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Optimizing fixed and variable compensation costs for employee productivity

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Abstract

Purpose – The purpose of this paper is to develop a conceptual framework to determine the optimal balance between fixed and variable compensation costs incurred by a firm.

Design/methodology/approach – In 2004 Burke and Terry used an economic framework to demonstrate how variable pay can reduce operating leverage and hence increase a firm's value. Their theme is extended to develop a conceptual framework for ascertaining the optimal balance between fixed and variable pay components.

Findings – As demonstrated with an example, the choice between fixed and variable pay affects the firm's employee productivity, operating leverage, market risk, cost of capital, and cash flows. The ultimate choice of the variable and fix compensation "mix" should meet the goal of management – maximizing the firm value, and hence the shareholders' wealth.

Practical implications – Evidence suggests there is a growing use of variable pay schemes in firms to increase employee motivation and productivity.

Originality/value – The framework allows a firm's cash flows to vary due to the changes in the variable pay component.

Keywords Renumeration, Variable pay, Employee productivity, Cash flow, Financial management

Paper type Research paper

Organizations and human resources (HR) professionals are continually in search of ways to motivate and reward employees in order to increase their motivation and performance. One primary HR tool that is used to affect motivation and performance is compensation (Lawler, 1971). Recently, more emphasis has been on the use of variable compensation schemes, instead of fixed forms of pay (e.g., Greene, 2003; Marks, 2001) in order to increase employee productivity and thus firm performance. A distinct advantage is that variable pay costs "flex in sync" with revenues when the plan is well designed (Green, 2003, p. 2).

Variable pay schemes entail individual, group, and organizational level forms of remuneration such as bonuses, incentives, on-the-spot bonuses, profit sharing, and various other pay-for-performance schemes. They essentially are based on a principle that suggests an individual's pay should vary based upon performance (of the

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individual, group, or organization). Fixed compensation tools, on the other hand, are preset, such as the traditional straight salary method of pay.

In their paper, Burke and Terry (2004) demonstrated, via the use of various economic concepts, how variable pay enhances firm's financial performance. However, there is increasing discussion in the literature about the need for determining an optimal balance between fixed and variable pay costs (e.g., Green, 2003; Rendell and Simmons, 1999). The important questions to consider include: how to define the "optimal balance" between fixed and compensation costs and how to reach that balance. In this paper, we provide a framework to answer these questions.

Burke and Terry (2004) on variable pay and firm performance

Burke and Terry set out to demonstrate how the use of variable compensation tools can improve a firm's economic performance by applying various economic concepts (see the Appendix, reproduced from Burke and Terry, 2004). Specifically, they illustrate that a firm can improve its financial outcomes by comparing how two organizations, with the same firm revenue, could reduce their operating leverage and their breakeven point, as a result of shifting more costs (including compensation costs) from fixed to the variable form.

A reduction in operating leverage essentially translates into a percentage gain in profits. For example, a firm with an operating leverage coefficient of four will receive a 40 percent gain in operating profits from a 10 percent gain in sales; however the same firm will get a 40 percent reduction in profits from a 10 percent decrease in sales. Thus, a firm with a lower operating leverage coefficient (as a result of emphasizing variable pay) will produce quarterly earnings estimates that are more consistent with actual results and in turn benefit from more consistent and predictable monetary returns. This will also result in a lower risk rating (known as a Beta coefficient) by investors, who measure the risk level of a company because the volatility of the firm's returns is reduced.

Shifting to more variable compensation also helps to reduce a firm's breakeven point [total fixed cost/(price – variable cost)], which results in the company being able to be profitable faster. The concept, as illustrated in the Appendix (adapted from Burke and Terry, 2004), is that the variable portion of compensation costs grows larger only if the firm's revenue grows larger. So, if two organizations have the same price per unit and sell the same number of units, then the breakeven quantity will be lower for the organization that has allocated more costs to the variable component.

The present paper extends Burke and Terry's central theme, with a more practical focus, by examining how to optimally balance the fixed vs variable compensation costs incurred by a firm. While Burke and Terry (2004) solely focus on the gains associated with utilizing variable pay, we argue there is likely an optimal balance between fixed and variable compensation components. In order words, if a firm changes to a complete variable compensation scheme, there would likely be some disadvantages (i.e. losses) associated with doing so. As an example, the firm would likely fail to attract or maintain those employees who prefer a fixed element of their pay and thus have to endure resulting turnover costs. We argue that the optimal balance between fixed and variable compensation should be measured in terms of the value of the firm, as reached when the value of the firm is maximized. Moreover, we provide a specific empirical

example to illustrate how the firm's cash flows vary due to the changes in the variable pay component.

In sum, the choice between fixed and variable pay portions of a firm's compensation strategy affects the firm's operating leverage, market risk, cost of capital, and cash flows. The ultimate choice of the "mix" should meet the goal of management – maximizing the firm value, and hence the shareholders' wealth.

The pros and cons of variable compensation

As we have alluded, there are specific gains associated with variable compensation schemes. Variable pay can lead to an increase in motivation and employee performance. This is largely due to the incentive effect that variable pay has on employee behavior (*Financial Executive*, 1999; Greene, 2003; Marks, 2001). Also, when truly aligned with individual, group, or company performance, variable pay reduces profit volatility and enhances earnings stream for shareholders (Rendell and Simmons, 1999). The reduction in volatility, as discussed by Burke and Terry (2004), leads to a reduction in the Beta coefficient (i.e. market risk) of the firm, as assigned by market investors. And by reducing the Beta, the cost of capital of the firm is also reduced, thus increasing the economic value of the firm.

At the same time, going beyond Burke and Terry (2004), we must acknowledge the losses or disadvantages associated with solely emphasizing the variable component of pay. First, as the variable proportion of total compensation increases, many employees may demand higher levels of pay because of the extra risks they are taking (Rendell and Simmons, 1999). Second, employees in low(er) income brackets are less willing to subject their pay to a variable component (Caroli and Garcia-Penalosa, 2002). More specifically, Caroli and Garcia-Penalosa (2002) outlined a model in which workers became less risk-averse (i.e. willing to take on more risk) only as their income grew, in turn, moving from fixed-wage contracts to variable pay. Thus, firms emphasizing the variable pay component in certain lower-paying jobs may have difficulty in attracting employees to those jobs and ultimately create more turnover for those employees who do not desire a variable element in their compensation package.

Third, an experimental investigation has shown that employees are not as willing to accept variable pay tools when they are implemented at the group level (versus individual level). In other words, employees do not mind variable pay schemes, if they are ultimately in control. Therefore, group pay plans may produce some element of dissatisfaction, which could eventually translate into lower efficiency.

Fourth, variable pay plans tend not to be as attractive to those individuals who are older, risk averse, or who lack confidence in their ability to perform the job (Greene, 2003). Thus, at least for firms that transition to some form of variable pay, various employees will likely leave, in turn creating sizeable turnover costs (i.e. recruiting and selection new employees, training new employees, etc). Indeed, turnover costs have been cited across various authors as fairly prohibitive (e.g., Sailors and Sylvestre, 1994; Sunoo, 1998; Waldman *et al.*, 2004).

Consequently, depending upon how it is used, variable pay can create both gains and losses to the firm. The gains include higher future cash flows due to better performance, and lower cost of capital due to reduced operating leverage, market risk, and thus cost of capital. The losses include higher compensation costs, difficulty in attracting people in certain lower paying jobs, dissatisfaction with compensation

packages by certain employees, and higher turnover costs. These losses eventually decrease the firm's future cash flows. Since the value of a firm is equal to the discounted future cash flows; that is, the future cash flows discounted by the firm's cost of capital, the choice between variable pay and fixed pay can have a significant impact on the value of the firm.

Optimal balance of fixed vs. variable compensation

Traditionally, organizational decisions regarding any appropriate mix of variable and fixed pay have likely been neglected, determined by trial-and-error or subjective criteria, or merely identified as fodder for future research. Because a primary goal of management is to maximize the value of the firm (and hence, the shareholders' wealth), the consideration for the balance between variable and fixed pay is important for practitioners and ultimately can be put in the context of valuation.

In this paper, however, we suggest this decision can be informed more quantitatively, and in concert with organizational goals. We specifically propose that the optimal balance should occur where the value of the firm is maximized, holding other factors (e.g., financial leverage) constant. As discussed earlier, the change in the variable pay component results in gains and losses; gains result in higher future cash flows and a lower cost of capital, which increase firm value, and losses result in lower future cash flows, which decrease firm value. Therefore, the impact of variable pay on firm value can be depicted, as show in Figure 1.

As Figure 1 shows, when the variable pay ratio (that is, variable pay/total pay) is increased, the value of the firm first rises, then likely peaks, and eventually falls. The reason for this relationship is that initially when the variable pay component is still relatively small, the marginal increase in firm value due to the gains from variable compensation outweighs the marginal decrease in firm value due to the losses. At a certain point, the marginal increase in firm value equals the marginal decrease and the value of the firm reaches the peak. Beyond this point, however, the marginal decrease outweighs the marginal increase, and the value of the firm falls[1].

Is it possible to empirically estimate this optimal point for a firm? The answer is yes. For each variable pay ratio (e.g., 0 percent, 10 percent, 20 percent, and so on to

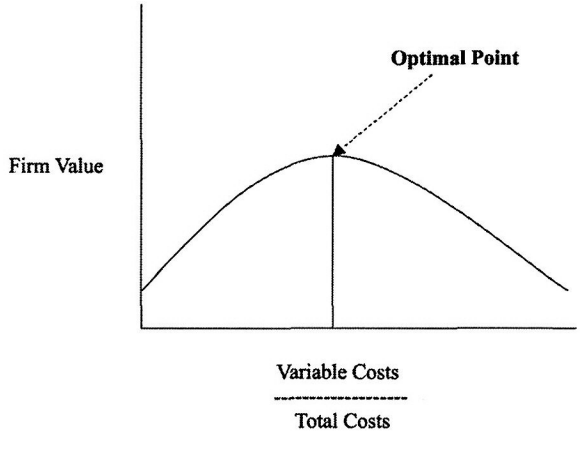

Figure 1.
Determining the optimal balance of fixed vs variable compensation costs

100 percent), a firm would need first to estimate the cost of capital and future cash flows. The discounted future cash flows would represent the value of the firm. The ultimate choice, based upon our model, would be the particular variable pay ratio that gives the highest value of the firm. Table I provides an illustration of our argument.

As we can see in Table I, the variable pay ratio is defined as the variable pay divided by the total pay. Column (1) is the cost of capital. The cost of capital is in general a decreasing function of the variable pay ratio. As discussed earlier, a higher variable pay ratio will likely decrease the operating leverage, the market risk of the firm, and hence, the cost of capital[2].

Column (2) represents the annual operating cash flow (AOC) when there is no variable pay component. In this example, it is equal to $100 million. Column (3) is the gain in AOC due to the existence of variable pay. This gain is a function of increased work incentive and performance, which in turn is a function of the variable pay ratio. These functions would be firm-specific; in other words, each firm would need to specify these functions for itself. In our example, we assume that these functions result in a pattern such that as the variable pay ratio increases, the gain in annual operating cash flow increases initially at an increasing rate and later at a decreasing rate[3]. Annual operating cash flow may be increasing at an increasing rate initially due to the higher incentive and employee performance. However, employee performance is unlikely to endlessly rise at an increasing rate due to the limits from other factors such as capability, skills, time, resources, etc. Therefore, AOC may later increase at a decreasing rate.

Column (4) is the loss in annual operating cash flow. The loss in annual operating cash flow is a function of a higher level of compensation costs, increased recruiting and selection costs in certain jobs, potential employee dissatisfaction with the pay mix in any lower-paying jobs, and higher turnover costs, which in turn is a function of the variable pay ratio. Again, these functions are firm-specific. In the example, we assume that these functions result in a pattern such that as the variable pay ratio increases, the loss in AOC increases at an increasing rate[4]. This pattern appears reasonable, given the risk-averse nature of many individuals. At a higher level of variable pay, a further increase in the variable pay components (and therefore a further decrease in the fixed pay component) may be deemed as less tolerable in terms of employee satisfaction and more prohibitive in terms of recruiting and turnover costs than when the variable pay component remains at a lower level.

The total annual operating cash flow is equal to the AOC with zero variable pay (Column (2)), plus the gain in AOC (Column (3)) and minus the loss in AOC (Column (4)). The value of the firm, then, is equal to total annual operating cash flow (Column (5)) divided by the cost of capital (Column (1))[5]. The optimal variable pay ratio is the one that maximizes the value of the firm, which is 50 percent in our hypothetical example.

It is possible to estimate the cost of capital and to set up the functions to estimate the cash flows for each variable pay ratio. Some models and techniques have been developed in the field of finance and economics to assist in this type of task, although making some subjective judgment for the estimation is unavoidable, as in typical financial decisions. Making subjective judgments based on the best available information to assist in decision making is better, however, than making no decision at all.

Table I.
Determination of the optimal variable pay ratio – an example

Variable cost Total cost (%)	(1) Cost of capital (%)	(2) Annual operating cash (AOC) with zero variable cost	(3) Gain in AOC	(4) Loss in AOC	(5) Total AOC = (2) + (3)-(4)	(6) Value of the firm (5)/Cost of capital
0	15.00	100	0.0	0.0	100.0	666.6667
10	14.90	100	1.0	0.2	100.8	676.5101
20	14.80	100	3.0	0.9	102.1	689.8649
30	14.70	100	6.3	2.4	103.9	706.8027
40	14.60	100	11.2	4.4	106.8	731.5068
50	14.50	100	18.2	7.8	110.4	761.3793
60	14.40	100	22.5	13.6	108.9	756.25
70	14.30	100	25.8	21.0	104.8	732.8671
80	14.20	100	28.0	29.3	98.7	695.0704
90	14.10	100	29.1	38.7	90.4	641.1348
100	14.00	100	29.6	50.0	79.6	568.5714

Note: The estimation of the cost of capital is grounded in the literature of finance

Conclusion

As HR professionals strive to pursue excellence with their selection, compensation, and training interventions, it is increasingly important to demonstrate that their programs add value to the firm, beyond a qualitative or emotional appeal. In this paper, we have proposed a model based on finance theory to help HR professionals and firms determine when their compensation packages are providing economic value.

Specifically, we have focused on balancing the fixed versus variable pay components of a firm's total compensation costs and provided a framework for choosing an optimal mix of variable and fixed pay. We have argued that due to the potential losses associated with variable pay schemes, it is likely that an optimal point (of variable and fixed pay costs) is reached where a specific "compensation mix" is adding the most value to the firm, in economic terms. We encourage further inter-disciplinary research (i.e. among HR, management, economics, finance, and accounting researchers) to help HR understand how to best add economic value to their organization.

Notes

1. This framework is similar to the capital structure theory in the literature of finance, in which the increase in financial leverage has a similar impact on the value of the firm.
2. Our estimation of the cost of capital is grounded in the literature of finance.
3. Based on the functions specified, each company would have its own pattern.
4. Again, based on the functions specified, each company would have its own pattern.
5. Here, we assume a zero growth rate for the AOC.

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Appendix

Table II.
Re-allocation from majority fixed costs to majority variable costs and its effect on indicators of firm performance: a hypothetical example

	Casino A		*Casino X*	
Price for service		$100.00		$100.00
Quantity of sales	1,100		1,100	
Firm revenue		$110,000.00		$110,000.00
% of fixed cost	40	$44,000.00	20	$22,000.00
% of variable cost	20	$22,000.00	40	$44,000.00
Average variable cost[a]		$20.00		$40.00
Profit margin[b]		$44,000.00		$44,000.00
Operating profit[c]		$66,000.00		$66,000.00
Breakeven quantity[d]		550		366.66
Operating leverage coefficient[e]		2.00		1.50

Notes: [a]Average variable cost = total variable costs/quantity of sales; [b]Profit margin = firm revenue – (total fixed costs + total variable costs); [c]Operating profit = firm revenue – profit margin; [d]Breakeven quantity = total fixed costs/(price – variable cost); [e]Operating leverage coefficient = [quantity of sales * (price – average variable cost)]/[quantity of sales * (price – average variable cost) – total fixed costs]
Source: Burke and Terry (2004)

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