORMAN	7/14/83 -- Alcohol company acquired china/home furnishing co. (Lenox).	
83	CLOROX CO-DEL	7/15/83 -- Household products co. acquired paint co.(Lucite acquired from Dupont). Acquired Olympic Stain in 81.	90 -- Sold Architectural Coatings division for $130 million.
83	CROWN CENTRAL PETROL	6/30/83 Petroleum company acquired 2 convenience store chains (Zippy Mart and Fast Fare).	87 AR -- Sold original petroleum operations and is now a 1 segment convenience store company.
83	CSX CORP	8/6/83 Transportation co. acquired natural resources co. (Texas Gas Resources).	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
83	ENVIRODYNE INDUSTRIES INC	2/1/83 Pure Aire production co. acquired plastic flatware co. from ARTRA.	84 - Due to growth, plastic flatware is dominant segment.
83	HOLLYWOOD PARK INC	Acctg -- In 1982 REIT spun off some of its assets into a thoroughbred racing co. 83 gives seperate balance sheets for real estate and thoroughbreads operating co.	Acctg -- In 85 appears to be just reporting thoroughbread business.
83	KENNINGTON LTD	In 83 apparel co. committed $15 million to a partnership to build a hotel.	
83	MINSTAR INC	In 81 co. came out of bankruptcy. On 6/3/83 this boat manufacturer acquired transportation co. (Bekins).	By 87 -- have already divested transportation division. Planning to divest sports products divisions & energy services segment. 2/17/88 IPO of co's pleasure boat ons.
83	NBI INC	Acctg -- In 85 splits business into office systems and office products. Gives numbers for 84 & 83 also.	2/88 co. plans to dispose of office products division.
83	NORTHVIEW CORP	No Lexis.	
83	NORTH-WEST TELECOMM	Telephone service co. acquired telephone directory co. (Gronseth).	
83	PAGE PETROLEUM LTD	Acctg -- 82 AR says they have 3 segments but don't split out. 83 AR gives numbers for 83, 82, 81.	
83	ROCHESTER TELEPHONE CO	Acctg -- Telephone co. reports a telecommunications segment in 85 and gives 84 & 83 numbers also.	
83	STANDARD COMMERCIAL CORP	No Lexis.	
83	STANHOME INC	6/83 household and personal grooming products co. acquired family giftware co. (Enesco Imports)	
83	U S HOME CORP	No Lexis.	
83	VALHI INC-OLD	Acctg -- Prior co.-- LLC consolidated some business segments previously accounted for by equity method.	Valhi is the surviving entity of a merger between LLC and Amalgamated Sugar -- from seg FN Valhi looks more diversified than ever.

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
84	ACKERLEY COMMUNICATNS	No Lexis.	
84	ALLTEL CORP	Acctg --In 86 telephone co. breaks out sales into: local, network and toll services.	
84	ALOHA INC	Acctg -- "reorganization did not change in any respect the operations of the Airline".	
84	APPLIED POWER	Acctg (2 yrs later) In 86 Co. begins reporting 3 segments. Gives numbers for 85 and 84.	
84	AVIATION GROUP INC	1/84 -- Airline service company acquired firm which leases televisions to hotels (Telerent).	
84	BACARDI CORP	12/30/83 -- Alcoholic beverage company acquired electronic consumer product co (Lloyd's). Also increased investment in consumer electronics co purchased in 83.	85 -- selling electronics segment ($1.4 mill loss after $5.9 mill tax benefit).
84	CALMAT CO	Doesn't agree.	
84	DANAHER CORP	10/1/84 Real estate company acquired rubber/plastics company (Mohawk) and vinyl siding co. (Master Shield).	
84	ELRON ELECTRONIC INDS -ORD	In 83 and 84 Israeli military co. acquired several fiber-optics cos. (Fibronics and Optrotech).	Acctg In 88 only report geographic segment data.
84	FEDERAL EXPRESS CORP	Internal growth -- spent 23.5 million on introduction of Zapmail.	86 - Discontinued Zapmail due to lossses. Accounting loss of $357 million (195 mill after tax).
84	GEARHART INDUSTRIES INC	7/6/84 Well evaluation co. acquired geophysical services co. (Geoholdings) from Aetna Insurance co.	
84	GREAT AMERICAN MGMT & INVT	During fiscal 84 (yr end 7/31) real estate co. acquired real estate co (First Capital), and First State S&L. In 85 acquired: Raines Tool co., Lapp Insulator div of Interspace Corp and Kaiser agricultural chemicals.	

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YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
84	HECLA MINING CO	11/30/83 mining co. acquired another mining co. (Ranchers) which had acquired an industrial minerals mining co. the year before.	
84	INFORMATICS GENERAL CORP	In 83 co. sofware co. reports 2 segments: Vertical markets and Cross Industry markets. In 84 it acquired 3 software cos and reports 2 different segments: Informatics applications and Informatics systems.	
84	KNIGHT-RIDDER INC	Acctg (2 yr) Co. reports 1 segment for 83,84,and 85. In 86 it separately reports 4 segments which it had all along and gives numbers for 84,85, & 86.	
84	LORIMAR	7/30/83 (fiscal yr 84) film co. acquire K&E Advertising Agency. Acquired another ad agency (Bozell & Jobs) on 9/16/85.	2/19/88 - Sold Ad Agency for $134 mill. Subsequent event -- pending merger with Warner Communications.
84	POPE EVANS & ROBBINS INC	Protective garment co. acquired consumer knitwear and fabrics co. (Fabric Tree).	In 85 co. sold its protective garment division for $47 mill. Got out of original business.
84	PREWAY INC	5/1/84 -- Heating and cooling co. acquired gas grill assets and heating and cooling asset from Arkla Industries.	1987--Going concern problems -- losses for 3 years. Sold original businesses (Heating and Cooling). 8/87 sold fireplace division for $4.4 mill and engineered products for $5.4 mill
84	PULLMAN CO-NEW	Doesn't agree. Doesn't appear to ever be one segment -- except maybe Pullman leasing.	
84	RANGER OIL LTD	Internal growth -- In 83 oil and gas exploration co spent $121 million on drilling rig. Drilling ops became significant in 84.	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
84	SEALY CORP	12/83 -- Home furnishings co. (formerly Ohio Mattress) acquired Manufacturer of bedding, convertible sleeper sofas and non-woven textiles. (Stearns-Foster). Non-woven textiles is reported as a new segment.	9/85 discontinued non-woven textiles division in 9/85. Sold for $27.3 million.
84	SOO LINE CORP	Acctg -- The annual report says that increased growth in real estate is a reason to report it separately. However, real estate is too small to meet thresholds and was similar for the two prior yrs.	Compustat switchback -- However annual report still gives real estate even though it is small.
84	SOUTHERN NEW ENG TELECOMM	Internal growth -- "Since January 83, the company has diversified forming two industry segments, telephone operations and diversified telecommunications activities." Report 83 and 84 -- The diversified telecomm group grew a lot from 83 to 84.	"Reorganization" -- "The corporation derives substantially all of its revenues from the telecommunications service industry."
84	SUN ELECTRIC CORP	Internal growth -- Testing & service equipment co. says service station mgmt equipment is in the development stage. In 83 says there are 2 segments but service station mgmt equipment is not significant.	In 90 sold net assets of service station mgmt equipment segment for $2.1 mill. $1.2 mill loss.
84	SUNSHINE MINING CO	11/29/84 -- Precious metal co. merged with oil and gas co. (First Matagorda).	In 90 co. is restructuring due to low silver prices. 1/11/91 sold oil and gas division for $144.8 mill.
84	SUPER RITE CORP	1/14/85 -- wholesale grocery co. acquired retail grocery chain (Food-A-Rama).	
84	TELEPICTURES CORP	2/84 -- Film marketing & distribution co. acquired TV station (KMID - Texas). Also began reporting production and publishing segments which they say were insignificant before.	
84	TEXACO CANADA INC	Acctg -- Petroleum co. began reporting energy segment as well.	
84	VALERO ENERGY CORP	9/28/84 natural gas co. increased ownership from 50% to 100% in refining co. (Saber Energy).	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
84	WILEY (JOHN) & SONS	10/31/84 publisher acquired training co. (Assessment Designs). Also acquired other publishers. Didn't report seperate segments until 86 but gives 85, and 84.	4/30/91 sold training segment for $30 million. ($5.0 mill after-tax gain). Also sold some book lines.
84	XIDEX CORP	8/83 micrographics co. merged with magnetic media co. (Seaborn Development).	8/88 Anacomp acquired Xidex for $400.4 million. During 89 plans to dispose of all significant magnetics operations.
85	AMERICAN BAKERIES CO	1/85 - Baking company acquired resort company (Coast to Coast). Also acquired 3 bakeries (Cotton Bros.).	
85	ARA GROUP INC	Mutual fund - No Lexis.	
85	AVALON CORP	4/15/85 real estate co. merged with oil and gas co. (Tri-South). 10/29/85 acquired Canadian oil and gas co. (Tintagel).	87 unable to pay interest - discontinued real estate business (original).
85	CAREMARK	Wrong year should be 85. 4/85 retail pharmaceutical co. acquired health care mgmt software co. (Health Data Institute). 1/85 acquired Federal Prescription.	8/3/87 acquired by Baxter. Baxter is not 1 segment.
85	CHALLENGER INTL LTD	No Lexis.	89 -- discontinued all petroleum operations and acquired Savage Arms -- manufacturer of 'sporting arms'.
85	DURR-FILLAUER MEDICAL	3/3/85 Medical co. acquired video co. (Source video) and portions of Intermedco and E.L. McConnell.	Acctg change -- don't report video as a seperate seg but still in video.
85	ENVIROSOURCE INC	No Lexis.	
85	FIRST CITY INDUSTRIES INC	1/85 Real Estate and Insurance Co. acquired diversified Co (Scovill). Went from 1 segment to 6 (plus a corp).	
85	GROLIER INC	9/1/85 Publishing co. acquired mail order photo processing co. (Mystic color Lab).	No Lexis.
85	HALLWOOD GROUP INC	4/30/84 Umet Properties (finance/real estate) merged with and into Atlantic Metropolitan (real estate) and changed name to Hallwood Group.	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
85	INTL THOROUGHBRED BREEDERS	In fiscal 83 and 85 thoroughbred horse breeding co. acquired 2 racetracks (Garden State Park and Philadelphia Park). Revenues began in fiscal 85.	
85	ITT WORLD COMMUNICATIONS INC	No Lexis.	
85	K MART CORP	During 85 mass merchandiser acquired drug chain (Payless). 4/86 acquired Bargain Harold's Discount store. In 86 begin reporting specialty retail due to acquisitions over the last several vrs.	
85	KROGER CO	5/28/85 Grocery chain acquired Drug chain (Hook's). 8/4/85 acquired membership warehouse chain (Price Saver's).	In 86 sold Drug chain for $415.6 mill.
85	LAFARGE CORP	Doesn't agree -- Annual report footnote says co. is in 1 segment but the segment could encompass quite a few things.	
85	LIVE ENTERTAINMENT	No Lexis before 87.	Merger between Lieberman Enterprises and International Video Entertainment. Sold Home Entertainment Division.
85	LUBRIZOL CORP	1/1/85 Chemicals Co. Acquired diversified seed and genetic research co. (Agrigenetics).	
85	MAXXAM GROUP INC	2/26/86 Real estate co. merged with forest product/cutting & welding co. (PALCO) Had acquired 65% by 12/85.	
85	NACCO INDUSTRIES	On 3/11/85 Coal mining co. acquired 85% of forklift truck co. (Yale Material Handling Corp.).	
85	NATIONAL COMPUTER SYS INC	On 2/85 scanning and computer systems co. acquired leasing co. (Commonwealth Leasing).	87 -- plan to dispose of Commonwealth leasing.

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YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
85	PRICE COMMUNICATIONS CORP	Broadcasting co. which acquired $156 million worth of radio and TV stations in 83-85. Acquired Publishing cos. in 85 (Law Publishing on 8/1/85, and Red Bank Register and Toms River Publishing on 8/31/85).	
85	PRIME HOSPITALITY CORP	7/3/85 Lodging co. acquired another lodging co. which had a telephone interconnect subsidiary (American Motor Ins).	89 is a Compustat switchback. On 6/30/89 the co. reports that it sold its telephone assets in 87. It reports 2 segments: lodging and franchising. On 09/18/90 the co. filed for Ch 11. No segs reported in 12/31/91 AR.
85	REICHHOLD CHEMICALS INC	In 85 this resins co. acquired 2 adhesives co (Swift and Peter Cooper). Other acquisitions as well.	
85	REVLON GROUP INC	On 12/1/85 (wrong year) consumer merchandise co. acquired beauty and health care products co. (Revlon Inc.).	On 4/21/87 Revlon is bought by MacAndrews and Forbes.
85	SAATCHI & SAATCHI PLC -ADR	ADR	
85	STALEY CONTINENTAL INC	Agricultural products acquired 2 food service distributors (11/84 -CFS and 6/85 -Smelkinson Brothers).	
85	STERLING SOFTWARE INC	2/1/85 Software co. acquired Check Consultants, Inc. 6/20/85 acquired Informatics. 10/85 acquire Decisions Systems. Now 3 segments: systems software, applications products, and professional services (formerly 1 segment).	
85	TELEPHONE & DATA	Telephone co. begins cellular phone operations in 85. Radio paging business is growing also. Don't begin reporting 3 segments until 86 though.	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
85	TODD SHIPYARDS CORP	11/85 ship building co. acquired air powered equipment and aeronautical life support system co. (ARO).	8/17/87 Todd filed for Chapter 11 (doesn't apply to ARO). In 89 sold ARO to Ingersoll Rand for $127.5 mill cash.
85	TRITON GROUP LTD	On 5/31/84 co. was primarily a holding co. -- successor to Chase Manhattan Mortgage and Realty which filed Ch. 11 in 79. 12/84 acquired consumer products co. (Simplicity). 12/15/85 acquired film /graphics and airmotive/manufacturing co. (Republic).	
85	TURNER CORP	Acctg -- Construction co. consolidated real estate joint ventures from equity method to fully consolidated.	
86	AMERISCRIBE CORP	In 85 co. had severe liquidity problems. It tried to sell several businesses. In 86 it isn't able to sell financial printing so it reports it as a separate segment.	In 87 sold financial printing segment.
86	BAXTER INTERNATIONAL INC	11/25/85 --Hospital products company acquired more diversified medical product co (American) -- have to sell some operations to avoid antitrust.	
86	CARDIS CORP	7/86 -- Auto parts warehouse company acquired service chain (Tuneup masters) Co. is in financial default in 87.	
86	CHICAGO PACIFIC CORP	Thru 85 primary business was liquidation of railroad assets -- In 85 Co. began to acquire home products cos. (11/85-Hoover, 7/31/86 Rowenta 8/25/86-Kittinger, 12/15/86 Mcguire), -- now appliances & furniture.	88 -- Acquired by Maytag for $384 million.
86	CNW CORP	5/22/86 Railroad co. acquired snow plow manufacturer (Douglas Dynamics).	88 sold Douglas Dynamics to Park-Kenilworth for $77.5 million.
86	COOPER COMPANIES INC	Wrong Yr. -- Prior to 8/86 medical diagnostics co. 86AR - In 86 Cooper Biomedical (medical diagnostic co.) and Technicon (Revlon subsidiary -- medical and industrial diagnostics) merged.	89 AR -- Sold 3 divisions and back to 1 segment.

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YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
86	DELUXE CORP	12/22/86 - check co. acquired electronic funds transfer software co. (A.O. Smith). In 87 report separate segments.	
86	DOLE FOOD CO INC	3/3/87 --Food products co. acquired transportation leasing co. (Flexi-van).	1987 - Sold Flexi-van for $125 million (spinoff).
86	ENVIRODYNE INDUSTRIES INC	2/14/86 Plastic flatware co. acquired film packaging assets from Union Carbide and 12/2/86 Filmco from RJR (also film packaging).	
86	FABRI-CENTERS OF AMERICA	Internal growth Fabric co.'s tableware division is significant for first time in 86.	Acctg -- housewares no longer significant.
86	GATEWAY CORP - ADR	ADR	
86	GENERAL MOTORS CORP	GM acquired Hughes Aircraft and EDS.	
86	GTE HAWAIIAN TELEPHONE CO	No Lexis.	
86	HERTZ CORP	Doesn't agree -- In 85 RCA sells Hertz to UAL. In 86 Hertz sells long term car leasing ops to United States Leasing. In 87 Hertz is sold to Ford.	
86	INTERFACE INC	12/17/86 -- Flooring co. acquired interior fabrics co. (Guilford).	Acctg -- 87 AR says 1 segment -- interior finishings.
86	INTERPROVINCIAL PIPE LN	12/5/86 -- Pipeline co. acquired natural gas co. (Home Oil division of Hiram Walker Resources).	
86	JAMES RIVER CORP OF VIRGINIA	3/31/86 paper co. merged with packaging co. (Crown Zellerbach). Several other acquisitions in 86.	
86	JEFFERSON SMURFIT CP	2/3/86 paperboard/packaging co. acquired newsprint co. (Publisher's Paper). Also acquired >50% of Container Corp of America.	
86	LAMSON & SESSIONS CO	In 84, 5 segments. In 85 restructuring -- sold some divisions and regrouped others into 1 segment -- transportation. In 86 acquired industrial/construction product division (Carlon) from TBG, Inc.	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
86	LIN BROADCASTING	Internal growth. TV broadcasting co began cellular phone operations in 85 by spending $8.4 mill. Another $44 mill spent in 86 caused cellular operations to be significant.	
86	MAYTAG CORP	5/30/86 Home appliance co. acquired soft drink vending equip & home appliance co. (Magic Chef).	
86	NATIONAL MEDICAL ENTERPRISES	Medical Co. acquired 85 long-term care facilities, 2 acute care hospitals, & 2 psychiatric hospitals. Don't give seg fn until 88.	
86	NS GROUP INC	On 6/30/86, specialty steel co. acquired adhesives co. (Imperial). Also acquired a steel mini-mill (KES) and pipe finishing co (Erlanger).	
86	PHARMHOUSE CORP	Acctg -- (Formerly S.E. Nichols) In 87 AR began reporting 2 segments. Gives numbers for 86 & 85.	Sold distribution division (Schreiber).
86	SCHERER (R.P.)/DE	5/86 -- Drug delivery systems co. purchased Eyeglass co. (Southern Optical).	In 91 co. is discontinuing its diversified health care operations to operate solely in drug delivery business.
86	SERVICEMASTER -LP	12/86 Management services co. acquired termite and pest control business (Terminex). Don't report 2 segments until 87 AR but give 86 numbers.	
86	TELE-COMMUNICATIONS	Acquired several cable systems in 85 for $130 mill but no seg fn for 84, 85, 86, 87, and 88.	
86	TGX CORP	11/86 petroleum exploration co. acquired natural gas transportation co. (LEDCO).	2/22/90 Filed Chapter 11. 8/13/91 sold LEDCO.
86	WORLDCORP INC	Acctg -- In 86 air flight co begins reporting contract maintenance as a separate segment. Gives 86,85, and 84 numbers.	4/23/87 suspended contract maintenance operations -- $14.9 mill charge.

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YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
87	ANDREW CORP	8/23/86 -- Telecommunications company purchased defense/military telecommunications company (Scientific Communications).	
87	ATARI CORP	10/4/87 -- Consumer electronic firm acquired retailer of consumer electronics (Federated).	88 - discontinued Federated due to losses.
87	CABLEVISION SYSTEMS	12/31/86 -- Cable company reorganized and acquired programming company (Rainbow programming). Also made other acquisitions in 87. Do not report separate segments until 88.	Sold programming (Rainbow) to NBC in 89.
87	CINCINNATI BELL INC	2nd Q 87 - Phone operating company acquired computer co. (Auxton) for $92 million.	
87	CONSOLIDATED NBS INC	No Lexis.	
87	CROSS (A.T.) & CO	Internal growth -- 87AR 2 segments, writing and leather products -- no acquisitions.	
87	FLORIDA EAST COAST INDS	In 87 Railway co. began to report realty division "as a result of current yr acquisitions and expenditures".	
87	GERIATRIC & MEDICAL CTRS INC	Doesn't agree -- No segment footnote in 88. Some small acquisitions but nothing material.	
87	HILTON HOTELS CORP	Doesn't agree -- 2 segments in 87 and 86. Also breaks out segments for 85 and 84.	
87	NEWELL COMPANIES	On 7/2/87, Hardware and Housewares co. acquired diversified co. (Anchor Hocking) and added an industrial products segment.	
87	PHM CORP	Acctg -- Homebuilding co. consolidated mortgage & mortgage financing divisions. Formerly equity method.	
87	QUANEX CORP	On 8/22/89 steel co. acquired aluminum building products co. (Nichols-Homeshield). Also, begins reporting steel bars and steel tubes separately -- gives 88 and 87.	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
87	RAGAN (BRAD) INC	Doesn't agree -- Has 2 segments in 86 -- gives 86,85,84 numbers. Doesn't appear to ever be one segment.	
87	STONE CONTAINER CORP	Acctg -- Co. made some acquisitions but in very similar areas. In 87 and 88 say they are 1 segment. In 89 split out into 2 segments and give 88 & 87 numbers.	
87	WINNEBAGO INDUSTRIES	10/86 RV co. purchased satellite courier business (Cycle Video). Doesn't report as a separate segment until 8/27/88 AR. Satellite business is very small -- doesn't meet thresholds.	
88	AMERCO	No Lexis.	
88	ANACOMP INC	8/26/88 -- Micrographics company purchased magnetic storage company (Xidex).	Back to 1 segment in 89 -- sold Xidex.
88	BELL ATLANTIC CORP	Acctg - consolidated previously unconsolidated financial and real estate services.	
88	CENTURY COMMUN	In fiscal 88 Cable TV systems co. acquired cellular telephone systems. Also acquired TV systems over the previous 3 yrs.	
88	CENTURY TELEPHONE ENTERPRISE	Acctg -- Same business operations in 87 w/ no segment footnote.	
88	CHRYSLER CORP	Doesn't agree -- 86-88 co. reports 3 segments -- however did acquire AMC Jeep in 87 and Electrospace systems.	switchback firm according to compustat.
88	CLABIR CORP	Co. in financial trouble-- got rid of a lot of assets in 87 & 88 but never one segment. Acquired by Empire of Carolina in 89.	
88	COMMUN TRANSMISS	10/20/88 Communications transmissions co. acquired long distance telephone co. (ALC Communications).	Switch back in 91 but no Lexis.

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YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
88	DIANA CORP	4/11/88 - Wholesale Meat and Seafood co. merged with a food retailer (Farmhouse). Farmhouse already owned 56%.	Sold Casablanca (manufacturing division) for $24.6 million -- 2 subsidiaries file for Ch 11 on 1/4/91. Back to 1 segment (meat and seafood) but then buys a telecommunications co. in 1991
88	DIBRELL BROTHERS INC	7/1/87 (FYR 88) - Tobacco company acquired cut-flower business (Florimex).	
88	DOLE FOOD CO INC	12/31/87 Food products co. acquired another food products co. with real estate operations (Tenneco West). Report a real estate segment in 87 but it is smaller than thresholds.	
88	ENTERRA CORP	3/24/88 After divesting a lot of businesses in 87 rental tools co. purchased a pipeline co. (CRC pipeline).	
88	FORD MOTOR CO	Cos. financial services & real estate subs now consolidated -- previously accounted for by equity method.	
88	HONDO OIL & GAS CO	10/28/87 refinining and marketing co. merged with oil and gas production co. (Pauley Petroleum). 3/16/88 purchased Fletcher Oil Co. which was in bankruptcy.	In 1991 discontinued refinining/marketing and real estate segments. "desire to focus utilitization of resources on its core business of oil and gas exploration and production."
88	HUFFY CORP	1/88 recreational products co. acquired wooden juvenile furniture co. (Memline). 12/88 acquired inventory taking service (Washington Inventory Service).	
88	KIRBY CORP	Acctg -- In 87 co. discontinued its oil and gas division and didn't consolidate its insurance subs (one segment for 87 only). In 88, co. consolidated insurance and split transportation division into 2 segments.	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
88	LIFETIME CORP	Acctg (2 yrs)-In 88 & 89 co. reports 1 segment. In 90 it reports 3 segments and gives numbers for 88 & 89. Additional segments do not meet thresholds in 88.	
88	MACK TRUCKS INC	Acctg -- Truck co. consolidates formerly unconsolidated finance division in 88 and also give 87 and 86 numbers.	In 1990, This subsidiary of Renault is completely acquired.
88	MAXXAM INC	5/20/88 -- Real Estate co. MCO Holdings merged with Maxxam Group. Also bought Kaiser Tech Aluminum.	
88	MCCAW CELLULAR COMM	5/13/88 Radio communications co. acquired/merged with joint venture partner in cellular phone operations.	
88	MEDCO CONTAINMENT SVCS INC	9/10/87 Medical containment co. merged with porous plastics manufacturer (Porex).	
88	MONTGOMERY WARD HLDG	Mobil Corp sold Montgomery Ward to its senior management, General Electric and Kidder Peabody for $1.6 billion. No Lexis for Montgomery Ward before 94.	
88	NHI NELSON HLDGS INTL	In 89 splits business into 2 segments -- gives 88, & 87 numbers.	
88	NOWSCO WELL SERVICE LTD	No Lexis before 90.	
88	PRESIDIO OIL	8/87 -- Oil and Gas co. purchased gas systems division from Kaiser Aluminum and Chemical. Gas systems not operational until 1988. Also acquired Petroleum Development Corp in 3/87. 10/88 acquired oil & gas properties from SOHIO. 12/88 General Atlantic.	1992 -- Co. is selling assets to meet credit agreements. Sold Gas systems divisions for $115.7 mill.
88	RF & P CORP	No Lexis.	
88	ROGERS COMMUNICATION	No Lexis.	
88	ROHR INC	Internal growth -- 88 Aircraft product co. begins making space launch products (Titan Space Launch Products).	In 90 space products no longer significant.

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
88	RYLAND GROUP INC	Acctg -- Home building co. consolidated its financial subsidiaries (formerly accounted by equity method). Also acquired Guild CMO/mortgage REIT.	
88	RYMER FOODS INC	Acctg-- Food co. sold its 'Sea Watch' division for $30 mill. During 88 realigned the financial results of its business into 2 reporting segments -- food service and retail.	
88	SEAGRAM CO LTD	4/88 -- Spirits and wine co. acquired fruit juice co. (Tropicana Products) Also acquired Martell S.A.	
88	SUDBURY INC	Acquisitions -- Industrial products co. acquired a foundry, a machinetool builder, a manufacturer of waste material handling products, and a lubricant processor.	1/10/92 co. filed Chapter 11 protection and sold 14 businesses. Co. now has 6 subsidiaries which make up 1 segment.
88	U S WEST INC	No Lexis.	
88	WHIRLPOOL CORP	Acctg -- Major appliance co. adopted FAS94 and consolidated finance and leasing subsidiary (Whirlpool Acceptance Corp).	
88	XEROX CORP	Acctg -- Adopted FAS94 and consolidated Xerox Financial Services,Inc. Also restructuring -- looks like they are refocusing.	
89	DAMON GROUP INC	5/30/89 Acquisition partnership acquired Damon Corp (medical, electronic products, hobby products, and real estate) with the intent to sell everything but clinical labs. No segment footnote.	In 1990 reports that it sold hobby division for $41.4 mill and is back to 1 segment.
89	KDI CORP	Doesn't agree -- In 89 KDI is acquired by Kaydon. Kaydon has no segments for 89, 90, or 91 (note: KDI reported 3 segments in 87).	Compustat switchback but Kaydon has been reporting 1 segment for 3 yrs.
89	METRO MOBILE CTS INC	Cellular phone co. acquired several cos. engaged in sale & distribution of natural gas.	
89	NYNEX CORP	Internal Growth (Wrong Year) -- Telphone co. grows cellular operations.	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
90	AMERADA HESS CORP	Acctg (2 yrs) -- In 92 oil and gas co. reports 2 segments: exploration/development and refining/marketing for 92, 91, 90. Made acquisitions during period also.	
90	ARTRA GROUP INC	3/3/90 -- Jewelry co. acquired food packaging co. (Bagcraft) Financially distressed -- 1 segment firm for 89 only -- discontinued some operations in 89 -- 90 .	
90	AT&T CORP	Internal growth -- financial services segment became large enough to be reported.	
90	BLACK & DECKER CORP	4/26/89 -- tool manufacturer acquired diversified co. (Emhart) in 89 with intention of selling some of operations -- couldn't sell everything they wanted to -- hence additional segs in 90.	
90	BROOKE GROUP LTD	1/90 - Tobacco co. acquired MAI (info processing). Incorporated trading card subsidiary 11/20/89.	
90	CASTLE ENERGY CORP	8/14/89 Oil and gas exploration co. acquired idle refining co. (Lawrenceville Refining). The co. states that it has occurred significant losses due to the new refining operations.	
90	CROWN CORK & SEAL CO INC	Acctg -- Packaging firm made several acquisitions over the 89 - 92 period. Begin reporting plastic as a seperate segment in 92 and give 91 and 90 numbers but it isn't material.	
90	DART GROUP CORP	Same segment footnote for 89-92 Co operates discount, specialty & grocery stores, real estate, and finance. Co. formed real estate subsidiary in 1989.	
90	EDISTO RESOURCES CP	7/22/89 Oil and Gas co. merged with gas marketing and transmission/pipeline co. (ESCO).	
90	ELBIT LTD	1/90 Defense supplier purchased 69% of medical imaging co. (Elscint). Elbit is a subsidiary of Elron.	
90	GENERAL NUTRITION INC	No Lexis for 1990.	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
90	GLOBAL NATURAL RESOURCES INC	Oil and gas exploration co. spent $9.6 mill to form a gas pipeline (USAGas).	
90	IONICS INC	Acctg. Co. begins reporting 3 segments in 92 and gives 91 and 90 numbers.	
90	MDC HOLDINGS INC	No Lexis.	
90	MISSISSIPPI CHEMICAL CORP	Internal growth -- chemical fertilizer co. spent $349.1 mill on a newsprint mill. plans to sell to a 3rd party and leaseback.	
90	ORANGE-CO INC	Acctg -- In 90 co. reports 2 segments -- citrus and petroleum products. Gives numbers for 88 and 89 also.	
90	PIER 1 IMPORTS INC/DE	Specialty import co. purchased nursery (Sunbelt).	During fiscal 92 reduced its investment in Sunbelt to 49.5%. Now equity method.
90	PITT-DES MOINES INC	Acctg -- reorganization - "Co. now operates in 4 business segments. Also gives numbers for 89.	
90	REXON INC	11/89 tape backup co. acquired tape backup software co. (Sytron). Don't report seperate segments until 11/91AR.	
90	RIO HOTEL & CASINO INC	Internal growth -- real estate co. started a casino.	During 91 co. disposed of its real estate segment.
90	THERMO INSTRUMENT SYSTEMS	1/90 instrument division merged with the service subsidiary of its parent and reported this as a separate segment. 5/90 acquired another instruments co. (Finnigan).	
90	UNI-MARTS INC	Internal growth -- Co. has identified it business segments as convenience stores, dairy operations and other. Dairy and other have grown for 3 years.	
90	WATKINS-JOHNSON	Acctg -- In 90 electronic systems co. "reorganzed to operate in three industry segments: Defense, Commercial and Environmental Services.	
91	AMR CORP/DE	Acctg (2yrs) -- American Airlines. In 1992 airline begins reporting 2 small divisions (don't meet thresholds). Give numbers for 91 and 90 also.	

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Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
91	BAKER (J) INC	2/2/91 -- footwear retail co. acquired Big & Tall Men's retail chain out of Chapter 11 (Casual Male). 9/25/91 acquired assets of utility workwear retail chain (Wearguard).	
91	COEUR D'ALENE MINES CORP	Acctg -- 91 annual report gives same segment data for 90 & 89.	
91	COMMUNITY PSYCHIATRIC CNTRS	Acctg - Co. begins reporting seperate segments in 92. In 90 acquired some related facilities.	
91	CONE MILLS CORP	Acctg -- $2.8 million restructuring -- retroactively list 2 segments for 90 and 89.	
91	DAIMLER-BENZ AG - SPON ADR	ADR	
91	FHP INTERNATIONAL CORP	Acctg change -- HMO co. began reporting insurance segment separately.	
91	FOXMEYER HEALTH CORP	In 1990 co. went through restructuring and sold Zahn Drug for $23.8 mill. Intended to sell Ben Franklin. In 1991 annual report, co. is unable to sell Ben Franklin so reporting 2 segments again.	
91	HOMESTAKE MINING	In 90 gold mining co. purchased 16.7% of rights to a sulphur/gas & oil mine (Main pass 299).	
91	INTELLIGENT ELECTRONICS INC	6/19/91 -- Office productivity solutions co. (distributor and retailer) acquired national chain of office product supercenters. (Biz-Mart).	3/4/94 co. sold Biz-Mart to Office Max for $275.2.
91	OZITE CORP/TX	No Lexis.	
91	SIGNAL CAPITAL HLDGS CORP	No Lexis -- Signal is a subsidiary of Itel Corp. No Lexis for sub.	
91	SPX CORP	In 93 Co. made an acquisition (with a new leasing co) and broke out segments for 92 & 91 also. For 91 and 92 co. says it is one line of business -- service products for the transportation industry.	
91	TCBY ENTERPRISES INC	Acctg -- In 90, 91, and 92 AR it says there are 2 segments. In 93 they give numbers for 93, 92, 91.	

Appendix: Sample Description

YR	COMPANY NAME	Reason for Increase in segments	Firms which switch back to 1 segment and reasons
91	TYCO INTL INC	Doesn't agree -- Co. lists 2 or 3 segments for 88, 89, 90, 91, & 92.	
91	TYLER CORP	Pipe and fittings co. acquired automotive aftermarket parts co. (Forest City Auto Parts).	
91	VISTA RESOURCES INC	10/91 leather products co. acquired insurance co. (American Southern Insurance).	
91	WAINOCO OIL CORP	10/7/91 - Oil and gas exploration co. acquired refining co. (Frontier) Other acquisitions as well.	
92	CERIDIAN CORP	Acctg -- begin reporting 2 segments again.	
92	CHC HELICOPTER CORP	No Lexis.	
92	HARLAND (JOHN H.) CO	Co. says it operates primarily in the printing industry. On 2/19/92 it purchased a check printing co. (Interchecks).	
92	HARVARD INDS INC	No Lexis.	
92	HEALTHCARE AMER INC	No Lexis.	
92	INSILCO CORP	In Chapter 11. During 91-93 Co. reported financials according to reorganization principles.	
92	MAYFLOWER GROUP INC/IN	No Lexis.	
92	O'SULLIVAN CORP	11/24/92 Calendered & molded plastic products co. acquired lawn & garden consumer products co. (Melnor Industries).	
92	ROBERTS PHARMACEUTICAL CORP	Pharmaceutical co. made many acquistions over 90, 91, & 92. 3/92 acquired contract research co. (National Clinical Research Centers).	
92	THIOKOL CP	11/1/91 aerospace propulsion systems co. acquired aerospace fastening system (Huck Manufacturing).	

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