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Pay for performance: What type of pay scheme is best for achieving business results?

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by

FERMIN AUGUSTO DIEZ

Submitted to Lee Kong Chian School of Business in partial fulfillment of
the requirements for the Degree of Doctor of Philosophy in General Management

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best solution in each situation. It is this philosophy that eventually led me to pursue this adventure.

ABSTRACT

Much has been written, for and against, about compensation as a driver of performance. Two main theoretical constructs deal with this subject: extrinsic theory, including agency theory, whereby money is a main motivator to performance, and intrinsic theory which proposes that money does not motivate, and in fact may hinder, performance. However, corporations spend considerable effort in designing compensation packages with the objective of linking remuneration to performance. Practitioners have developed a variety of mechanisms to deliver pay packages, but heretofore there has been no attempt to validate which, if any, of these various approaches is better able to drive performance. This study addresses these questions by engaging subjects in running a simulated lemonade stand for profit. Different groups of subjects were randomly assigned to one of fifteen pay conditions so that the amount of money they would receive for participating in the experiment depended on the results obtained in the simulation. These conditions were derived from standard pay practices including different Long Term Incentive (LTI) approaches, various pay mix alternatives, three different pay-for-performance delivery models and finally team vs. individual incentives. The results show that team incentives are significantly superior. However, no evidence was found for differences in results within each of the conditions; no LTI vehicle, pay mix variation or pay for performance model is better suited to drive performance. An additional finding links Prospect Theory to how incentives motivate performance. The study informs practitioners on the design

of incentive compensation programs and academics of the value of pay as a motivator

of business results.

STRUCTURE OF THE DISSERTATION

The dissertation is composed of six chapters.

Chapter 1, "General Introduction", sets the background for the research, including the current state of knowledge. It also sets the rationale and objectives of the study and its significance.

Chapter 2, *"Intrinsic vs. Extrinsic Motivation and Individual vs. Team Incentives"*, reviews the two sides of the motivation arguments as they relate to pay. In this chapter, we also review the literature regarding the comparison between Individual and Team Incentives and their comparative advantages in driving performance. We conclude this section with an understanding that the literature is inconclusive as to the role of pay mechanisms in driving business results.

Chapter 3, *"Incentive Compensation Models"*, explains in detail the four major approaches to developing incentive packages: 1) Long-Term Incentives, 2) Pay Mix variations, 3) Pay-for-Performance models, and 4) Individual vs. Team Incentives. These form the basis for the fifteen pay conditions in the experiment.

Chapter 4, *"The Impact of Pay Models on Performance"*, states the hypotheses of the study and explains the methodology used. This includes details on the lemonade stand simulation, data collection, robustness test and the interview protocols.

Chapter 5, *"Results"*, shows the outcomes of the simulations under each of the fifteen conditions. Statistical analyses illustrate the significance of these results and how these support the hypotheses of this research.

Chapter 6, *"Discussion of Results"*, elaborates on the differences in results under the different pay conditions. There is also a discussion on the implications of the results of the study on the academic question of pay as a driver of motivation as well as on the practical question of pay plan design. We also provide prescriptive recommendations for practice. In addition, this chapter includes a discussion of the limitations of the study as well as ideas for future research.

1   GENERAL INTRODUCTION

1.1 Challenges with the current incentive compensation environment

Much has been said - both for and against - about using incentives to drive business results. Despite this, there is surprisingly little research to guide either academics, or practitioners, on how different pay models affect decisions that lead to better company performance.

Executive compensation consultants are often tasked by remuneration committees (RemCos) of corporate boards to provide advice on developing an approach to pay for their company's executives to achieve better business performance. However, when it comes time to decide on a pay philosophy, these same board members fall back on the "evidence" of market data, which shows how and how much other companies of similar size or in the same industry pay their executives, but does not provide information on whether competitors' pay plans are effective in driving results. In the words of a RemCo chair, "Pay should not vary so much from year to year". An executive pay consultant summarized this state of affairs when he said: "Shareholders have their favorite plan types; Some like specific metrics, or specific vehicles and formulae. They tend to follow similar designs to competitor proxies." He went on to add: "RemCos don't always have the knowledge to make these decisions."

The inescapable fact that paying the same as competitors yields, at best, the same degree of motivation of the company's executives vis-a-vis the competition,

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rather than seeking competitive advantage, is somehow lost in the discussion. Instead of searching for a different approach which might lead to better performance, efforts are only channeled into determining Key Performance Indicators (KPIs), deciding the targets to be reached and the timeframe for their achievement, providing cash flow/tax effective vehicles for delivering pay, calculating competitive levels of pay at various levels of performance, ensuring compliance with regulations and staying close to existing parameters to avoid conflicts at the Annual General Meeting of Shareholders. There are often other considerations besides pay-for-performance. A RemCo chair explained it this way: "Pay [for performance] is not the only thing, retention is also an issue. The CEO might say: 'If you don't pay me at the 90th percentile I won't work so hard', to which we would answer: 'What part of your job will you not do?'". To the CEOs, the view is starkly different. One of them put it this way: "[Pay] can act as a de-motivator so [best to] aim for satisfaction/motivation as much as you can.". The HR executives focus on pay more to attract and retain executives. One of them indicated that "We want to retain first, then motivate to perform. Balanced with not encouraging risky behavior." Another HR Executive explained the process this way: "We rely on market benchmarks but we don't know (the) quality of the data. We just want to make sure we do not over/under pay."

In support of the idea that retention is a big part of executive pay plan design and implementation, Gao et al. (2015) found that, when a CEO leaves a firm, compensation for those left behind increases by an average of 46%.

From the perspective of Executive Pay advisors, it is not clear if incentive pay plans work as intended. One of them expressed doubts in terms of trying to create

homogeneous plans to motivate what is, in effect, a heterogeneous population: "'Designing for the herd' is the safest route both as a consultant and as a RemCo chair."

Companies constantly debate about the role that Long-Term Incentives (LTIs) should play in the overall employee Pay Mix, alongside Base Pay and Annual Bonuses. This debate is spurred by the various view-points from the different stakeholders involved. For instance, boards have an interest in maximizing return on pay and minimizing risk to their investment. This can be achieved by limiting the amount of fixed pay (which is a cost regardless of performance) and tying as much pay as possible to financial KPIs, such as Total Shareholder Return (TSR), particularly over longer periods of time. In this way, if the shareholder wins, he is willing to share with management, but if he is losing, management is losing as well. A RemCo chair stated it this way: "Without short-term there is no long-term as decisions made today have an impact 2-3 years from now. We must balance, but it's very difficult. Share price is often beyond management control." Consultants agree; in the words of one Executive Pay advisor, "[There is a] need to see if [the plan] moved the Long-Term financial needle beyond the 'rising tide' [of the market and industry] as management cannot control the share price".

Management often sees that share price movement (the main component behind TSR) is not always linked to the performance of the company, as industry and market factors play a role as well. For CEOs, plans should be "aligned with the creation of shareholder value, but in things [you] can control; you can't control the stock price. If

you provide consistent performance, the market should reward you in time. But it is 'over time'…"

This divergence in viewpoints sets up a classic confrontation in the boardroom, and consultants are often called in to provide a way to mediate this dispute. However, consultants have their own view of this situation, which is summarized by one of them as follows: "It's a mixed bag. Shareholders tend to look at industry/market comparisons and are happy if pay goes up and down with results. Boards look for simplicity in linking financials and payouts and staying out of the cross-hairs of the proxy folks. For Management, having Long-Term budgets as the core variable is a big issue, as gaming and business cycles take a toll on [potential] pay."

Companies also often struggle to find a balance between Individual Incentives and Team Incentives as a motivator of performance. Here, again, there is divergence of viewpoints. Whereas for the CEO it is straightforward, as the company's performance is also his personal performance, as soon as you go down one level, distinctions start to emerge between an individual's performance and the overall team performance. In the words of a CEO: "The more senior, the more team [based], but needs to be a mix." An HR Executive, however, differs from this notion: "We have no team incentives except the [overall bonus] pool is based on company results and [increases in] share price is all-of-Company as well."

For one consultant, the view is that there is "no real way to differentiate performance". In his view, "at the top [best to have] more team but balance [it] on individual performance." Furthermore, "All individual [incentives] could mean too much "kill all" behavior. Too much team [incentives] may foster freeloaders."

For RemCos, the view is that only the company's performance counts, and the entire senior management is there to ensure overall results are achieved. And yet, while agreeing with the company-based bonus pool, a RemCo Chair provided this caveat: "The pool is company-based and then [we] need to carve it out by individual. But, all individual Balanced Score Cards have a big "fudge factor" and, in fact, all RemCos fudge a little bit."

For individuals, the view is often that if he has performed his duties and achieved his individual results, this should be rewarded regardless of the company's outcomes. HR and compensation professionals wrestle with this problem constantly, as executives with great performance but low overall pay are at risk of leaving the company and joining competitor organizations.

In addition, Boards and, more recently, also regulators, worry about the effects of different Long-Term Vehicles as drivers of performance. In the minds of many, linking too much pay to performance has led management teams to seek high-risk-high-potential-returns strategies that have at times resulted in very negative effects. One of the outcomes of the recent global financial crisis was that regulators have all but dictated the amount of fixed- to variable-pay allowed and restricted the use of stock options as incentives (see, for instance, *FSB Principles for Sound Compensation Practices and their Implementation Standards* - http://www.fsb.org/wp-content/uploads/FSB-Fourth-progress-report-on-compensation-practices.pdf). A RemCo Chair described the situation as follows: "Executives only see upside and entitlement. There is very little clawback. Look at GE/Volkswagen. The guys that caused the problem all collected their bonuses and the

current ones are now punished. This is a huge issue of Pay-for-Performance. But what is the alternative?" An HR Executive offered this comment: "Boards worry a lot about shareholder activism, defensibility and governance, so they take less risks in the end on how to pay executives."

It would be interesting to verify that company risk-related betas did, in fact, decrease in those organizations that changed from stock options to other vehicles to reward long-term performance, or in those that reduced LTIs in the overall pay mix. The evidence on this point seems inconclusive (Cohen, Hall & Viceira, 2000).

Finally, HR heads all over the world search for the compensation "Holy Grail" that will allow their companies to find a pay-for-performance model that leads to higher attraction, retention and motivation of executives, and to hopefully achieve better business results. In an ideal set of circumstances, HR would like to come up with pay programs that deliver both to shareholders' as well as executives' objectives. However, quite often, HR is under pressure to find and keep executives, and not as much for delivering performance, which is deemed to be the executives' - and the CEO's - responsibility. Thus, HR executives have an inherent bias to side with arguments for "market data-based" compensation to discharge their "attract-retain-motivate" duties.

A recent article in the Economist put it well: "…executive pay is no fix. There is competition for talent, and firms are willing to pay up for it." And yet, an Executive Pay Consultant warns that "no one [has ever] benchmarked themselves to a position of market leadership".

1.2 Need for a research-based approach for incentive pay-for-performance models

The discrepancies in positions and approaches to the near-dogma of "Pay-For-Performance" is troubling. This is the motivation for this study: to apply scientific rigor to the question of how best to design Executive Pay programs to determine if they work at all, and which approach leads to better results. In short, to move from "market-based" to "research-based" advice.

The present study aims to find the "right" answer to the question "What pay scheme is best to achieve business results?"

1.3 Current state of existing research on incentive pay for performance

As will be detailed in Chapters 2 and 3 below, the literature has an abundance of evidence on pay for performance. However, the evidence is inconclusive on two counts: The first is the debate on whether money is an extrinsic motivator at all, or is it rather that individuals are intrinsically motivated. Chapter 2 focuses on this discussion. The second unresolved element in the literature is the impact that different pay mechanisms have on performance, if any. HR professionals, executive compensation consultants, remuneration committees of Boards, not to mention academics, spend considerable time and effort designing incentive pay programs, and yet the literature offers no clear research-based advice. We explore this question in Chapter 3.

1.4 Rationale and objectives of this research

The study aims to contribute in significant ways to both practitioners and academics by finding answers to the following questions:

- Do various types of LTIs affect achievement of business results differently? Which type of LTI provides the greatest incentive to performance?

- Does changing the pay mix (that is, the relative weight of fixed pay, performance bonus and LTI as a percentage of total pay) yield different results regarding performance? Which pay mix provides the greatest incentive to performance?

- Levine & O'Neill (2011) and Nalbantian et al. (2014) posit that, besides the traditional pay-for-performance model, there are three other pay-for-performance alternatives: Tournament, Membership and Bonding models. Are there differences in how these models affect performance? Which pay-for-performance model provides the greatest incentive to improve business results?

- Are there differences in performance if the incentives provided are team-based vs. individual-based? Or if they are provided in combination? Which approach, team, individual or a combination, provides the greatest incentive to improve performance?

1.5   Intended contributions to research and practice

The proposed study tackles these questions to provide research-based guidance to incentive plan design. Empirically derived data on the effectiveness of often-used pay schemes to motivate higher performance will be of great value to companies and academics alike.

1.6   Summary of chapter

Much has been said - both for and against - about using incentives to drive business results. Despite this, there is surprisingly little research to guide either academics, or practitioners, on how different pay models affect decisions that lead to better company performance. Despite efforts to produce evidence-based approaches to incentive compensation packages, the literature is inconclusive in its support for any of the currently popular compensation models' ability to yield better business results. This study aims to help close that gap in knowledge by conducting a simulated business game under a variety of pay conditions to determine if results in the game are affected by the pay condition used. This experiment can also help address the question of whether incentive pay design plays a role in intrinsic or extrinsic motivation.

Chapters 2 and 3 present a thorough review of the literature on pay plan design and their impact on performance. Chapter 4 describes the methodology of our experiment to address this question. Chapter 5 shows the results of the experiment and Chapter 6 concludes with a discussion of the results and the implications to academics and practitioners.

2   INTRINSIC VS. EXTRINSIC MOTIVATION

2.1   Literature review of extrinsic motivation

The most commonly cited theories on motivation, including expectancy theory, equity theory, and agency theory, focus on the nature of the exchange between the company and its employees. Many incentive compensation practices emphasize the importance of a fair exchange and, at the same time, employees are placed in jobs which are evaluated using a common set of compensable factors. This is done, in part, to let employees know the rules that govern the amount of pay expected in any given job. Under these theories, pay decisions focus on understanding the impact of employment exchange on motivation.

Expectancy theory argues that people behave as if they cognitively evaluate what behaviors are possible in relation to the value of rewards offered in exchange, and they choose behaviors that yield the most satisfactory exchange (Vroom, 1964).

Equity theory (Adams, 1965), also focuses on what goes on inside an employee's head. It argues that people are highly concerned about equity, or fairness, of the exchange process. Employees look at the exchange as a ratio between what is expected and what is received. Theorists assert that transactions are judged as fair when others around us do not have a more (or less) favorable balance between the give and get of an exchange.

Agency theory (Jensen & Meckling, 1976) asserts that employees are agents who enter an exchange with principals – the owners or their designated managers. It is assumed that both sides to the exchange seek the most favorable exchange possible

and will act opportunistically if given a chance. Compensation is a major behavioral driver – employers identify important behaviors and outcomes and pay specifically for achieving desired levels of each. Thus, employees who shirk their duties are penalized. In support of agency theory, Nyberg et al (2010) conclude that financial alignment between CEOs and Shareholders – via share plans primarily, is a predictor of subsequent shareholder return, although they also point out that there are other factors which can influence performance. However, in a meta-analytic study, Dalton et al. (2003) found little support for agency theory.

A meta-analytic study by Guzzo et al. (1985) finds that pay-for-performance schemes have a higher variability in terms of their impact on results than any other HR intervention; This means incentive programs can either help improve or cause damage to performance, and all points in-between.

Representing a somewhat different set of findings in the literature, Jensen & Murphy (1990) conclude that external public and private political forces restrict the effectiveness of pay for performance, and that the relationship of CEO pay and company performance declined over more than 50 years since the 1930's. Recent data from MSCI (2016), an independent research agency, supports this finding by showing that companies that award their CEOs higher equity incentives had below-median returns. Additionally, a study by Jouber (2013) concludes that CEOs who are over-paid are more likely to invest in R&D, which is in turn correlated with business outcomes.

2.1.1 Summary and critique

There are proponents on both sides of the argument as to whether incentive pay can motivate improved performance. While agency theory, expectancy theory and equity theory all would support this view, other researchers, such as Jensen & Murphy and Guzzo et al., have found the data to be inconclusive, and even contradictory. This can be interpreted as evidence that, at best, pay only works some of the time, or in specific circumstances, but not all the time in all circumstances. Hence, there is no conclusive evidence that pay programs consistently improve business results. In the next section, we explore additional theoretical constructs in support of the idea that extrinsic motivation may only work some of the time.

2.2   Literature review of intrinsic motivation

An experiment by Arierly et al. (2009) suggests that, when carrying out complex tasks, traditional pay-for-performance systems affect performance negatively. Daniel Pink's 2009 book "Drive: The surprising truth about what motivates us", summarizes a series of academic studies as well as practitioners' views of why incentives are not meant to be used beyond mechanical tasks. Pink cites more than forty years of research, starting with the work of Edward Deci (1971) on the failure of traditional monetary rewards to provide intrinsic motivation. The extension of the argument in Pink's book is that, by curtailing intrinsic motivation, pay-for-performance incentives also inhibit creativity and, therefore, performance. The implication of this line of reasoning on providing incentives for senior management is that higher base salary and lower variable pay in the mix should produce the best

results as this approach will not be an obstacle for finding better strategies to maximize business results (assuming the level of pay is both competitive and equitable).

Kahneman and Tversky's (1979) prospect theory would also suggest that subjects who find themselves ahead in profits would risk less and those who are in a losing position would risk more. Thus, intrinsic and extrinsic motivation arguments are less relevant, as being ahead or behind becomes more important.

2.2.1 Summary and critique

The literature on intrinsic motivation seems to indicate that, at best, incentive pay only works to increase performance under specific circumstances: Namely, repetitive tasks where working consistently and faster can lead to better results. Proponents of this view would then argue that executive incentives are not effective in driving performance based on decision-making. In the words of an HR executive: "No amount of incentive pay can make people smarter!" Proponents of intrinsic motivation, such as Pink, argue that incentives can even be counter-productive, which is in direct opposition to proponents of agency, expectancy or equity theories.

To complicate matters further, prospect theory (Kahneman & Tversky, 1979) would support the idea that incentives help to improve performance in the shape of an 'S' curve. As in the case of betting, the further ahead on results the less likely executives would be to exert further effort in pursuing better results. Conversely, the further behind executives are on results, the more likely they will take big risks driven by the incentive pay. This is similar to the findings of Sobel & Raines (2003) in the

context of betting on horse races, where the long-shot horse is bet on more often at the end of the race day.

2.3 Literature review of individual vs. team incentives

The literature is scarce with regards to comparisons between individual vs. team incentives to drive business performance. An interesting experiment by Montmarquette et al. (2004) showed that financial incentives do work in improving team results in accordance with Prendergast (1999). However, incentives alone are not sufficient to create cooperation among heterogeneous groups (Meidinger et al., 2003).

Taylor (2010) provides a practical overview of how to structure team incentives by considering variables such as pay mix and long-term incentives. However, his work only considers teams and not individuals and there is no data used for comparison. Rack et al. (2011) carried out a study of the effect of various team incentive plan designs on the performance of individuals in the teams. Their study considered equally shared rewards vs. rewards assigned according to the contribution of each member. They found both were superior to the control (no rewards tied to performance) but there was no difference between the two designs. A recent study by Ladley, Wilkinson and Young (2015) examined the effect of individual versus group evaluation and reward systems on work group behavior and performance under different task conditions. They found that group-based systems outperform individual-based and mixed systems, producing more cooperative behavior as well as the best performing groups and individuals in most types of interaction games.

However, their research did not explore the impact of various pay mechanisms. Gungor (2011) found that extrinsic motivation may be driven by financial rewards while intrinsic motivation may be best explained by non-financial rewards. While the driver of behavior is an important dependent variable, there was no attempt to look at the impact of various pay models on performance. Herpen, Praag & Cools (2005) investigated the effects of pay on performance. Their study showed a positive relationship between the perceived features of reward systems and extrinsic motivation. Furthermore, they concluded that intrinsic motivation is not affected by the design of financial rewards, but by promotion opportunities. Fu, Ke & Tan (2015) found differences in individual performance in an experiment involving repeated tasks when using team vs. individual set-ups. However, there is no mention of how rewards play a part in this outcome. On the other hand, Springer et al. (2012) found no effects of team-level pay for performance of teachers. Aime, Meyer & Humphrey (2010) argue that legitimation – as a mechanism of pay allocation among team members - is a framework by which team rewards affect outcomes at the team level. However, there is no examination of pay mechanisms nor a comparison against individual performance. Casting a negative view of how team incentives affect results, Danilov et al. (2013) show that unethical behavior may occur more often under team incentives than under individual incentives.

2.3.1 Summary and critique

There is a general consistency in the literature regarding team incentives working to drive performance, but there are very few data points comparing individual incentives to team incentives as drivers of performance.

2.4   Summary of chapter

In this chapter, we review the existing literature regarding incentive pay as motivators of performance on three different fronts: extrinsic motivation, intrinsic motivation and individual vs. team performance. Under the extrinsic motivation category, we explore agency theory, equity theory and expectancy theory as possible explanations in support of pay-for-performance. However, we also review additional literature where the effectiveness of pay-for-performance cannot be taken at face value as, at a minimum, other things can be at play.

We then review the literature on intrinsic motivation, which concludes that incentives may be counterproductive in attempting to motivate complex tasks. We subsequently look at prospect theory, which suggests that, when people are ahead, incentives may motivate them to not continue to try and improve performance, whereas when people are behind targets, incentives may work towards making individuals more open to taking risks.

We find thus that the literature to date on this topic is inconclusive as a guide to designing effective pay-for-performance plans for executives.

3   INCENTIVE COMPENSATION MODELS

3.1   Long Term Incentives (LTI) Types

Broadly speaking, there are three "generic" types of LTI: Stock Options, Stock Grants and Performance Shares. The literature cites many instances of LTI's impact on behaviour as a means to finding better strategies to achieve business results, in a view contrary to intrinsic motivation. Several studies attempt to equate innovation with positive business outcomes using LTI as an incentive mechanism. For instance, Bulan & Sanyal (2011) find that paying executives via stock-based or stock-option based plans is correlated with patenting. Yet they caution that innovations tend to be smaller, safer and incremental rather than transformative. This last point is also the conclusion reached by Kraft (2013) in his paper. Fu (2012) states that both short-term and long-term incentives have a positive correlation with innovation, but that LTI had the stronger correlation. Manso (2011) finds that the optimal pay scheme involves stock options with long vesting periods, coupled with repricing and golden parachutes. Lerner & Wulf (2007) argue for granting stock options to heads of R&D to spur innovation in firms. A study by Gamble (2000) argues that as ESOP stock concentration increases, management will likely behave in a risk-reducing manner and decrease its commitment to innovation. Yanadori & Marler (2006) add that granting stock options with longer vesting periods is a way to increase the time horizon of performance and, in turn, spur innovation. In a very interesting study on the psychology of incentives, Pepper & Gore (2013) conclude that long-term incentives are not in fact an efficient form of reward. Rappaport (1999) explains the

issues surrounding shares as a poor mechanism for rewarding executives, mainly that share price movement has only a weak correlation with management actions.

Those that advocate the effectiveness of intrinsic motivation, in line with Pink's view that extrinsic motivation can be detrimental to results, would likely agree that share grants would produce the best results when compared to other types of LTI as they have no performance ties and thus lower extrinsic motivation.

Below, we explain how each of the compensation models work in the corporate environment (The definitions for Stock Options, Stock Grants and Performance Shares, were culled from Investopedia.com, accessed on March 7, 2017).

3.1.1 Stock Options

A stock option gives the option holder the right to buy a certain amount of company shares at a predetermined (strike) price for a specific period. Employees typically must wait for a specified vesting period to pass before they can exercise the option and buy the company stock, because the idea behind stock options is to align incentives between the employees and shareholders of a company. Shareholders want to see the stock price increase, so rewarding employees as the stock price goes up over time guarantees that everyone has the same goals in mind (http://www.investopedia.com/terms/s/stockoption.asp).

3.1.2 Stock Grants

Stock grants (or restricted shares) refer to shares of stock whose sale or acquisition is subject to specific restrictions laid out by the issuing company and

agreed upon by the eventual owner of the restricted shares. This means that the restricted shares issued by a company are not fully transferable to the person receiving the stock until certain conditions or restrictions are met. Once the restrictions or conditions have been satisfied, the stock is no longer restricted and can be transferred to the intended person receiving the stock. These restricted shares are normally used to offer employees alternative compensation beyond their salaries. When a restricted share is issued to an employee in the form of employee compensation, the conditions that need to be met are normally based on continued employment for a specific number of years (http://www.investopedia.com/terms/g/grant.asp?ad=dirN&qo=investopediaSiteSearc h&qsrc=0&o=40186).

3.1.3 Performance Shares

Performance shares, in the case of stock compensation, are shares of company stock given to managers only if certain company-wide performance criteria are met. The goal of performance shares is to tie managers to the interests of shareholders. Note that in the case of performance shares, the manager receives the shares as compensation for meeting targets (http://www.investopedia.com/terms/p/performanceshares.asp?ad=dirN&qo=investop ediaSiteSearch&qsrc=0&o=40186).

3.2 Pay Mix

As per the interviews of various stakeholders in Chapter 1, in pragmatic terms, companies wanting to increase performance via incentives generally attempt to do so by creating a mix of pay elements (mainly focusing on base pay, annual bonus and LTI). Therefore, an important question when designing compensation packages to drive performance is: "how much weight should be assigned to each component of the pay package?" The literature offers several studies in this respect; unfortunately, some of the findings are contradictory. Anderson, Banker & Ravindram (2000) indicate that increasing the weight of stock-options (e.g. LTI) in the pay mix had a positive effect on performance. Their study, however, is limited in terms of the pay mix variations studied. These authors bring up the possibility of reciprocal effects between pay and performance, thus casting doubt on the direction of causality between these two variables. Wheatley & Doty (2010) find that implementing a strategy focused on developing new ways to compete can yield better results in the presence of a variable pay plan, and specifically a high short-term bonus/low LTI mix. Ericson (2011) states that LTIs are positively correlated with performance if "well-designed". The author, however, leaves the question of pay mix open to interpretation. Pack & Sturman (2012) find that external competitiveness and pay mix have a higher level of impact on performance than LTI amounts. These authors find that increasing the weight of the annual (e.g. short-term) bonus and decreasing the relative weight of LTIs, has a higher impact on performance. But their proposition is tested only within a narrow band. Barros & Lazzarini (2012) extend this idea by

indicating that, as HR policies go, promotions yield better results than pay and, their study concludes, additional incentives only have a marginal impact on results.

To simplify pay mix, we differentiated payments into three categories: Fixed pay (FP% is the % of the total pay mix represented by Fixed Pay), bonus (B% is the % of total pay mix comprised of Bonus pay) and LTI (LTI% is the % of total pay mix comprised by Long-Term Incentives). Ederer & Manso's original experiment already includes an all base-pay "fixed wage" (100/0/0) model, an all bonus "pay for performance" (0/100/0) model and an all LTI "exploration" (0/0/100) model. In our experiment, we compared the effects of four different, more realistic, pay mixes that incorporate all three elements in the package, but in varying proportions. We labeled these the **"equal"** model (33.3/33.3/33.3), the **"balanced"** model (50/25/25), the **"short-term focus"** model (50/50/0), and the **"long-term focus"** model (50/0/50).

3.3   Pay-for-Performance Models

A 2013 study by the HR consulting firm Mercer, described in a recent article by Nalbantian et al. (2014), indicates that, besides the traditional pay-for-performance model based on annual incentive bonuses against pre-determined goals, there are at least three other models of pay-for-performance in use by companies: The Tournament Model, the Membership Model and the Bonding Model.

3.3.1 Tournament Model

The *tournament model* was introduced by Lazear & Rosen (1981). This approach maintains that pay differentials by hierarchical level act as a motivator for lower level employees to perform in order to be promoted and thus be entitled to

greater pay. A typical example of this approach is found in professional service firms, where many associates strive to achieve "partnership level" to gain higher pay. In other words, "Executive pay [level] serves to motivate those below" to work harder so as to be promoted (Levine and O'Neill, 2011).

3.3.2 Membership Model

The *membership model* (Akerlof & Yellin, 1986) is based on this Nobel-winning economists' concept of "efficiency wages". This model simply states that the use of base pay above market rates can lead to increased productivity if the alternative is to lose one's job. A recent PowerPoint deck by Netflix' HR department which has gone viral on the internet (http://www.slideshare.net/reed2001/culture-1798664) describes how a company effectively uses this model. In this deck, the company clearly says they only want "star employees" that will be paid as much as it takes to keep them with the company, but when individual results are not there, they are to be terminated and provided with "a generous severance package".

3.3.3 Bonding Model

The *bonding model* derives from the ideas of another Nobel-laureate, Gary Becker (1964). The tenet of this model is to provide greater pay increases later in an employee's career, once a history of good performance has been established. An example in Levine & O'Neill (2011) describes how a financial institution shifted its pay philosophy to "bond" their veteran employees after analyses of their internal data

revealed that each year of additional tenure of their workforce translated into millions of dollars of revenue.

3.4 Individual vs. Team Incentives

The literature on LTIs is unclear as to whether the incentives they study are for individual or team (e.g. corporate results) targets. The subject of providing incentives for the achievement of individual or team goals has proponents on both sides of the spectrum. However, a characteristic of LTIs is that, if provided as part of pay-for-individual performance, it will encompass both individual as well as team (overall corporate results affecting share price growth) incentives. There is a separate line of research on goal setting (for example Locke & Latham, 2002) that talks about how best to set goals but does not go as far as the linkage between goal setting and type of pay model as joint drivers of performance. Because of this uncertainty in the literature, there is confusion on whether companies should set - and reward for - individual or team performance targets.

3.5 Robustness test

Ederer & Manso originally tested for risk aversion of their subjects in their experiments. To check if our results hold under different cultural conditions, we ran a separate sample of the Stock Option condition in South Africa.

3.6 Summary of chapter

This chapter described the various types of pay-for-performance models typically found in senior management compensation packages. We focused on three

standard types of share-based incentive plans: Stock Options, Share Grants and Performance Shares. We also looked at pay mix as a variable, whereby different weights are assigned to fixed pay, short-term bonus or long-term incentives. Three alternative pay-for-performance models were also reviewed: The Tournament model, the Membership model and the Bonding Model. Finally, we reviewed the context surrounding individual vs. team-based pay and blended approaches. In the last section, we described the robustness test around country culture.

Once again, as was the case with extrinsic vs. intrinsic motivation, we find that the literature is inconclusive as a guide to design executive compensation plans.

4   THE IMPACT OF PAY MODELS ON PERFORMANCE

4.1   Hypotheses development

Given the many, often contradictory, views in the literature regarding the effectiveness of incentive pay in general, and Long-Term Incentives (LTI) specifically, we postulate that there will be no significant differences among the three LTI models.

- H1: There will be no difference in performance among the three LTI conditions

We also postulate that in our experiment, in line with the incomplete and somewhat conflicting views on pay mix, there will be no difference in performance under any of the pay mix conditions.

- H2: There will be no difference in performance among the various pay mix conditions

All three Pay-for-Performance models can be said to be affected by risk aversion if fear of losing leads to conservative decisions. In fact, to some degree, all three alternative models rely on sustained performance to achieve greater rewards, but coupled with the distinct possibility of failure if results are not sustained over a relatively shorter period. In this respect, all three models are prone to be affected by risk aversion as, in theory at least, not being promoted one year does affect the probability that the employee will never get promoted. Ederer & Manso added this variable ("attitude towards risk") to their experiments and found that risk-averse individuals tend to perform less well under standard pay-for-performance conditions.

However, the impact was not significant under the fixed-wage and the LTI models. In line with the above discussions, we hypothesize the following:

- H3: None of the three alternative models will yield better results than the other models

To distinguish the effect of individual vs. team goal setting, and in line with the existing literature, we postulate that the impact of incentives will be different if the goals are set in terms of individual targets or team targets. As a result, we hypothesize that under any model:

- H4: Setting team incentives instead of individual targets will yield better results

Note that in our experiment we expect to find alignment with prospect theory, as the pay approach used will influence the risk behaviors observed when an individual is ahead or behind profits. Said another way, risk assessment takes into consideration the rewards the individual will derive and the likelihood of being rewarded or not under each condition. Given this argument, we hypothesize that:

- H5: Under any condition, individuals ahead on results will tend to become more risk-averse,
- H6: Under any condition, individuals behind on results will tend to become more risk-prone.

4.2   Methodology

In the sections below we describe the rationale and the steps followed in conducting this experiment.

4.2.1 Ederer & Manso

Ederer & Manso (2013) created an experiment aimed at testing if decisions between exploring new approaches and exploiting existing approaches (and, by extension, on business outcomes), would change under three different pay conditions. In their experiment, subjects are tasked with running a lemonade stand for twenty periods. For each period, they must decide on location, color, formulation and price to maximize profits. In making each of their twenty choices, subjects can fine-tune the current operation (as "inherited" from the prior manager) or can devise a new strategy by making decisions on each of the four parameters. Subjects were paid either a fixed wage for all periods, a profit-sharing bonus, or LTI calculated on the profits earned in the last ten periods. This LTI design allowed individuals to "fail with no cost" in the first ten periods as they search for an ideal strategy to increase profits. Their results showed that 80% of subjects under the LTI pay scheme (vs. 60% for the fixed pay scheme and 40% for the bonus pay scheme) ended in the "right" lemonade stand location after the twenty periods. Their paper also makes the point that an individual's risk aversion profile moderates this effect.

Our proposed experiment follows from Ederer & Manso's (2013) enlightening study on different approaches to pay and their effect on innovation. One of the main findings of their study is that fixed pay models yield less innovative decisions than more Long-Term pay models. Their original experimental design was very elegant and effective, and they found marked differences in how various types of pay approaches motivate subjects to look for more profitable alternatives in improving performance. The authors concluded that subjects paid with a combination of Long-

Term Incentives (LTI), coupled with Golden Parachutes, produce the best outcomes. The results are compared against subjects who were paid either fixed wages or provided incentives under a bonus/commission scheme. These findings support the notion that the impact of incentive programs is linked to their design (Gneezy et al., 2001). This is a very important result that goes against other findings in the literature suggesting that incentive pay is effective in cases where the tasks are repetitive (for example, Lazear, 2000; Shearer, 2004). Furthermore, their results also contradict other studies supporting incentives as inhibitors by motivating speed of repetition instead of the search for innovative ways to improve performance (for example Pink, 2009).

The work of Ederer and Manso, while elegant and insightful, had three significant limitations in the context of the effectiveness of pay mechanisms. The first is that they equate innovation with business results, as they were mainly interested in studying the former variable in their research. A second limitation is that only one type of incentive (Bonus or LTI) was used at a time, whereas in practice, companies tend to use a combination of fixed wages plus short-term and long-term incentives to pay their employees (Nalbantian et al., 2014). Another limitation is that their research studied the effect of incentives on individual subjects only. Nalbantian et al. (2014) contend that common industry practice is to simultaneously have both individual and team incentives. In fact, one can argue that many of the papers about the impact of incentives are based on team incentives only (for example, Yanadori & Marler, 2006). In the conclusion to their paper, Ederer & Manso themselves suggest that

compensation package design and how other pay approaches can impact business results are possible areas for future research.

We maintained roughly the same experimental design (we had access to the software and all instructions) from the original Ederer & Manso study described earlier, but introduced pay conditions involving LTI, combinations of pay mix, pay for performance models and team based compensation and multiple combinations of pay mix.

In summary, subjects were asked to run the lemonade stand for twenty periods, asked to make decisions on price, location, color and formula, and paid according to the profit results of the 20 runs. This part is identical to the execution of the Ederer and Manso study. However, we changed the pay mix conditions to test each of our hypotheses. (see appendix 7.4 for sample instructions).

Each of the following sections below explains the logic in the design of the pay conditions for the experiment. It must be noted that, in the team conditions (the last five listed below), we run the same Stock Option (SO) condition but in teams of two subjects instead of individually. We set up five conditions to do this test: Team incentives with separate goals, Team incentives with shared goals, Team incentives with blended goals, Blended team incentives weighted towards individuals, and Blended team incentives weighted towards teams. Results are measured as either the sum of their individual results, or the average of the combined average profits per period, as described below.

4.2.2 How we re-created the pay conditions for the experiment

The sections below detail the methodology used to emulate the various pay conditions and the formulae used to calculate the incentive fees. Please note that, in all cases, payout was capped at SGD30.00, in line with common business practices where incentives are often capped.

4.2.2.1 Stock options (SO)

The original Ederer & Manso LTI payout was in the form of a stock option whereby the payout was equivalent to 50% of the profits in the last ten periods, after the "vesting period" of ten periods. We maintained this LTI approach as an equivalent to stock options whereby the subjects were paid 50% of the excess profit for the last 10 periods. This is equivalent to a common business valuation formula whereby companies are valued as a multiple of revenue.

4.2.2.2 Stock Grants (SG)

Under this condition, we assume that the subjects are granted shares with a value of 25% of cumulative profits which increases/decreases in price according to the results in each period (again, akin to a revenue multiple in business valuations). Note that, unless the lemonade stand has zero profits, the shares always have a value (even if profits fall below the initial profit level), whereas in the stock option condition, if there is no increase in profits, and thus no increase in share price, the incentive (fee) value is zero.

4.2.2.3 Performance Shares (PS)

Performance shares are like share grants, including the 25% of profits valuation, except they have a multiplier effect if certain goals are met/missed. If the financial target is achieved, the shares vest at a higher rate than granted (1.5x of the number of shares granted). If the threshold target is missed, then the vesting multiplier is 0.5x. To receive a payout under this condition, the initial share grant (equivalent to the average expected fee of S$10.00) is multiplied by 0.5x if profits do not increase by a minimum amount per period, by 1.0x if profits are within a target range per period and by 1.5x if average profits exceeds the target range per period.

Note that awards are calibrated such that, at target average performance (profits are within the target range per month), the payouts are roughly the same under all three conditions, to minimize effects due to the size of the payout.

4.2.2.4 Equal (EQ)

The "Equal" model (33.3/33.3/33.3) allocates the incentive fee by splitting it into three thirds as follows: one third (33.3%) in fixed pay (SGD3.33), one third in a bonus (50% of the cumulative profits above 90), and one third in LTI (with the same formula as Stock Options above).

4.2.2.5 Balanced (BAL)

The "Balanced" model (50.0/25.0/25.0) splits the payout into half fixed and half variable, at target. It follows the "Equal" model except the distribution is one half fixed pay (SGD5.00), 25% bonus and 25% LTI.

4.2.2.6 Short-term focus (ST)

The "Short-term" focus model (50/50/0) also splits the payout into half fixed and half variable, except in this case, the variable portion is only in the form of a bonus with no LTI. This model emulates what company employees not eligible for LTI would receive.

4.2.2.7 Long-term focus (LT)

The "Long-term focus model (50/0/50) follows the same logic of a 50/50 split between fixed and variable pay, except the 50% variable is entirely provided as LTI.

These variations in pay mix were designed to test if, in the context of compensation plan design, shifting the balance of payout in any one direction would impact performance.

There may be other possible mixes (e.g. 25/50/25 or 25/25/50), but the ones we used give us an indication of the direction of the possible effect.

4.2.2.8 Tournament model (TOUR)

The participants were initially told that pay for the experiment is a pre-specified amount (10 Singapore Dollars). However, if their performance was good over each five-period cycle, they would receive a promotion increase of 5 Singapore Dollars. Good performance is defined as profit increases for the periods 1-5, 6-10, and 11-15.

4.2.2.9 Membership model (MEM)

Participants were told that the pay is 10 Singapore Dollars for the experiment but that the pay would go up to 25 Singapore Dollars if their average performance stays above target in any five consecutive (non-overlapping) periods. However, they will be "terminated" (no further results count beyond this point) if their performance drops below this number in any subsequent five consecutive periods.

4.2.2.10   Bonding model (BOND)

Participants were told they will receive SGD 10.00 for the first ten periods, and another SGD 10.00 for the last ten periods. However, they were advised that their pay would increase to SGD 15.00 for the last ten periods if their performance on the first ten periods exceeded initial profits.

4.2.2.11   Team incentives with separate goals (IG)

Each of the two team members is measured separately. The payout is calculated for each team member as per the SO condition above.

4.2.2.12   Team incentives with shared goals (TG)

The results of the two team members are averaged and payouts are earned and paid as per the SO condition to each member equally given the combined results.

4.2.2.13   Team incentives with blended goals (50/50)

Each team member is measured by weighing the individual results with the average team results using a factor of 50% individual and 50% team results. Note that, in this case, the individual with the better results receives a higher payout than the individual with the lower results for the experiment.

4.2.2.14   Blended team incentives weighted towards individuals (75/25)

This is the same as 4.2.2.13 above, except greater weight (75%) is given to the individual results then the team results (25%)

4.2.2.15   Blended team incentives weighted towards teams (25/75)

As per above except the greater weight in this condition is given to the team results (75%)

4.2.3 Robustness test

We ran a sample of 24 subjects in South Africa, using the SO model.

4.2.4 Sample

We had a sample of 510 university students (a mix of undergraduates, MBA students and Executive Education attendees) from various universities in South East Asia. As mentioned earlier, we had an additional 24 subjects in South Africa for the robustness test. Table 1 below summarizes the experiment samples for each condition.

Table 1: Sample Size by Condition

Experiment/Condition	Sample Size
LTI Types (3)	83
Pay Mix (4)	113
Pay-for-Performance Models (3)	72
Individual vs. Team Incentives (5)	242
Total	510

4.2.5 Data collection procedure

The subjects were all university students who were invited to participate in this research. When they were invited, they were told they would be participating in a research experiment about how pay impacts performance. The students were also told in the invitation that their fee for participating in the research would be determined by their results in the game, and that they could earn an average of 10 Singapore Dollars, with as little as SGD 0.00 and as much as SGD 30.00.

The experiment was conducted over several sessions. In each session, we had as few as 15 participants and as many as 78. At the beginning of each session the participants were asked to sign an informed consent form, which explained the nature of the research and the process involved. Once they had agreed to participate, they were provided with an instruction form, which is in all respects identical to the one used by Ederer & Manso, except in the description of the pay conditions (see appendix D). The instruction forms, wherein participants received different conditions of the stimuli, were randomly distributed. Any one participant had an

equal probability of receiving any of the instruction forms and thus could be assigned randomly to any of the conditions. When given the instructions, they were reminded that their fee would depend on their results and that they were to read carefully the specific pay condition under which their pay would be calculated. Once the subjects were finished reading the instructions and asked any clarifying questions, they were provided with the answer sheets and the URL to access the game and begin the experiment.

At the end of each session, students were debriefed as to the nature of the research, and provided with answers to any additional questions. As a final step, their pay was calculated and paid out.

The data was subsequently entered in a worksheet and validated with a research assistant to ensure no errors were made in transferring the data to the statistical software for processing of the results.

4.2.6 Measures: possible results of the business simulation

The table below summarizes the minimum and maximum possible results of the lemonade stand simulation given various combinations of the variables. Note that the minimum result is zero and the maximum 200.

Table 2: Possible results of the lemonade simulation

Location	Color	Content	Result (Max)	Color	Content	Result (,Min)
Business District	Green	Sugar : 1.5 Lemon : 7.5 Price : 10	87.5 P(67.5)	Green	Sugar : 10 Lemon : 1 Price : 1	0 P(0)
	Pink	Sugar : 1.5 Lemon : 7.5 Price : 7 or 8	77.5 G (97.5)	Pink	Sugar : 10 Lemon : 0 Price : 1	0 G (0)
School	Green	Sugar : 9.5 Lemon : 1.5 Price : 2.5	140 P(200)	Green	Sugar : 0 or 1 Lemon : 9 or 10 Price : 9 or 10	0 P(53-65)
	Pink	Sugar : 9.5 Lemon : 1.5 Price : 2.5	200 G (140)	Pink	Sugar : 0 Lemon : 10 Price : 10	47 G (0)
Stadium	Green	Sugar : 5.5 Lemon : 5.9 Price : 7.5	59.8 P (59.75)	Green	Sugar : 0 Lemon : 0 Price : 0	50.75 P (50.7)
	Pink	Sugar : 5.5 Lemon : 5.5 Price : 7.5	59.95 G (60)	Pink	Sugar : 0 Lemon : 0 Price : 0	50.7 G (50.75)

4.2.7 Analytical procedures

The data was processed via SPSS to determine the statistical significance of the results. The analytical procedures involved descriptive analysis, ANOVA, Levene's test for equality of variances, and multiple comparison's using Tukey's HSD test. The use of each of these is noted in the tables for the results in the next chapter.

4.2.8 Pre/post Experiment Interviews

In the preparation of this work, we carried out several interviews with a variety of stakeholders involved in making pay-for-performance decisions in listed companies to get a first-hand account of the realities on the ground when making these compensation decisions. We interviewed fifteen individuals (ensuring we would have at least two per category of stakeholder; see below the categories of stakeholders) and split the interviewees so that approximately half of them were

interviewed before the results of the experiment were known. The rest of the interviews were conducted after the results of the experiment were known, to gather the stakeholders' opinions on the outcome and its implications for plan design.

We interviewed four types of stakeholders:

- Board Remuneration Committee Chairs: We believe that these committee members are competent to comment on these topics as they make decisions on Executive Pay for their companies.

- Chief Executive Officers: As the recipients of Executive Pay and, in turn, often tasked with communicating the compensation plan to the rest of the organization, CEO's are believed to be credible informants on this topic.

- Heads of the Human Resource (HR) function: since they are responsible for implementation and, in many ways, must deal with the good or bad consequences of the plan design, we believe that HR heads would be credible commentators on these topics.

- Executive Compensation Consultants: As professionals that routinely analyze and design compensation plans, and their link to corporate and individual performance, and provide advice on these matters to board Remuneration Committees, senior management and Heads of HR, this group would seem ideally suited to comment on these topics.

Please see the Appendices for a list of interviewees and the questions asked both pre- and post- experiment.

5   RESULTS

5.1   LTI Types

Average results at the end of the simulation (Period 20) under each of the three LTI conditions (see Table 3 below) ranged from 124.88 for the Stock Options (SO) condition, to 140.26 for Performance Shares (PS).

Table 3: Average Results @ Period 20 for the LTI Conditions

Condition	Average Result @ Period 20
SO	124.88
SG	139.31
PS	140.26

However, the differences in results were not statistically significant as indicated in Table 4 below.

Table 4: Multiple Comparisons - LTI

Significance			
	SO	SG	PS
SO	=		
SG	.998	=	
PS	.996	1.000	=

5.2 Pay Mix

Average results at the end of the game under each of the four Pay Mix conditions (see Table 5) ranged from 126.03 for the Equal (EQ) condition, to 149.18 for the Short-Term mix condition (ST).

Table 5: Average Results @ Period 20 for the Pay Mix Conditions

Condition	Average Result @ Period 20
EQ	126.03
BAL	137.51
ST	149.18
LT	131.99

However, the differences in results were not statistically significant as indicated in Table 6 below.

Table 6: Multiple Comparisons – Pay Mix

Significance				
	EQ	BAL	ST	LT
EQ	=			
BAL	1.000	=		
ST	.882	1.000	=	
LT	1.000	1.000	.984	=

5.3 Pay-for-Performance Models

Average results at the end of the game under each of the three Pay-for-Performance conditions (see Table 7) ranged from 127.4 for the Tournament (TOUR) condition, to 142.60 for the Membership condition (MEM).

Table 7: Average Results @ Period 20 for the

Pay-for-Performance Conditions

Condition	Average Result @ Period 20
MEM	142.60
BOND	130.11
TOUR	127.54

However, the differences in results were not statistically significant as indicated in Table 8 below.

Table 8: Multiple Comparisons – Pay-for-Performance

Significance	MEM	BOND	TOUR
MEM	=		
BOND	1.000	=	
TOUR	.999	1.000	=

5.4 Team Incentives

Average results at the end of the game under each of the five Team Incentives conditions (see Table 9) ranged from 149.01 for the Separate Goals (IG) condition, to 159.11 for the Team Goals condition (TG).

Table 9: Average Results @ Period 20 for the

Team Conditions

Condition	Average Result @ Period 20
IG	149.01
TG	159.11
50/50	156.86
75/25	151.55
25/75	156.25

However, the differences in results were not statistically significant as shown in Table 10 below.

Table 10: Multiple Comparisons – Team Incentives

Significance	IG	TG	50/50	75/25	25/75
IG	=				
TG	.999	=			
50/50	1.000	1.000	=		
75/25	1.000	1.000	1.000	=	
25/75	1.000	1.000	1.000	1.000	=

Average results at the end of the game under each of the four conditions (see Table 11) ranged from 133.08 for the Pay-for-Performance models, to 154.66 for the Individual Vs. Team conditions.

Table 11: Average Results @ Period 20 for the Four Conditions

Condition	Average Result @ Period 20
LTI	138.18
Pay Mix	135.85
3 Models	133.08
Team	154.66

The results in this case were significant at the .002 level (See Table 12), indicating that Team Incentives do yield better outcomes than any of the individual pay models.

Table 12: Multiple Comparisons among the Four Conditions

Significance	LTI	Pay Mix	3 Models	Team
LTI	=			
Pay Mix	.981	=		
3 Models	.881	.978	=	
Team	.010	.002	.002	=

Average Result All Individual: 136.03	Average Result All Team : 154.66	Significance: .001

5.5 Robustness Tests

Results for the robustness test in South Africa (ZA) showed no significant difference in results vs. SO, indicating that culture is not a factor in the results.

Table 13: Results of the Robustness Test

Average Result SO: 124.88
Average Result ZA : 153.13
Significance: .599

5.6 Additional Analyses

5.6.1 Efficiency of Rewards

We tested the efficiency of rewards plans by calculating the "Return on Rewards (RoR)" of each condition. We did this in two ways: First, by subtracting the ending profit at period 20 from the starting profit of 90, and dividing the result by the incentive (fee) paid. The second analysis was performed by calculating the average result for all 20 periods, minus the initial profit of 90, and dividing by the incentive paid. The first test measures the RoR at the last period. Whereas the second analysis tests for the RoR of a one-time incentive to drive results for all the 20 periods.

Table 14 below shows the results. LTI Plans are cheaper at P20, but not for the average of the 20 periods, where the Three Performance Model had an edge. However, as an average result, LTI was the most negative and no individual incentive had a clear advantage, with the three pay-for-performance models rating highest.

Table 14: Efficiency of Rewards

Condition	Sample	Efficiency - P20	Efficiency – Avg 20 Periods
SG	25	7.10	1.20
SO	33	3.47	0.01
PS	25	7.09	(8.68)
TOTAL LTI	83	5.65	(2.25)
EQ	27	0.78	(1.27)
BAL	24	5.56	2.96
ST	27	6.37	2.36
LT	35	3.80	0.95
TOTAL PMIX	113	4.07	1.18
TOUR	25	3.27	0.87
MEM	22	5.23	2.91
BOND	24	4.70	0.75
TOTAL 3 MODEL	71	4.36	1.46
TOTAL INDIVIDUAL	267	4.64	0.19
IG	50	2.29	1.08
TG	50	3.46	1.19
50/50	50	2.81	1.42
25/75	50	2.57	1.37
75/25	42	2.73	0.88
TOTAL TEAM	242	2.77	1.20

5.6.2 Analysis of Subjects that Stopped Looking for a More Profitable Solution When Ahead

The data showed several patterns which seemingly correspond with Prospect Theory. The first is a pattern whereby individuals would stop looking for more profitable solutions when ahead of targets. We defined "ahead" as having an outcome on the game of 100 or better in three consecutive periods, or in any five periods throughout the game. This means that the subject knew of at least one combination of answers that yielded positive results. We determined that they had stopped searching for more profitable solutions if at least two consecutive results were nearly the same, counting from period 20 backwards. We were particularly interested in patterns where the second to last result before stopping was positive, then the subject experimented

and obtained a more negative result, and then reverted to the prior result and stopped searching from that point on. Table 15 shows details of the % of subjects that stopped when ahead for each condition, including the level of profit attained and the period at which they stopped. The results show that 43% of those on individual conditions and 48% of those in team conditions stopped when ahead. The highest type is LTI at 51% and the lowest the Pay Mix at 38%.

Table 15: Analysis of Subjects that Stopped Looking

for a More Profitable Solution When Ahead

Condition	Sample	# Ahead	% Stopped	Avg.. Profit	Avg. Period
SG	25	20	50%	155.18	17.2
SO	33	24	50%	160.55	18.1
PS	25	17	53%	174.33	17.9
TOTAL LTI	83	61	51%	162.82	17.8
EQ	27	17	29%	174.68	17.0
BAL	24	17	12%	182.60	18.5
ST	27	22	59%	169.49	16.5
LT	35	26	42%	170.47	18.7
TOTAL PMIX	113	82	38%	171.52	17.5
TOUR	25	19	42%	171.11	17.0
MEM	22	20	50%	175.64	15.5
BOND	24	16	44%	160.57	14.9
TOTAL 3 MODEL	71	55	44%	169.93	15.8
TOTAL INDIVIDUAL	267	198	43%	167.94	17.1
IG	50	43	58%	178.66	16.2
TG	50	47	38%	173.98	14.9
50/50	50	44	50%	182.20	16.0
25/75	50	48	44%	181.86	14.8
75/25	42	32	50%	189.50	14.5
TOTAL TEAM	242	214	48%	180.96	15.4

Notes:
- # Ahead: Number of subjects that had profits exceed 100 in at least three consecutive periods or in five non-consecutive periods
- % Stop: Percent of subjects that stopped looking for more profitable solutions when ahead
- Avg. Profit: At what level of profit, on average, did subjects stop looking for more profitable solutions when ahead
- Avg. Period: At which period, on average, did subjects stop looking for more profitable solutions when ahead.

5.6.3 Analysis of Subjects that Risked When Behind

Another such pattern which corresponds with Prospect Theory is that of individuals who would take a risk when behind targets. We defined "behind" as having an interim result at any point of the game of 90 or worse in three consecutive periods, or in any five periods throughout the game. This means that the subject was in jeopardy of ending the game with zero payout unless they found a combination of answers that yielded positive results. We determined that they had taken a risk when behind if, when below 90, the next play yielded at least 50% improvement in outcome, which in the game means making at least two, or more, changes in the pattern of answers. Table 16 shows details of the % of subjects that risked when behind for each condition, including the level of profit at which they took the risk and the period at which they stopped. The results show that 62% of those on individual conditions and 75% of those in team conditions risked when behind. The highest type is again LTI at 67% and the lowest the Three Pay-for-Performance Models at 55%.

It is interesting to note that fully 20% of the subjects did both: that is risked when behind and then stopped when ahead. Price (1983) found a similar result in the context of individual investment decisions, which supports the notion that being risk-prone or risk-averse can be circumstantial.

Table 16: Analysis of Subjects that Risked When Behind

Condition	Sample	# Behind	% Risked	Avg.. Profit	Avg. Period
SG	25	22	64%	60.35	7.5
SO	33	30	73%	61.03	9.7
PS	25	18	61%	62.71	7.0
TOTAL LTI	83	70	67%	61.22	8.4
EQ	27	22	68%	60.53	9.7
BAL	24	19	63%	63.14	7.3
ST	27	21	62%	54.29	8.1
LT	35	26	62%	62.33	9.2
TOTAL PMIX	113	88	63%	60.16	8.7
TOUR	25	19	58%	61.31	9.5
MEM	22	15	73%	51.34	7.1
BOND	24	21	38%	55.14	9.8
TOTAL 3 MODEL	71	55	55%	56.01	8.7
TOTAL INDIVIDUAL	267	213	62%	59.60	8.6
IG	50	36	72%	60.08	8.4
TG	50	37	84%	61.50	8.1
50/50	50	36	61%	70.58	7.4
25/75	50	34	85%	58.68	7.8
75/25	42	31	71%	60.08	8.4
TOTAL TEAM	242	174	75%	61.88	8.0

6 DISCUSSION OF RESULTS

6.1 Summary of research questions

The results above can be analyzed in three ways: First, do any of the 15 different pay conditions drive performance significantly better than any other? TG had the highest overall average result at period 20, but this result was not statistically significant when compared to the others.

Second, we can analyze whether there is a particularly good approach within any of the models (e.g., LTI, Pay Mix, Pay-for-Performance, Team Incentives). Here, we also find that no one condition, when compared to others in the same model, has a significant advantage.

Third, we can look at whether any of the models is significantly better. Here we do find that, jointly, the five Team approaches significantly outperform all the Individual approaches jointly (Sig. = 0.002).

Nevertheless, consistent with the inconclusive data to date in the literature, results show that there is no significant difference in performance for any one individual type of plan design or any one team plan design. The above results support our hypotheses H1, H2, H3 and H4.

An analysis of the patterns of responses showed that nearly half of all participants stopped seeking for more profitable alternatives when ahead, and even more than that took a risk when behind. These results support our hypotheses H5 and H6.

A surprising result found is that nearly 20% of all participants did both - risk when behind and stop when ahead - during the span of the twenty periods of the game in the experiment. That is to say, the same person can do both: take a risk and also be conservative, depending on where their results are at any point in the game. The implication of this result is that being risk-prone or risk-averse can be construed to be circumstantial rather than strictly a personality trait. In the words of an Executive Pay consultant, "the good thing – and the bad thing – about incentives, is that they drive behavior!"

The data also suggests that the higher the level of profit attained, and the earlier the run in the game for the achievement of that profit, the higher the probability of a prospect theory effect on the risk aversion side (See Figure 1 below).

Further analysis of the data reveals that, for all individual conditions, the level of profit at which individuals risk when behind or stop when ahead is equivalent (see Table 15 and Table 16 above). These results suggest that the perceived risk is not inherent in any of the pay conditions, which addresses the issue of the "riskiness" of stock options mentioned in Section 1.1 above.

However, when comparing the results of teams (Average profit of 180.96 and average period when stopped = 15.4) vs. Individual (Average profit of 167.94 and average period when stopped = 17.1), prospect theory appears to have differing effects, as teams stop at a higher level of profit than individuals, on average, and at an earlier run in the game. This is a question that warrants further investigation.

Figure 1

6.2 **Summary of additional findings**

An interesting finding derived from the data is that LTI approaches were more efficient when looking at the Period 20 results. Whereas, the three performance models' approaches were more efficient when considering average results during the twenty periods. This result has implications when designing executive incentive plans; even if there is no added performance increase which can be expected from any plan design (except for team incentives), LTI-based plans will be cheaper to run

("more bang for the buck") and, therefore, preferable to less efficient and – as demonstrated - equally effective alternatives.

6.3 Theoretical and practical contributions of this research

This study provides empirically derived data on the effectiveness of often-used pay schemes, as a means to achieving higher company performance. This information will be of use to academics in terms of testing how different motivation theories play out under different pay-for-performance conditions. The finding that prospect theory plays an important role in how incentives drive performance when the individual, or team, is/are either ahead or behind targets, is a new subject area in the literature that should be studied further.

The findings are also of use to practitioners, including RemCos, Executive Pay Consultants, CEOs and HR Professionals, in the design of incentive programs. The implications are that executive incentive plan design should focus on team incentives, as this approach is clearly superior to incentivize the achievement of business outcomes. The results also suggest that team incentive plans should be based on shared goals for maximum impact on business performance. How the team incentives are weighed seems less important in this respect. An additional implication for practitioners is that LTI plan designs could have a slight edge over other models, due to their higher RoR. Yet, perhaps LTI plans can be best used in a team context, or for executive retention purposes.

6.4   Limitations of the study and future research

A limitation of this study is that we are dealing with relatively small amounts of money as fees, when compared to larger amounts of rewards in corporate executive pay packages. Furthermore, our LTI "share" plans do not convey stock ownership, or a sense of "discounted expected future cash flows", that company shares may convey. At any rate, we believe that the way the fee mechanisms were set up in our experiment emulate well enough the way LTI programs behave in practice, since, for small companies at least, they tend to be based on a revenue-multiplier (or sometimes EBIT or EBITDA) formula, akin to our design. A variation would be to study if the conditions hold under different revenue-multiple scenarios to emulate differences in business values by industry.

Another limitation of the current work is that the experiment design was not best suited for testing prospect theory. In an ideal setting, the game could be arranged so that, for some subjects, early results would always be negative, and for some it would always be positive. That way, we could study the behavior of all subjects who are presented with the same positive, or negative, stimuli, so that we can better compare the results. Perhaps additional research could address this issue.

Future research could also evaluate if the solution initially favored under each condition (e.g. Price, location, formula or color) varies. This would suggest that different pay schemes motivate different decision-making behaviors. We are not able to retrospectively analyze the data to determine if there are any such patterns. However, future research could replicate the experiment capturing participants' decisions at each of the 20 periods to be able to determine if, for instance, more long-

term plans, such as LTI, lead to different decisions than more short-term oriented plans such as the three pay-for-performance models.

Another possible future research to be derived from the study is to consider the potential impact that pay caps may have on incentive-driven performance. Given the observed behavior that a sizable number of individuals stop experimenting when ahead, it may be possible to study how far they are willing to go before stopping under capped vs. uncapped incentive conditions.

An additional possible use of the design is to test for goal-setting theory (Locke & Latham, 2002) in a rewards context. For example, if we added to the instructions a statement that asked participants to attempt to reach the maximum of 200 profit goal within twenty attempts, would results differ significantly? If we follow Latham and Locke, we would say that target setting, even in the absence of pay, would produce better results. This can be tested under various pay conditions to check the moderating effect of the goal-setting instruction.

6.5   Conclusion

There are clearly four different points of view when addressing pay for performance: RemCos worry about governance and link to overall company results. CEOs are more concerned about fairness and recognition. HR Heads look mostly into market competitiveness and retention. Executive Pay Consultants are concerned with design features and buy-in. The current approaches to executive incentive plan design have left stakeholders on all sides disillusioned with the results. On the one hand, practitioners worry that incentives may lead executives to be highly motivated but

still reach poor outcomes. On the other hand, the perception is that results are not appropriately linked to the payout. Consequently, the ability of incentives to motivate performance is questioned. One of the CEOs we interviewed expressed it this way: "Incentives create too much angst. Having a competitive [pay] package is key, with only +/- 10% variation for individual performance. We pay for attraction and retention, and hope for [business results]. We adjust the pay levels to ensure that turnover [of staff] is within what we expect". A RemCo Chair added: "Pay will not make an inventor invent more, but if he does, will he get his fair share? Pay-for-performance is not what is geared up to be; it should be more about a sense of fairness". Upon seeing the results of this research, he added that he would emphasize "team over individual as organizations are team-driven".

To date, the academic literature has provided inconclusive information to address this problem. This study, however, offers scientific, empirical guidelines to incentive plan design. One Executive Pay Consultant who saw the results of the experiment, had this to say about them: "Given these results, I will provide greater weight towards team incentives [in future plan designs]. What gets measured gets done, but [the results indicate] it is not related to the amount or the plan design, but to the team goals. I would still split Pay Mix 1/3, 1/3, 1/3 but what will change is the team metric component. And I would not do away with share plan designs, but ensure the awards are based on team metrics". Another suggested that, given these results, a more informed approach would be to use individual performance only for base pay increases and promotions, and make all incentives team-based. An HR Executive added: "[Individual incentives] are like adding sugar to the candy-floss machine;

makes things go haywire! The best option is to simplify the plans." These changes in approach upon seeing the results of this study summarize well our intent when undertaking this research:

- recognize the limitations of current pay plan design,

- incorporate our findings into a pragmatic mix that includes market data, governance requirements, pay package competitiveness, and

- adjust incentive plans to achieve a blend of results, from better performance to higher retention and adequate pay governance.

A. Interviewees

RemCo Members	CEOs	HR Heads	HR Consultants
Chew Choon Seng (SGX)	Mark Tucker (AIA)	Shu Khoo (AIA)	Shai Ganu (Willis Towers Watson – Singapore)
Hsieh Fu Hua (UOB/GIC/Tigerair)	Magnus Bocker (SGX)	Aileen Tan (Singtel)	Jon Richardson (Mercer - Singapore)
	Lim Siong Guan (GIC)	Lillian Lee (SembCorp Group)	Hans Kothuis (Mercer - Hong Kong)
			Mark Bussin (21st Century Pay - South Africa)
			Johann Grundig (Carrot's)

B. Interview Guide: Pre-Experiment

- In setting executive Pay-for-Performance plans, what do you intend to achieve?
- How do you ensure your plans work to attract, retain and/or motivate executives?
- Do you think Pay-for-Performance plans for executives achieve what they are intended to do? How so? Where do they fall short?
- Are you satisfied with your current Pay-for-Performance plans? Why or why not?
- How do you determine how and how much to pay executives?
- Should executive pay be set at the individual or team level?
- Should the emphasis be on short or long term results?
- What should be the appropriate mix of fixed to variable pay?
- Do you think stock options work? Why or why not?

C. Interview Guide: Post-Experiment

- Now that you have seen the results of this experiment, would you change the way you design executive Pay-for-Performance plans? What criteria/approach would you use?
- How would expect your design to change in terms of:
  a. Pay mix?
  b. Long-Term incentive vehicles?
  c. Tournament/Membership/Bonding Models?
  d. Individual vs. Team incentives?

D. Instructions for Participants in the Experiment and Answer Sheet

Lemonade Stand Experiment

http://faculty.haas.berkeley.edu/ldavis/lemonade/

Instructions

You are now taking part in a business experiment. Please read the following instructions carefully. Everything that you need to know in order to participate in this experiment is explained below.

The experiment is divided into 20 periods. In each period you have to make decisions, which you will enter on the webpage listed above. The decisions you make and the amount of profit you earn will not be made known to the other participants - only you will know them.

Communication between participants is strictly prohibited during the experiment. In addition, you may use the webpage only as is designed for the experiment. Do not, for example, look at the HTML code underlying the webpage. In case you have any questions don't hesitate to ask us.

Procedures

In this experiment, you will take on the role of an individual running a lemonade stand. There will be 20 periods in which you will have to make decisions on how to run the business. These decisions will involve the location of the stand, the lemonade color, the sugar and lemon content, and price. The last three characteristics are scaled between 0 and 10. Once you have selected your choices, click "calculate" to learn what profits you made during that period.

The website does not record profit, so please record your profit in all 20 periods on the profit report below. There are no practice periods and no opportunities to redo mistakes. So each participant will be clicking "calculate" a total of 20 times.

After you have finished all 20 periods, please calculate your average profit in periods 1-10 and your average profit in periods 11-20, as indicated in the report. As soon as you have finished, please give your profit report to the research assistant so your pay can be calculated and then wait in the next room. Once the experiment begins, you will have 20 minutes to complete all 20 periods and turn in your report. If you do not complete all 20 periods you will receive zero profits for any unfinished periods.

The rest of these instructions include a note from the previous manager of the lemonade stand, information about your compensation, and the profit report. **Please read these materials carefully before beginning the experiment.**

Good luck!

Note from Previous Manager

Dear Lemonade Stand Operator,

I have enclosed the following guidelines that you may find helpful in running your lemonade stand. These guidelines are based on my previous experience running this stand.

When running my business, I followed these basic guidelines:

Location:	*Business District*
Lemonade Color:	*Green*
Sugar Content:	*3.0 (out of 10)*
Lemon Content:	*7.0 (out of 10)*
Price:	*8.2 (out of 10)*

With these choices, I was able to make an average profit of about 90 per period. I have experimented with alternative choices of sugar and lemon content, as well as lemonade color and price. The above choices were the ones I found to be the best. I have not experimented with alternative choices of location though. They may require very different strategies.

Good luck!

Previous Manager

==

<Note: Each Instruction Form ends with one of the fifteen pay conditions in the experiment. The wording of the conditions are as follows:

Compensation (SO)

*** **Your compensation for your participation will be calculated as 50% of the average excess profits you make with your lemonade stand in the last 10 periods.** ***

Compensation (SG)

*** **Your compensation for your participation will be calculated as 10% of the profits you make with your lemonade stand in the last period.** ***

Compensation (PS)

*** **Your compensation for your participation will be calculated as 10% of the profits you make with your lemonade stand in the last period. However, if you fail to exceed the starting profits, you will receive half of the last period profits as compensation. But, if your average profits exceed 110 for the whole 20 periods you will receive an additional 50% of the last period profits as compensation.** ***

Compensation (EQ)

*** Your compensation for your participation will be calculated on the basis of SGD 10.00. One third of this amount is fixed, one third will be based on 1/3 of 20% of the average profits in excess of initial profits. The last third will be calculated as 1/3 of 10% of the last period's profits. However, if the average profits of the full 20 runs is less than the starting profits, this last amount will be halved. If, on the other hand, your average profits over the full 20 runs exceeds 110, this last amount will be increased by 50%. ***

Compensation (BAL)

*** Your compensation for your participation will be calculated on the basis of SGD 10.00. Half of this amount is fixed, one quarter will be based on 1/4 of 20% of the average profits in excess of initial profits. The last quarter will be calculated as 1/4 of 10% of the last period's profits. However, if the average profits of the full 20 runs is less than the starting profits, this last amount will be halved. If, on the other hand, your average profits over the full 20 runs exceeds 110, this last amount will be increased by 50%. ***

Compensation (ST)

*** Your compensation for your participation will be calculated on the basis of SGD 10.00. Half of this amount is fixed. The other half will be based on 1/2 of 20% of the average profits in excess of initial profits. ***

Compensation (LT)

*** Your compensation for your participation will be calculated on the basis of SGD 10.00. Half of this amount is fixed. The other half will be calculated as 1/2 of 10% of the last period's profits. However, if the average profits of the full 20 runs is less than the starting profits, this last amount will be halved. If, on the other hand, your average profits over the full 20 runs exceeds 110, this last amount will be increased by 50%. ***

Compensation (TOUR)

*** Your compensation for your participation is SGD 5.00. If your performance in each 5-period cycle exceeds the prior 5-period cycle, your pay will increase by SGD 2.50. ***

Compensation (MEM)

*** Your compensation for your participation is SGD 5.00. If your performance in each 5-period cycle exceeds the prior 5-period cycle, your pay will increase by SGD 2.50. However, you will be terminated if your performance in any 5-period cycle falls below the prior 5-period cycle. Your final pay will be the last level achieved. ***

Compensation (BOND)

*** Your compensation for your participation is SGD 5.00 for the first 10 cycles and an additional SGD 5.00 for the last 10 cycles. However, your pay for the last 10 cycles will increase to SGD 7.50 if your average performance in the first 10 periods exceeds the initial profits. ***

Compensation (IG)

*** Your compensation for your participation will be calculated as 50% of the average excess profits you each make individually with your lemonade stand in the last 10 periods. ***

Note that, as a team, you can discuss your strategy, but each of you can enter different responses if desired. Results will be tabulated, and pay calculated, separately.***

Compensation (TG)

*** The compensation for each of you for participation will be calculated as 50% of the average excess profits you make jointly with your lemonade stand in the last 10 periods. ***

Note that, as a team, you can discuss your strategy, but each of you can enter different responses if desired. Results will be averaged, and the resulting pay will be equal for both team members.

Compensation (50:50)

*** Your compensation for your participation will be calculated as 50% of the average excess profits you make with your lemonade stand in the last 10 periods. ***

Note that, as a team, you can discuss your strategy, but each of you can enter different responses if desired. Half of your pay will be based on your individual results and half on the average of the two team members' results.

Compensation (75:25)

*** Your compensation for your participation will be calculated as 50% of the average excess profits you make with your lemonade stand in the last 10 periods. ***

Note that, as a team, you can discuss your strategy, but each of you can enter different responses if desired. 75% of your pay will be based on your individual results and 25% on the average of the two team members' results.

Compensation (25:75)

*** Your compensation for your participation will be calculated as 50% of the average excess profits you make with your lemonade stand in the last 10 periods. ***

Note that, as a team, you can discuss your strategy, but each of you can enter different responses if desired. 25% of your pay will be based on your individual results and 75% on the average of the two team members' results.

PAY FOR PERFORMANCE EXPERIMENT ANSWER SHEET

Profit Report

Period	Profit		Period	Profit
1			11	
2			12	
3			13	
4			14	
5			15	
Average Profit Periods 1-5			**Average Profit Periods 11-15**	
6			16	
7			17	
8			18	
9			19	
10			20	
Average Profit Periods 6-10			**Average Profit Periods 16-20**	

Additional Information:

Gender (M/F): _____

Age: _____

Source (Undergrad/Grad/Exec/Other): _____

Country (Argentina/Singapore/South Africa): _____

Paid out: _____

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