

Confirming theoretical pay constructs of a variable pay scheme

Authors:

Sibangilizwe Ncube¹
Mark H.R. Bussin¹
Lukas de Swardt¹

Affiliations:

¹Department of Industrial Psychology and People Management, University of Johannesburg, South Africa

Correspondence to:

Lukas de Swardt

Email:

lukas.deswardt@vodamail.co.za

Postal address:

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Orientation: Return on the investment in variable pay programmes remains controversial because their cost versus contribution cannot be empirically justified.

Research purpose: This study validates the findings of the model developed by De Swardt on the factors related to successful variable pay programmes.

Motivation for the study: Many organisations blindly implement variable pay programmes without any means to assess the impact these programmes have on the company's performance. This study was necessary to validate the findings of an existing instrument that validates the contribution of variable pay schemes.

Research design, approach and method: The study was conducted using quantitative research. A total of 300 completed questionnaires from a non-purposive sample of 3000 participants in schemes across all South African industries were returned and analysed.

Main findings: Using exploratory and confirmatory factor analysis, it was found that the validation instrument developed by De Swardt is still largely valid in evaluating variable pay schemes. The differences between the study and the model were reported.

Practical/managerial implications: The study confirmed the robustness of an existing model that enables practitioners to empirically validate the use of variable pay plans. This model assists in the design and implementation of variable pay programmes that meet critical success factors.

Contribution/value-add: The study contributed to the development of a measurement instrument that will assess whether a variable pay plan contributes to an organisation's success.

Introduction

Key focus of the study

The human resources (HR) function has evolved from an administrative function to the role of strategic business partner (Yusoff, 2012). As a strategic partner, HR professionals are expected to design, implement and evaluate programmes that meet organisation's needs. The focus of this study was to validate an instrument that assesses the effectiveness of variable pay plans on business outcomes.

Variable pay (incentive) plans are used to motivate employees to achieve and exceed business objectives. Over the past two decades, the use of variable pay has increased, as have concerns about its relevance. Research conducted by Klapow and Borlo (2009) highlighted top management's concerns over the impact of variable pay schemes on companies' financial results. Given that compensation is often an organisation's biggest expense and therefore impacts profitability, Scott, McMullen and Sperling (2006) suggest that senior management should calculate the return on investment of incentive pay plans, health care and welfare benefit programmes.

Background

In the absence of empirically validated variable pay measurement tools, De Swardt (2005) conducted research on factors required to build an effective variable pay instrument. He formulated a model that was founded on motivational theories and consisted of three constructs and 11 dimensions that were found to be prerequisites of an outcome-based variable pay plan. His model was backed by further studies in this field on the elements required in any variable pay scheme (Greene, 2011; Mathis & Jackson, 2008). Notwithstanding the findings of these studies, De Swardt's (2005) model required further validation prior to rollout and implementation in organisations.

Trends from the research literature

Motivation theories have been used to explain the behaviour of people exposed to incentive schemes. Theories are grouped into schools of thought, which aid in explaining behaviour from different perspectives. The model developed by De Swardt (2005) was an attempt to identify the constructs

and dimensions present in effective incentive schemes. Since this study appeared, Mathis and Jackson (2008) postulated a model in which they identified 10 factors, which were clustered into three themes. The themes are organisation fit, behaviour alignment with the intended outcomes and administrative factors. Organisational fit consists of factors such as sufficient financial resources, alignment with organisational culture and the objectives of the organisation. Behaviour alignment relates to the relationship between performance measures, the link between the measurements and meaningful payouts and the desired behaviour to qualify for incentives. Administrative factors include clear communication of the variable pay plan, the understanding of the rules of the plan and the results achieved in terms of the plan. These factors resonate with the constructs and dimensions identified by De Swardt (2005).

Greene (2011) identified seven key issues that guide the creation of an effective variable pay plan. These are: plan objectives, plan types, eligibility, formula to create reward pools, formula to allocate funds, payment timing and administration. These factors again resonate with incentive pay and confirm the findings of previous studies. The latter research was, however, not built into a model that could be used to validate incentive pay schemes.

Research objectives

Against the background of existing knowledge on variable pay models, the purpose of this study was to validate De Swardt's (2005) findings of the three constructs, being: (1) congruency, (2) instrumentality and (3) performing and the 11 dimensions namely: (1) external alignment, (2) internal alignment, (3) goal efficacy, (4) understanding and acceptance, (5) continuous improvement, (6) trust, (7) certainty, (8) exclusivity, (9) business risk, (10) performance management and (11) performance culture and also to measure the reliability of the 78 items of the data-collection instrument.

The primary research question was: To *what extent* are the constructs and dimensions identified by De Swardt (2005) valid in describing and predicting the outcome of a variable pay plan?

The secondary research questions were:

- 'What is the *reliability* of the 11 dimensions and three constructs?'
- 'What are the *statistical characteristics* of the 11 dimensions and three constructs and can they be used to benchmark new variable pay plans?'
- 'How reliable are the 78 items as *test criteria* for the 11 dimensions and three constructs?'

Contribution to the field

There are no known validated variable pay assessment instruments. The value of this research is that it will contribute to the validation of the 'building blocks' – the constructs and dimensions of the model. On completion, the instrument will be applied commercially to identify potential flaws in

variable pay scheme design, indicate potential problems during the early and the operational stages of a scheme and, finally, allow an assessment of the impact of the pay scheme on the organisation's performance.

Literature review

Hilmarsson (2009, p. 2) defined motivation as the mental force that drives the actions of cognitive beings. In the human context, motivation can be either internal or external. Internal motivation stems from an internally generated drive, such as the desire to do well or to work on interesting projects, whilst external motivation is the desire to achieve rewards. Variable pay offered by organisations is based on different theories of motivation that try to cast light on what really drives human behaviour. Hilmarsson (2009) stated that incentive ideas stem from theories of motivation and can therefore not be fully addressed without understanding motivation; hence, the two concepts of motivation and incentives will be covered simultaneously.

This section on literature is structured as follows: firstly, a discussion of the evolution of motivation theories (scientific, behavioural, content and process approaches) and how they have contributed to the design of incentive schemes will be provided. This is reported from the early ideas of motivation to contemporary thinking. Secondly, existing knowledge of current models founded on previous studies is explored, with reference to the theories of motivation.

Theories of motivation

One could argue that incentives have been used for a while, whether in the form of the proverbial carrot and/or the stick – the idea of rewarding desired behaviours and/or punishing unwanted behaviours. Hilmarsson (2009) remarked that it was during the mid-twentieth century that scientists and scholars began to question what really motivated employees. Following numerous arguments based on research in the manufacturing industry regarding what really motivated employees to perform, scientific management emerged. Scientific research led to the conclusions that workers are motivated purely by money (Turnasella, 2011).

According to the scientific management approach, workers are thought to oppose work and would do as little as they can 'get away' with. By dividing work into small, easily measurable processes, workers could be paid according to what they produced. This would increase productivity and performance as workers themselves could associate the rewards with hard work (Taylor, 1964). Around the middle of the twentieth century, psychologists were keen to discover what drove workers' actions. This led to two main theoretical schools of thought: content and process theories. Content theories assume that factors exist within individuals: those energies that direct and sustain behaviour, which, when collectively considered, could answer why human needs change over time and what it is that motivates people. Under this main theory fell such theories as the needs theory, the two-factor theory, the X and Y theory, and

the existence relatedness growth (ERG) theory, credited to Maslow, Herzberg, McGregor and Alderfer, respectively (Hilmarsson, 2009).

Maslow's hierarchy of needs describes employees as 'wanting animals' (Conley, 2007, p.8) who have certain needs that must be fulfilled. The fulfilment of these needs is stacked like a pyramid, with every employee starting at the bottom, fulfilling the most basic needs such as food, air and water, followed by security and shelter and then love and intimacy. In the upper half, there are the needs for self-esteem and self-actualisation. The theory claims that once a set of needs is fulfilled, a person would strive to achieve the next set, with the ultimate aim being happiness and fulfilment in life (Maslow, 1954).

Although Maslow's theory has been criticised, his ideas were the inspiration for much of the research on motivation. When translated to the field of employee motivation and management, this theory suggests that money is only a useful motivator when the person being motivated does not have enough of it. This view is supported by Pink (2011), who emphasised that financial rewards, and money in particular, are strong motivators and effective incentives for jobs that are mechanical but not 'rudimentary cognitive'. Pink (2011) stated that once the tasks require cognitive thinking (rudimentary cognitive), money loses its motivational effect and results in less of the desired performance. His research concluded that whilst people must receive sufficient financial rewards, other rewards, such as complexity and autonomy of the task, become more important motivators of improved performance.

Herzberg's two-factor theory (Hilmarsson, 2009) claims that motivators can be separated into intrinsic and extrinsic categories, with extrinsic motivators being those that stem from outside the task (referred to as hygiene needs), such as money, and intrinsic being those that reside within the employee, such as sense of accomplishment (referred to as motivator needs). According to Herzberg, intrinsic motivators are superior in that they are capable of permanently improving employee behaviour. Like that of Maslow, Herzberg's theory (Hilmarsson, 2009) has also been widely accepted. When translated to the field of management and validated by Pink's (2011) ideas, Herzberg's theory implies that money can only keep employees from being dissatisfied, but cannot keep them motivated, meaning that money only motivates to a certain extent, at which point other intrinsic motivators are needed.

Hiam (2002) stated that factors such as interesting work, autonomy, responsibility, career growth and a sense of accomplishment aid the satisfaction of motivator needs, whilst the physical and psychological contextual factors in which the work is performed can adversely impact intrinsic satisfaction. Hygiene needs are satisfied by factors such as pleasant and comfortable working conditions, meaningful pay, job security, favourable relationships with other employees and effective supervision (Gellerman, 1963).

McGregor's theory (Hilmarsson, 2009) is strictly work-related and distinguishes between X and Y employees. This theory characterises X employees as inherently lazy, wanting only money, whereas Y employees find work interesting and demand that organisations offer jobs that match their skills capacity. Whereas Maslow holds that employees' satisfaction of needs is hierarchical, Alderfer's theory (Gellerman, 1963) groups employees' needs into three broader classes. Alderfer's classification explains that the satisfaction of employee needs is not necessarily linear. A combination of related needs can be satisfied at any given time. This means that if different employees are motivated by different rewards (not a one-size-fits-all approach), incentive design professionals must identify these factors in order to optimise employee motivation.

Process theories of motivation describe how behaviour is energised, directed and sustained. Lussier and Achua (2012) stated that this approach focuses on understanding how people choose behaviours in order to fulfil their needs. This approach to motivation is associated with expectancy theory, goal theory and equity theory, as proposed by Vroom, Locke and Latham and Adam, respectively (Hilmarsson, 2009). The expectancy theory claims that employee actions are dependent on the desirability of the outcome. The action with the most desirable outcome will be taken; therefore, rather than just answering the question of what motivates employees, this theory attempts to answer the question of to what extent it will motivate (Vroom, 1964).

Locke (1968) proposed the goal theory, which is similar to intrinsic motivation theory. The goal theory holds that workers enjoy challenging tasks that require more thinking and are further motivated by a clear view of how their efforts will lead to goal achievement and reward. The goal theory, when applied to management and incentives, demands that managers and employees set challenging and stretched goals that foster strategic thinking and prompt employees to apply their thought processes to find solutions to problems.

Adam's equity theory (Stoner & Freeman, 1989) is based on the premise that a major factor in job motivation, performance and job satisfaction is the individual's perception of the equity or fairness of the reward received. An individual's motivation, performance and satisfaction thus depend on his or her subjective evaluation of the effort-reward ratio in relation to other employees in a similar situation. Applied to incentives, this theory is helpful in understanding dissatisfaction, as the theory focuses on people's feelings of how fairly they are treated in comparison with the treatment received by others (Adam, 1963).

Variable pay methodology

De Swardt (2005) noted the challenges faced by organisations in designing, implementing and measuring the return on investment in variable pay programmes. He conducted research amongst organisations to understand the considerations required for an effective scheme. His research empirically identified that three constructs (congruency, instrumentality

and performing) and 11 dimensions are important building blocks in a variable pay scheme. De Swardt's (2005) study intended to help organisations develop a variable pay methodology that would enable plan designers to better predict the outcome of variable pay. The main objective was to improve the effectiveness of variable pay schemes by predicting features that should be present, as well as practices that might best be avoided.

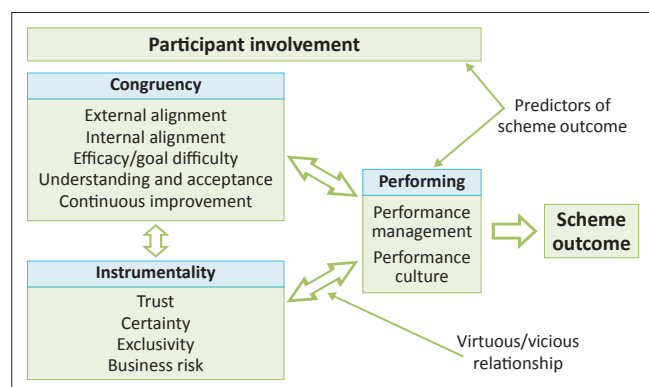
The results of De Swardt's study provide a solution that is founded on accepted motivational theories, as discussed above. As interest in the field of motivation grew and the executives of many organisations noted the prevalence and importance of variable pay, more clarity on the value-add of these programmes was needed. Therefore, De Swardt's research addressed the following key issues related to variable pay design and its effectiveness:

How does variable pay create value? What are the 'building blocks' of variable pay? What role does participant influence play in funding and distribution of rewards? Does reward size play a role? How does an organisation diagnose the health of variable pay plans using the variable pay methodology? How can an organisation predict or evaluate plan outcome? What are the most common reasons why variable pay plans fail? (De Swardt, Veldsman & Roodt, 2010, p. 8)

The results of the research demonstrated that variable pay is not a creator of performance, but that it supports organisational performance (De Swardt, 2005). Figure 1 provides an illustration of the model that summarised the dependent variable (scheme outcome) and independent variables (three constructs and 11 dimensions).

Variable remuneration constructs

'Congruency' refers to the extent and level of understanding, or belief in and practice that behavioural changes leads to achievement of business goals. 'Performing' is the extent to which the level of effort is determined, not only through rules and policies, but also by a widely supported performance culture, leadership and management practices. 'Instrumentality' is the extent to which participants believe that they will be rewarded if they perform as agreed. 'Employee involvement' as a moderating variable refers to the notion that the successful design and implementation of any variable



Source: De Swardt, L.P.V. (2005). *The development and validation of a variable remuneration methodology*. Unpublished doctoral dissertation, University of Johannesburg, Johannesburg, South Africa

FIGURE 1: Variable remuneration model.

pay plan hinges on active participation by employees in the funding and distribution of payouts (De Swardt, 2005).

Variable remuneration dimensions

The following 11 dimensions were identified by De Swardt (2005, pp. 256–280) as requirements for a successful variable pay scheme:

- Performance management, which is defined as 'the extent to which performance management principles are practised in the business'.
- Performance culture, which is defined as 'the extent to which the business is managed and led to deliver successful outcomes'.
- External alignment, which is defined as 'the extent to which the different elements of the business and leadership align with the scheme'.
- Internal alignment, which is defined as 'the extent to which the internal scheme elements are aligned'.
- Communication, which is defined as 'the extent to which information about the scheme and performance is communicated'.
- Continuous improvement, which is defined as 'the extent to which the scheme is continuously reviewed and improved'.
- Efficacy/goal difficulty alignment, which is defined as 'the self-belief of participants that they will be able to achieve the contracted goals'.
- Certainty, which is defined as 'the extent to which the game rules are certain'.
- Trust, which is defined as 'the extent to which a trusting relationship exists between the participants and the custodians of the scheme'.
- Exclusivity, which is defined as 'the extent to which participation in the scheme is reserved only for those people who make a material contribution to the outcome of the scheme'.
- Business risk, which is defined as 'the extent to which uncontrolled business risks prevent desired scheme outcomes from being attained'.

Additional research has been conducted by other academics to identify variable pay factors. For instance, Greene's (2011) research identified seven key issues that guide the creation of an effective variable pay plan, notably, plan objectives, plan types, eligibility, formula determining award funds, formula for allocating funds, payment timing and administration. Yet, whilst Greene's (2011) research added value to this topic, it failed to propose quantitatively how the presence or absence of any of these seven key elements impacts the success of a variable pay scheme.

According to a similar study conducted by Mathis and Jackson (2008), the success of variable pay plans is affected by a variety of factors. Their model highlighted 10 correlated factors, categorised into organisation fit factors, behaviour outcome to plan alignment factors and administration factors. Organisation fit factors comprised availability and sufficiency of financial resources, consistency with organisational culture and linkage with organisational objectives. Behaviour outcome-related factors comprised

linkage between performance results and the meaningfulness of payouts, the extent to which performance is measurable in a fair manner and a relationship between plan design and the desired behaviours. Administrative factors comprised clear communication of the variable pay plan, current and updated variable pay results, clear and understandable plan details and a clear separation from base pay. However, whilst Mathis and Jackson's (2008) research contributed to the identification of incentive design factors, it failed to quantify the impacts of the said components.

Variable pay trends

Research by Zingheim and Schuster (2007) indicated that variable pay is not new in the corporate environment, although it has lately received much emphasis as organisations continue to be subjected to the post-2008 economic challenges. Traditionally, variable pay targeted the upper echelons of the organisation; however, the ease of its administration has led to the inclusion of a greater portion of the workforce (Abosch, 2009). There is no doubt that under the prevailing economic conditions, performance, whether individual, team, or organisational, is key to the sustained existence of any organisation.

WorldatWork (2010) noted that companies are seeing the value of true differentiation in salaries through variable pay rather than traditional guaranteed salary increases, which is a view similar to that of Greene (2011), who commented that variable pay has stronger motivation potential with significant advantages for the organisation. Research by Deloitte Human Capital Advisory Services (2012) indicated that many organisations are using variable pay as a significant, controllable element of their total rewards package. According to WorldatWork (2010), whilst salaries were being cut and increases were at their lowest in decades, in 2009, the funding for variable pay schemes was at an all-time high and many reasons were cited for this being the case. WorldatWork's (2010) research revealed that the main reason for changing to variable pay is to better align remuneration programmes with the business strategy. Abbott and Johnson (2010) also revealed that there has been a positive growth in the number of organisations offering some form of variable pay below the executive level.

Variable pay plans have a number of advantages, given that an organisation must compete for critical skills and cope with a turbulent environment. Kovac (2005) stated that variable pay reinforces desired performance, aligns individual goals with organisational goals, enhances productivity, revenue and performance, supports a performance culture enhances competitiveness in the labour market and provides financial protection for the company. Overall, there is a common understanding that current trends, as noted by Greene (2011), are in favour of the use of variable pay for top performers in order to obtain a competitive advantage.

In recent years, companies have tended to focus more closely on the mechanics of incentives, such as performance metrics and goals, pay mix and eligibility criteria. Research

conducted by Ganesan (2012) indicated that companies are now becoming much more focused on evaluating and measuring the effectiveness of their variable pay policy. This trend is expected to continue into the future as more CEOs focus on the return on investment in reward (Ganesan, 2012).

In the research conducted by Greene (2011), one of the difficulties associated with administering variable pay was found in measuring the competitiveness of plans. With the increased attention paid to incentive reward programmes, De Swardt's (2005) model contributes towards laying guidelines to successfully address this problem. Given the mounting pressure and urgency to justify the continued existence of certain human resource projects, such as incentive schemes, De Swardt's model (2005) can help to address this concern; however, further validation of the model is needed. In the wake of the success and popularity of the balanced scorecard, a performance planning and measurement framework brought to prominence by Robert Kaplan and David Norton, many organisations have taken the step of linking incentives to their own scorecards (Wallgren, 2011).

The broad acceptance and use of balanced scorecards are largely because of their 'holistic' approach to measuring business performance, which considers both financial and a number of non-financial metrics. This approach assumes that performance at an organisational, team, or individual level can be measured through four key perspectives: financial, learning and growth, internal business processes and customers. It stands to reason that the design of an incentive plan should extend beyond implementation to measurements. Whether this balanced set of measures is suited to the employee incentive plan's design depends on the strategy of the organisation. When designing an incentive plan, designers need to consider how success will be measured, that is, whether financial improvements, process changes, people skills changes, or customers will be the key indicators of success (Wallgren, 2011).

Research design

Research approach

The research was conducted using quantitative methods. Taylor (2005) recommends quantitative research as suitable for understanding phenomena by isolating and examining the interrelationships amongst and between variables in a given setting.

Research method

Research participants

The target group consisted of employees who participated in variable pay plans managed by various employers. A total of 300 completed questionnaires from a non-purposive sample of 3000 participants in schemes across all industries were received from 23 participating companies, all of which were listed on the Johannesburg Securities Exchange (JSE). Except for the requirement that respondents should have participated in a variable pay scheme, there was no defined

sample selection criterion for participating organisations in terms of age, industry, race or gender, for example. The sampling technique was non-purposive because it depended on the employer accepting the invitation to participate.

Measuring instrument

The instrument used was a five-point Likert scale comprising 78 items, designed and validated by De Swardt in 2005. This instrument was designed to assess participants' perceptions and experiences on various factors of an incentive scheme and, as used in the study, was found to be adequately reliable in assessing the variables of an incentive scheme. The instrument was tested using Cronbach's reliability assessment method. The results of the tests proved that the instrument was reliable and measured the intended factors. Reliability results are reported in Online Appendix Table 1. Only the items of the construct 'risk' were reverse-scored for ease of interpretation.

Research procedure

Data were gathered using De Swardt's (2005) 78 item questionnaire. The items were grouped under the three constructs, namely congruency, instrumentality and performing. Participants were requested to score each item based on their experience of their organisation's variable pay scheme. Survey results were captured, stored and analysed by the University of Johannesburg's statistical consulting services (STATKON).

The survey link was left open for two months to allow participants sufficient time to complete the questionnaire, as the questionnaire was deemed lengthy. Electronic reminders were sent to participants, encouraging them to complete the survey questionnaire and meet the deadline. Communication, which included face-to-face sessions, was conducted with the representatives to provide background to the research objectives and expectations of the survey. The questionnaire was designed such that, once completed and submitted, it could not be accessed again.

Statistical analysis

To confirm the structure of the variable pay model's constructs, dimensions and items, a structural equation modelling (SEM) approach was followed. To clarify the nature of the constructs that influenced a set of responses from the participants, exploratory factor analysis (EFA) was used. To test whether a specified set of constructs influenced responses in a predictive way, confirmatory factor analysis (CFA) was used. Both the EFA and CFA were necessary to establish any correlations amongst the study variables. Before performing factor analysis, various probability tests (correlation matrix, Kaiser-Meyer-Olkin measure of sampling adequacy (KMO-MSA) and Bartlett's test of sphericity) were conducted by STATKON using the SPSS software program (version 15) to establish whether factor analysis could be performed and which variables should be included, as recommended by Pallant (2007).

Confirmatory factor analysis

In the present study, the objective was to assess whether De Swardt's (2005) findings are still valid under a different sample group. How well the data fit the model was assessed by a variety of tests, including:

- Normality tests using Mardia's multivariate coefficients to determine or assess kurtosis levels. A normal distribution has a coefficient of less than 5.0, whereas a multivariate non-normal distribution had a coefficient greater than 5.0.
- Model fit assessment using the SEM statistical fit indices: Chi-squared test statistics (χ^2), relative normed Chi-squared test statistics ($S-B\chi^2$) with degrees of freedom (df), comparative fit index (CFI), root mean square error of approximation (RMSEA) and modification of variables to improve fitness (Byrne, 2006).

Model fit assessment

The RMSEA statistic measures the discrepancy in terms of the population and not the sample. It indicates how well a model would fit the population covariance matrix and is less affected by the sample size. RMSEA values are indicated on a continuum ranging from 0 to 1.00, with a value of 0.08 and below indicating an acceptable fit, values below 0.05 indicating a good fit and values smaller than 0.01 indicating an exceptionally good fit. The acceptable level of confidence (CI) used in RMSEA is 90% (MacCallum, Browne & Sugawara, 1996).

Chi-square (χ^2) is the most common method of evaluating goodness of the model fit and discrepancy between the survey feedback and the original model (Hu & Bentler, 1999). As a guideline, a value of 0.05 (Barrett, 2007) or less is indicative of a good fit. The $S-B\chi^2$ is used as an alternative when the value is > 0.05 . There is a limitation to the χ^2 as it is highly sensitive to sample size, especially if the observations are greater than 200 (Hair *et al.*, 2003). An alternative evaluation of the χ^2 statistic is to examine the ratio of χ^2 to the degrees of freedom for the model (Wheaton *et al.*, 1977). A small χ^2 value relative to its degrees of freedom is indicative of a good fit, whilst values ranging between 2.0 and 5.0 are indicative of a reasonably good model fit.

Root mean square residual (RMR) and standardised root mean square residual (SRMR) are the square roots of the difference between the residuals of the sample covariance matrix and the hypothesised covariance model. The range of the RMR is calculated based upon the scales of each indicator; therefore, if a questionnaire contains items with varying levels, the RMR becomes difficult to interpret (Kline, 2005). The SRMR resolves this problem and is therefore much more meaningful to interpret. SRMR ranges from 0 to 1.0, with well-fitting models obtaining values less than 0.05 (Diamantopoulos & Siguaw, 2000). However, values as high as 0.08 are deemed acceptable (Hu & Bentler, 1999).

Bentler and Bonnet's (1980) CFI can overcome the limitation of sample size. This index is a revised form of the normed-fit index (NFI), which takes into account sample size and

performs well, even when the sample size is small (Tabachnick & Fidell, 2007). A CFI greater than or equal to 0.90 indicates a good fit (Hu & Bentler, 1999).

The purpose of CFA is to establish the difference between the model and a new sample that is tested against the model. The NFI assessed the model by comparing the χ^2 value of the model to the χ^2 of the null model. The probability of an error in the test is denoted by the alpha (α) value which ranges from 0.0 to 1.0. Two levels of significance are used to denote the probability of error. A significance level of 0.05 denotes a 5% chance of being wrong, whereas a level of 0.01 denotes a 1% chance of being wrong.

Results

Descriptive statistics

The overall mean score was 2.3 with some of the scoring concerns related to the mean score being below 1.0, relating to questions A26, A72, A76, A77 and A78 with the following statements:

- A26 – ‘To what extent are practical limitations (e.g. feedback on performance) preventing the plan from being effective?’
- A72 – ‘How difficult is it for you to exceed the performance criteria?’
- A76 – ‘To what extent are you able to influence the performance measures that determine the incentive payout?’

- A77 – ‘How much opportunity do you have to influence the performance criteria of the incentive scheme?’
- A78 – ‘To what extent can participants control the factors influencing the incentive scheme outcomes?’

The median and modal scores for the sample data were both 2.0, whereas the variance and standard deviation both fell within the range of 1.0–1.3. The performing construct was negatively skewed, instrumentality had a positive skewedness and congruency had a positive skewedness. A distribution can be mesokurtic, leptokurtic, or platykurtic. In this study, 96% of the item’s kurtosis values were less than zero ($K < 0$), indicating that the overall kurtosis had a platykurtic distribution (refer to Table 1).

Inferential statistics

Factor analysis

Pallant (2007) recommends performing probability tests before assessing the relationship of variables using factor analysis. The correlation matrix, KMO-MSA, eigenvalues and Bartlett’s sphericity test confirm the probability of conducting factor analysis if the results are: KMO index > 0.600 , correlation matrix > 0.300 , Bartlett’s coefficient < 0.005 and Eigenvalues < 1.000 .

As illustrated in Table 2, more than 95% of the factor analysis results confirmed the possibility of conducting factor analysis. The acceptable reliability tests have Cronbach’s alpha values interpreted as: > 0.9 great, > 0.8 good, > 0.7 acceptable and

TABLE 1: Descriptive statistics.

Construct	Dimension	Item number	Mean Score	Median score	Modal score	SD	Variance	Skewness	Kurtosis
1. Performing (11 questions)	1.1. Performance culture	1–5	3	3	4	1.09	1.19	-0.88	0.25
	1.2. Performance management	6–11	2	3	4	1.29	1.67	-0.45	-0.76
2. Instrumentality (17 questions)	2.1. Certainty	12–16	2	2	4	1.37	1.87	-0.23	-1.13
	2.2. Exclusivity	17–19	2	2	2	1.32	1.75	-0.24	-0.90
	2.3. Trust	20–24	2	2	2	1.29	1.67	-0.29	-0.87
	2.4. Risk	25–27	2	2	2	1.30	1.70	-0.02	-1.00
3. Congruency (50 questions)	3.1. External alignment	28–39	2	3	2	1.20	1.45	-0.44	-0.56
	3.2. Internal alignment	40–50	2	2	2	1.24	1.56	-0.37	-0.71
	3.3. Understanding and acceptance	51–67	2	2	2	1.23	1.53	-0.38	-0.72
	3.4. Continuous improvement	68–71	2	2	2	1.22	1.49	-0.28	-0.65
	3.5. Goal difficulty	72–78	2	2	2	1.20	1.44	-0.04	-0.66

Source: Data collected by authors during present study
SD, standard deviation.

TABLE 2: Scale reliability tests.

Factor	Dimension	Chronbach’s alpha	Kaiser-Meyer-Olkin	Eigenvalue	Variance explained	Items deleted or omitted
1.0	Performance management	0.89	0.85	3.76	63%	–
2.0	Performance culture	0.78	0.83	2.86	57%	–
3.0	Risk	0.83	0.69	2.05	68%	–
4.0	Trust	0.72	0.73	2.23	56%	A24
5.0	Certainty	0.77	0.76	2.40	60%	A14
6.0	Exclusivity	0.72	0.74	2.18	54%	A19b
7.1	External alignment	0.87	0.91	2.00	60%	–
7.2	External alignment	0.85	0.50	1.66	83%	–
8.0	Internal alignment	0.80	0.92	6.55	60%	–
9.0	Understanding and acceptance	0.92	0.94	1.29	65%	–
10.0	Continuous improvement	0.92	0.77	2.58	64%	–
11.0	Efficacy/goal alignment	0.83	0.82	2.99	60%	A72, A73

Source: Data collected by authors during present study

at 0.6 borderline (Pallant, 2007). The KMO-MSA test the relationship strength between variables and a minimum of 0.6 is recommended (Blunch, 2008). A further requirement in CFA is an Eigenvalue > 1.0 to retain the variable for further testing.

Comparing the findings of De Swardt's (2005) model with the results of the present study, the reliability of the sub-scales increased after some of the items were omitted. Specifically notable were the dimensions of 'exclusivity' (three items were added in the questionnaire of which one was omitted in the validation) and 'risk' (the direction of the items was reversed). A summary of the factor analysis results, including the various tests has been provided in the Online Appendix Table 2.

Ethical considerations

The study posed no potential hazards to participants and the result of the research was to enrich the existing views and knowledge on variable pay schemes in organisations. For the purposes of confidentiality, all questionnaires were accessed through a secure online link, which was accessible only once to a participant to mitigate multiple completion of the assessment.

Trustworthiness

Reliability

The internal reliability of the research questionnaire was measured and a Cronbach's alpha of 0.872 (performing), 0.799 (instrumentality), and 0.971 (congruency) was achieved, indicating that the research instrument was reliable.

Validity

The variable pay building blocks attributed to this study and assigned to the factor analysis are substantially similar to the model developed by De Swardt (2005).

Discussion

The objective of the research study was to validate whether the constructs, dimensions and items designed in De Swardt's (2005) variable pay model are still a relevant in predicting variable pay scheme outcome. Factor analysis was therefore conducted amongst a sample group to compare the study variables, of which the results were subjected to factor analysis, as discussed above. The results of the factor analysis indicated minimal differences between De Swardt's model (2005) with respect to the reliability of the three research constructs (instrumentality, congruency and performing) and 11 dimensions. The following main findings were revealed:

- De Swardt's (2005) three constructs and 11 dimensions are still reliable and valid in measuring the effectiveness of the model.
- The dimensions and constructs are fairly reliable in the current sample, as they were when the model was initially designed.

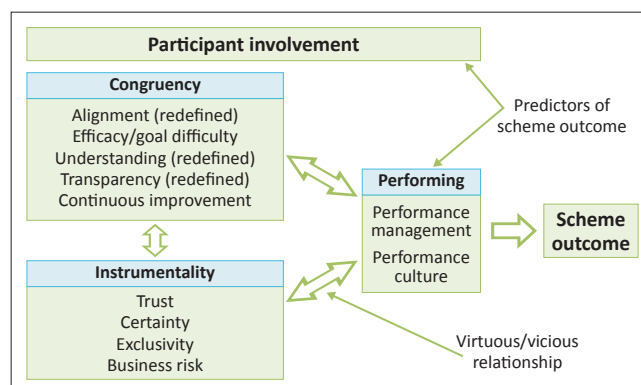
- The extent to which the 78 item questions test the three constructs and 11 dimensions is still applicable (i.e. reliable).

However, some changes were identified that will increase the reliability of the model. Following the various tests that were conducted on the 78 items, 11 dimensions and three constructs, 13 items were deleted from De Swardt's (2005) model to improve the instrument's reliability. Items with a test statistics value of less than 0.3 were eliminated as they correlated poorly with other items. In deleting items, it was ensured that the remaining items were adequate to assess the constructs and dimensions. The remaining items are sufficient in evaluating the reliability of the variable pay constructs and dimensions.

Revised variable pay model

As a result of the modifications to the variable pay model, structural changes are evident in the revised variable pay model, illustrated in Figure 2. Modifications were made to both the constructs and dimensions in order to improve it for future commercial application and testing. Overall, the model has been confirmed and improved as an assessment instrument of variable pay plans. The changes highlighted in Figure 2 are:

- The integration of the 'internal alignment' and 'external alignment' dimensions to form one dimension 'alignment'. Alignment is made up of items that deal with the relationship between the scheme performance criteria and business results, the behaviour of participants, management support, consistency between daily activity, business objectives and the targets set.
- The elimination of the dimension 'understanding and acceptance' and the creation of two separate dimensions, 'understanding' and 'transparency'. Included under the definition of 'understanding' are the level of participant understanding of the rules, structure, calculations, purpose and business reasons for the scheme. Under 'transparency' are the clarity of targets, measurement criteria, assessments, payouts and regular communication and feedback.
- A number of items included in some of the dimensions were removed where SEM justified it. A total of 13 items were removed, two were added and a number revised to simplify operational assessments.



Source: Authors' own construction

FIGURE 2: Revised variable remuneration model.

The revised variable remuneration model resonates with the findings of research conducted since the first model was developed (Greene, 2011; Mathis & Jackson, 2008). The synergies between the three studies are reported in Online Appendix Table 3.

The present study shows that the consensus about the constructs and dimensions that form variable remuneration plans is growing and that future studies to validate the linear predictive relationship between the uncontrollable variables (the constructs and dimensions and moderator variables) to provide a reliable formula to predict scheme outcomes are now eminent.

Practical implications

The research outcome makes a valuable contribution towards the empirical validation of a variable pay model. The outcome of this research will enable further research validating the multivariate relationships between the constructs, the impact on business results and the prediction of the effect of business outcomes. Finally, variable pay plans are one of the most popular methods of determining pay allocation in South Africa and continue to receive added focus, particularly at executive levels (Seegers, 2012, p. 1). However, some academic and professional observers still regard their use as controversial. The present research will increase the credibility of remuneration models' impact on the bottom line.

Benefits and applicability of the methodology

De Swardt's (2005) remuneration model was founded on relevant motivational theories and subjected to empirical testing. The outcome of this research will enhance the variable pay model in the following ways:

- The instrument (constructs and dimensions) that project whether investment in incentive schemes will affect business results has been strengthened, thereby allowing design professionals to make the necessary design adjustments or completely withdraw the scheme before any commitments are made.
- The instrument that provides feedback during the operational life of the variable pay scheme has been strengthened, thereby allowing professionals to rectify any weaknesses before any unjustified payouts are due.
- The study assisted with the validation of constructs and dimensions. This provides a reliable platform to study the interaction between independent variables and the dependent outcomes (business results). Therefore it will assist in developing an instrument that will improve future governance practices.

Limitations and recommendations for future studies

Not all aspects of the model were tested during the present study. The linear prediction between the independent variables and moderator variable (participant involvement) and the scheme outcome were not tested. The research objectives were to validate the constructs and dimensions only. However, this will provide a better platform to test the entire model in future.

In quantitative research, the objective is to obtain as much information as possible from the participants; however, there were limitations that impeded the achievement of this objective. The following challenges in this regard were experienced. Firstly, it was noted that, because of the number of items in the questionnaire, the reliability of participant feedback was compromised, particularly towards the end of the questionnaire. The effect of this was that the respondent's response quality deteriorates towards the end of the questionnaire. Secondly, although the sampled organisations were representative of various industries, most feedback was obtained from one company. The effect is that the data may be skewed and not as representative of all organisations. From a statistical perspective, although the SEM approach was used, the output generated through the SPSS program is a factor of estimating numbers. The researchers are of the opinion that future studies should be conducted using a wider population group and a wide variety of industries.

Conclusion

The primary aim of the study was to validate the three constructs and 11 dimensions and assess the reliability of 78 items of De Swardt's (2005) variable pay model. This was accomplished through rigorous testing of the components of the model's constructs and dimensions. This evaluation was performed by subjecting the constructs and dimensions of the model to SEM to quantify the fit of the theoretical model to the test data.

Both exploratory and confirmatory tests were performed, as well as multiple fitness tests, to ensure that, theoretically, factor analysis was possible. Feedback received from the research was analysed through statistical tools and techniques – SPSS and SEM (via the EQS program) – by STATKON and results were interpreted in relation to the primary model under study. Despite differences amongst some of the research constructs and sub-scales, overall, the results confirmed that the theoretical model is still valid when using the present study's data. The model is therefore fit for its purpose and stable to conduct multivariate analysis and validate its linear predictability.

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Competing interests

The authors declare that they have no financial or personal relationships, which may have inappropriately influenced them in writing this article.

Authors' contributions

The study was conducted under the supervision of M.B. (University of Johannesburg) and L.d.S. (University of Johannesburg). L.d.S. was responsible for the initial study to develop a model to assess the contribution of incentive schemes on business results. S.N. (University of Johannesburg) did the fieldwork, the initial interpretation of the results and wrote the manuscript. M.B. and L.d.S. reviewed the conclusions and interpretations.

References

- Abbott, K., & Johnson, R. (2010). *Developing performance incentives and sustaining engagement in a volatile environment*. Scottsdale: WorldatWork Press.
- Adam, J.S. (1963). *Toward an understanding of inequity*. New York: Crotonville.
- Abosch, K. (2009). The past, present, and future of variable pay. *WorldatWork*, 7, 26–31.
- Barrett, P. (2007). *Structural equation modelling: Adjudging model fit – Personality and individual differences*. London: McGraw-Hill.
- Bentler, P.M., & Bonnet, D.C. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, 88, 588–606. <http://dx.doi.org/10.1037/0033-2909.88.3.588>
- Blunch, N. (2008). *Introduction to structural equation modelling: Using SPSS and AMOS*. Los Angeles: Sage Publications.
- Byrne, B.M. (2006). *Structural equation modeling with EQS. Basic concepts, applications, and programming*. London: Lawrence Erlbaum Associates.
- Conley, C. (2007). *Peak: How great companies get their mojo from Maslow*. San Francisco: Jossey-Bass.
- Deloitte Human Capital Advisory Services. (2012). *Compensation trends survey 2012*. New Delhi: Deloitte Touche Tohmatsu India Private Limited.
- De Swardt, L.P.V. (2005). *The development and validation of a variable remuneration methodology*. Unpublished doctoral dissertation, University of Johannesburg, Johannesburg.
- De Swardt, L.P.V., Veldsman, T., & Roodt, G. (2010). *Towards an empirical validated pay methodology. Variable pay. A collection of articles from WorldatWork*. Scottsdale: WorldatWork Press.
- Diamantopoulos, A. & Siguaw, J.A. (2000). *Introducing LISREL*. London: Sage Publications.
- Ganesan, S. (2012). *Making variable pay work*. Retrieved June 20, 2012, from <http://www.shrmindia.org/knowledge-center/compensation-reward-and-recognition/variable-pay/making-variable-pay-work>
- Gellerman, S.W.G. (1963). *Motivation and productivity*. New York: American Management Association. PMID:14094055
- Greene, R.J. (2011). *Variable Pay: How to manage it effectively*. Retrieved June 20, 2011, from http://www.shrm.org/multimedia/webcasts/Documents/12greene_VariablePay.pdf
- Hair, J.F.J., Babin, B., Money, A.H., & Samuel, P. (2003). *Essentials of business research methods*. New York: Wiley and Sons, Leyh Publishing, LLC.
- Hiam, A. (2002). *Motivational management: Inspiring your people for maximum performance*. New York: Amacom.
- Hilmarsson, S.T. (2009). *The evolution of motivation and incentive systems research: A literature review*. Retrieved April 16, 2009, from http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1965646
- Hu, L.T., & Bentler, P.M. (1999). *Cut-off criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives, structural equation modelling*. London: Elsevier.
- Klapow, J.M., & Borlo, L. (2009). *Exploring the frequency and duration of incentives*. Scottsdale: WorldatWork Press. PMID:19753952
- Kline, R.B. (2005). *Principles and practice of structural equation modelling*. New York: Guilford Press.
- Kovac, J.C. (2005). Back to basics: Variable pay. *WorldatWork*, 48, 59.
- Locke, E.A. (1968). Towards a theory of task motivation and incentives. *American Institute for Research*, 3, 157–189.
- Lussier, R.N., & Achua, C.F. (2012). *Effective leadership*. Emmaus: Rodale Press.
- MacCallum, R.C., Browne, M.W., & Sugawara, H.M. (1996). Power analysis and determination of sample size for covariance structure modelling. *Psychological Methods*, 1, 130–149. <http://dx.doi.org/10.1037/1082-989X.1.2.130>
- Maslow, A. (1954). *Motivation and personality*. New York: Harper and Row.
- Mathis, R.L., & Jackson, J.H. (2008). *Human resource management*. Mason: South-Western Cengage Learning.
- Pallant, J. (2007). *A step by step guide to data analysis using SPSS version 15: SPSS survival manual*. New York: McGraw-Hill.
- Pink, D. (2011). *Drive: The surprising truth about what motivates us*. New York: Riverhead.
- Scott, D., McMullen, T.D., & Sperling, R.S. (2006). Evaluating pay program effectiveness. *WorldatWork*, 16, 47–53.
- Seegers, G. (2012, June 10). *South African companies can expect more scrutiny of executive remuneration*. Retrieved June 10, 2012, from <http://www.cover.co.za/governance/south-african-companies-can-expect-more-scrutiny-of-executive-remuneration>
- Stoner, A.F.J., & Freeman, R.E. (1989). *Management*. Upper Saddle River: Prentice Hall.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics*. Boston: Pearson Education.
- Taylor, F. (1964). *Scientific management*. New York: Harper and Row.
- Taylor, R.G. (2005). *Integrating quantitative and qualitative methods in research*. Toronto: Toronto University Press.
- Turnasella, T. (2011). *Variable pay plans*. New York: Reddy.
- Vroom, V.H. (1964). *Work and motivation*. New York: Wiley.
- Wallgren, L.G. (2011). *Motivation requested. Work motivation and the work environment of IT consultants*. New York: Intellecta.
- Wheaton, B., Muthen, B., Alwin, D.F., & Summers, G. (1977). *Assessing reliability and stability in panel models. Sociological methodology*. New York: Sage.
- WorldatWork. (2010). *Employers increasing proportion in employee pay programs*. Retrieved May 03, 2011, from <http://www.worldatwork.org/waw/adimComment?id=39253>
- Yusoff, Y.M. (2012). The path from an administrative expert to a strategic partner role: A literature review. *Interdisciplinary Journal of Contemporary Research in Business*, 3, 1–10.
- Zingheim, P., & Schuster, J. (2007). Selecting variable pay goals. *The SZA Total Rewards Bulletin*. Retrieved May 03, 2011, from http://www.paypeoplelight.com/SZATRB_Aug_2007_tactics.htm