The Perils of Free Cash Flow, Avoidance of Outside Monitoring, and the Exploitation of the Internal Capital Market

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Internal capital markets afford firms a real option to avoid costly outside financing [Matsusaka and Nanda (2002); Yan (2006); Hovakimian (2010)] and the monitoring that accompanies the raising of capital. We extend the literature on conglomerate firms by finding that high coincident levels of free cash flow and investment are associated with inefficient capital allocations and acceptance of value-destroying investments. Moreover, since agency problems are often the direct result of the absence of monitoring and since capital raising gives investors a referendum on a firm's investment policy, we test whether monitoring provided by external capital markets can alleviate the value destruction that results from inefficient investment policies. Our results are consistent with this argument. We find that those conglomerates which cross-subsidize their business units or engage in value-destroying investment avoid the oversight of the external capital markets and that investors react negatively when these firms initiate seasoned equity offerings. We further find that mid-sized firms (those most susceptible to free cash flow problems) exhibit dysfunctional internal capital markets and the largest valuation discounts, but also benefit the most from outside monitoring.

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CONGLOMERATE FIRMS HAVE A UNIQUE ADVANTAGE over their focused counterparts due to their ability to allocate resources to their most promising divisions through the use of an internal capital market. This is particularly valuable in the presence of high information asymmetries or when firms face financing constraints. In a world where not all projects are funded, informed managers at the headquarters level engage in "winner-picking" by transferring scarce capital to the firm's most promising divisions thereby profiting from investment opportunities which would not have been funded at stand-alone firms [Stein (1997, 2003)]. The resource allocation process affords additional benefits by providing a real option to avoid outside financing when either deadweight floatation costs or the costs of external financing are high [Matsusaka and Nanda (2002); Yan (2006); Hovakimian (2010)].

What is puzzling is that much of the recent literature on conglomerates indicates that this capital allocation process tends to destroy value rather than enhance it, as diversified firms exhibit large valuation discounts relative to focused firms.[1] Existing evidence suggests that this value reduction results from the inefficient use of resources by corporate management which leads to value destroying investment policies [Shin and Stulz (1998); Scharfstein and Stein (2000); Rajan et al. (2000)]. Agency problems associated with excess free cash flow are often the direct result of insufficient monitoring [Jensen and Meckling (1976); Jensen (1986); Myers and

[1] A large empirical literature documents a substantial "diversification discount" amounting to as much as 15% of firm value. See Lang and Stulz (1994), Berger and Ofek (1995), Servaes (1996), and Lins and Servaes (1999), among others.

Majluf (1984)]. We note that the very flexibility that allows conglomerates to avoid costly financing is what provides the opportunity to avoid outside monitoring.

In this study, we examine the impact of high levels of free cash flow upon capital allocations in corporate conglomerates and how these investment allocations affect firm value. As mentioned earlier, many multidivisional firms benefit from avoiding external capital markets, and these firms have a real option to finance their investments internally. However, since that option is exercised at the discretion of managers, it may not always be done in the best interest of shareholders. In an attempt to glean the motivations behind the resource allocation process at corporate conglomerates, we also study the determinants of the decision to issue capital at diversified firms as well as how diversified firms' shareholders react to capital issuances when their managers are not allocating resources in a value-maximizing manner. Finally, we examine whether those firms that do choose to access the capital markets garner additional oversight and whether that outside monitoring serves to improve firm value.

Throughout this study we are agnostic as to whether or not corporate diversification leads to a discount, but instead focus on the relative valuation of firms as a function of free cash flow, investment, and outside monitoring.[2] However, we recognize that the choice to diversify may be endogenous and that it has its own determinants [Matsusaka (2001); Campa and Kedia (2002); Villalonga (2004)]. Given the weaknesses that this self-selection induces into the analyses, we attempt to control for endogeneity and unobservable characteristics in four ways to mitigate these effects. First, we recognize that diversified firms may be systematically valued differently

[2] In fact, our results are not limited to whether the firm suffers from the "diversification discount" or not. The implications of the paper are relevant even if all firms trade at a premium.

than focused firms. Accordingly, we investigate the impact of coincident levels of free cash flow and investment on internal capital market allocations and firm value for diversified firms only. Second, to explicitly control for the potentially endogenous choice by firms to diversify and the selection bias that may exist by examining only diversified firms, we follow Campa and Kedia (2002) and correct for self-selection using the methodologies advocated by Heckman (1979). Third, we further control for unobservable characteristics by using panel data and implementing firm fixed-effects in our analysis. Finally, we analyze the inferences from our panal data tests in conjunction with out-of-sample event study evidence that should be relatively free of endogeneity concerns.

We find that a diversified firm's value varies inversely with the coincidence of corporate investment and free cash flow and that this is driven, at least in part, from a sub-optimal investment policy. Indeed, Richardson (2006) documents that free cash flow is associated with over-investment. We contend that higher coincident levels of free cash flow and investment are associated with value-destroying investment, the cross-subsidization of business units, and overall lower firm value. This is consistent with the argument that corporate conglomerates suffer from a free cash flow problem. Furthermore, we note that cash flow, investment, the effectiveness of corporate internal capital markets, and firm value all vary systematically with firm size. Mid-sized corporate conglomerates, those with $20M - $400M in annual sales, appear to suffer the most from the free cash flow problem. The efficiency of their resource allocations is the most adversely affected by excess free cash flow, and these mid-sized conglomerates have the lowest overall market valuations. To our knowledge, no study has thoroughly examined how

the investment policies and shareholder value of a diversified firm varies with these characteristics or with firm size and why this relation might exist.[3]

We find that managers avoid the external capital market when the cost of capital is high, consistent with prior research showing that an internal capital market provides a real option to avoid costly external financing. However, conglomerates are also significantly less likely to issue capital when they cross-subsidize their underperforming divisions and when they engage in value-destroying capital investment programs. This effect is economically significant. The estimates imply that these firms are between 2.7-3.7% less likely to issue capital, approximately double the effect of a similar one-standard deviation increase in the cost of outside financing. These findings support the argument that managers engaging in empire building wish to avoid capital market oversight, instead preferring to fund their projects internally [Stulz (1990)]. Our results provide some insight as to why the empire building manager might avoid accessing the external capital markets. Confirming our panel data results, we find that investors react negatively to those firms that choose to issue capital while operating inefficient internal capital markets. In keeping with the literature on seasoned equity offerings, we find that when diversified firms announce a new equity offering there is an overall negative reaction.[4] However, after controlling for other covariates, the announcement return is 0.74% and 1.30% *lower* for those conglomerates with cross-subsidizing and value-destroying internal capital markets, respectively.

[3] Berger and Ofek (1995) present introductory evidence of how value from diversification varies across size quartiles. However, their analysis does not fully explore the size-value relation, but instead focuses on the existence of the discount itself [see their Table IV, Panel B].
[4] This negative reaction is typically attributed to asymmetric information problems between managers and investors. Asquith and Mullins (1986) document a negative return of -2.7% upon the announcement of SEOs.

Our results indicate that the issuance of capital is associated with additional oversight as those firms which do choose to issue capital garner significantly more attention from the analyst community. Furthermore, we find that the added analyst attention is associated with significant improvements in resource allocations at the mid-sized conglomerates which suffer most from the free cash flow problem and otherwise have little outside monitoring from the analyst community. We also show that the additional analyst oversight is linked to higher firm value for all firms. These results are consistent with the argument that raising capital allows investors to impose a referendum on firm investment policy and that information producers, such as securities analysts, perform an important role in overseeing the investment allocations at diversified firms.

We contribute to the overall literature on diversification and internal capital markets by establishing that conglomerate firms have free cash flow problems, whereby high levels of free cash flow and investment yield inefficient allocations and value destruction. It is important to recognize that in order to engage in suboptimal or value-destroying capital expenditures, the firm must have funding available for investment (free cash flow) as well as actually undertake that investment. Therefore it is crucial to examine the joint effect of free cash flow and investment.

We document a novel way for empire-building managers to avoid external oversight by providing evidence that the firms with free cash flow problems cross-subsidize underperfoming divisions and destroy value, and avoid the payment of dividends, the issuance of capital, and the monitoring of analysts. Therefore, these problem firms indeed exercise the option to avoid capital markets [Matsusaka and Nanda (2002)] and when they do, the market punishes those

firms with significantly lower valuations. The disciplining effects of the capital market do, however, ultimately reward firms; we find evidence that firms that subject themselves to the monitoring of capital markets experience higher firm value. In examining the avoidance of capital markets, we focus on one aspect of governance, external governance. Other studies such as Anderson et al. (2000), Denis et al. (1997), and Rose and Shepard (1997) have examined the internal governance of diversified firms and note that incentive and ownership structures differ at corporate conglomerates. However, Singh et al. (2004) show that this is primarily due to firms being at different stages in their corporate life cycles. Based on these studies, internal governance mechanisms fail to adequately control the problems of free cash flow and investment that we observe. Our study contributes to this line of inquiry by examining the benefits of external governance for diversified firms.

In addition, we further extend the diversification literature with the inclusion of small conglomerates in our analysis, which have been excluded in much of the recent extant research [Berger and Ofek (1995); Rajan et al. (2000); Lamont and Polk (2001, 2002); Campa and Kedia (2002); Denis et al. (2002); Billett and Mauer (2003)]. The inclusion of these firms allows us to draw a clearer picture of the costs and benefits of internal capital markets in a wider range of firms with differing characteristics. Finally, we devise an algorithm for augmenting the newer SFAS 131 segment data so that it may be used in conjunction with the SFAS 14 data.

The remainder of the paper is organized as follows. Section I presents a brief review of the conglomerate literature. It also develops hypotheses for how the resource allocation process and firm value are jointly affected by free cash flow and corporate investment and how these

characteristics are related to a firm's ability to avoid the monitoring of the external capital market. It also discusses why the size of the conglomerate may play a moderating role in this relation. Section II discusses the sample selection and methodology and provides a description of the observations. Section III demonstrates how excess free cash flow negatively affects internal capital market efficiency and firm value. In Section IV we discuss the relation between inefficient internal capital markets and the avoidance of external capital markets as well as the market reaction to SEOs when firms have inefficient internal capital markets. In Section V we show how external control forces and the firm's payout policy moderate the agency issues associated with free cash flow. We conclude the paper in Section VI. The Appendix presents an algorithm for augmenting the SFAS 131 segment data so that it may be used in conjunction with the SFAS 14 data.

I. Discussion and Hypotheses

Beginning with Lang and Stulz (1994) and Berger and Ofek (1995), the conglomerate literature has repeatedly documented a "diversification discount." That is, multi-segment firms suffer from valuation multiples that are lower than those derived from a portfolio of their single-segment peers. One of the most common explanations for the diversification discount is the misuse and misallocation of corporate resources within the conglomerate firm. Existing evidence implies that managers distribute capital socialistically within the conglomerate firm rather than to the most deserving divisions. Berger and Ofek (1995) and Rajan et al. (2000) show that the

cross-subsidization of business units occurs, and the exploitation of corporate internal capital markets destroys value.

Clearly the constrained manager would prefer to allocate scarce capital to its first best use, everything being equal. There is little reason to believe that management would prefer to fund poor projects over good ones. Indeed, some authors argue that the conglomerate structure can create substantial value for shareholders. Stein (1997) shows that conglomerates can create value from corporate internal capital markets by engaging in "winner-picking" when allocating capital among the firm's divisions. However, given ample slack, corporate headquarters has the ability to fund a greater universe of projects and may overinvest rather than return excess capital to shareholders. Lamont (1997) provides evidence from the 1986 oil industry shocks where the subsidization of underperforming non-oil divisions was highly dependent on the oil divisions' free cash flow. Given this evidence, we hypothesize that those conglomerates which choose to invest large amounts of free cash flow will do so in a manner that worsens the efficiency of their resource allocation process.

Large amounts of free cash flow may cause further problems with investment project selection, not just in a relative sense, but in an absolute sense as well. Stulz (1990) and Jensen (1986, 1988) argue that management derives private benefits from corporate investment and prefers to apply excess capital to potentially value-destroying uses rather than reducing their corporate empire by distributing cash to shareholders. Lang et al. (1991), Harford (1999), and Doukas and Kan (2004) provide evidence in support of this conjecture by showing that high free cash flow firms, particularly conglomerates, tend to make value-destroying acquisitions. It is the

joint impact of funding availability (free cash flow) and undertaking the investment which leads to our first hypothesis (1a and 1b):

Hypothesis 1 – Coincident free cash flow and investment are hazardous to a firm's health

Hypothesis 1a – Coincident free cash flow and investment harm the resource allocation process

The efficiency of the resource allocation process within a corporate internal capital market is decreasing with the coincident levels of total firm investment and free cash flow.

Hypothesis 1b – Coincident free cash flow and investment harm a firm's value

Firm value is negatively related to the coincident levels of free cash flow and firm investment due to management's decision to fund too many investment projects as well as a sub-optimal allocation of resources among the projects chosen.

The existence of an internal capital market provides a valuable real option to the conglomerate manager to avoid external financing by utilizing excess internally generated equity from one division to finance investment projects of another. Matsusaka and Nanda (2002) show that this real option adds value to the conglomerate firm by eliminating the deadweight flotation costs associated with issuing external capital. The ability to avoid the outside markets is especially valuable when there is a divergence between the costs of internal equity and external funds. Consistent with this argument, Yan (2006) and Dimitrov and Tice (2006) document that conglomeration is valuable when the costs of outside financing is high or when bank financing is

scarce. However, as Matsusaka and Nanda note, this option only exists when there is ample slack within the internal capital market and is of no value for the constrained conglomerate.

Hypothesis 2 – Firms avoid capital markets when financing is costly and internal financing is abundant

Diversified firms are less likely to issue capital when the cost of capital is high and when they have ample internal slack.

While the ability to avoid the outside capital markets may be valuable, the recurrent need for capital presents an important avenue for managerial oversight. When raising capital to finance a project, managers essentially offer investors a referendum on their investment policy. If managers are dependent on the financial markets for current and future infusions of capital, it is likely that they will curtail value-destroying investments to maintain a reputation for value-maximizing behavior. Conversely, firms with the ability to finance their investment with internally generated funds from other profitable divisions have a real option to avoid this oversight for their capital expenditures. Consequently, firms which engage in suboptimal resource allocations will choose to exercise their option to avoid the oversight of the outside capital markets and will be less likely issue capital.

Management often claims that the retention of excess cash flow to reinvest in the firm is essential for future growth and the success of the firm. However, Easterbrook (1984) argues that management habitually overinvests and advocates the use of dividends to mitigate this agency problem. The initiation or the increase of dividends represents a significant commitment not

easily reversed.[5] Since dividends disgorge excess cash, the constrained firm must often subject itself to the monitoring of the external capital markets each time it wishes to make a major investment. Thus by paying dividends, managers commit themselves to future investor approval for planned capital expenditures. Firms that transfer resources away from highly performing divisions to subsidize their underperforming ones may wish to avoid this future monitoring from the capital markets and therefore are less likely to commit to paying dividends today.

Investors face a lemons market when firms issue capital [Myers and Majluf (1984)] and are rightly concerned about the loss of control over proceeds use. Jensen (1986) contends that the share price reduction around SEOs is attributable to managerial overspending and inefficient investment decisions. Indeed, Walker and Yost (2008) show that agency issues are an important factor in explaining returns around seasoned equity offerings, with returns being lower when the proceeds of the issue are expected to be deployed towards rent-seeking activities. Thus, we expect investors to react negatively to conglomerates with a history of suboptimal investment when they choose to issue new capital.

Hypothesis 3 – Firms avoid capital markets when they destroy value

Hypotheses 3a

Firms that engage in value-destroying investments and/or cross-subsidization are less likely to issue capital and dividends.

[5] There are substantial penalties to reversing the decision to pay a dividend. Christie (1994) documents that dividend cuts and omissions are associated with a 7% reduction in the firm's stock price.

Hypotheses 3b

Investors will react negatively when firms renowned for engaging in value-destroying and/or cross-subsidizing investments attempt to raise outside capital.

As a byproduct of their dealings with financial institutions when issuing capital, conglomerates often garner additional following in the analyst community. A number of studies have found that, by uncovering and disseminating the value of managerial resource allocations, securities analysts perform an important role in monitoring investment behavior within conglomerates [Moyer et al. (1989); Chung and Jo (1996); Bens and Monahan (2004)]. However, other information producers such as the financial press also perform a significant monitoring function [Dyck et al. (2008)] and might provide a viable substitute for analyst oversight. Since Vega (2006) shows that media coverage substantially increases with the scale of the firm, the benefits of analyst oversight are likely to be decreasing with conglomerate size. Thus, the amount of analyst oversight should be increasing with the issuance of capital, and this oversight from the analyst community should improve firm value, particularly for those firms not already monitored by other information producers.

As previously mentioned, dividend paying firms commit themselves to oversight for future capital expenditures, and the requisite approval of the firm's investment program from the capital markets serves to limit the free cash flow problem. Empirical evidence suggests that the use of dividends for this purpose has the desired effect. Lang and Litzenberger (1989) show that investors substantially reward overinvesting firms that commit to pay out free cash flow in the

form of dividends. Thus, the commitment to pay dividends should mitigate the free cash flow problem and improve firm value.

Hypothesis 4 – Firm value increases when subjected to monitoring

Proxies for the monitoring forces of the capital markets should be positively related to firm value, and outside monitoring should be most beneficial for those firms with high free cash flow and little oversight.

Given the above arguments, we expect that the conglomerates with the largest diversification discounts should be those with the highest levels of coincident free cash flow and investment. We also expect these firms to display the fewest analyst following, to avoid issuing external capital, and to avoid any commitment to disgorge excess cash flow. We also believe that those firms which utilize their internal capital markets to pursue suboptimal investment policies will choose to avoid the oversight of the external capital markets by refraining from issuing capital or paying out dividends.

II. Sample Selection, Methodology, and Data Description

A. Sample Selection

The initial sample consists of the universe of publicly traded multi-segment firms listed in the COMPUSTAT industrial annual and business segment databases from 1978-2005.[6] Each firm in the sample must have complete firm-level and segment-level data to compute all of the

[6] Firms began reporting financials for their business segments in 1976 under FASB Rule SFAS 14 and did so across industry lines. Material business activities residing in a 4-digit SIC code different than the primary segment had to be reported as separate business segments. FASB implemented SFAS 131 in 1998 which changed the manner in which firms report segment data. Rather than reporting across industry lines, firms now must report business segments by internal organization. It is likely that the newer data is superior to the old, since it is now representative of the firm's actual resource allocations rather than an artificial construct developed to conform to reporting standards. Rajan et al. (2000) advocate the use of the SFAS 131 data due to its increased precision, but lament the fact that it was developed too late to use within their study. However, the direct comparability of pre- and post-1998 segment data is compromised by the new FASB standard. It is thus necessary to augment the SFAS 131 segment data in order to use it in conjunction with the SFAS 14 data. This process is described in the Appendix.

explanatory variables used in the analysis. Following Berger and Ofek (1995), all financial firms (SIC codes 6000-6999) as well as any firm with a financial business segment are excluded from the sample. The sum of segment sales must also be within 1% of firm sales, and the sum of segment assets must be within 25% of firm assets.[7]

In contrast to an overwhelming majority of the literature on conglomerates, we do not impose the Berger and Ofek (1995) requirement that sample firms have at least $20 million in total sales.[8] Including these otherwise omitted firms allows the first glimpse of the impact/efficiency of the internal capital markets and the value associated with diversification in small conglomerates. To help restrict the analysis to economically relevant firms and to avoid valuation multiples with components close to zero (the rationale for the original size restriction in Berger and Ofek, 1995), both firm sales and assets must exceed $1 million as measured in 1986 dollars. By comparison, the smallest firm listed in the 1986 Standard and Poor's (S&P) Composite had total assets of $1.24 million and net sales of $0.63 million.[9]

Our hypotheses make specific predictions upon the basis of the internally generated resources at the diversified firm, the scale of its investment, and how much contact it has with the outside capital markets. We note that Fazzari et al. (1988) document significant differences between small and large firms in terms of resources and financial constraints. Although they show that nearly all firms rely extensively on retained funds, smaller firms have little cash flow

[7] Following Berger and Ofek (1995), for those firms where segment assets do not sum to firm assets, but do meet the 25% threshold, segment asset weights are either grossed up or down by the percentage deviation between the sum of segment assets and firm assets to account for the discrepancy wherever necessary.

[8] Berger and Ofek (1995), Rajan et al. (2000), Lamont and Polk (2001, 2002), Campa and Kedia (2002), Denis et al. (2002), Billett and Mauer (2003), Bens and Monahan (2004), and Ahn et al. (2006) all require sales to total at least $20 M to be included in their sample. Notable departures from this requirement include Mansi and Reeb (2002) that require sales of $50 M, Lang and Stulz (1994) that require sales of $100 M, and Shin and Stulz (1998) that require sales of $ 1 B.

[9] The first year in the Berger and Ofek (1995) sample is 1986. For this reason, all values are deflated using the GDP Deflator (1986 = 100).

after investment and are more reliant on the external capital markets. Larger, more mature firms distribute greater fractions of their internal cash flow, are less reliant on the capital markets, and spend relatively less on investment expenditures.

[Figure 1]

Given the abovementioned differences by firm size documented by Fazzari et al. (1988), we are keen to assess our predictions on the basis of these firm characteristics and how they vary by size. Accordingly, we partition the sample firms into size groups with similar values according to the distribution in Figure 1. A natural separation in value from the first decile to the second decile as well between the sixth and seventh decile appears. We therefore classify firms based on these separations as: 1) small, if they reside in the first decile of our sample in terms of deflated sales in 1986 dollars 2) mid-sized, if they reside in the second through sixth deciles, and 3) large, if they reside in the seventh through tenth deciles.[10]

[Table I]

The resultant sample consists of 11,111 multi-segment firm-year observations from 1978-2005. Table I, Panel A lists the sample counts by year for small firms, mid-sized firms, large firms, and the entire sample. The entire sample consists of 1,111 small, 5,555 mid-sized, and 4,445 large, firm-year observations. An average of 40 small firms, 198 mid-sized firms, and 159 large firms appears in each year of the sample. The proportion of small firms is fairly consistent in calendar time, but large conglomerates have become increasingly common in the latter half of

[10] For our sample, median sales for decile 1 (small firms) are $10.22 million and range from $1.01 million to $19.0 million. Median sales for deciles 2 through 6 (mid-sized firms) are $97.2 million and range from $19.0 million to $394.7 million. Median sales for deciles 7 through 10 (large firms) are $1,257 million and range from $395.0 million to $102,813.0 million.

the sample. All regressions utilize calendar year dummies to control for this possible heterogeneity. In Panel B we document the number of firms in each category by industry segment. The small firms are dominated by the machinery, electrical equipment, oil, business services and computer chips industries. The mid-sized and large firms are less dominated by a few industries as compared to their small firm counterparts, yet both contain a large amount of oil and wholesale firms.

B. Measure of Firm Value

To measure the value of the diversified firm, we implement the sales multiplier approach advocated in Berger and Ofek (1995).[11] They argue that the market value of the diversified firm should be the sum of the imputed market values of the individual business segments. Consequently, if a conglomerate has a market-to-sales ratio less (greater) than the weighted sum of the imputed market-to-sales ratios of the individual business segments, value loss (gain) from diversification is present. Berger and Ofek (1995) Excess Value (EV) is computed as:

$$\text{Excess Value} = \ln\left(\frac{Total\,Capital}{Sales} \Big/ \sum_{i=1}^{n} w_i \frac{Total\,Capital_i^{SS}}{Sales_i^{SS}} \right) \qquad (1)$$

where *Total Capital* is the value of the firm's total capital (market value of common equity plus the book value of debt), *Sales* is the total sales of the consolidated firm, w_i is the sales weight of the *i*th business segment, and $Total\ Capital_i^{SS} / Sales_i^{SS}$ is the market-to-sales ratio of the median firm in *i*th business segment's industry. Imputed values are determined by utilizing the industry median from a sample of single-segment or "pure-play" firms residing in the narrowest 4-digit,

[11] Figures I, II, and IV are unchanged if we use Lang and Stulz's (1994) excess value measure or if we use the Lang and Stulz excess value where the imputed q is fitted using segment characteristics (including size) as specified in Billett and Mauer (2003).

3-digit, or 2-digit SIC code industry as the business segment in the diversified firm containing at least five pure-play firms.

C. Measures of Free Cash Flow, Capital Investment, and the Efficiency of the Internal Capital Market

The level of *Free Cash Flow* is proxied by the level of earnings before interest, taxes, and depreciation and amortization. The choice of EBITDA as the measure of cash flow follows has a long tradition in the conglomerate literature [Berger and Ofek (1995); Shin and Stulz (1998); Billett and Mauer (2003); Dittmar and Shivdasani (2003); Dimitrov and Tice (2006)]. Following Titman et al. (2004), we adjust this amount by obligatory dividend and interest payments.[12] The resultant figure is then normalized by sales. *Capital Investment* is measured as the sum of capital expenditures, investments, and cash acquisitions normalized by sales. This measure is also common in the literature.

We utilize Ahn and Denis' (2004) measure of internal capital market efficiency, Relative Investment *("RINV"),* to indicate the optimality of resource allocations within the diversified firm.[13] We define *Cross-Subsidization*, the negative of *RINV*, as the sales-weighted sum of firm- and industry-adjusted capital investment in low q segments less the sales-weighted sum of firm- and industry-adjusted investment in high q segments. We follow Ahn and Denis (2004) and specify *Cross-Subsidization* as:

[12] The results are unchanged if we do not make this adjustment.
[13] The conclusions are unchanged if we use Relative Value by Allocation developed by Rajan et al. (2000).

$$C\text{ross} - \text{Subsidization} = \sum_{j=1}^{k} \frac{SALE_j}{SALE}\left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}} - \sum_{j=1}^{n} w_j\left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}}\right)\right) -$$
$$\sum_{j=n-k+1}^{n} \frac{SALE_j}{SALE}\left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}} - \sum_{j=1}^{n} w_j\left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}}\right)\right) \quad (2)$$

where *SALE* represents the firm's net sales, $SALE_j$ is segment *j*'s net sales, $CAPEX_j / SALE_j$ is the investment ratio for segment j while $CAPEX_j^{SS} / SALE_j^{SS}$ is the median investment ratio for the pure-play firms that reside in segment j's industry. Segments $j = 1$ to k are the segments with an imputed *q* less than the firm's sales-weighted average imputed *q*, while $j = (n - k + 1)$ to n are the segments with an imputed *q* greater than the sales-weighted average imputed *q* of the firm.[14] Positive (negative) values of *Cross-Subsidization* indicate overall inefficient (efficient) resource allocations.[15] That is, positive values of C*ross-Subsidization* are indicative that the firm is, on average, transferring resources from those divisions with higher than firm average q values to those divisions with lower than firm average q values.[16]

While positive values of *Cross-Subsidization* indicate that the firm is "robbing" from more productive divisions and giving resources to less productive ones, the projects that management has invested in could still have q values in excess of one. It is important to note that while these would be suboptimal, "cross-subsidizing" resource transfers within the firm, they may still represent positive NPV investments. As such, we modify our *Cross-Subsidization*

[14] Following Ahn and Denis (2004), the Tobin's q [Tobin (1969)] of individual business segments is imputed by using the median Tobin's q ratio using the narrowest SIC grouping containing at least five pure-play single segment firms. Tobin's q is defined as the market value of equity plus the book value of assets less the book value of equity and deferred taxes, divided by the book value of assets.

[15] Examining equation (2) at the segment level reveals that the calculation within the parentheses represents industry- and firm-adjusted abnormal segment capital expenditures which, by construction, must be funded by resource transfers from other segments. Thus, the first term represents the resource transfers to low q divisions and the second term represents transfers to high q divisions.

[16] Our predictions indicate that both ICM inefficiency and coincident FCF and investment will have a deleterious effect on firm value. To ensure that both of these measures will take the same sign if the parameter estimates come in as expected and in order to ease the exposition of the results, we want cross-subsidization to be positive (negative) when firms are inefficiently (efficiently) allocating capital; this is why we effectively take the negative value of the Ahn and Denis (2004) measure, *Relative investment (RINV).*

metric in order to measure the extent to which the firm transfers resources from divisions with q values greater than one to those with q values less than one. In our revised measure, we augment Equation (2) so that Segments $j = 1$ to k are the segments with an imputed q less than one, while $j = (n - k + 1)$ to n are the segments with an imputed q greater than one and denote the resultant calculation as *Value-Destroying Investment*. Positive values of *Value-Destroying Investment* indicate that the firm is, on balance, transferring resources from those divisions with q values greater than one to those divisions with q values less than one and are indicative of investment into negative NPV projects. Examples of these measures are depicted in Figure 3.

[Figure 3, Table II]

D. Sample Description

Table II presents a description of the sample. On average, each sample firm reports 2.7 business segments and operates within two distinct SIC codes. This finding is similar to the numbers reported in other large-sample studies [Lang and Stulz (1994)]. The sample firms demonstrate the diversification discount that is frequently documented in the literature. Using Berger and Ofek's (1995) Excess Value measure, the mean (median) firm in our sample exhibits a significant discount of -10.58% (-12.10%). As documented in Rajan et al. (2000) and Ahn et al. (2006), we find some evidence of the *Cross-Subsidization* of business units in our sample firms given the positive values of this measure. However, we find that the average firm does not destroy value as indicated by negative mean value for *Value-Destroying Investment*.[17] On

[17] The mean, while positive, is not statistically different from zero but sign and signed-rank tests of location indicate that the median is significantly positive. While this result differs in significance (but not sign) from Ahn et al. (2006), this can be accounted for by the fact that their sample ends in 1997 with the reporting standard change. If we bifurcate our sample by this date, we find significantly positive mean (p-value =

average, the firms in our sample produce positive cash flow, and they reinvest a significant fraction into the firm. Firm size is skewed substantially. The mean (median) firm has $1,282 million ($188 million) under management and produces $1,146 million ($222 million) in annual revenues. Approximately half of all firms issued capital, and just over half issued dividends. The average firm is monitored extensively, as evidenced by a following of just under 5 analysts.

[Table III]

E. Firm Characteristics by Size

Since free cash flow and investment differs by size [Fazzari et al. (1988)], we begin the examination of our hypotheses by exploring measures of firm value and capital market efficiency across size classes. These differences are revealed in Table III. The table shows that, for the pooled sample, each increase in size category is by an order of magnitude. The mean (median) sales of small firms are $10 million ($10 million), while the sales of mid-sized firms and large firms are $131 million ($97 million) and $2,699 million ($1,257 million), respectively. Not surprisingly, the number of business segments and the degree of diversification increases significantly with firm size. Small conglomerates operate an average of 2.3 business segments in 1.8 distinct 2-digit SIC codes, while large conglomerates operate 3.1 business segments in 2.1 distinct SIC codes. Lang and Stulz (1994) find that three-segment firms are valued 8-10% lower than two-segment firms. Consequently, the differences in the number of business segments and industries by size indicate that it is important to control for these factors when examining the size and value relation.

0.035) and median (p-value = 0.000) values of *cross-subsidization* during their sample period. *Value-destroying investment* remains significantly negative in this earlier period.

[Figure 2]

We find significant differences between the size of the conglomerate and our proxy for firm value even after imposing our sample requirements. Overall, Figure 2 and Table III show that small and large conglomerates are valued significantly higher than mid-sized conglomerates. Mid-sized conglomerates suffer significant mean (median) excess values of -17.82% (-20.42%), while small and large firms have mean (median) excess values of -5.11% (-12.35%) and -2.90% (-3.78%).[18] The valuation difference between mid-sized firms and the small and large firms is significant beyond the 1% level. Thus, the diversification discount is driven largely by the negative excess value multiples of the mid-sized diversified firms.

[Figure 4]

Moreover, as noted in Figure 4, not only is the excess value of mid-sized firms lower than that of its small and large counterparts, mid-sized firms have a negative excess value in every year of our sample. Simply put, the sign of small and large firm excess value varies from positive to negative over time, but mid-sized firms consistently experience a significant diversification discount (negative excess value) throughout the entire sample window.

Proxies of monitoring are shown at the bottom of Table III. Over half of all firms issued capital with little differences across size groups. However, there is substantial cross-sectional variation when it comes to payout policy and analyst oversight. Approximately half of the sample firms issue dividends, with 83% of large firms and 14% of small firms paying out a

[18] Comparing Figure 1 and Figure 2 also shows the effect of our sample requirements upon EV by firm size. In an unreported analysis, our restrictions have had the greatest attrition on the small conglomerates, causing many of the firms originally falling in the second size decile to be included in the first as the smallest conglomerates drop out. The effect on EV is shown as the smallest size decile, which originally displayed an insignificant premium of 2.1% (Figure 1), displays a significant discount of -5.1% after the sample restrictions are imposed (Figure 2).

portion of the earnings. The overwhelming majority of large firms (81%) have at least one analyst following the firm, while only 13% of smaller firms have this outside monitor. The average large firm is monitored extensively, as evidenced by a following of seven analysts, while the mid-sized and small firms have significantly smaller number of analysts (2 and less than 1, respectively).

Given our hypotheses, Table III offers some suggestive evidence of why small, mid-sized, and large conglomerates experience differing overall valuation multiples. The level of free cash flow is monotonically increasing with firm size. Small, mid-sized, and large conglomerates have mean (median) free cash flow to sales levels of 0.38% (2.77%), 5.34% (5.05%), and 7.17% (6.41%), respectively. Mean levels of investment are decreasing in firm size with investment ratios of 12.64%, 11.69%, and 11.55% for small, mid-sized, and large firms, respectively. The differences for free cash flow are significant at better than the 1% level for all size categories. Differences in capital investment are the greatest when comparing small to large firms, followed by small to mid-sized firms.

We also find some evidence that the interaction of free cash flow and investment levels has detrimentally impacted the resource allocation process. We find it encouraging that, on average, firms are not engaging in value-destroying investments. However, we do find that the median firm is engaged in cross-subsidization.[19] Moreover, the mid-sized conglomerate is the most egregious subsidizer and is the only size category that exhibits significant mean and median

[19] Although the median values of cross-subsidization for all three size classes are zero, tests of location show that they are each significant in the direction indicated by the mean value at the 2% level or better. That is, median tests of whether cross-subsidization is significantly different than zero produce sign (signed-rank) statistics of +64.5 (+21,995), +270.5 (+660,785), and +110.0 (+159,746) for small, mid-sized, and large conglomerates, respectively.

positive values for *Cross-Subsidization*. The contrasting levels of free cash flow and cross-subsidization for small and mid-sized conglomerates are broadly consistent with Hypothesis 1a.

Overall, small conglomerates are characterized as relatively focused, constrained firms which invest heavily, on average, while large conglomerates are characterized as having high free cash flow and are extensively diversified. Mid-sized conglomerates are characterized as unconstrained, moderately diversified firms which operate inefficient internal capital markets. Relative to large firms, small and mid-sized conglomerates are unwatched. Given that small and large conglomerates are valued significantly higher than mid-sized conglomerates and there is an overall inverse relation between free cash flow and value, we find some support for Hypotheses 1a, 1b, and 2. However, the occasional dissonance between the mean and median results for free cash flow, firm investment, and relative investment implies that additional factors beyond simply cash flow and investment behavior explain differences in value. These other factors are explored below in multiple regression tests in Sections III-V.

III. Effects of Free Cash Flow on Resource Allocation and Firm Value

A substantial literature documents the dangers of free cash flow and its potential to distort project selection [Shin and Stulz (1998); Goel et al. (2004)] and the optimal level of investment [Jensen (1986); Lamont (1997)]. Given the significant differences between the degree of financial constraints and the internal capital market efficiency among small, mid-sized, and large conglomerates identified in Section II, these factors can potentially explain the relation between the value of corporate diversification and firm size.

[Table IV]

Table IV displays the direct tests of Hypothesis 1a that coincident levels of both free cash flow and corporate investment will lead to sub-optimal resource allocation, either through cross-subsidization of the business units or through investment in value-destroying projects. Our hypotheses also imply that the free cash flow problem should be most severe in those firms that are relatively unconstrained.

To test these predictions, we regress our proxies of internal capital market efficiency upon our measures of cash flow and investment. We utilize a firm-fixed regression model with calendar year dummies of the form:

$$ICM = \beta_0 + \beta_1 FCF \times CapInv + \beta_2 CapInv + \beta_3 FCF + \beta_4 1/q + \beta_5 Num\ SIC + \beta_6 Size + \beta_7 Heckman\ correction \quad (3)$$

where *ICM* is either *Value-Destroying Investment* or *Cross-Subsidization, FCF and CapInv* are *Free Cash Flow* and *Capital Investment* as defined earlier, $1/\bar{q}$ is the inverse of the average of segment imputed Tobin's q, *NumSIC* is the number of two-digit SIC codes represented by the diversified firm, *Size* is the natural log of deflated firm sales, and *SALE* is firm sales. Absent the cash flow and investment terms, this specification is similar to that employed in Rajan et al. (2000). Hypothesis 1a predicts a positive association between inefficient cross-subsidizing resource transfers and coincident levels of investment and free cash flow. Recall, that while positive values of *Cross-Subsidization* indicate that the firm is "robbing" from more productive divisions and giving resources to less productive ones, the projects could still have values of q in

excess of 1. Accordingly, our regressions using Value-*Destroying Investment* more directly test Hypothesis 1a since this metric measures whether firms are investing in q<1 divisions.

As discussed in the introduction, the choice to diversify may be endogeneous [Matsusaka (2001); Campa and Kedia (2002); Villalonga (2004)]. Failure to account for endogenous self-selection essentially amounts to an omitted variables bias, causing the parameter estimates in the model to be biased and inconsistent [Li and Prabhala (2007)]. While an exogenous shock [Lamont (1997); Blanchard et al. (1994)] is one method to control for endogeneity, most studies with large samples do not have the luxury of an exogenous shock. Therefore, we follow the vast majority of studies [Campa and Kedia (2002); Villalonga and Amit (2006)] which control for endogeneity with the use of the Heckman correction. The *Heckman correction* controls for the potential bias induced by firms' choice of diversification [Heckman (1979)]. We replicate the specific selection model in Campa and Kedia (2002) and compute the inverse mills ratio from this specification.[20] The inverse mills ratio, *Heckman correction*, is then included as an additional explanatory variable, taking on greater values when a given firm's characteristics resemble that of a diversified firm.

Panel A of Table IV demonstrates the estimation of equation (3) using *Value-Destroying Investment* as the dependent variable. As predicted by Hypothesis 1a, the coefficient on the free cash flow and investment interaction term is positive for the entire sample suggesting that greater

[20] Specifically, they model the choice to diversify as a probit regression of the form:
Pr[Diversfied = 1] = β_0 + β_1Log Assets + β_2EBIT/Sales + β_3CAPX/Sales + β_4Log Assets (t-1) + β_5EBIT/Sales (t-1) + β_6CAPX/Sales (t-1) + β_7Log Assets (t-2) + β_8EBIT/Sales (t-2) + β_9CAPX/Sales (t-2) +β_{10}S&P Index + β_{11}%Industry Conglomerates + β_{12}%Industry Sales by Conglomerates + β_{13}Merger $ Volumes + β_{14}Merger # Volumes + β_{15}Real GDP Growth + β_{16}Real GDP Growth (t-1) + β_{17}Number of Contraction Months + β_{18}Number of Contraction Months (t-1) + β_{19}Historical Average Log Assets + β_{20}Historical Average EBIT/Sales + β_{21}Historical Average CAPX/Sales + β_{22}Major Exchange + β_{23}Foreign Company
Detailed definitions of each variable can be found in Campa and Kedia (2002).

levels of free cash flow and investment are associated with value destruction. As mentioned previously, value destruction is most likely to occur in the presence of both high free cash flow and active investment. A closer examination stratified by firm size reveals that the cash flow-spending problem is concentrated within the mid-sized and large conglomerates. The coincidence of free cash flow and firm investment in these mid-sized firms leads the corporate headquarters to make value-destroying investments in its business units since the interaction is positive and significant at the 1% level. These results are robust to the inclusion of the *Heckman correction*.

In Panel B we show the results using our *Cross-Subsidization* measure. The findings are similar to the results for *Value-Destroying Investments* shown in Panel A. We find that the interaction of free cash flow and investment is positively related to *Cross-Subsidization* and again, after controlling for the diversification choice. The result is driven primarily by the mid-sized firms as the parameter estimate on the interaction term is largest in both size and significance for these firms. Even after controlling for the endogenous choice to diversify, excess cash flow and corporate investment are associated with inefficient resource allocations at mid-sized and large conglomerates. Cash flow and investment do not appear to distort the internal capital markets of the relatively constrained smaller conglomerates. These findings are supportive of Hypothesis 1a.

[Table V]

In Table V we present tests for the prediction of Hypothesis 1b that coincident levels of both free cash flow and corporate investment destroy shareholder wealth and lead to lower value.

Again, Hypothesis 1b implies that the free cash flow problem should be concentrated in those relatively unconstrained firms. To test these predictions, we conduct firm fixed effects regressions with calendar year dummies of the form:

$$Firm\ Value = \beta_0 + \beta_1\ ICM + \beta_2\ FCF\ x\ CapInv + \beta_3\ CapInv + \beta_4\ FCF + \beta_5\ Num\ SIC + \beta_6\ Size + \beta_7\ Heckman\ correction \quad (4)$$

where *Firm Value* is proxied by Berger and Ofek's (1995) excess value from diversification, and other variables are as defined previously.

We find strong support for Hypothesis 1b in Table V, for the mid-sized and large firms. The coefficient on the interaction between free cash flow and investment is significantly negative at better than the 1% level for the full sample and is driven by the large and mid-sized firms. Further, as evidenced in Panel A, *Value-Destroying Investment* has a negative impact on firm value for the mid-sized firms. We also show that the impact of cross-subsidization (Panel B) negatively impacts firm value for mid-sized firms. Recall that the results in Table IV show that the coincidence of free cash flow and investment is associated with value reduction and with cross-subsidization. Thus, the free cash flow problem identified in Hypotheses 1a and 1b have a "dual negative effect" on firm value, one indirectly via value-destruction and cross subsidization and one directly on firm value. We should note that our results are again robust to the inclusion of the Heckman correction. Consistent with Campa and Kedia (2002), we find a negative correlation between the propensity to diversify and firm value.

Since we estimate the regressions by size, the relation between firm size, value, and the free cash flow problem becomes clear. Both mid-sized and large conglomerates are negatively

impacted by the coincidence of free cash flow and firm investment. In contrast, the small conglomerates with little or no free cash flow, suffer no ill effects. When we control for value-destruction (Panel A) or cross-subsidization (Panel B), the coefficient on the interaction between free cash flow and firm investment is significantly negative at better than the 1% level for mid-sized and large firms.

Overall, the tests in Tables IV and V provide substantial support for Hypotheses 1a and 1b. The free cash flow problem most adversely impacts those conglomerates that are most susceptible, namely unconstrained diversified firms with high levels of excess cash flow. The results in Tables IV and V explain why mid-sized firms experience significant discounts relative to small conglomerates since they appear to deploy excess firm resources to value-destroying uses. However, Tables IV and V show that large conglomerates, which are also unconstrained, suffer from the free cash flow problem as well, but they do not experience the degree of diversification discount evident in the mid-sized firms. We attempt to resolve this mystery in the following two sections.

IV. Motivations for Capital Market Avoidance

A. Capital Market Avoidance

In this section, we examine the determinants for diversified firms to access the outside capital markets and the oversight that is associated with it. Matsusaka and Nanda (2002) and Yan (2006) suggest that diversified firms may use the internal capital market to avoid the external capital market. Hypothesis 2 suggests that firms will avoid capital markets when internal slack

and the cost of capital are both high. Moreover, as predicted by Hypothesis 3a, the firm that is more likely to avoid current and future monitoring from the external capital markets is one associated with value-destroying investments and with cross-subsidization We test Hypotheses 2 and 3a using the following:

$$CAPMARKET = \beta_0 + \beta_1 ICM + \beta_2 Financing\ need + \beta_3 SP\ Rating + \beta_4 Cash / Assets + \beta_5 Tobin's\ q + \beta_6 Stock\ Returns + \beta_7 Num\ SIC + \beta_8 Size + \beta_9 Age + \beta_{10} Heckman\ correction \quad (5)$$

CAPMARKET is either *Issued capital,* which is a binary variable that takes the value '1' if the firm is a net issuer of capital for the year, or *Paid dividend*, which is a binary variable which takes the value '1' if the firm paid a dividend for the most recent fiscal year. *ICM* is measured as before, either through a value-destroying firm or a cross-subsidizing firm. These are modeled as indicator variables that take on the value '1' when the respective variable is greater than equal to zero and '0' otherwise.

Absent an agency-based explanation, the existing literature suggests that the level of internal resources or the costs of raising outside capital are also possible motivations for visiting or avoiding the capital markets. For example, pecking order theories posit that financing deficits dominate the choice to raise outside funds [Shyam-Sunder and Myers (1999); Frank and Goyal (2003)]. However, the absolute cost of funds is an important determinant of the need for capital as well. Once the cost of capital exceeds the rate of return on the marginal project, it should no longer be funded and the need for outside investment evaporates. Accordingly, we capture this *Financing need* by either *Cash deficit* or *WACC*. *Cash deficit* is dividends plus investments

(capital expenditures) plus the change in working capital plus the current portion of long term debt at beginning of period, or operating cash flow after interest and taxes. *WACC* is a firm's weighted average cost of capital.[21] A high cost of capital will have the opposite effect on capital issuance and the payout of dividends that cash deficit does.

It is important to recognize that capital raising is endogenously associated with growth opportunities. Accordingly, we account for the systematic difference in growth opportunities in the Heckman correction both at the firm level using capital expenditures to sales (CAPX/Sales) and at the market level using growth in real GDP (see footnote 20).We further control for other determinants of capital issuances with the following variables. *SP Rating* is the average Standard and Poor's ("S&P") rating on the firm's debt. Lemmon and Zender (2010) argue that firms with rated debt outstanding are less restricted in issuing debt than firms with no rated debt outstanding. *Cash/Assets* is cash from the balance sheet, normalized by total assets. *Stock returns* is the one-year stock return; Tobin's q is defined as the market value of equity plus the book value of assets less the book value of equity and deferred taxes, divided by the book value of assets. *NumSIC* is the number of two-digit SIC codes represented by the diversified firm, *Size* is the natural log of deflated firm sales and *AGE* is the maximum of the number of years with data on either CRSP or COMPUSTAT.

[Table VI]

[21] WACC is computed as the W_d (1-T) x Cost of Debt + W_e x Cost of Equity + W_p x Cost of Preferred stock. W_d, W_e, and W_p are respectively, the weights on debt, common equity and preferred equity. T = trichotomous tax rate as defined by Graham (1996). Cost of debt is equal to the AAA or BAA corporate bond rate where BAA rated firms or lower are assigned the BAA rate. Cost of preferred equity is calculated as preferred dividends divided by the value of preferred stock. Cost of equity is computed as the 10 year bond rate plus (Beta x Average Market risk premium). Market risk premium (MRP) is equal to the observed mean MRP from 1926 to the sample observation date. Beta is the 60 month estimate using Blume's (1971) adjustment.

Our results are presented in Table VI. We find that firms that engage in value-destroying investments and those that employ cross-subsidization are less likely to issue capital and less likely to pay a dividend. The resource allocation process present in diversified firms provides a real option for firms to avoid the monitoring of capital markets. Rationally, it is those firms with the most inefficient allocation process that exercise this option, thereby avoiding current and future oversight. Our two measures of *Financing need* are significant and consistent with expectations. Diversified firms with cash deficits are more likely to need capital and less likely to pay dividends. On the other hand, a high cost of capital has the opposite effect on capital issuance and the payout of dividends. When the cost of capital is high, the feasible investment set is reduced and therefore firms are more likely to pay dividends and less likely to issue capital. If we examine the marginal effects, the parameter estimates imply that value-destroying and cross-subsidizing conglomerates are 3.7% and 2.7% less likely, respectively, to issue capital than their value-maximizing counterparts. This is economically significant considering that a one-standard deviation increase in the cost of capital reduces this likelihood by only 1.6%. These findings support Hypotheses 2 and 3a.

[Table VII]

B. Investor Reactions to Seasoned Equity Offerings by the Efficiency of the Internal Capital Market

As documented in Table VI, we find that firms with inefficient capital markets are likely to avoid capital markets. We therefore expect that when these firms issue capital, contrary to the expectations, the market will not react favorably as outlined in Hypothesis 3b. To test this

prediction, we match our sample with 920 seasoned equity offerings (SEOs) undertaken by diversified firms from 1979-2005 that have the available data required to conduct our tests. The SEO sample is obtained from Thomson Financial's SDC database.[22] We proxy for the investor reaction to the SEO by computing the five day cumulative abnormal return, *SEO CAR (-2,+2),* surrounding the announcement of the SEO using standard event study methodology. Consistent with the literature, Panel A of Table VII shows that our diversified issuers experience significantly negative returns of -1.3% at the announcement of a seasoned offering.

To examine the impact of inefficient capital markets on the returns of seasoned equity offers (SEOs), we separate our announcement by the efficiency of the firms' internal capital markets in Panel A and by estimating the following regression in Panel B:

$$SEO\ CAR = \begin{array}{l} \beta_0 + \beta_1\ ICM + \beta_2\ Firm\ Value + \beta_3\ Num\ SIC + \beta_4\ Net\ stock\ returns \\ + \beta_5\ Stock\ market\ return + \beta_6\ Size + \beta_7\ Cash\ to\ Assets + \beta_8\ Debt\ to \\ assets + \beta_9\ CAPInv \end{array} \quad (6)$$

Net stock returns are stock returns (defined previously) net of market returns and *stock market return* is the annual return on the CRSP value weighted index. *Cash to assets* is cash and equivalents normalized by total assets, and *Debt to assets* is total debt normalized by total assets. Other variables are defined previously.

We see in Table VII that investors have stronger negative reactions to SEO announcements for firms which operate inefficient internal capital markets. As shown in Panel A, value-destroying firms exhibit 1.4% *lower* announcement return than their counterparts.

[22] We also examined the shareholder reactions to bond issuances, but found no differential effect for our variables of interest. We should note that the appropriate test for this analysis is to examine bondholder returns around the debt announcement, but daily seasoned bondholder returns are not available during the sample period. Furthermore, bondholder reactions may not be as acute since their investment is partially secured by the bankruptcy process.

Cross-subsidizing firms also experience a significantly more negative reaction at the announcement. Panel B shows that this effect is robust to the inclusion of other firm characteristics in a multiple regression setting. We note that these results are relatively free of endogeneity concerns. Both types of inefficient capital markets are associated with significantly lower cumulative abnormal returns at the SEO. The market punishes the value-destroying ICMs the greatest, with a loss of 1.3%. This strong negative reaction indicates that the equity market imposes discipline upon the cross-subsidizing or value-destroying manager when afforded the opportunity. Given this reaction, it is not surprising that we see these same firms avoid the external capital markets altogether, preferring rather to finance their investment internally as evidenced in Table VI.

It could be argued that our proxies for investment efficiency detailed earlier may simply identify value-maximizing firms with generally poor growth opportunities. Thus, these firms may not have the positive net present value projects to drive demand for outside investment. However, the event study evidence presented here highlights that this cannot be the case. If the measures we use simply identify firms perceived as generally lacking profitable investment opportunities (rather than value-destroying or cross-subsidizing firms as we claim), then when these firms actually do raise capital, the market should view their request for investment as a positive revelation and welcome their SEOs. In fact, the tests presented in this section suggest that firms identified as having inefficient capital markets are simply not viewed favorably by the external market. Furthermore, the firms we identify as value-destroying and cross-subsidizing conglomerates are also less likely to pay dividends, the opposite of what we would expect of a

value-maximizing firm with poor growth opportunities. Overall, we interpret these results as strong support for Hypotheses 3a and 3b and also indicate that inefficient capital markets can be destructive to shareholder returns.

C. Interaction of Capital Market Avoidance and Analyst Following

In Tables VI and VII, we examine the monitoring impact of capital and dividend issuance on firms with inefficient capital markets. Another way in which a firm subjects itself to monitoring is through analyst coverage. We contend that managers of inefficient capital markets will wish to avoid outside scrutiny, resulting in fewer analysts following the firm. We therefore test Hypothesis 3a additionally by estimating the following:

$$ANALYST = \begin{array}{l} \beta_0 + \beta_1\, Issued\ Capital + \beta_2\, Paid\ Dividend + \beta_3\, Num\ SIC + \beta_4\, Stock \\ Returns + \beta_5\, Tobin's\ q + \beta_6\, Size + \beta_7\, Age + \beta_8\, Heckman\ correction \end{array} \quad (7)$$

ANALYST is measured in two ways; *Analyst coverage* is a dummy variable that takes the value of '1' if any analysts covered the firm, and *Number of analysts* is defined as the number of analysts listed in the I/B/E/S database providing an annual earnings forecast for the firm in a given fiscal year. If analysts either initiate or drop coverage during the estimation period, the number of analysts is set to the maximum number of concurrent estimates at a given point in time during the year. If a firm is not listed in I/B/E/S during a fiscal year, we presume they do not have any significant analyst coverage, and we set the number of analysts to zero. Other variables are as defined previously.

[Table VIII]

Our findings are in Table VIII, and as expected, when firms issue (avoid) capital, they are more (less) likely to be monitored through analyst coverage and are monitored by a greater (fewer) number of analysts. Since we have already documented (in Table VI) that value-destroying firms and those that cross-subsidize are less likely to issue capital, we now confirm that these same non-issuing capital firms have less forms of outside monitoring. These findings suggest that the greater the inefficiency in the internal capital market, the less likely the firm has analyst coverage, and the smaller the number of analysts that follow the firm. Interestingly, the choice to diversify (*Heckman correction*) is also negatively associated with monitoring, indicating that the more a firm resembles the typical conglomerate, the less likely they are to subject themselves to analyst oversight. This finding is not a result that we predicted but is consistent with Hypothesis 3a.

Overall, our tests of Hypotheses 2 and 3a suggest that firms with an inefficient internal capital market are associated with less forms of outside monitoring. They may hide behind their ability to allocate funds across divisions and avoid the monitoring of external capital markets. Moreover, as compared to their efficient ICM counterparts, these firms are not subject to the scrutiny of analysts. We now turn to whether or not firms which are subject to monitoring are able to mitigate the negative impact of managerial rent-seeking behavior and improve firm value.

V. Impact of monitoring on firm value

This section provides an explanation, at least in part, as to why large conglomerates do not suffer the same negative values as mid-sized conglomerates. The results suggest that this

finding is due to the influence of monitoring forces from outside of the firm. Jensen (1993) stresses the importance of outside control forces to constrain management from engaging in rent-seeking behavior. This paper implements three proxies to analyze the impact of these external monitoring forces on firm value. The issuance of external capital as well as the commitment to pay dividends are used to proxy for the degree to which management subjects itself to the disciplinary forces of the capital markets. The number of analysts tracking a firm is used to proxy for the level of oversight over management's investment decisions.

In Table IX, we present the first insight of how these monitoring proxies influence the value of the firm. We estimate the following equation to test Hypothesis 4:

$$ICM = \beta_0 + \beta_1 FCF \times CapInv + \beta_2 CapInv + \beta_3 FCF + \beta_4 1/q + \beta_5 Num\ SIC + \beta_6 Size + \beta_7 Number\ of\ Analysts + \beta_8 Heckman\ correction \quad (8)$$

[Table IX]

Hypothesis 4 predicts that monitoring should be most beneficial for those firms with high free cash flow problems. As shown previously (Table IV), the coincidence of free cash flow and capital investment is harmful to the value of the firm. In equation (8), we simply add the number of analysts to equation (4), estimated in Table IV to evaluate the impact of monitoring on ICM efficiency. As shown in Table IX, we still find that free cash flow and investment is associated with value destruction and cross-subsidization. However, when the firm subjects itself to outside monitoring, value destruction and cross-subsidization is minimized. These findings are concentrated in mid-sized firms, which are characterized in Table III as having ample levels of

internally generated resources, but have little analyst coverage to monitor their investment decisions.

If monitoring minimizes cross-subsidization and value destruction, the logical next question is whether monitoring can improve firm value. Bens and Monahan (2004) document that improved disclosure is associated with higher levels of value. In further tests of Hypothesis 4, we estimate the following equation:

$$\begin{aligned} Firm\ Value\ = \ & \beta_0 + \beta_1\ Number\ of\ Analysts\ + \beta_2\ Issued\ Capital + \beta_3\ Paid\ Dividend\ + \\ & \beta_4\ ICM + \beta_5\ FCF\ x\ CapInv + \beta_6\ CapInv + \beta_7\ FCF + \beta_8\ Num\ SIC + \\ & \beta_9\ Size + \beta_{10}\ Heckman\ correction \end{aligned} \quad (10)$$

[Table X]

To explore the relation between capital market oversight and firm value, we utilize all three measures of monitoring, number of analysts, issuance of capital, and issuance of dividends, and control for value-destroying investments (Panel A) and cross-subsidization (Panel B). For the full sample, the number of analysts and the issuance of capital have a positive and significant impact on firm value. The number of analysts is effective in improving firm value for mid-sized and large firms. As before, we observe a "dual effect" for mid-sized firms as analyst coverage has an indirect benefit through improving resource allocations which positively affect firm value and a direct positive benefit on firm value itself. In contrast to the results for mid-sized and large conglomerates, we do not observe a beneficial effect to analyst oversight for small conglomerates. Since small firms, as noted in Table III, have relatively little free cash flow, this

result is not surprising as they are probably the best monitors of their own already scarce capital.[23]

The positive impact of issuing capital is beneficial for small and mid-sized firms, but is most beneficial for the mid-sized firms. Examining the commitment to pay out free cash flow, we again see that this is most valuable for the mid-sized firms. Overall, we find substantial support for Hypothesis 4. Moreover, since it is mid-sized conglomerates that suffer the most from the coincidence of free cash flow and capital investment, the exposure to intensive monitoring by outside forces may significantly improve their resource allocation process and value. We further note that the results suggest a significant portion of the relative valuation difference between mid-sized and large conglomerates is attributable to a lack of oversight and over-retention of free cash flow.[24]

VI. Conclusion

Internal capital markets afford firms a real option to avoid outside financing [Matsusaka and Nanda (2002); Yan (2006); Hovakimian (2010)] and the monitoring that accompanies the raising of capital. While we do find that some firms exercise this option to avoid costly outside financing, our results suggest that the agency costs of coincident levels of free cash flow and investment may outweigh the advantages of an internal capital market. After controlling for unobservable firm-fixed effects and potentially endogenous conglomeration, we find that firms

[23] We also note that small firms as a whole enjoy only a small analyst following, leading to little cross-sectional variation and low power tests.

[24] The difference in the median excess value between mid-sized and large conglomerates is -20.42% – -3.78% = -16.64%. The parameter estimates imply that if, for example, the mid-sized firms increased their analyst coverage from 1 to 7 analysts (i.e., from the median coverage of the mid-sized firms to that of large firms), their valuations would improve 2.26% x 6 = 13.56%. Committing to pay out a dividend would further increase this by 5.23%. The combined effect is enough to absorb the valuation difference.

with high levels of excess free cash flow and investment, but little oversight, exhibit the highest levels of value destruction and the frequently documented diversification discount. Out-of-sample event study evidence confirms this result and provides strong evidence that investors punish these firms with lower valuations. Since capital raising gives investors a referendum on a firm's investment policy, we test whether monitoring provided by external capital markets can alleviate the value destruction that results from inefficient investment policies. Our results confirm this prediction. We further find that the free cash flow problem is most acute at mid-sized firms and that they are the most egregious violators of inefficient internal capital markets. While they exhibit the most value destruction, they also benefit the most from outside monitoring.

These results imply that some of the lower investor valuations associated with corporate diversification are both predictable and avoidable. If management subjects itself to the monitoring forces of outside information producers and the capital markets or if managers take steps to credibly pay out free cash flow to shareholders, they can significantly increase shareholder wealth. Furthermore, this study identifies which types of firms are most prone to the dark side of corporate diversification. Institutional and activist investors should focus their monitoring efforts on the mid-sized conglomerates which would otherwise go unwatched.

Appendix – Preparation of Segment Data and Treatment of SFAS 14 / SFAS 131

Under SFAS 14, publicly traded firms are required to report financial data for material firm operations across industry lines of business (LOB). This standard was utilized by conglomerates from 1976 until 1998. In June of 1997,[25] FASB issued SFAS 131 which resulted in material alterations to the way firms report financial data for their business segments. The following discussion details how we bridge the gap between the SFAS 14 and SFAS 131 reporting standards for the universe of firms in the Compustat segment database.[26] The Compustat Business and Operating Segment database contains financial and industry membership data for 213,296 industrial firm-years and 372,687 firm-segment-years for fiscal years 1978 through 2005.

The measures utilized in this paper rely heavily upon imputed values from industry benchmarks which require an SIC code for appropriate matching. Although 87,721 firm-segment-years are missing their primary SIC codes,[27] many are recoverable through backfilling and certain assumptions. For those 21,814 firm-segment-years where the reported business segment is the only one for that firm-year, firm's SIC code is assigned to the business segment. There are 11 segment-years with an NAICS code, but not an SIC code. These observations are translated using the conversion tables available from the U.S. Census Bureau.[28] Since each

[25] Effective December 15, 1997.
[26] Hund et al. (2010) conduct a similar procedure to utilize the SFAS 131 segment data.
[27] To assist in the comparability of pre- and post-SFAS 131 data, Compustat re-assigned segment SIC codes to conform to the new standard for as far back as 1990. The "old" SIC code assignments are available as a separate dataset covering fiscal years 1984 to 2004 and the compliance between the "new" and "old" SIC code assignments is 99.9% consistent. See Wharton Research Data Services Knowledge Base article titled *In the Compustat Segment data, why do the SSIC1/SSIC2 variables only go back to 1990? And why do the SSICB1/SSICB2 variables only cover 1984-2004?*.
[28] http://www.census.gov/epcd/www/naicstab.htm

segment reports a unique identifier,[29] it is possible to systematically isolate a given business segment across calendar time. Those business and operating segments missing their primary SIC code are backfilled on the basis of segment ID. This retrieves an additional 28,695 segment SIC codes. Finally, although many firms choose not to report immaterial unallocated corporate assets,[30] others do with a separate reported business or operating segment.[31] These overhead segments are assigned an SIC code of -9999 for future identification. After all of these assignments are made, we are still unable to identify SIC codes for 23,386 business segments.

SFAS 131 changed the way firms report their business segments in two fundamental ways. First, business segments are no longer organized solely across industry lines,[32] but instead as they are organized internally within the firm. Berger and Hann (2003) show that most firms still identify their segments in the same basic manner as they did under SFAS 14: LOB segments and Geographic segments. However, many firms' operating segments are now reported across both lines of business (LOB) as well as geographic region. The effect is that SFAS 14 LOB segments with sales in several geographic regions now report additional operating segments for each geographic region under SFAS 131. Second, individual segment financials are reported as they are to the firm's *chief operating decision maker* (CODM) and no longer must equate to the consolidated firm financials. This often leads to the creation of two new business segments for many multi-segment firms. Any transactions between business segments are now reported within

[29] Segment IDs (SID) are unique for each business, operating, and state segment within a given firm and remain with a given segment for "as long as the data for that segment is comparable from one year to the next" (Compustat User's Guide).
[30] Undisclosed and unallocated corporate assets occur frequently in the SFAS 14 data. Berger and Ofek (1995) exclude 8.1% of their sample due to gross amounts (deviations of more than 25% of firm totals) of undisclosed assets.
[31] We identify these segments on the basis of name. They are most frequently titled "corporate" (12,678), "other" (6,423), and "corporate and other" (3,685). This can also include other business activities not considered material enough to warrant their own segment.
[32] LOB segments were organized by 4-digit SIC code under SFAS 14.

the originating segment's financials if done so internally but are netted out in an "eliminations" segment, and the firm must disclose the values of the reconciling intersegment eliminations.[33] Remaining unallocated items such as income taxes, cash and marketable securities, pension assets and liabilities, or the corporate headquarters building are typically assigned to a "corporate" segment.[34] See the first and second panel of Table A-I for an example of the contrast between SFAS 14 and SFAS 131.

To adjust the SFAS 131 segment data so that it is comparable to the SFAS 14 data, the following algorithm is implemented. First, as in Berger and Hann (2003), financial data for all SFAS 131 operating segments with the same 4-digit SIC and 6-digit NAICS codes are aggregated across industry lines. Berger and Hann show that this resolves the major incongruence between the SFAS 14 and SFAS 131 and averts the problem of inflation in the number business segments solely due to a reporting standard change. They further show that the procedure does not alter the correlation between segment and industry performance which leads them to conclude that this procedure does not materially alter the data. See the third panel of Table A-I for an example of this procedure. There are 2,716 firm-year observations where firms report an operating segment representing and this represents 14,051 firm-segment-years. Of that number, 2,537 firm-year observations require aggregation and the corresponding operating segments are aggregated into 8,168 firm-segment-years.

[33] See FASB SFAS 131 ¶32. These segments are identified as SID = 99 and are typically titled "consolidating," "eliminations," or "reconciliations."

[34] Sales, assets, capital expenditures, and profits are only allocated to the segment if they are reported internally to the firm's CODM. We identify these "corporate" segments, which contain the unallocated items, as SIC -9999 in our sample.

Once the operating segments have been recombined, the contents of the "eliminations" segments are reallocated back to the other business segments. There are 196,343 firms-years in which the sum of segment sales (assets) are within 1% (25%) of consolidated firm sales (assets) and 4,579 of these report an "eliminations" segment. Segments engaging in inter-segment transactions report the amounts of these figures along with other segment financials.[35] The amounts of each financial statement item reported on the "eliminations" segment are reassigned to the traditional business segments on an intersegment eliminations-weighted basis.[36] See the fourth panel of Table A-I for an example of this procedure. Any firm which reports an "eliminations" segment with sales or assets representing more than 10% of the consolidated figures is excluded so as not to contaminate the sample.

Finally, the "corporate" segments are treated in a similar manner as they were handled under SFAS 14 in the conglomerate literature.[37] The typical "corporate" segment reports little or no sales and capital expenditures, but often reports positive asset values. These unallocated assets typically comprise of corporate overhead and other items in which there is no appropriate means of allocating them to the business segments. Any firm with a "corporate" segment with sales or assets greater than 10% of the consolidated firm totals is excluded as it is unlikely that these segments are actually immaterial. The existence of the reported overhead segments for the

[35] The actual reporting of intersegment sales in Compustat varies by firm. Some firms include intersegment sales in the reported segment sales and then remove them via the "eliminations" segment while others remove intersegment sales from segment sales but retain the "eliminations" segment for other reconciling items (such as in Table A-II).

[36] We alternatively reallocate the "eliminations" segment on a sales-weighted basis for those firms with incomplete, nonsensical, or missing values of intersegment eliminations.

[37] Some papers using the SFAS 131 segment data choose to eliminate firms containing "corporate" segments (see Ahn et al. 2006). This could be problematic if the existence of "corporate" segments is non-random across sample firms. Unreported univariate comparisons show that firms with "corporate" segments are significantly larger (in terms of assets, sales, and market value), more diversified, and have lower CAPX / Sales ratios than firms that do not. Thus, eliminating these firms would likely bias the sample.

remaining firms are disregarded, but it is still required that consolidate segment sales be within 1% of firm totals. Using the methodology forwarded by Berger and Ofek (1995), the remaining segment assets are grossed-up, when necessary, so that the resultant business segment assets equal the consolidated amounts. For large deviations, any firm where consolidated segment assets are not within 25% of firm totals are excluded. See the fifth panel of Table A-I for an example of this procedure. There are 189,574 firm-years meeting all of the above requirements and, of these, 2,321 report an "eliminations" segment while 5,938 report a "corporate" segment as shown in Table A-II.

Several tests are conducted to ensure that the above adjustment process does not bias or materially alter the segment data or the key financial ratios derived from it. First, following Givoly et al. (1999) and Berger and Hann (2003), the correlations between segment sales and pure-play industry total sales are computed for those firms reporting an eliminations segment and those that do not. The Pearson correlation coefficients for the eliminations and the non-eliminations firms are 0.059 and 0.064, respectively. Next, a comparison is conducted of the correlation of segment sales, assets, and capital expenditures between segment-years from the first year that a firm reports an eliminations segment and the prior year. The correlation coefficients for sales, assets, and capital expenditures are 0.96, 0.98, and 0.87, respectively. Finally, firm-segment fixed effects regressions are conducted with calendar time dummies on the capex-to-sales ratio and the capex-to-assets ratio of each business segment. If the above algorithm biases these ratios, then dummy variables indicating an eliminations segment or a corporate segment should come in either positive or negative and significant. However, the

dummy variables are never significant for any of the specifications at conventional levels. While it is possible that the aggregation algorithm adds noise to the segment data, these results fail to uncover any evidence of a discernable bias in the procedure.

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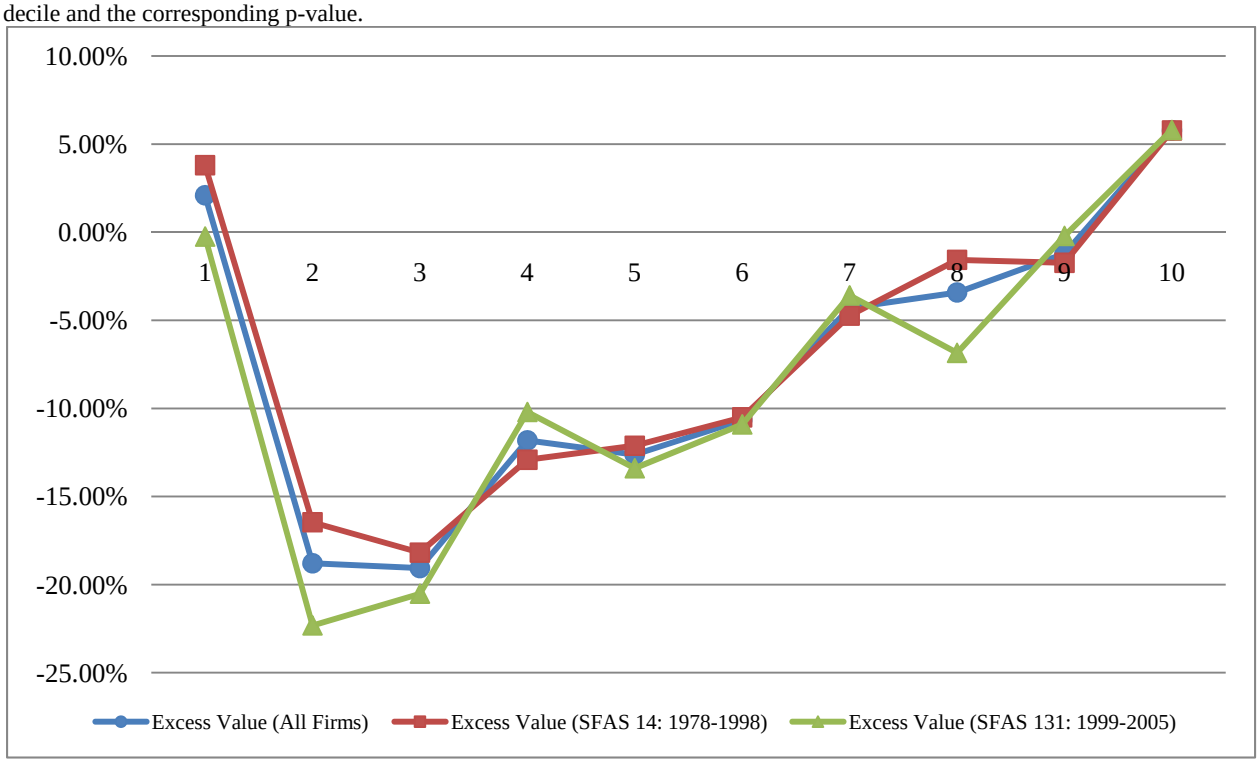
Figure 1
Excess Value by Size Decile and Reporting Regime for the Compustat Universe

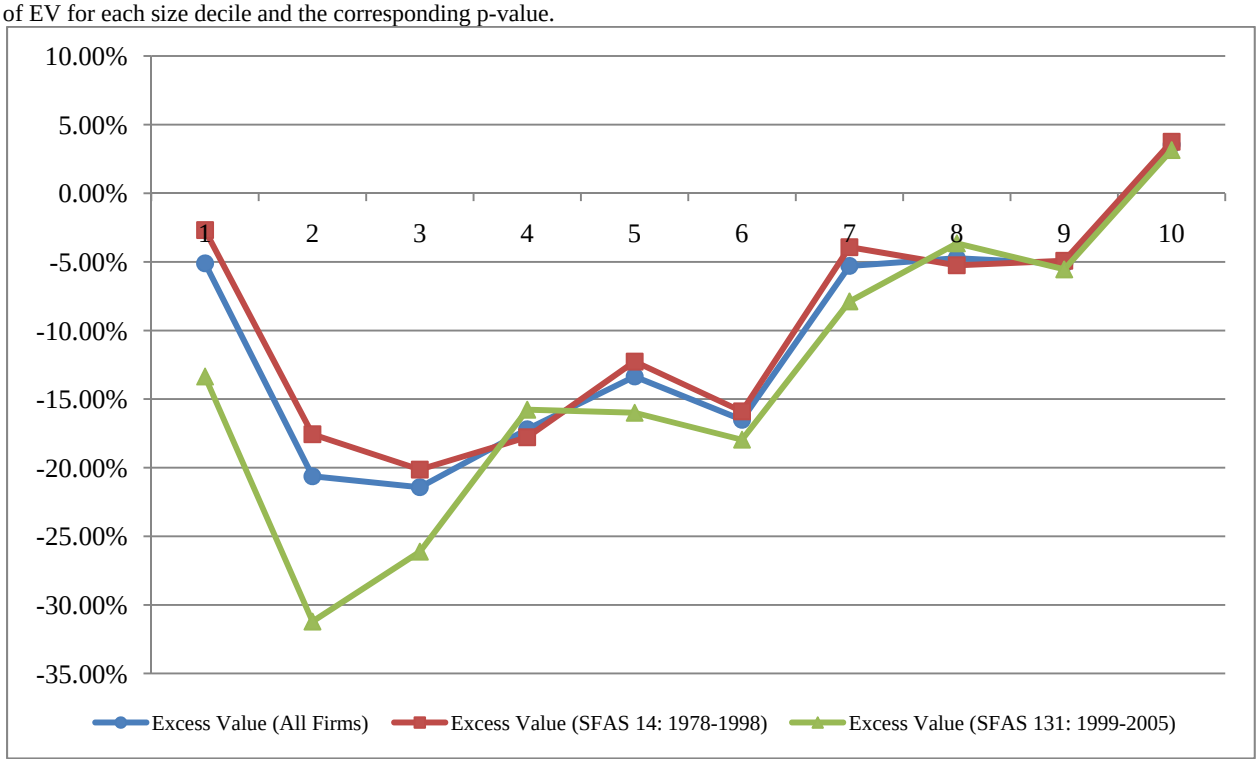
This figure shows Excess Value (EV), as defined by Berger and Ofek (1995), by size decile and FASB reporting regime for all firms in Compustat with the requisite data required to compute this measure. Size deciles are arranged by total sales in 1986 constant dollars. EV is computed for all firms from 1978-2005, firms reporting under SFAS 14 during the years 1978-1998, and firms reporting under SFAS 131 during the years 1999-2005. The attached table presents the mean values of EV for each size decile and the corresponding p-value.



Size Decile	1	2	3	4	5	6	7	8	9	10
Excess Value (All Firms)	2.10%	-18.79%	-19.07%	-11.82%	-12.62%	-10.66%	-4.30%	-3.42%	-1.21%	5.79%
Prob T	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00
Excess Value (SFAS 14)	3.81%	-16.46%	-18.19%	-12.91%	-12.12%	-10.51%	-4.74%	-1.57%	-1.73%	5.78%
Prob T	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.06	0.00
Excess Value (SFAS 131)	-0.25%	-22.32%	-20.52%	-10.21%	-13.40%	-10.91%	-3.59%	-6.85%	-0.21%	5.80%
Prob T	0.92	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.92	0.00

Figure 2
Excess Value by Size Decile and Reporting Regime for the Sample Firms

This figure shows Excess Value (EV), as defined by Berger and Ofek (1995), by size decile and FASB reporting regime for the 11,111 sample firm-year observations used in this study after imposing all of our data requirements. Size deciles are arranged by total sales in 1986 constant dollars. EV is computed for all firms from 1978-2005, firms reporting under SFAS 14 during the years 1978-1998, and firms reporting under SFAS 131 during the years 1999-2005. The attached table presents the mean values of EV for each size decile and the corresponding p-value.

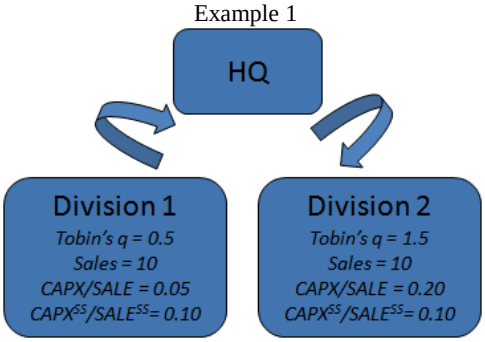


Size Decile	1	2	3	4	5	6	7	8	9	10
Excess Value (All Firms)	-5.11%	-20.63%	-21.42%	-17.20%	-13.36%	-16.51%	-5.30%	-4.73%	-5.13%	3.54%
Prob T	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Excess Value (SFAS 14)	-2.69%	-17.57%	-20.13%	-17.78%	-12.27%	-15.90%	-3.93%	-5.25%	-4.92%	3.75%
Prob T	0.20	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01
Excess Value (SFAS 131)	-13.36%	-31.22%	-26.12%	-15.78%	-16.00%	-17.96%	-7.89%	-3.66%	-5.55%	3.14%
Prob T	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.04	0.26

Figure 3
Examples of Efficient, Value-Destroying, and Cross-Subsidizing Internal Capital Market Investment

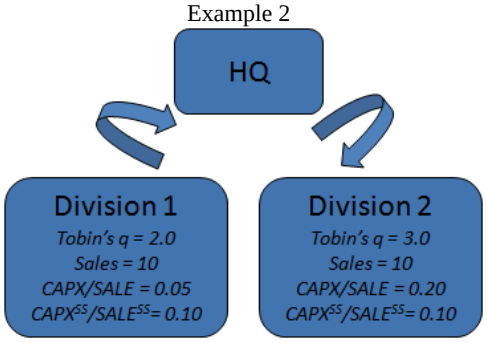
Examples of Efficient Investment

Example 1



Efficient Resource Transfer

Example 2



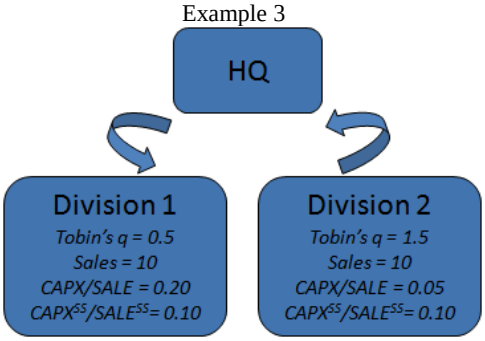
Efficient Resource Transfer

$$w_1 = \frac{SALE_1}{SALE} = \frac{10}{10+10} = 0.50$$
$$w_2 = \frac{SALE_2}{SALE} = \frac{10}{10+10} = 0.50$$
$$Division\ 1\ Industry\ Adjusted\ CAPEX = \frac{CAPEX_1}{SALE_1} - \frac{CAPEX_1^{SS}}{SALE_1^{SS}} = 0.05 - 0.10 = -0.05$$
$$Division\ 2\ Industry\ Adjusted\ CAPEX = \frac{CAPEX_2}{SALE_2} - \frac{CAPEX_2^{SS}}{SALE_2^{SS}} = 0.20 - 0.10 = +0.10$$
$$Firm\ Level\ Abnormal\ CAPEX = \sum_{j=1}^{2} w_j \left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}}\right) = 0.5(-0.05) + 0.5(+0.10) = +0.025$$
$$Value\ Destroying\ Investment\ and\ Cross\ Subsidization$$
$$= \sum_{j=1}^{1} w_j \left(\frac{CAPEX_1}{SALE_1} - \frac{CAPEX_1^{SS}}{SALE_1^{SS}} - \sum_{j=1}^{2} w_j \left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}}\right)\right)$$
$$- \sum_{j=2}^{2} w_j \left(\frac{CAPEX_2}{SALE_2} - \frac{CAPEX_2^{SS}}{SALE_2^{SS}} - \sum_{j=1}^{2} w_j \left(\frac{CAPEX_j}{SALE_j} - \frac{CAPEX_j^{SS}}{SALE_j^{SS}}\right)\right)$$
$$= [0.5(-0.05 - 0.025) - 0.5(+0.10 - 0.025)] = -0.075$$

The calculation is negative, suggesting efficient allocation. This calculation is applicable to Examples 1 and 2.

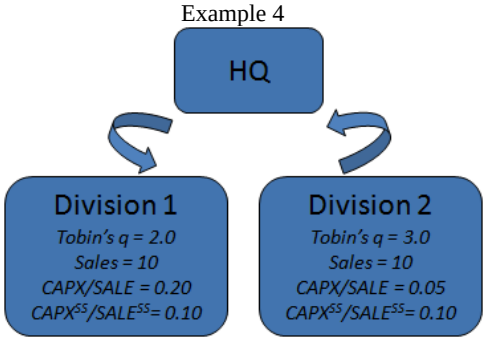
Examples of Value-Destroying and Cross-Subsidizing Investment

Example 3



Value-Destroying Resource Transfer

Example 4



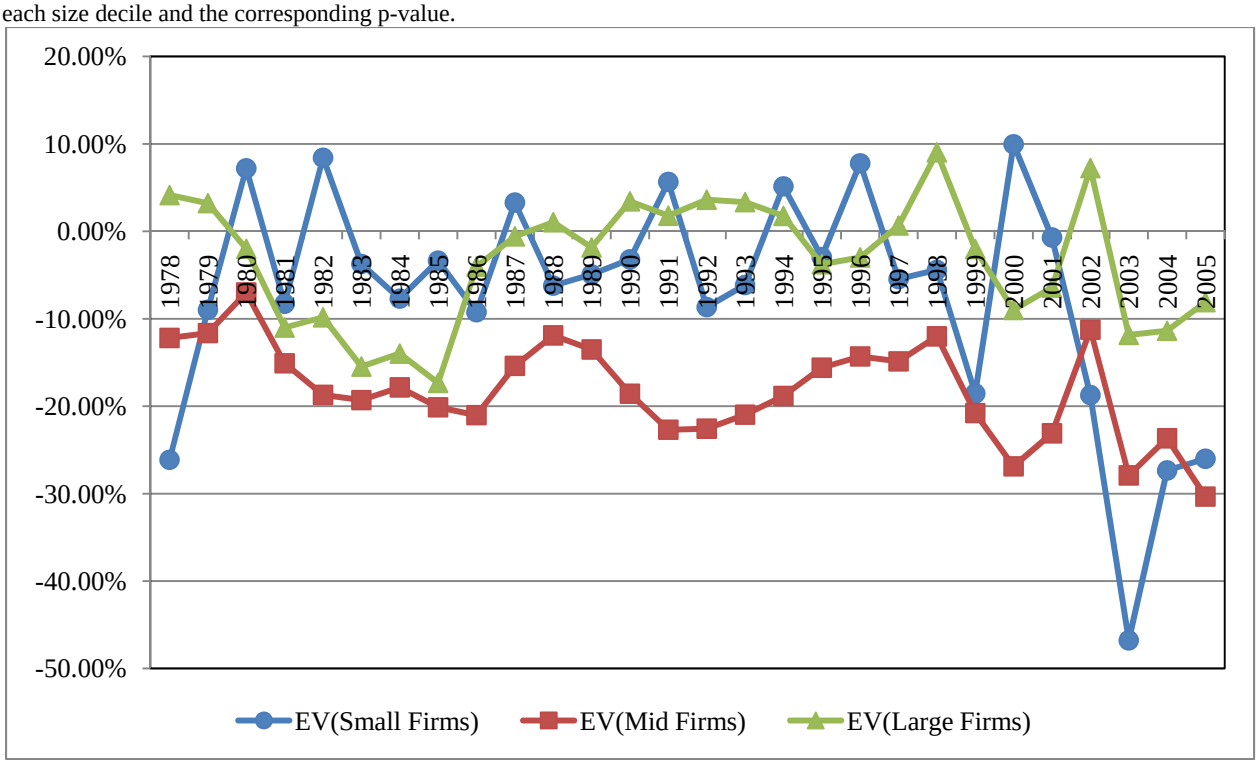
Cross-Subsidizing Resource Transfer

$$Division\ 1\ Industry\ Adjusted\ CAPEX = 0.20 - 0.10 = +0.10$$
$$Division\ 2\ Industry\ Adjusted\ CAPEX = 0.05 - 0.10 = -0.05$$
$$Firm\ Level\ Abnormal\ CAPEX = 0.5(+0.10) + 0.5(-0.05) = +0.025$$
$$Value\ Destroying\ Investment\ and\ Cross\ Subsidization = [0.5(0.10 - 0.025) - 0.5(-0.05 - 0.025)] = +0.075$$

The calculation is positive, suggesting inefficient allocation. This calculation is applicable to Examples 3 and 4.

Figure 4
Excess Value by Firm Size and Year for the Sample Firms

This figure shows Excess Value (EV), as defined by Berger and Ofek (1995), by firm size and year for the 11,111 sample firm-year observations used in this study after imposing all of our data requirements. The figure presents the mean values of EV for each size decile and the corresponding p-value.



Year	EV(Small)	Prob T	EV(Mid)	Prob T	EV(Large)	Prob T
1978	-26.13%	0.18	-12.19%	0.00	4.14%	0.28
1979	-8.97%	0.38	-11.64%	0.00	3.22%	0.41
1980	7.20%	0.53	-6.99%	0.08	-1.99%	0.62
1981	-8.28%	0.48	-15.09%	0.00	-11.00%	0.00
1982	8.42%	0.36	-18.71%	0.00	-9.83%	0.06
1983	-3.73%	0.72	-19.30%	0.00	-15.46%	0.00
1984	-7.70%	0.29	-17.85%	0.00	-13.98%	0.00
1985	-3.35%	0.63	-20.13%	0.00	-17.33%	0.00
1986	-9.25%	0.28	-21.02%	0.00	-4.02%	0.20
1987	3.28%	0.72	-15.39%	0.00	-0.57%	0.87
1988	-6.21%	0.39	-11.90%	0.00	1.04%	0.68
1989	-4.92%	0.55	-13.51%	0.00	-1.84%	0.46
1990	-3.21%	0.74	-18.57%	0.00	3.43%	0.25
1991	5.66%	0.58	-22.69%	0.00	1.78%	0.60
1992	-8.66%	0.39	-22.57%	0.00	3.62%	0.27
1993	-6.14%	0.51	-20.97%	0.00	3.34%	0.32
1994	5.15%	0.64	-18.83%	0.00	1.77%	0.53
1995	-2.95%	0.79	-15.60%	0.00	-3.76%	0.19
1996	7.78%	0.42	-14.31%	0.00	-2.99%	0.32
1997	-5.46%	0.60	-14.87%	0.00	0.66%	0.81
1998	-4.42%	0.67	-12.00%	0.00	9.04%	0.00
1999	-18.54%	0.08	-20.78%	0.00	-2.02%	0.56
2000	9.96%	0.43	-26.88%	0.00	-8.99%	0.04
2001	-0.70%	0.96	-23.10%	0.00	-6.43%	0.10
2002	-18.72%	0.17	-11.25%	0.01	7.23%	0.08
2003	-46.79%	0.00	-27.92%	0.00	-11.84%	0.00
2004	-27.34%	0.08	-23.67%	0.00	-11.37%	0.01
2005	-26.01%	0.22	-30.34%	0.00	-8.09%	0.04

Table I

Panel A: Sample Size by Year and Firm Size

Sample summary statistics for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles.

Year	Small Firms	Mid-Sized Firms	Large Firms	Total
1978	12	116	76	204
1979	23	140	91	254
1980	26	162	91	279
1981	31	187	95	313
1982	38	176	77	291
1983	44	192	56	292
1984	62	287	194	543
1985	66	251	173	490
1986	57	234	140	431
1987	50	221	145	416
1988	53	256	193	502
1989	58	232	193	483
1990	40	212	169	421
1991	47	181	138	366
1992	42	205	160	407
1993	47	210	150	407
1994	46	229	169	444
1995	40	222	204	466
1996	46	217	220	483
1997	38	191	220	449
1998	46	306	252	604
1999	49	222	204	475
2000	36	179	177	392
2001	26	155	181	362
2002	31	173	163	367
2003	22	151	181	354
2004	21	125	161	307
2005	14	123	172	309
Total	1,111	5,555	4,445	11,111

Panel B: Sample Size by Industry and Firm Size

Industry classifications for the 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005 appearing in our sample. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. Industrial classifications are defined as in Fama and French (1997).

FF 48 Industry		Small Firms	Mid-Sized Firms	Large Firms	Total
1	Agric	1	0	0	1
2	Food	17	89	188	294
3	Soda	0	2	6	8
4	Beer	0	6	43	49
5	Smoke	0	0	0	0
6	Toys	8	105	39	152
7	Fun	22	57	25	104
8	Books	12	62	121	195
9	Hshld	29	145	139	313
10	Clths	4	50	43	97
11	Hlth	21	89	31	141
12	MedEq	72	96	50	218
13	Drugs	39	76	61	176
14	Chems	16	108	231	355
15	Rubbr	22	173	58	253
16	Txtls	1	59	62	122
17	BldMt	27	277	199	503
18	Cnstr	2	20	8	30
19	Steel	2	192	221	415
20	FabPr	19	79	23	121
21	Mach	79	451	283	813
22	ElcEq	82	261	108	451
23	Autos	6	184	143	333
24	Aero	9	64	51	124
25	Ships	0	16	18	34
26	Guns	0	20	25	45
27	Gold	3	10	2	15
28	Mines	0	6	13	19
29	Coal	0	0	2	2
30	Oil	115	280	162	557
31	Util	0	203	423	626
32	Telcm	28	224	184	436
33	PerSv	2	24	7	33
34	BusSv	136	407	175	718
35	Comps	35	190	30	255
36	Chips	131	312	147	590
37	LabEq	44	203	49	296
38	Paper	7	108	290	405
39	Boxes	0	25	78	103
40	Trans	7	81	77	165
41	Whlsl	55	391	277	723
42	Rtail	34	192	226	452
43	Meals	3	108	69	180
44	Banks	0	0	0	0
45	Insur	0	0	0	0
46	RlEst	0	0	0	0
47	Fin	0	0	0	0
48	Other	21	110	58	189
Total		1,111	5,555	4,445	11,111

Table II
Summary Statistics

Sample summary statistics for 11,111 diversified firm-years from the Compustat Industry Segment database for fiscal years 1979-2005. Total Assets and Net Sales are both deflated to 1986 dollars. Excess Value is Berger and Ofek's (1995) excess value from diversification measure. Cross-Subsidization is the negative of Relative Investment as defined by Ahn and Denis (2004). Value Destroying Investment is a variant of this measure and is defined in the text. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. Issued Capital is an indicator variable of whether the firm was a net issuer of debt or equity capital for the year. Dividend Paying Firm is a (0,1) indicator variable of whether the firm pays a dividend. Analyst Coverage is an indicator variable of whether the firm is covered by at least one analyst. Number of Analysts is the maximum number of analysts making annual earnings forecasts in a fiscal year available in I/B/E/S.

Variable	N	Mean	Std Dev	Min	Median	Max
Measures of Firm Size and Scope						
Total Assets (1986 $s)	11,111	1,282.49	4,189.39	1.11	187.80	159,080.92
Net Sales (1986 $s)	11,111	1,146.39	3,220.57	1.01	221.84	102,813.00
Number of Business Segments	11,111	2.74	0.98	2.00	2.00	10.00
Number of 2-Digit SIC Codes	11,111	1.98	0.82	1.00	2.00	8.00
Measures of Firm Value and ICM Efficiency						
Excess Value	11,111	-10.58%	50.16%	-138.42%	-12.10%	138.42%
Value-Destroying Investment	11,111	-0.0009	0.04	-1.90	0.0000	1.27
Cross-Subsidization	11,111	0.2695	28.15	-121.85	0.0000	115.11
Measures of Free Cash Flow and Firm Investment						
Free Cash Flow to Sales	11,111	5.58%	7.79%	-19.93%	5.55%	25.33%
Capital Investment to Sales	11,111	11.73%	14.94%	0.60%	6.22%	71.69%
Measures of Capital Market Monitoring						
Issued Capital	11,111	0.53	0.50	0.00	1.00	1.00
Pays Dividend	11,111	0.58	0.49	0.00	1.00	1.00
Analyst Coverage	11,111	0.59	0.49	0.00	1.00	1.00
Number of Analysts	11,111	4.76	6.95	0.00	2.00	41.00

Table III

Excess Value, Internal Capital Market Efficiency, Free Cash Flow, Investment, and Monitoring by Size

Sample summary statistics for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. Total Assets and Net Sales are both deflated to 1986 dollars. Excess Value is Berger and Ofek's (1995) excess value from diversification measure. Cross-Subsidization is the negative of Relative Investment as defined by Ahn and Denis (2004). Value Destroying Investment is a variant of this measure and is defined in the text. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. Issued Capital is an indicator variable of whether the firm was a net issuer of debt or equity capital for the year. Dividend Paying Firm is a (0,1) indicator variable of whether the firm pays a dividend. Analyst Coverage is an indicator variable of whether the firm is covered by at least one analyst. Number of Analysts is the maximum number of analysts making annual earnings forecasts in a fiscal year available in I/B/E/S. ***, **, and * are indicative of p-values with statistical significance at the 1%, 5%, and 10% levels, respectively.

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms		Sm v. Lg		Sm v. Mid		Mid v. Lg	
Variable	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Prob t	Prob z	Prob t	Prob z	Prob t	Prob z
Measures of Firm Size and Scope														
Total Assets (1986 $s)	1,282.49 ***	187.80 ***	11.56 ***	8.34 ***	137.72 ***	77.20 ***	3,030.78 ***	1,212.56 ***	0.00	0.00	0.00	0.00	0.00	0.00
Net Sales (1986 $s)	1,146.39 ***	221.84 ***	10.26 ***	10.22 ***	130.88 ***	97.20 ***	2,699.47 ***	1,256.74 ***	0.00	0.00	0.00	0.00	0.00	0.00
# of Business Segments	2.74 ***	2.00 ***	2.34 ***	2.00 ***	2.53 ***	2.00 ***	3.10 ***	3.00 ***	0.00	0.00	0.00	0.00	0.00	0.00
# of 2-Digit SIC Codes	1.98 ***	2.00 ***	1.83 ***	2.00 ***	1.92 ***	2.00 ***	2.09 ***	2.00 ***	0.00	0.00	0.00	0.00	0.00	0.00
Measures of Firm Value and ICM Efficiency														
Excess Value	-10.58% ***	-12.10% ***	-5.11% ***	-12.35% ***	-17.82% ***	-20.42% ***	-2.90% ***	-3.78% ***	0.18	0.00	0.00	0.00	0.00	0.00
Value-Destroying Investment	-0.0009 **	0.0000 ***	-0.0035	0.0000	-0.0013 **	0.0000 **	0.0003	0.0000 ***	0.00	0.44	0.16	0.71	0.02	0.48
Cross-Subsidization	0.2695	0.0000 ***	0.1484	0.0000 ***	0.7386 *	0.0000 ***	-0.2866	0.0000 **	0.64	0.02	0.55	0.59	0.06	0.00
Measures of Free Cash Flow and Firm Investment														
Free Cash Flow to Sales	5.58% ***	5.55% ***	0.38% ***	2.77% ***	5.34% ***	5.05% ***	7.17% ***	6.41% ***	0.00	0.00	0.00	0.00	0.00	0.00
Capital Investment to Sales	11.73% ***	6.22% ***	12.64% ***	4.68% ***	11.69% ***	5.48% ***	11.55% ***	7.36% ***	0.02	0.00	0.08	0.00	0.64	0.00
Measures of Capital Market Monitoring														
Issued Capital	0.53 ***	1.00 ***	0.56 ***	1.00 ***	0.54 ***	1.00 ***	0.52 ***	1.00 ***	0.02	0.02	0.21	0.21	0.05	0.05
Pays Dividend	0.58 ***	1.00 ***	0.14 ***	0.00 ***	0.48 ***	0.00 ***	0.83 ***	1.00 ***	0.00	0.00	0.00	0.00	0.00	0.00
Analyst Coverage	0.59 ***	1.00 ***	0.13 ***	0.00 ***	0.52 ***	1.00 ***	0.81 ***	1.00 ***	0.00	0.00	0.00	0.00	0.00	0.00
Number of Analysts	4.76 ***	2.00 ***	0.22 ***	0.00 ***	2.02 ***	1.00 ***	9.31 ***	7.00 ***	0.00	0.00	0.00	0.00	0.00	0.00

Table IV

Fixed Effects Regressions of Value-Destroying Investment and Cross-Subsidization on Free Cash Flow

This table presents firm and year fixed-effects regressions of internal capital market efficiency on proxies for free cash flow and capital investment for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. The dependent variable in Panel A, Value-Destroying Investment (defined in the text), measures the amount of resources allocated to divisions with a q ratio less than one. The dependent variable in Panel B, Cross-Subsidization (defined as the negative of Relative Investment as computed by Ahn and Denis (2004)), measures the amount of resources allocated to divisions with q ratios than that of the firm median. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. All other variables are defined in Table II and the text.

Panel A: Value-Destroying Investment

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
FCF x Capital Investment	0.0247	0.00	0.0141	0.48	0.0319	0.01	0.0387	0.05
Capital Investment	-0.0021	0.03	0.0002	0.94	-0.0035	0.01	-0.0015	0.50
Free Cash Flow	-0.0015	0.44	0.0042	0.28	-0.0011	0.70	-0.0064	0.17
Inverse of Average Division q	0.0000	0.97	0.0013	0.51	-0.0011	0.25	0.0009	0.44
# 2-digit SIC Codes	-0.0001	0.40	-0.0006	0.40	0.0000	0.99	-0.0004	0.12
Firm Size	0.0001	0.55	-0.0014	0.06	-0.0007	0.06	0.0014	0.00
Heckman Correction	-0.0004	0.55	0.0010	0.49	0.0018	0.04	-0.0026	0.04
Firm Fixed Effects	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
F-Statistic	1.55	0.00	1.66	0.00	1.54	0.00	1.58	0.00
N	11,111		1,111		5,555		4,445	

Panel B: Cross-Subsidization

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
FCF x Capital Investment	51.1616	0.10	-72.0114	0.47	108.7288	0.01	105.9104	0.09
Capital Investment	-7.4423	0.04	-2.8877	0.79	-8.9298	0.09	-10.7746	0.13
Free Cash Flow	10.2758	0.15	37.3393	0.06	3.8798	0.71	-5.0509	0.73
Inverse of Average Division q	-8.8830	0.00	-15.5661	0.13	-13.1631	0.00	-0.9905	0.79
# 2-digit SIC Codes	-0.8310	0.17	-6.4436	0.06	0.5141	0.63	-0.6932	0.38
Firm Size	-0.7532	0.34	-15.6902	0.00	-2.6353	0.04	4.1614	0.01
Heckman Correction	-0.7089	0.74	3.7356	0.61	4.8637	0.13	-7.0566	0.08
Firm Fixed Effects	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
F-Statistic	1.88	0.00	1.81	0.00	1.68	0.00	1.99	0.00
N	11,111		1,111		5,555		4,445	

Table V

Fixed Effects Regressions of Firm Value on Free Cash Flow and Internal Capital Market Efficiency

This table presents firm and year fixed-effects regressions of firm value on proxies for internal capital market efficiency, free cash flow, and capital investment for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. The dependent variable in Panels A and B is Berger and Ofek's (1995) excess value measure. Value-Destroying Investment is defined in the text. Cross-Subsidization is the negative of Relative Investment as defined by Ahn and Denis (2004) multiplied by one-thousand. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. All other variables are defined in Table II and the text.

Panel A: Excess Value on Free Cash Flow, and Value-Destroying Investment

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Value-Destroying Investment	-1.0019	0.04	-1.5868	0.55	-1.4790	0.05	-0.5303	0.39
FCF x Capital Investment	-1.6903	0.00	1.9228	0.14	-2.3742	0.00	-3.3951	0.00
Capital Investment	0.8209	0.00	0.4818	0.00	0.9418	0.00	0.8440	0.00
Free Cash Flow	0.4980	0.00	-0.3750	0.15	0.6678	0.00	1.2022	0.00
# 2-digit SIC Codes	-0.0273	0.00	0.0547	0.22	-0.0401	0.00	-0.0154	0.09
Firm Size	-0.1465	0.00	-0.3040	0.00	-0.0909	0.00	-0.2235	0.00
Heckman Correction	-0.3104	0.00	-0.4628	0.00	-0.2226	0.00	-0.2326	0.00
Firm Fixed Effects	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
F-Statistic	8.68	0.00	5.23	0.00	7.66	0.00	10.79	0.00
N	11,111		1,111		5,555		4,445	

Panel B: Excess Value on Free Cash Flow, and Cross-Subsidization

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Cross-Subsidization	-0.4392	0.00	-0.3332	0.52	-0.7889	0.00	-0.2128	0.28
FCF x Capital Investment	-1.6912	0.00	1.8779	0.15	-2.3332	0.00	-3.3930	0.00
Capital Investment	0.8200	0.00	0.4813	0.00	0.9407	0.00	0.8426	0.00
Free Cash Flow	0.5041	0.00	-0.3692	0.16	0.6730	0.00	1.2045	0.00
# 2-digit SIC Codes	-0.0274	0.00	0.0535	0.23	-0.0396	0.00	-0.0153	0.09
Firm Size	-0.1468	0.00	-0.3068	0.00	-0.0918	0.00	-0.2234	0.00
Heckman Correction	-0.3102	0.00	-0.4629	0.00	-0.2210	0.00	-0.2327	0.00
Firm Fixed Effects	Yes		Yes		Yes		Yes	
Year Fixed Effects	Yes		Yes		Yes		Yes	
F-Statistic	8.69	0.00	5.23	0.00	7.69	0.00	10.79	0.00
N	11,111		1,111		5,555		4,445	

Table VI

Internal Capital Market Efficiency and Capital Market Avoidance

This table presents logistic regressions of capital issuance and dividend payout on proxies for internal capital market efficiency for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. The dependent variables are issued capital (0,1) and paid dividend (0,1), respectively. Issued Capital is a (0,1) indicator variable of whether the firm was a net issuer of debt or equity capital for the year. Paid dividendis a (0,1) indicator variable of whether the firm paid a dividend for the fiscal year. Value-Destroying ICM (0,1) is an indicator variable of which takes the value 1 if Value-Destroying investment is less than or equal to zero and 0 otherwise. Cross-Subsidizing ICM (0,1) is an indicator variable of which takes the value 1 if Cross-Subsidization is less than or equal to zero and 0 otherwise. All other variables are defined in Table II and the text.

Panel A: Capital Market Avoidance and Value-Destroying Investment

	Issued Capital (0,1)		Issued Capital (0,1)		Paid Dividend (0,1)		Paid Dividend (0,1)	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Constant	0.56	0.00	0.71	0.00	0.38	0.02	1.05	0.00
Value-Destroying ICM (0,1)	-0.15	0.03	-0.15	0.03	-0.27	0.00	-0.31	0.00
WACC	-0.02	0.00			0.07	0.00		
Cash Deficit			5.03	0.00			-2.66	0.00
S&P Rating	0.08	0.10	0.15	0.00	0.63	0.00	0.54	0.00
Cash to Assets	-1.78	0.00	-2.94	0.00	-1.35	0.00	-0.52	0.07
Tobin's Q	0.14	0.00	0.26	0.00	-0.15	0.00	-0.17	0.00
Stock Market Return	0.48	0.00	0.44	0.00	1.04	0.00	1.19	0.00
# 2-digit SIC Codes	0.00	0.89	0.01	0.58	0.17	0.00	0.18	0.00
Firm Size	0.00	0.30	0.00	0.08	0.00	0.00	0.00	0.00
Firm Age	-0.01	0.00	-0.01	0.00	0.04	0.00	0.04	0.00
Heckman Correction	0.02	0.77	-0.18	0.01	-1.88	0.00	-1.89	0.00
Likelihood Ratio Statistic	182.03	0.00	1110.59	0.00	3603.23	0.00	3753.88	0.00
N	11,111		11,111		11,111		11,111	

Panel B: Capital Market Avoidance and Cross-Subsidization

	Issued Capital (0,1)		Issued Capital (0,1)		Paid Dividend (0,1)		Paid Dividend (0,1)	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Constant	0.50	0.00	0.66	0.00	0.23	0.14	0.87	0.00
Cross-Subsidizing ICM (0,1)	-0.11	0.01	-0.11	0.01	-0.11	0.02	-0.12	0.01
WACC	-0.02	0.00			0.07	0.00		
Cash Deficit			5.03	0.00			-2.67	0.00
S&P Rating	0.08	0.11	0.14	0.00	0.63	0.00	0.54	0.00
Cash to Assets	-1.77	0.00	-2.93	0.00	-1.34	0.00	-0.50	0.08
Tobin's Q	0.14	0.00	0.26	0.00	-0.15	0.00	-0.18	0.00
Stock Market Return	0.47	0.00	0.44	0.00	1.03	0.00	1.18	0.00
# 2-digit SIC Codes	-0.01	0.83	0.01	0.63	0.17	0.00	0.19	0.00
Firm Size	0.00	0.26	0.00	0.06	0.00	0.00	0.00	0.00
Firm Age	-0.01	0.00	-0.01	0.00	0.04	0.00	0.04	0.00
Heckman Correction	0.01	0.90	-0.19	0.01	-1.90	0.00	-1.92	0.00
Likelihood Ratio Statistic	184.29	0.00	1112.44	0.00	3746.26	0.00	3598.11	0.00
N	11,111		11,111		11,111		11,111	

Table VII
Internal Capital Market Efficiency Surrounding Securities Issuances

This table presents investor reactions to capital issuances to measures of internal capital market efficiency for 920 seasoned equity offerings by diversified firms from 1979-2005. We proxy for investor reactions using the (-2,+2) cumulative abnormal return around the announcement date of the offering. The key independent variables of interest are Value-Destroying ICM (0,1) and Cross-Subsidizing ICM (0,1). Value-Destroying ICM (0,1) is an indicator variable of which takes the value 1 if Value-Destroying investment is less than or equal to zero and 0 otherwise. Cross-Subsidizing ICM (0,1) is an indicator variable of which takes on the value 1 if Cross-Subsidization is less than or equal to zero and 0 otherwise. Panel A presents univariate comparisons of the announcement returns by ICM efficiency while Panel B presents OLS regressions. Each model in panel B controls for industry and calendar year fixed effects. All other variables are defined in Table II and the text.

Panel A: Univariate Analysis of Investor Reactions by ICM Efficiency

	Full Sample	Value Destroying = 1	Value Destroying = 0	Difference	Cross Subsidizing = 1	Cross Subsidizing = 0	Difference
Mean	-1.34%	-1.64%	-0.19%	-1.44%	-1.77%	-0.85%	-0.92%
p-value	(0.00)	(0.00)	(0.61)	(0.00)	(0.00)	(0.00)	(0.02)
Median	-1.13%	-1.33%	-0.18%	-1.16%	-1.42%	-0.68%	-0.74%
p-value	(0.00)	(0.00)	(0.52)	(0.00)	(0.00)	(0.01)	(0.01)

Panel B: OLS Regression Analysis of Investor Reactions by ICM Efficiency

	Announcement CAR		Announcement CAR	
	Estimate	P-Value	Estimate	P-Value
Constant	-1.7395	0.38	-2.7205	0.16
Value-Destroying ICM (0,1)	-1.2988	0.01		
Cross-Subsidizing ICM (0,1)			-0.7384	0.05
Excess Value	0.7416	0.06	0.7821	0.04
# 2-digit SIC Codes	-0.0772	0.75	0.0141	0.95
Net-of-Market Stock Return	2.9895	0.00	2.9468	0.00
Stock Market Return	2.5887	0.04	2.6279	0.04
Firm Size	0.3429	0.00	0.3543	0.00
Cash to Assets	-2.9059	0.29	-3.0181	0.27
Debt to Assets	-3.0292	0.01	-2.9233	0.01
CAPX to Assets	5.7238	0.04	5.6611	0.04
F-Statistic	2.71	0.00	2.62	0.00
N	920		920	

Table VIII
Capital Market Activity and Analyst Coverage

This table presents logistic and OLS regressions of analyst coverage on proxies for external capital market participation for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. The dependent variables are analyst coverage (0,1) and number of analysts, respectively. Analyst Coverage is an indicator variable of whether the firm is covered by at least one analyst. Number of Analysts is the maximum number of analysts making annual earnings forecasts in a fiscal year available in I/B/E/S. Issued Capital is a (0,1) indicator variable of whether the firm was a net issuer of debt or equity capital for the year. Paid dividend is a (0,1) indicator variable of whether the firm pays a dividend for the fiscal year. All other variables are defined in Table II and the text.

	Analyst Coverage (0,1)		Number of Analysts	
	Estimate	P-Value	Estimate	P-Value
Constant	1.27	0.00	6.07	0.00
Issued Capital (0,1)	0.12	0.00	0.23	0.03
Paid Dividend (0,1)	0.40	0.00	0.91	0.00
# 2-digit SIC Codes	-0.04	0.10	-0.07	0.30
Prior Year Stock Returns	-0.12	0.01	-0.66	0.00
Tobin's Q	0.40	0.00	1.73	0.00
Firm Size	0.00	0.00	0.00	0.00
Firm Age	0.00	0.25	0.05	0.00
Heckman Correction	-1.76	0.00	-6.42	0.00
Likelihood Ratio / F-Statistic	1584.15	0.00	723.87	0.00
N	11,111		11,111	

Table IX

ICM Efficiency on Free Cash Flow, Value-Destroying Investment, and External Capital Market Monitoring

This table presents firm and year fixed-effects regressions of internal capital market efficiency on proxies for free cash flow and capital investment for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. The dependent variable in Panel A, Value-Destroying Investment, is defined in the text. The dependent variable in Panel B, Cross-Subsidization is the negative of Relative Investment as defined by Ahn and Denis (2004). Number of Analysts is the maximum number of analysts making annual earnings forecasts in a fiscal year available in I/B/E/S. This value is multiplied by one-hundred in Panel A. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. All other variables are defined in Table II and the text.

Panel A: Value-Destroying Investment

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Number of Analysts	0.0032	0.21	0.0810	0.16	-0.0842	0.01	-0.0001	0.97
FCF x Capital Investment	0.0244	0.00	0.0103	0.61	0.2956	0.00	0.0387	0.05
Capital Investment	-0.0021	0.04	0.0000	1.00	-0.0398	0.00	-0.0015	0.50
Free Cash Flow	-0.0015	0.43	0.0046	0.24	-0.0289	0.01	-0.0064	0.17
Inverse of Average Division q	0.0000	0.95	0.0014	0.50	-0.0060	0.21	0.0009	0.44
# 2-digit SIC Codes	-0.0001	0.41	-0.0005	0.45	0.0005	0.75	-0.0004	0.12
Firm Size	0.0001	0.73	-0.0016	0.04	0.0013	0.48	0.0014	0.01
Heckman Correction	-0.0003	0.64	0.0011	0.46	0.0052	0.23	-0.0026	0.04
F-Statistic	1.55	0.00	1.67	0.00	3.59	0.00	1.58	0.00
N	11,111		1,111		5,555		4,445	

Panel B: Cross-Subsidization

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Number of Analysts	0.0410	0.66	3.8801	0.19	-0.6123	0.01	-0.0097	0.92
FCF x Capital Investment	50.8187	0.11	-90.0084	0.37	114.2626	0.01	105.8384	0.09
Capital Investment	-7.4245	0.04	-3.6502	0.74	-9.0492	0.09	-10.7687	0.13
Free Cash Flow	10.2108	0.15	39.1675	0.05	4.4931	0.67	-4.9868	0.73
Inverse of Average Division q	-8.9009	0.00	-15.5001	0.13	-12.7423	0.00	-0.9807	0.79
# 2-digit SIC Codes	-0.8302	0.17	-6.1468	0.07	0.4533	0.67	-0.6930	0.38
Firm Size	-0.8234	0.31	-16.2764	0.00	-1.7411	0.20	4.1890	0.01
Heckman Correction	-0.6086	0.78	4.0356	0.58	4.4607	0.17	-7.1043	0.08
F-Statistic	1.88	0.00	1.81	0.00	1.69	0.00	1.99	0.00
N	11,111		1,111		5,555		4,445	

Table X
Firm Value and External Capital Market Monitoring

This table presents firm and year fixed-effects regressions of firm value on proxies for internal capital market efficiency, free cash flow, and capital investment for 11,111 diversified firm-years from the Compustat Industry Segment database for 1979-2005. Small firms are those falling in the smallest decile of the sample where size is measured as firm sales in 1986 dollars. Mid-sized firms are those firms falling in the 2nd through the 6th size deciles while large firms are those firms falling in the 7th through the 10th deciles. The dependent variable in Panels A and B is Berger and Ofek's (1995) excess value measure. Value-Destroying Investment, is defined in the text. Cross-Subsidization is the negative of Relative Investment as defined by Ahn and Denis (2004) multiplied by one-thousand. Free Cash Flow to Sales is EBITDA less taxes, dividends, and interest payments normalized by sales and Capital Investment to Sales is the sum of capital expenditures, investments, and cash acquisitions normalized by sales. All other variables are defined in Table II and the text.

Panel A: Excess Value on Free Cash Flow, Value-Destroying Investment, and External Capital Market Monitoring

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Number of Analysts	0.0079	0.00	0.0151	0.69	0.0230	0.00	0.0039	0.00
Issued Capital (0,1)	0.0591	0.00	0.0937	0.03	0.0646	0.00	0.0080	0.72
Paid Dividend (0,1)	0.0198	0.13	0.0079	0.91	0.0533	0.00	0.0148	0.49
Value-Destroying Investment	-1.0541	0.03	-1.7121	0.51	-1.3353	0.07	-0.5293	0.39
FCF x Capital Investment	-1.6904	0.00	1.8128	0.17	-2.4037	0.00	-3.3448	0.00
Capital Investment	0.8059	0.00	0.4557	0.00	0.9177	0.00	0.8381	0.00
Free Cash Flow	0.4687	0.00	-0.3901	0.13	0.6131	0.00	1.1761	0.00
# 2-digit SIC Codes	-0.0274	0.00	0.0584	0.19	-0.0388	0.00	-0.0153	0.09
Firm Size	-0.1651	0.00	-0.3157	0.00	-0.1347	0.00	-0.2362	0.00
Heckman Correction	-0.2886	0.00	-0.4479	0.00	-0.2062	0.00	-0.2112	0.00
F-Statistic	8.77	0.00	5.23	0.00	7.87	0.00	10.81	0.00
N	11,111		1,111		5,555		4,445	

Panel B: Excess Value on Free Cash Flow, Cross-Subsidization, and External Capital Market Monitoring

	Full Sample		Small Firms		Mid-Sized Firms		Large Firms	
	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value	Estimate	P-Value
Number of Analysts	0.0079	0.00	0.0147	0.70	0.0226	0.00	0.0041	0.00
Issued Capital (0,1)	0.0593	0.00	0.0920	0.03	0.0661	0.00	0.0136	0.55
Paid Dividend (0,1)	0.0188	0.15	0.0059	0.94	0.0523	0.00	0.0205	0.35
Cross-Subsidization	-0.4418	0.00	-0.2607	0.62	-0.7274	0.00	-0.2475	0.19
FCF x Capital Investment	-1.6931	0.00	1.7752	0.18	-2.3610	0.00	-0.8651	0.00
Capital Investment	0.8052	0.00	0.4558	0.00	0.9162	0.00	0.4814	0.00
Free Cash Flow	0.4750	0.00	-0.3875	0.14	0.6178	0.00	0.7518	0.00
# 2-digit SIC Codes	-0.0275	0.00	0.0576	0.20	-0.0384	0.00	-0.0144	0.12
Firm Size	-0.1654	0.00	-0.3168	0.00	-0.1351	0.00	-0.2403	0.00
Heckman Correction	-0.2884	0.00	-0.4488	0.00	-0.2049	0.00	-0.2163	0.00
F-Statistic	8.78	0.00	5.22	0.00	7.90	0.00	10.70	0.00
N	11,111		1,111		5,555		4,445	

Table A-I
Example of Aggregation Algorithm

This table presents examples of the SFAS 14 – SFAS 131 aggregation algorithm for AMF Bowling for the years 1998 and 1999. SID is the segment identifier while SNAME is the name of the segment as reported by the company. STYPE indicates whether the firm is reporting its segments as either business segments or operating segments. SSICB1 is the primary SIC code of the segment. SNAICS1 is the primary NAICS code of the segment. SALE, CAPX, and AT are the net sales, capital expenditures, and total assets reported by the segment, respectively. INTSEG is the reported level of intersegment eliminations. OPS is the segment's reported operating profit.

1998 AMF Bowling Inc - Year Prior to Implementation of SFAS 131

SID	SNAME	STYPE	SSICB1	SNAICS1	SALE	CAPX	AT	INTSEG	OPS
1	BOWLING CENTERS	BUSSEG	7933	713950	540.9	56.9	1233.4	.	44.7
2	BOWLING PRODUCTS	BUSSEG	3949	339920	197.2	9.5	706.1	.	-11.8

1999 AMF Bowling Inc - Raw Segment Data

SID	SNAME	STYPE	SSICB1	SNAICS1	SALE	CAPX	AT	INTSEG	OPS
3	Bowling Centers-U.S.	OPSEG	7933	713950	461	34.1	810.4	0	11
4	Bowling Centers-International	OPSEG	7933	713950	124.7	9.4	315.8	0	8.6
5	Bowling Products-U.S.	OPSEG	3949	339920	68.1	7.9	607.6	18.1	-33.4
6	Bowling Products-International	OPSEG	3949	339920	78.9	0.4	64.3	4.2	-10.1
7	Corporate	OPSEG	-9999		0	0.3	28	0	-24.9
99	Eliminations	OPSEG	.		0	0	3.5	22.3	1.3

1999 AMF Bowling Inc - After Berger and Hann (2003) Aggregation

SID	SNAME	STYPE	SSICB1	SNAICS1	SALE	CAPX	AT	INTSEG	OPS
3	[A] Bowling Centers-U.S.; Bowling Centers-International	OPSEG	7933	713950	585.7	43.5	1126.2	0	19.6
5	[A] Bowling Products-U.S.; Bowling Products-International	OPSEG	3949	339920	147	8.3	671.9	22.3	-43.5
7	Corporate	OPSEG	-9999		0	0.3	28	0	-24.9
99	Eliminations	OPSEG	.		0	0	3.5	22.3	1.3

1999 AMF Bowling Inc - After Eliminations Segment Aggregation

SID	SNAME	STYPE	SSICB1	SNAICS1	SALE	CAPX	AT	INTSEG	OPS
3	[A] Bowling Centers-U.S.; Bowling Centers-International	OPSEG	7933	713950	585.7	43.5	1126.2	0	19.6
5	[A] Bowling Products-U.S.; Bowling Products-International	OPSEG	3949	339920	147	8.3	675.4	0	-42.2
7	Corporate	OPSEG	-9999		0	0.3	28	0	-24.9

1999 AMF Bowling Inc - After Asset Re-Weighting

SID	SNAME	STYPE	SSICB1	SNAICS1	SALE	CAPX	AT	INTSEG	OPS
3	[A] Bowling Centers-U.S.; Bowling Centers-International	OPSEG	7933	713950	585.7	43.5	1143.7	0	19.6
5	[A] Bowling Products-U.S.; Bowling Products-International	OPSEG	3949	339920	147	8.3	685.9	0	-42.2

Table A-II
Number of Firms Reporting Eliminations and Corporate Segments

This table presents the number of firm-year observations in the Compustat segment database that report either an "eliminations" segment or a "corporate" segment for the years 1978-2005. The relative size of these segments in terms of both sales and assets with respect to total firm size is also reported.

Year	Total Number of Firms	Number of Firms Reporting Eliminations Segments	Number of Firms Reporting Corporate Segments	Eliminations Segment Size (Sales)	Eliminations Segment Size (Assets)	Corporate Segment Size (Sales)	Corporate Segment Size (Assets)
1978	5042	0	171	.	.	1.98%	3.25%
1979	5018	0	154	.	.	2.19%	3.17%
1980	5088	0	145	.	.	2.06%	3.38%
1981	5071	0	122	.	.	2.00%	2.38%
1982	5394	0	81	.	.	1.35%	1.72%
1983	5669	0	58	.	.	1.53%	1.98%
1984	5803	0	33	.	.	0.89%	1.78%
1985	6262	0	39	.	.	0.49%	1.60%
1986	6649	0	33	.	.	1.15%	1.73%
1987	6742	0	30	.	.	0.81%	1.66%
1988	6644	0	33	.	.	1.02%	3.54%
1989	6546	0	30	.	.	0.81%	4.39%
1990	6646	0	43	.	.	0.73%	2.78%
1991	6819	0	41	.	.	0.34%	2.77%
1992	7248	0	41	.	.	0.26%	3.55%
1993	7708	0	48	.	.	0.28%	3.32%
1994	8088	0	46	.	.	0.33%	2.66%
1995	8992	0	57	.	.	0.35%	3.45%
1996	9154	0	55	.	.	0.34%	2.78%
1997	8868	2	59	0.00%	0.55%	0.19%	3.66%
1998	8571	21	164	0.00%	1.65%	0.33%	3.47%
1999	8147	305	679	0.17%	0.59%	0.00%	4.31%
2000	7683	347	734	0.14%	0.35%	0.00%	3.96%
2001	7226	336	662	0.12%	0.08%	0.00%	3.95%
2002	6840	336	644	0.06%	0.34%	0.00%	4.18%
2003	6526	349	611	0.06%	0.48%	0.00%	4.42%
2004	6124	337	600	0.04%	0.40%	0.00%	4.06%
2005	5006	288	525	0.15%	0.31%	0.00%	4.06%
Total	189,574	2,321	5,938				