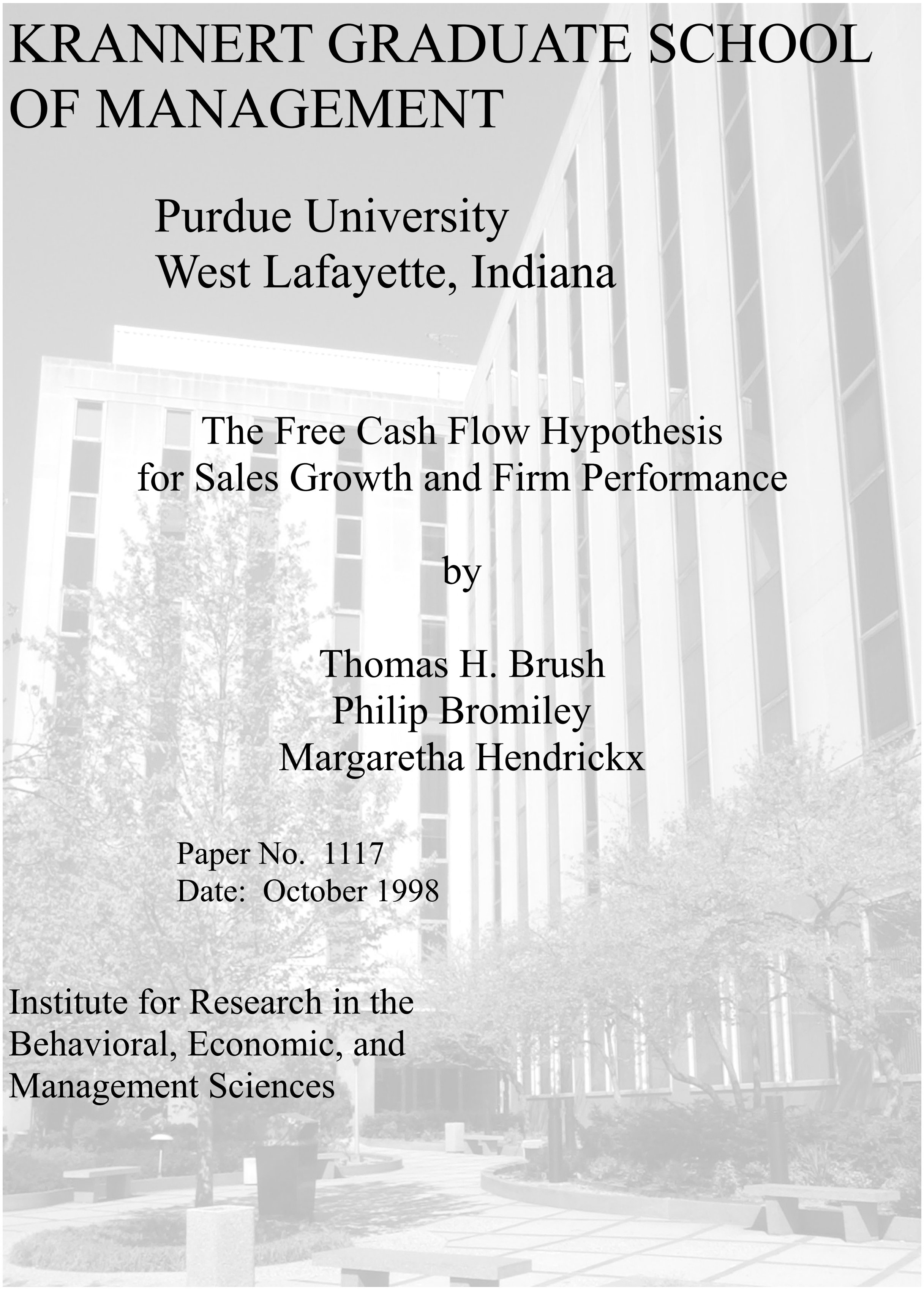

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The Free Cash Flow Hypothesis for Sales Growth and Firm Performance

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THE FREE CASH FLOW HYPOTHESIS FOR SALES GROWTH AND FIRM PERFORMANCE

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THE FREE CASH FLOW HYPOTHESIS FOR SALES GROWTH AND FIRM PERFORMANCE

ABSTRACT

The paper investigates the agency argument that sales growth in firms with free cash flow (and without strong governance) is less profitable than sales growth for firms without free cash flow. It also tests whether strong governance conditions improve the performance of firms with free cash flow and/or limit the investments in unprofitable sales growth. Consistent with agency theory, firms with free cash flow gain less from sales growth than firms without free cash flow. But different governance conditions affect sales growth and performance in different ways. Having substantial management stock ownership mitigates the influence of Free Cash Flow on performance, despite allowing higher sales growth. In contrast, outside blocks held by mutual funds reduces sales growth substantially, but does not increase performance from sales growth. (Sales Growth, Agency, Free Cash Flow, Governance)

THE FREE CASH FLOW HYPOTHESIS FOR SALES GROWTH AND FIRM PERFORMANCE

Introduction

Most firms value sales growth. The business press and corporate annual reports frequently include statements like: "We plan to double sales in the next five years," or "Our objective is to be a $2 billion company within 7 years." The popular business press contains many examples of companies that focus on sales growth as a key to profitability. For example, Emerson Electric is well known for its string of 40 consecutive years of increased earnings. When asked for the secret, the CEO Chuck Knight replied, "You can't just cut, cut, cut, cut… You simply must have sales growth to get sustainable performance at the bottom line" (Fortune, 1998).

Academics, on the other hand, have argued that growth sometimes benefits managers rather than stockholders. The "managerial capitalism" tradition in economics investigates what happens when managers as opposed to owners run large corporations (Berle and Means, 1932; Marris, 1964; Baumol, 1967; Marris and Wood, 1971). Researchers in this tradition argue that managers sometimes make decisions in their own interest rather than the interest of the company's owners. Indeed, more than 200 years ago, Adam Smith (1776) pointed out that hired managers do not take as much care of their firms as do owners. Agency theory extends this logic. According to agency theory, managers pursue growth because growth benefits them personally -- growth guarantees employment and salary increases for managers due to the greater responsibilities of managing a larger firm (Murphy, 1985). To solve the problem of conflicting interests, agency researchers seek mechanisms to align the interests of managers to those of shareholders (Jensen and Meckling, 1976; Jensen and Ruback, 1983; Fama and Jensen, 1983; Jensen, 1986; Jarrell, Brickley and Netter, 1988; Shleifer and Vishny, 1991).

Despite the important role sales growth plays in the world of managers, and its central role in agency theory, we know of no research that empirically examines the factors that moderate the association between sales growth and firm performance. This paper makes an initial effort to address this issue by investigating the effect of agency factors and corporate governance on the sales growth-performance relationship. We investigate whether firms with Free Cash Flow (FCF, undistributed cash flow in excess of that needed for positive net present value (NPV) projects) and weak governance tend to squander the shareholders' money by investing it in unprofitable sales growth. Basically, we ask six questions: (1) Does sales growth have a positive influence on performance? (2) Is the positive influence of sales growth on performance lower in firms with FCF? (3) Is the moderating effect of FCF sufficiently large to offset the performance benefits of sales growth? (4) Do appropriate governance controls constrain the negative agency effects of FCF on the sales growth-performance relation? (5) Does cash flow have a positive influence on sales growth? and (6) Do governance controls reduce the positive association between cash flow and sales growth in firms with FCF? We investigate these questions in a model that regresses sales growth on return on assets and stockholder returns and controls for simultaneity in this relation with a recursive system of equations.

REVIEW OF THE LITERATURE

Positive Interpretations of Sales Growth

Sales growth targets play a major role in the perceptions of top managers. Using surveys, Hubbard and Bromiley (1994) find sales to be the top objective mentioned by senior managers. Eliasson (1976) reports that planning systems generally begin with sales targets. An emphasis on sales growth also provides a useful and visible benchmark to motivate managers. Kaplan and Norton (1992; 1993; 1996) argue that firms must use a wide variety of goals, including sales growth, to effectively reach their financial objectives. Sales growth influences factors that range from internal motivation to promotion and retention of talented employees all the way to the implied opportunities for investments in new equipment and technologies that upgrade the production process as a whole. In addition, sales growth provides opportunities for economies of scale and learning curve benefits.

Separate literatures examine the association between market share and profitability (Gale, 1972; Mancke, 1974; Buzzell, Gale and Sultan, 1975; Henderson, 1980; Venkatraman and Prescott, 1990) and the association between increases in market share and profitability. The *market share* literature mainly investigates whether market share and underlying market characteristics, such as economies of scale, confer competitive advantage (Gale, 1972; Buzzell, Gale and Sultan, 1975; Henderson, 1980). In other words, do firms with high market share have higher returns than those with low market share? Mancke (1974) suggests the market share benefits may be due to unobserved variables that create a spurious relation. To empirically investigate this possibility, Jacobson and Aaker (1985) and Jacobson (1988; 1990) use econometric techniques to control for unobserved characteristics and substantially reduce the estimated associations between market share and profitability. Woo (1987) also questions the market share profitability association by finding highly profitable low market share firms -- generally firms with well protected niche positions.

Other studies investigate the relation between *market share growth* and profitability. Compared with the market share literature --which investigates whether market characteristics such as economies of scale confer competitive advantage-- the market share growth literature is relatively small. It focuses attention on the competitive conditions in the industry and the benefits of timing, such as first mover advantages (Lieberman and Montgomery, 1988). These studies examine whether the benefits of additional market share justify the costs of developing it (i.e., growing more rapidly than the industry). Montgomery and Wernerfelt (1991) find that market share gains are not correlated with changes in firm value in the brewing industry. They conclude that the value of market share building strategies critically depends on industry-specific conditions. Rumelt and Wensley (1981) find that correlation of error terms, which may be due to unobserved variables in the causes of market share growth and profitability, eliminates the association between these two variables. Their study suggests market share growth is associated with returns because the same unobserved variables influence both profitability and market share growth. Hence, investing in market share growth has no intrinsic value.

To summarize, these two literatures give only a partial picture of the association between sales growth and firm performance. First, market share growth and sales growth are different concepts. In a growing industry, a firm could grow more slowly than the industry and consequently have a decline in market share but an increase in total sales. Second, the market share literature primarily investigates the competitive aspects of sales growth -- how investment in market share strengthens the product market position of the firm. This literature does not address possible mitigating conditions -- weak governance and the presence of FCF -- under which investments in sales growth may actually decrease the returns to stockholders.

Agency Theory - Under What Conditions Would Growth Not Pay?

Agency theorists argue that growth does not always lead to increased returns to stockholders. These arguments are made most strongly in the leveraged buyout literature (Jensen, 1993). They depend on three premises (Jensen, 1986). First, managers try to maximize their own wealth rather than shareholder wealth. This behavior is consistent with the economics assumption that individuals attempt to maximize their utility. Second, firm growth contributes to managerial wealth. As Murphy (1985) argues:

> "Managers have incentives to cause their firms to grow beyond the optimal size. Growth increases managers' power by increasing the resources under their control. It is also associated with increases in managers' compensation, because changes in compensation are positively related to the growth in sales. "

Third, two corporate conditions determine whether or not managers can pursue growth at the expense of stockholders' wealth: the presence of FCF and weak governance. According to the Free Cash Flow Hypothesis (Jensen, 1989, 1991, 1993), the availability of internally generated cash in excess of positive NPV projects (termed Free Cash Flow (FCF)) allows managers to pursue personal goals without having to go to the bond or equity markets. Therefore, the presence of FCF is considered a necessary condition to put management's interests at odds with the interests of shareholders (Jensen, 1989, 1991, 1993). For example, Jensen (1993) cites GM, IBM, and Eastman Kodak in the 1980's as companies with failed internal control systems; these companies made massive unprofitable investments out of FCF in industries with excess capacity. On a larger sample, Jensen (1993) demonstrates similar inefficiencies in capital expenditures and R&D spending decisions of a substantial number of large firms. In general, over a ten year period, these firms did not generate returns that exceeded the returns that these firms would have received if the R&D and capital expenditures had been invested in marketable securities.

Weak corporate governance, the second condition identified by agency theory, refers to the lack of mechanisms to insure that managerial decisions are in line with shareholders' interests. For example, if management dominates a board of directors, the board will represent managerial interests rather than those of shareholders. Two additional manifestations of weak governance are highly dispersed stockholdings and poorly designed managerial incentives. In these cases, managers tend to pursue growth opportunities for their own sake, even if these opportunities offer low returns (Jensen, 1993).

Independent of FCF, governance scholars examine the effect of governance mechanisms and monitoring devices. Many studies investigate the effect of inside and outside block ownership of stock (O'Reilly, Main, and Crystal, 1988; Tosi and Gomez-Mejia, 1989; Rediker and Seth, 1995; Gibbs, 1993; Bethel and Liebeskind, 1993; Hoskisson, Johnson and Moessel, 1994). Zahra and Pearce (1989) indicate that many studies find that the presence of outsiders on a corporate board has little effect because of the relative paucity of information available to outside directors. Hoskisson and Hitt (1988) and Hoskisson and Turk (1990) argue that outside directors know less about the businesses they monitor than inside directors or management, and so have difficulty in exerting control on strategic decisions. Consequently, outside directors are more likely to rely strictly on financial performance measures. Other dimensions of governance are board composition (percentage of outsiders on the board), board structure (Fama and Jensen, 1983; Singh and Harianto, 1989; Kesner and Johnson, 1990; Judge and Zeithaml, 1992; Johnson, Hoskisson and Hitt, 1993; Harrison, 1987 and Gibbs, 1993), and compensation of the board (Walking and Long, 1984; Kosnick, 1990), as well as capital structure (Jensen, 1986). Insights derived from research on capital structure agree with the agency literature on the role of leveraged buyouts.

Some agency research recommends governance changes to improve performance of firms that do not use FCF in shareholders' interests. Many scholars argue that corporate takeovers discipline managers who fail to pay FCF back to shareholders (Jensen, 1986; Jensen, 1988; Shleifer and Vishny, 1991; Bethel and Liebeskind, 1993). Managers who waste shareholders' money find their companies purchased by corporations that invest in the shareholders' interest. Others argue that leveraged buyouts address the conflict between shareholders and managers over FCF; the combination of high equity ownership by managers and large outside debt obligations creates powerful incentives for managers to use FCF in the interests of bond and shareholders (Lehn and Poulsen, 1989; Fox and Marcus, 1992; Dial and Murphy 1995; Dial, 1995; Kaplan, 1989; Easterwood, Seth, and Singer, 1989; Liebeskind, Wiersema and Hansen, 1992).

While Rediker and Seth (1995) argue for the use of multiple measures of governance mechanisms and the examination of the interactions among these mechanisms, researchers who need a tractable measure of governance often use concentration of ownership and stock ownership by managers (Bethel and Liebeskind, 1993). One of the advantages of using indicators of block ownership (insider or outsider) is that information to construct these variables is readily available in SEC Form 10-K reports. In addition, it keeps a model comparatively simple.

Thus, given widely dispersed stock ownership, many large firms have weak governance. With no stockholders owning a substantial portion of the stock, no individual stockholder is motivated to closely monitor managerial behavior. Furthermore, with small stockholdings, investors have little ability to influence management even if they observe inappropriate behavior. Agency theorists argue that concentrated stock ownership solves some of the problems. If some stockholders hold large blocks of a corporation's stock, they have the incentive to closely monitor and control the behavior of corporate management (Shleifer and Vishny, 1986). If management, on the other hand, holds large blocks of stock, the managers have a very direct incentive to behave in ways that increase returns to stockholders.

Even though theory suggests that managers prefer growth and that FCF allows managers to make poor decisions, no prior study tests the underlying premise that FCF leads managers to pursue sales growth with below-par profitability and in turn whether governance moderates this affect.

HYPOTHESES

Agency and governance theories specify the conditions under which managers are likely to invest in growth at the expense of profitability -- FCF combined with weak governance is expected to free managers to pursue growth. This implies that 1) FCF and weak governance are associated with high growth rates and 2) the growth that does occur has a low or negative impact on performance. To examine these two implications, we develop a model consisting of two equations, one for performance and one for sales growth. More specifically, this leads to four performance and two sales growth hypotheses.

Hypotheses Concerning Performance

Many arguments support the influence of sales growth on profitability. Whereas old lines of business may be continued if they simply cover their marginal costs or if closing down is expensive relative to continuing, profit seeking managers will only initiate business ventures that promise sufficiently high returns. Thus, increases in sales from new business should improve profits. Sales growth generally utilizes capacity more fully, which spreads fixed costs over more revenue resulting in higher profitability. Alternatively, if an industry has increasing economies of scale or learning curve effects, growing firms benefit from such effects, again increasing performance. Depending on the industry structure, sales growth may also provide additional market power which firms can use to increase performance. Similar arguments have been offered about the profit impact of market share. A positive effect of sales growth on performance would not be surprising; nevertheless, we include an hypothesis as a baseline for interpreting the subsequent interaction terms. Our first hypothesis is:

Hypothesis 1: Sales growth has a positive influence on performance.

The agency literature claims that firms with cash flow in excess of positive NPV projects invest this money to generate additional sales growth, even if this growth is not profitable (Jensen, 1986; 1988). Thus, agency theory predicts that the benefits of sales growth on performance will be lower for firms with higher values of FCF.

Hypothesis 2: FCF negatively moderates the positive influence of sales growth on performance. Sales growth has a less positive influence on performance for firms with higher values of FCF.

In a stronger interpretation, the FCF Hypothesis argues that FCF and weak governance allow firms to increase sales in ways that actually destroy shareholder value (Jensen, 1993). Thus, the negative influences of FCF and weak governance exceed the positive direct benefits of sales growth for high values of FCF. This leads to the following hypothesis:

Hypothesis 3: For firms with weak governance and high levels of FCF, sales growth has a negative influence on $Performance_{J,T}$. (The effect in hypothesis 2 is sufficiently large to offset the benefits of sales growth.) .

While initial agency studies focused primarily on the FCF as a sufficient condition for managers to act in their own interests, more recent studies argue that strong governance controls mitigate the influence of FCF (Rediker and Seth, 1995; Gibbs, 1993). A firm with strong stockholder governance may be forced to invest FCF wisely or to return it to the stockholders. Thus, we expect that strong governance reduces the tendency of FCF to lower the profitability of new investment.

Hypothesis 4: Governance controls moderate the extent to which FCF reduces the relation between sales growth and performance.

The effect of governance controls may require some additional explanation. Strong governance can come about in several ways. One approach focuses on different forms of stock ownership. Managers and stockholder interests can be aligned by having large stockholdings by management. Researchers classify corporations as Owner-Managed if any single employee owns 5% or more of the stock of the company (Tosi and Gomez-Mejia, 1989; O'Reilly, Main and Crystal, 1988). We consider firms to be Owner-Managed when officers (not including directors) of the firm, or partnerships in which officers are principals, own 5% or more of the company's stock. We also categorized firms with company sponsored employee savings plans with 5% or more stock ownership in the company as Owner-Managed because corporate managers participate in such plans (creating incentives to increase stock price) and because corporate managers often appoint fund managers who should therefore support management.

Alternatively, an outsider who owns a large amount of stock may monitor and exert control over the firm. Researchers consider a company to be Owner-Controlled if "any single individual or institution outside the firm owns 5% or more of the company's stock" (O'Reilly, Main and Crystal, 1988; Tosi and Gomez-Mejia, 1989: 176). But Brickley, Lease and Smith (1988) find that mutual funds, endowments, and public pension funds are more likely to resist management than banks and insurance companies that may derive benefits from lines of business under management control. In contrast, one could argue mutual funds should be less interested in controlling management than other stockholders. Since mutual funds engage in trading stock, they may choose to sell stock rather than undertake the laborious process of influencing management.

It is an empirical question whether mutual funds or companies exert more control or different kinds of control as outside block owners. Given arguments that funds differ from corporate and individual ownership we modify the definition of Owner-Controlled used by Tosi and Gomez-Mejia (1989) and O'Reilly, Main and Crystal (1988) and distinguish between Owner-Controlled, which requires that at least one outside blockholder is *not* a mutual fund or public pension fund and Fund-Controlled, in which at least one outside owner is a mutual fund company. Thus we have four categories of governance: 1) weak governance (the absence of strong governance), 2) owner-managed, 3) owner-controlled, and 4) fund-controlled. Weak governance is the base case in the model where no specific strong governance variables appear.

These four hypotheses are tested in the performance equation below. In this equation we also include several control variables. Since we use a dummy variable in our measurement of FCF to indicate whether or not a firm's Tobin's Q is less than one ($QDum_{J,T-1}$=1 if Q<1), we also include this dummy as a separate term so that any FCF effect ($QDum_{J,T-1} * Cash\ Flow_{J,T-1}$) can be clearly differentiated from any direct effect of $QDum_{J,T-1}$ (Lehn and Poulsen 1989; Lang, Stulz and Walkling, 1991). Similarly, we include $Cash\ Flow_{J,T-1}$ and $FCF_{J,T-1}$ to control for possible direct effects of Cash Flow and FCF. Lagged firm performance, $Performance_{J,T-1}$, captures prior capabilities and achievements of the firm. $Industry\ Performance_{J,T}$ controls for industry effects including macro-economic effects in the current year. Leverage ($Debt/Total\ Assets_{J,T-1}$) controls for corporate effects from financing. The final form of the performance equation is:

$$\begin{aligned} Performance_{J,T} = \alpha_0 &+ \alpha_1\, QDum_{J,T-1} + \alpha_2\, Cash\ Flow_{J,T-1} + \alpha_3\, FCF_{J,T-1} \\ &+ \alpha_4\, Sales\ Growth_{J,T} + \alpha_5\, Sales\ Growth_{J,T} * FCF_{J,T-1} \\ &+ \alpha_6\, Sales\ Growth_{J,T} * FCF_{J,T-1} * Owner\text{-}Managed_{J,T-1} \\ &+ \alpha_7\, Sales\ Growth_{J,T} * FCF_{J,T-1} * Owner\text{-}Controlled_{J,T-1} \\ &+ \alpha_8\, Sales\ Growth_{J,T} * FCF_{J,T-1} * Fund\text{-}Controlled_{J,T-1} \\ &+ \alpha_9\, Performance_{J,T-1} + \alpha_{10}\, Industry\ Performance_{J,T} \\ &+ \alpha_{11}\, Debt/Total\ Assets_{J,T-1} + \varepsilon_{J,T} \qquad [1] \end{aligned}$$

Sales Growth Hypotheses

The theoretical interest in the sales growth equation focuses on FCF and governance effects on sales. Jensen and others (Jensen and Ruback, 1983; Fama and Jensen, 1983; Shleifer and Vishny, 1991) argue that managers have a bias toward using cash flow to support unneeded sales growth. On the other hand, firms facing good investment prospects use cash flow to support growth. So, Total Cash Flow includes both normal cash flow (for firms with good investment prospects) and FCF for firms with poor investment prospects. This leads to the following hypothesis:

Hypothesis 5: Total Cash Flow positively influences Sales Growth.

While cash flow facilitates growth, according to the theory the firms with Q<1 do not have profitable growth prospects. Thus, to the extent they have cash flow they may waste it on unprofitable growth. Governance mechanisms should modify this tendency. For example, Shleifer and Vishny (1991:57) argue that the hostile takeover boom of the 1980's was largely an unwinding of the over-investment by managers in the 1960's. They summarize the process as follows:

> "When managers in the '60's had their hands on large FCF, they spent it on unrelated diversification that hurt the shareholders in the long run…".

Following this logic, strong governance controls should moderate the influence of cash flow on sales growth for firms with poor prospects, i.e., firms with FCF. Without governance controls, managers may waste FCF on sales growth, but with strong governance, the closely monitored managers will not fund unprofitable sales growth. The relation between Sales Growth and FCF is expected to be lower for firms with strong governance than for firms with weak governance. Thus our sales growth governance hypothesis is:

> Hypothesis 6 : For firms with FCF (Q<1), governance controls negatively moderate the relation between Cash Flow and Sales Growth, i.e., FCF will have a less positive influence on sales growth for firms with strong governance mechanisms.

The sales growth equation includes the basic FCF and governance variables from the performance equation: $FCF_{J,T-1}$, $\text{Owner-Managed}_{J,T-1}$, $\text{Owner-Controlled}_{J,T-1}$ and $\text{Fund-Controlled}_{J,T-1}$ and the interaction between $FCF_{J,T-1}$ and the governance mechanisms. To differentiate $FCF_{J,T-1}$ from straight cash flow, we include $\text{Cash Flow}_{J,T-1}$ and a dummy for Tobin's Q. Finally, we add past performance to control for past firm success and current Industry Growth to control for industry and macro-economic effects. The sales growth equation is:

$$\begin{aligned}\text{Sales Growth}_{J,T} = {} & \beta_0 + \beta_1\, QDum_{J,T-1} + \beta_2\, \text{Cash Flow}_{J,T-1} + \beta_3\, FCF_{J,T-1} \\ & + \beta_4\, \text{Owner-Managed}_{J,T-1} * FCF_{J,T-1} + \beta_5\, \text{Owner-Controlled}_{J,T-1} * FCF_{J,T-1} \\ & + \beta_6\, \text{Fund-Controlled}_{J,T-1} * FCF_{J,T-1} + \beta_7\, \text{Performance}_{J,T-1} \\ & + \beta_8\, \text{Industry Growth}_{J,T} + \varepsilon_{J,T} \qquad [2]\end{aligned}$$

For firms without FCF, Hypothesis 5 deals strictly with *Cash Flow*$_{J,T-1}$ (i.e., β_2); for firms with FCF, it deals with the total of *Cash Flow*$_{J,T-1}$ and *FCF*$_{J,T-1}$ effects (i.e., $\beta_2 + \beta_3$).

In addition to testing these two hypotheses, the sales growth equation handles potential simultaneity problems. In the performance equation, unobserved variables might influence both performance and sales growth. This would bias our estimate of the effect of sales growth on performance. We account for this possibility by removing the effect of such unobserved variables with an instrument for sales growth in the performance equation.

DATA AND METHODS

Variable Definition

The model requires data on firm profitability, cash flow, industry sales, industry profitability, capital market returns, and corporate ownership. The Annual COMPUSTAT corporate data tapes provide firm level data, for example ROA, stockholder returns, Tobin's Q, cash flow and sales growth. We employ the line of business data from the COMPUSTAT Industry Segment data tapes to calculate ROA, stockholder returns and sales growth for the industries of the segments contained in each corporation. Table 1 summarizes the measures.

Insert Table 1 about here

Free Cash Flow and Tobin's Q: Following, Lang, Stulz and Walking (1991), we use Tobin's Q (Tobin and Brainard, 1968) to identify whether firms have positive net present value projects available. A Q>1 indicates that the market values the firm above its book value, which implies it is making profitable investments. In contrast, Q<1 indicates that the market values the firm below the value of its assets. Lang, Stulz and Walking (1991) argue that firms with high values of FCF should be those firms with a Tobin's Q <1 (*QDum*$_{J,T-1}$) and higher values of *Cash Flow*. Thus, FCF is defined as *QDum*$_{J,T-1}$ * *Cash Flow* $_{J,T-1}$. Consistent with Lang, Stulz, and Walking (1991), FCF equals cash flow for firms with Tobin's Q below one and equals 0 for firms with Q>1 since they are likely to have profitable opportunities for investment.

Governance. We define three measures of strong governance: Owner-Managed, Owner-Controlled and Fund-Controlled. To identify Owner-Managed firms, we use data from Compact Disclosure SEC of Bethesda, Maryland.

To distinguish between Owner-Controlled and Fund-Controlled, we need to determine which outside block owners are individuals and non-mutual fund companies and which are mutual fund companies. Outside owners listed as "Security Advisers" in the *Directory of Mutual Funds and Other Investment Companies* (Investment Company Institute, 1997) were identified as mutual funds. In addition, certain non-public funds, such as University Endowment Funds and government pension funds such as State Retirement Mutual Funds (Wisconsin, Ohio, etc), were included with mutual fund companies. Our distinction between Owner-Controlled and Fund-Controlled lets us check whether these two kinds of owners differ in their control effects.

Performance Measures: Strategic management researchers generally measure performance using either accounting profitability or returns to stockholders. Each presents problems.

Economists criticize accounting returns because accounting treats advertising and R&D expenditures as expenses instead of investments with future payoffs (Carlton and Perloff, 1990: 362). Furthermore, the market valuation of the firm can be thought of as the sum of a valuation of the firm's tangible and intangible. FCF comes from having Q below one. High Tobin's Q might reflect firms with high levels of intangible assets (Carlton and Perloff, 1990: 362). This could create problems in both the returns and asset portions of ROA. Because intangible assets are expensed, differences in intangible assets may associate with reported profits. Alternatively, intangible assets do not figure into the asset figure used in calculating ROA. Reported profits and assets also may suffer from other accounting artifacts, some associated with depreciation.

These potential problems with accounting returns, intangibles, and FCF should not undermine the results for two reasons. First, we include a dummy for Tobin's Q in the performance and sales growth equations to control for Q's direct effects. Second, and more important, accounting problems should not hurt the estimates of stockholder returns. If the results of the two performance measures agree, then it is unlikely that accounting problems undermine the ROA estimates.

Stockholder returns have also been criticized (Bromiley, 1986, 1990). The use of Stockholder returns assumes capital market efficiency. Under efficient market theories, the returns largely reflect surprises to the market. Thus, if the market anticipates a firm's growth and profitability, even highly profitable growth should not show up in stockholder returns in the period in which it occurred.

Consequently, we use two measures of performance, return on assets and stockholder returns, while acknowledging the possible limitations of both measures. We run the analysis separately for each performance measure.

To remove any possibility of simultaneity between $ROA_{J,T}$ and $Industry\ ROA_{J,T}$, we calculate the $Industry\ ROA_{J,T}$ for a given corporation J's business segment by removing that segment from the relevant industry operating income and industry total assets. A similar procedure is followed to remove the firm's sales when calculating the Industry Sales used to derive $Industry\ Growth_{J,T}$.

Estimation

We estimate the model as a recursive system using instrumental variables (implemented in SAS Proc Model) to control for the possibility that unobserved variables influence both sales growth and performance in a given year. For example, a product introduction may influence both performance and sales growth.

First, we develop instruments for $Sales\ Growth_{J,T}$. To estimate the instruments, we use lagged $Sales\ Growth_{J,T-1}$, current and one year lags on the exogenous variables in the model ($Industry\ Sales\ Growth_{J,T}$, $Cash\ Flow_{J,T-1}$, and $FCF_{J,T-1}$), and one and two year lags on additional corporate accounting data (current ratio and quick ratio).

We use lagged dependent variables in the performance equation to control for firm specific effects (e.g., difference in prior firm efficiency) and a variety of more general effects (e.g., random shocks to firms in a geographic area). Although some studies use fixed effects to control for firm characteristics (Schmalensee, 1985), we choose lagged performance for two reasons. First, it truly holds past performance constant, whereas, fixed effect models only control for a constant firm effect over the time period. Second, the fixed effects approach uses many degrees of freedom, one per corporation. With relatively few time periods per corporation, this results in a considerable loss of efficiency in estimation. We also estimated the model with firm fixed effects rather than lagged performance and the results agree with those reported here.

Ideally, we would also like to control for competitive strategy variables such as advertising growth, or price cuts, which represent investments in sales growth. We could only obtain firm advertising data for a subset of firms. When inserted in the model, advertising growth has the expected positive sign in the Sales Growth equation, but the other results did not change size, and the available sample dropped to 215 observations. We choose to omit advertising to retain sample size.

We test for heteroskedasticity using the White test. We test for auto-regressive disturbances using the Durbin-Watson procedure for the sales growth equation and the Durbin-Watson h procedure for the performance equation (because it has a lagged dependent variable). The Durbin-Watson tests are insignificant for all four equations. However, the White test indicates heteroskedasticity in all four equations. To address this problem, we use the Generalized Method of Moments estimator in the SAS PROC Model to adjust the error matrix for heteroskedasticity (SAS, 1993: 5555).

Minimum levels of FCF may be required before the managerial potential for excessive investment in sales growth exists. In other words, there may be non-linear relations between these Agency variables and firm *Sales Growth* $_{J,T}$. We investigate this possibility in our model by testing whether the model residuals are normally distributed. The residuals are normally distributed, which is a sufficient condition for concluding that the linear specification of our model is appropriate. This is a check for mis-specification which might occur if a linear model was used when a non-linear model was warranted (Kennedy, 1985; 99).

Sample

The data cover the years 1988 to 1995. After dropping observations with missing data, COMPUSTAT provides 3,320 firm-year observations. Of these, an additional 1,004 are lost after calculating lagged variables on years 1986 and 1987, which results in a sample of 2,316 firm-year observations. We have no information from Compact Disclosure to calculate inside ownership and block ownership for 463 firm-year observations, which results in 1,853 observations. Lack of data to calculate market returns eliminates another 227 firm-year observations, which results in 1626 observations. We drop 30 firm-year observations due to extreme values of Firm ROA > 0.50 or < -0.3 and Industry ROA > 0.50 or < -0.3, and drop nine influential observations based on a cutoff of DFFITS > 2 or < 2 in the calculation of instruments. This is a conservative cut-off level recommended by Belsley, Kuh, and Welsch, (1980). We also use this cutoff of DFFITS for the model itself and drop 17 influential cases. This gave a sample with 1,570 firm year observations for 8 years of usable data (after lags) or an average of 196 firms per year. The numbers of firms per year for each year are: 1988-181, 1989-190, 1990-194, 1991-209, 1992-209, 1993-203, 1994-195, 1995-189. To be in the sample, firms have to be present for two years prior to the first year's sample observation in order to calculate lags. There are 124 firms present for all 8 years of the sample. For firms that are present less than 8 years, there are 25 for 7 years, 20 for 6 years, 22 for 5 years, 19 for 4 years, 15 for 3 years, 14 for 2 years and 24 for 1 year.

Table 2 presents descriptive statistics for the total sample and sub-samples of Owner-Managed, Owner-Controlled and Fund-Controlled firms. This information is useful for evaluating the derivatives that we discuss below. Table 3 presents a correlation matrix of the variables used.

Insert Table 2 and 3 about here

EMPIRICAL RESULTS

The Performance Equation

Because the hypotheses largely deal with interaction terms, direct examination of the estimation results in Table 4 may not be very illuminating. Therefore, we examine the derivatives of performance with respect to sales growth, and sales growth with respect to cash flow. Table 5 presents the values of the derivatives evaluated at the mean of the variables in the derivative and tests whether these values differ from zero. Table 4 reports the significance of interaction terms.

The derivative of $ROA_{J,T}$ with respect to $\textit{Sales Growth}_{J,T}$ is the change in ROA for a one unit change in $\textit{Sales Growth}_{J,T}$:

$$\begin{aligned} \mathrm{d}\textit{Performance}_{J,T} / \mathrm{d}\,\textit{Sales Growth}_{J,T} = {} & \alpha_4 + \alpha_5 \, FCF_{J,T-1} \\ & + \alpha_6 \, FCF_{J,T-1} * \textit{Owner-Managed}_{J,T-1} \\ & + \alpha_7 \, FCF_{J,T-1} * \textit{Owner-Controlled}_{J,T-1} \\ & + \alpha_8 \, FCF_{J,T-1} * \textit{Fund-Controlled}_{J,T-1} \qquad [3] \end{aligned}$$

Since several of the right hand side variables take on the value of zero for various sets of observations, the performance equation can be simplified as follows:

- For firms <u>without FCF</u> (i.e., $Q > 1$), the derivative simplifies to just α_4.
- For firms <u>with FCF</u> (i.e., $Q > 1$; $FCF \neq 0$) and weak governance (i.e., neither Owner-Managed or Owner-Controlled), the derivative simplifies to $\alpha_4 + \alpha_5 \, FCF_{J,T-1}$
- For firms <u>with FCF which are Owner-Managed</u>, the derivative simplifies to $\alpha_4 + \alpha_5 \, FCF_{J,T-1} + \alpha_6 \, FCF_{J,T-1}$
- For firms <u>with FCF which are Owner-Controlled</u>, the derivative simplifies to $\alpha_4 + \alpha_5 \, FCF_{J,T-1} + \alpha_7 \, FCF_{J,T-1}$

- For firms with FCF which are Fund-Controlled, the derivative simplifies to $\alpha_4 + \alpha_5$ $FCF_{J,T-1} + \alpha_8 FCF_{J,T-1}$

Replacing the parameters with their estimated values (from Table 4) provides the following estimated derivative for the performance equation where performance is measured by ROA:

$$\begin{aligned} d\,ROA_{J,T} / d\,Sales\ Growth_{J,T} = {} & 0.749 - 9.230\ FCF_{J,T-1} \\ & + 2.833\ FCF_{J,T-1} * Owner\text{-}Managed_{J,T-1} \\ & + -1.737\ FCF_{J,T-1} * Owner\text{-}Controlled_{J,T-1} \\ & + -1.723\ FCF_{J,T-1} * Fund\text{-}Controlled_{J,T-1} \end{aligned} \qquad [7]$$

For Performance measured by stockholder returns, inserting the estimated parameter values results in:

$$\begin{aligned} d\,Stockholder\ Returns_{J,T} / d\,Sales\ Growth_{J,T} = {} & 2.929 - 56.571\ FCF_{J,T-1} \\ & + 21.720\ FCF_{J,T-1} * Owner\text{-}Managed_{J,T-1} \\ & -6.188\ FCF_{J,T-1} * Owner\text{-}Controlled_{J,T-1} \\ & -24.540\ FCF_{J,T-1} * Fund\text{-}Controlled_{J,T-1} \end{aligned} \qquad [8]$$

Let us consider these derivatives with respect to the hypotheses :

Hypothesis 1: Sales Growth Positively Influences Performance. For firms without FCF (and with weak governance), the effect of a change in sales on performance is simply the parameter on *Sales Growth* $_{J,T}$, the intercept in the derivatives. In the ROA equation, *Sales Growth* $_{J,T}$ has a statistically significant positive parameter (parameter equals 0.749, $p<.001$): a one percentage point increase in Sales Growth results in an increase in ROA of 0.75 percentage points. In the stockholder returns equation, sales growth also has a strong and statistically significant direct influence on stockholder returns (parameter of 2.929, $p<.001$). These results support Hypothesis 1.

Insert Table 4 about here

Hypothesis 2: Free Cash Flow Negatively Moderates the Positive Influence of Sales Growth on Performance: For firms with FCF and weak governance, the effect of a change in sales on performance depends on both the Sales Growth parameter and the interaction of FCF with Sales Growth. In both ROA and stockholder returns equations, the interaction of $FCF_{J,T-1}$ and *Sales Growth* $_{J,T}$ has negative and significant coefficients (-9.230, p<.01 and -56.571, p<.001 respectively). Thus, Hypothesis 2 is strongly supported in both equations.

Hypothesis 3: For high levels of FCF, returns from sales growth become negative: Hypothesis 3 tests whether firms with high levels of FCF and weak governance make investments in growth that not only have lower performance than usual but have negative performance. Since $FCF_{J,T-1}$ is a continuous variable, the impact of sales growth on returns varies with the level of FCF. For firms with FCF (i.e., Q<1 and hence non-zero values of $FCF_{J,T-1}$), the mean value of $FCF_{J,T-1}$ is 0.053 (See Table 2). Inserting this value into the ROA derivative using the estimated parameter values gives 0.749 + (-9.230) * (0.053) = 0.260, (See Table 5). This positive derivative at the mean value of FCF means that the firms with the average value of FCF and weak governance still increase ROA with an increase in sales growth but at a rate less than firms without FCF. Solving for the value of FCF that makes the derivative zero indicates that firms with FCF greater than (0.081) do not increase ROA with an increase in Sales Growth. Of the 1031 firms with FCF in the sample, 243 (23.6%) have a FCF value > 0.081. For ROA, Hypothesis 3 is not supported at the mean value of FCF but is supported for a fifth of the sample with FCF.

Insert Table 5 about here

For performance measured in terms of stockholder returns, the derivative at the mean value of $FCF_{J,T-1}$ (0.053) is 2.929 + (-56.571) * (0.053) = -0.069 (See Table 5). For firms with weak governance, expected returns from sales growth are negative at the mean of free cash flow which supports Hypothesis 3. The derivative is negative for values of FCF> 0.052. Of the 1031 firms with FCF in the sample, 539 (52.3%) have a FCF value > 0.052, and thus for almost a half of the sample with FCF, there is support for Hypothesis 3.

Hypothesis 4: Governance moderates the extent to which FCF reduces the influence of Sales Growth on Performance. The results are mixed for Hypothesis 4 (Table 4). Consistent with H4, owner-managed governance interactions have positive and significant coefficients with both types of performance ($p<.05$). Contrary to H4, *Owner-Controlled* firms have negative coefficients in both equations, but neither is significant. *Fund-Controlled* coefficients are also negative in both equations, and the coefficient is significant in the stockholder returns equation ($p<.05$). Thus, for *Fund-Controlled* firms, FCF reduces the benefits of sales growth below that of weak governance firms.

Table 5 presents the values of the performance derivatives evaluated at the mean of free cash flow. The results from the ROA and Stockholder Returns performance models largely agree. Sales growth has a strong positive influence on performance. FCF reduces returns from sales growth which become negative for firms with higher levels of FCF (top half for stockholder returns and top quarter for ROA). Owner-Managed governance mitigates the negative effects of FCF on the benefits of sales growth. But Fund-Controlled governance actually reduces the benefits from sales growth for firms with FCF even lower than for firms with weak governance.

Control Variables: Many of the control variables are statistically significant. The coefficient on $QDum_{J,T-1}$, a variable which is 1 for firms with values of Tobin's Q <1 and 0 otherwise, is positive in both models and significant in the stockholder returns model. In other words, firms which the market identified as low performers tend to increase stockholder performance. Cash flow has a negative direct effect and FCF a positive direct effect in both models. Both are statistically significant. Industry performance has positive coefficients for both types of performance but is only significant for stockholder returns. $Debt/Assets_{J,T-1}$ has negative and significant coefficients in both equations; high debt levels were not conducive to increasing performance.

While the parameter estimate on lagged ROA is positive and statistically significant (0.765, $p <.001$), the coefficient on $StockholderReturns_{J,T-1}$ is significant but negative (-

0.206, p<.001). The negative coefficient suggests a possible regression to the mean after peaks or troughs in stock performance.

The Sales Growth Equation

Hypothesis 5: Total Cash Flow Positively Influences Sales Growth. In both Sales Growth equations (measuring performance by ROA and stockholder returns), cash flow has a strong positive influence on sales growth (0.378 and 0.312 respectively, p<.05 and p<.10, Table 4). But for firms with FCF (Q<1), the effect is the combination of the Cash Flow coefficient and the FCF coefficient. FCF has small, negative and insignificant coefficients in both equations (-0.055 and -0.048 respectively). When adjusted for FCF, the net effect of cash flow for such firms (firms with Q<1) is positive at 0.323 and 0.264 respectively, about a 16% drop (See Table 5). Cash flow enables sales growth, and firms with FCF use it similarly as firms without FCF.

Hypothesis 6: FCF will have a less positive influence on sales growth for firms with strong governance mechanisms. Directly contrary to the hypothesis, for *Owner-Managed* firms the coefficient is positive and significant in both ROA and stockholder versions of the equation (0.355, p<.05 and 0.324 p< .05 respectively). In other words, *Owner-Managed* firms with FCF grow at roughly twice the rate from a given amount of cash flow as firms with weak governance (and even faster than firms without FCF); inserting values into the derivative, the net effect of a 1 percentage point increase in cash flow results in additional sales growth of 0.68 (ROA version) or 0.59 (shareholder returns version) percentage points (See Table 5). The parameter on the interaction with *Owner-Controlled* firms is negative but statistically insignificant in both equations. However, the coefficient on *Fund-Controlled* firms is negative and significant in both equations (-0.467, p < .05 ROA version and -0.503, p<.05 stockholder returns version). Examining the derivatives indicates that firms with mutual fund block owners grow less as FCF increases; at mean FCF, a 1 percentage point increase in *Cash Flow* $_{J,T-1}$ causes a -0.144% in sales growth for the ROA version and -0.239% for stockholder returns version (See Table 5). Mutual Fund monitoring of sales growth appears to be strong enough to completely offset the tendency of management to invest cash flow into growth oriented projects. Indeed, for Fund-Controlled firms FCF has a negative influence on sales growth, perhaps reflecting choices that simultaneously increase FCF and reduce sales growth in order to provide high dividends.

Interpreting the performance and sales growth equations as a system yields further insights. For firms without FCF (i.e., Q >1), the system has a simple interpretation. Cash flow positively influences sales growth and sales growth increases performance.[1] For firms with FCF and weak governance (i.e., Q<1), cash flow positively influences sales growth, but the sales growth has a lower return for these firms than for firms without FCF. Even at mean levels of FCF, we find sales growth can result in a negative change in performance for stockholder returns. In short, these firms appear to grow less than other firms, and their growth is less profitable.

Industry Growth $_{J,T}$ controls for the environmental determinants of *Sales Growth* $_{J,T}$. As expected, *Industry Growth* $_{J,T}$ has a significant positive association with *Sales Growth* $_{J,T}$. The lagged firm performance (*Performance* $_{J,T-1}$) term is positive and significant as expected in the stockholder returns version but is negative and insignificant in the ROA version.

CONCLUSIONS

The findings for firms without FCF and firms with FCF and without strong governance are straightforward; cash flow increases sales growth, and sales growth increases performance (with the exception of firms with high levels of FCF where sales growth reduces performance). But a puzzle emerges from the results involving firms with FCF and different types of strong governance. The theory argues that strong governance should improve decision making in firms with FCF.

[1] Note that this is not a full positive feedback system since, at least for ROA, the influence on growth in sales is cash flow, not performance (which has a negative influence on sales growth in the ROA Model).

We find that different types of strong governance affect performance and sales growth in different ways. Owner-Managed firms with FCF use it to grow faster than firms without FCF (average of 5.7% compared to averages around 4.5%, see Table 2), and this higher sales growth results in the highest performance among firms with FCF. In sharp contrast, firms with mutual fund block ownership do not use FCF for growth and grow much more slowly than Owner-Managed firms, but the performance from that sales growth is also much lower. Indeed, for such firms, increases in cash flow result in negative sales growth. Firms with non-mutual fund companies or individuals as outside block owners have sales growth and performance similar to firms with FCF and weak governance.

For firms with mutual fund owners, we offer the following conjecture to explain this puzzle. Firms without FCF represent the top third in terms of Tobin's Q -- the higher performers. Cash Flow provides such firms resources to exploit market opportunities (i.e. positive NPV projects) resulting in profitable growth. Firms with FCF (i.e., Q less than one) face fewer good opportunities. Mutual fund owners may determine that paying such funds out as dividends provides greater shareholder returns than investing in sales growth.

Owner-Managed firms with FCF grow faster than those without and have the highest performance for FCF firms; this presents an interesting problem. Perhaps Owner-Managed firms simply search harder for growth opportunities. Note that such growth opportunities provide positive shareholder returns for most firms with FCF. Owner-managers have incentives to increase profits rather than their salaries (Baker and Wruck, 1989). This increases search activities for projects with higher returns (Easterwood, Seth, and Singer, 1989; Fox and Marcus, 1992). Holderness and Sheehan's (1988) results on firms with managers as majority shareholders (owning over 50%) agree with this finding. In other words, having top management with high levels of stock provides the incentive to seek out profitable avenues for sales growth and the power to move the corporation toward them (Bourgeois, 1981).

Our analysis uses FCF along with four governance mechanisms (including the absence of strong governance) and financial leverage. We distinguish between the effects of governance on sales growth and on performance, and thereby track how different governance mechanisms affect decision making in firms. While this improves on the common practice of using FCF alone as an indicator of an agency problem, it does not exhaust the potential list of governance control mechanisms. Other governance factors (or their absence) may reduce the likelihood that FCF allows managers to waste funds. Such factors include a weak corporate board (relative to corporate management), weak corporate oversight of division management, compensation of top management, and compensation of board members. Multiple governance mechanisms may work in concert. By using only four measures of governance effects with an emphasis on ownership structure, while controlling for a fifth (leverage), we may have missed interactions (Rediker and Seth, 1995). A deeper understanding of governance variables and their interaction merits examination. Given multiple measures of governance, we need a behavioral theory that explains their interaction.

To summarize, these results support both the value of sales growth and the problems of very high levels of FCF. They open the doors to two new areas of research. First, we need additional research to better understand the role of sales growth in the firm and the relations between sales growth and performance. Second, we need a finer-grained analysis of agency problems --different forms of governance may be required to effectively control different corporate decisions. Such research areas may further enhance our understanding of these central issues concerning growth and corporate control.

Table 1: Measures*

ROA$_{J,T}$	Operating income divided by corporate assets for firm *J* in year *T*. Operating return is profits before interest, taxes and depreciation.
Stockholder Returns $_{J,T}$	Compound Growth Rate in Stockholder Returns, ln{(Market value per share for firm *J* in year *T*) + Dividends per Share)/ (Market value per share for firm *J* in year *T-1*) -1)}. ln{(#199(t) + #26)/(#199(t-1))}.
Sales Growth$_{J,T}$	Compound Growth Rate in Sales. ln (Sales $_{J,T}$ / Sales $_{J,T-1}$) for firm *J* in year *T*.
Q $_{J,T-1}$	Lagged market value divided by book value. Following (Perfect and Wiles, 1994), market value is the sum of year end values of the firm's common stock (#25 * #24), market value o the firm's preferred stock (#130), book value of the firm's long term debt (#9), book value the firm's short term debt with a maturity less than one (#44). Book value was measured b the firm's year-end book value of total assets (#6).
QDum$_{J,T-1}$	1 if Q<1; *QDum$_{J,T-1}$* = 0, if Q $_{J,T-1}$ >=1.
Cash Flow $_{J,T-1}$	Lagged Operating Income before depreciation (#13) minus total income taxes (#16, minus change in deferred taxes from the previous year to the current year based on #35) minus gross interest expense (#15) minus preferred dividend requirement on cumulative preferred stock and dividends paid on non-cumulative preferred stock (#19) minus total dollar amount of dividends declared on common stock (#21). Following Lehn and Poulsen (1989) and Lang, Stulz and Walkling (1991), Cash Flow is divided by Assets.
FCF$_{J,T-1}$	*Cash Flow $_{J,T-1}$ * QDum$_{J,T-1}$.*
Owner-Managed$_{T-1}$	At least one blockholder (owner of 5% or more) is an officer of the company.
Owner-Controlled$_{T-1}$	At least one outside blockholder is *not* a mutual fund or public pension fund.
Fund-Controlled$_{T-1}$	At least one outside blockholder is a mutual fund company.
Industry Performance $_{J,T}$	Asset-weighted industry performance, averaged for the industries in which the firm's business units are active in year *T*.
Industry ROA$_{J,T}$	Asset-weighted industry operating return on assets, averaged for the industries in which the firm's business units are active in year *T*. Operating return on assets is profits before interest, taxes and depreciation. Industry figures (income and ROA) were calculated without the values for the given corporation to remove the possibility of simultaneity.
Industry Stockholder Returns $_{J,T}$	Asset-weighted industry stockholder returns, averaged for the industries in which the firm's business units are active in year *T*. Industry returns were calculated without the values for the given corporation to remove the possibility of simultaneity.
Debt/Assets$_{J,T-1}$	Total corporate debt divided by total assets for firm *J* in year *T*.
Quick Ratio $_{J,T}$	Cash and short term investments plus receivables divided by Current Liabilities.
Current Ratio $_{J,T}$	Current Assets divided by Current Liabilities.

* Data from COMPUSTAT are identified by their industrial COMPUSTAT item number as #.

Table 2: Descriptive Statistics

Variable	N	Mean	Std. Dev.	Min.	Max.
Total Sample					
$QDum_{J,T-1}$	1570	0.6567	0.4750	0	1.00
$Cash\ Flow_{J,T-1}$	1570	0.0649	0.0465	-0.2114	0.2765
$Free\ Cash\ Flow_{J,T-1}$	1570	0.0346	0.0439	-0.2114	0.2041
$Sales\ Growth_{J,T}$	1570	0.0603	0.1407	-0.8672	0.9690
*Sales Growth *FCF*	1570	0.0018	0.0081	-0.0692	0.0590
$SG_{J,T}*FCF_{J,T-1}*Owner\text{-}Managed_{J,T-1}$	1570	0.0007	0.0039	-0.0277	0.0545
$SG_{J,T}*FCF_{J,T-1}*Owner\text{-}Controlled_{J,T-1}$	1570	0.0012	0.0067	-0.0653	0.0545
$SG_{J,T}*FCF_{J,T-1}*Fund\text{-}Controlled_{J,T-1}$	1570	0.0007	0.0009	-0.0555	0.0590
$Cash\ Flow_{J,T-1}*Owner\text{-}Managed_{J,T-1}$	1570	0.0105	0.0304	-0.113	0.1621
$Cash\ Flow_{J,T-1}*Owner\text{-}Controlled_{J,T-1}$	1570	0.0219	0.0451	-0.2114	0.2041
$Cash\ Flow_{J,T-1}*Fund\text{-}Controlled_{J,T-1}$	1570	0.0189	0.0336	-0.2114	0.1711
$Industry\ ROA_{J,T}$	1570	0.1150	0.1709	-0.7986	5.5728
$Industry\ StockholderReturns_{J,T}$	1570	0.0484	0.2188	-1.7040	1.6754
$ROA_{J,T}$	1570	0.0395	0.0474	-0.3539	0.2440
$StockholderReturns_{J,T}$	1570	0.0445	0.3123	-1.3863	1.3868
$Industry\ Growth_{J,T}$	1570	0.0971	0.3268	-0.9789	4.9133
$Debt/Total\ Assets_{J,T-1}$	1570	0.2389	0.1353	0.0000	0.9302
Q>1(Free Cash Flow=0)					
$Sales\ Growth_{J,T}$	539	0.0930	0.1292	-0.8610	0.8941
$Owner\text{-}Managed_{J,T-1}$	539	0.2839	0.4512	0	1
$Owner\text{-}Controlled_{J,T-1}$	539	0.5584	0.4970	0	1
$Fund\text{-}Controlled_{J,T-1}$	539	0.6215	0.4855	0	1
Q<1(Free Cash Flow≠0)					
$Sales\ Growth_{J,T}$	1031	0.0432	0.1435	-0.8672	0.9690
$Free\ Cash\ Flow_{J,T-1}$	1031	0.0527	0.0445	-0.2114	0.2041
$Owner\text{-}Managed_{J,T-1}$	1031	0.2726	0.4455	0	1.000
$Owner\text{-}Controlled_{J,T-1}$	1031	0.5412	0.4985	0	1.000
$Fund\text{-}Controlled_{J,T-1}$	1031	0.3948	0.4890	0	1.000
Q<1 and Owner-Managed					
$Sales\ Growth_{J,T}$	281	0.0565	0.1279	-0.5096	0.9689
$Free\ Cash\ Flow_{J,T-1}$	281	0.0587	0.0425	-0.1126	0.1617
$Owner\text{-}Controlled_{J,T-1}$	281	0.7865	0.4105	0	1.000
$Fund\text{-}Controlled_{J,T-1}$	281	0.5196	0.5005	0	1.000
Q<1 and Owner-Controlled $_{J,T-1}$					
$Sales\ Growth_{J,T}$	661	0.0462	0.1529	-0.8672	0.9690
$Free\ Cash\ Flow_{J,T-1}$	661	0.0520	0.0442	-0.2114	0.2041
$Owner\text{-}Managed_{J,T-1}$	661	0.3343	0.4721	0	1.000
$Fund\text{-}Controlled_{J,T-1}$	661	0.5416	0.4986	0	1.000
Q<1 and Fund-Controlled $_{J,T-1}$					
$Sales\ Growth_{J,T}$	558	0.0403	0.1235	-0.6215	0.7509
$Free\ Cash\ Flow_{J,T-1}$	558	0.0586	0.0426	-0.1352	0.2041
$Owner\text{-}Managed_{J,T-1}$	558	0.1720	0.3778	0	1.000
$Owner\text{-}Controlled_{J,T-1}$	558	0.6416	0.4800	0	1.000

Table 3. Pearson Correlation Coefficients

(Probabilities in Parentheses)

Variable	*QDum*	*Cash Flow*	*Industry Growth*	*Sales Growth*	*SG*Free Cash Flow*	*SG*FCF *Owner-Managed*	*SG*FCF* Owner-Ctrlled*	*SG*FCF* Fund-Cntrlld*	*FCF* Owner-Managed*	*FCF* Owner-Cntrlld*	*FCF* Fund-Cntrlld*	*Industry ROA*	*Ind. StkHldr Return*	*ROA*	*Stock-holder-Returns*	*FCF*	*Debt/ Total Assets*
QDum	1.00 (0.0)																
Cash Flow	-0.363 (0.000)	1.00 (0.0)															
Industry Growth	-0.113 (0.000)	0.054 (0.032)	1.00 (0.0)														
Sales Growth	-0.168 (0.000)	0.126 (0.000)	0.112 (0.000)	1.00 (0.0)													
*SG*Free Cash Flow*	0.162 (0.000)	0.093 (0.000)	0.026 (0.298)	0.537 (0.000)	1.00 (0.0)												
*SG*FCF* Own-Mngd*	0.084 (0.001)	0.065 (0.010)	-0.005 (0.843)	0.346 (0.000)	0.654 (0.000)	1.000 (0.0)											
*SG*FCF* Own-Ctrlld*	0.097 (0.00)	0.030 (0.239)	-0.007 (0.795)	0.419 (0.000)	0.742 (0.000)	0.465 (0.000)	1.00 (0.0)										
*SG*FCF* Fund-Ctrlld*	0.099 (0.00)	0.092 (0.000)	0.051 (0.043)	0.296 (0.000)	0.598 (0.000)	0.416 (0.000)	0.635 (0.000)	1.00 (0.0)									
FCF Own-Mged*	0.218 (0.00)	0.291 (0.00)	-0.022 (0.382)	0.018 (0.468)	0.166 (0.000)	0.445 (0.000)	0.168 (0.000)	0.143 (0.000)	1.00 (0.0)								
FCF Own-Ctrlld*	0.308 (0.000)	0.269 (0.000)	-0.021 (0.402)	-0.010 (0.695)	0.131 (0.000)	0.190 (0.000)	0.262 (0.000)	0.154 (0.000)	0.475 (0.000)	1.00 (0.0)							
FCF Fund-Ctrlld*	0.327 (0.000)	0.239 (0.000)	-0.023 (0.363)	-0.049 (0.053)	0.141 (0.392)	0.151 0.000	0.144 (0.000)	0.266 (0.000)	0.232 (0.000)	0.427 0.000	1.00 (0.0)						
Industry ROA	-0.071 (0.005)	0.095 (0.000)	0.033 (0.190)	0.023 (0.355)	-0.001 (0.977)	0.002 0.938	0.008 (0.739)	0.005 (0.831)	-0.002 (0.633)	0.022 0.902	0.052 (0.510)	1.00 (0.0)					
InStk-Return	0.089 (0.000)	-0.028 (0.269)	-0.039 (0.126)	0.006 (0.815)	0.014 (0.567)	0.031 0.225	0.013 (0.605)	-0.008 (0.753)	0.029 (0.257)	0.048 (0.059)	-0.000 (0.980)	0.146 (0.562)	1.00 (0.0)				
ROA	-0.474 (0.000)	0.593 (0.000)	0.095 (0.000)	0.246 (0.000)	0.012 (0.611)	-0.007 0.789	0.022 (0.376)	-0.027 (0.290)	0.009 (0.730)	0.015 (0.548)	0.07 (0.01)	0.124 (0.000)	0.01 (0.79)	1.00 (0.0)			
Stkhldr-Returns	0.121 (0.000)	-0.035 (0.155)	-0.006 (0.799)	0.098 (0.000)	0.049 (0.050)	0.051 (0.044)	0.014 (0.589)	0.017 (0.504)	0.036 (0.157)	0.066 (0.009)	0.055 (0.028)	-0.012 (0.630)	0.230 (0.000)	0.136 (0.000)	1.00 (0.0)		
FCF	0.570 (0.000)	0.430 (0.000)	-0.053 (0.034)	-0.045 (0.076)	0.253 (0.000)	0.189 (0.000)	0.179 (0.000)	0.175 (0.000)	0.455 (0.000)	0.711 (0.000)	0.675 (0.000)	0.006 (0.824)	0.054 (0.033)	0.050 (0.046)	0.107 (0.000)	1.00 (0.0)	
Debt/ Assets	0.251 (0.001)	-0.241 (0.000)	-0.063 (0.012)	0.038 (0.131)	0.057 (0.023)	-0.029 (0.251)	0.048 (0.057)	-0.000 (0.986)	0.030 (0.234)	0.059 (0.020)	-0.053 (0.035)	-0.074 (0.003)	0.023 (0.369)	-0.311 (0.000)	0.025 (0.314)	0.072 (0.005)	1.00 (0.0)

Table 4: Results
(P-Values in Parentheses)

Dependent Var:	$ROA_{J,T}$	*Sales Growth* $_{J,T}$ (ROA)	Stock-holder-Returns $_{J,T}$	*Sales Growth* $_{J,T}$ (Stock-holder Returns)
Constant	-0.007 (0.533)	0.058*** (0.000)	-0.076 (0.062)	0.054*** (0.000)
$QDum_{J,T-1}$	0.009 (0.376)	-0.022 (0.175)	0.087 (0.131)	-0.016 (0.324)
Cash Flow $_{J,T-1}$	-0.365** (0.002)	0.378* (0.079)	-1.663*** (0.000)	0.312^ (0.053)
Free Cash Flow $_{J,T-1}$	0.596*** 0.000	-0.055 (0.813)	4.152*** (0.000)	-0.048 (0.833)
Free Cash Flow $_{J,T-1}$ * *Owner-Managed* $_{J,T-1}$		0.355* (0.012)		0.324* (0.020)
Free Cash Flow $_{J,T-1}$ * *Owner-Controlled* $_{J,T-1}$		-0.074 (0.658)		-0.018 (0.919)
Free Cash Flow $_{J,T-1}$ * *Fund-Controlled* $_{J,T-1}$		-0.467** (0.008)		-0.503** (0.004)
Sales Growth $_{J,T}$	0.749*** (0.000)		2.929*** (0.000)	
Sales Growth $_{J,T}$ * *Free Cash Flow* $_{J,T-1}$	-9.230*** (0.000)		-56.571*** (0.000)	
Sales Growth $_{J,T}$ * $FCF_{J,T-1}$ * *Owner- Managed* $_{J,T-1}$	2.833* (0.017)		21.720* (0.035)	
Sales Growth $_{J,T}$ * $FCF_{J,T-1}$ * *Owner- Controlled* $_{J,T-1}$	-1.737 (0.261)		-6.188 (0.555)	
Sales Growth $_{J,T}$ * $FCF_{J,T-1}$ * *Fund-Controlled* $_{J,T-1}$	-1.723 (0.294)		-24.540* (0.016)	
Performance $_{J,T-1}$	0.784*** (0.000)	-0.091 (0.504)	-0.207*** (0.000)	0.055*** (0.000)
Industry Performance $_{J,T}$	0.007 (0.242)		0.251*** (0.000)	
Industry Growth $_{J,T}$		0.027* (0.040)		0.037* (0.004)
Debt/Total Assets $_{J,T-1}$	-0.071*** (0.000)		-0.189^ (0.032)	
R^2	0.628	0.032	0.110	0.054
N	1570	1570	1570	1570

*** = |Probability| <= .001, ** = |Probability| < =.01

* = |Probability| <= .05, ^ = |Probability| <= .10

Table 5
Derivatives of Performance with Respect to Sales Growth and Sales Growth with Respect to Cash Flow Evaluated at Mean Values of Free Cash Flow.

(Test statistics reflect the probability that the derivatives are significantly different from zero when evaluated at the mean level of Free Cash Flow for these sub-samples.)

Sub-Samples	Firm ROA	Stockholder Returns
Performance With Respect to a Change in Sales Growth		
Free Cash Flow = 0:	0.749***	2.929**
Free Cash Flow ≠ 0 and Weak Governance:	0.260**	-0.069
Free Cash Flow ≠ 0 and Owner-Managed Governance:	0.372***	0.873^
Free Cash Flow ≠ 0 and Owner-Controlled Governance:	0.179	-0.334
Free Cash Flow ≠ 0 and Fund-Controlled Governance:	0.168	-1.370^
Sales Growth with Respect to a Change in Cash Flow		
Free Cash Flow=0	0.378*	0.312^
Free Cash Flow ≠ 0 and Weak Governance:	0.323^	0.264
Free Cash Flow ≠ 0 and Owner-Managed Governance:	0.678**	0.588**
Free Cash Flow ≠ 0 and Owner-Controlled Governance:	0.249	0.246
Free Cash Flow ≠ 0 and Fund-Controlled Governance:	-0.144	-0.239^

*** = |Probability| <= .001, ** = |Probability| < =.01

* = |Probability| <= .05, ^ = |Probability| <= .10

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