FREE CASH FLOW, AGENCY CONFLICTS, AND COMPENSATION PLANS IN A NON-GROWING INDUSTRY

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Abstract

Free cash flow is known as a typical cause of conflict between shareholders and managers in the capital market. The insurance industry, which is relatively steady in growth, is particularly susceptible to such excessive cash flow. We investigate the effects of stock ownership plans as a means to reduce agency conflicts. Also examined is, after further classifying firms by size and group affiliation, how financial leverage, default risk, and presence of investment opportunity affect free cash flow. The research findings show free cash flow is positively related to stock option plans—in terms of the value of total unexercised options—and investment opportunity. An inverse relationship is found with financial leverage.

(Key words: free cash flow, agency conflict, stock option, financial institution.)

Introduction

Corporations are often managed by agents who are hired by owners (e.g., stockholders). The agent here refers to an employee who has broad responsibilities and duties as well as a fair amount of latitude and discretion in policy-making and firm operation. With this principal-agency relationship, the owners, who invest their monetary capital, expect that their agents help them enhance firm value, and the agents, who invest their human capital, expect economic compensation and an increase in their value in the labor market.

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The success of this principal-agency arrangement depends at least on three requisites. First, the perceived value of the considerations in the employment contract—the service provided by the agent and the compensation offered by the principal—should be equal. Otherwise, a conflict may arise.[1] Firm owners commonly use one or more of managerial compensation schemes such as a salary only plan, a bonus plan or a stock option for their employees.[2] A salary only plan offers the principal the benefit of fixed expenditure for employee compensation, but may fail to encourage him or her to remain productive. A bonus plan can ease an agent's craving for shirking work, but can also induce the agent to aim for personal gains over short-run accounting profits.

A stock option plan is a relatively long-term managerial compensation contract. This plan commonly grants the employee the right to purchase a specific number of shares at an advantageous exercise price over the period stipulated in the contract. The agent's compensation subject to the plan varies according to market measures of the firm performance during the option exercise period. Stock option plans, which give agents an opportunity to share the same wealth generating fortune, may reduce the agent's financial conflict with the shareholders. These plans also offer firms some tax benefits and help them experience lower manager turnover rates.[3]

Second, the agent's behavior should be in compliance with the principal's expectation. However, agents at times make decisions reflecting their personal gains. Firm owners employ various approaches to reduce this personal motive of the agent, consequently increasing the value of their investment. A structured compensation arrangement, elucidation of the duties and responsibilities of an agent, and a system to monitor signals indicating agent's deviation in decision-making exemplify such approaches. The cost of monitoring the agent's behavior and an additional cost—from failing to control a principal-agency conflict—to the firm's contracting process is commonly known as the agency cost.

Finally, the expected duration of investment ownership by the principal and that of employment of the agent should correspond. In reality, however, an agent is constrained to a finite time horizon equaling the length of his or her career, whereas the stockholders' time horizon is infinite as the value of the stock is the sum of the discounted value of future earnings. Stock

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[1]For early studies about principal-agency conflicts, see Jensen and Meckling (1976), Fama and Jensen (1983a, 1983b), and Jensen and Smith (1985).

[2]A large body of research exist that has analyzed the impact of managerial compensation on firm value, including Lewellen and Huntsman (1970), Ciscel and Carroll (1980), Argawal (1981), Murphy (1985), Brickley et al. (1985), Butler and Maher (1986), Baker et al. (1988), Abowd (1990), Belkaoui (1992), Gaver et al. (1995).

[3]Existing studies that examine stock options include Smith and Watts (1982), Miller and Scholes (1982), Lemgruber (1986), Long (1988), and Scholes and Wolfson (1991).

options, which let agents share the same fortune with shareholders, can help reduce a conflict arising from this gap.

A conflict can also arise when the principal and the agent differ in the use of free cash flow.[4] Free cash flow, sometimes a result of productive management, refers to the excess capital of a firm over the capital required to fund all projects with a positive net present value discounted at the relevant cost of capital. When free cash flow is present, an agent may decide to use it to fund certain projects that he or she is aware of carrying a non-positive net present value. The agent may do so to gain more control of the firm even at the cost of lower future value of the firm. The firm owner would not permit this, and prefers distribution of the free cash flow in the form of dividends. This is probably so when the firm is not growing, for it has limited projects for the (re)investment of the available fund. This conflict suggests that stock options, despite being a popular managerial compensation scheme, might not be so useful to align managerial interest to shareholder's interest.

Jensen (1986) argues that a non-growing industry generates more free cash flow and is more susceptible to agency conflicts than a growing industry. This argument is supported by the finding of Lang et al. (1991) that firms with a high Tobin's *q* and high free cash flow are not suspected to have agency problems, but firms with a low Tobin's *q* and high free cash flow are. Gaver et al. (1993) examined 1,525 U.S. firms, and identified 237 growing companies and 237 non-growing companies. Out of the 17 insurance firms that were identified, only one was classified as a growing firm and all other 16 as non-growing firms.

The effectiveness of a stock option as a means of reducing a principal-agency conflict in a non-growing industry thus warrants examination. The structure of this paper is as follows. The next section following this introduction discusses existing literature. The third section describes the methodology that the authors employ for empirical examination of the U.S. life insurance industry. The final section provides conclusions.

Extant Research

A number of studies can be found that are related to this research objective. As per principal-agency conflicts, Boose (1990) investigates the U.S. life insurance industry to find significant differences in insurance expenses depending on firm structure. Wells et al. (1995) examine the relationship between the firm structure and free cash flow, and find that mutual insurance firms have a greater level of free cash flow than stock insurance firms. They also find that firm size and financial leverage also affect the level of free cash flow. Colquitt et al. (1999) study cash holdings of U.S. property-liability insurance firms, and make three findings. First, firms with better access to the capital market, firms with a lower variance of cash flows, and firms with a

[4]See Lehn and Poulsen (1989) and Jensen (1986) for early research of free cash flow.

higher degree of leverage all hold less cash than others. Second, larger insurance firms, higher-quality insurance firms, and insurance firms writing business in long tail lines hold less cash than others. Finally, stock insurance firms show a tendency of holding more cash than their mutual counterparts.

While enjoying a stock option plan, the employee is expected to focus on generating higher value of the shares, thus enhancing the wealth of the firm. A rise in firm value is expected when the manager uses free cash flows for projects with a positive net return. Thus, it is expected that firms offering stock option plans as a managerial compensation plan have less free cash flow than those without the plans.

Several studies, e.g., Meltzer (1963), Baumol (1967), Gertler and Gilchrist (1994), Kim et al. (1998), Colquitt et al. (1999) and Opler et al. (1999), investigate the scale economy effect in cash transactions. Among them, Kim et al. (1988) find that large firms are likely to face lower costs of external financing and maintain lower levels of liquidity. This finding is supported by Opler et al. (1999) who measure the relationship using a cash-to-asset ratio and Colquitt et al. (1999) who examine the property-liability insurance industry. In an absolute term, however, large firms usually generate greater amounts of cash flow than small firms. From the point of view of agency costs, as Mayers and Smith (1981) note, the severity of principal-agency conflict over equity would increase with firm size. Existing literature, thus, shows inconsistent results.

The ability to meet claims obligations within a reasonable or legally permitted time period is a key concern of every insurance firm. In this liability-driven business, insurance firms are required to maintain a minimum amount of capital to support their assumed level of risks. Cash and cash equivalents, which are not subject to default risk, can be used as a readily available capital cushion to insurance firms. Thus, cash holdings, i.e., the capital that has not be reinvested or redistributed, help insurance firms ease their insolvency risk.

Existing literature offers conflicting findings about the relationship between cash holding and financial leverage. For example, Opler et al. (1999) contends that highly leveraged firms, which commonly incur a relatively higher cost of capital when raising an additional fund, are likely to hold more cash for future investment opportunities. In contrast, Jensen (1986) argues debt makes free cash less available, and reduces the agency cost. John (1993) also argues that a high debt ratio of a firm is a proxy for the firm's access to debt markets, and highly leveraged firms have a lesser need to hold high liquidity. This reduces free cash available to managers for spending at their discretion, thus reducing the agency cost.[5] Further, firms with low financial leverage may as well hold more cash. That is, their managers may assume that their firms are

[5]Life insurance firms rarely issue long-term debt; their leverage effect comes from their insurance obligations.

less likely subject to monitoring than firms with high leverage, and may decide to hold more cash and use it to achieve their personal goals.

Besides, monitors of a typical industry would not discourage managers from holding excess cash, a risk free asset. This can be applied to the insurance industry. However, insurance firms are not commonly highly leveraged owing primarily to stringent investment regulation. A negative relationship between leverage and cash holding in the industry is thus likely to be derived from another factor: insurance firms with relatively more liabilities may face a higher cost to service the liabilities, thus holding less cash than firms with lower liabilities (Colquitt et al., 1999), *ceteris paribus*.

Empirical Investigation

The discussion in the previous sections leads to a hypothesis that several factors can affect the size of free cash flow of a firm, or:

$$FCF = \alpha + \beta_1 SIZE + \beta_2 DEF + \beta_3 GA + \beta_4 LEV + \beta_5 IO + \beta_6 OPT + \beta_7 INSIDE + \epsilon \quad (1)$$

where FCF denotes free cash flow; SIZE firm size, DEF default risk, GA group affiliation, LEV leverage, IO = investment opportunity, and STOP stock option. The remaining part of this section describes data sources and variables.

For this study purpose, undistributed cash flow is chosen as a proxy for free cash flow. This follows the approaches used by Lehn and Poulsen (1989), Lang et al. (1991) and Wells et al. (1995). The authors measure undistributed cash flow using the following equation:[6]

UCF = Net operating and investment income + Additional capital charges paid-in
– Gross interest expenses – Income taxes – Policyholder dividends
– Stockholder dividends

Two variables are selected to capture the effects of stock option plans: the value of total unexercised options (denoted as OPT), and the number of beneficial shares of stock held plus the number of unexercised stock options (denoted as INSIDE). As discussed earlier, it is hypothesized that the greater the value of unexercised stock options, the greater the manager's motivation to focus on long-run value maximization of the firm, thereby increasing stock prices and reducing equity agency costs. INSIDE measures ownership and control of a company, which have a similar effect on managers' motivation.

[6]In this study, negative undistributed cash flow is set to zero because negative cash flow along with negative managerial discretion is meaningless.

Three measures of leverage have often been used in the context of the insurance industry: the ratio of liability to surplus (both sometimes adjusted) specifically for testing surplus adequacy; the ratio of net written premiums to surplus for the intensity of surplus use in premium writings;[7] and insurer's reliance on reinsurance. Use of reinsurance in life business is relatively low when compared to property-liability insurance.[8] Further, life insurance firms rarely issue long-term debts, and most of their obligations are tied to insurance policy-related liability provisions. In this study, a variation of the first measure—a ratio of total liabilities to assets—is used to measure life insurer leverage (LEV).

Differences in default risk among the sample firms are estimated based on their A.M. Best ratings. Given that there are six modified alphabetic rating categories, a value of 1 is assigned to A.M. Best rating of "C" with an increment of 1 per higher rating to a value of 6 rating of "A^{++}".

Investment opportunities are expected to affect free cash flow such that firms anticipating an investment opportunity may hold a higher level of cash. This practice lets the firm depend less on external sources of funds and capture an investment opportunity as it arises. Several proxies have been used to measure investment opportunities. They include market-to-book ratios (Smith and Watts, 1982; Gaver et al., 1993; Baber et al., 1996; and Jung et al., 1996) and research and development expenditures (Long and Malitz, 1985; Smith and Watts, 1982; and Skinner, 1993). For the insurance industry, Baber et al. (1996) used past growth rates as a proxy for future investment opportunities. This approach, specifically past growth rates in net written premiums, is employed in this study.

Equation (1) includes two control variables: firm size and group affiliation. Several proxy variables such as admitted assets, written or earned premiums, and policyholders' surplus have been used as a proxy of life insurance firm size. In this paper, the admitted asset is used as a proxy for firm size (SIZE). Group affiliation can affect the size of liquid assets the firm needs to maintain. When experiencing a financial difficulty, an affiliated firm may expect financial assistance from the parent firm or other sister companies. Therefore, it is likely that an affiliated insurance firm (GA) holds a lower level of cash than an unaffiliated firm does. The authors assign a dummy value (DEF) of 1 to group affiliated firms.

The authors examined this model empirically using several data sources. We initially chose randomly selected 343 firms based on A. M. Best Report (1996-1997), which provides information mainly regarding firm operations. Using Disclosure, we picked 168 firms out of the

[7]This ratio has also been used to measure insurer's exposure to pricing error.

[8]The size of the world life reinsurance market is about 1.5% of the world life insurance market, measured by premiums. In contrast, reinsurance premiums comprise around 15% of the premiums generated in the property-liability market.

initial pool that have the necessary information for this research. Most of the selected firms were non-publicly traded, and did not make readily available their managerial compensation data. The authors requested this missing data directly from those firms, and 68 of them replied. Thus, the final sample size is reduced to 68.

Table 1 offers a summary of statistics. A further analysis shows that the average firm size of the sample is $3.7 million dollars measured by admitted assets. With respect to stock ownership, CEO's potential control is on average 2.58 percent of the outstanding stocks, and the value of options represents 1.13 percent of total CEO compensation.

Table 1: Summary Statistics (Year 1997)

Variable	Mean	Standard Deviation
UCF (in $ million)	221.22	604.98
SIZE	15.1259	15.9852
DEF	3.48	0.9684
GM	0.618	N/A
LEV	0.49	0.86
IO	0.1152	0.2766
OPT	0.1189	0.17246
INSIDE	0.022689	0.3752

Table 2: Summary of Findings

Variable	B	t-value
Constant	0.9326	8.870***
SIZE	0.0224	1.788**
DEF	-0.4270	-1.931**
GA -0.0165	-1.421*	
LEV	-0.1156	-1.926**
IO 0.2058	0.311	
OPT	-0.2058	-1.813*
INSIDE	-0.3290	-1.982
F = 4.67Adj		
R^2 = .4478		

*Significant at a level of 0.1.
** Significant at a level of 0.05.
*** Significant at a level of 0.01

Existing studies show ambiguous findings regarding the relationship between financial leverage (LEV) and free cash flow. The findings of this study support the likelihood of a negative relationship. This result is consistent with Jensen's finding that the presence of fixed obligations in the capital structure of a firm obligates the firm manager to disburse excess cash flow.

Stock option plans have a statistically significant effect on free cash flow, thus evidencing that a stock ownership plan, especially when examined based on the value of total unexercised options (OPT), can reduce principal-agency conflicts to some extent. This study result is consistent with the hypothesis that an incentive plan can reduce agency conflicts between managers and shareholders. The effect of the sum of the number of beneficial shares of stock held and the number of unexercised stock options (INSIDE) on free cash flow is inconclusive.

The finding for default risk, a financial strength proxy variable, indicates a statistically significant, negative relationship between the risk and free cash flow. It indicates that firms with high default risk or financially weaker firms hold more cash flow.

The result for the investment opportunities (IO) is not statistically significant. The empirical result for SIZE evidences that large life insurance firms hold more free cash flow than smaller firms. This result, which is consistent with the findings of Wells et al. (1995), shows that a scale economy exists in cash transactions and large firms are likely to face lower costs of external financing. However, regarding free cash flow, the agency cost can be a more influential factor. Finally, the finding of the group affiliation status (GA) supports that group affiliated life insurance firms may receive liquidity help from a parent or other group members, and thus hold less cash than single firms.

Conclusions

When free cash flow is present in a firm managed by agents of shareholders, the agents can be induced to use it against the wish of the shareholders. As such, free cash flow has been regarded as one of the typical causes of conflicts between principals and their agents. The life insurance industry is known to be particularly susceptible to excessive cash flow.

A properly designed and executed managerial compensation plan can effectively reduce the conflicts. It is because it can align, particularly in terms of time horizon, the financial interest of the agents to that of the owners. This paper examined stock option plans as a conflict control tool in a non-growing life insurance industry. The authors find that stock option plans are indeed effective in reducing undistributed cash flow, thus in controlling the conflict. The influence of financial leverage and investment opportunities on free cash flow has also been examined in the study. Financial leverage is found to have an inverse relationship with free cash flow, while investment opportunities are positively related to free cash flow.

REFERENCES

Abowd, J. (1990), "Does Performance-Based Managerial Compensation Affect Corporate Performance?" in *Do Compensation Policies Matter?* ed. Ronald G. Ehrenberg (Ithaca, N.Y.: ILR).

Argawal, N. (1981), "Determinants of Executive Compensation," *Industrial Relations* 20 (1): 36-46.

Baber, William R., Surya N. Janakirman, and Sok-Hyon Kang (1996), "Investment Opportunities and the Structure of Executive Compensation," *Journal of Accounting and Economics*, 12: 297-318.

Baker, George, Michael Jensen, and Kevin Murphy (1988), "Compensation and Incentives: Practice vs. Theory," *Journal of Finance* 42: 539-616.

Baumol, W. (1967), Business Behavior, Value and Growth (New York: Harcourt, Brace and World).

Belkaoui, A. (1992) "Executive Compensation, Organizational Effectiveness, Social Performance and Firm Performance: An Empirical Investigation," *Journal of Business, Finance and Accounting* 33: 127-41.

Best's Insurance Reports, Annual, Life and Health (1994~1997), (Oldwick, NJ: A.M. Best Company, Inc.).

Boose, M. A. (1990), "Agency Theory and Alternative Predictions for Life Insurers: An Empirical Test," *Journal of Risk and Insurance*, 57: 499-518.

Brickley, S. Bhagat, and R. Lease (1985), "The Impact of Long-range Managerial Compensation Plans on Shareholder Wealth," *Journal of Accounting and Economics* 7: 115-29.

Butler, S. and M. Maher (1986), *Management Incentive Compensation Plans* (Montvale, N.J.: NAA).

Ciscel, D. and T. Carroll (1980), "The Determinants of Executive Salaries: An Economic Survey," *Review of Economics and Statistics* (February): 7-13.

Colquitt, L. Lee, David W. Sommer, and Normal H. Godwin (1999), "Determinants of Cash Holdings by Property-Liability Insurers," *The Journal of Risk and Insurance*, 66: 401-415.

Fama, Eugene F. and Michael C. Jensen, (1983a), "Separation of Ownership and Control," *Journal of Law and Economics*, 26: 301-325.

Fama, Eugene F. and Michael C. Jensen, (1983b), "Agency Problems and Residual Claims," *Journal of Law and Economics*, 26: 327-349.

Gaver, Jennifer J. and Kenneth M. Gaver, (1993), "Additional Evidence on the Association between the Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies," *Journal of Accounting and Economics*, 16: 125-160.

Gaver, Jennifer, Kenneth Gaver, and J. Austin (1985), "Additional Evidence on Bonus Plans and Income Management," *Journal of Accounting and Economics* 19: 3-28.

Jensen, Michael, (1986), "Agency Costs of Free Cash Flow, Corporate Finance and Takeovers," *American Economic Review*, 76: 323-339.

Jensen, Michael C. and Clifford W. Smith, Jr. (1985), "Stockholder, Manager, and Creditor Interests: Application of Agency Theory, in: Edward I. Altman and Mati G. Subramanyam, eds, Recent Advances in Corporate Finance (Homewood, Ill: Richard D. Irwin), 93-131.

Jensen, M. and W. Meckling (1976), "Theory of the Firm and Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics* 3: 305-60.

John, Teresa A. (1993), "Accounting Measures of Corporate Liquidity, Leverage, and Costs of Financial Distress," *Financial Management* 22 (Autumn), 91-100.

Jung, Kooyul, Yong-Cheol Kim, and Rene M. Stulz (1996), "Timing Investment Opportunities, Managerial Discretion, and the Security Issues Decision," *Journal of Financial Economics*, 42: 159-185.

Kim, Chang-Soo, David C. Mauer, and Ann Sherman (1998), "The Determinants of Corporate Liquidity: Theory and Evidence," *Journal of Financial Quantitative Analysis*, 33: 335-359.

Lang, Larry H. P., Rene M. Stulz, and Ralph A. Wakling (1991), "A Test of the Free Cash Flow Hypothesis: The Case of Bidder Returns," *Journal of Financial Economics*, 29: 315-335.

Lehn, Kenneth and Annette Poulsen (1989), "Free Cash Flow and Stockholder Gains in Going Private Transactions," *Journal of Finance*, 44: 771-787.

Lemgruber, E., "Stock Option Plans and Corporate Behavior (1986)," Ph.D dissertation, University of California at Los Angeles.

Lewellen, W. and B. Huntsman (1970), "Managerial Pay and Corporate Performance," *American Economic Review* 60 (September): 710-720.

Long, Michael S. and Ileen B. Malitz (1985), "Investment Patterns and Financial Leverage," in B: Friedman, ed., *Corporate Capital Structure in the United States* (Chicago: University of Chicago Press).

Mayers, David, and Smith, Clifford (1981), "Contractual Provisions, Organizational Structure, and Conflict Control in Insurance Markets," *Journal of Business* 54: 407-34.

Meltzer, Allan H. (1963), "The Demand for Money: A Cross-Section Study of Business Firms," *Quarterly Journal of Economics*, 77: 405-422.

Miller, M. and M. Scholes (1982), "Executive Compensation, Taxes, and Incentives," C. M. Cootner, eds., in *Financial Economics*: Englewood Cliffs, New Jersey: Prentice-Hall, 179-201.

Murphy, K. (1985), "Corporate Performance and Managerial Remuneration: An Empirical Analysis," *Journal of Accounting and Economics* 7 (April): 11-42.

Opler, Tim, Lee Pinkowitz, Rene Stulz, and Rohan Williamson (1990), "The Determinants and Implications of Corporate Cash Holdings," *Journal of Financial Economics*, 52: 3-46.

Scholes M. and Mark Wolfson (1991), "Employee Stock Ownership Plans and Corporate Restructuring: Myths and Reality," Arnold W. Sametz, ed., *the Battle for Corporate Control: Shareholder Rights, Stockholder Interests, and Managerial Responsibilities* (Homewood, IL: Business One Irwin).

Skinner, Douglas J. (1993), "The Investment Opportunity and Accounting Procedure Choice: Preliminary Evidence," *Journal of Accounting and Economics*, 16: 407-445.

Smith, C. and R. Watts (1982), "Incentive and Tax Effects of Executive Compensation Plans," *Australian Journal of Management* 7: 139-157.

Brenda P. Wells, Larry Cox, and Kenneth Gaver (1995), "Free Cash Flow in the Life Insurance Industry," *The Journal of Risk and Insurance*, 50-66.