COMPA-RATIO: DO DISTRIBUTIONS WITHIN A PAY RANGE MAKE A DIFFERENCE IN DETERMINING INTERNAL PAY EQUITY?

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ABSTRACT

Compa-ratio is a necessary tool for the management of structured pays systems. It provides a method of determining how closely an employee's pay approximates the organization's policies and goals [6]. In general, a neutral evaluation (CR $\approx$ 1.0) suggests a fair pay structure with the distribution of employees' pay approximately at the center of the pay range for the job. While such a pay relation may seem fair, an employee's feelings of equitable pay may not depend on a single distribution of the pay range. Rather, it may depend on the underlying distributions within the pay range. This possibility will be discussed based on equity theory [2].

INTRODUCTION

The cost of labor represents, for most organizations, one of, if not the largest, cost of production. Organizations, therefore, have a significant interest in managing this cost factor. While the organization must control labor cost to be competitive in its marketplace, the firm, at the same time, must consider the impact of the pay system on its human resources.

The instructional and application literature (e.g., [6] [9] [10] [11]) is, by design, primarily directed at the development and application of a compensation system. The goals of such compensation systems include considerations such as control of labor cost, acceptance of the system by employees, ease of application, and its ability to reflect the organization's compensation strategy. As to be expected, the literature that investigates the impact of compensation systems on the firm's human resources is directed primarily at employees' pay satisfaction (e.g., [4] [15] [17]). The following introductory information is presented as Structured Compensation Systems, Control of Structured Compensation Systems, and Pay Satisfaction.

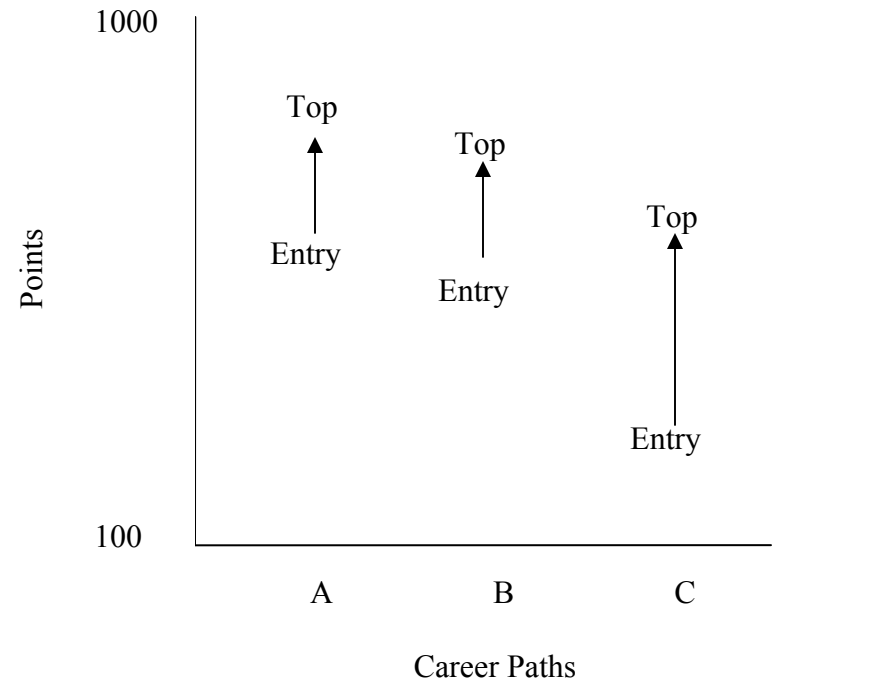
Structured Compensation Systems

There is no disagreement (e.g., [6] [10]) that the foundation for any compensation system is the establishment of the relationship among jobs across career paths and the relation among an entry-level job and the various jobs in the career path to the top position. An example of these various relations is shown in Figure 1. They are based on the entry position's location on the vertical axis and the length of the career path. Not all entry positions begin at the same level and the number of positions in a career path may reflect significant variations (e.g., more in Career C than in A or B).

Figure 1

Job Structure for Three Career Paths Based on

1000 Points Maximum and 100 Points Minimum



The method of establishing the information in Figure 1 requires the development of a multi-dimensional and multi-step job evaluation process that leads to a determination of the internal value of each job. Because the value of money may not be stable across time and the external value, expressed as dollars, may change because of variations in the external labor market, the internal worth is usually expressed as points. While it is expected that the range of points will vary from firm-to-firm, it is shown here on the vertical axis as ranging from a minimum of 100 to a maximum of 1000.

Assignment of points to a job is determined by identifying, from job analysis, the required task, duties, and responsibilities. From this information, it is necessary to identify the job factors for which compensation should be paid. Compensational factors may include dimensions such as skills, experience, tenure, and the authority to act without supervision. The number of

compensational factors to be used is determined by the firm, but there will usually be more than three, but less than ten.

An evaluation scale is then created for each compensational factor. For example, skills may be evaluated on a scale of 1 to 10 with each value representing a specific skill level. Thus, a job that requires only basic skills would receive an evaluation of 1 and a job that requires expert skills would be assigned a value of 10.

It is not expected that each compensational factor will be of equal value. That is, some compensational factors may make a greater contribution to job performance. It is necessary, therefore, to determine the weight for each compensational factor.

As an example, the skills compensational factor may be weighted as more valuable (e.g., maximum=200 points) than the tenure compensational factor (e.g., maximum=100 points).

Assigned points for a job are then determined by:

$$\text{Job Points} = (CFW_1 \times CFE_1) + (CFW_2 \times CFE_2) + \ldots (CFW_n \times CFE_n)$$

Where: CFW_1 = Compensation Factor Weight$_1$

CFE_1 = Compensation Factor Evaluation$_1$

Assuming three compensational factors weighted respectively at 40, 30, and 30 and an evaluation scale of 1-10 for each factor, will result in a maximum of (e.g., Figure 1):

$$\text{Maximum Points} = (40 \times 10) + (30 \times 10) + (30 \times 10)$$
$$= 400 + 300 + 300$$
$$= 1000$$

and a minimum of:

$$\text{Minimum Points} = (40 \times 1) + (30 \times 1) + (30 \times 1)$$
$$= 40 + 30 + 30$$
$$= 100$$

The points assigned to each job are an expression of its internal value and provide a basis for comparing different jobs in the same career path. It also establishes the value-based relation among jobs in separate career paths.

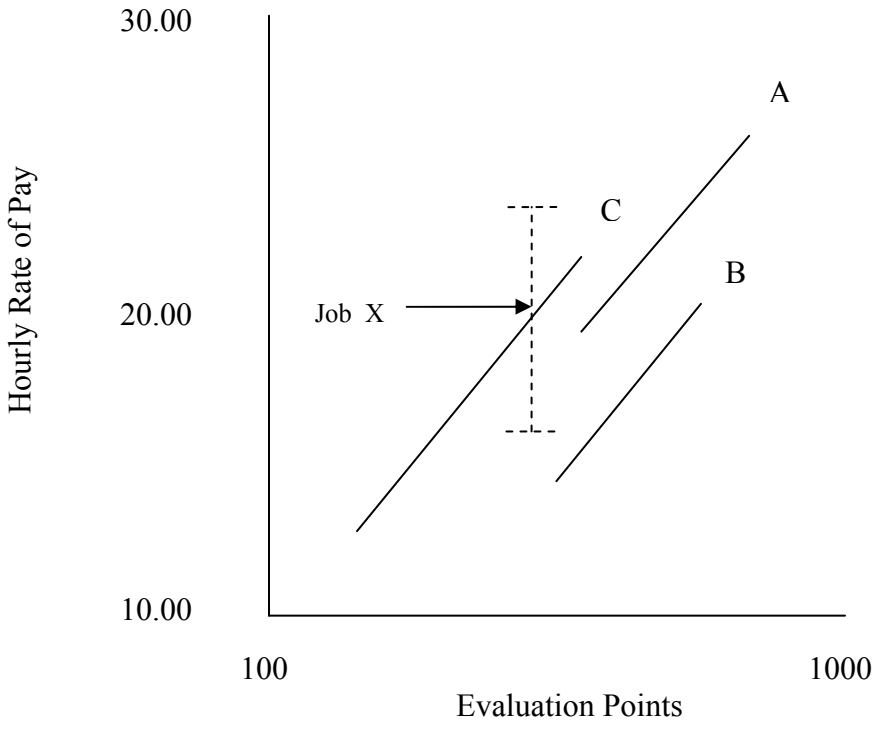
As shown in Figure 2, the three career paths from Figure 1 can be plotted on a graph defined by evaluation points and the firm's pay range policy. The firm's compensation strategy is reflected by the pay range ($10-$30) that encompasses the three careers. The pay range is influenced by a number of factors including the number and similarity of the career paths to be included in grouping.

Information such as that presented in Figure 2 establishes the relation between evaluation points and pay for each job career path. As such, it provides a basis for comparing all similar jobs in the separate career paths and provides a method of identifying opportunities for higher pay in other career paths. The information does not provide, however, the pay range or median pay for any single job. For instance, a cursory assessment of Job X in Career C would suggest that everyone assigned to this job would be paid $20. In fact, however, because of variations in performance and hiring date, employees in the job may be paid within the pay range indicated by the dashed line.

Figure 2

Pay Structure for Three Career Paths from Figure 1

With a Pay Range for Job X



The pay range for a job reflects the firm's decision as to its width. The width of the pay range may vary from 20 to 100 percent [6], but the most often observed pay range is 50 percent and can be computed as:

$$\text{Pay Range} = 1 \pm (\text{Range Percent})/2 + \text{Range Percent}$$
$$= 1 \pm .5/(2 + .5)$$
$$= 1 \pm .5/2.5$$
$$= .8 \text{ to } 1.2 \text{ or } 80\% \text{ to } 120\%$$

The basis for the application of the pay range percentage is the determination of the median pay for the job. A number of factors can influence this decision, but often it is simply the average competitive pay in the external labor market. Based on the information in Figure 2, it is assumed

that the median pay for Job X is $20. The pay range can then be established as ranging from $24 (Maximum Pay = 1.2 x $20) to $16 (Minimum Pay = .8 x $20) per hour.

However, because of the organization's compensation strategy, it may pay an amount different from the market average. At least three pay strategies can be identified [10]: lag the market; meet the market; and lead the market. Based on these three strategies and using the pay range noted above ($16-$24, with a median of $20), it is possible to generate the three pay distributions, shown in Figure 3. The three strategies (shown as **Lag**, **Meet**, and **Lead**) would exhibit approximate ranges of: Lag=$16-$19, *Md*=$17.50; Meet=$18-$22, *Md*=$20; and Lead=$21-$24, *Md*=$22.50.

Control of Structured Compensation Systems

Compa-ratio (CR = Pay/Median) is a widely used tool that provides the firm a method of determining the extent to which its compensation system is under control [8] [16]. It is a measure of dispersion around the median pay, which is assumed to be the firm's assessment of the fair pay in the external labor market. Consequently, most organizations will seek values close to 1, which suggests the employee is fairly paid. Values less than one indicate that the employee is underpaid and greater than one suggests the employee is overpaid.

Compa-ratio is most often used to identify an employee's location within a pay range to determine whether the employee is fairly paid, overpaid, or underpaid. It is also useful in comparing one employee's pay with that of another employee who is assigned to the same job. Recently, it has been utilized as an analysis tool in identifying pay discrimination by comparing the compa-ratio for a group composed of members of a protected group with the compa-ratio of other employees [3].

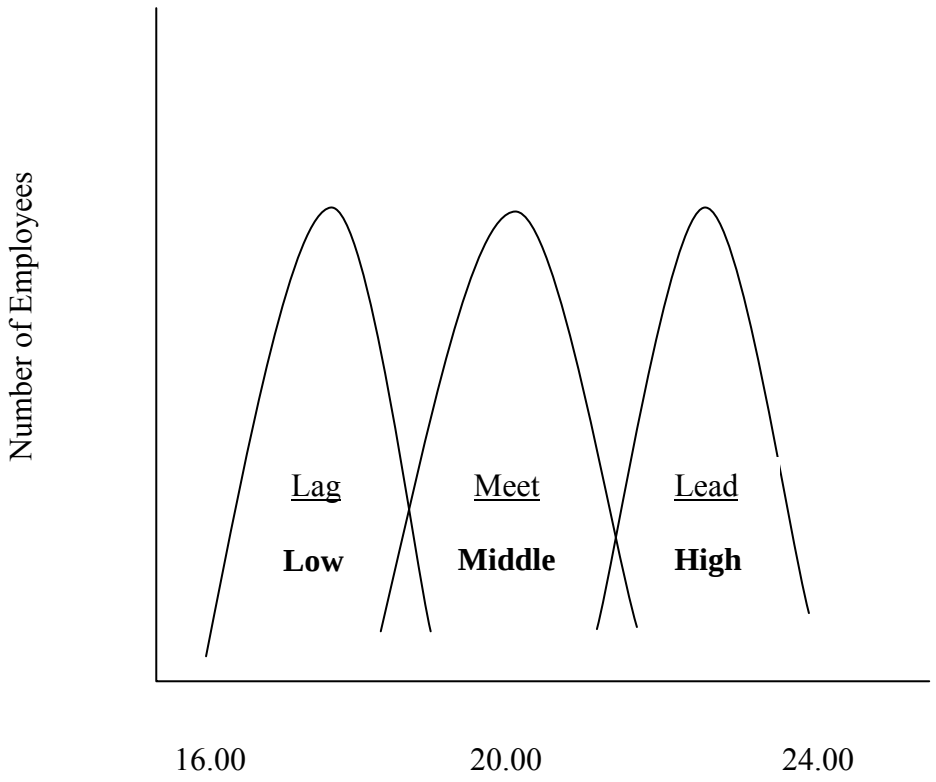
Numerous explanations can be provided for variations from the desired compa-ratio of 1. One explanation for underpayment (CR < 1.0), is that the firm is expanding and has hired a number of new employees. Explanations for overpayment (CR > 1.0) include long tenure and the lack of promotional opportunities.

Both over- and underpayment can have negative consequences for the firm. For instance, overpayment causes the firm to pay more than necessary for the job and underpayment increases the firm's risk that valued employees will leave for higher pay offered by other employers. Consequently, most firms will attempt to administer the pay system to maintain a compa-ratio very close to 1. While this information aids the employer in controlling the structured pay system, it does not address employees' attitudes regarding under- or overpayment.

Figure 3

Lag, Meet, and Lead Pay Strategies for a Job or

Low, **Middle**, and **High** Pay Distributions for the Same Job



Pay Satisfaction

It has been long established that a major determinate of satisfaction is the employees' perceived fairness of the pay they receive (e.g., [2] [7]). From an objective view, the compensation system described above should allow employers and employees to determine if the pay is fair. For this discussion, fair is determined solely on comparisons within the internal labor market. That is, it is based on the pay the employee receives compared with that received by other employees who are doing the same job or, at least, who are in the same career path [13].

Compa-ratio provides such an objective evaluation, but for the employee perceptual fairness, based on social comparison theory [5], may be more important. A structured model provided by Adams [2] is most often used as a method of determining, explaining, or predicting pay fairness or equity. Generally, the model is presented in textbooks (e.g., [12]) as a relatively simple

comparison model. It is, however, a complex theory with an almost unlimited number of potential comparison variables, choices as to the person who will serve as the basis for the comparisons, and outcomes for both the employee and comparison person.

The results of these comparisons provided a measure of whether the employee is treated equitably or inequitably. Assumed general knowledge of the theory and the focus of the present paper do not warrant a detailed presentation of the model, therefore, it is discussed here in a more limited form.

In essence, the model requires the employee to make a comparison between his/her inputs and outcomes and the inputs and outcomes of the identified relative other. The identification of the relative other is important because the quality of the comparison is based on the comparability of the employee and the relative other. In its simplest form, a relative other is someone who exhibits similar skills, background, potential, and work performance. Deviations from the "similar" criterion will result in a biased and unreliable comparison. However, the identification of the relative other is the choice of the employee.

Limiting the location of the relative to the internal labor market avoids a number of complexities associated with the inclusion of external labor market comparisons [14]. Consequently, for this paper, an employee's relative other is considered to be an individual working for the same company who is doing the same job as the employee.

The number of inputs, noted above as comparison variables, may be extensive. Inputs are comprised of all variables that have the potential to contribute to the receipt of valued outcomes. Inputs in the following discussion are considered those characteristics that help identify the relative other. That is, skills, background, potential, and performance. For additional simplicity, inputs for both the employee and relative other are considered equal and constant. Outcomes, because of the focus of the present paper are limited to pay.

The comparison and results can be illustrated as:

Comparison	Results
$I_E = I_{RO}$ and $P_E = P_{RO}$	Equity
$I_E = I_{RO}$ and $P_E > P_{RO}$	Inequity/Overpayment
$I_E = I_{RO}$ and $P_E < P_{RO}$	Inequity/Underpayment

Where: I_E = Inputs, employee.
I_{RO} = Inputs, relative other.
P_E = Pay, employee.
P_{RO} = Pay, relative other.

An equity comparison is expected to result in the employee's attitude of pay satisfaction. A comparison that reveals either over- or underpayment for the employee will result in pay dissatisfaction. The consequences of pay dissatisfaction include, but are not limited to reduced effort levels leading to lower performance, leaving the firm, and insecurity because of the inability to explain the reason for the overpayment.

COMPA-RATIO AND EQUITY

Generally, an inspection of a job pay range would exhibit only one distribution consistent with the firm's pay strategy. It is reasonable to think, however, that if the firm has a large number of employees in a one job, that a multimode distribution can be observed. Using the information in Figure 3 to represent pay for one job rather than three pay strategies, each distribution would exhibit a range of compa-ratios (Low Distribution=.91-1.08; Middle Distribution=.9-1.1; High Distribution=.93-1.06) that are significantly smaller than the compa-ratio for the $16-$24 pay range (i.e., CR=.8-1.2). As a result, the assumption of one pay distribution and one compa-ratio to represent the pay range may not accurately predict an employee's feeling of equity or inequity.

A compa-ratio of .8 ($16 in a single distribution) would suggest the employee may exhibit feelings of inequity, but the same pay in the Low Distribution (CR=.91) may not cause similar feelings. These results, however, are dependent on the employee's choice of a relative other.

Accepting that there is a legitimate reason for a job to exhibit different pay distributions (e.g., multi-tier pay program) [1], and the relative other is in the same pay distribution, the employee may express no feelings of inequity [12]. If the relative other is outside the employee's pay distribution, the results are predicted to be different. Compa-ratios based on the median pay for the low, middle, and high pay distributions are shown in Table 1. If the relative other is within the employee's pay distribution, diagonal cells, the compa-ratio is one (equity), a value greater than one is reflected for the three north/northeast/east cells (inequity/overpaid), and values less than one are shown in the three south/southwest/west cells (inequity/underpaid).

Table 1

Lag, Meet, and Lead Pay Strategies for a Job or

Low, **Middle**, and **High** Pay Distributions for the Same Job

Median Pay for Distribution	17.50	20.00	22.00
Low 17.50	1	**1.14**	**1.26**
Middle 20.00	**.875**	1	**1.1**
High 22.00	**.796**	**.91**	1

Employee Hourly Pay

Based on equity theory [2], employees represented by the data in the diagonal cells would express an attitude of pay satisfaction because of their feelings of being equitably paid. Those employees represented in the north/northeast/east cells would exhibit feelings of inequity even though they are overpaid. Feeling of inequity and pay dissatisfaction also would be displayed by employees in the south/southwest/west cells because they are underpaid. It is obvious that the magnitude of the compa-ratio values would be related to more intense feelings of inequity and corresponding attitudes of pay dissatisfaction.

SUMMARY AND CONCLUSIONS

Organizations expend considerable time and money in establishing structured pay systems that reflect the firm's compensation policies and competitive position in the external labor market. A number of tools are available to help maintain the pay structure, but compa-ratio is one of the most helpful. Compa-ratio provides a measure of the dispersion of employee pay within a pay range.

A compa-ratio of 1 indicates that the firm is paying, based on its compensation strategy, a rate that it considers competitive in the external labor market. Values less than 1 may indicate a significant number of new-hires, but it may also indicate that the firm is paying less than the market rate and could lose employees to employers offering higher pay. If the compa-ratio is greater than 1, the firm is paying more than the market rate and may be incurring cost greater than its competitors.

A single compa-ratio is generally used to evaluate a job or pay range. It is possible, however, that factors such as significant differences in performance, tenure, and multi-tier pay systems may result in multi-mode pay distributions for the same job. The possibilities of these multiple distributions suggest that the use of one compa-ratio for a pay range my lead to incorrect predictions regarding employees' feelings of equity and inequity.

The basis for equity is a comparison with the employee's relative other [1]. With one pay range and multiple distributions, it is possible that the employee's relative other will be in the same or a different distribution. Thus, while a compa-ratio for each distribution within a pay range may provide a more accurate representation of the dispersion, variations of the relative other must also be recognized (e.g., Table 1).

It is apparent that distributions within a pay range can influence employees' feelings of equity and inequity. While it may be difficult for the firm to change its pay structure to assure complete pay equity, it may be possible to influence the employee's choice of a relative other. . A multi-faceted approach to promote the choice of a relative other in the employee’s pay distribution should include information about “similar” employees (e.g., tenure, skills, etc) and efforts to strengthen both on- and off-the-job relations among the separate groups of employees.

REFERENCES

[1] Aeppel, T. (2008, April, 9). Pay scales divide factory floor. *The Wall Street Journal.* p. B4.

[2] Adams, J. S. (1965). "Inequity in social exchanges," In L. Berkowitz (ed.), *Advances in experimental social psychology* (New York: Academic Press), pp. 267-300.

[3] Bereman, N. A. & Scott, J. A. (1991). Using the compa-ratio to detect gender bias in faculty salaries. *The Journal of Higher Education*, pp. 556-559.

[4] Bygren, M. (2004). Pay reference standards and pay satisfaction: what do workers evaluate their pay against? *Social Science Research*, pp. 206-224.

[5] Festinger, L. (1954). A theory of social comparison processes. *Human Relations,* pp.117-140.

[6] Henderson, R. I. (2006). *Compensation management in a knowledge-based world.* Upper Saddle River, NJ: Prentice Hall.

[7] Jaques, E. (1961). *Equitable Payment.* New York: John Wiley & Sons, Inc.

[8] Lawther, W. C., Traynham, E. E., & Jennings, K. M. (1989). Compensation control mechanisms in the American states. *Public Personnel Management*, pp. 325-338.

[9] Martocchio, J. J. (1998). *Strategic Compensation*. Upper Saddle River, NJ: Prentice-Hall.

[10] Milkovich, G. T. & Newman, J. M. (2005). *Compensation.* Chicago: Irwin.

[11] McKenzie, R. B. & Lee, D. R. (1998). *Managing through incentives*. New York: Oxford University Press.

[12] Noe, R. A., Hollenbeck, J. R., Gerhart, B., & Wright, P. M. (2007). *Fundamentals of Human Resource Management.* New York: McGraw Hill.

[13] Osterman, P. (1984). *Internal labor markets*. Cambridge, MA: MIT Press.

[14] Scholl, R. W., Cooper, E. A., & McKenna, J. F. (1987). Referent selection in determining equity perceptions: differential effects on behavioral and attitudinal outcomes. *Personnel Psychology*, pp. 113-124.

[15] Shore, T. E., Tashchian, A. & Jourdan, L. (2006). Effects of internal and external pay comparisons on work attitudes. *Journal of Applied Psychology*, pp. 2578-2598.

[16] Stewart, K. D., Dalton, M. M., Dino, G. A. & Wilkinson, S. P. (1996). The development of salary goal modeling: from regression analysis to a value-based perspective approach. *The Journal of Higher Education,* pp. 555-576.

[17] St-Onge, S. (2000). Variables influencing the perceived relationship between performance and pay in a merit pay environment. *Journal of Business and Psychology*, pp. 459-479.