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An Investigation into Optimal Stock Option Compensation

**A thesis presented in fulfillment of the requirements for the degree of
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ABSTRACT

Throughout twentieth century, it has become increasingly common for executives to be remunerated with stock options, contracts which allow the recipient to buy company stock at a predetermined price, thus giving the incentive to maximize the stock price in order to increase the value of the stock option contract. Not only has stock option compensation become increasingly prevalent to executives at most major listed companies, but also to employees at all levels of the firm, both big and small. However, along with the growth in popularity, stock option compensation also became a topic of contention, not only among the general public, but among lobbyists, legislators and academics.

This thesis aims to provide a better understanding of stock option compensation practice, with a particular emphasis on the United States, where stock option compensation is most prevalent. The thesis is divided into three chapters: the first chapter deals with establishing a foundational understanding of stock option practice and possible drivers through investigating the literature on the history of stock option compensation practice in the US. The second chapter develops a holistic theoretical model of an optimal stock option compensation package to possibly explain some practice currently considered as excessive. Then lastly, the third chapter empirically tests the validity of possible drivers of executive stock option policy in recent times in an attempt to identify whether current practice is optimal or not.

The first chapter is primarily a literature review, covering a series of events over the history of stock option compensation in the US, ranging from its early beginnings in the early twentieth century until the present day. Included in the coverage of

significant events are: legislation impacting tax benefits for corporate and for recipients; “landmark” events such as the first case of “broad-based” option compensation resulting in companies following a standard business practice; trends in the stock market; academic theory of the development of agency theory which supports the use of tools such as equity based compensation, and the development of major option valuation models; the possible impact of accounting standards; and the possibly impact of major bankruptcies or unethical behavior directly or indirectly tied to executive stock option compensation.

The second chapter follows with a theoretical approach to understanding stock option compensation trends by analyzing the major benefits and costs associated with stock options. The model developed differs to most other existing optimization models as it does not focus on one set of benefits or factors, rather a more holistic approach is taken. Using a holistic approach, this model also helps explain how levels of compensation that are considered excessive under an optimisation model based only incentive benefits, can actually be optimal for the firm once other costs and benefits are incorporated.

The model also aims to provide an alternative explanation to the managerial power hypothesis to explain why the buoyancy of the market may be positively correlated with compensation levels. This is explained by the impact of the buoyancy of the market on the likelihood of stock option exercise, and the costs and benefits either unconditional, partially conditional or conditional on options being exercised. In addition, smaller companies are also found to benefit from stock options more than larger firms due to some of the unconditional benefits, in particular, the ability to

attract higher quality talent which can also help small firms fulfil untapped potential. Lastly, the model also provides useful insight into the appropriateness of using of foregone option premiums as the economic opportunity cost of granting stock options.

The third chapter aims to empirically test the impact of several factors brought up in Chapter One that may help explain changes in compensation that occurred at the turn of the century. These major factors analyzed are: 1) the bull market prior to and the bear market following the market crash of 2000, 2) changes in accounting standards for equity based compensation, and 3) possible public perception of corruption following several major bankruptcies associated with poor ethics in 2002.

Mixed evidence is found regarding the impact of market cycles. These findings include cycles to be linked to granting options out-of-the-money, a general inverse relationship with the levels of stock option compensation with the buoyancy of the market, expected for companies managing incentives, and finally there are indications companies ceased granting options based on poor company stock price performance prior to 2001.

Other findings indicate the possible influence of accounting standards on economic decisions as well as the broad impact of events surrounding 2001-2, even though they have no economic impact. On the one hand, decreases in stock option compensation levels is shown to be linked to accounting decisions, however, there is insufficient evidence to support the argument that firm-wide decision making to cease granting stock options completely was based on accounting decisions.

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