

# Impact of vesting periods on ceo decisions



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Corporate investment in Research and Development (R&D) and innovation are one of the important decisions for a CEO of any firm. Incentives such as stock options, bonuses, restricted stock options have an impact on CEO's decisions and sometimes leads to reduced corporate investment. In this essay I will discuss how vesting periods impact CEO investment decisions and managerial myopia/ short-termism. Since incentives are normally engineered into compensation pay schemes and incentives have an impact on investment behavior, it is likely that there is a connection between compensation schemes and investment decisions. In this essay I will also be explaining the principal agent problem, some of the key assumptions that underlie it, and the general solution along with its formula. An ideal compensation scheme/incentive system should encourage CEO's to take risky investments but not excessively risky decisions. Murphy explains that "The primary way that ... [common compensation] structures might encourage excessive risk taking is through asymmetric rewards and penalties; that is, high rewards for superior performance but no real penalties for failure." He also points to other explanations for excessive risk taking such as inappropriate performance measures. For example, in the years building up to Washington Mutuals collapse and acquisition by JP Morgan Chase, it rewarded its brokers for writing loans without considering whether borrowers will pay back, and paid high commission rates for selling more profitable adjustable rate mortgages. In this essay, I will be discussing a solution which will strike a balance between appropriate compensation schemes and prudent CEO investment decisions.

The principal agent problem theorizes that due to a separation of ownership from control between shareholders (principal) and CEO's/managers (agent) and because of moral hazard, they may have conflicting interests which do not align with the long-term performance of the firm. The first and most crucial assumption of this theory is that there is a separation of control from ownership. The shareholders are the owners of the firm and are different from the managers who manage the daily operations of the firm. The shareholders are considered as the principal and the managers are considered as the agent. The second assumption is that there is a conflict of interest between the principal and the agent. The shareholders will aim to maximize their profits through the firm's performance whereas the managers may try to maximize their personal benefits while disregarding the firm. The third assumption is that the firm's revenue depends on the managers efforts, higher the effort, higher will be the firm's revenue on average. But effort can be costly. Without a proper reward scheme, managers may look to put in as little effort as possible. The fourth assumption is asymmetric information. Shareholders are not in a position to be constantly monitoring managers actions. Even if it is possible, full monitoring would not be feasible and would be very costly. In addition, shareholders do not have the required knowledge to judge whether managers actions align with the firm's interest. The fifth assumption is that shareholders are likely to be less risk averse than managers. Shareholders can diversify their risk by investing in other firms in different industries whereas a manager's income is mainly from the firm that he/she controls. This makes managers more risk averse, and as a consequence they may choose safe projects with lower profits rather than riskier projects that could

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potentially yield high profits. The sixth assumption is that the firm's profits do not depend entirely on the managers efforts but also on the state of the economy. Some managers may work hard and make the right decisions but the poor performance of the economy leads to low profits, or some managers may not put in the required efforts but a booming economy leads to high profits. Therefore, it is not possible to infer a manager's effort just from looking at the firm's profits.

The general solution to the principal agent problem involves designing an incentive contract which encourages the agent to work within the best interest of the firm, or in other words, take actions that maximize the long-term performance of the firm. The first part of the solution involves aligning the managers interests with the shareholders interests by linking the managers pay compensation to the firm's overall profit such that the managers compensation varies with the firms profit. The second part of the solution is to incentivize managers to pursue promising risky investment projects by including an income guarantee independent of the state of the economy. That is, an optimal pay scheme should award the manager regardless of the firm's performance. This leads to a general compensation scheme which provides the solution to the principal agent problem:

$$S(e) = K + \alpha\pi(e)$$

Where  $S(e)$  stands for the total rewards that the CEO receives in exchange for the effort  $e$  that they put into the firm.  $K$  is the fixed income which is independent of the effort level, and  $\pi(e)$  is the firms profit.  $\alpha$  refers to the fraction of the firms profit that the CEO will receive. The second element of

the equation,  $\alpha\pi(e)$  is the variable pay. After re-arranging the firm's production function which is  $y = a + \varepsilon$ , the agent's total compensation which is  $w = s + b*y$ , and the cost of effort which is

$$c(a) = a^2$$

/a, we get:

$$a^* = b$$

This shows us that  $a^*$  which is the agent's optimal effort only depends on  $b$  which is the variable pay. In other words, the higher  $b$  is, the higher will be the agent's effort. Consequently, it is not the pay level which influences the CEO's decisions, but the structure of pay which influences their investment decisions. Pay level refers to the total amount of compensation that a CEO/manager receives and pay structure refers to the proportion of pay that is fixed and that is variable. One of the instruments that is used to incentivize top executives is stock options, but this is different from traditional stocks. Stock options are contracts which give the top executives the right to buy company shares at a pre-specified price for a pre-specified term (Murphy, 1999). The objective of stock options is to overcome the CEO's risk aversion and inducing them to take more risky investment projects. This is possible as stock options allow the CEO to make upside gains without limit but provides a floor limit to avoid losses. The structure of pay can sometimes have an impact on managers investment decisions. Ladika and Sautner (2014) found a link between managerial myopia and shorter vesting periods of stock options. Corporate long-term investments take a long time to complete and its revenues and earnings may not be visible in the short term.

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Thus, managers may undertake myopic actions that boost short-term performance, because they can sell their holdings or move to other firms before the cost of their decisions are realized. CEO's do not receive ownership of stock options until the grants vest, which occurs between a three to five-year period. Once options vest, executives are free to exercise them and sell the shares. Shorter vesting periods allow executives to sell their shares more quickly, increasing the chance of short termism/managerial myopia. Ladika and Sautner (2014) tested their hypothesis that long-term investments decline when stock options get close to vesting by investigating a historical period in the US. The Financial Accounting Standards Board (FASB) required all firms to expense their newly granted stock options and previously granted vested options, in the fiscal year 2005. FASB allowed firms to avoid accounting charges on previously granted options by accelerating these options to vest before the requirement took effect. More than 700 firms including 15% of S&P 1500 firms had accelerated most of their stock to vest immediately. Accelerating firms avoided an average accounting expense equal to 23% of net income. The researchers found that for a company with total assets of \$327 million, a shortening by 10% in the vesting period of a CEO's stock option led to a decrease in investment by about \$7.5 million relative to the industry average. This proved that the vesting period duration impacts CEO's willingness to invest in long run projects and leads to managerial myopia.

One of the possible solutions to excessive risk taking is to align the interests of both the shareholders as well as the creditors through deferred compensation, or alternatively called as inside debt. Inside debt refers to

schemes which delay the CEO's current year salary and bonus, rather investing it back in the firm at a fixed rate of return until retirement or even sometime after retirement. Inside debt forces the CEO to lose the same percentage from his deferred compensation pool as the debt holders' losses, which discourages the CEO to engage in excessively risky behavior, which reduces the possibility of going bankrupt and also reduces "go for broke" incentives during financial distresses. Consequently, CEO's with high deferred compensation and pensions are likely to take less risk in order to protect their future income cash flows, minimizing future defaults. The appropriate amount of inside debt depends on the type of agency problems – shirking versus risk shifting (Tung and Wang, 2010). Inside debt can be an important component of executive pay compensation especially for firms with high leverage, a high probability of default, and other severe risk-taking incentives (Tung and Wang, 2010). Sundaram and Yermack (2007) find that as the value of a CEO's pension increases relative to the value of their equity compensations, risk taking declines. Tung and Wang collected data about the compensation of bank CEO's from the Compustat ExecuComp database. Their results showed that the median bank CEO has a personal inside debt equity ratio of 0.078 and a bank relative incentive ratio of 0.010 which is far below the same figures for CEO's of non-financial firms. This suggests that CEO's take excessive risk partly because they have low inside debt-equity ratios. They also found evidence that in general, financial institutions with higher CEO inside debt-equity ratios before the financial crisis perform better, have lower risk exposure, and issue less risky loans during the crisis than those with lower CEO inside debt-equity ratios (Tung and Wang, 2010). But inside debt has its own weaknesses. When CEO's hold a large amount of

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inside debt relative to their equity investment in the firm, equity prices tend to fall while debt values tend to rise (Wei & Yermack, 2010). This reduces the overall enterprise value of the firm, as the gains by bondholders appear to offset the losses to shareholders (Wei & Yermack, 2010).

Another solution is claw back provisions, which are an effective means of deterring fraud and excessive risk taking by top executives (Jab et Henchoz, 2019). Claw backs are contractual provisions that require on the occurrence of certain events to return the bonuses paid to the top executives (London, 2019). Claw backs have shown to provide some benefits as there is evidence that previously implemented claw backs in the U. S have discouraged behavior that has led to long term consequences (Jebb et Henchoz, 2019). In 2011, a group of scholars at the University of Washington Foster School of Business analyzed 300 U. S firms that had used clabwbacks and found that these firms had more accurate financial reporting (Jebb et Henchoz, 2019). The Journal of Accounting and Economics published a study in 2012 which found that U. S companies with claw backs issued fewer restatements (Jebb et Henchoz, 2019). But the claw back provisions have weaknesses. This includes regional differences in laws, which can create loopholes that prevent enforcement. Also, if the provision is not drafted properly into the incentives contract it can have a detrimental effect on the CEO(London, 2019). This is because the principal-agent relationship is fragile and any lack of clarity will be construed against the principal, who drafted the clause (London, 2019). In some cases, the CEO may have spent the money, or transferred it to a spouse or a relative(Edmans, 2014). As Alex Edmans says,



“ trying to claw back a bonus paid prematurely is like shutting the barn door after the horse has bolted (Edmans, 2014).”

The reduction in corporate investment by top executives has caused CEOs to dismiss important projects and sacrifice the long-term performance of their firms. This leads us to construct the optimal compensation contract, which according to the principal agent problem is one that aligns the interest of the principal and the agent and also encourages the agent to take risk but not excessive risk. Equity incentives such as stock options has caused CEOs develop managerial myopia and focus on the short-term performances rather than the long term performances of the firm, which has impacted CEOs willingness to invest in long term projects. Some of the possible solutions are devices such as inside debt, which give equal importance to shareholders and debtholders interests, and claw backs which deter excessive risk taking. But, even these solutions have their own drawbacks. Claw backs can sometimes be difficult to collect and inside debt can reduce the enterprise value of the firm. After taking into consideration all of the above factors, it seems that an optimal compensation contract must contain some elements of all the devices that have been discussed.

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