Equity-linked managerial incentives and firm performance

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1. Various approaches to the economic study of the firm

Several economics and finance disciplines study the contractual organization and financial operation of firms: theory of the firm, corporate finance, corporate governance as well as finance and accounting.

Theory of the firm seeks to elucidate fundamental economic mechanisms which distinguish firms as organizational units. Over the years many formal and informal theories were proposed. Seeking to order these frequently complex and disparate contributions, Gibbons [2005] distinguished four main theories of the firm: the rent seeking, property rights, incentive systems and adaptation theory. He then clarified the payoff and decision aspects of these theories and concluded that the incentive systems and property rights theories can be characterized by their focus on the ex ante incentive alignment, through contracts in the incentive systems theory and through asset ownership in the property rights theory, while the rent seeking and adaptation theories define the governance of ex post decisions. Gibbons presented further a complementary characterization of the theories of the firm into those based on contracts and on control.

Corporate finance emerged as an application of the basic theories of financial economics to the understanding of the financial management of the firm. The principles of efficient-market finance gave rise to the development of solutions to the classical problems of capital structure, investment, payout policy and valuation. More recently, the relaxation of the efficient market underpinnings of traditional corporate finance resulted in a number of models recognizing the richer empirical and behavioral market reality.

The appearance of corporate governance (CG) as another corporate finance-related research discipline reflects the realization that not only the classical financial economic variables of risk and return influence the solutions to the corporate financial problems in the real world, but that the power, control and legal environment also plays a role as emphasized earlier by some theories of the firm. There is still some disagreement over the exact scope of corporate governance. Some see it as seeking to study the solutions to "the collective action problems among investors" [Becht et al., 2005] and some define it ever even more broadly as a study of legal and organizational

factors influencing corporate operations [Gillan, 2006]. Broadly, the mainstream CG literature concentrates on the effects of firm contractual and organizational structure on its performance and value.

Finance and accounting literature naturally overlaps with the corporate finance and CG literature, but its focus is on the models more strictly employing variables based on the data available in corporate financial reports, and on the ways of improving the relevance of corporate financial disclosure and reporting.

While there is a blend of theory and empirical research in corporate finance, the CG and the finance and accounting literatures are to a considerable extent empirical. The econometric methodologies adopted in different research studies may however vary considerably and must be scrutinized before comparing the results of even similar models.

The four approaches listed above differ in the degree they affect corporate and investment practice. Theories of the firm and financial economic theories can be very influential in the sense that they guide the models in other disciplines. Basic corporate financial models frequently dominate the applications in the practice of financial institutions and consultants. Finally, the results in the CG and finance and accounting literatures play a role in shaping changes in corporate law, accounting standards and in the organizational advice given to firms.

2. Managerial ownership: evolving research problems

The microeconomic study of principal-agent problems [see e.g. Holmstrom and Milgrom, 1987] gave rise to the incentive-based theories of the firm and, in particular, to the optimal contracting approach to the firm organization. It was recognized [Jensen and Meckling, 1976], that there is an agency problem between shareholders and managers and as a solution to this problem managerial ownership was proposed. The managerial equity ownership and equity compensation constitute therefore a key area of interest to the disciplines studying the firm.

The empirical research on the links between managerial ownership and firm performance became active in the 1980s with the studies of Demsetz and Lehn [1985] and Morck et al. [1988]. Since then numerous studies investigated this problem, representing various methodological and empirical approaches and producing conflicting results. Two areas where there are important differences should be pointed out in particular. First, there is a problem of the endogeneity of firm ownership and performance [see e.g. Demsetz and Villalonga, 2001; Cui and Mak, 2002; Davies et al., 2005, Coles et al., 2007]. Second, the choice of the firm performance measure is different in studies representing different approaches, from economics-oriented Tobin's Q to the finance and accounting-oriented return on assets, market returns and the value-relevance approach [see e.g. Bhagat and Jefferis, 2002]. In addition to the main line of performance and ownership studies there are also important

related research areas on the influence of managerial ownership and compensation on corporate risk-taking and investment as well as payout policies.

The developments in the corporate and investor behavior over the last two decades resulted in a number of new theoretical and empirical models of managerial ownership and compensation. These new approaches are related to the changes in the structure of equity-linked compensation, for example to the proliferation of stock options and the influence of their contractual characteristics, to the rise of new active institutional investors, e.g. hedge funds, to the increased recognition of behavioral and speculative component of investor behavior, to the growing application of derivative instruments in corporate governance and corporate financial management [Grabowski, 2003b; Hu and Black, 2007], and, not least, to the governance scandals of recent years.

Among the new models and hypotheses three strands of research should be emphasized.

First, in the theory of the firm literature, there are new developments in the models of dynamic principal-agent problems as well as the new approaches to the influence of the speculative and overconfident investors on the mangers and optimal compensation contract design [see e.g. Adrian and Westerfield, 2007; Bolton et al., 2006; Gilchrist et al., 2004; Grabowski, 2003a].

Second, in the CG literature, there is now a complementary approach to the explanation of managerial ownership and contracting, the managerial power hypothesis [Bebchuk and Fried, 2003], which focuses on significant influence managers have over boards and the decoupling of equity-based pay from performance. This widely-publicized perspective meets with some criticism, e.g. some stress its oversimplified view on the functioning of the boards [Holmstrom, 2006] or suggest other reasons for the rise in executive pay e.g. the inelastic supply of CEOs [Himmelberg and Hubbard, 2000].

Third, the corporate finance and the finance and accounting literatures study various aspects of the option compensation impact on investment and payout policies of the firm as well as on the firm valuation and in this way reveal the fundamental characteristics of the structure and functioning of these innovative contracts.

3. Employee stock options and the payout policy of the firm

Employee stock options (ESO), nonlinear compensation contracts which became widespread in the last two decades, are long-term call options granted by a firm to an employee with the firm's shares as an underlying instrument, and the payoff equal to the maximum of zero and the difference between the firm's stock price at the moment of option exercise and the contractually fixed strike price. Since these options usually have the maturity of one to ten years an employee can profit from the appreciation of the stock price of the firm in the period between the option grant and exercise.

The major research areas related to ESO investigate their valuation and accounting treatment, as well as the design, management, incentive and agency problems of option plans. Since ESO are call options the basic approach to their valuation has been to use the standard models for the traded options, such as the binomial and the Black-Scholes model. On the other hand, since they are characterized by some contractual features different from traded options, such as the vesting period and employment-related terms, these models are not fully adequate.

The valuation problem is closely linked with the reporting and disclosure issues of ESO. In fact, their accounting treatment has been a source of major controversy for the last 15 years. ESO were originally governed in the U.S Generally Accepted Accounting Principles (U.S. GAAP) by two accounting regulations, SFAS123 and APB25, which allowed firms not to expense these options and include their cost only in a proforma income statement in notes to financial statements. From 1997 firms had also to disclose some basic information about the option plan characteristics at the end of the reporting period and its dynamics during that period. A new accounting standard, SFAS123R, was introduced in 2005 and the ESO expensing and recognition in the main financial statements is now required. In parallel, similar changes took place in the International Accounting Standards (IAS) adopted in the European Union, after a new regulation, IFRS 2, entered into force. The approach to ESO valuation recommended by the accounting standards was also modified, and although it is still based on the binomial/Black-Scholes methodology, as in the SFAS123/APB25, more flexible lattice methods are now also allowed. The research literature develops option models adapted more specifically to ESO characteristics [see e. g. Grabowski, 2006a].

The incentive features as well as the design and management of option plans are the subject of another line of research. In common with valuation models the difficulties here relate to finding the proper method of the incentive measurement of ESO. Solutions to these questions, frequently based on ESO valuation models, are then tested empirically in some papers. Other questions here are concerned with the repricings of out-of-the-money options, the determinants of option plan features in various industries, the impact of options on managerial risk-taking and corporate investment activity, the influence of taxation rules on option plan design as well as employee exercise behavior and option plan dynamics.

Payout policy is one of the key areas of corporate finance and is also closely linked with the problems of the firm capital structure. As such it also has a major bearing on the understanding of the agency problems of the firm.

The payout policy consists of paying out cash to the shareholders in two major ways: dividends and share repurchases. Dividends are periodic cash payments of the firm income to the eligible holders of its shares. In case of common dividend these are all holders of its common stock. There are also special dividends, paid out on an occasional basis, and preferred dividends,

or dividends to the holders of the firm's preferred stock. A common indicator of the size of the dividend payout is the dividend yield, the ratio of the per share dividend amount to the share price. Share repurchases are firm purchases of its own shares either through a tender offer or in the open market. The repurchased shares are usually cancelled or kept as treasury stock for future uses. The repurchases reduce the number of outstanding shares and may improve in some cases the firm's earnings per share (EPS) ratio, one of the principal measures of its profitability.

An important development is the growing role of repurchases in the corporate payout practice over the two last decades. Consequently many papers study the determinants of both types of payout and the substitution of dividends with repurchases. The role of ESO in the process of reducing dividends and expanding the repurchases is one of the major hypotheses put forward to explain this phenomenon [see e.g. Brav et al., 2005; Grabowski, 2006b].

The corporate uses of share-based transactions, including ESO and repurchases, influence the capital structure of the firm and this is why links between repurchases and capital structure as well as related agency problems are an object of study. Among other determinants of the payout policy, the tax effects, the role of profit and investment dynamics and the impact of the shareholder clienteles and ownership structure on the payout behavior are also investigated.

4. Equity-linked compensation: main research questions

Both in the firm-theoretic context and from the practical perspective two major research questions related to the innovative equity-linked compensation contracts are, first, the measurement of the incentives provided by these contracts and, second, the measurement of their costs and benefits to the firm.

Standard theories of the firm postulate managerial equity ownership as a solution to the agency problems posed by the shareholders-managers relationship. This proposition has led to the extensive empirical investigation of the links between managerial ownership and firm performance. Recent corporate governance studies emphasize in turn some additional issues posed by the new equity-linked contracts.

While equity ownership and compensation may be generally thought to reduce agency problems within a firm, the design details and the dynamic implementation of the equity-linked compensation contracts is bound to influence their ultimate success in aligning the interests of shareholders and managers. The measurement of this effect in relation to the specific contract design is therefore one of the major objectives of the empirical CG and ESO research.

The new approaches in the economic theory, the embracement of behavioral and speculative asset pricing and dynamic principal-agent models, to-

gether with the observed firm behavior, point to further areas of investigation within the traditional ownership-performance research. We now realize that the shareholders constitute frequently much more inhomogeneous and more speculative group, with sometimes conflicting interests.

The combination of incomplete equity compensation contract design and the existence of shareholder groups with diverse speculative objectives may result both in the opportunistic short-term managerial behavior and in the ultimate balancing of various interests through a coordinated longer-term financial and payout policy. Managers may therefore, on one hand, adjust some contract features to their own advantage, and, on the other, implement financial policies contributing to the durable success of the firm. While some cases of clear abuse can certainly be reported and the specification of compensation contracts is frequently not clearly linked to the firm-specific performance, the degree to which managers broadly derive excessive gains not justified by performance must be empirically demonstrated by measuring the comprehensive costs and benefits of their compensation and related financial policies. Like incentive measurement, this remains the main challenge of the empirical equity-linked compensation research. Only then should further legal and organizational improvements perhaps be advocated to rebalance the managerial power effects.

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