THE USE & CONSEQUENCES OF PERFORMANCE MANAGEMENT & CONTROL SYSTEMS: A STUDY OF A PROFESSIONAL SERVICES FIRM

By

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BSc. Accountancy (University of Nigeria Nsukka), MBA (Bayero University Kano), MSc. Accounting and Financial Management (Lancaster University)

Thesis submitted to Lancaster University in fulfilment of the requirements for the degree of Doctor of Philosophy in Accounting and Finance

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Abstract

It has long been recognized that Performance Management and Control Systems (PMCSs) impact positively on organizational efficiency and effectiveness by affecting the behaviour of organizational participants. However, PMCSs also create tensions between achieving short-term and long-term objectives which often times lead to unintended negative consequences. These effects of PMCSs are much more attributed to their design than the way they are used. This coupled with the undesirable PMCSs' effects has led to several innovations that propose complementing, and some proposing total replacement of, the traditional PMCS with a wider range of non-financial or operational measures.

This study investigates the way a PMCS, encompassing both financial and non-financial measures, is used and the effect on work behaviour and performance. It examines the possible influence of hierarchical levels on the nature of measures employed in the PMCS, the way it is used, as well as the effects of the PMCS. It also investigates other factors that affect the consequences of PMCS use, and the mechanisms by which these effects are transmitted. Furthermore, it seeks to shed light on the complexity of the way PMCSs impact on work

behaviour and performance by examining the interplay of the factors that affect PMCSs' effects and the mechanisms by which these effects are transmitted.

The results of the study show that PMCSs do have some positive effects on performance, but also have albeit unintended positive effects on dysfunctional behaviour. It also shows that hierarchical levels influence the nature of measures employed in PMCSs, the manner in which they are used, as well as PMCSs' effect on work effort. More financial measures tend to be employed at higher hierarchical levels, while PMCSs tend to be used in more target-focused manner at lower levels of the organisation. However, the effects of PMCSs do not vary at different levels of the organisation except for the effect on work effort. Nonetheless, it was also found that the way that a PMCS is used impacts work behaviour and performance much more it seems than its design in terms of the type or nature of PMCS measures. Furthermore, the level of goal difficulty, interactive use of control systems, and supervisory trust were found to affect the impact of PMCSs use on behaviour and performance. In addition, the findings reveal goal commitment to be an important mechanism that mediates the effects of PMCSs use. Also, the perception of equity and fairness was found to be another mediator of PMCS effects. Finally, the study reveals that the interplay of interactive use of control systems and perceptions of equity and fairness significantly influence PMCSs' effects on dysfunctional behaviour; while the interplay between goal difficulty and goal commitment significantly influence PMCSs' effects on performance.

Dedication

I wish to dedicate this work to the memory of my late mum, Edna Uloma Ururuka.

and to my children; CJ, Chudi, and Adaeze.

Acknowledgements

Pursuing a PhD degree has been to date one of the most challenging experiences in my life, not least because of the time commitment and strength to sustain the motivation to see it to the end during the many difficult moments. Finding the strength and motivation to successfully complete this pursuit was only possible because of the help, love and encouragement of many people to whom I am sincerely grateful. However, it is not possible to mention everyone's name here, and I offer my advance and sincere apologies to those not explicitly mentioned.

Firstly, I am especially grateful to my dear wife, Charlotte; it would not have been possible to complete this pursuit without your love, sacrifice, and encouragement. Thank you for being there and giving so much.

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I wish to acknowledge the financial support from the ORS Award Scheme in conjunction with Lancaster University Management School for sponsoring me as a PhD candidate. I also wish to acknowledge financial support for this work provided by The Chartered Institute of Management Accountants.

Finally, I also wish to thank my dad and other friends and family for their understanding and support. And to God who made all things possible, I am eternally grateful.

Declaration

The work reported in this thesis is mine. No part of this work has been submitted to Lancaster University or elsewhere for the award of another degree or qualification.

Valentine Okechukwu Ururuka

August 2007

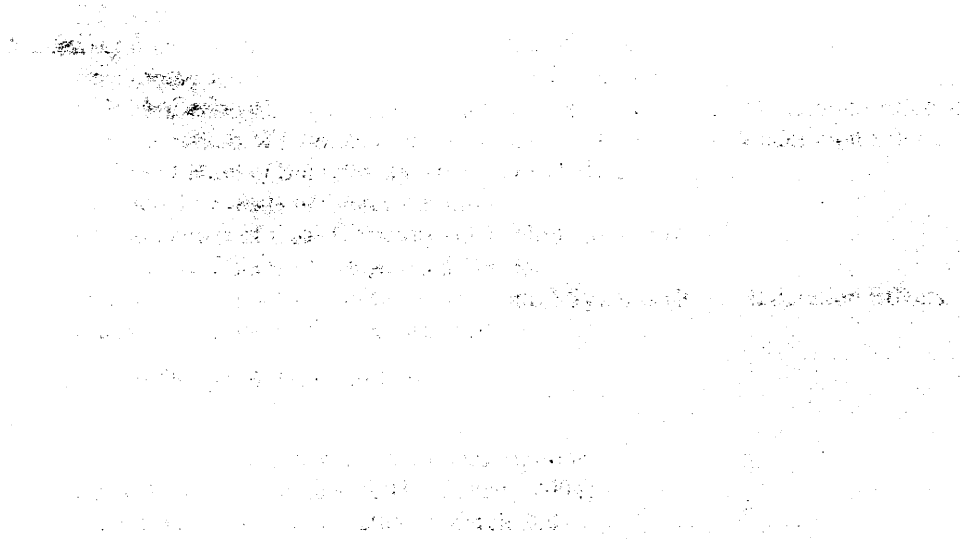
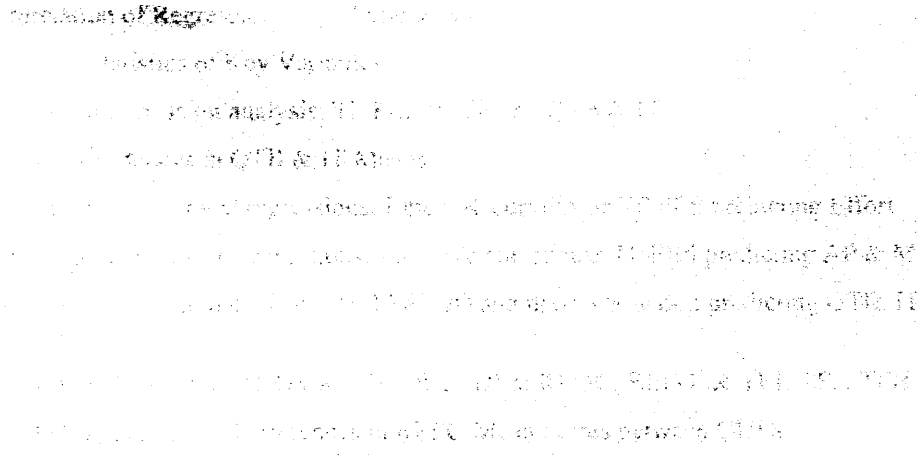
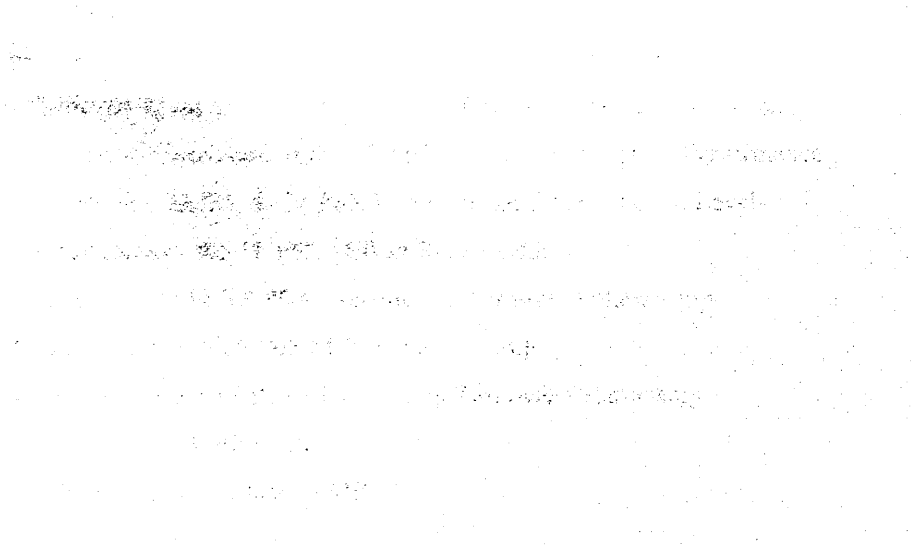


Table of Contents



List of Tables



List of Figures

Abbreviations

Acronym	Description
AP	Actual Performance Rating
DV	Dependent Variable
EFF	Effort
EFP	Equity & Fairness Perception
ET	Employment Tenure
GC	Goal Commitment
GD	Goal Difficulty
GEN	Gender
GT	Grade Tenure
ICS	Interactive Use Of Control Systems
IT	Intention To Turnover
IV	Independent Variable
JRT	Job Related Tension
JS	Job Satisfaction
LUMS	Lancaster University Management School
MCS	Management Control Systems
MDD	Management Development Division
MP	Managerial Performance
OC	Organisational Commitment
OHL	Organisational Hierarchical Level
PES	Performance Evaluative Style
PMCS	Performance Management and Control Systems
QTB	Quality Threatening Behaviour
REFG	Relative Emphasis On Financial Goals
REQG	Relative Emphasis On Quantitative Goals
ST	Supervisory Trust
TF	Target Focused
TF PES	Target Focused Performance Evaluative Style
TF1	Target Focused Style-Full (1st measure of TF PES based on 6 items from the new PES instrument)
TF2	Target Focused Style-Short (2nd measure of TF PES, based on 2 items from the new PES instrument)
TFH	Target Focused Style Hopwood (3rd measure of TF PES based on 3 items from the adapted Hopwood instrument)

Chapter 1 Introduction

This study is motivated by an interest in understanding how managers' use of management control systems information – financial, quantitative non-financial, and other qualitative information - aimed at achieving the organisation's strategic plans influence behaviour and performance. It also aims to understand the mechanisms by which style of information use affects behaviour and performance, and how these may be affected by organisational hierarchical level (OHL) and by other factors identified from the literature.

The literature on the design and use of management control systems (MCSs) for performance evaluation and reward is extensive and still growing. Indjejikian (1999, p.148) notes "while different paradigms and methods have been used to study how managers are evaluated and rewarded, the overriding verdict of the academic literature is that performance evaluation and compensation design are important issues worthy of study." Similarly, Covaleski et al. (2003, p. 7) observe that:

> The research questions formulated by the budgeting literature in the last several decades are likely to remain important questions for future research. How do budgeting practices affect employee motivation and performance, as well as organisational performance? What role should budgets play in evaluating and rewarding employees' performance? What are the costs and benefits of different levels of budget-target difficulty and different methods of setting the targets? How does budgeting help or hinder in planning and coordinating activities in complex organization, and what is its role in generating or resolving organizational conflict? How does the answers to these questions change with changes in non-budgeting variables such as environmental uncertainty, technology, and organizational strategy and structure?

MCSs provide information for managerial planning and decision-making, and control of organisational activities, presumably towards the achievement of organisational objectives.

However, it is not just the design of MCSs that effect control of organisational activities but the manner in which they are used, especially in performance evaluation and reward. The manner in which MCSs are used makes them effective or ineffective organisational control tools. The style of use of MCSs for performance evaluation, termed here as performance evaluative style (PES), has been studied generally from a contingency theory perspective with two main streams of interest providing background to this study – i.e. the budgetary control or reliance on accounting performance measures (RAPM) stream, and the strategy-MCS fit stream.

What has become known as the RAPM literature (e.g. Hopwood, 1972; Otley, 1978; Brownell and Hirst, 1986; Hirst, 1981, 1983; Brownell, 1982a, 1982b, 1983; Govindarajan, 1984; Brownell and Merchant, 1990) in general focuses on PES characterised by reliance on budgets and accounting information in performance evaluation, and examines its impact on performance and behaviour in various contexts like different task environments and technologies. Some of the studies also attempt to investigate the mechanisms that impact on the relationship between RAPM and performance within these contexts e.g. participation in target setting, leadership style etc.[1] On the other hand, the strategy-MCS literature (e.g. Snow and Hrebiniak, 1980; Govindarajan and Gupta, 1985; Simons, 1987, 1990; Covin, 1991) expand the RAPM literature by investigating organisational strategy as a new contingent variable; and thus considers the impact of RAPM on performance within different strategies. Though empirical evidence is inconclusive, the overall suggestion from these studies seem to be the inappropriateness of accounting information (deemed incomplete) for performance evaluation and reward in complex and uncertain conditions (Chenhall, 2003). In particular, reliance on accounting/budgetary performance measures is deemed to lead to dysfunctional behaviours and poor performance – though the empirical evidence for such effects is inconclusive.

[1] Hopwood (1972) and Otley (1978) do not strictly belong to the RAPM category because of conceptual differences between their studies and the others in the RAPM stream.

Because of conflicting findings and methodological problems, this body of studies has been criticised by some as not yet providing a cumulative body of knowledge nor an overall framework for analysis of relations of contingent factors with MCSs (Chapman, 1997; Dent, 1990; Hartmann, 2000; Langfield-Smith, 1997; Otley, 1999).[2] The major reason advanced for the conflicting findings, aside methodological issues, is the assumption, with little or no validation, that budgets and accounting data play a central role in the performance evaluation and reward process of the studied organisations (Otley and Fakiolas, 2000). Also, most of these studies provided rather narrow specification of PES, as based or not based on budgets, mostly accounting data, despite possibilities of broader PES specifications indicated by the earlier pioneering studies (Briers and Hirst, 1990; Hartmann, 2000).

Furthermore, these studies provide limited evidence and guidance on how MCSs are used concurrently at different hierarchical levels within an organisation as analyses are typically conducted at the same hierarchical level within or across organisations. The contingent variables studied may apply differently at different hierarchical levels within the same organisation. Moreover, current applicability of the findings of these studies are called into question by recent changes in the business environment; for e.g. globalisation and rapid advances in information technology, and changing control practices such as higher prominence accorded non-financial performance measures in these changing competitive business environments (Otley, 1994; Burns et al., 1999; Baines and Langfield-Smith, 2003). It is needful therefore to re-examine PES and its effects on behaviour and performance in the current business environment. In addition, these studies provide limited insights on the process(es) by which PES affects behaviour and performance.

[2] This conclusion is still made despite the claim by Brownell and Dunk (1991) that the RAPM stream of studies represents the only cumulative body of knowledge within behavioural management accounting research.

Consequently, the present study seeks to deal with the highlighted shortcomings in the literature by addressing the following research questions within the context of a specific organisation:

1. What are the nature/ type of performance measures predominantly used at different levels in the organisation?
2. How are these used in evaluating and rewarding performance, i.e. what is the style of use or performance evaluative style (PES)?
3. What are the behavioural and performance consequences of the PES?
4. Does organisational hierarchical level (OHL) affect PES or its consequences? If so, how?
5. What other factors/conditions affect PES impact on behaviour and performance; what are the mechanisms by which PES effects are transmitted; and do these factors and mechanisms interplay to influence PES? If so, how?

The study was conducted in a professional accounting services firm. The majority of previous studies were conducted in manufacturing firms, thus this study expands the literature in examining these questions in a service organisation. Moreover, accounting firms have experienced significant changes in recent years in both their internal and external environments which, from a contingency theory perspective, have implications for their organisational structure and other organisational control mechanisms. For example, recent corporate failures associated with accounting scandals and the direct involvement of professional accounting firms has brought increased public scrutiny, more regulatory oversight, increased risk of litigation, and a negative public image of the accounting profession. Furthermore, the stream of MCS literature focusing specifically on accounting firms (e.g. Pierce and Sweeney, 2004; 2005) provides evidence of changes in the internal environment of accounting firms that have implications for their control systems. For example, the move towards paperless audits and reduced audit file documentations; the

increased use of strategic or risk-based audit methodology; and the change in the audit review process away from detailed review of audit papers to interview based audit reviews. These changes have been noted as impacting on audit firms control systems towards a more interactive than diagnostic use of control system features (Pierce and Sweeney, 2005).

Given this context, it becomes even more interesting relating the findings of the study to previous studies. For example, previous studies did not find a target focused performance evaluative style (TF PES) to have a significant effect on dysfunctional behaviour whilst budget attainability did. Given the change in organisational structure, i.e. more devolution of authority to staff at lower levels and a flatter reporting and performance evaluation structures, does TF PES now impact significantly on dysfunctional behaviour than previously observed? And given changes in organisational work processes, i.e. shift towards strategic-based audit methodology and audit review by interview, does budget attainability now impact more significantly on dysfunctional behaviour? Equally, does the shift in the control systems towards more interactive use of controls as a more prominent feature of accounting firms' controls, not considered by previous studies, affect these relationships?

Providing answers to the research questions enumerated above will enhance our understanding of the way MCSs are used in performance evaluation, its consequences, and by what mechanisms these consequences are transmitted. The study therefore aims to provide a broader, more rigorous specification of PES. It also seeks to provide further insight into how PES emerges and how it works at different levels of the organisation. In addition, the study aims to provide further evidence on PES' impact on behaviour and performance and insight into the mechanisms by which these effects are manifested. In so doing, this study will be contributing to the theoretical development of the subject and help to inform design of future empirical studies. Furthermore, findings of the study will be of practical importance to designers and users of MCSs in helping to inform better designs and use of MCSs particularly for performance evaluation and reward.

In summary, the results of the study indicate that MCSs do encourage dysfunctional behaviour such as quality threatening behaviour (QTB), though unintended, while also promoting better managerial performance. Organisational hierarchical levels (OHLs) were found to influence the style of MCS use and also impacts on MCS' effect on work effort. It was found that more quantitative financial measures are used at higher OHLs and more quantitative non-financial measures at lower OHLs, and that MCSs are used in a more target-focused manner at lower than at higher OHLs. Nonetheless, the study found that MCS used in a target focused style has similar effects on dysfunctional behaviour and intention to turnover (IT), whether based mainly on financial or non-financial measures. In addition, the level of goal difficulty (GD), interactive use of control systems (ICS), and supervisory trust (ST) were found to be important moderators of the impact of MCSs use on dysfunctional behaviour and IT, while GD was also found to be an important moderator of MCSs' impact on managerial performance. Generally, high levels of ICS and ST diminish the positive impact of MCSs use on dysfunctional behaviour; while low levels of these tend to exacerbate the effects. In addition, the impact of MCSs use on dysfunctional behaviour is worsened at high levels of GD, while the positive effect on performance is boosted at low levels of GD.

On the other hand, equity and fairness perception (EFP) and goal commitment (GC) were found to be important mediators of the consequences of MCS use. Lower EFP magnifies MCSs' effects on dysfunctional behaviour as MCSs do not seem to promote EFP, while higher levels of GC suppress these effects because, in contrast, MCSs enhance GC. Finally, the interplay of ICS and EFP was found to influence the effects of MCSs use on dysfunctional behaviour. MCSs' effect on dysfunctional behaviour is worsened at low ICS because MCSs reduce EFP significantly when there is low ICS which then leads to exhibition of even greater dysfunctional behaviour. Similarly, GD and GC interplay was found to influence the impact of MCS use on performance. Though MCSs' positive effect on performance decreases as GD increases, performance does not appear to be negatively affected by MCS use when the level

of GD is high because GC suppresses the negative impact on performance. This is so because MCSs boost GC regardless of the level of GD, and GC is turn boosts performance.

The rest of the thesis is organised as follows. Discussion of the concepts examined in this study and their relationships is provided both in the critical review of related literature in Chapter 2, and in the theory and hypothesis development in Chapter 3. The research design and methodology is presented in Chapter 4, while detailed evaluation of performance evaluative style, is provided in Chapter 5. Results of the data analysis and tests of the hypotheses are presented in Chapter 6. Finally, the summary and discussions of the results and the conclusions derived is presented in Chapter 7. Chapter 7 also highlights the limitations of the study and provides suggestions for future research.

Chapter 2 Literature Review

This chapter reviews the literature on management control systems (MCSs) as information systems used in performance evaluation and reward, covering also the consequences of style of use of MCSs and the mechanisms by which these consequences occur. The chapter starts by looking at the different definitions of MCSs and how these have influenced the empirical study of the subject. Then the foremost theoretical framework of the empirical studies in this area of MCSs study is briefly reviewed. Finally, the existing gaps in the literature are identified and discussed focusing on how this study seeks to fill these gaps.

2.1 Management Control Systems: Definitions, Design & Use

MCSs, and more broadly organisational control, have been defined and described by various authors; e.g. Anthony (1965), Hopwood (1974), Ouchi (1977; 1979), Simons (1995, 2000), Anthony and Govindarajan (1998; 2004) - see Table 2-1 below for the summary of these definitions. Earlier definitions and empirical operationalisations of MCSs equate them with the more formal forms of organisational control (Anthony, 1965; Todd, 1977; Daft and Macintosh, 1984; Simons, 1987; Anthony et al., 1992). However, MCS has also been depicted as a subset of organisational control systems/package (Otley, 1980; Emmanuel et al., 1990). The common theme of the definitions and descriptions of a MCS highlighted in Table 2-1 is that a MCS represent those mechanisms (processes, practices and techniques, rules, information systems, and patterns of relationships) management uses to influence (i.e. motivate, coordinate, monitor and reward) organisational members' behaviour towards attainment of some organisational objective (strategies or operational goals). Inherent in these definitions is a strong feature of MCSs, i.e. a means of assessing achievement of organisational objectives and thus of evaluating and rewarding performance. Also inherent in

the definitions is the direct consequence of MCSs, i.e. the impact on behaviour and performance of organisational members.

Table 2-1 Summary of MCS Definitions & Descriptions

Author(s)	Summary of MCS Definitions
Anthony (1965)	Management control is ...the process by which managers assure that resources are obtained and used effectively and efficiently in the accomplishment of the organisation's objectives
Hopwood A. (1974)	Rules and patterns of organisational relationships [i.e. administrative controls e.g. budgets, standards and hierarchical patterns of relationships]
Ouchi W.G. (1977)	Organisation control is an evaluation process, which is based on the monitoring and evaluation of behaviour or of outputs
Ouchi W.G. (1979)	Organisational control is the mechanism through which organisations are managed (cope with the evaluation and control problem) to achieve its objectives
Daft & Macintosh (1984, p44)	Organisational control includes the activities used to achieve desired organisational goals and outcomes
Goold & Quinn (1990)	Control system is the process, which allows senior managers to determine whether a business unit is performing satisfactorily, and which provides motivation for business unit managers to continue to do so. It involves agreement of objectives, monitoring of performance against objectives and feedback on results achieved, together with incentives and sanctions for business management.
Maciarello, L. A.& Kirby C. J (1994)	A MCS is a set of interrelated communication structures that facilitates the processing of information for the purpose of assisting managers in coordinating the parts and attaining the purposes of an organisation on a continuous basis
Simons (1995; 2000)	MCS are the formal, information-based routines and procedures managers use to maintain or alter patterns in organisational activities
Flamholtz (1996)	Organisational control system...a set of mechanisms – both processes and techniques – which are designed to ensure that people will behave in ways that lead to the attainment of organizational objectives.
Merchant (1997)	MCS are the collection of control mechanisms managers use to help ensure that their organisation's strategies and plans are carried out, or, if conditions warrant, that they are modified
Anthony R., & Govindarajan V. (1992; 1998, 2004)	Management control is the process by which managers influence other members of the organisation to implement the organisation's strategies
Berry, Broadbent, & Otley (1995, 2005)	Management control is the process of guiding organizations into viable patterns of activity in a changing environment. Thus managers are concerned to influence the behaviour of other organizational participants so that organizational goals can be achieved.

Empirical studies of MCSs have been conducted primarily with reference to the technical design or how specific management accounting techniques (MATs) are used particularly for performance monitoring, evaluation and reward. Thus the organisation's objectives are taken as granted or defined generally in terms of better performance or achievement of performance targets, usually budgetary targets. MCS design and use are somewhat different though related concepts and most MCSs studies tend to focus on one or the other.

MCS design relates to the form of the formal control mechanisms that an organisation establishes within its structure and information systems with the most ubiquitous being the budgetary control system. Most empirical studies focusing on MCS design define it in terms of the predominant management accounting technique (MAT) that exists in an organisation, or in terms of the characteristics of the information produced by these techniques, or preferences for such information characteristics. Examples of MATs used to represent MCS design include traditional budgets and budget variance analysis techniques; activity based costing/budgeting; project management techniques; balanced scorecards; target costing techniques; economic value added; and strategic planning techniques. Examples of information characteristics also used to represent MCS design include internal and external focus, broad and narrow scope, financial and non-financial, timeliness, aggregation and integration (Larcker, 1981; Chenhall and Morris, 1986; Gul and Chia, 1994, Abernethy and Lillis, 1995).

On the other hand, MCS use relates to how the formal control mechanisms are actually used for its purported purposes distinct from its design or technical specifications. Empirical studies focusing on MCS use define it in relation to the two main purposes of MCSs generally acknowledged in the literature; i.e. decision making - involving planning and resource allocation (Merchant, 1985c; Abernethy and Brownell, 1999); and control – involving performance monitoring, evaluation and reward (Hopwood, 1972; Brownell, 1982a, 1982b; Govindarajan, 1984, 1988a; Merchant, 1990; Lau et al., 1997; Van de Stede, 2000). Earlier

descriptions and conceptualisations of MCS use relate it to supervisory style or how MCS, in particular budgets, were used by supervisors in managing subordinates performance, i.e. on the control role (Argyris, 1952; Hofstede, 1968; Lowe and Shaw, 1968; Hopwood, 1972, Otley, 1978). Consequently, majority of MCSs studies focus on the control role with MCS use defined in terms of the manner and extent information from a MAT, particularly budgets, are used in monitoring and evaluating performance, and in allocating rewards.

This study also focuses on the style of use of MCS information for performance evaluation and reward termed here as Performance Evaluative Style (PES). In this study, however, MCS information is not limited to any particular MAT but more broadly to the control systems package, particularly the formal systems used for performance measurement and reward. This broader package of control systems for performance measurement and reward is termed here as the performance management and control system (PMCS). The focus on MCS use is due in part to the generally acknowledged assertion that the technical specification or design of a MCS do not by itself effect control of organisational activities, rather it is the way in which the MCS is used that much more determine its effectiveness in controlling organisational activities. Second, MCS designs in practice seem to change much slower than style of MCS use in response to changes in the business environment. For instance, Burns et al (1999) set out to investigate the reasons behind the slow change in accounting practices and systems in the UK in spite of the profound changes in the business environment. However, they surprisingly found considerable change in the way MAT is used rather than changes in MAT employed per se. They attributed their surprising finding to several factors such as globalisation, increasing competition, rapid changes in information technology, increasing focus on core competencies, and changes in management structures which emphasize decentralisation and team working. Otley (1994) had also hinted on the changing control practices within organisations in response to the changing business environment, but lamented that academic study lagged behind the developments in practice. This study therefore attempts to fill this gap and also to stimulate future studies.

2.2 Theoretical Framework of Empirical MCS Studies

The foremost theoretical canopy of most MCS empirical studies has been contingency theory, with some studies also employing other socio-psychological theories like goal and role theory in developing their hypothesis or explaining their results.[3] Chapman (1997) identified three streams of the contingency studies in management accounting viz.; the '*reliance on accounting performance measures*' (RAPM) stream; e.g. Hopwood (1972), Otley (1978), Brownell (1982a,1983), Brownell and Hirst (1986), Hirst (1981, 1983), Brownell and Merchant (1990); the '*strategy and accounting control*' (STAC) stream e.g. Snow and Hrebiniak (1980), Govindarajan and Gupta (1985), Govindarajan, 1988b; Simons (1987; 1990), Covin (1991); and the '*centralisation of control and accounting*' (CECA) stream e.g. Bruns and Waterhouse (1975), Merchant (1981), Gordon and Miller (1976), Waterhouse and Tiessen (1978).

The common theme of the contingency studies is to explicate the conditions under which particular MATs (e.g. budgets) and the style of use of information from such MATs more positively impacts on an organisation's performance considering its structure (the CECA stream); the strategic focus (the STAC stream); and impact on work motivation and attitudes of its managers given its internal and external work environment (the RAPM stream). However, this body of studies has been criticised as not yet providing an overall framework for analysing relations of contingent factors with MCSs nor a cumulative body of knowledge because of the conflicting findings and methodological problems (Chapman, 1997; Dent, 1990; Langfield-Smith, 1997; Otley, 1999). Nonetheless, the main premise of these studies, in particular the RAPM stream, seem to be the inappropriateness of using mainly accounting information (i.e. information from MATs like budgets) deemed incomplete for performance evaluation and reward in complex and uncertain conditions. On this point, the RAPM and the

[3]Another prevalent theoretic framework is institutional theory focusing mostly on how MCS is implicated in the legitimisation and advancement of the interests and power of different groups in an organisation (see Covaleski et al. 1993; 1996; 2003; Abernethy & Chua, 1996; Brignall & Modell, 2000; Scott, 1987, Abernethy & Vagnoni, 2004)

STAC streams are of particular interest to this study because the central focus of most of the studies in these two streams is on the control role of MCSs, particularly as it relates to performance evaluation and reward. In this context, MCS is often operationalised in terms of performance evaluative style (PES). Excellent reviews and critique of this body of studies are provided by Briers and Hirst (1990); Chapman (1997); Langfield-Smith (1997); Hartmann & Moers (1999); Otley and Fakiolas (2000); Otley & Pollanen (2000); Vagneur and Peiperl (2000); Hartmann (2000); and Chenhall (2003). Thus, in the following sections only a brief critical review of the literature is provided focusing rather on the central theme of PES. Nonetheless, a summary of some of these studies is provided at the end of the chapter in Table 2-2 on page 31.

2.3 RAPM & Performance Evaluative Styles (PESs)

The stream of studies identified by Chapman (1997) as the RAPM studies can be traced initially to the pioneering work of Hopwood (1972) and Otley's (1978) replication of his study. In his study, Hopwood contrasted two main performance evaluative styles (PESs), based on how accounting information as contained in budgets were used in performance evaluation, which he called the Budget Constrained (BC) style and the Profit Conscious (PC) style.[4] The BC style entailed seeing the budget as a firm management commitment with performance measured and evaluated solely on the basis of meeting the budget without consideration of other pertinent factors. It reflected reliance on meeting the short term budget targets as the main criteria in evaluating performance and the use of this criterion in a manner intolerant of deviations, i.e. a rigid use of budgets. In contrast, the PC style reflected a concern for cost effectiveness i.e. use of budgetary and non-budgetary criteria in performance evaluation, and all used in a problem solving manner. In other words, the PC style did not consider budgets as firm commitments but rather as communication and planning tools

[4] See Table 2-2 for other PES specifications based on the use of budgets, mostly derivations of Hopwood's original specification.

wherein other relevant information affecting performance are considered when budgets are used for performance evaluation, i.e. a flexible use of budgets. Hopwood also identified a third PES where budgets were not important in performance measurement and evaluation which he called the Non-Accounting (NA). However he did not analyse the NA style in detail. It was much more a residual of all other styles outside of the two main styles. For the empirical analysis of his study, Hopwood also constructed a fourth style as an intermediate point between the BC and PC styles, which he called the Budget Profit (BP) style. Hopwood's main argument was that the BC style of performance evaluation led to some dysfunctional behaviour and thus was undesirable, whilst in contrast the PC style was less associated with dysfunctional behaviour and thus should be used more by managers.

Otley (1978) replicated Hopwood's study by selecting a radically different context which he believed might be more conducive to heavy reliance on accounting performance measures, and did not find the same results as Hopwood. In particular, he did not find the link between the BC style and dysfunctional behaviour hypothesised by Hopwood. Many of the RAPM studies that followed later aimed to reconcile Hopwood's and Otley's results in terms of other contingent variables that may have impact on the results. However, many of the results were inconsistent between these studies due to several reasons including inconsistency between theory and the methodology used in testing them. Even more importantly, many of these studies failed to capture Hopwood's original PES specifications.[5] In some studies, RAPM in effect is equivalent to Hopwood's Budget Constrained (BC) and the Profit Conscious (PC) style combined, while taking the Non-accounting (NA) style as the opposite end of RAPM. Thus, other possible roles of accounting information as captured by the PC style and other intermediate styles are not explicitly recognised by these studies. They embedded a narrow assumption of the 'rigid' use of accounting information. In a constantly changing organisational context, the shortcomings of casting the traditional role of accounting

[5] See Briers and Hirst (1990), Otley and Fakiolas (2000), Otley and Pollanen (2000), and Vagneur and Peiperl (2000) for reviews of the RAPM literature and the evaluation of the conceptual differences in PES between majority of the RAPM studies and Hopwood's PES specifications.

information as activity directing, and thus of studies that hold accounting in this light, is aptly captured by Otley (1994, pp.298, 299) thus:

> The context and operation of contemporary organisations requires flexibility, adaptation and continuous learning to occur, but such characteristics are not encouraged by traditional control systems. However, there is considerable amount of anecdotal evidence to suggest that practices within organisations have begun to take account of this changing environment. ...Management control ...is thus bound up with both strategic decisions about positioning and operating decisions that ensure the effective implementation of such strategies. Unfortunately, academic study of these control processes has lagged considerably behind developments in practice, being rooted in an overly narrow and accounting-based framework.

Briers and Hirst (1990) in their review identified 3 dimensions on which variation in Hopwood's (1972) PES constructs were based as "...the range of criteria used for performance evaluation purposes; the flexibility with which variances from standards are interpreted; and the manner in which short/long run concerns are handled." These dimensions seem to provide an articulate basis for specifying PES. However, Hopwood's eventual empirical specification of PES was based on the 'extent and manner' budgets were used in performance evaluation. The BC and PC styles made extensive use of budgets in performance evaluation, but differed in the 'manner' in which the information was used, rigidly in the former and flexibly in the latter. The NA style differed from these two in the extent of budget use, with little or no use of budgets in performance evaluations (Otley and Fakiolas, 2000). Nevertheless, Hopwood's constructs do attempt to encapsulate accounting roles as both activity directing/evaluative, and informing/problem-solving. Later RAPM studies measured PESs only on the 'extent' dimension and thus conceptually combine the BC and PC styles as one style – high budget emphasis (HBE) and, presumably, the NA style as low budget emphasis (LBE). By this, their concepts of PESs seem to only capture the activity directing/evaluative role of accounting information given that most of the studies are cross-

sectional studies with little or no detailed understudy of any one organisation. Summarising the noted differences in the concepts of PESs between Hopwood and the RAPM stream in general, Otley and Fakiolas (2000, p.509) identify opportunity for further research noting that:

> Future studies of the impact of performance measurement and its use by superior managers need to be sensitive to discovering the frameworks used for measurement in the target organisations...rather than assuming that budgets and accounting data play a central role in this process. Nevertheless, the methods used in studies on RAPM and evaluative style appear to be generalisable into this arena with minor adaptation. The door is open for researchers to build upon this foundation and make a central contribution to the management literature.

In addition, it is equally important for future studies to be sensitive to the frameworks for rewarding performance in their target organisations in order to enhance construct validity in the specification and measurement of PES. Since the PES construct hinge on the perceived importance of the performance measure(s) used, it is therefore important to capture the basis of the perceived importance in any construct of PES. Most frameworks of MCSs design and use suggest that performance measures are closely linked to rewards (e.g. Todd, 1977; Otley, 1999; Ittner and Larcker, 1998a). To enhance the understanding and measurement of PES, measurement instruments therefore need to link the evaluative criteria to the basis of both extrinsic (e.g. incentive pay and promotion prospects) and intrinsic rewards. Given Hopwood's field research prior to developing his widely used measurement instrument, this link may have underlined the measurement instrument for his sample. Given also the hierarchical level at which he conducted his analysis, i.e. cost centre managers, it is quite possible that the incentive structure was simple, e.g. standard merit increases, although he does not report on it. The incentive structure for other hierarchical levels may be more complex and thus not reflected at all or inappropriately captured by Hopwood's instrument. Hartmann (2000) also criticised previous studies that are supposed to be based on Hopwood's instrument for not providing formal proof for the equality or validity of the instruments used.

Thus, the uncritical use of Hopwood's instruments in analysing other hierarchical levels without explicitly relating it to the incentive structure add to question - in the absence of any other evidence - the validity of the PES constructs.

Briers and Hirst (1990) also note that Hopwood's specifications of PES need not occur in all situations, and thus both the conceptualisation and measurement of PES stand to be improved upon. More importantly, Hopwood's and the RAPM studies' specifications of PES does not differentiate between the 'accounting' and the 'target' nature of the information used in performance evaluation. Thus, these studies may be confounding the effects on behaviour of the target nature of budgetary information with its accounting nature (Hartmann, 2000). It is important therefore, to ascertain which of these aspects of information used in performance evaluation trigger more dysfunctional behaviour.

Given the minimal attention to theoretical development of PES in these streams of studies and changes in the control practices of contemporary organisations, it is argued here that the scope of investigating PES should broaden beyond just considering the use of budgetary information (generally construed as financial/accounting information) to include all target related information, both financial and non-financial, as well as qualitative information. There is need, therefore, for PES constructs that broadly capture the roles of targets, budgetary or otherwise, in performance evaluation or more appropriately, the 'manner' in which the information provided by the comparison of actual with targeted performance is interpreted and used in performance evaluation and reward. Thus, there is need for a measurement instrument that reflect these concepts, and one general enough to be easily used in different settings and levels of analysis with minor adjustments to reflect the peculiarity of the research setting. Therefore, an extension of the budgetary control literature would be to consider PES in terms of both the extent and manner that targets in general, financial or non-financial, linked to rewards are used in performance evaluation. Such PES constructs would link better with other MCSs frameworks found in the management control literature. This study will attempt to

provide a broader specification of PES as argued above, and an appropriate PES measurement instrument.

2.4 Other Categorisation of PES

Other categorisations of PES or style of use of MCS exist aside Hopwood's and the RAPM studies' specifications. For instance, Anthony and Govindarajan (1998) conceive MCS as essentially budgetary/financial control and provide a similar categorisation of style of use of MCS as essentially tight or loose budgetary control, although they state that "a company's position on this tight/loose continuum depends on the amount of emphasis senior management places on meeting or exceeding budgetary objectives in the short run" (p.438). At one end, a tight control system is one in which performance is evaluated primarily on a manager's ability to met budget targets. Similar to Hopwood's BC style, budget targets are seen as firm commitments. At the other end in a loose control system, budget targets are not regarded as firm commitments but seen and used as planning and communication tools. They note that while tight budgetary control had two important benefits, preventing wastes/inefficiencies and motivating search for improvement of operations, it can produce several dysfunctional effects.

In a bid to address the dysfunctional consequences associated with the use of budgetary/financial controls the practitioner led Beyond Budgeting (BB) group added to the specification of PES. First, they advocate that budgets and thus budgetary control should be done away with, and that relative performance targets should be used in place of preset budget targets (Hope and Fraser, 2003a, 2003b; Hansen et al., 2003).[6] Second, they advocate the use of various non-financial performance measures as well, and that performance evaluation should be done with hindsight by taking account of the actual operating and economic

[6] Hope and Fraser (2003a, p. ix) in their foreword note that Beyond Budgeting is not just about abandoning traditional budgets but "is a positive idea that uses the abandonment of budgeting as a trigger for improving the entire management control process....(BB) offers an alternative general management model."

conditions during the period. In addition, they advocate reward systems that focus on teams rather than individuals and that are based on subjective performance evaluation (Hope and Fraser, 2003; Hansen et al., 2003). Thus from the foregoing other possible features of PES not incorporated in previous specifications is the use of operational measures and relative performance targets, i.e. benchmarking of performance against other units in the organisation or against leading competitors. Previous PES specifications were based on preset budgetary targets which are usually financial in nature. Another unique feature is group rather individual rewards which would imply that group rather than individual performance is the focus of performance evaluation in these situations. The BB proponents claim that such a performance management and control system (PMCS) cures much of the ills of traditional budget-based PMCSs. This raises an interesting issue on the effects of the type of benchmark used to evaluate performance as a feature of PES. However, not many empirical studies to date employ this PMCS model. The reason may not be unconnected to the fact that, as identified in the BB literature, only a handful of organisations actually employ such a PMCS, and thus access is limited to most researchers.

Simons (1990; 1991; 1995) presents additional insight on the ways top-level managers use accounting information in his levers of control model. His model recast the role of accounting information as both activity directing *and*, rather than *or*, planning and communication i.e. an informing role. He posits that accounting information is used in both a 'diagnostic' and 'interactive' manner in what he calls diagnostic and interactive control systems. He defined diagnostic control systems as those formal information systems used by managers to monitor organisational outcomes and control deviations from preset performance standards (i.e. passive management by exception), while interactive control systems are those formal information systems used by managers to involve themselves regularly in the decision activities of subordinates (Simons, 1995; pp.59, 95). These systems were not unique types of control systems, but represent the ways in which senior managers choose to use specific controls such as budgets or profit plans. The main features of interactive controls being that

they are used by the *highest levels* of management and require frequent and regular attention from operating managers at all levels. Also, information from the system is used to stimulate debate of underlying assumptions and action plans in face-to-face meetings of superiors, subordinates and peers and also used to monitor strategic uncertainties. Simons (1995) focused on top level managers but it is feasible that middle and lower level managers also use interactive controls. However, monitoring of strategic uncertainties as a feature of interactive controls would relate more to top level management than middle or lower level management use of interactive controls. Simons (1995) also indicated that for the control system to be truly interactive it must be linked to incentive rewards which are determined subjectively rather than by some formula. In contrast, management uses diagnostic controls as passive management by exception tools by setting targets, linking them to formula based incentive rewards, and monitoring performance against the target on an exception basis.

It would appear that interactive controls principally differ from diagnostic controls with regards to the frequency of top management involvement and attention to details, and the subjective basis of incentive rewards. However, Simons (1995, p.120) state that budgets/profit plans could also be used both diagnostically and interactively citing Johnson & Johnson and Tuner Construction as examples of companies that have done so. This implies features of the MCS or particular MATs could be used in either a diagnostic or interactive style. Furthermore both style of use of MCS features can exist concurrently, i.e. a feature(s) of a MCS can be used diagnostically and combined with an interactive use of other related features of the MCS. Simons (1995) also associates accounting measures with diagnostic controls, and the diagnostic controls with dysfunctional behaviour. He notes that accounting measures are predominant in many diagnostic control systems because they are objective, reliable and verifiable. He also notes that they are incomplete measures/inadequate indicators of actions – particularly individual actions - that affect organisations' critical performance variables. Consequently, he argues that linking formula based incentive rewards to these incomplete accounting measures promote dysfunctional behaviour. His statements that diagnostic control

systems are predominantly accounting based also implies that interactive control systems are based predominantly on non-accounting measures.

Although Simons's framework refers to the overall control package and how top managers use it, Van der Stede (2001) in his investigation of the attributes of tight budgetary controls conclude that interactive budgetary control is consistent with tight budgetary control with respect to the intensity of information exchanges about budget related matters. However, Simons (1995, pp. 161-162) generally alludes to interactive controls as loose while hinting at the possibility of them being tight as well. His conception of interactive controls seems to be a different and much broader concept than just tight/loose use of controls. Thus interactive control systems could be perceived as a distinct feature of MCSs that could be present to a greater or lesser degree in conjunction with any PES. This view is supported by Simon's conceptualisation of interactive controls as having to relate to an aspect of the MCS or a particular MAT. In addition, interactive use of controls relate to more frequent superior-subordinate interactions, beyond the interactions in setting of targets, as superiors monitor and intervene in ongoing decisions activities of subordinates. Moreover, it relates to top level rather than middle or lower level management although it can be conceived to apply to lower level management perhaps somewhat differently, e.g. without monitoring of strategic uncertainties as a feature. Thus it seems sufficiently different from Hopwood's PES specification to be regarded as a distinct feature of control system use that could be combined or not combined with specific PES. This point may have significant consequences in respect of the effects of PES on dysfunctional behaviour and performance. A similar point is highlighted in Chenhall's (2003, p131) criticism of contingency based MCSs research as

> ...focused on specific elements of accounting controls, generic information dimensions of MCS, with limited number of studies examining broader elements of control, such as clan and informal controls, or integrative mechanisms. A difficulty in studying specific elements of MCS in isolation from other organizational controls is the potential for serious model under-specification. Thus, if specific accounting

controls are systematically linked with other organisational controls, studies that exclude or do not control for these elements within the research method may report spurious findings

Furthermore, he reiterates that a crucial part of the control systems research agenda is to understand how controls are combined to suit the specific circumstances of the organisation.

2.5 Consequences of PES

Early budgetary control systems studies focused on a range of behavioural, and mental states (i.e. psychological and attitudinal) outcomes associated with the use of control systems, in particular performance evaluation systems (Argyris, 1952; Hopwood, 1972; Hofstede, 1968). The outcome measures were chosen based on different psychological theories and assumptions, the most prevalent being role theory with its central concepts of role conflict and role ambiguity (Hartmann, 2000; Briers and Hirst, 1990). Accordingly, the most prevalent role-theoretic variable used is job-related tension (JRT). Other related variables also considered include job anxiety, job satisfaction, job stress, job ambiguity; budget-related tension, and cost tension. Given the incompleteness of accounting measures as contained in budgets, the rigid use of budgets was argued to engender role conflict and ambiguity leading to high JRT. Individuals then attempt to relieve tension by engaging in dysfunctional behaviours such as data manipulation/invalid data reporting, gaming the system, gaming the budget/targets or budgetary slack, which results in lower performance. Conclusions from the empirical evidence seem to generally support the positive impact of PES, specified as rigid use of budgets or RAPM, on JRT (see Table 2-2 below for summary of PES studies). However, most of the studies provide little or no empirical evidence on the hypothesised effects of JRT on performance. In these studies, JRT is treated as a criterion rather than an intermediate variable.

Later studies focused more on performance as the criterion variable rather than the psychological variables. They argued that performance is the appropriate criterion variable being the ultimate measure of effectiveness (Otley, 1978; Brownell, 1982a). Some authors question this arguing that the relationship between performance and PES are complex and unclear. It was considered that performance may also be an independent/contingent variable affecting PES (Otley, 1978; Langfield-Smith, 1997; Briers and Hirst, 1990; Hartmann, 2000), thus presenting a dilemma in the appropriate choice of criterion variable, particularly for single period studies. However, such dilemma is faced by almost all single period studies modelling causal relationships. This of course underlines the need and importance of developing strong theoretical justification of the causal relations being modelled. Nonetheless, these studies considered the impact of PES on performance as being moderated by other factors like participation in setting the budget and task uncertainty. Altogether, conclusions from these studies on the effect of PES on performance, both excluding and including the moderating factors, are mixed partly giving grounds for the heavy criticism of this body of studies (see Table 2-2 for summary of some of these studies and their results). Also, some of these studies considered moderating influences on the impact of PES on JRT with equally mixed results.

The apparent dilemma in choosing an appropriate criterion variable is fundamentally related to the need to more clearly specify the mechanisms by which PES affects behaviour and performance, and also the need to incorporate these in the empirical analysis. Many of the earlier empirical studies did not incorporate these mechanisms in their analysis even when such had been identified in their theory. Though a number of recent control systems studies (e.g. Chong & Chong, 2002; Wentzel, 2002) have begun to address this issue, they have however focused on target setting processes in budgeting and none so far, to the author's knowledge, have considered the style of use of control systems information in performance evaluation and reward. Furthermore, it is generally acknowledged that PMCSs have both functional and dysfunctional consequences. Hartmann (2000, p474) recommends that "...the

appropriateness of RAPM should be approached as a combination of functional and dysfunctional consequences." This point is further reiterated by Covaleski et al. (2003, p 5) who note that "...although budgeting has potential benefits – it can increase efficiency through planning and coordination and can support both control and learning through the comparison of actual results to plan – budgeting also has large costs beyond the easily measured, out-of-pocket costs of operating the budgeting system." However, very few studies consider both consequences of control system use in the same study, and none have, to the authors knowledge, considered them concurrently. This is quite important as it implies that appropriateness of a control system examined from only one angle may lead to misleading conclusions and recommendations.

2.6 Management Control Issues in Professional Accounting Firms

There is also a stream of control systems studies within the particular context of audit service areas in professional accounting firms that is relevant to this study (e.g. Kelly and Margheim, 1990; Carcello et al., 1996; Malone and Roberts, 1996; Otley and Pierce, 1996a; Pierce and Sweeney, 2004; 2005). This stream of management control literature highlight dysfunctional behaviours of staff in the audit service areas of accounting firms, and the general consensus of this literature is that there is a high level of dysfunctional behaviour, particularly among lower level audit staff (i.e. audit juniors and seniors) in response to the conflict between achieving high audit quality and keeping down the cost of an audit. These dysfunctional behaviours are usually defined in terms of auditors' under-reporting of time on audits and other forms of behaviour generally grouped and referred to as audit quality reduction acts or quality threatening behaviour. Examples of the behaviours grouped together as quality reducing acts include prematurely signing off an audit step, accepting weak client explanations, not investigating an accounting principle, and reducing the amount of work performed on audit step (Kelly and Margheim, 1990, Otley and Pierce, 1996). At more senior levels, i.e. senior

manager and above, other forms of dysfunctional or 'inappropriate' behaviour have also been identified in the literature. Examples include issuance of an unmodified audit opinion when there was an instance of either of the following: inadequate audit evidence gathered; a required auditing standard not applied; inadequate review of a critical area of audit engagement papers; client did not apply a required accounting treatment; or client provided unsatisfactory explanation for failure to record material audit adjustments (Carcello et al., 1996).

It is also generally acknowledged in this literature that the incidence of dysfunctional or inappropriate behaviour at these more senior levels is much lower compared to the more junior levels. Nonetheless, at any hierarchical level the consequences of dysfunctional behaviour can be costly both for the individual and the firm. For example, it could lead to termination of employment for the individual; and for the firm, damage to reputation and risk of litigation (Pierce and Sweeney, 2005). The seriousness of these consequences are highlighted in the recent accounting scandals and corporate failures as in the case of Enron, Worldcom, and Xerox. These events have generally resulted in an increasing negative image of accountants and thus increased public scrutiny as well as increased risk of litigation (Lin et al., 2003; Barrett et al., 2005).

This stream of literature highlights an important feature of accounting firms' environment that pose particular problems in the application of traditional forms of control such as output or behaviour controls, particularly in the audit service areas. To continue functioning, professional accounting firms, and indeed any other profit oriented organisation, need to maintain commercial viability, but for the audit service areas of these firms quality of work is seen as of overriding importance.[7] On one hand, it is perceived that audit quality is enhanced

[7] For instance, Paragraph 11 of the International Standard on Quality Control (ISQC) 1 issued by the Auditing Practices Board (APB) stresses the importance of accounting firms recognition that their business strategy is subject to the overriding requirement to achieve quality in all their engagements, and thus that commercial considerations do not override the quality of work performed, and that performance evaluation, compensation, and promotion systems are designed to demonstrate this overriding commitment to quality.

with more time allowed auditors to do their job, but on the other hand costs are positively related to the amount of time spent on engagements.

Thus the main control issue is identified as resolving the conflict between maintaining audit quality and keeping costs down via a tight lid on the main cost driver, i.e. auditor chargeable time and therefore improving profit. Whilst engagement time and costs are measurable and easier to control, audit quality is not easily observable and thus difficult to measure and control. Therefore, it is difficult and problematic to apply traditional output or behaviour controls in this context, whereas input controls are easier to implement. Formal controls tend to be heavily focused on input controls via control of time budgets, although not best suited for this context in view of the overriding importance of maintaining output, i.e. audit, quality. The heavy focus of control via tight time budgets while emphasising the importance of maintaining audit quality exert pressure on auditors consequently resulting in auditors engaging in the specific forms of dysfunctional behaviour highlighted in the earlier paragraphs as a way of coping with the time budget pressures. Empirical evidence from the literature also consistently shows significant positive association between time budget pressure and auditor dysfunctional behaviours ((Kelley and Margheim, 1990; Otley and Pierce, 1996a; Pierce and Sweeney, 2004).

Furthermore, this stream of literature also highlights significant recent changes in accounting firms' environment that impact on the use of performance management and control systems. The main changes that have been identified include the shift towards strategic-based or risk-based audit methodology; change in audit review processes towards less detailed documentation and a review by interview approach; buoyancy in the general economic climate resulting in diversification of advisory services, high staff turnover and shortage of staff; and not least the increased public scrutiny and risk of litigation occasioned by the corporate failures and accounting scandals mentioned earlier (Rich et al., 1997; Winograd, 2000; Lin et al., 2003; Pierce and Sweeney, 2004; Barrett et al., 2005). These changes have

been noted as having implications for organisational structure and control systems in accounting firms, as well as responses to the control systems.

For instance, Pierce and Sweeney (2004) observe that high turnover and staff shortage results in less staff continuity and difficulty in recruiting suitable staff. This then leads to faster promotion and also flatter reporting and performance evaluation structures. Furthermore, less reliance on formal audit programmes coupled with the shift towards strategic-based audit methodology has led to more devolution of authority to respond to customer circumstance lower down the hierarchy. All these they argue contribute to increase difficulty in ensuring audit quality, impact on costs, and also make it difficult to detect dysfunctional behaviour. Less documentation, either to increase efficiency or reduce risk of litigation, has also meant a change in the audit review process with less time devoted to audit file review and a shift towards a 'review by interview' process with the implication of more frequent face to face meetings between supervisors and their subordinates (Barrett et al., 2005; Pierce and Sweeney, 2005).

In addition, Pierce and Sweeney (2005) note that these changes have generally impacted the manner in which controls are used from a diagnostic use towards a more interactive use. This view is supported by Barrett et al.'s (2005) observation that there is increased interaction occasioned by the review by interview process (i.e. the interactive use of the audit review control process). They also note that the increased interaction had the potential to increase trust by providing opportunity for increased communication, or conversely to dampen trust when such interactions are viewed as interrogative. These changes may have significant impact on the effects of previous factors considered to impact on work behaviour and performance like budget attainability. In addition, the changes necessitate consideration of additional factors not included in previous studies, for e.g. interactive use of controls and trust. The changes also necessitate reconsideration of style of performance evaluation, a factor

that has received the least attention in this stream of studies although acknowledged as being an important factor affecting behaviour and performance.

A limitation of this stream of management accounting research is the exclusive focus on the audit service areas of professional accounting firms despite the acknowledged diversification of services by these firms, and the acknowledgement that diverse advisory services represent a major income stream for these firms. Although Barrett et al. (2005, p.3) justify the focus on audit services arguing that "while these firms have expanded into a wide range of business services, audit work remains a significant element of these firms, provides an important basis for their claims (across all areas of work) to be professional and objective, and is said to fundamentally influence the 'culture' of these organizations" Nonetheless, this stream of studies can be extended in considering other service areas of professional accounting firms given Barrett et al.'s assertion that the 'culture' of these firms is heavily influenced by their audit service area. It would be useful to know if the level of dysfunctional behaviour is different in different service areas and what factors explain dysfunctional behaviour in accounting firms in general.

Furthermore, the non-experimental studies in this stream of research focus almost exclusively on lower level staff within the audit service areas of professional accounting firms, i.e. audit juniors and seniors who have been typically between 1 – 4 years in the firm.[8] Part of the reason given for the focus on relatively junior audit staff, particularly audit seniors, is that "audit seniors are around the mid-point in the firms' hierarchy, and occupy the most pressurized position in the firm (Kelley and Seiler, 1982) [*note reference included in original text*]" (Otley and Pierce, 1996a, p. 70). Pierce and Sweeney (2004, p.424) also argue that audit juniors and seniors, at least those included in their study, "formed a largely homogenous group in terms of demographic details and professional aspirations." Nonetheless, it seems the

[8] Exceptions include Carcello et al.'s (1996) survey of audit partners and senior managers; Pierce and Sweeney's (2005) interviews with audit partners; and Sweeney and Pierce's (2006) interviews with audit seniors and partners.

time pressures faced by audit juniors and seniors are initially faced by the more senior staff, perhaps in a slightly different form, who then transmit them down the hierarchy. Evidence of this is seen in Pierce and Sweeney's (2006) study where they found that junior staff under report time due to both explicit and implicit requests from managers to do so. This suggests that these managers are under some kind of pressure to make such requests, and might also be coping with these pressures in other ways aside making these requests. An earlier study by Carcello et al. (1996) found that the commonest factor associated with audit partners and senior managers inappropriate behaviour is fixed-fee audit contracts which make the audit partner more concerned with audit hours resulting in gathering of insufficient evidence, inadequate review of engagement papers, and other inappropriate behaviours. In such situations, it is likely that pressure at these senior levels gets transmitted down to junior staff via explicit or implicit requests for juniors to under report time as found by Pierce and Sweeney (2006). Thus a useful contribution to this stream of studies will be to examine the impact of control systems use on behaviour at both junior and more senior levels, and to investigate if these effects significantly vary at different levels of the hierarchy, i.e. whether hierarchical levels moderate control systems effects.

2.7 Summary of review

This review has summarized some of the definitions of MCS found in the literature and how these have influenced the empirical study of the subject. It also highlighted the key criticisms of the MCSs literature, and identified gaps to be filled in the literature. The importance of studying combinations of different aspects of control systems while recognising the different roles that MCSs play in organisations was highlighted. It was concluded that there was need for a broadened concept of the style of MCS use for performance evaluation and reward, and for an updated measurement instrument. The importance of theory development and hence choice of criterion variables was also highlighted in the review. Criticisms of the validity of the criterion variables used in previous MCS studies were related to inadequate theory

development. This highlighted a gap in the literature for more clear specifications of the mechanisms by which PES affects behaviour and performance. Where these mechanisms have been identified in theory, they have not been fully considered in the empirical analysis. On the other hand, recent empirical work addressing some of these issues have focused on target setting and none so far have considered performance evaluative styles and its consequences. Also, recent calls to fully consider the consequences of MCSs both functional and dysfunctional were highlighted. Furthermore, the stream of research focusing specifically on auditors' dysfunctional behaviour was also reviewed and opportunities for contributing to this specific stream of research also identified. In the chapter that follows, the focal and criterion variables focused on in the present study are identified, and the model of relationships being investigated is presented along with the theory and hypotheses development.

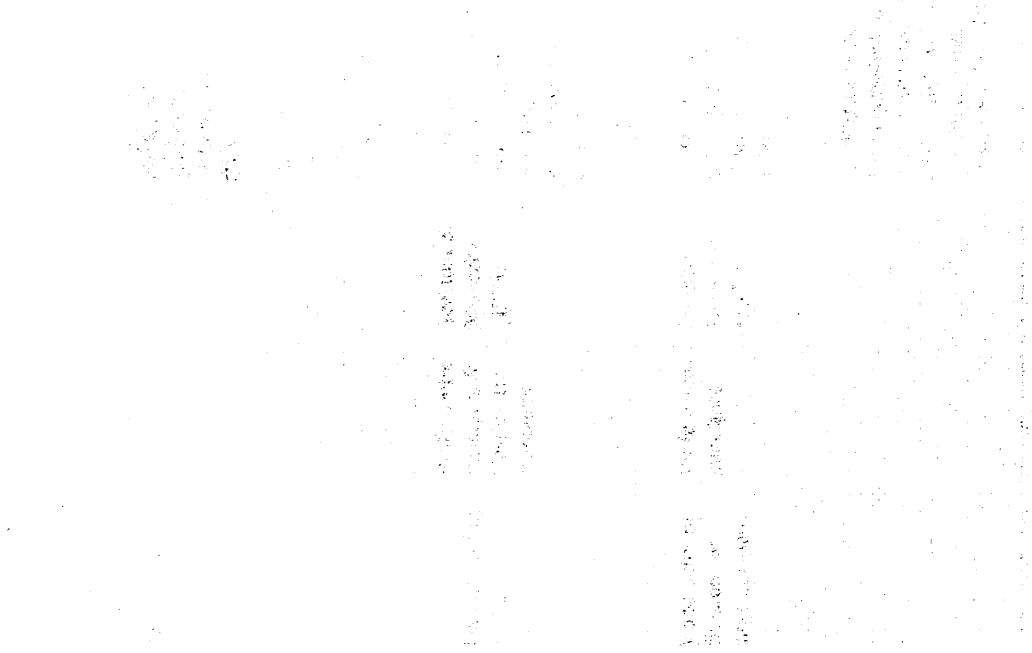


Table 2-2 – Summary of PES Studies

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Hopwood (1972)	167	Manufacturing division of a large company	Cost centre managers	New	Budget Constrained (BC); Budget Profit (BP); Profit Conscious (PC); & Non-Accounting (NA)	Categorical variables based on the ranking position, i.e. the 'relative importance', of two accounting based criteria – 'meeting the budget' & 'concern with cost'	Mean JRT for: BC > PC, NA. But CT mean similar for all styles	Past budget success reduces JRT for BC group, not for others	Data manipulation (Dm): BC group engaged more in it Perceived Justness of Evaluation: PC > BC, BP NA > BC
					Absolute importance of: 'meeting the budget' (AIMB) & 'concern with cost' (AICC)	Continuous variable based on ratings scores composed by aggregating the scores	Association with: AIMB - Neg sig. AICC - Neg sig.		Trust in Supervisor: PC > BC, BP NA > BC, BP
Kenis (1979)	169	Manufacturing plants	Profit centre managers & Cost centre managers	Searfoss & Monczka (1973)	Budgetary evaluation general (reflecting PC); Budgetary evaluation punitive (= BC)	Continuous variable based on ratings scores but composed by aggregating the factor scores	Association with: PC - Pos ns. BC - Pos sig.	Budgetary perf association with: PC – Pos sig.; BC – Neg ns. Job Perf association with: PC – Pos ns; BC – Neg sig.	Job satisfaction (JS) association with: PC – Neg ns BC – Neg ns
Otley (1978)	41	Manufacturing divisions of a large company	Profit centre managers	Modified Hopwood (1972)	A=BC; B=BP; C=Profit Budget (PB); D=PC; & E=NA	Categorical variables based on the relative ranking of two accounting based criteria – 'how well I met my budget' & 'how efficiently I run my unit'			ES Association with: Felt fairness of evaluation – Pos ns. Trust in superior – Pos sig.
					Evaluative Style (ES) equivalent to Budget Emphasis (BE) with Low ES = High BE, and High ES = Low BE	Continuous (ordinal) variable. Composition not specified but seems constructed from the categorical variables A to E where A= 1 to E =5. Thus low values indicate 'high relative stress on meeting the budget'	JRT Association with ES: - Neg ns	Budgetary perf association with ES – Neg sig.	Dm: Low ES(i.e. High BE) suggested to be more associated with Dm

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Brownell (1982a)	38[a]	Manufacturing	Cost centre managers	Hopwood (1972)	BC; BP; PC; & NA BC & BP collapsed into High BE; PC & NA into Low BE	Binary variables based on the relative rankings of the 2 accounting criteria		Job Perf for : Low BE > High BE Interactions: Job perf higher with: Low BE & low participation & High BE & high participation	Job Satisfaction: High BE > Low BE but ns.
Hirst (1983)	111	Varied: Part-time students responsible for at least one subordinate and accountable to a superior	Cost centre managers (Not clear)	New	RAPM: High (low) RAPM equivalent to high (low) BE	Continuous variable based on rating scores. Composition not specified, but seems like the sum of item scores	JRT association with RAPM - Pos ns Interactions: JRT association with RAPM in high (low) Task uncertainty – Pos sig (Neg sig)		
Govindarajan (1984)	58	Manufacturing	Profit centre managers	New	Reliance on Subjective Approach (RSA) to performance evaluation: Low (High) RSA = high (low) BE	Continuous variable based on the percentage of total bonus decided in a subjective manner. Hypothesized higher unit perf for a match of High (Low) EU with High (low) RSA. Also seemed to suggest EU & Perf as antecedents of RSA		Unit Perf: correlation with RSA – pos ns. (no direct relationship) Interactions: EU more highly correlated with RSA for high performing units than for low performing units	Environmental Uncertainty (EU) correlation with RSA – pos sig. (high RSA = low BE is used more in high EU)

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Govindarajan & Gupta (1985)	58	Manufacturing	Profit centre managers	As above New	RSA Reliance on long-term criteria (RLC), & Reliance on short-term criteria (RSC) in performance evaluation with high RLC= PC & RSC = BC styles	As Above Continuous variables based on the sum of ratings scores of 7 (5) criteria representing RLC (RSC)		Unit perf association with: RSA – pos ns RLC – pos ns RSC – neg ns Interactions: Unit Perf association with: - 2 way interaction of Strategy (coded 1 for build; -1 for harvest) & RLC – pos sig (non-monotonic as expected) - 2 way interaction of Strategy & RSC – neg ns (as expected but ns) - 2 way interaction of Strategy & RSA – pos sig (non-monotonic as expected)	
Brownell (1985)	61	Marketing & R&D divisions of a Manufacturing company	Profit centre managers	Hopwood (1972)	Reliance on accounting information i.e. RAPM or BE	Continuous variable Composed by aggregating the ratings score of the 2 accounting criteria		Interactions: Job Perf association with RAPM when aspects of environmental uncertainty (i.e. constraints from suppliers, & impacts of govt regulation are viewed) as High – Pos sig Low – Neg sig	
Brownell & Hirst (1986)	75	Functional departments of a Manufacturing company	Cost centre managers	Hopwood (1972)	Same as in Brownell (1982a)	Same as in Brownell (1982a)	Interactions: JRT association with - 3-way interaction of BE, task uncertainty, & participation - Neg sig (i.e. high BE & participation with low uncertainty associated with low JRT)	Interactions: Job perf association with - 3-way interaction of BE, task uncertainty, & participation: – Pos ns.	

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Hirst (1987)	44	Construction (property development)	Profit centre managers (Senior managers)	Hopwood (1972)	As in Brownell, (1982a) BC & BP= High BE PC & NA= Low BE	As in Brownell, (1982a) Binary variables based on the relative rankings of the 2 accounting criteria		Interactions: Job perf association with - 2-way interactions of BE & participation – Neg ns (Result contrary to Brownell's, 1982 – pos sig)	
Govindarajan (1988a)	121	Varied (Manufacturing + Service)	Business unit managers	Hopwood (1972)	BE	Continuous variable Composition not specified probably the rating score on the criteria 'meeting the budget' such that Low (High) scores = high (low) BE		Interactions: Unit perf. Association with – 2-way interaction of BE & strategy - Pos sig Interpreted to mean high perf. is associated with combinations of low (high) BE and differentiation (low cost) strategy	
Dunk (1989)	26	Manufacturing	Cost centre managers (production managers)	Hopwood (1972)	BE as in Brownell (1985)	Same as in Brownell, (1985)		Interactions: Job perf. Association with -2-way interaction of BE & participation - Neg sig Interpreted to mean low perf. is associated with combinations of low (high) BE and high (low) participation (Interaction effect consistent with Brownell, 1982a but direction of effect is the opposite)	

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Imoisili (1989)	102	Manufacturing	Cost centre managers	Hopwood (1972)	BE (BC, PC)	Binary variable based on the highest average superior & subordinate rating scores on the two accounting criteria.	JRT for BC higher than PC (regression coefficient with BC = 1, PC = 0 - pos sig)	Job perf for BC & PC not different Interactions: Job perf association with - 2-way interaction of: BE & participation - ns	
Brownell & Dunk (1991)	79	Manufacturing	Cost centre managers (managers in various functional depts)	Hopwood (1972)	BE	Continuous variable based on the ratings scores of the two accounting criteria Composition not clear; looks like the aggregate ratings score of the two accounting criteria		Job perf association with BE- Pos ns. Interactions: Job perf association with - interaction of BE & participation in high (low) task difficulty: - Pos sig. (Neg sig) - 3 way interaction – Neg sig	
Harrison (1992)	211 (115 + 96)	Retail	Cost centre managers (middle-level managers)	Hopwood (1972) as modified by Brownell & Hirst (1986)	Relative BE	Continuous variable based on ratings scores of all criteria Composed as the ratio of the sum of the two accounting criteria to the 8 non-accounting criteria	JRT association with BE - Low neg ns Interactions: JRT association with: - 3 way interactions of BE, participation & culture - pos ns - 2 way: BE & participation interactions – neg sig		JS association with BE: - (low) Neg ns. Interactions: JS association with: - 3 way interactions of BE. participation & culture: - neg ns - 2 way: BE & participation interactions – neg ns
Harrison (1993)	As above	As above	As above	As above	Relative BE	As above	Interactions: JRT association with: -2-way interaction of BE & culture – neg sig (meaning high(low) BE & high(low) power distance culture combinations lower JRT) - 2 way interaction of BE & authoritarianism – pos sig (sign of effect opposite to hypothesized sign)		Interactions: JS association with: -2-way interaction of BE & culture – pos sig (at 10%) (meaning high(low) BE & high(low) power distance culture combinations increase JS) - 2 way interaction of BE & authoritarianism – neg ns

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		Others
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	
Ross (1994)	215	Manufacturing and services	Cost centre managers	Hopwood (1972) as modified by Otley (1978)	BC, PC, NA	Categorical variables based on the relative ranking of the two accounting based criteria as in Otley (1978)	Interactions : Sig interaction effect of Trust and PES on JRT, but: - No difference in JRT between all PES in Low Trust conditions, and - JRT higher for the NA sub-sample compared to the BC, and the PC sub-samples in High Trust situations (and for BC and PC, JRT is lower in high vs. low trust situations but not for NA)		
Ross (1995) #669	As above	As above	Cost centre managers	Hopwood (1972) as modified by Otley (1978)	BC, PC, NA	Categorical variables based on the relative ranking of the two accounting based criteria as in Otley (1978)	JRT positively correlated with PEU Interactions : No difference in JRT between all PES in Low Perceived Environmental Uncertainty (PEU) conditions, but in High PEU JRT higher for the NA sub-sample compared to the BC sub-sample (opposite to Hopwood, 1972, and Hirst, 1983)		
Lau et al. (1995)	112	Manufacturing	Cost centre managers (functional heads – production, marketing & service)	Hopwood (1972) as modified by Brownell & Hirst (1986)	BE	Continuous variable based on the ratings scores of the two accounting criteria Composition: sum of the rating score of the two accounting criteria as in Brownell & Dunk (1991)	JRT correlation with BE - pos ns Interactions: JRT association with - 3-way interactions of BE, participation & task uncertainty(difficulty) – pos ns (ns) - 2 way interactions of BE & participation – neg ns -2-way interactions of BE & task uncertainty – neg ns (Results not supportive of Brownell & Hirst, 1986; and Brownell & Dunk, 1991)	Job perf correlation with BE – neg sig Interactions: Job perf association with - 3-way interactions of BE, participation & task difficulty (uncertainty) – pos sig (ns) - 2 way interactions of BE & participation in low task difficulty – pos ns (i.e. high/high & low/low combinations of BE & participation increases perf) -2-way interactions of BE & participation in high task difficulty – neg ns (Results not supportive of Brownell & Hirst, 1986; and Brownell & Dunk, 1991)	

Table 2-2 Cont'd

Study	Sample Description			Performance Evaluative Style (PES)			[2]Results (PES Associations with Outcome Variables)		
	Size	Type of Organisation	[1]OHL	Source of Measures	Specification	Description	JRT & Cost Tension (CT)	Performance (Perf)	Others
Lau & Buckland (2001)	132	Manufacturing	Cost centre managers (Functional heads)	Hopwood (1972) as modified by Harrison (1992)	BE = sum of the 2 accounting criteria Low (high) scores denoting low (high) BE. .298 ($p < .01$) Correlation b/w the 2 items	As above	JRT correlation with BE - Neg sig Interventions: BE effect on JRT indirect through - participation & trust - Full mediation (i.e. no sig effect of BE on JRT after accounting for the effects of participation & trust on JRT)		Participation correlation with BE – Pos sig Trust in superior correlation with BE – Pos sig

[a] Brownell reported a sample size of 48 managers, however 38 was the largest sample size he used for hypothesis testing

[1] Organisational Hierarchical Level (OHL) of respondents: Cost centre managers similar to Departmental managers but a bit lower in level; Profit centre managers similar to Business unit managers but probably lower in level.

[2] Associations are denoted as pos = positive; neg = negative; sig = significant; ns = not significant

Chapter 3 Theory Development and Hypothesis Formulation

This chapter starts by identifying the focal independent and criterion variables of interest in the study. It then goes on to link the research questions to the gaps identified in the literature review. This is accomplished via presentation of the models of the hypothesized relationship between the variables of interest, which are then summarized into testable hypotheses. The models of relationships investigated by most of the control systems studies are represented in Figures 3.1 - 3.3 below; while that employed in this study is represented in Figure 3.4 with construct mappings in Figure 3.5.

3.1 Identifying Focal and Criterion Variables

Identifying the focal independent variable of interest in a study is important as it brings focus and clarity to the study. It also determines the choice of criterion variable(s) and has a direct bearing on theory development. Briers and Hirst (1990) note that the choice of dependent variables is constrained by the focal independent variable and that theory development involves not only providing explanations for the relations among the variables of interest but also choosing the dependent variables. Similarly, Hartmann (2000, p474) note that "...understanding of the multiple roles of accounting and of RAPM (reliance on accounting performance measures) may be enhanced if researchers explicitly consider which aspect of RAPM they address..." To this end therefore the focal variable of interest to this study is performance evaluative style (PES) conceptualised as encompassing the nature of information used in performance evaluation, the way this information is used in evaluating performance and how it is linked to rewards. A detailed discussion of the conceptualisation of PES, its measurement and empirical application is provided in Chapter 5.

In terms of the criterion variables, behaviour and performance are the focal variables. In this study, mental state variables are modelled as the intervening influences between PES and its

impact on behaviour and performance, thus they are not criterion variables as such. Also, both functional and dysfunctional behavioural effects of PES are examined. Functional behaviour investigated is work effort and dysfunctional behaviour is represented by quality threatening behaviour and intention to turnover, as a surrogate of real turnover. Performance on the other hand is gauged by actual job performance ratings and managers self rating of performance. Other variables of interest in the present study are introduced in the discussion of the models of relationships investigated starting from the simple direct or overall effects of PES on to the more complex relationships combining mediating and moderating influences.

3.2 Theoretical Models of Relationship Examined

Over time, MCS researchers have employed three main models of relationships in studying control systems and its consequences. In historical sequence, researchers have explored this relationship using a direct or overall effect model, a moderated effect model, and a mediated or indirect effect model.

a) The direct/overall effect model, graphically depicted in Figure 3.1 below, represents the generic model of relationships investigated by early control systems studies as highlighted in the literature review that focus on PES (see also Covaleski et al., 2003). With this model researchers explored the direct relationships between control systems and its consequences. In relation to PES, researchers investigated the direct consequences of PES on mental states, behaviour and performance (e.g. Argyris, 1952; Hopwood, 1972; Otley, 1978).

b) The moderated effect model, graphically depicted in Figure 3.3 below, represents the relationships studied by the second stream of control systems studies. With this model, researchers explored the factors that moderate the direction and/or strength of the relationship between control systems and their consequences. In relation to PES, researchers explored the factors moderating the direct effects of PES on mental states,

behaviour and performance (e.g. Brownell, 1982a; 1985, 1987; Hirst, 1983; 1987; Govindarajan, 1984; 1985; Brownell & Hirst, 1986). These studies were motivated by the conflicting findings from the first stream of studies and tried to explain these in terms of possible moderating influences that could account for the conflicting findings.

c) The mediated or indirect effect model, graphically depicted in Figure 3.2 , represents the form of relationships investigated by later control systems studies (e.g. Nouri & Parker, 1998; Shields et al., 2000; Chong & Chong, 2002; Wentzel, 2002). These studies generally hypothesize and investigate an indirect effect of control systems features, predominantly participation, on job performance via other variables – predominantly goal commitment and goal difficulty. However, in relation to PES it does not appear to the best of my knowledge that any of the studies focusing on PES investigated this model of relationships perhaps because of the prime focus on explaining conflicting findings of earlier studies in terms of contextual or moderating factors. This model entails identifying and examining the factors that intervene in the relationship between PES and the criterion variables. To this end, the mental state variables are modelled as the mediating factors and behaviour and performance as the criterion variables.

In addition to the above forms of relationships, this study also examines a fourth and more comprehensive form of relationship which, to the best of the author's knowledge, has not been studied in the performance management and control systems literature. This study integrates into one comprehensive model all the 3 models previously examined separately in what is termed a mediated moderation model.[9] With this model both the moderating and mediating influences on the overall effect of PES on behaviour and performance are examined simultaneously. Thus the reality of the complexity of the mechanism by which PES affects behaviour and performance is explored enhancing our understanding of control systems and its effects. The mediated moderation model is graphically depicted in Figure 3.4 below.

[9] This form of relations is currently discussed in the social psychology literature as mediated moderation and moderated mediation. For a more detailed discussion and distinction between the two see Muller, Judd, & Yzerbyt, 2005; Simons et al., 1993; and Baron & Kenny, 1986.

The approach adopted in this study in using this model is to first develop hypotheses on the overall effects of PES on performance and behaviour in line with the direct effects model. Then hypotheses are developed incorporating the moderating influences on the overall effects of PES on performance and behaviour in line with the moderated effects model. Furthermore, hypotheses are also developed incorporating the mediating influences on the overall effects of PES in line with the mediated effects model. Finally, hypotheses are developed incorporating both the moderating and mediating influences in the mediated moderation model. This models the mediating influences as the mechanisms by which the moderation effects are produced. To this end, possible moderating influences considered include organisational hierarchical level, the interactive use of control systems, trust in supervisor or supervisory trust, organisational commitment, and goal difficulty. And the mediating variables considered include equity and fairness perceptions, goal commitment, job related tension, and job satisfaction.

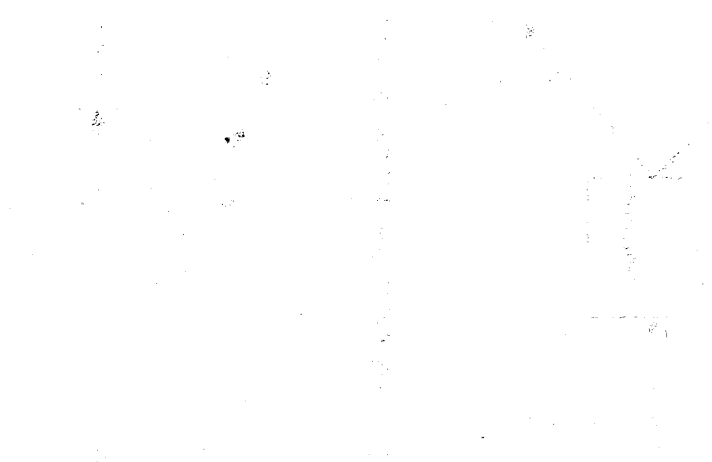


Figure 3.1 Direct Effects Model (Model 1)

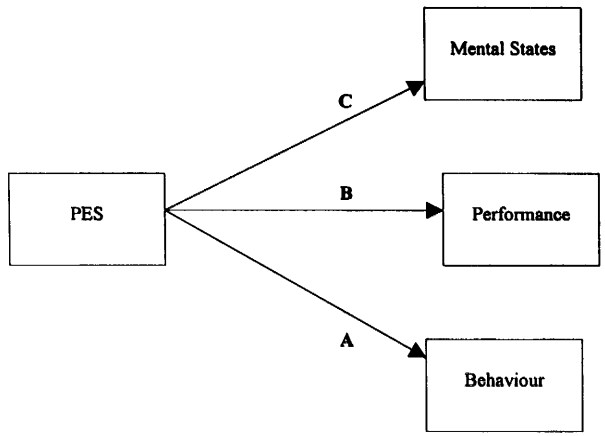


Figure 3.2 Mediated/Indirect Effects Model (Model 3)

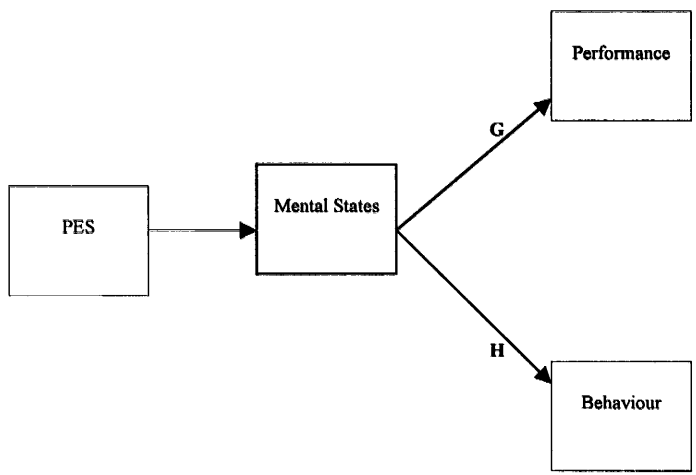


Figure 3.3 Moderated Effects Model (Model 2)

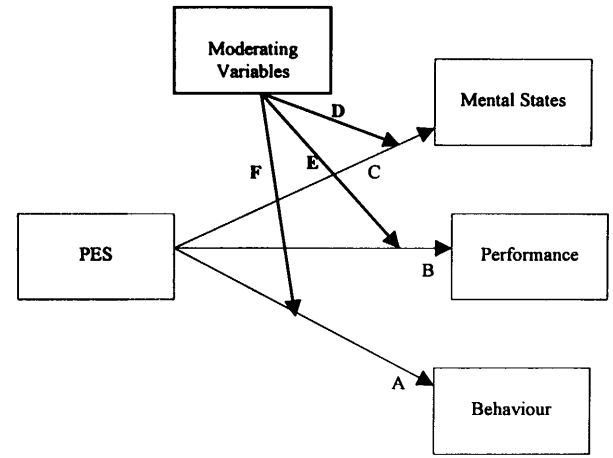
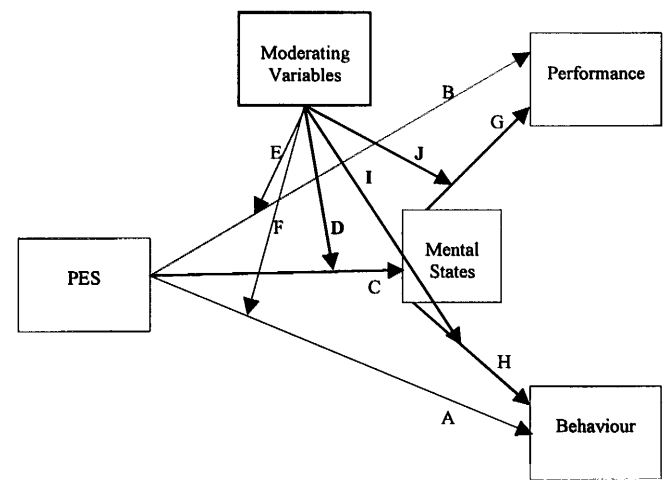


Figure 3.4 Mediated Moderation Effects Model (Model 4)



3.3 Model Development & Formulation of Hypothesis - Overall Effects Model

We start the model development and formulation of hypothesis by looking at the direct effects of PES on both performance and behaviour as did the initial control systems studies (links A & B in the model, Figure 3.4). PES is hypothesized to affect two types of behaviour – functional and dysfunctional behaviour. Dysfunctional behaviour refers to those behaviours exhibited by employees which are ordinarily considered to threaten the best interests of the firm and thus its long term success, whereas functional behaviour is considered to enhance the firm's interests.

3.3.1 PES and Dysfunctional Behaviour:

Link A - Quality Threatening Behaviour (QTB)

As was mentioned earlier, the overall conclusion from the contingency studies in management accounting seem to be the inappropriateness of using only accounting information (as represented in budgets) in complex and uncertain conditions for performance evaluation and reward. In these conditions accounting information is deemed incomplete in measuring performance. Therefore when used in performance evaluation without due consideration of other factors, it elicits dysfunctional behaviours. Hopwood (1973) asserts that an uncompromising use of accounting information can lead to feelings of high pressure. Then as the level of tension increases individuals seek relief by engaging in dysfunctional behaviour like invalid data reporting, strategic behaviour (e.g. creation of slack), and resistance. However, Hartmann (2000) states that empirical evidence from the RAPM literature does not support such universal claim of the effect of uncertainty on the appropriateness of RAPM. Van der Stede (2001, p.120) supports this assertion noting that there is inconclusive evidence in the literature on whether tight budgetary controls encourages or discourages dysfunctional behaviour, increases or decreases job pressure, and is good or bad for performance.

Nonetheless, Anthony and Govindarajan (2004) maintain that relying solely on financial measures is generally inadequate and can be dysfunctional for several reasons such as encouraging managers to:

a) take short-term actions not in the long-term interest of the organisation;

b) avoid taking long-term (costly) actions in order to met short-term targets;

c) avoid high-risk investments choosing low-risk ones with lower returns; and

d) distort communication with superiors as managers build in slack or over-optimism.[10]

These concerns are also similar to those expressed by Simons (1995) regarding accounting based diagnostic controls. Thus extensive use of and emphasis on targets for performance measurement, evaluation and reward, i.e. target focused PES (TF PES), is argued to be positively associated with quality threatening behaviours and short-termism which are not in the best interests of the organisation.

Link A - PES and Intention to Turnover (IT)

In addition, high TF PES has been associated with employee withdrawal behaviours (Hirst, 1981; 1983; Hopwood, 1973).[11] It is argued that high TF PES engenders conflict and poor relations not only between subordinates and their superiors but also between managers of different units. Subordinates disagree with the extensive use of and emphasis on accounting targets that are incomplete measures of their performance, and as the conflict with their superior intensifies they may try to cope by engaging in temporary or permanent social and/or psychological withdrawal.

In the organisational psychology and social psychology literatures, temporary employee withdrawal is identified as manifest in employee absenteeism, withholding of effort, lateness to work, and high intention to turnover, while permanent withdrawal is identified as manifest

[10] In several literatures, such dysfunctional behaviours are generally referred to as 'short-termism'. See for e.g. Hoskisson and Hitt (1988), and Demirag (1995) for definitions of short-termism.

[11] Hirst (1983, p.597) affirm that "social withdrawal is a type of dysfunctional behaviour and can be classified as a form of resistance."

in actual turnover i.e. leaving the firm (Van Yperen et al., 1996; Kammeyer-Mueller et al, 2005; Somers, 1996; Harrison et al., 2006). Meta-analytic studies have also established a strong positive relation between intention to turnover and actual turnover (Steel and Ovalle, 1984; Cotton and Tuttle, 1986). Moreover, individuals high on intention to turnover are more likely to exhibit undesirable attitudes that affect others in the organisation they formally and informally relate with, and this may impede organisational effectiveness.

On the balance of evidence, there is general agreement among commentators that performance management and control systems (PMCSs), especially those based on accounting targets, elicit unintended dysfunctional consequences. This conclusion is also generalised to PMCS targets whether accounting or non-accounting based. This leads to the proposition that the target focused style of using control system information for performance measurement, evaluation and reward is positively associated with dysfunctional behaviour (link A in the models). In other words, dysfunctional effects arise from the extensive use of and emphasis on 'quantitative targets' in performance measurement, evaluation, and reward.

Hypothesis 1

a) TF PES is positively associated with Quality threatening behaviour (QTB)

b) TF PES is positively associated with Intention to turnover (IT)

3.3.2 TF PES: Financial vs. Non-financial Targets

Anthony and Govindarajan (2004, p.495) go further to proffer the solution widely championed by proponents of the balanced scorecard, stating that "the solution is to measure and evaluate business unit managers using multiple measures, nonfinancial as well as financial." Aside the issue of how managers balance or make trade offs between achieving multiple objectives, it is still unclear if these dysfunctional consequences are really due to the 'target' or the 'accounting' nature PMCSs. In most cases, dysfunctional behaviours arise from the tensions between attainment of short-term goals and need for long-term effectiveness. This

tension seems to be at the heart of the contentions about the dysfunctional behavioural effects of emphasis on accounting numbers in performance evaluation (e.g. Hopwood, 1972). There is also very little empirical evidence that the proffered solution works, especially if the non-financial or operational measures are used in pretty much the same way as the financials measures. Rather, anecdotal evidence suggests the use of quantitative targets, whether financial or non-financial, generally results in such dysfunctional behaviours, even though targets may still motivate higher performance.

A typical case that illustrates this point is the UK government's emphasis on targets (largely non-financial) to control the performance of NHS Trusts with the introduction of the NHS Plan in 2000. Following the UK Audit Commission's report on the assessment of the National Trusts published in 2003, there has been wide spread media reports of several dysfunctional consequences of these NHS targets.[12] In addition, experimental evidence provided by Schweitzer et al. (2002) also indicate that the use of targets in performance measurement, in this case non-financial targets, lead to unethical behaviour such as misrepresentation of performance. This occurred especially when individuals were close to meeting their targets. The conclusion therefore is that the dysfunctional effects of the extensive use of and emphasis on quantitative measures would be similar whether the quantitative measures are financial or non-financial measures. This leads to the following hypotheses:

Hypothesis 2

a) The level of QTB associated with Target-Focused (TF) PES based mainly on financial measures is similar to that associated with TF PES based mainly on non-financial measures.

[12] The BBC and other news media reported instances of figures being altered to meet targets and other dysfunctional behaviours such as not admitting patients in Accident and Emergencies to cut waiting list times. See for example the transcript of the BBC Panorama programme at: http://news.bbc.co.uk/nol/shared/spl/hi/programmes/panorama/transcripts/fiddlingthefigures.txt (last accessed on 22 August 2006). The programme detailed how some NHS managers 'fiddled with the figures' to meet the NHS targets.

Hypothesis 2

b) Similarly, there is no difference in the level of IT associated with TF PES based mainly on financial measures compared to that associated with TF PES based mainly on non-financial measures.

3.3.3 PES and Effort, & Performance

Links A & B

Effort (EFF) as a measure of functional behaviour may be seen as the process by which goals are translated into action. A critical part of a manager's job is to translate organisational goals into personal goals for subordinates, and to ensure they direct high levels of effort towards the accomplishment of the goals. Effort is defined here as the conscious exertion of power, a serious and sustained attempt to achieve the required level of performance.

EFF and performance would be expected to be perfectly positively correlated absenting any errors of measurements and other exogenous factors that significantly affect performance. The more direct (positive) relationship of effort with performance is represented in the various psychological models that equate performance as a function of ability and effort/motivation (Libby and Luft, 1993; Bonner, 1999; Bonner and Sprinkle, 2002). Organisations select individuals with the ability to perform the tasks assigned, and influence improvement in ability through training. Ability may vary among individuals in an organisation, but performance relative to ability will be a function of effort. Effort would vary between individuals but more importantly may be exerted towards attainment of organisational objectives or in directions inimical to the organisation's interest. PMCSs in the most part are designed to motivate higher effort in the manner or 'right' direction desired by the organisation. Given the imperfect correlation between effort and performance, the relations between PES and effort, and PES and performance are considered separately in the empirical analysis of this study as the two relationships might differ significantly.

A Target-Focused (TF) PES can be viewed as the progressive use of explicit and thus specific goals in performance evaluation and reward. Goal theory predicts positive performance effects of specific goals, in particular moderately difficult ones, more than general or no goals especially when there is goal commitment. These predictions are based on the premise that goals or targets provide effort direction and aim thereby motivating higher performance. But excessively difficult goal levels lead to reduced performance. In relation to PES, Hirst (1987, p774) states that "specific budget goals are those that are expressed in quantitative terms (such as "sell x units of product y"), whereas non-specific or general goals are expressed in non-quantitative terms (such as "sell as many units of product y as possible")." Several empirical studies in social psychology literature provide evidence support the goal theory premise and predictions (Riedel et al., 1988; Wright, 1989; Locke and Latham, 1990a, 1990b). However, empirical evidence from the PMCS contingency studies is inconclusive on the effects of different PES on performance and effort.

It is hardly the case that quantitative targets can or do capture all the important dimensions affecting performance e.g. cooperation. Nonetheless, it is expected that both effort and performance would be higher when explicit targets are used (i.e. medium to high TF PES) compared to when no targets are used (i.e. low TF) in line with goal theory predictions (Locke and Latham, 1990b). However, a more balanced use of both targets and non-target related information in measuring and evaluating performance would motivate even higher effort and performance compared to exclusive use of targets. This suggests a curvilinear relationship between TF PES and performance, and between TF PES and effort. In other words, effort and performance is expected to be higher for the PES situation where explicit targets are used and emphasised compared to PES situation where no explicit target is used and qualitative factors are emphasised, but highest for the PES situation where explicit targets and qualitative information are equally emphasised. This leads to the following hypotheses:

Hypothesis 3

a) There is a convex, i.e. inverted U-shaped, relationship between TF PES and EFF

b) There is a convex, i.e. inverted U-shaped, relationship between TF PES and Performance

3.4 Moderated Direct Effect Models:

Links D, E, & F

In section 3.3 above arguments were presented leading to hypotheses about the direct effects of PES on behaviour and performance. In this section, further hypotheses are developed which identify moderating influences on the direct effects proposed in the previous section. A number of factors are identified as moderating the effects of PES on behaviour and performance including organisational hierarchical level (OHL), interactive use of control systems (ICS), goal difficulty (GD), organisational commitment (OC), equity and fairness perception (EFP), and trust in supervisor i.e. supervisory trust (ST).

3.4.1 PES and Goal Difficulty

As discussed in Section 3.3.2, goal theory predicts positive performance effects of specific and moderately difficult goals more than general or no goals, but at excessively difficult goal levels performance is reduced. In relation to PES, a high TF PES compared to a low TF PES implies the use of more specific goals and a tighter coupling of rewards to performance against targets. Thus TF PES is likely to lead to higher performance when the goal level is set at the average level of performance, i.e. when goals are perceived to be achievable, rather than at low or very high levels. Hirst (1987, p774) describes moderately difficult goal levels as "where they (goals) are set at the average level of performance for a given task."

This effect of goal difficulty (GD) likely results from individuals adjusting their efforts relative to the expected outcome. Thus, when individuals are evaluated and rewarded based on

their performance against targets they would increase their efforts if the goals were moderately difficult i.e. achievable. However, if the goals are very difficult to achieve they may then adjust their effort downwards since higher effort is unlikely to yield more rewards and may also have a psychological cost to them if goals where not attained. Empirical evidence of this adjustment of effort relative to the level of goal difficulty is seen in the experimental study of Wright (1992b). He found that goal level, i.e. level of goal difficulty, interacted with the level and type of incentive (whether piece meal rates, hourly rates, or bonus based on goal performance) to affect performance. He found that under high incentive level conditions (high levels of each incentive type) performance increased with goal levels, however performance was lower for those rewarded based on goal attainment (i.e. with bonuses). He suggested that the goal attainment bonus subjects were more cautious in committing to the goal because of the negative consequence of not achieving the goal.

Merchant and Mazoni (1989) also found in their field study that superiors allowed subordinates' goals to be set at tight but achievable levels for a number of reasons including discouraging dysfunctional behaviour in the form of earnings management. Other reasons they found include: increasing motivation resulting from the feel good factor of achieving targets; reducing the need for control intervention that arise when performance is below target levels; and protecting against over consumption of resources that result when high expected performance also lead to belief that more resources can be consumed. Some of the reasons support the premise that non-attainment of performance targets carries a high psychological cost to the subordinates. Thus individuals may resort to dysfunctional behaviour in order to increase their chances of achieving their performance targets particularly where rewards are tightly coupled to performance against targets, especially difficult ones.

Hypothesis 4

GD moderates the effect of TF PES on performance and behaviour such that:

a) Quality threatening behaviour (QTB) is more positively associated with TF PES when GD is very high than when it is low or moderate

b) Intention to turnover (IT) is more positively associated with TF PES when GD is high than when it is low or moderate

c) Effort (EFF) is more positively associated with TF PES when GD is moderate than when GD is low or high

d) Performance is more positively associated with TF PES when GD is moderate than when it is low or high

3.4.2 PES and Organisational Hierarchical Level

Organisational hierarchical level (OHL) is identified in the following paragraphs as playing both an antecedent and a moderating role. As an antecedent variable it influences the PES that superiors adopt, and also likely moderates the effects of PES.

OHL as an Antecedent of PES

While uncertainty has been identified and investigated as a moderator of the effects of PES on behaviour (Hirst, 1983; Govindarajan, 1984; Chapman, 1997), Galbraith (1977) describes it in terms of the level of difference between the information organisations posses and that required to carry out its functions. He suggested that organisations bridge this difference through their structure thus variations in organisational structure reflect "...variation in the capability of the organisation to process information about events that could not be anticipated in advance... [the information in turn being]...a function of the output diversity, division of labour, and the level of performance" (Galbraith, 1977, pp55-56). On one hand, organisational structure could be viewed as the grouping of resources and individuals who carry out similar tasks together into units and the grouping of these units together in some configuration based on work processes, or outputs, and/or geographical location. Starting at the bottom of the organisation,

the basic building block of organisational structure is the formation of work units around similar and/or related tasks aimed at a work output depending on the nature of the task. In investigating the effects of PES, previous studies have adopted this view of structure as organisations' response to uncertainty by looking at differences between different types of organisations and work units/departments. Galbraith (1977) posits that the nature of tasks at each OHL require different roles and organisational behaviour. Generally, tasks are progressively more complex and non-programmable higher up the hierarchy and so also does the time frame between actions and the full realisation of its consequences increase higher up the hierarchy (Jaques, 1964a; 1979; 1990).[13] Thus, higher up the OHL, knowledge of cause and effect relationships decreases as tasks become increasingly non-programmable and the action-result time frame lengthens. This implies that it is more feasible and probably less costly to monitor the effectiveness of task related effort lower down than higher up the OHL. As a result, the type/nature of information, i.e. performance measures and 'targets', used to evaluate performance at each hierarchical level likely differs and, probably, so would the manner in which the information is interpreted and assessed.

On the other hand, organisational structure, i.e. organisational hierarchical levels (OHLs) could also be viewed in terms of the people carrying out the tasks and the various authority or superior-subordinate(s) relationships underpinning the various work units. Simons (2000) discusses organisational structure in terms of the 'span of control' and 'span of accountability' structures within the firm. Thus, OHL as sets of superior-subordinate relationships in an organisation reflect both span of control and span of accountability. Simons posits that both span of control and span of accountability determine the 'span of attention' of managers – i.e. the domain of activities within a manager's field of view that he attempts to gather information on and influence. Span of control indicates the number of direct subordinates or functions under a manager, while span of accountability expresses the range of performance

[13] This applies particularly to managerial jobs. Though some lower level jobs, e.g. nursing in the context of a hospital, may appear to be quite complex but in large part they are still programmable i.e. consists of clear and detailed steps to take in defined circumstances.

measures used to evaluate a manager and at the basic level defines the financial statement elements a manager is held accountable. Thus, span of control and span of accountability are inherent elements of the organisational design which vary across the OHLs. For most types of organisations, it would appear that lower down the OHL, the number of subordinates a superior directly supervises, i.e. span of control, tends to increase while span of accountability narrows, i.e. they tend to be held accountable for specific single line items in the financial statements.

As span of control increases at lower levels, i.e. the more people a superior has to evaluate, so would the need to be perceived as objective and fair in evaluating and rewarding performance. This for instance may drive the predominant use of quantitative performance measures, which are perceived as more objective compared to non-quantitative measures. Also, as span of accountability is narrower at these levels, less aggregated information is needed, all implying that quantitative non-financial information may be used more extensively to measure, evaluate and reward performance at low OHLs. Given also that tasks are more programmable at lower OHL and that the action-results time frame is short, this makes the use of the non-quantitative measures in a TF PES amenable at these levels.

On the other hand, task is less programmable at higher OHL and effort less easily monitored. Also, span of accountability is broader and action-results time frame longer. Thus while more quantitative non-financial information may be used more extensively at lower OHLs, more aggregate measures of performance, usually financial measures, are required for higher OHL. In general, financial information usually reflects aggregate actions of many lower level subordinates making it somewhat predictable, thus it may be seen as ameliorating some of the difficulty in measuring performance posed by non-programmability of tasks at higher OHLs. However, it is also much more likely that the quantitative measures would be used in combination with qualitative information in evaluating and rewarding performance at higher OHL given the non-programmability of tasks and the longer action-results time frame.

Financial information usually relates to shorter time frames and thus do not fully reflect the impact of all the relevant contemporaneous actions/decisions of managers. Moreover, because financial information is highly aggregated at higher OHLs, it may also mask other managerial deficiencies making its combined use with additional qualitative information more desirable.

In summary, it is argued that OHLs would influence PES in determining both the nature/type of information used as well as the manner such information is used. Though quantitative measures are used across OHL, the discussion above suggests that more non-financial (financial) quantitative measures are used at lower (higher) OHL. In addition, the quantitative non-financial measures are likely to be used extensively and emphasised at lower OHL, i.e. a high TF PES. However, the financial measures are less likely to be used in such a manner at higher OHL. Financial measures are more likely to be used in some balanced combination with other qualitative information, i.e. a low to moderate rather than high TF PES.

Hypothesis 5

a) There is no difference in the amount of quantitative information used to evaluate performance at low vs. high OHL.

b) Non-financial information is used more extensively to evaluate performance at low OHL than at high OHL; and conversely financial information is used more extensively at high OHL than at low OHL.

c) PES dominantly used at high OHL will be different from that used at low OHL; i.e. the manner in which quantitative information is used for performance evaluation would be different at low compared to high OHL - with high (low) TF PES dominantly used at low (high) OHL

OHL as a Moderator of PES Consequences

Empirical evidence from early studies suggests that OHL not only influences PES used but also possibly moderates the impact of TF PES. For example, Otley (1978, p.143) attributed the difference in the distributions of PES observed in his study compared to that in Hopwood's (1972) study to the type of responsibility centre studied – profit centres in the

case of Otley and cost centres in the case of Hopwood. Similarly, Brownell (1982a) also attributed the difference in the PES distributions between his study and Otley's to the same factor. Brownell (1982a, p.16 footnote 4) suggests that "apparently, profit centre managers (Otley's sample) are evaluated much more on the basis of accounting information than cost-centre managers (Hopwood's sample and the sample in this study), as reflected in the dominance of the non-accounting style in Hopwood's and my samples, of only trivial importance in Otley's sample." Responsibility centre type in these studies obviously reflects the OHLs of the managers surveyed. The results of these studies were also significantly different with regards to the effects of PES, and these differences spurred the RAPM series of studies (Hartmann, 2000). While Hopwood and Brownell found some evidence that (at lower OHL) high RAPM compared to low RAPM style of performance evaluation was less associated with performance, and more associated with dysfunctional behaviour and stress, Otley found no such evidence (at higher OHL). Otley found that (at higher OHL) high RAPM was more associated with performance and had no significant association with dysfunctional behaviour. These results suggest differential effects of high RAPM at different OHL, which implies that OHL moderates the effects of PES on behaviour and performance. On the other hand, the pattern of dominant PES also suggests that OHL is an antecedent of PES.

One strong explanation that has been offered as accounting for the differences in PES distribution among the three studies cited above makes it difficult to base any hypothesis about the antecedent and moderating effects of OHL on the empirical evidence provided by these studies without controlling for this factor –i.e. the financial/economic condition faced by an organisation. The organisation Otley (1978) studied was facing difficult economic conditions, which may not have been the situation with Hopwood's (1972) and Brownell's (1982a) sample firms. Otley found that tighter control systems were adopted in the units having the greatest impact on the profitability of the firm, and he suggested that "in the most difficult economic conditions, a tight system of control was adopted..., in slightly easier but changeable conditions, a highly participative style was adopted...., in relatively easy and

stable conditions, a less rigorous approach prevailed ... intervention occurring only when profitability appeared threatened." (p. 141). Imosili (1989, p.332) reaffirmed this explanation for the differences in PES and effects of PES as he notes that:

...perhaps when organisations are facing financial hardship, the differential effects of performance evaluative style on work outcomes may be difficult to isolate empirically. It is likely that when companies are undergoing periods of declining profitability, there might be so much emphasis on financial data in performance evaluation that it may be difficult to truly classify managers into different styles on the basis of how much consideration is given to budget data in performance evaluation. In this study however, this factor is ruled out as the case organisation is not facing financial difficulties, to the contrary it is one of the most successful in its industry as indicated by their financial statements. Thus, any confounding effects of economic conditions on PES and its effects are substantially controlled for in this study. Empirical and anecdotal evidence from the stream of literature focused on control systems in professional accounting firms also indicate that the incidence of dysfunctional or inappropriate behaviour is lower at more senior compared to more junior levels in the organisation (Kelly and Margheim, 1990; Pierce and Sweeney, 2004; . For instance, Kelly and Margheim (1990) found that dysfunctional behaviour was more common among lower level auditors. Similarly, Pierce and Sweeney (2004) found a higher level of dysfunctional behaviour among audit juniors compared to audit seniors, though difference was not tested for statistical significance.

These results further suggest that OHL may moderate the impact of PES on dysfunctional behaviour. Moreover, OHL provides a context within which the appropriateness of a TF PES may be adjudged given the discussions in the preceeding sub-section, and therefore likely to moderate PES effect on behaviour. A high TF PES may be seen as inappropriate at high OHL given less knowledge of cause and effect, less programmability of tasks, and longer action-result time frames. At lower OHL however, high TF PES may be perceived as fairer, and thus

more appropriate, than low TF PES given greater span of control at these levels. Therefore the following proposition is put forward:

Hypothesis 6

OHL moderates the effects of TF PES on behaviour and performance such that:

a) QTB is more positively associated with TF PES at higher than at lower OHL

b) IT is more positively associated with TF PES at higher than at lower OHL

c) Effort is more positively associated with TF PES at lower than at. higher OHL

d) Performance is more positively associated with TF PES at lower than at higher OHL

3.4.3 PES and Interactive Use of Control Systems

From a series of studies Simons (1995; 2000) identified the different ways in which senior managers use control systems as levers of control. He found that top managers use some elements of the control systems in a diagnostic manner which he described as diagnostic control systems, and use other elements in an interactive manner which he described as interactive control systems. Simons (1995, 2000) notes that rewards and thus performance evaluation can be linked to diagnostic as well as interactive control systems. As a distinct element of the control system, interactive control systems could be systematically linked to PES as another different feature of the control system. Chenhall (2003, p131) illustrates this point as he noted that:

> ...a study focused only on formal budget systems may argue that they are unsuitable in uncertain operating conditions as they include incomplete information and lack flexibility. However, evidence may indicate that successful organizations rely extensively on formal budgets....It may be that successful organizations operating in uncertain conditions have formal budgets but they are systematically combined with open and flexible communications between managers. The formal budgets are useful in assisting planning and curbing excessive innovation, while the informal

> communications provide broader information in flexible ways. Simons (1987; 1991; 1995) showed that formal budgets can provide interactive controls in uncertain conditions...

Thus the degree of presence or absence of ICS is likely to impact on the effects of PES.

Indeed, interactive use of control systems (ICS) seem related to informal controls, and is systematically linked to PES to the extent or not that managers using different PESs frequently review and discuss performance against targets, budgetary or otherwise, with their subordinates, and to the extent that they use the control systems information to get involved in the important decisions made by their subordinates. Chenhall (2003, p.138) also propose that "...where MCS focused on tight financial controls are used in uncertain external environments they will be used together with an emphasis on flexible, interpersonal interactions." This suggests that flexible interpersonal interactions mitigate the unintended consequences of tight financial controls in successful organisations. As ICS encourages increased interaction between superiors and their subordinates, it thus enhances the flow of information between them. As noted earlier, the dysfunctional effects of TF PES is often attributed to the increased tension it provokes due to role ambiguity, uncertainty on how ones actions bear on achievement of set goals, and the linking of rewards to performance against set goals. ICS alleviates the tensions and tendency to engage in dysfunctional behaviour due to the increased interaction and information flows it engenders. On one hand, these interactions provide subordinates with opportunities to communicate emerging job relevant information to their superiors; to clarify their roles, their superiors' performance expectations, and also their strategy for achieving the set goals; or simply to win the sympathies of their superiors. On the other hand, it affords superiors the opportunity to reveal their values to subordinates and for closer monitoring leaving subordinates less room to engage in dysfunctional behaviour. In addition, ICS might also promote feelings of trust and fairness which may further discourage subordinates from engaging in dysfunctional behaviour, and probably encourage more effort and better performance. Therefore, when there is high ICS the

dysfunctional effects of TF PES would most likely be alleviated compared to when there is low ICS, and effort and performance is also likely to improve. This leads to the following hypotheses:

Hypothesis 7

ICS moderates the effects of TF PES on behaviour and performance such that:

a) QTB is more positively associated with TF PES when ICS is low than when ICS is high or moderate

b) IT is more positively associated with TF PES when ICS is low than when ICS is high or moderate

c) Effort is more positively associated with TF PES when ICS is high than when ICS is low or moderate

Hypothesis 7

d) Performance is more positively associated with TF PES when ICS is high than when it is low or moderate

3.4.4 PES and Organisational Commitment

Another potential moderator of the effects of PES on work performance and behaviour is organisational commitment (OC). Two important dimensions of OC are generally identified in the literature, i.e. affective and continuance commitment. Affective commitment relates to the definition of OC given by Porter et al. (1974, p.604) i.e. "the strength of an individual's identification with and involvement in a particular organization." This is characterized by a belief in and acceptance of organizational goals and values, a willingness to exert effort to accomplish those goals, and a strong desire to maintain organizational membership. On the other hand, continuance commitment relates to the description provided by Becker (1960, p32), i.e. "when a person, by making a side bet, links extraneous interests with a consistent line of activity." In other words, individuals remain committed to an organization because they need to because of the perceived costs of leaving the organisation; e.g. loss of attractive

benefits, loss of seniority, and disruptions in personal relations in moving to another location and job (Meyer et al., 1989).

Empirical evidence show affective and continuance commitment to be orthogonal and differentially related to work behaviours like turnover intentions and job satisfaction. For instance, Meyer et al. (1989) found affective and continuance commitment to be uncorrelated. They also found affective commitment to be positively correlated with job satisfaction and performance, while continuance commitment was negatively related to these variables. They theorize that "employees with a strong affective commitment remain with the organization because they want to, whereas those with strong continuance commitment remain because they need to do so....those who value and want to maintain membership should be willing to exert considerable effort.... In contrast, those who feel compelled to remain to avoid financial and other costs may do little more than the minimum required to retain their employment." (Meyer et al., 1989 p.152). Meta-analysis of the relations between OC and work outcomes conducted by Randall (1990) also support the differential associations of affective and continuance commitment with work outcomes like tardiness, absenteeism, and turnover (reverse coded and conceptualised as coming to work on time, attendance, and remaining with the organisation). She found that affective commitment was more strongly and positively associated with these work behaviours than continuance commitment. Similar results were also found by Mathieu and Zajac (1990) in their meta-analytic study.

Management accounting research in general tends to focus on affective rather than continuance commitment (Ketchand and Strawser, 1998; 2001). For e.g., Otley & Pierce (1996a) hypothesized and found support for their hypothesis that higher OC (affective commitment) is associated with low levels of dysfunctional behaviour referred to as audit quality reducing behaviour (AQRB) and premature signoff of audit tasks, but not for under reporting of time. AQRB involved accepting weak client explanations, superficial review of documents, failing to research an accounting principle, and reducing work below what was

considered reasonable. From the foregoing it is hypothesized that: the acceptance of organisational values coupled with willingness to exert more effort and strong desire to maintain membership in the organisation would incline individuals toward exhibiting lower dysfunctional behaviour, and possibly higher performance even when a high TF PES is use. Thus the effects of TF PES on behaviour particularly dysfunctional behaviour may not be significant when OC is high.

Hypothesis 8

OC moderates the effects of TF PES on behaviour and performance, such that:

a) QTB is more positively associated with TF PES when OC is low than when OC is high

b) IT is more positively associated with TF PES when OC is low than when OC is high

Hypothesis 8

c) Effort is more positively associated with TF PES when OC is high than when OC is low or moderate

d) Performance is more positively associated with TF PES when OC is high than when OC is low or moderate

3.4.5 PES and Supervisory Trust

Some studies have identified ST as a moderator of (or mitigating) the negative consequences of PES. Ross (1994, p.629) argues that "...trust is likely to moderate the relationship between the style of performance evaluation and job related tension by improving acceptance of the performance evaluation process." In support of his argument, he cites Henderson (1980, p10) who argued that lack of trust is the most important factor that evoke negative feelings towards performance evaluation systems. He also cites Brion (1989, p371) who contended that trust is an important factor that will mitigate the consequences of evaluation. However, Ross (1994; 1995) also argues that such moderating effects of ST would not hold for low TF PES (i.e.

Hopwood's NA style) because this PES entail the use of subjective criteria which makes a superior's biases and idiosyncrasies more evident.

Ross (1994) also found evidence supporting his arguments. He found that JRT was significantly higher when low compared to high TF PES was employed at high ST levels, but did not differ significantly between low and high TF PES at low ST levels. Ross's results also showed that the mean ST levels were higher (though not tested for significance) at high TF PES compared to low TF PES. In contrast Hopwood (1972) and Otley (1978) found that ST was higher when TF PES was low compared to high TF PES, though their results differed with regards to the difference in levels of JRT between high and low TF PES. While Hopwood found JRT to be higher for high TF PES, Otley did not find any significant difference in JRT between high and low TF PES. Nonetheless, the evidence reviewed suggests that ST moderates the negative consequences of PES, i.e. when ST is at high levels it mitigates the impact of TF PES on dysfunctional behaviour.

Hypothesis 9

ST moderates the effects of TF PES on behaviour such that:

a) QTB is less positively associated with TF PES when ST is high compared to when ST is low

b) IT is less positively associated with TF PES when ST is high compared to when ST is low

3.5 Mediating Effect & Mediated Moderation Effect Models:

Links C & G, C & H; & Links D, J, & I.

The discussion in Section 3.1 suggested that the apparent dilemma in choosing the appropriate criterion variable is related to the need to more clearly specify the mechanism(s) by which PES affects behaviour and performance. In other words, the moderating as well as the

mediating or intervening variables, and their interactions that affect the impact of PES on the outcome variables need to be identified and such relationships clearly specified. This task is the focus of this section. First, the possible significant intervening variables are identified and their relations with PES and the outcome variables also specified. Afterwards, how these intervening variables explain the effect of the moderating variables discussed in section 3.4 are then explored. Four variables – equity and fairness perceptions, goal commitment, job related tension, and job satisfaction – are identified as mediating the effects of TF PES on behaviour and performance. Figure 3.5 below depicts the model of relationships discussed in the subsequent sub-sections.

3.5.1 Intervening Effects of Equity and Fairness Perception

Equity theory predicts that individuals compare the ratios of what they give to the organisation, their labour/effort input, to what they get (i.e. total rewards) to a corresponding ratio for a comparison others (Adams, 1963; Adams and Jacobsen, 1964). The theory posits that people feel distressed when they perceive their input as unequal to the outcome they get; either as feelings of guilt when over-rewarded or resentment if under-rewarded (Greenberg, 1987b, 1990; Huseman and Hatfield, 1990; Akerlof and Yellen, 1990; Allen and White, 2002). When this happens, they try to restore equity. If over-rewarded they may either adjust fast to the over-reward (get used to it) or increase effort to alleviate the guilt, and if under-rewarded they generally reduce effort or seek to increase the reward outcomes.

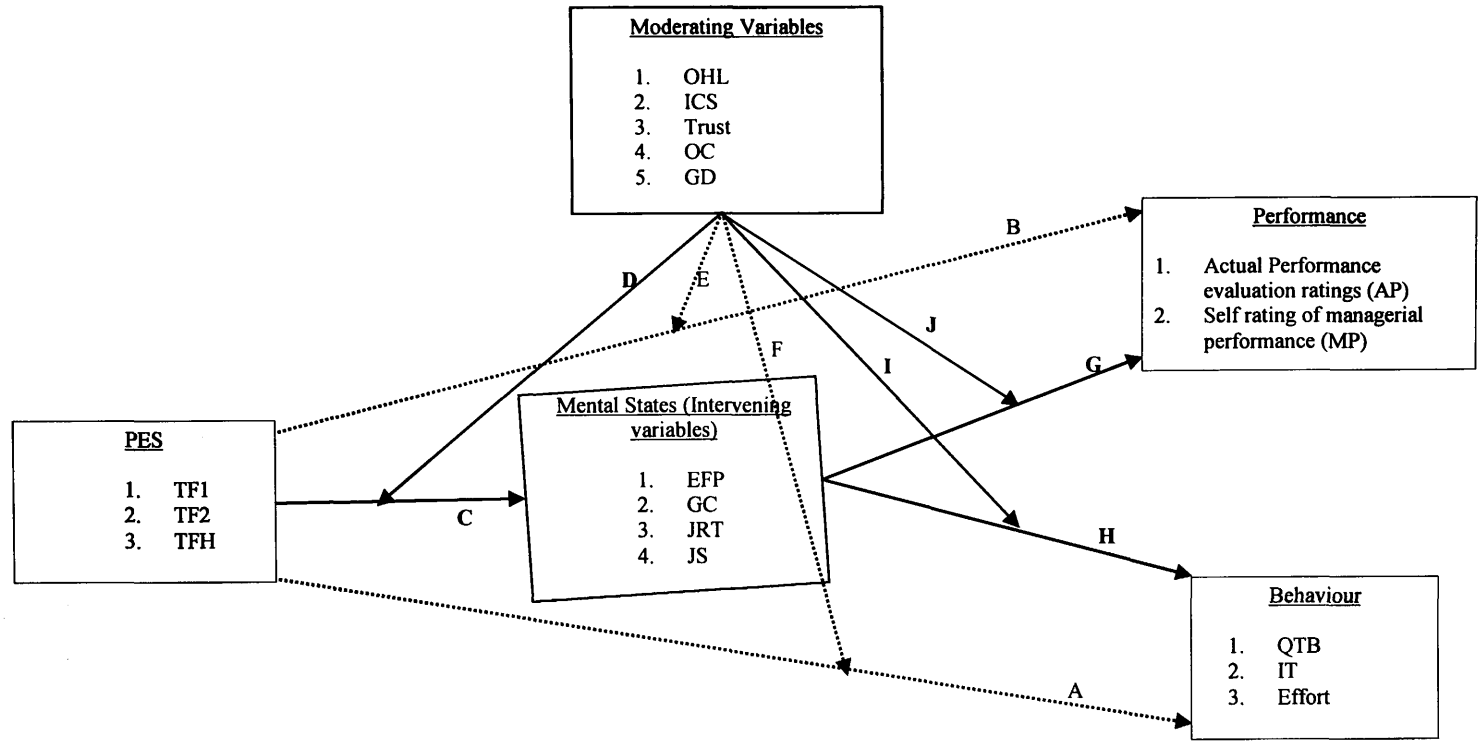
Empirical studies of equity theory provide much evidence that suggests individuals lower their performance when they feel under-rewarded, but give inconclusive evidence regarding reactions to over-reward (Akerlof and Yellen, 1990; Huseman and Hatfield, 1990)[14]. Huseman and Hatfield (1990 p.99) describe some of the ways employees reduce their inputs or seek increased outcomes when under-rewarded as:

[14] Greenberg (1987a) also notes that equity theory has limitations in explaining improprieties in organizational procedures as he found in this study that the outcomes received had no effect on ratings of the fairness of the procedures used.

> ...doing less or careless work, coming to work late, "forgetting" to carry out instructions, taking extended breaks and lunch hours, using up sick days, and sabotaging their work and the work of others.... Increasing outcomes involves seeking... more pay or benefits, promotions, increased job security, and better working conditions.

Feelings of inequity and unfairness not only lead to the temporal social withdrawal behaviour described above, but are also likely to lead to permanent withdrawal in the form of turnover particularly when such feelings persist over time. For instance, Van Yperen et al.'s (1996) study, set in 2 Dutch manufacturing plants, found that perceptions of inequity were significant predictors of intention to turnover and intention to report sick (a proxy for absenteeism).

Figure 3.5 Mediated Moderation Effects Model with measured variables



Extant research discusses equity theory in terms of organisational justice differentiating between two concepts of justice/equity - the fairness of the actual outcomes an employee receives, termed distributive justice (more in line with equity theory), and the fairness of the procedures used to determine the outcome an employee receives, termed procedural justice (Greenberg, 1987a, 1990). Perceptions of procedural justice is enhanced when the decision-making procedure allow individuals a voice, i.e. an opportunity to express their views, in the decision process. This effect is explained by the expectations of individuals given this opportunity that their views will influence the outcome. An alternative explanation is that individuals given this opportunity believe they are valued as members of the group enacting the decision. Empirical evidence from the justice literature, though sparse, suggests positive effects of procedural justice on goal commitment and performance (e.g. Earley and Lind, 1987; Lind et al. 1990; Janssen, 2001).

Equity and fairness perception (EFP) is linked to PES in that performance evaluation is an inherent and pivotal part of the process of determining and distributing rewards. Thus the PES experienced would be adjudged as either a fair process leading to an equitable outcome or not. And given that EFP relating to the process and outcomes of performance evaluation is an important factor influencing individuals' behaviour as well as performance, EFP would therefore mediate the relations between TF PES and behaviour, and TF PES and performance. When PES is perceived to be fair and thus the consequent outcome equitable, i.e. when EFP is high, effort and performance would be increased. It is also more likely that the level of dysfunctional behaviour such as QTB and IT would be reduced when EFP is high compared to when EFP is low. However, it is unclear how TF PES would impact on EFP as this likely depends on other factors which would be explored in the subsequent paragraphs. At the moment it is sufficient to conclude that EFP mediates the impact of PES. This leads to the following hypotheses:

Hypothesis 10

EFP mediates the effects of TF PES on

a) QTB

b) IT

c) Effort

d) Performance

3.5.2 EFP Mediation of Organisational Hierarchical Level (OHL) Moderation Effects

In Section 3.4.2, it was suggested that any moderating effect of OHL might be explained by the mediating process(es) between TF PES and the outcome variables. For instance, Ross (1995, p5) contends that OHL may affect the effects of PES and uncertainty given that there are likely to be differences in both attitude and behaviour between lower, middle, and upper level managers. He cites Porter and Lawler (1965) who reported such differences between OHL in both job attitudes and job behaviours. He also cites Hamner and Tosi (1974) who found that upper level managers are more likely to react negatively to role ambiguity. Consequently, it is argued here that the perceived fairness of TF PES, and thus how equitable the consequent outcomes are perceived to be, depends on the perceived appropriateness of the PES given the person's level in the organisational hierarchy among other things. It was also argued in Section 3.4.2 that the use of high (low) TF PES at high (low) OHLs enhances feelings of inequity and unfairness, implying that EFP explains the mechanism by which OHL moderates the effects of TF PES on the outcome variables. At lower OHL, the use of high TF PES will enhance EFP, which in turn would be positively related to performance and effort; whereas the use of high TF PES at higher OHL would be perceived as unfair because of incomplete knowledge of and measurement of factors affecting performance.[15] This leads to the following hypotheses:

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[15] This implies a mediated moderation effect. However this becomes a moderated mediation effect if there is no evidence of an overall moderation effect of OHL on the relations between TF PES and the outcome variables as hypothesized in Section 3.4.2, i.e. the mediation effects of EFP is observed at one or another hierarchical level but not at all levels. Hypothesis 11 may then be restated as "*the indirect effects of TF PES on behaviour via EFP is*

Hypothesis 11

EFP explains the moderating effect of OHL on the relationship between:

a) TF PES and QTB, such that at lower (higher) OHL TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB

b) TF PES and IT, such that at lower (higher) OHL TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB

c) TF PES and EFF, such that at lower (higher) OHL TF PES is positively (non-significantly) related to EFP which in turn is positively related to effort

d) TF PES and Performance, such that at lower (higher) OHL TF PES is positively (non-significantly) related to EFP which in turn is positively related to performance

3.5.3 EFP Mediation of Interactive use of Control Systems (ICS) Moderation Effects

In Section 3.4.3, it was argued that ICS moderates the effects of TF PES due to the increased interaction and information flow it encourages between superiors and their subordinates. Such increased interaction and information exchanges also mean more openness which promotes more positive EFP in the acceptance of the process of determining and allocating rewards. For instance, Lindquist (1995) found that fairness perceptions (enhanced by allowing individuals a voice in the decision making process) positively affected acceptance of and satisfaction with performance targets irrespective of whether those targets were attainable or not. Consequently, EFP may also partly explain the mechanism by which ICS moderates the effects of TF PES on behaviour and performance.

Hypothesis 12

EFP explains the moderating effect of ICS on the relationship between:

a) TF PES and QTB, such that at high (low) ICS TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB

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moderated by OHL such that at lower OHL TF PES is positively associated with EFP, which in turn is negatively associated with dysfunctional behaviour. However, at higher OHL such associations may be insignificant or reversed."

b) TF PES and IT, such that at high (low) ICS TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB

c) TF PES and EFF, such that at high (low) ICS TF PES is positively (non-significantly) related to EFP which in turn is positively related to effort

d) TF PES and Performance, such that at high (low) ICS TF PES is positively (non-significantly) related to EFP which in turn is positively related to performance

3.5.4 EFP Mediation of Supervisory Trust (ST) Moderation Effects

In Section 3.4.5 it was hypothesized that ST moderated the impact of TF PES on dysfunctional behaviour in line with Ross (1994) arguments that ST lead to acceptance of performance targets. In an earlier study, Fulk et al.(1985) found that ST influenced how fair or unfair individuals perceived their evaluation to be. They found that the higher the trust, the more individuals perceived their performance evaluation as being fair. The foregoing also suggests therefore that EFP possibly explains the mechanism by which ST moderates the negative effects of PES.

Hypothesis 13

EFP explains the moderating effect of ST on the relationship between:

a) TF PES and QTB such that at high (low) ST, TF PES is positively (negatively) related to EFP which is in turn negatively related to QTB

b) TF PES and IT such that at high (low) ST, TF PES is positively (negatively) related to EFP which is in turn negatively related to IT

3.5.5 Intervening Effects of Goal Commitment

Goal commitment (GC) has been variously defined as: the willingness to commit resources toward the accomplishment of a goal (Naylor and Ilgen, 1984); an individual's attachment to or determination to reach a goal regardless of its origin (Locke and Latham, 1990b); and the level of determination and persistence put towards achieving a goal (Renn, 2003). GC is

linked to PES, in that many of the antecedents of GC identified in the goal-setting literature, e.g. supervisor supportiveness and trustworthiness, and reward structures (Hollenbeck and Klein, 1987) are conceptually related to PES. For instance, supervisor supportiveness entails not only support to achieve the required level of performance but also showing understanding of the prevailing circumstances underlying performance when evaluating performance. On the other hand, supervisor trustworthiness relates to felt fairness of evaluation as discussed in the previous paragraph. In other words, supervisors are trusted more when they are perceived to be fair in their style of evaluating performance. Reward structures are also related to the amount of discretion superiors have in rewarding or punishing subordinates, and rewards generally increase goal commitment especially when based on goal attainment (Hollenbeck et al., 1989b; Wright, 1989). Though (high) TF PES could be perceived as fair or unfair and as reflecting or not reflecting supervisor support, it is however more tightly coupled to rewards, thus in general it should increase GC.

Evidence from the goal setting literature generally indicate that commitment to a goal or target, in particular moderately difficult ones, is positively associated with performance (Locke and Latham, 1990b, Klein et al. 1999, Hollenbeck et al., 1989a). Hollenbeck et al. (1989b, p.954) also suggests that "...all else being equal, if everyone has difficult goals, performance will be highest for those that are more highly committed." This suggests therefore a possible mediating role of GC in the PES/performance relations. Some evidence of this mediating role of GC is also found in the accounting literature. For example, Wentzel (2002) studying responsibility-area managers of a large urban hospital found that budgetary participation fosters a sense of fairness, leading to higher commitment to budget goals and better managerial and budgetary performance subsequently. However, fairness perceptions appeared to have no direct effect on performance when goal commitment was considered (see also Chong and Chong, 2002). With regards to dysfunctional behaviour, it is not clear how goal commitment might affect it as priori expectations is tenuous to specify given also no empirical or anecdotal evidence. In general it would be expected that as individuals commit to

achieve a goal they will increase effort in the right direction, i.e. work hard. However, it is conceivable that when goal commitment is high then the higher psychological costs, in addition to the material costs, of not achieving the goal might also lead to more dysfunctional behaviour like data manipulation or short-termism, as individual seek to achieve the goal and avoid the costs.

Hypothesis 14

GC mediates the impact of TF PES such that TF PES is positively related to GC which in turn

a) is negatively related to quality threatening behaviour (QTB)

b) is negatively related to intention to turnover (IT)

c) is positively related to effort (EFF)

d) is positively related to performance

3.5.6 GC Mediation of Goal Difficulty (GD) Moderation Effects

As was noted in Section 3.4.1, the goal setting literature provides evidence indicating that specific and difficult goals (GD) lead to higher performance than vague and easy goals. However, goal commitment is the most often cited condition necessary for this relationship. Thus commitment to difficult but achievable goals leads to higher performance. Sheilds et al. (2000, p190) also highlight that "several theories of motivation, including level of aspiration (Stedry, 1960), expectancy (Ronen & Livingstone, 1975), agency (Chow, 1983), and goal setting (Hirst & Lowy, 1990), have been used to predict that, assuming a standard is accepted as attainable, performance is an increasing function of standard difficulty." It was also argued that individuals were more likely to commit to moderately difficult goals than very difficult goals, especially when they are rewarded based on attaining those goals, because it was costly to exert more effort towards unattainable goals. So GC is likely to be at the highest level and thus performance when goal difficulty is at a moderate rather than a low or high level. Equally, when GD is moderate GC is more likely to lead to reduced dysfunctional behaviour as individuals increase effort towards achieving their goals. Therefore GC explains the

moderating effect of GD on the TF PES and performance relations as put forward in the following hypotheses:

Hypothesis 15

GC explains the moderating effects of GD on the relationship between:

a) TF PES and QTB such that TF PES is positively related to GC, and GC in turn is more negatively related to QTB when GD is moderate than high or low

b) TF PES and IT such that TF PES is positively related to GC, and GC in turn is more negatively related to IT when GD is moderate than high or low

c) TF PES and EFF such that TF PES is positively related to GC, and GC in turn is more positively related to effort when GD is moderate than high or low

d) TF PES and Performance such that TF PES is positively related to GC, and GC in turn is more positively related to performance when GD is moderate than high or low

3.5.7 Intervening Effects of Job Related Tension

Studies of PMCSs especially those based on accounting information generally explain its unintended dysfunctional consequences as indirect via the increased job related tension (JRT) these systems cause, particularly when used in a high target focused or uncompromising manner. The general premise is that used in a very target focused manner, a PMCS lead to increased job tensions which then lead to increased dysfunctional behaviour - as a way of coping with the increased tension. Altogether effort and performance is also negatively impacted (Hopwood, 1972; Argyris, 1952). In contrast, Ross (1994, p630) cites Brion (1989, p. 368) in arguing that a PMCS used in a low target focused manner also leads to higher feelings of anxiety because of evaluator biases and idiosyncrasies, and the inherent ambiguity a low TF PES entails. However, very few studies have empirically tested for the mediating role of JRT on the effects of PES on behaviour and performance. Shields et al. (2000, p.186) observe that "*the predicted or estimated effects of a control-system component on a dependent variable can depend on which other variables that are affected by that component are included in the study.*" For instance, they find evidence that the overall relationship between 3

control systems components (participation, standard tightness, and standard-based incentives), and performance were explained better via the mediating effects of JRT than directly.[16]

In general, (cognitive) consistency theory has been identified as the theoretical base for linking PMCSs to behaviour and performance via JRT. The theory posits that individuals strive for an equilibrium cognitive structure and disequilibrium conditions leads to cognitive conflict which in turn leads to stress. In the context of control systems, cognitive conflict results from the inappropriate use of controls, in a given circumstance, which leads to increased JRT. In their review of the budgetary control literature, Covaleski et al. (2003, p. 23) observe that "*stress is a frequently used dependent variable in psychology-based budgeting research because it is a direct consequence of being in disequilibrium and it leads to dysfunctional behaviour*" such as gaming, reduced effort, or poor communications (Argyris, 1952).

On the other hand, it is also acknowledged that JRT does not necessarily lead to only dysfunctional effects, but that up to some moderate level JRT can have positive effects on performance (Hopwood, 1972; 1973). According to Shields et al. (2000), the arousal model - a variant of the Yerkes-Dodson Law – provides the theoretical basis explaining this effect. The model predicts that up to some (moderate) level of JRT increases motivational arousal which causes increased and focused effort, and thus higher performance. But above this level of stress additional arousal causes interference, anxiety, and disorganisation, leading to reduced and diffused effort and thus reduced performance. However, Shields et al. (2000) also note that empirical evidence provided by several studies generally do not support this prediction but rather supports a linear negative relation between JRT and performance. In general, evidence from several PMCS studies also suggest that a TF PES leads to increased

[16] In Shields et al.'s (2000) study, participation referred to the amount of influence subordinates had in the setting of their performance goals; standard tightness referred to the level of performance achieved in relation to the amount of resources available to achieve it; while standard based incentive referred to the degree that valued rewards related to performance against performance standards.

JRT (Hopwood, 1972; Kenis, 1979; Otley, 1978; Brownell, 1982a; Imosili, 1989; Lau & Buckland, 2001). Therefore it appears that JRT mediates the relationship between PES, behaviour and performance such that TF PES increases JRT which then engenders more dysfunctional behaviour, reduced effort and performance. This is put forward in the following hypotheses:

Hypothesis 16

JRT mediates the impact of TF PES such that TF PES is positively related to JRT which in turn is

a) positively related to QTB

b) positively related to IT

c) negatively related to performance

d) negatively related to effort

3.5.8 JRT Mediation of Interactive use of Control Systems (ICS) Moderation Effects

The effect of JRT on behaviour and performance is also explained by the task demand-performance capability model based on the person environment fit literature (Edwards, 1996). Similar to the predictions of the cognitive consistency model, this model predicts that JRT increases as the gap between the job performance demands and individual's performance capability increases. As task demands increase over performance capability ambiguity about task demands increases or individuals have more uncertainty about how their efforts affect job outcomes resulting in feelings of role ambiguity and/or loss of control. This then causes a reduction and diffusion in effort and hence performance. As argued in Section 3.4.3, ICS alleviates the tensions and tendency to engage in dysfunctional behaviour due to the increased interaction and information exchanges it engenders given that these interactions provide subordinates with opportunities to communicate emerging job relevant information to their superiors; to clarify their roles, their superiors' performance expectations, and also their

strategy for achieving the set goals. In other words, JRT might also provide an explanation of the mechanism by which ICS moderates the effects of TF PES, i.e. the absence of or low ICS means subordinates feel an increased anxiety and tension without the opportunity to bridge the gap between their capability and the job demand by tapping into the experience of their superiors. Increased tension then leads to reduced and diffused effort, which also negatively impacts performance. This is put forward in the following hypotheses thus:

Hypothesis 17

JRT explains the moderating effects of ICS on the relationship between

a) TF PES and QTB such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is positively related to QTB

b) TF PES and IT such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is positively related to IT

c) TF PES and Effort such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is negatively related to effort

d) TF PES and Performance such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is negatively related to performance.

3.5.9 Intervening Effects of Job Satisfaction

There does not appear to be a well articulated theory of the relationship between TF PES and job satisfaction (JS) and there are insufficient empirical evidence on this (see also Table 2-2). Chenhall (2003, p.133) notes that "interestingly, there have not been many MCS studies that have examined the effects of MCS on job satisfaction." The few empirical studies that exist though generally suggest a negative association between TF PES and JS, albeit not statistically significant. For instance, Kenis (1979) hypothesized that a punitive evaluation style, i.e. high TF PES, will result in lower JS and found a negative but non-significant association. Harrison (1992) also found a negative non-significant association between TF PES and JS, but Brownell (1982a) reported a positive but also non-significant association.

These studies also suggest that TF PES impact on JS may be dependent on other factors though it generally appears to be negative.

In relation to the criterion variables, dissatisfaction with one's job is often seen as a precursor to poor performance, dysfunctional behaviour, and intention to quit the job. The more (dis)satisfied people are with their job the (more) less inclined they are to change/leave their job. In the psychology literature for instance George and Jones (1996) found a negative and significant correlation between JS and intention to turnover (IT). In the economics literature also, Sousa-Poza and Henneberger (2004) found JS to be among the 3 strongest predictors of IT among several factors they investigated in their cross country survey of 25 countries including the UK.[17] Their study showed the UK had the 4th highest score for IT and ranked 18th for JS. They attributed the high IT in the UK to the low JS which they reasoned arose from poor working conditions. Anecdotal evidence also suggests that people are more likely to engage in dysfunctional behaviour such as doing shoddy jobs if they are not satisfied with their jobs than if they are satisfied with their jobs. The negative relation between JS and IT and dysfunctional behaviour is consistent with expectations that would be derived from equity theory, particularly when perceptions of inequity significantly contribute to the dissatisfaction.

On the other hand, several studies in the psychology literature provide evidence of a positive relation between JS and performance, although on average the correlation is low and different opinions exist as to the causal direction of the relationship (Vroom, 1964, Lawler and Porter, 1967). However, Petty et al. (1984) meta-analytic study reported a positive correlation of .31 (corrected for attenuation) between JS and performance, which led them to concluded that "*the results of the present study indicate that individual job satisfaction and job performance are positively correlated.....the size of the mean correlation that is reported in the present*

[17] The other 2 strongest influences on IT they identified include "job security" (how secure respondents thought their jobs were) and "firm pride" (how proud respondents felt to be working for their organisation). The other factors they investigated include age, level of education, flexible working time, union membership, and public sector employment.

study between overall satisfaction and job performance is impressive." (Petty et al., 1984. p.719). Following from these discussions, JS is hypothesized therefore to mediate the relationship between TF PES and IT, performance, and QTB.

Hypothesis 18

JS mediates the impact of TF PES such that TF PES is negatively related to JS which in turn is

a) negatively related to QTB

b) negatively related to IT

c) positively related to performance

Table 3-1 Summary of hypothesis

Model Tested	Hypothesis
Direct Effects	H_1 TF PES is positively associated with a) Quality threatening behaviour (QTB) b) Intention to turnover (IT)
Effects of Performance Measure Characteristics	H_{2a} The level of QTB associated with TF PES based mainly on financial measures is similar to that associated with TF PES based mainly on non-financial measures. H_{2b} There is no difference in the level of IT associated with TF PES based mainly on financial measures compared to that associated with TF PES based mainly on non-financial measures.
Direct (Curvilinear) Effects	H_3 There is a convex, i.e. inverted U-shaped, relationship between TF PES and a) Effort (EFF) b) Performance
Moderation Effects	H_4 Goal difficulty (GD) moderates the effect of TF PES on performance and behaviour such that: a) QTB is more positively associated with TF PES when GD is high than when it is low or moderate b) IT is more positively associated with TF PES when GD is high than when it is low or moderate c) EFF is more positively associated with TF PES when GD is moderate than when GD is low or high d) Performance is more positively associated with TF PES when GD is moderate than when it is low or high
Performance measures characteristics & PES Antecedent	H_{5a} There is no difference in the level of quantitative information used to evaluate performance at low vs. high OHL. H_{5b} Non-financial information is used more extensively to evaluate performance at low OHL than at high OHL; and conversely Financial information is used more extensively at high OHL than at low OHL. H_{5c} PES dominantly used at high OHL will be different from that used at low OHL; i.e. the manner in which quantitative information is used for performance evaluation would be different at low compared to high OHL- with high (low) TF PES dominantly used at low (high) OHL
Moderation Effects	H_6 OHL moderates the effects of TF PES on behaviour and performance such that: a) QTB is more positively associated with TF PES at higher than at lower OHL b) IT is more positively associated with TF PES at higher than at lower OHL c) Effort is more positively associated with TF PES at lower than at. Higher OHL d) Performance is more positively associated with TF PES at lower than at. higher OHL

Moderation Effects	H_7	ICS moderates the effects of TF PES on behaviour and performance such that: a) QTB is more positively associated with TF PES when ICS is low than when ICS is high or moderate b) IT is more positively associated with TF PES when ICS is low than when ICS is high or moderate c) Effort is more positively associated with TF PES when ICS is high than when ICS is low or moderate d) Performance is more positively associated with TF PES when ICS is high than when it is low or moderate
	H_8	OC moderates the effects of TF PES on behaviour and performance, such that: a) QTB is more positively associated with TF PES when OC is low than when OC is high b) IT is more positively associated with TF PES when OC is low than when OC is high c) Effort is more positively associated with TF PES when OC is high than when OC is low or moderate d) Performance is more positively associated with TF PES when OC is high than when OC is low or moderate
	H_9	Supervisory trust (ST) moderates the effects of TF PES on behaviour such that: a) QTB is less positively associated with TF PES when ST is high compared to when ST is low b) IT is less positively associated with TF PES when ST is high compared to when ST is low
Mediation Effects	H_{10}	EFP mediates the effects of TF PES on a) QTB b) IT c) Effort d) Performance
Moderated mediation Effects	H_{11}	EFP explains the moderating effect of OHL on the relationship between: a) TF PES and QTB, such that at lower (higher) OHL TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB b) TF PES and IT, such that at lower (higher) OHL TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB c) TF PES and EFF, such that at lower (higher) OHL TF PES is positively (non-significantly) related to EFP which in turn is positively related to EFF d) TF PES and Performance, such that at lower (higher) OHL TF PES is positively (non-significantly) related to EFP which in turn is positively related to performance

Moderated mediation Effects	H_{12}	EFP explains the moderating effect of ICS on the relationship between: a) TF PES and QTB, such that at high (low) ICS TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB b) TF PES and IT, such that at high (low) ICS TF PES is positively (negatively or non-significantly) related to EFP which in turn is negatively related to QTB c) TF PES and EFF, such that at high (low) ICS TF PES is positively (non-significantly) related to EFP which in turn is positively related to EFF d) TF PES and Performance, such that at high (low) ICS TF PES is positively (non-significantly) related to EFP which in turn is positively related to performance
Moderated mediation Effects	H_{13}	EFP explains the moderating effect of ST on the relationship between: a) TF PES and QTB such that at high (low) ST, TF PES is positively (negatively) related to EFP which is in turn negatively related to QTB b) TF PES and IT such that at high (low) ST, TF PES is positively (negatively) related to EFP which is in turn negatively related to IT
Mediation Effects	H_{14}	GC mediates the impact of TF PES such that TF PES is positively related to GC which in turn a) is negatively related to QTB b) is negatively related to IT c) is positively related to EFF d) is positively related to performance
Moderated mediation Effects	H_{15}	GC explains the moderating effects of GD on the relationship between: a) TF PES and QTB such that TF PES is positively related to GC, and GC in turn is more negatively related to QTB when GD is moderate than high or low b) TF PES and IT such that TF PES is positively related to GC, and GC in turn is more negatively related to IT when GD is moderate than high or low c) TF PES and EFF such that TF PES is positively related to GC, and GC in turn is more positively related to EFF when GD is moderate than high or low d) TF PES and Performance such that TF PES is positively related to GC, and GC in turn is more positively related to performance when GD is moderate than high or low
Mediation Effects	H_{16}	JRT mediates the impact of TF PES such that TF PES is positively related to JRT which in turn is a) positively related to QTB b) positively related to IT c) negatively related to EFF d) negatively related to performance

Moderated mediation Effects	H_{17}	JRT explains the moderating effects of ICS on the relationship between: a) TF PES and QTB such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is positively related to QTB b) TF PES and IT such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is positively related to IT c) TF PES and EFF such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is negatively related to effort d) TF PES and Performance such that TF PES is more positively associated with JRT at low compared to high ICS, and JRT in turn is negatively related to performance
Mediation Effects	H_{18}	JS mediates the impact of TF PES such that TF PES is negatively related to JS which in turn is a) negatively related to QTB b) negatively related to IT c) positively related to performance

Chapter 4 Research Design & Methodology

This chapter discusses the research design and data collection method employed in this study. The rationale for the case study design is provided in the first section and the actual process of negotiating and gaining access into a suitable organisation is detailed in the second section. The third section discusses the web survey methodology employed in the study and describes the construction of the survey. The survey items and the constructs they measure with a brief description of their reliability are presented in the final section.

4.1 Case Selection

This study was designed to examine the management control practices of a single large organisation using survey and field research methods. The study was planned in three stages; the first stage involved interviewing some employees at different levels in the organisation to gain insight into the organisations operations, and to enhance the validity and structure of a pre-developed survey instrument. The second stage involved developing and pre-testing a survey instrument, and last stage involved gathering of data for quantitative analysis via an online survey.

It is expected that control practices have changed since the time of earlier accounting studies in the 1970s and 1980s given the changing emphasis on budgetary control with more firms adopting more non-financial measures of performance (Hope and Fraser, 2003a; Kaplan & Norton, 1994, 2001; Otley, 1999). In this context, a single case based research method was chosen in order to develop an understanding of the operation of organisational control processes. Furthermore, a single firm study design is likely to increase understanding of how the variables in the study interact in a specific setting before generalisations can be made. This design also controls for other possible confounding firm effects likely to arise in a cross-sectional study such as firm culture, firm size and internal structure, and degree of environmental uncertainty. However, the downside of this study design is limited

generalisability, although theoretical generalisation should not be affected (Eckstein, 1975 ; Flyvbjerg, 2001). For the case study, access was sought at a large firm with many branches in the UK. Large firms are more likely to have distinct hierarchical structures and highly developed and formalised performance management control systems (PMCSs) – properties of interest in the study. Secondly, such firms would provide a reasonable sampling frame. Therefore the prime targets were the four big banks in the UK, then secondarily general retailers i.e. the big supermarkets, and lastly the big professional accounting firms. These firms were targeted as they were considered more likely to meet the criteria mentioned above; i.e. they have similar operations in different geographical locations with large number of employees, they have distinct organisational hierarchies, and highly developed performance management systems.

4.2 The Process of Gaining Access & Case Descriptions

Successfully gaining access to a suitable case organisation was a difficult and time consuming process. It took about a year to get an organisation interested in participating in the study and another year to move from talking to the organisation to actually conducting the study. Along the way, there were many unfruitful efforts but persistent efforts finally paid off. This long and difficult process is detailed in the subsequent paragraphs below which outlines:

a) the process of 'choosing' a case organisation and the different strategies employed
b) the inherent practical difficulties of adopting the case study research design and the potential costs in both research time and possible compromise to the substance of the research in order to secure access; and
c) practical lessons and considerations for future researchers wishing to adopt the case study methodology in this field.

The quest for access to an organisation began in October 2003. At first, the four large UK banks were targeted, and as a fall back option large retail organisations were also considered in case access was not gained at any of the banks. The initial strategy employed was to approach the target organisations one at a time rather than simultaneously. This was a conscious decision to ensure that the situation did not arise where two or more organisations granted access at the same time, making it difficult to follow up on both simultaneously. I did not wish to excuse myself from following up any access granted as that may make future access opportunities into such organisations more difficult for me as well as for future researchers. Moreover, the study was designed to examine a single organisation and there were insufficient resources, in terms of both time and funds, for intensive study of more than one organisation at the time. The following sub-sections discuss the approaches made to different organisations, and the strategies employed.

4.2.1 Bank A PLC (November 2003 – January 2004)

The first organisation approached from the target list will be referred to as Bank A. A faculty member at the Accounting and Finance department of Lancaster University Management School (LUMS) provided a contact to a director in Bank A from previous work done in the Bank some years back. This contact was sent a letter in November 2003 which outlined the research proposal and potential benefits to Bank A of participating in the study. The letter to Bank A is similar to that shown in Appendix 1, which is the generic introductory letter used by this study but modified in each case to suit the particular circumstances of the firm approached. In December 2003, while still awaiting response from the Bank A director, an interview with one of the bank's local branch manager was successfully arranged. The interview was arranged with the help of a customer services officer of the branch during a personal visit to the branch. At this stage the aim of the interview was to gain some insight into the general operation of the bank's PMCS in order to enhance the study design.

A semi-structured interview with the local bank manager took place the same month and proved quite useful. Not only did it offer insight into the general operation of the bank's PMCS, but it also offered some theoretical insight to the study. It became evident that the tension between short vs. long-term goals achievement were more likely cast in different terms in different organisations. This tension it seems is not always cast in terms of the nature of performance measures in use i.e. financial vs. non-financial, or objective vs. subjective measures. In this organisation for example a branch managers' performance was measured in 3 main areas viz. how well control standards, sales, and service targets were met. Sales and services relate to dealing with walk-in customers, and exploiting the opportunity of selling other bank products to them, which they may not be aware of or may get elsewhere. Sales and services targets are usually broken down into 'income' and 'numbers' e.g. 'x' number of mortgages, new accounts, savings accounts within a year, but changes year to year depending on the strategy; e.g. sale of other products to existing customers to meet customers' potential needs. Controls relate to dealing with health and safety issues e.g. ensuring limited money within premises in case of a raid (money was moved every other day by Securicor), fraud awareness of staff, and ensuring that staff know and follow the laid-down procedures for serving customers. Control targets are usually stated in terms of passing reviews. The control and service performance measures were seen as more long-term oriented while the sales performance measures were regarded as more short-term oriented. Tensions appeared to exist in attempting to meet targets in all 3 areas. For instance, meeting control standards were perceived to restrict how well the sales targets are likely to be met. This is the case despite the fact that most of the measures in both areas had similar characteristics i.e. they were objective/quantitative targets, and set in both financial and non-financial terms. This insight made Bank A interesting to study but unfortunately access was not gained. The director contacted did not respond necessitating follow up calls to the secretary. In the end the reply was not favourable and thus ended the approach to Bank A.

4.2.2 Bank B Group (February 2004 – March 2004)

The next bank approached in the target list will be referred to as Bank B. Unlike in the first approach, there was no prior contact available for Bank B so a 'cold call' was made this time. Inevitably, we were then seeking the appropriate contact in Bank B. To this end, Bank B's 2003 annual report was scanned to identify potential contact details. Bank B's group strategy director was identified as a possible entry route, firstly, on the basis that he would be interested in successful implementation of strategic objectives given Bank B's recent acquisition of another bank. Thus, a study on the impact of PMCSs on implementation of strategic objectives was likely to be of interest to him. Secondly, the brief description of his role seemed to include performance management inter alia, and his position on the organisational hierarchy was considered high enough that he could authorise the study if it interested him. He was contacted in February 2004 via a letter, as in Appendix 1, enquiring if Bank B might be interested in the research study. About 3 weeks later, after email correspondences with his secretary, a decision was eventually received from him declining the bank's participation in the study.

Given the time it took to get responses from the first two organisations, the limited time to complete my PhD study and the seemingly low probability of striking it lucky with the next organisation, a change in strategy was deemed necessary. Instead of approaching organisations one at a time, it was decided to simultaneously approach as many as was practical at the time. Therefore, in April 2004, 3 organisations were approached at the same time; specifically the remaining 2 banks in the initial target list, referred to as Bank C and Bank D, and 1 oil company referred to as E Plc.

4.2.3 Bank C Plc; Bank D Plc; & E Plc (April 2004 – June 2004)

The approach to Banks C and D were 'cold calls' while E Plc was approached via a contact supplied by another faculty member at the Accounting and Finance department of LUMS. The 'cold calls' to Banks C and D were initiated through their local branch managers. First, in a

visit to a local branch of each bank, appointments were secured to meet with the managers from the customer service personnel at each branch. The reason for seeking the appointment was explained in part to the customer service personnel. The primary aims for the meetings were to get a feel for the possibility of gaining access into the banks for the study, and where possible to obtain contact details of the appropriate person(s) to address the access request to.

In mid April 2004, I met with the local branch manager of Bank C and the meeting yielded a name in Bank C's regional office, but the correspondence to this person was to be addressed via the branch. A few days later, the introductory letter cum proposal was sent to this manager. The main content of the letter is similar to that shown in Appendix 1. Two weeks after sending the letter, a follow up telephone call was made to the manager. A second follow up call was again made two weeks later. In the end, a reply was received to the effect that the organisation declined to participate for which no particular reason was offered.

On the other hand, the meeting with Bank D's local branch manager, held the same week as that with Bank C's manager, did not yield any contact names or details. However, the manager agreed for the introductory letter cum proposal to be written care of her for onward delivery to the appropriate person in the organisation. Again, the main content of the letter is similar to that shown in Appendix 1. Interestingly, I observed on several visits to the branch both prior, during, and after the meeting that the branch seemed to be having staffing difficulties. There were long queues in the banking hall and the customer services person was different every week within the period I visited. And an informal chat with one of customer service representatives confirmed this. Apparently some of them had been called in from other branches in the region to help out this branch. Two weeks after delivering the letter to the branch manager, a follow up telephone call was made to learn of the response and the manager asked to be called again a week or two later. Two weeks later, I called at the branch in person and was then informed the authority(ies) had left it to the branch to decide whether to participate or not. Unfortunately, the branch decided it was not convenient for them to

participate, presumably because of their staffing difficulties at that time. It could not be ascertained whether the response from the authority(ies) meant other branches could be approached individually or not. However, no further requests were made at this point.

The approach to E Plc, the oil company, differed slightly. As mentioned earlier, a faculty member at LUMS offered a contact name with details. This contact was from his MBA student days. Telephone calls were made to this person but with no replies. However, a message was left on the answering machine on each occasion. After several of these calls and messages left on the answering machine with no response from this person, the request could not be progressed any further.

4.2.4 Change of Approach Strategy

After exhausting the initial list of companies and contacts without successfully gaining access to any organisation, another approach strategy was adopted. This was to extend the quest for access by seeking indirect contact through professional organisations in addition to exploiting any corporate relationship that units in LUMS might have. Thus in June 2004, the Director of Research at the Institute of Chartered Accountants in Scotland (ICAS) was approached through the Director of Doctoral Research at the Accounting and Finance department of LUMS. It was hoped that ICAS might have well-placed members who could help. The request for help communicated to the ICAS research director also indicated a large bank as the ideal organisation but that a large multi-divisional commercial organisation would suffice in place of a bank. In addition, the head of International Strategy and Policy Co-ordination at the Financial Services Authority (FSA) was also contacted via another LUMS faculty in the Economics department. Furthermore the Management Development Division (MDD) and the External Relations & Corporate Communications at LUMS were approached as well as many more faculty members in other academic departments of LUMS with the hope of tapping into their contacts with large businesses. Each of these sources for contacts was provided with a general synopsis of the research as well as a sample of the introductory cum proposal letter for

distribution to their potential contacts. Over the course of the next 4 months, constant follow ups were made on these sources of contacts as well as the contacts they eventually provided.

4.2.5 3 More Banks, and the F PLC (June 2004 – August 2004)

The Director of Research at ICAS informed us she had approached 3 banks, and in reply to a follow up email in July 2004 said "*these things take time i'm afraid as it is quite a big committement from the banks point of view. Most of them have said that they need to get clearance from head office etc so it will take a while.*" The eventual feedbacks from the banks received in the 3rd week of August 2004 were unfavourable, all declined to participate. On the other hand, the FSA contact, did not respond to our initial communication via email and no other follow up was made. A faculty member at the Marketing department of LUMS provided contact details of the CEO of a large general retail company, which will be referred to as F Plc. This contact was from his previous work for the group company some years back. In mid September an introductory letter, with the main content similar to that shown in Appendix 1, was sent to this CEO. However, no reply was received and the request could not be progressed any further.

Nevertheless, there were positive developments in September 2004. The MDD at LUMS provided warm links to another oil company which will be referred to as G Plc. The MDD were currently running an executive training program for the company. In addition, another faculty member at the Accounting and Finance department of LUMS provided warm links to a senior person in one of the big four accounting firms which will be referred to as Firm ABC LLP. The contacts at both G Plc and ABC LLP expressed interest in the study to the MDD and the faculty member respectively, before their details were passed on.

4.2.6 G PLC (September 2004 – November 2004)

As mentioned earlier, contact with G Plc originated from the executive education program organized by the MDD at LUMS for the company's senior management including their

directors. Prior to the contact with G Plc, I had had several meetings with the MDD program director coordinating the executive program to solicit her assistance in negotiating access to an organisation, and eventually to determine which would be suitable with a good probability of success. G Plc was identified as such an organisation on account of the nature of the training program they were receiving which bothered on motivation and performance management.

In the last week of September 2004, an invitation was secured to one of the program review meetings between the MDD programs facilitator and a group of G Plc's directors. In addition to this general meeting, separate meetings were also held with 2 directors responsible for 2 key business areas of the company's upstream business sector. The general meetings served as preamble to the separate meetings. In the general meetings, it was highlighted to the directors that some of the benefits to the company in participating in this research study directly addressed some of the issues identified in their review meeting with the MDD program facilitator. G Plc management were at a stage of reviewing their PMCS and realigning their senior management team and culture. So it seemed a good time to conduct the study. Over the course of the following 6 weeks, 2 meetings were held with a newly appointed director of a key business segment who strongly wanted a change in the PMCS, the culture, and a realignment of the top management of the business segments under him. In addition, a meeting was also held with a director of another key business segment, and with the human resources (HR) director.

On the whole, the outcome of each meeting with each business segment director was positive with them expressing optimism for their businesses to participate in the research project. On the other hand, the meeting with the HR director appeared at first to be an appraisal of my credentials in carrying out such a study. My curriculum vita was reviewed and questions asked on the purpose and methods of carrying out the study. Once it seemed satisfactory answers were provided, the meeting then progressed to a discussion of G Plc's PMCSs, and

unto the reasons why the two business segments were particularly interested in participating in the study. G Plc had expanded its operations with recent acquisitions in these business segments, and the directors were concerned that these business segment's PMCSs were inconsistent with the overall PMCS in G Plc. Therefore, they were interested in finding out the actual performance practices in these business segments, and how best to align it with G Plc's overall PMCS. However, other meetings with the directors of these 2 key business segments revealed other agenda that raised concerns for carrying out the research study. The concerns relate to what appeared to be the main agenda in their agreeing to participate. The information/findings from this study were to be used as further basis for implementing desired changes in the top management structure of the respective business segments. For instance, the main operation and the management of the business segment under the newly appointed director were located in another region different from head office where the director was based. This director felt that the top management of this business segment were keeping information from him and were also trying to whip employee sentiments against him as they perceived him as being fairly inexperienced (on account of his age and time in this segment) and as an 'outsider'. The director had appointed another person as part of the top management team of this business segment, but this person was almost completely shut out of the decision making process by the old management team. This study was therefore seen as an opportunity to find out more of what was going on and as a basis for implementing radical changes in the top management team. This is a reminder of the political/social aspect of PMCSs and the possible use of control systems or accounting information as catalyst for political change. Thus, case study researchers need to be sensitive to any such political agendas within their research site, and how it might impact on their study.

After these series of meetings the expectations was for another meeting to be held individually with the directors of the 2 business segments to finalise arrangements to visit these business segments, and to be introduced to their management. Strangely, the next communication received from the MDD program facilitator in the 3rd week of November 2004 was that G Plc

was no longer going ahead with the initial plans to participate in the study. Further enquiries revealed the reason for this turnaround to be that G Plc's parent company in France did not approve of their participation. G Plc was going to contact me if the situation changed, and of course this did not happen.

4.2.7 ABC LLP (September 2004 – September 2005)

In September 2004 a faculty member at the Accounting and Finance Department of LUMS provided a contact in one of the big four accounting firms in the UK. This firm will be referred to as ABC LLP. The faculty member first approached his contact, a director and board member in ABC LLP and also the Head of Human Capital (HC), with a brief outline of this study. After interest in the research study was indicated the contact details were then passed on, and in the 2nd week of September 2004 an email was sent to this person. The email briefly introduced the aims of the study but carefully stated there was flexibility still in what the study will cover to accommodate what might be of interest to ABC LLP that may not have been apparently covered in the brief introduction. The email also suggested a meeting to explore possibilities for mutual collaboration that might be of mutual benefit. A copy of this email is shown in Appendix 2, but names have been omitted for confidentiality. The email was replied in the 2nd week of November 2004 indicating the director was happy to meet for further discussions, and the meeting eventually took place on the 2nd of December 2004 in ABC LLP's London office. The meeting was to make initial contact to elicit and confirm the director's interest to co-operate with the research study, as well as to understand what was of particular interest to ABC LLP from the study. The meeting paved way for subsequent meetings with her and her staff to discuss the research study and ABC LLP's participation in more detail. It was anticipated that meetings will be held in January and February to discuss the study requirements including the mechanics for administering the survey part of the study billed for implementation in April 2005.

However, the second meeting of a series of meetings with ABC LLP representatives was eventually held on the 3rd of February 2005 at the London office. This meeting lasted a little over an hour and was attended by the HC Director, the People Strategy Director, and the Global Performance Management Project (GPMP) manager. In the meeting, the aims of the research study were explained as well as the expected means of data collection. The HC Head also explained ABC LLP's interest in the study and what were of particular interest to them. ABC LLP was interested in how employees perceived the feedback they receive on their performance, and how this helped them in their career choices. They were also generally interested in their performance management practices, particularly in gaining more insight on the clarity of objectives and of the leadership provided by superiors, and the perceived link between performance and reward. Thus information from the study was going to be useful as a prelude to the planned revision of ABC LLP's global PMCS expected to be implemented around July 2005. Furthermore, schedule of potential meetings with the HC director and her staff as well as anticipated timeline for the study was discussed in the meeting. It was concluded that the study should be done in a single geographical region in which ABC LLP had offices. The GPMP manager was also appointed as the gate keeper/coordinator for the research project reporting to the HC Director. Hard copies of the proposed survey questions were also provided to each person.

After a series of email exchanges with the GPMP manager, another meeting was held on the 23rd of February 2005 at ABC LLP's regional office. In the meeting, the GPMP manager described ABC LLP's structure and performance management processes and their concerns about their PMS. In addition, the survey sample size, duration, and expected time line for final development and launch was discussed. It was concluded that interviews with managers in ABC LLP's three lines of service were needed in order to gain more insight into the PMS and to ensure the terminologies of the survey questionnaire were understandable by staff in the different lines of service. Items to be included on the survey questionnaire were also briefly discussed and the GPMP manager wanted the survey questionnaire to be run through the HC

department experts before the interviews with managers. Furthermore, the mode of administering the survey was also discussed. ABC LLP's internal satisfaction surveys were conducted online and it was agreed that a web based survey would therefore be more desirable than a paper based one.

The fourth meeting was held on the 21st of April 2005 with the GPMP manager and a senior manager in the HC department. The senior manager from HC subsequently became the main contact point for all the interactions with ABC LLP till the survey was successfully deployed. Discussions at this fourth meeting focused on the mechanics and timeline of the survey. Other issues discussed included which and how many staff to include in the survey; how best to communicate to and enlist the participation of these staff; when to launch the survey; how long the survey will be open, and when to send follow up messages. In addition, the managers raised some issues about the wording of survey items as well as the length of the survey. They generally wanted the length of the survey reduced.

Discussions on the survey items and their wordings continued via email exchanges. Based on these ongoing discussions, slight modifications were made to the survey questionnaire and sent to the managers. However, at this point the HC manager raised concerns to the effect that it was uncertain that ABC LLP was going to be able to go ahead with participating in the survey. The concerns related to the wordings of some of the questionnaire items which she perceived as rather leading and questioning of their integrity. The survey questionnaire was then revised to address the perceived negative tone of some of the questions and emailed to the HC manager for further review.

Another meeting was held with ABC LLP's managers on the 22nd of June 2005 via a conference call facility. The meeting was attended by the HC manager and one of ABC LLP's senior IT staff previously involved in administering ABC LLP's internal surveys. The meeting

focused on agreeing the final survey items to be included and on the mechanics of pilot testing the survey as well as the final survey deployment. Specific issues discussed included:

- the content and format of the survey, i.e. the ordering of demographic questions, what options to provide for certain questions, further changes to the questionnaire items and wordings, and how staff were to access the survey;
- the survey sample, i.e. which regions to cover, how many staff to invite to participate in the survey and who was to send the cover email invitation; and
- the timeline for the deployment and duration of the pilot tests and the final survey

The survey questionnaire was revised again in the light of the above discussions, and the agreed final draft was then sent to a small group of ABC LLP's staff in the selected region for pilot testing. Though the survey was going to be web based, a paper version was sent to the staff members as interviews were also arranged with these staff members to discuss the survey questions and gather any more relevant information before pilot testing the web version.

The interviews of the staff members took place on the 20th of July 2005. Six people were interviewed then, and two others unavoidably absent were interviewed over the telephone 2 days later. From the feedbacks of these interviews, further adjustments were made to the survey questionnaire. Then another telephone conference meeting was held with the HC manager and the senior IT staff on the 29th of July 2005 to discuss the feedback from the interviews, the changes to the survey on account of the interview feedbacks, the proposed pilot test of the web version and the covering email to be sent to the participants. With all changes finally agreed, the web based survey was to be pilot tested by a small group of staff. The web address link and password to access the survey was emailed to 12 ABC LLP's staff members in the region by the IT manager. The pilot test started on the 5th of August 2005 and ended on the 9th of August 2005. Few adjustments were made to the web survey from the feedback of the pilot test and after some email correspondences and telephone conversations with the HC manager. The final survey was then launched on the 25th of August 2005 with an

email invitation from ABC LLP's regional chairman to the target staff in the major offices in the Midland region.

4.2.8 About ABC LLP

ABC LLP is one of the largest professional services firm in the world, and one of the big four Accounting firms in the UK. As a limited liability partnership (LLP) its legal structure is different to that of a company. The global firm is organised as a collection of autonomously run member firms in each country of operation, and the senior partners of the member firms form a global board of partners in the 'umbrella' organisation based in the UK. The UK based umbrella firm provide co-ordination and strategic direction for the member firms.

ABC LLP has over 15,000 partners and staff in the UK, and the global firm employs over 140,000 people in 149 countries with aggregated worldwide net revenues over $20 billion for fiscal year 2006. In the same fiscal year the firm served over 84% of the FT Global 500 companies. The firm generally operates 3 major lines of service (LOS) viz.:

- Assurance – which provides audit and assurance services including actuarial insurance services, assistance with the capital market transactions and regulatory compliance and reporting.
- Tax –provides tax planning, tax compliance, and transfer pricing services.
- Advisory - provides consulting services covering performance improvement; business transactions; human resources; and crisis management in a range of specialist areas.

The professional staff of ABC LLP are graduates who usually join the organisation at the entry level within any of the three LOS, and usually are in a training contract. Most of the graduate joiners tend to start in Assurance (i.e. audit) and most take the ACA qualification. However, those who join the specialist area of Tax may sit ATT and CTA, while some of those who join the specialist area of advisory may sit the CFA qualification. Therefore new joiners tend to join under a training contract, the specifics of which depend on the particular

requirements of the qualification they are training for. In Advisory, new staff also join as experienced hires usually above the Associate level. Some of the issues covered by training contracts include the starting time which can be at any time of the year; the length which can be between three and five years; the minimum hours of technical work based experience that would be undertaken over the length of the contract; timescales for ongoing review and structured learning; what the firm will give in study leave and how the exams should be fitted around work; the number of exam attempts the firm will support; and any pay increases that are linked to successful exam results. The training contracts are usually different from the employment contract. However, employment contracts are usually structured to allow people to continue progressing with the firm after successfully completing their training, and most of those who do tend to remain with the firm.

In all 3 LOS, the general career progression is along the line of the hierarchical levels in the firm. Staff will normally progress from an Associate, which is the graduate entry level, to an Executive, then to Manager, Senior Manager, Director, and ultimately onto a Partner. However, there are also different grades within some of these levels onto which staff progress depending on performance and experience. For example, at the Associate level there are 3 grades; grades 1, 2, and 3; and 4 grades at the Executive level. In Assurance for instance, individuals would normally start at Associate level grade 1 and are promoted to the other grades as they progress through their exams moving onto the Executive level upon completion of all exams within the expected time frame, normally the same as the length of the training contract. However, from the executive level there is no set timeline for promotion to Manager and other levels. Such promotions depend on an individual gaining the relevant experience and demonstrating the relevant skills and competencies required at that level. Normally staff at Executive level grades 2 – 4 would have successfully completed their training and are perceived as 'assistant managers', though this designation is not officially used in the firm.

ABC LLP UK is organised into regions with a regional Chairman overseeing the entire operations in a region. Within ABC LLP UK's operations there are usually different units in each LOS with unit leaders overseeing the day to day operations. Also each LOS has an Operations Leaders overseeing the day to day operations, and a Business Unit or Group Leader with oversight for a group within the region.[18] Client service workflows are generally organised around projects with a team working on each project and a team leader responsible for each project. As such an individual could be working in more than one team with different team leaders. As the regions Assurance Operations Leader put it "...you very rarely work in a single team...what we tend to do is...we are constantly bringing together teams to survey particular business issue, a particular client's needs. But they disband quite quickly, and form other teams for a different client. So its very rare that you get the same group of individuals who work on more than one client...I mean you sometimes get partners and managers that work together on say 3 or 4 clients....but by and large what we do is we bring together very different teams....so a manager might have 5 different partners that he works for."

In terms of performance evaluation, an individual gets feedbacks from each team leader that he has worked for, and sometimes the feedbacks could also be from the peers as well as subordinates. However each individual, in his unit, has a counsellor or appraiser that pulls together all the feedbacks that arises on that individual and proposes their performance rating based on assessment of these feedbacks against the core competences mapped for the grade and role of that individual. In most cases, individuals would have agreed a set of goals or objectives with their counsellor/appraiser 12 months before, usually around July/August, and these provide a platform for their appraisal and personal development plans. Usually, the individuals are meant to personally pull the feedbacks from the team works they have participated in and do a self appraisal as a starting point for the formal appraisal with their

[18] The Operations leader is usually responsible for the day to day financial operations; oversees the resources planning department and allocation of individuals to client teams at manager and staff level; and oversees the HR function being involved in the annual appraisals, the moderation process of these appraisals, and the appraisal translation to rewards.

counsellor/appraiser. The counsellor in most cases would also consult the individuals that gave the feedback.

The performance appraisal rating scale generally used is 1 - exceptional performance, 2 – above expectations, 3 - meeting expectations, to 4 - performing below expectations. The exact wordings used differ slightly between the 3 LOS, and one LOS use a 5 ratings scale which only expands the middle ratings in the 1 – 4 scale. The appraisal ratings also feed into the reward systems including salary increments and bonuses. With the bonus scheme for instance, those rated as performing below expectations, i.e. those rated 4 or the equivalent, do not get any bonus while those rated as exceptional performers get the most bonus – as much as 25% of their base salary. The initial appraisal ratings, however, go through a moderation process before being signed off; first at the unit level for all units within the LOS, then at the LOS level for all the LOS in the region. The counsellor/appraiser argues/defends the ratings he has given at the unit level moderation meeting with other counsellors and the unit leaders. Then these are again moderated at the LOS level with the unit leaders, partners and business unit leaders. After the full moderation process is complete, the counsellor then confirm to the individual the final rating given. The moderation process is based on the anticipation of a distribution of ratings; for e.g. 15% of individuals are expected to be rated exceptional and where a unit or LOS rates more than 15% of their people exceptional then this is challenged at the moderation process. Though the Assurance Operations Leader for the region acknowledged the ratings had important implications with respect to rewards, he was of the view that the appraiser/counsellor was considered more of a facilitator in a process that gets signed off by the partnership and group leaders than as a boss. However, he also acknowledged that the ratings are always an issue that is keenly contested at all levels. As indicated earlier, ABC LLP was keen on improving its performance management system particularly the feedback process when they were approached to participate in this study. This must have triggered their interest in the study.

4.2.9 Summary and Lessons Learnt

What conclusions and lessons can be drawn out of this process of seeking access to a suitable organisation? One obvious lesson is that it can be a daunting and very drawn out process. Inexperienced researchers, particularly PhD students, seeking to conduct a field or case study may not appreciate the enormity of this statement. Often, the quest for access is started a bit late in the second year or so of their studies. The reason for this late start is often because they or their supervisors may feel that earlier than their 2nd year they are not quite ready yet, and they may flounder if granted access then or get inundated with data thus making it more difficult to manage the research. Though there is some merit in the argument, often though little or no consideration is given to the time it might take to successfully negotiate access to a case organisation. The advice therefore would be to start as early as possible to consider access issues. Efforts at gaining access should be started once the researcher has some idea and outline of the study, even if not fully developed, which often times happens within the 1st year of study. This is particularly important when the researcher does not have warm contacts in industry to call on immediately.

This raises the second issue on the importance of having contacts, as can be seen from the above accounts. The most positive and most timely responses were received from warm links. It may seem obvious then that cold calls don't work but even previous contacts from 'long ago' may be difficult to obtain a favourable response from. These issues are not highlighted prominently in the literature and thus inexperienced researchers do not often appreciate their enormity, which if they did early in their research could save them some time and stress.

While it may not always be the case that gaining access to an organisation can be very daunting, it is certainly the case that adapting the research to the site is a lengthy process that is not always explicitly portrayed in the literature. Even after securing access to an organisation interested in the study, agreeing and administering the survey in this study was still a long process that spanned over 8 months and involved several meetings, emails

correspondences, conference calls, and interviews with some key staff. Being flexible to their schedule was very important, and more importantly it also entailed making compromises on the original questionnaire items in terms of both the number of questions (i.e. the length), and the specific wordings of the questions. Though the changes to the original survey entailed reducing the topics covered, it however improved the relevance of the survey to the research site, and probably also increased the response rate of the survey. Shortening of the survey instrument was one of the big pressures at the time. Nonetheless, validation of the survey items in later sections show no evidence that the instrument lost much value given the Cronbach alphas and the response rate. Researchers should be aware and ready to make compromises to accommodate the interests of the case organisation.

Another related lesson is that organisations more likely to be interested in participating in research are those thinking of or already in the process of making changes to their systems, e.g. the PMCS, the top management team, or the perceived culture in the organisation. So, on one hand, researchers could target such organisations as the chances of successfully negotiating access seem higher. However, such organisations may agree to participate in order to use the research as an opportunity to implement the already desired changes as if they were necessitated by the outcome of the research. In order words, there may be political motives in agreeing to participate in a study that may not be related to the study aims. Such political contexts could fundamentally shape the research agenda as well as the outcome. This implies that the researcher is unavoidably embroiled in the politics of the organisation. Thus the researcher is always going to be on somebody's side, and can't always be neutral. On one hand, researchers need to be conscious of such possibilities so as to recognize such situations and try to ride the crest of the politics as it were. And on the other hand, researchers need to be conscious of such possibilities in order to recognize and take account of the possible impact on the outcome of the research, for e.g. biasing the study results to be representative only of such organisations.

4.3 Data Collection Method

Data was collected in two ways; via interviews with a small group of ABC LLP's staff and via a web survey of ABC LLP's staff in the selected region. The interviews were used primarily to enhance the development of the measurement instruments in order to enhance construct validity, and also ensure the survey was understandable and relevant to the target participants. But it also provides some context for the interpretation of the survey results enhancing the internal validity of the study. Data for quantitative analysis was collected via a web based survey. The sections below provide an overview of the questionnaire development in general and the web-survey development process in particular starting with a brief review of the issues generally identified with the survey methodology and how these relate to web based surveys. The aim is to provide a rich set of information that would be of use to future researchers that may consider using this medium for data collection.

4.3.1 Survey Development – Two Stage Process

The development of the survey questionnaire could be classed as a two stage process involving, of course, several sub-processes. The first stage of development involved adapting instruments previously used in the literature, developing new ones, and pilot testing to validate the measures. The second stage of developing the survey primarily involved adapting the survey questionnaire, from the first stage development, to the context of the case organisation.

Following a review of the literature, several measures for the concepts of interest were identified and adapted for this study. In addition, some new measures were also developed. Conceptual validity of these measures was sought by discussing the measures with several faculty members at Lancaster University including a senior faculty member with extensive experience and expertise in management accounting research. The instrument was modified after analysing their comments and suggestion, and the modified instrument was then pilot

tested with some academic and non-academic staff at Lancaster University Management School and with some research students as well. Their responses were discussed with them individually to further ascertain the degree of face validity of the measures, and the changes that might increase response validity. Based on the outcome of these discussions, slight modifications were made to the presentation of the survey items ready for the final process of this first stage development. The final process in this first stage of developing the primary survey questionnaire involved nicely reformatting the questionnaire and then pilot testing the paper version with a group of 20 Malaysian mid-managers of a multi-national company located in Malaysia. This was done after the initial pilot tests with students, faculty and admin staff at LUMS to pre-test the survey with real managers prior to the launch of the survey in a case organisation. The Malaysian managers were used on account of the convenient and easy access to them via a colleague. In addition, it was also thought to be a good thing in testing how generalisable the survey items were to settings outside the UK. At this point, no further modification was made to the questionnaire.

The paper version of the primary survey questionnaire was submitted to the case organisation after preliminary contacts with the firm. Following the first substantive meeting with the firm involving discussions with a director and 2 senior managers, main areas of interest to the firm were identified and mapped onto the areas covered by the primary survey questionnaire. This yielded a second draft of the survey questionnaire with additional measures to cover the few areas of interest to the firm not covered by the primary survey questionnaire. This second draft was discussed – among other things - in a meeting with the Global Performance Management Project (GPMP) manager and a senior Human Capital (HC) manager held at the firm's office. They raised concern about the questionnaire length and thus the time it might take to complete the survey. Consequently, a decision was made to cut down the questionnaire length keeping only the major items of interest to the study, and the revised 3rd draft was promptly emailed to the two managers for their review. Still they expressed doubts about the firm's continued participation in the survey, as they thought a lot more time and

effort was needed to develop the questionnaire further before it could be implemented. As it turned out, the main concern related to the wordings of some of the questionnaire items. For instance, in one email the HC manager expressed that:

> "*...the survey itself appears to be quite unusual in that it includes a number of behavioural type questions which are asked in a rather leading way, for example about the trustworthiness of managers. In its present format it leaves the feeling that something is wrong with our current performance management processes eg whether as a business we trust our managers. It appears as if it will prompt staff to question some of the behaviours of their managers and participants may feel dissatisfied at the end of the survey.*"

Consequently, the relevant questionnaire items were modified to make the perceived negative tone of the survey more positive. The revised fourth draft was then emailed to the HC manager for approval. Again, concerns were expressed about the length of the survey to the effect that a much shorter survey was preferred as this would also encourage more staff to participate. In the light of this, the survey was further trimmed to reduce the length. Questionnaire items measuring each variable were critically reviewed and duplicate items which were judged not to be critical to the reliability of the measure were then deleted. The fifth draft of the survey was finally approved by the firm for pilot testing before the eventual launch. Pilot tests and interviews were conducted with a small group of staff, following which slight modifications were made to scale anchors and wordings of a few questionnaire items to provide more clarity and consistency with terminologies in use at the firm. This sixth version of the survey, as it were, was pilot tested again but as a web-based survey before being finally administered. The pilot tests were done with a small group of the case organisation staff, and with some faculty and PhD students at LUMS.

As noted above, the survey development was in two stages with the second stage being the final adaptation of the survey to the context of the case organisation. It is worthwhile to note that this second development process briefly described in the paragraphs above added value in

two ways. First, it ensured the questionnaire related well to the case organisation's context, and was well understood by the target respondents thus enhancing content as well as response validity. Secondly, the survey efficiency and probably the response rate were increased by the use of minimal number of item measures. However, the downside of using fewer items in each scale is the potential cost to the reliability of the measures.

4.3.2 Web Surveys in Management Accounting Research

The use of survey methodology in management accounting research is well established, although with many critiques (especially in the US). For instance, Van der Stede et al. (2005) report that from 1982 to 2001, over 30% of all empirical management accounting published in 8 main accounting journals used the mail survey method.[19] The use of the World Wide Web (the web) as a means of collecting large amounts of data is increasing dramatically not only among survey professionals and large organisations but also in other fields of management study. However, management accounting research using the web survey method is very scant despite this mode of data collection becoming established in other fields of management study, e.g. marketing. One recent example of a management accounting research using a web survey is Lowe and Locke's (2005) study of UK academics perception of the ranking of peer reviewed accounting journals. The scarcity of studies using the web survey method may be because most management accounting researchers have little expertise in the use of the web technology for research purposes. Although there are similarities between the mail and web survey methods, the construction and successful deployment of web surveys demand different skills sets from those required by the traditional mail survey, i.e. computer programming ability and webpage design skills. With the growing number of internet users and ongoing advances in computing devices and computer programming, the use of the web to conduct surveys and collect large amounts of data is likely to become prevalent in both academia and industry. This presents huge opportunities as well as significant challenges.

[19] The 8 journals included in Van der Stede et al. (2005) study are *AOS, CAR, JAE, JAR, JMAR, MAR, TAR, and Behavioural Research in Accounting.*

Web surveys are very attractive compared to the traditional mail or telephone surveys because it is relatively much cheaper to deploy (no interviewer, stationery or postage required). It also provides instant access to a wider audience irrespective of their geographical location; and by the same token achieves faster response rates. In addition, it offers the facility for the direct recording and automatic encoding of survey responses in a format readable by most statistical packages like Excel, SPSS and SAS. Moreover, this is achieved while the survey is still in progress enabling survey responses and other information to be captured in real time and in the desired format. Thus it reduces considerably, and in some cases completely eliminates, the data encoding and entry time required by the traditional survey methods. Furthermore this eliminates potential data errors introduced by such manual data encoding and data entry. For instance, it avoids missing responses and ambiguous ticks. It is therefore not inconceivable that in the near future web surveys may dominate mail surveys as the method for large data collection in management accounting research.

4.3.3 Issues in Constructing a Web Survey

Web surveys are similar to mail surveys in many respects and thus are not immune to some of the issues that are generally identified with the survey methodology; rather they raise new dimensions to them. Salant & Dillman (1994) identified the main sources of errors that affect the 'accuracy' of survey results as coverage error, sampling error, measurement error, and non-response error. Coverage error results when the known probability of including all the units of a population in the sample is not greater than zero. This can be a great concern for web surveys particularly when the target population may not all have access to the internet. On the other hand, sampling error results when only a subset of the survey population is surveyed and this is completely unavoidable except if the entire population of interest is surveyed. Related to this, non-response error results when a significant number of non-respondents from the survey sample are different from the respondents in a manner that significantly affects the survey results. In other words, had the non-respondents participated,

they would have provided a significantly different distribution of answers to the issues of interest than that obtained from those who responded.

Finally, measurement error results from inaccurate responses to questions. This may be due to poorly worded questions and/or the survey method. However, Salant and Dillman (1994) note that measurement error is more critical for questions dealing with sensitive or abstract ideas. Sensitive questions were more likely to result in measurement error in face to face or telephone interviews compared to other survey methods because of the personal contact between respondents and the researcher. On the other hand, abstract idea questions were more critical with mail surveys and by extension web surveys because the researcher is not physically present to clarify respondents' misunderstandings. This may be more acute in mail surveys than in web surveys as web surveys are not as limited in the format and presentation of additional information as the mail surveys. For example, further information explaining a concept can be provided by way of pop-up widows that are activated by the respondent only when more clarification is required, and so it does not obstruct the main survey if not needed. Thus more interactivity can be built into web surveys than is possible with mail surveys.

In this study, coverage and measurement error are not much of an issue by the fact that the target sample was pre-identified and the questionnaire sufficiently developed in prior discussions with the target organisation using the Microsoft Word version of the survey.[20] Moreover, staff in the case organisation all had internet access, and worked with computers and emails regularly in their day to day work. Several pilot tests of the word version of the survey had also been carried out both within and without the target organisation. However, in designing the survey web pages several other factors were of particular concern, some relating to non-response error. The factors included ease of access and navigation of the survey, identification of individual responses and issues of confidentiality, and the integrity of the

[20] A whole region of ABC LLP was identified as the sample, but thereafter it is a population as the whole region was included in the survey.

data collected. Therefore, the main aim in the design of the web survey was to create web pages that were accessible only to the target sample and that would enhance the likelihood of the target sample responding, and doing so in the manner intended. Another objective was to integrate the web pages with a database such that responses to each web page were automatically captured on the database, and to ensure that the data were not 'corrupted' by uninvited responses from people straying onto the survey on the web. Therefore, secure but accessible and easy to navigate web pages needed to be constructed such that the chances of responding to the survey did not depend on a number factors such as: the computer skills of the respondents; the transmission limitations, the computer equipment or internet browser used by respondents. Thus, the web pages were generally constructed within the perceived limits of what respondents' computers, browsers, and transmission lines can deal with. During the web survey construction, tests were run using different computers and screen sizes, different operating systems, different browsers and from three different locations using different connection speeds.

4.3.4 Description of the Web Survey

The web survey pages started with a welcome screen that introduced the survey and thanked respondents for agreeing to participate in the survey. Screen shots of the web pages are presented in Appendix 3. The ease of completing the survey and the anticipated completion time were also emphasised, while providing instructions on how to progress to the next page and the rest of the survey. The page after the welcome screen required participants to login into the survey using a pre-assigned username and password. The required username and password was earlier communicated to the target sample in the cover email invitation sent out on behalf of their regional Chairman. Prior to the cover email, an earlier mail had been sent out on behalf of the regional Chairman intimating staff of the survey. In the cover email, the web link to the survey was included such that a mouse click on the link opened up the survey welcome screen page on their internet browser. Since anonymity was agreed beforehand with the case organisation, one username and password was used by all participants in accessing

the survey rather than individual usernames and passwords. However, the web pages were constructed such that once a respondent logged in a unique randomly generated id was automatically linked to that login session. This unique id is then used to track the person's responses through the whole survey. The potential drawback of using a single username and password is that an individual might complete the survey more than once. However, this was considered very unlikely as the target sample are all graduates and accounting professionals, have a busy work load, and have done several internal online surveys previously without such an issue arising. Furthermore, the invitation to participate came from their Chairman and he indicated that the outcome of the survey was going to be useful to the firm in reviewing their current performance management systems. Finally, it was felt that the anonymity of the survey would encourage not only more responses but more honest ones as the risk of any reprisal is completely removed. Though respondents had the option of providing their email addresses at the end of the survey, and 31% did, the confidentiality and anonymity of responses was also emphasised both on the welcome screen and in the Chairman's cover email invitation. An excerpt from the cover email highlighting this is given below:

> The survey is being conducted on a confidential and anonymous basis. Although *ABC LLP* knows whom this request is being sent to, it will not know who has replied. Nor will any results be released to *ABC LLP* on individual responses or which could allow any individual to be identified. A report containing aggregate results will be provided to *ABC LLP* to help enable us to review our own current performance management frameworks.

Due to the confidentiality and anonymity promised, the option of using 'cookies' to ensure only one response is submitted from any one computer, and also of gathering other unique information, was not used. [21]

On successful login, the next web page presented the first page of the questionnaire. As mentioned earlier, the format of the web questionnaires were constructed to resemble the

[21] Cookies are pieces of information contained in very small text files that can be stored on users' computer hard drive by web servers they visit. These can be used to remember login information and other data, which can only be read by the web server that stored them.

format of the paper/word version. The questionnaire started with questions that were easily comprehended and completely visible at one time on the computer screen, and ended with mostly demographic questions. This was done to enable respondents to flow into the survey and to ease them out of it at the end, thus making the survey easier and less stressful. The last page optionally asked respondents' comments on the survey and their email address.

In terms of the mechanics of the web survey, the web pages were constructed in a table format such that the 1st column cells contained the question numbers, the 2nd column cells contained the questions, and the last column cells contained the response categories. The table size and thus its columns were limited to a set percentage of a browser's screen to ensure that the question wordings all appear on the computer screens of respondents. Thus respondents did not need to scroll across their screens to read all the questions or to see all the response categories. In addition, a 'progress bar' and text, e.g. 85% complete, were placed at the top of the screen to keep respondents informed of their progress. A key feature built into the web questionnaire required respondents to provide an answer to each question on each page before being allowed to proceed to the subsequent page. This ensured respondent did not inadvertently miss some questions as they were redirected to that question. However, this feature was not built into optional questions thus these could be skipped if so desired. The potential problem with this feature is that respondents who are unable or may not want to provide an answer to a question may terminate the survey prematurely. However, given the extensive discussions held with the case organisation and the pilot tests of both the paper/word version and the web version, this was thought to be unlikely. Moreover, grouping and presenting questions page by page enabled the use of another feature that allowed only relevant questions to be presented based on answers to previous ones, thus respondents skipped irrelevant questions without even being aware of it.

The web survey was also set up such that responses were captured and recorded on the database page by page. A 'continue' button was included on each page and once clicked it

opened up the next page and simultaneously transmitted the completed response for that page onto the database. Therefore the browser tool bars with the back and forward buttons were disabled such that respondents could not easily go back to a page once completed. It was thought that spontaneous responses were likely to be more accurate than if respondents were allowed to change their answers after seeing questions on the following pages. However, while on a page, answers to any question could be changed by simply choosing the preferred response category.

Once the web pages were fully constructed and the database back-end set up, the web survey was pilot tested by faculty members and students at LUMS Accounting and Finance Department to ensure the technology was working well. Issues raised during this process relating to difficulties experienced in assessing some questions were promptly addressed. Then another pilot test was conducted with a small number of the target sample and everything confirmed to be ok before the launch of the survey.

4.4 Construct Definitions & Measurement

Most of the constructs of interest were measured using established instruments in the literature or adaptations of such instruments, most of which are multi-items instruments. However, a few constructs were based on single item measures, some of which have been previously used in the literature. As noted earlier, some modifications were made to the adapted and new instruments in the light of the case organisation's context in order to improve the instruments' reliability and validity. Both the primary and final survey items measuring each variable are presented in each subsection where applicable. The primary survey items are the initial survey items presented to ABC LLP while the final survey questionnaire items are the items as used in the web survey after the moderation process with ABC LLP.

4.4.1 Effort & Job Demand

Effort (EFF) is measured by a single item with a preamble which asked respondents to 'indicate your belief about the effort you need to put into your job' followed by the statement 'compared to similar jobs positions in the organisation how much effort would you say you put into your job'. Job demand (JD) is also measured by a single item with the same preamble above and the statement 'compared to similar jobs in the organisation how much effort does your current job position require'. Both items were measured on a scale of 1 (well below average) to 7 (well above average).[22]

4.4.2 Performance Evaluative Style

Performance evaluative style (PES) was measured using two instruments shown in Tables 4-1 and 4-2 below. The first is a new instrument developed in this study which taps into the three dimensions of PES, i.e. type of performance criteria used, supervisors' attitude to adverse variance from set targets, and the basis of rewards. Table 4-1 below shows this instrument with the questionnaire items arising from the first and second stages of the survey development. In the final questionnaire, 'appraiser' was defined as "*the person conducting your annual performance review/appraisal*"; 'goals' as "*the pre-set specific levels of performance specified in your performance objectives*"; and 'rewards' as "*bonuses, promotions, high profile job assignments, development opportunities, public recognition etc.*" The items were measured on a scale ranging from 1 (strongly disagree) to 7 (strongly agree).[23]

Given the nature of this instrument, its internal consistency cannot be assessed by classical reliability measures like Cronbach alpha. In Factor analysis and structural equation parlance, the scale items are not all reflective indicators (effects) of PES, some are formative indicators (causes) of PES. Though high internal consistency validates the reliability of 'effect indicator' scales, low internal consistency does not invalidate 'formative indicator' scales (Bollen and

[22] For the screen shot of the survey item see Appendix 3 page 280.

[23] For the screen shot of the survey item see Appendix 3 page 279.

Lennox, 1991). Full discussion of the construct development and scale used to measure PES is detailed in Chapter 5 – *Conceptualisation and Operationalisation of PES*).

Table 4-1 Target Focused PES - Measurement Items: New Instrument

	SCALE: 1 = strongly disagree to 7 = strongly agree	
	1st Stage - Initial Questionnaire Items	2nd Stage - Final Questionnaire Items
	Preamble: Please indicate the extent to which you agree with the statements below	Preamble: Thinking about your last annual performance review (even if you have not yet had an annual appraisal), please indicate the extent to which you agree with the statements below
1.		My appraiser mainly uses quantitative information (e.g. financial, time and deadline targets) in evaluating my performance
2.		My appraiser mainly uses qualitative information (e.g. quality of work done) in evaluating my performance
3.		My appraiser uses qualitative and quantitative information in equal proportions in evaluating my performance
4.	Normally my superior expects me to operate in line with my short-run Targets but is not as concerned with unfavourable short-run variances as he is concerned that I meet the long-run Targets	My appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term
	My superior is more concerned with other non-target related outcomes than with unfavourable short-run variances	
5.	Normally my superior expects me to operate in line with my Non-financial Targets in the short-run but accepts good reasons for any unfavourable variance	Normally my appraiser expects me to meet my goals but accepts good reasons for any shortfalls in performance
	Normally my superior expects me to operate in line with my Financial Targets in the short-run but accepts good reasons for any unfavourable variance	
6.	My superior expects me to meet my Non-Financial Targets in the short-run and is unwilling to accept explanations for unfavourable variances	My appraiser expects me to meet my goals and is unwilling to accept explanations for any shortfalls in meeting them
	My superior expects me to meet my Financial Targets in the short-run and is unwilling to accept explanations for unfavourable variances	
7.	My bonus pay and salary increments depend heavily on other non-target related information	My rewards depend mainly on information other than how well I meet my specific goals
	My promotion prospects depend heavily on other non-target related information	
8.	My bonus pay and salary increments depend heavily on how well I met my Targets	My rewards depend mainly on how well I meet my goals
	My promotion prospects depend heavily on how well I met my Targets	
9.	My bonus pay and salary increment depend partly on non-target related information and partly on how well I met my targets	My rewards depend equally on how well I meet my goals and on non-goal related information
	My promotion prospects depend substantially on non-target related information and substantially on how well I met my targets	

PES was also measured using an adaptation of Hopwood's (1972) original instrument. The primary instrument used here modified Hopwood's wording notably the word 'budgets' was

replaced with 'targets/goals' to reflect the broadening of the basis of performance evaluation from (financial) budget targets to targets in general. In the final instrument used, modifications were also made to reflect terminologies in use at the case organisation, and items were added and deleted as well. Items which were not identified as relevant performance criteria from the interviews were deleted and others identified as relevant were added. The items were measured on a scale ranging from 1 (not at all important), to 7 (very important). Table 4-2 below presents both the primary and final survey items used.

Table 4-2 Target Focused PES - Measurement Items: Adapted from Hopwood's Instrument*

	SCALE: 1 = Not all important to 7 = Very important	
	Initial Questionnaire Items Preamble: Listed below are some criteria managers indicate are important in their superior's evaluation of their performance. Please indicate how important you think each criterion is in your superior's evaluation of your performance:	Final Questionnaire Items Preamble: Listed below are some criteria that people in other businesses have indicated to be important in their appraiser's evaluation of their performance. Please indicate how important you believe each criterion is in your appraiser's evaluation of your performance (even if you have not yet had an annual appraisal)
1.	How well I cooperate with colleagues	How well I communicate and build relationships with colleagues and clients
	How well I get along with my subordinates	
2.	How well I get along with my superior	How well I get along with my appraiser
3.	How well I met my targets [goals] in the short-run	How well I met my goals and deadline targets
4.	My concern with quality (e.g. quality of output, quality of customer service etc.)	The quality of my work
5.	My actions that produce long-run effectiveness rather than short-run results	My actions that produce long-run effectiveness rather than short-run results
6.	How much effort my superior perceives I put into the job	How much effort my appraiser perceives I put into the job
7.		How long I have been in my current position
	My attitude towards my work	
8.	Are there any others? (Please list.)	Are there any others? (Please list.)

*The criteria in Hopwood's original instrument are: *cooperation with colleagues; concern with costs; getting along with my boss; effort put into the job; concern with quality, meeting the budget; attitude to the work and company; and ability to handle the men.*

Using this instrument, PES was measured from two perspectives. First it was measured from the subordinates' perspective in line with previous studies, i.e. 'received PES' as presented in the Table 4-2. Secondly, PES was also measured from the superiors' perspective, i.e.

transmitted PES.[24] However the preamble of the final survey questionnaire and the form of the criteria were changed to reflect this.[25] For e.g., item 1 in Table 4-2 was changed to '*how well they communicate and build relationships with colleagues and clients*' and the preamble of the question was changed to '*listed below are some criteria that appraisers in other businesses indicate are important in the evaluation of their staff members' performance. Please indicate the level of importance you attach to each criterion, on average, when evaluating your staff members' performance.*' Respondents to this question were also asked to rank the criteria in order of importance. In addition, they were asked to indicate if the order of importance remained the same across different periods.

4.4.3 Organisational Hierarchical Level

Organisational hierarchical level (OHL) was measured directly as respondents' current grade in the organisation, from support staff to partner. A scale of 1 to 6 was used to measure OHL with 1 representing support staff; 2 – associate/executive assistant; 3 – manager; 4 – senior manager; 5 – director; and 6 – partner. Accounting firms are known to be highly hierarchical and current grade directly captures respondents' position on the organisation's hierarchy.[26]

4.4.4 Equity & Fairness Perceptions

The primary instrument used to measure equity and fairness perceptions (EFP) is based on the 6 item instrument used by Janssen (2001) to measure fairness perceptions. The questionnaire was cut down to 5 items, and the wordings were also modified to make it more positive in tone. The scale reliability of the cut down instrument (Cronbach alpha 0.84) compares favourably with the scale reliability of .90 reported by Janssen (2001, p.1042). The items were measured on a scale of 1 – 7, anchored as 1 – strongly disagree, 4 – neutral and 7 – strongly agree. Both the initial and final questionnaire items are reported in Table 4-3 below.[27]

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[24] Superiors and subordinates cannot be connected, only individuals with both roles respond to both PES measures.
[25] For the screen shot of the survey item see pages 281 and 294
[26] For screen shot of survey items, see Appendix 3 page 290.
[27] For screen shot of survey items, see Appendix 3 page 284.

Table 4-3 Equity and Fairness Perception - Measurement Items

	Initial Questionnaire Items Scale: 1 = totally disagree to 7 = totally agree	Final Questionnaire Items Scale: 1 = strongly disagree to 7 = strongly agree
	Preamble: Please indicate the extent to which you agree with the following statements	Preamble: Rewards, for the purposes of this survey, refer to salary, bonuses, promotions, high profile job assignments, and other forms of recognition. Please indicate the extent to which you agree with the following statements
1.	The rewards I receive are not proportional to my investments	The rewards I receive are appropriate to the effort I put into my work
2.	I give a great deal of time and attention to the organisation, but do not feel appreciated	I give a great deal of time and attention to the organisation, and this is appreciated
3.	I feel unfairly treated in my job	I feel I am fairly treated by my employer regarding allocation of work, projects, and job assignments
4.	I invest more in my job than I receive in return	I feel I am fairly treated by my employer regarding promotion and advancement opportunities
5.	I work too hard considering my rewards	I feel fairly treated by my employer regarding my compensation (salary awards and bonus pay)
6.	I put more energy into my job than it is worth	

4.4.5 Goal Commitment & Goal Difficulty

The primary survey questionnaire contained 7 items as measures of goal commitment (GC) synthesized from the instruments used by Hollenbeck et al. (1989a, 1989b) and Latham and Steele (1983) and adapted for the context of this study. Hollenbeck et al. (1989a) used their 7 item instrument to measure individuals' commitment to difficult goals. Two of these items that did not apply to the context of this study were dropped. Similarly, Latham and Steele's (1983) used their 4 item instrument to measure individuals commitment to a goal based on their acceptance of the goal. Only two of these measures were adapted for this study as Hollenbeck et al.'s instrument had 2 items probably adapted from the other half of the Latham and Steele's measure. Both instruments were used in an educational context i.e. using undergraduate students as subjects. On the other hand goal difficulty (GD) was measured using 3 items adapted from Kenis's (1979) measure of budget goal difficulty. All the measures are listed under the 'initial questionnaire items' column of Table 4-4 below. Items 3 and 9 are those adapted from Latham and Steele (1983); items 4 to 8 are adapted from Hollenbeck et al. (1989a); and items 1, 2 and 10 are adapted from Kenis (1979).

Table 4-4 Goal Commitment - Measurement Items

	Initial Questionnaire Items Scale: 1 = totally disagree to 7 = totally agree	Final Questionnaire Items Scale: 1 = strongly disagree to 7 = strongly agree
	Preamble: Please indicate the extent to which you agree with the following statements	Preamble: Rewards, for the purposes of this survey, refer to salary, bonuses, promotions, high profile job assignments, and other forms of recognition. Please indicate the extent to which you agree with the following statements
1.	I should not have too much difficulty in reaching my goals/targets	I should not have too much difficulty in reaching my goals
2.	It takes a high degree of effort, skill and know-how on my part to fully attain my goals/targets	It takes a high degree of effort, job skill and know-how on my part to fully attain my goals
3.	I strive very hard to attain my performance goals/targets	I strive very hard to attain my performance goals
4.	I think my performance goals/targets are good goals to shoot for	I think my performance goals align well with my units objectives
5.	I am committed to attaining my performance goals/targets	
6.	It wouldn't take much to make me abandon my performance goals/targets	
7.	Quite frankly I don't care if I achieve my performance goals/targets or not	
8.	Its unrealistic for me to expect to reach my performance goals/targets	
9.	It is very important to me to at least attain my performance goals/targets	
10.	My goals/targets are quite difficult to attain	

In the final survey questionnaire, however, only 4 of the 10 items were retained - 2 items from the adapted goal difficulty measures and 2 from the GC measures.[28] Preliminary factor analysis (principal components factoring) using SPSS was carried out to explore the factor structure of the 4 items. All items loaded unto one factor explaining 46.5% of the total variances. Factor loadings were greater than .7 except for item 1 with a loading of .26. The internal consistency, i.e. Cronbach alpha, for the 4 items was 0.55. However, when item 1 is removed from the scale, the alpha improves to 0.67.[29] Also, factor analysis show one factor for the 3 items explaining 61% of the variance, and factor loadings for the 3 items improve just slightly. Thus item 1 (reverse coded) is interpreted as a single measure of GD while GC is assessed by the other 3 items.

[28] For screen shot of survey items, see Appendix 3 page 286.

[29] Following Nunnally (1978) proposed rule of thumb; alphas of .7 or higher are generally reported in the literature as indicating internal consistency of a scale. Nevertheless, Nunnally (1967, p.306) also proposed alphas of .5 or higher as adequate for research purposes.

The GD measures were grouped with the GC measures not only because they are conceptually linked, but more so due to the considerable similarity of both item measures. The more widely used operational measures of GC (e.g. Hollenbeck et al., 1989a; Latham and Steele, 1983) focus on a statement of commitment to a goal (i.e. target) and then perceptions of the achievability of the goal. However, attainability of goals i.e. goal/target difficulty is conceptually different from GC although it may significantly affect GC.

4.4.6 Performance: Actual Performance Rating & Managerial Performance

Performance is generally acknowledged as multi-dimensional and different studies measure performance differently. Generally, performance measures in management accounting studies, whether for an individual or unit, can be classified into two types – objective and subjective measures. Objective measures of performance are usually derived from archival data like official performance ratings, and/or accounting numbers. On the other hand, subjective performance measures usually consist of self- or superior-ratings of a single item asking of overall performance in comparison to some others, and/or several items asking for rating of several dimensions of performance.[30] Performance was assessed at an individual level with an item asking respondents to indicate the outcome of their last performance rating – termed actual performance rating (AP). In addition, respondents at manager grades and above were also asked to indicate what they believed was the level of their performance compared to their peers – termed managerial performance (MP).[31] In the case organisation, the outcome of the annual performance review was performance ratings which also formed part of the basis for rewarding staff. In addition to the actual performance rating received, respondents were also asked to indicate the performance rating they expected and what they thought accounted for any difference between the expected and actual rating. The questionnaire items are given in Table 4-5 below:

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[30] The most commonly used multi-item instrument measuring managerial performance is the Mahoney et al (1963; 1965) instrument. It measures performance along the following dimensions; overall, planning, investigating, coordinating, evaluating, supervising, staffing, negotiating, and representing.

[31] For screen shot of survey items, see Appendix 3 page 291. This page appeared only to managers who had experienced a performance review, those who hadn't were presented with Appendix 3 page 292, and those who were not managers were presented with Appendix page 293.

Table 4-5 Performance - Measurement Items

Actual Performance Rating Measure Scale: 1 to 5*	Managerial Performance Measure Scale: 1 = well below average to 7 = well above average
Preamble: This question relates to the outcome of your last performance review (although you may not use the exact ratings indicated here, please specify as near as possible)	
1. What was the outcome of your last performance review (your evaluation rating)	Considering everything, how would you rate your level of performance as a manager/supervisor compared to your peers (other managers/supervisors) in your Business Area/Region
2. What do you feel the rating should have been	
3. If there is a difference between your answers above, why do you believe this is justified	

*No anchoring statements were used here because exact wordings differed slightly in some Lines of Service and the consultations, interviews and pilot tests all supported not using any anchoring statements. However, '1' was consistently used to denote the best performers. In addition, some parts of the case organisation use a 4 ratings scale while others use a 5 ratings scale. However, it was agreed with the organisation that the 5 rating levels should be used as every staff is able to relate to it, and staff interviewed prior to launch also concurred. Thus the 5 point scale was used with no anchoring statement.

4.4.7 Job Related Tension

Job related tension (JRT) is assessed by an adaptation of the 15-item index of job-related tension developed by the Institute for Social Research at the University of Michigan (Kahn et al., 1964). Following Shields et al. (2000, p194) the 15 items were trimmed to the 9 items listed in 'initial questionnaire items' column of Table 4-6 below. Furthermore, the applicability and appropriateness of each item was assessed in the light of the interviews of a sample of managers in the case organisation. This resulted in a further trimming of the measures to the 4 items listed in 'final questionnaire items' column 2 of Table 4-6.[32] Internal consistency of the 4 items measured by Cronbach alpha was 0.69, which compares well to the 0.70 alpha reported by Shields et al. (2000) for their 9 item measure of JRT. Given the reduced number of items in this scale, the Cronbach alpha of .69 reasonably compares well with those reported by previous studies using the original scale (e.g. $\alpha = 0.85$ - Kenis, 1979; $\alpha = 0.78$ - Hirst, 1983; $\alpha = 0.76$ - Dunk, 1992; $\alpha = 0.89$ - Lau and Buckland, 2001)

[32] For screen shot of survey items, see Appendix 3 page 284/285.

Table 4-6 Job Related Tension - Measurement Items

Scale: 1 = Never, 2 = Rarely, 3= Sometimes, 4 = Often, 5 = Almost Always		
	Initial Questionnaire Items Preamble: The following is a list of things that sometimes bother people in their work. How frequently do you feel bothered by each of them?	Final Questionnaire Items Preamble: The following is a list of things that sometimes concern people in their work. How frequently do you feel concerned by each of them?
1.	Feeling that you have too heavy a workload, one that you can't possibly finish during an ordinary working day	Feeling that you have too heavy a workload, one that you find very difficult to finish during an ordinary working day
2.	Thinking that you'll not be able to satisfy the conflicting demands of various people over you	Thinking that you'll not be able to satisfy the conflicting demands of various people in positions of authority above you
3.	Feeling unable to influence your immediate superior's decisions and actions that affect you	Feeling unable to influence your immediate superior's decisions and actions that affect you
4.	Thinking that the amount of work you have to do may interfere with how well it gets done	Thinking that the amount of work you have to do may affect how well it is done
5.	Not knowing what your superior thinks of you how he evaluates your performance	
6.	The fact that you can't get information needed to carry out your job	
7.	Feeling that you have too little authority to carry out the responsibilities assigned	
8.	Not knowing just what the people you work with expect of you	
9.	Being unclear on just what the scope and responsibilities of your job are	

4.4.8 Dysfunctional Behaviour - Quality Threatening Behaviour

Dysfunctional behaviour was assessed directly with a new instrument developed for this study. This measure taps into some of the behaviours described in the accounting and finance literature as potential consequences of performance evaluation and reward considered unethical or problematic by organisations, and at times the society at large (Hopwood, 1972; Otley, 1978; Merchant, 1990; Demirag, 1995; Coates et al., 1995, Grinyer et al., 1998; Otley and Pierce, 1996a, 1996b; Murphy, 2004; Sweeney and Pierce, 2004). Respondents were asked to indicate the extent they had experienced five descriptions reflecting the problematic behaviours identified by these studies. Both the initial and the final survey items are presented in Table 4-7 below.[33] Cronbach alpha of 0.69 indicate the scale has acceptable internal consistency.

[33] For screen shot of survey items, see Appendix 3 page 286.

Table 4-7 Quality Threatening Behaviour - Measurement Items

Scale: 1 = Never, 2 = Rarely, 3= Sometimes, 4 = Often, 5 = Almost Always		
	Initial Questionnaire Items Managers identified some common experiences they have in their jobs; how often do you experience each of these?	Final Questionnaire Items Listed below are pressures some people in other organisations claim to have experienced in their jobs. To what extent have you experienced these in your current job? (Even if the questions don't particularly apply to your job, please give the nearest possible answer)
1	Taking actions that enhance long-term performance when it negatively impacts short-term performance	Taking actions that enhance short-term performance of the firm even though it negatively impacts long-term performance
2	Having to do things on the job you feel are against your better judgement	Having to do things you feel are against your better judgement in the course of your work
3	Having to stay longer hours in the office indicating you are working hard	Having to stay longer hours in the office to indicate you are working hard
4	Having to over report actual performance	Feeling it necessary to avoid or skip a required procedure
5	Having to under report actual performance	Feeling I cannot record all the time I spend on a specific work, project, or job assignment
6	Making investments in training and development though it negatively impacts short-term performance	
7	Having to shift income or expenses between accounts, or between periods	

4.4.9 Interactive Use of Control Systems

Based on Simons (1995, 2001) interactive control systems concept, interactive use of control systems (ICS) is usually measured in the literature from the perspective of top managers or supervisors, rather than that of subordinates.[34] In addition, measures of ICS used in the literature is related to the use of specific formal control mechanisms like budgets, scorecards, and project management systems (Abernethy and Brownell, 1999; Bisbe and Otley, 2004), and to specific MCS information such as customer information, product design information, cost information, resources information, and profitability information (Davila, 2000).

However, this study differs from previous studies in the operationalization of ICS in several ways. First, ICS is measured in this study from subordinate managers' perspective.

[34] Some authors also allude to interactive controls as the intensity of use of controls (Chenhall, 2003) and as the intensity of information exchanges (Van der Stede, 2001).

Table 4-8 Interactive Use of Control Systems - Measurement Items

	Scale: 1 = Strongly disagree to 7 = Strongly agree	
	Initial Questionnaire Items	Final Questionnaire Items
	Preamble: Reports tracking performance against targets:	Preamble: Thinking of the way in which performance information is used, please indicate the extent to which you agree with the following statements: "Information about my performance against agreed objectives/targets ..."
1	Are the subject of face-to-face discussions with my superior whether there are deviations or not from performance targets	Is the subject of face-to-face discussions with my appraiser whether or not my performance diverges from the agreed objectives/targets
2	Is used by my superior mainly to force us to continually question and revise the assumptions upon which we base our plans	Is used by my appraiser mainly to encourage me to continually seek information and ways of improving my work performance
3	Commands my superior's regular and frequent attention.	Is the subject of my appraiser's regular and frequent attention
4		Is used by my appraiser to encourage and inspire me, and to facilitate my development

Second, ICS is assessed in relation to the overall formal performance measurement and evaluation information rather than to information from specific control mechanisms. Thirdly, the overall performance measurement and evaluation information relates to individuals rather than units or products. Role theory lends credence to the measurement of ICS from the perspective of subordinates rather than superiors. Role theory distinguishes the enacted from the received role (Deutsch and Krauss, 1965), and also indicates that the relevant role is the behaviour of the role occupant most directly influenced by the context under consideration. In the context of this study, the focus is on the received role rather than the enacted role as the other variables of interest is also measured at this level. Therefore, ICS is measured from the perspective of the subordinates. Four items were used to measure ICS (see Table 4-8) above.[35] These items were synthesized from the previous studies mentioned above and adapted for this study. The items show high internal consistency with a Cronbach alpha of 0.87.

[35] For screen shot of survey items, see Appendix 3 page 288.

4.4.10 Intention to Turnover

Intention to turnover (IT) was assessed using a single item, adapted from London and Howart (1978), which asked respondents to indicate their level of agreement (on a scale of 1= strongly disagree to 7 = strongly agree) with the statement 'barring any unforeseen circumstances I intend to stay with my current employer.' This measure was also used by Hunton et al. (1996) in a study of hierarchical and gender differences in accounting departments of 3 manufacturing industries and more recently by Parker et al. (2005) in their study of organisational justice and turnover in public accounting firms. Similar single item measure of IT was also used by Ketchand and Strawser (1998) in their study of turnover intentions in a public accounting setting.[36]

4.4.11 Job Satisfaction

Job satisfaction (JS) has been measured in management accounting literature using several different measures. Brownell (1982a, p.18) notes that "the number of ad hoc measures (of job satisfaction) used in single studies defies estimation." However, based on reliability and validity criteria he narrowed the measures down to 2 main measures, i.e. the Job Descriptive Index (JDI) (Smith et al., 1969) and the Minnesota Satisfaction Questionnaire (MSQ) (Weiss et al. 1967). In this study however, JS was measured by a single item which asked respondents to indicate their agreement (on a scale of 1= strongly disagree to 7 = strongly agree) with the statement 'all in all I am very satisfied with my job.' Similar global measure of JS has been used in other studies (e.g. Sousa-Poza & Henneberger, 2004; Nagy, 2002; Scarpello & Campbell, 1983). The issue with single item measures is that they may be considered less reliable than multi-item measures.

However, Scarpello & Campbell (1983) note that there is no empirical evidence that the single item measure of JS is unreliable, and they advocate the use of a single global measure of JS in place of the sum of the facet satisfaction measures like the JDI and the MSQ. They concluded

[36] For screen shot of survey items, see Appendix 3 page 287, item '*k*'.

from results of their empirical tests of single global JS measures and the MSQ that global single measures of JS appear to include consideration of other variables that influence JS not captured by the facet measures in the MSQ and other such instruments. Furthermore, they state that a ratings measure of global JS is more inclusive than summation of many facet responses. In addition, Petty et al. (1984) meta-analytic study concluded that the relationship between individual overall job satisfaction and individual job performance measure is stronger and more consistent than the relationship between JDI facet of JS measure and job performance. Several other studies also reach similar conclusions regarding the use of a global single item measure of JS (Wanous et al., 1997; Nagy, 2002). Wanous & Hudy (2001, p.368) re-emphasise the conditions for using single item measures stating that they are "...most appropriately used in situations in which the construct of interest is (a) unidimensional rather than multidimensional, (b) clear to respondents, and (c) sufficitently narrow." The JS construct for the purposes of this study meets these conditions, and on the balance of evidence and for parsimony a global single measure of JS was employed.

4.4.12 Organisational Commitment

Organisational commitment (OC) was assessed using measured adapted from the 9 item scale of Mowday, et al. (1979, 1982) as recently used by Parker et al. (2005). The Mowday et al. scale is noted as one of the most widely used measures of affective commitment with acceptable levels of reliability and validity reported by previous studies employing the scale (Meyer, et al., 1989; Angle & Perry, 1981). The initial and final survey items are listed in Table 4-9 below and only 8 of the 9 items were initially used.[37] However, after further review of the items, given the need for parsimony, only 4 items were adapted in the final survey. Items were deleted first if it was considered to have a close substitute, and second if the item is among those reported by Parker and Kohlmeyer (2005, p.366) as not loading

[37] The item not used is '*I talk up this organisation to my friends as a great organisation to work for.*' This item was not considered relevant to the context of the present study. For screen shot of survey items, see Appendix 3 page 287, items '*f*' to '*j*'

"...appropriately in factor analysis."[38] In the current study, Cronbach alpha for the 4 item scale is 0.78, which is satisfactory and compares well with the 0.85 alpha level reported for the full scale by Parker and Kohlmeyer (2005).

Table 4-9 Organisational Commitment - Measurement Items

Scale: 1 = Strongly disagree to 7 = Strongly agree Preamble: Please indicate the extent to which you agree with the following statements	
Initial Questionnaire Items	Final Questionnaire Items
1. I would accept almost any type of job assignment in order to keep working for this organisation.	Within my role, I would accept almost any type of work, project, or job assignment in order to keep working for this organisation
2. I am extremely glad that I chose this organisation to work for over others that I was considering at the time I joined.	I am extremely glad that I chose this organisation to work for over others that I was considering at the time I joined.
3. I really care about the fate of this organisation	I really care about the future of this organisation
4. I am willing to put in a great deal of effort beyond that normally expected in order to help this organisation be successful	I am willing to put in a great deal of effort beyond that normally expected in order to help this organisation be successful
5. I find that my values and the organisation's values are similar	
6. I am proud to tell others that I am part of this firm	
7. This organisation really inspires the very best in me in the way of job performance	
8. For me this is the best of all possible organisations for which to work	

4.4.13 Supervisory Trust

Supervisory Trust (ST) was measured using an instrument adapted from McAllister (1995) used to measure interpersonal trust among a dyadic group of managers and professionals. This scale consists of 6 items measuring affect based trust, and 5 items measuring cognition based trust. McAllister reported Cronbach alphas of .89 and .91 for the affect and cognition based trust scales. Ambrose and Schminke (2003) combined all 11 items of this scale to assess supervisory trust, i.e. individuals' relationship with their immediate supervisor, and reported a Cronbach alpha of 0.92. However, in the present study only 4 items were adapted from this

[38] Though item 4 is included among the items with inappropriate loading, it was included in the present study as it was considered quite relevant in the context of the study.

scale as used in Ambrose and Schminke (2003) with another item added. The questionnaire items are presented in Table 4-10 below, and the last item is the added item. Reliability estimate (Cronbach alpha) for the 5 item scale is .89.[39]

Table 4-10 Supervisor Trust - Measurement Items

	Scale: 1 = Strongly disagree to 7 = Strongly agree Preamble: Please indicate the extent to which you agree with the following statements
1.	I can talk freely to my appraiser about difficulties I am having at work and know s/he will listen
2.	My appraiser approaches his/her job with professionalism and dedication
3.	If I shared my personal problems with my appraiser s/he will respond constructively and understandingly
4.	My appraiser is always well informed and adequately prepared for the job
5.	I pass on information that might be useful to my appraiser

4.4.14 Relative Emphasis on Quantitative Goals & on Financial Goals

Emphasis placed on meeting quantitative vs. non-quantitative targets, i.e. relative emphasis on quantitative goals (REQG) was assessed by asking respondents to indicate how much emphasis their performance appraiser placed on meeting quantitative goals (e.g. financial goals, efficiency goals, time and deadline goals) compared to non- quantitative goals when evaluating their performance. Respondents were to input a value from 0 to 100 %. A value of 100% for emphasis on qualitative goals meant a 0% emphasis on quantitative goals or no quantitative goals if they had none. Being a web based survey, once a value was inputted in one box for the quantitative or non-quantitative category, the corresponding value for the other category was automatically inputted in that box.

To assess the relative emphasis on financial goals (REFG) respondents were asked to think of their quantitative goals, and to indicate how much emphasis their appraiser placed on meeting the financial compared to the non-financial goals when evaluating their performance. And as described above, respondents were to input a value from 0 – 100%.[40]

[39] For screen shot of survey items, see Appendix 3 page 287, items '*a*' to '*e*'
[40] For screen shot of survey items, see Appendix 3 page 283.

4.4.15 Demographic and Other Information

In addition to the concepts measured above, some demographic and other information was also gathered in the survey. These are listed in Table 4-11 below.[41]

Table 4-11 Demographic Information

	Item	Scale/Measure
1.	Line of service (LOS)	3 categories - Assurance, Business Advisory, and Tax
2.	Age	Respondents were presented with 6 age categories starting from 'under 21' to 'over 45'. The mid-point of the ranges were used as the point estimate of age
3.	Gender	Male, Female
4.	Length of time with firm, i.e. employment tenure (ET)	Respondents were presented with 13 categories from 'under 1 year' to 'over 14 years'.
5.	Length of time at current grade, i.e. grade tenure (GT)	Respondents were presented with 9 categories from 'under 1 year' to 'over 8 years'
6.	Length of time since the last performance review (TLPR)	9 categories from 'None yet' to 'more than 12 months'
7.	Frequency of contact with supervisor (FSC)	5 categories ranging from 1 (anchored as '*only in connection with the annual performance appraisal*') to 5 (anchored as '*almost daily on job assignments*')

[41] For screen shot of items 2 – 7 in the table, see Appendix 3 page 289. For item 1 see Appendix 3 page 278/279.

Chapter 5 Conceptualisation and Operationalisation of PES

In this chapter, an attempt is made to formally conceptualise performance evaluative style by identifying its conceptual domain from review of previous studies in the first section. The second section evaluates the PES concepts synthesized from the review and a measurement instrument for PES is proposed in the third section. The fourth section discusses the empirical validation of the measurement instrument using structural equation modelling (SEM). A synopsis of this technique is also provided. Finally, the operationalisation of the validated measurement items into PES measures used in the study is presented in the last section.

5.1 Review of PES Concepts and Measures

The review of the PES concept starts with Argyris (1952) study of the impact of budgets on people. In his study, Argyris identified 3 dimensions of supervisory style viz. needling, raising of standards once it is met, and an uncompromising budget attitude. Following on Argris' study, Hofstede (1968) also described 3 different dimensions of supervisory style with regards to use of budgets viz.; frequency of contacts about budget results (i.e. how frequently the superior discussed budget variances and other performance figures with the subordinate); what performance evaluation criteria is used – personality, ability, effort or results; and the extent budget results were used in performance evaluation. By extent of budget results use he referred to the attention given to negative variances from budget standards, whether financial or non-financial standards. Thus he explicitly recognized that budgetary targets are not just financial in nature but are also non-financial. Hofstede found that frequency of budget contacts had negative effects as it induced feelings of high pressure and low job satisfaction. He also found appraisal on the basis of variances from budget standards to be associated with feelings of high pressure, nervousness, and unfairness of the performance appraisal. He advocated what he called 'the game spirit' style of budgetary control use, which he reasoned maximised the benefits of the control system while minimising its negative effects. He

described the 'game spirit' style as characterised by the use of budgetary control in a manner that subordinates were clear on what was expected of them, the budget was relevant, feedback information was understandable, and budget results were used in a corrective rather than punitive way – i.e. in Hopwood's (1972) terms a 'flexible' rather than 'rigid' use of budgets in performance evaluation.

Lowe and Shaw (1968) identified another dimension of supervisory style – the use of budgets as a basis for determining and allocating rewards. In the retail chain they studied, they found that performance relative to budget targets, published in league tables, formed the basis for salary increments, bonuses and promotions. Lowe and Shaw (1968, p307) notes that "this procedure (i.e. use of league tables) emphasises the Company's concern for the budget as a means of evaluation of managers and stresses the competitive element (i.e. the desire for promotion and for greater shares of resources) among A.M.s (area managers)." Though this seem to reflect as much the MCS design, they further note that "the company appears to have no clearly specified method of determining salary increments and promotions, though sales growth and performance relative to the budget are felt to be important" implying a supervisory style linking rewards to performance relative to the budget. This is an important aspect as a lot of the ills of budgeting seem related to the use of performance against to budget targets – whether financial or non-financial - as a basis of determining and allocating rewards (Hofstede, 1968; Jensen, 2001). For instance, Hofstede (1968, p76) thesis strongly emphasised that budgets should not be used in this way as he states that the general environment in which budget communications occur must "...foster the idea that budget performance is an end in itself, existing for its own sake, not primarily leading to some external reward."

Following from these earlier studies and based on initial interviews in the organisation studies, Hopwood (1972) devised some questionnaire items from which he eventually

categorized 3 supervisory styles viz.; budget constrained (BC), profit conscious (PC), and non-accounting (NA) styles. These styles were based on 2 main dimensions viz.

a) evaluative criteria - whether accounting or non-accounting based; i.e. the extent to which budgets were used in performance evaluation; and
b) attitude to negative variance from budget targets; i.e. the manner in which the accounting data contained in budgets were used.

In relation to the 3 evaluative styles, the BC and PC styles made extensive use of budgets in performance evaluation, but differed in the 'manner' in which the information was used, rigidly in the former and flexibly in the latter. The NA style, on the other hand differed from these two in the extent of budget use, with little or no use of budgets in performance evaluations. The BC style reflected reliance on meeting the budget in performance evaluation and the use of this criterion in a manner intolerant of deviations; the PC style reflected reliance on concern for cost i.e. effectiveness, in addition to other non-budgetary criteria in performance evaluation. According to Hopwood (1972, p.175), the PC style involve "...supplementing them (accounting data) with other sources of information, both formal and informal, so that alternatives can be compared and inconsistencies investigated..." On the other hand, the third evaluative style, i.e. the 'Non-Accounting (NA)' style, he conceptualised as based on "...rather vague criteria: attitudes, the way the cost centre head handles his men, and effort..." which though important is surrounded by a lot of uncertainty as to what constitutes a good or bad performance, coupled with difficulty in determining performance improvements. Thus, Hopwood's conceptualisation of styles of budgetary control systems use for performance evaluation, and presumably rewards, could be characterised as an exclusive or rigid focus on accounting data (the BC style), a flexible use of accounting data along with other non-accounting information (the PC style), and an exclusive focus on non-accounting information (the NA style).

Hopwood argued that accounting measures as contained in budgets were incomplete measures of performance and that a rigid style of budget use (i.e. the BC style) emphasised concern

with short-term performance with more dysfunctional consequences, whereas the more flexible style of budget use (i.e. the PC style) emphasised concern with overall i.e. long-term performance with more positive consequences. As he states "...it is only when meeting the budget becomes important relative to other valued criteria of job performance that unfavourable consequences occur. Of itself, concern with meeting the budget can result in quite favourable consequences" Hopwood (1972, 173). Thus, where budgets were used in evaluating performance, the manner of use refers to the relative concern with short-term vs. long-term performance. Hopwood operationalised budgetary control systems use as a categorical variable based on the relative importance rankings of 2 out of the 8 performance criteria in his survey viz:; 'my concern with costs' and 'meeting the budget'. These were the only 'accounting' performance criteria in his measure, and he used them to contrast the concern with long-term performance vs. short-term performance concern. Roughly, if the first criterion was in the top 3 but not the second this was classed as a PC style, and if the reverse it was classed as a BC style. On the other hand, if both criteria were not in the top 3 this was classed as an NA style. Like Hofstede, Hopwood advocated the PC style – a bit more refined 'game spirit' of using budgetary control systems.

Most of the subsequent studies following Hopwood's (e.g. Otley, 1978; Brownell, 1982a; 1985; Brownell and Hirst, 1986; Dunk, 1989; Imoisili, 1989) conceptualised performance evaluative style (PES) as a continuum along the dimensions of rigid vs. flexible use of accounting information. Most of these studies, referred to as the reliance on accounting performance measures (RAPM) studies, also used or adapted Hopwood's measurement instrument.[42] However, the method of scoring/operationalising PES differed among the studies giving rise to PES concepts different from Hopwood's (see Otley and Fakiolas, 2000 for a detailed discussion). Given the subtly different PES concepts of the RAPM studies, Otley and Fakiolas (2000, p505) criticised the RAPM researchers for "uncritically using Hopwood's original rationale to motivate their work" echoing Briers and Hirst (1990) earlier

[42] Refer to Table 2-2 on page 31 for summary of some of the studies.

criticism of theory underdevelopment. Otley and Fakiolas (2000) also noted that the Hopwood questionnaire was not "... intended to provide an additive scale, nevertheless some authors have provided Cronbach alphas for the whole set of items...." leading them to pose the question "if the items do represent a single underlying construct, what is it?"

The earliest exception to using Hopwood's instrument was Hirst (1983), who also operationalised PES as a continuum between, presumably, rigid/flexible use of accounting data. However, in line with Lowe and Shaw's (1968) observation, Hirst (1983) explicitly linked PES to rewards in their definition/measurement of it. Hirst (1983, p598) operationalised PES in terms of "the extent to which the receipt of rewards was contingent on a participant (i.e. respondents to his survey) performing satisfactorily in terms of quantitative performance criteria ..." He gave examples of the quantitative performance criteria as costs, production targets, sales targets, etc. Hirst's operationalization of PES was based on his argument for not using Hopwood's instrument, which is that Hopwood's instrument was tailored for manufacturing settings and was unsuitable for the non-manufacturing settings of his survey (see footnote 8, p598). Hirst and Yetton (1984) also used Hirst (1983) instrument.

Govindarajan (1984, p127) also conceptualised PES as a continuum, but defined as "the degree of reliance superiors place on formula vs. subjective (non-formula) approaches towards the evaluation of the subordinate's performance and in deciding the subordinate's rewards (such as incentive bonus)." Like Hirst's (1983), Govindarajan PES concept explicitly links rewards, in particular incentive bonuses, to performance evaluation. He operationalised PES as the percentage of respondents total performance incentive bonus determined based on subjective judgement. Presumably, a 0% score represented bonuses determined "solely on meeting various levels of financial performance" i.e. the formula-based approach (p.130). At the other end of the scale, a 100% score represented 'exclusive use of subjective judgement'. Govindarajan then related this operationalisation of PES to Hopwood's PES categories, equating the strictly 'formula-based' and strictly 'subjective' approaches to Hopwood's BC

and NA styles, and the combination of subjective and formula-based approaches to Hopwood's PC style. Govindarajan and Gupta (1985) also conceptualised and measured PES the same as Govindarajan (1984).

5.2 Evaluation of PES Concepts and Measures

On one hand, Hopwood (1972) educed the fundamental concern raised by earlier studies i.e. the focus on short-term performance, characterized by emphasis on short-term budget targets for performance evaluation, vs. focus on long-term performance characterized by the use of more broad performance evaluative criteria. An uncompromising attitude to meeting budget targets was seen to cause a short-term focus on performance to the detriment of longer-term performance resulting in subordinates' feelings of increased tension, resentment, fear and mistrust, and deterioration in job satisfaction. On the other hand, the other studies reviewed above additionally identified the criteria used in determining extrinsic rewards, i.e. performance relative to budget targets vs. other criteria, as underpinning the effects of focus on short-term performance. Therefore the dimensions of PES apparent from the review of the literature are: the relative importance of accounting performance criteria; the relative attitude of supervisors' towards meeting accounting performance targets; and the criteria used in determining extrinsic rewards, i.e. the extent to which rewards are based on subjective criteria vs. objective (i.e. performance relative to targets) criteria .

From these dimensions of PES, two general approaches of operationalising PES emerge. The first approach using Hopwood's instrument measures PES as relative emphasis on meeting financial/accounting performance targets. Under this approach, PES as a categorical variable is measured as exclusive use of or rigid focus on accounting data (the BC style), combined use of accounting and non-accounting information (the PC style), and an exclusive use of non-accounting i.e. qualitative information (the NA style). As a continuous variable, PES is measured as high /low emphasis on budget targets, with high (low) budget emphasis related to

the BC (NA) style.[43] The second approach of operationalising PES hinge on the criteria and manner of determining extrinsic rewards. Under this approach, PES is measured as either the use of objective criteria (i.e. performance relative to budgets) vs. subjective criteria in determining rewards, or the extent to which rewards are formula vs. non-formula based. The use of objective criteria, and the formula based rewards, is generally seen as relating to high budget emphasis, i.e. the BC style. Conversely, the use of subjective criteria, and non-formula based rewards, is seen as relating to low budget emphasis, presumably the NA style (Govindarajan, 1984; Govindarajan and Gupta, 1985).

After Hopwood (1972) and Otley (1978), many of the cross-sectional studies using the RAPM approach do not provide enough evidence to indicate that this approach really tap into the short-term vs. long-term concerns experienced within the organisations studied. Consequently, it is unclear that the two separate approaches of operationalising evaluative style tightly correspond to the underlying issue educed by Hopwood (1972). First, PES operationalised solely as the relative emphasis on meeting budget/accounting performance targets, i.e. high vs. low emphasis on accounting performance measures, may not explicitly account for the underpinning effects of the way rewards are determined. Also, PES operationalised solely as the method of determining rewards, i.e. objective/formula based vs. subjective/non-formula based, does not really capture the manner in which performance is evaluated. Most formula based rewards tend to be bonuses while organisations use other forms of incentives even more like promotions, salary increases, and job assignments. Moreover in different organisational settings, it is not clear that either approach captures well the underlying issue educed by Hopwood, i.e. the tension between focus on short-term vs. long-term performance. For instance, objective performance criteria may be employed but subjectively weighted when determining rewards, while subjective performance criteria could also be combined with formula-based rewards.

[43] In some studies using the high/low budget emphasis categorisation, it is unclear whether low budget emphasis relates to Hopwood's NA style or his PC style.

Moreover, most of the studies after Hopwood (1972), to a large extent, equated budgetary control with control based on financial/accounting information. No explicit conceptual definition of accounting information/performance measure is provided though generally operationalised as financial targets. Harrison (1993, p.319) provided the first formal definition of accounting performance measures (i.e. the accounting information used for performance evaluation) as "those performance criteria which are quantified in accounting and financial terms, and which are prespecified as budget targets." Essentially this definition equated accounting information with quantitative financial information and delineated other quantitative non-financial information from the realm of accounting performance measures. The shortcoming of this definition, and thus of the studies that operationalise budgetary information as essentially financial accounting information, is that budgets do not contain only targets of a financial nature. This point was recognised by earlier studies; for instance, in defining the scope of his study, Hofstede (1968, pp.15 & 26) states that:

> budgets are based on standards, both financial and pre-financial, i.e. technical: quantities, hours, percentages, quality levels. Standards are the bricks the budget structure is built from. So these standards had to be included in the investigation. ...some of this (detailed budgetary information) consists of either standard or historical data expressed in money, but much of it is technical, pre-financial information; efficiency standards expressed in weights, numbers, hours, reject percentages, efficiency ratios etc. ...I considered as a standard everything expressed in numbers which (quoting Stedry, 1960) "carries with it the connotation of a 'goal' or 'desired attainment'" (and)...although this has no basis in accounting theory, people in the plants often considered technical and budget standards to be quite different things.

Therefore budgetary targets include both financial and quantitative non-financial information. Thus the uncritical use of Hopwood's instrument may have confounded the effects on behaviour of the 'target' nature of information with the 'accounting' nature of information (Hartmann, 2001). And if budget targets do not equate to only financial targets, we do not

know much about the difference in effects, if any, between financial and quantitative non-financial targets.

5.3 PES Measurement Instrument

The 3 dimensions of evaluative style identified above cover the conceptual domain of PES, at least from the perspective offered by previous studies. In addition, however, this study proposes the broadening of budgets/accounting performance targets to generally quantitative targets to make the PES concept more robust. Thus, this study defines the dimensions of the PES concept as:

A. The relative importance of quantitative vs. non-quantitative performance criteria in performance evaluation; i.e. the performance criteria dimension. It is proposed that this be measured by the following three items:

1. My appraiser mainly uses quantitative information (e.g. financial, time and deadline targets) in evaluating my performance (which is survey item number – q3a)
2. My appraiser uses qualitative and quantitative information in equal proportions in evaluating my performance (i.e. survey item number – q3c)
3. My appraiser mainly uses qualitative information (e.g. quality of work done) in evaluating my performance (i.e. survey item number – q3b)

B. Supervisors' attitude towards (negative) deviations from meeting quantitative performance targets (i.e. high intolerance of variances from targets vs. concern for overall performance); i.e. the supervisor's attitude dimension. It is proposed that this be measured by the following three items:

4. My appraiser expects me to meet my goals and is unwilling to accept explanations for any shortfalls in meeting them (i.e. survey item number – q3f)
5. Normally my appraiser expects me to meet my goals but accepts good reasons for any shortfalls in performance (i.e. survey item number – q3e)
6. My appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term (i.e. survey item number – q3d)

C. The relative importance of performance against quantitative targets vs. non-quantitative performance criteria in the determination of extrinsic rewards (i.e. use of formula or objective target related performance criteria vs. the use of subjective judgement based on subjective performance criteria). It is proposed that this be measured by the following three items:

7. My rewards depend mainly on information other than how well I meet my specific goals (i.e. survey item number – q3g)
8. My rewards depend mainly on how well I meet my goals (i.e. survey item number – q3h)
9. My rewards depend equally on how well I meet my goals and on non-goal related information (i.e. survey item number – q3i)

All nine items are scored on a 1 - 7 point scale anchored as strongly disagree to strongly agree as shown in Appendix 3, page 279 under item number 3. However, the order of the survey items is different from that presented here as indicated by the survey item numbers in brackets. These measures construe PES as a continuous variable and attempts to capture the mid and end points of the scale for each dimension.

The appropriate means for assessing the validity of these measures depend on the assumed relationship between the PES construct(s), the measures, and the errors of measurement. The traditional means of assessing validity such Cronbach alpha and factor analysis is not appropriate in all situations. To assess the relationship between the PES construct and the measures, we need to determine whether these items are 'effect indicators' of PES, i.e. does PES cause these items, or if they are 'causal indicators' i.e. do these items determine PES (Bollen, 1989; Bollen and Lennox, 1991; Law et al., 1998; Law and Wong, 1999). If a change in PES requires a simultaneous change in all the items then the items are effect indicators meaning PES is a latent construct whose effects are captured by the variations in the items. On the other hand, if a change in one item causes a change in PES, with all other items remaining constant, then the items are causal indicators and PES a non-latent construct that is determined

by the measures. A consequence of this consideration is that while internal consistency and reliability measures like Cronbach alpha is appropriate for assessing the validity of effects indicators, low internal consistency does not invalidate causal indicators (Bollen and Lennox, 1991; Jarvis et al., 2003; Mackenzie et al., 2005). Assessing the validity of causal indicators require examining other indicators that are the effects of the non-latent construct (Bollen and Lennox, 1991). Another implication of this consideration is that a non-latent construct requires all the concepts that form it, as eliminating one indicator (i.e. dimension) may change the meaning of the construct (Jarvis et al., 2003).

Evaluation of the PES dimensions using the criteria above indicates that the 'performance criteria' and 'supervisor's attitude' dimension measures are causal indicators rather than effect indicators of PES. In Law et al. (1998) terminology, these dimensions exist at the same level as the PES construct, i.e. PES is defined as a combination of these dimensions. Thus a change in one dimension would cause, i.e. implies, a change in PES. On the other hand, the rewards criteria dimension measures are effect indicators because, in Law et al. (1998) terms, the PES construct exist at a deeper level than this dimension, i.e. this dimension is a manifestation of the PES construct. PES is therefore conceptualised as a continuum of styles with a high target focused (TF) PES style at one end (similar to Hopwood's BC style), a broad based PES (akin to Hopwood's PC style) at the mid-point, and a low or non-target focused style (akin to Hopwood's NA style) at the other end. A high TF PES, characterised as the combination of use of mainly quantitative performance criteria and high intolerance for variance from targets, would result in rewards based mainly on performance relative to targets rather than rewards based on other criteria (i.e. measurement items 1 and 4 mainly result in item 7). Equally the low TF PES, characterised as use of mainly qualitative performance criteria combined with concern for overall performance rather than performance against targets, would result in rewards based mainly on criteria other than performance relative to targets (i.e. items 3 and 6 mainly result in item 8). The broad based PES, characterised by equivalent use of quantitative and qualitative performance criteria combined with low intolerance for variances from targets,

would result in rewards that are based on both target and non-target related performance (i.e. items 2 and 5 mainly result in item 9).[44]

5.4 Validation of PES Measurement Instrument - Using SEM

Structural equation modelling (SEM) technique was employed to assess the validity of the PES measure given unsuitability of the traditional factor analysis and Cronbach alpha. SEM is a generalization of familiar techniques like multiple regression, path analysis, and confirmatory factor analysis. Though SEM may be viewed simply as a combination of path analysis and factor analysis, it may be used as a more powerful alternative to these techniques. It allows the modelling of correlated independents, measurement error, correlated error terms, and multiple latent independents each measured by multiple indicators as well as multiple latent dependents also measured by multiple indicators. It also allows for more flexible assumptions, particularly allowing interpretation even in the face of multicollinearity, and use of confirmatory factor analysis to reduce measurement error by having multiple indicators per latent variable. SEM is also more attractive because of the desirability of testing models overall rather than testing individual coefficients, i.e. examining the consistency of actual data with the hypothesized relationships between all of the latent and non-latent factors, and the observed measured variables.

In specifying a SEM model, some of the factor loadings are typically constrained or fixed to be zero, i.e. some items are constrained not to load on a factor, in a confirmatory factor analysis fashion (Byrne, 2001). It is also necessary to fix one loading for each factor to the value '1' in order to give the latent factor an interpretable scale, or alternatively fix the variance of all factors to one and then estimate all factor loadings. Normally, the former is

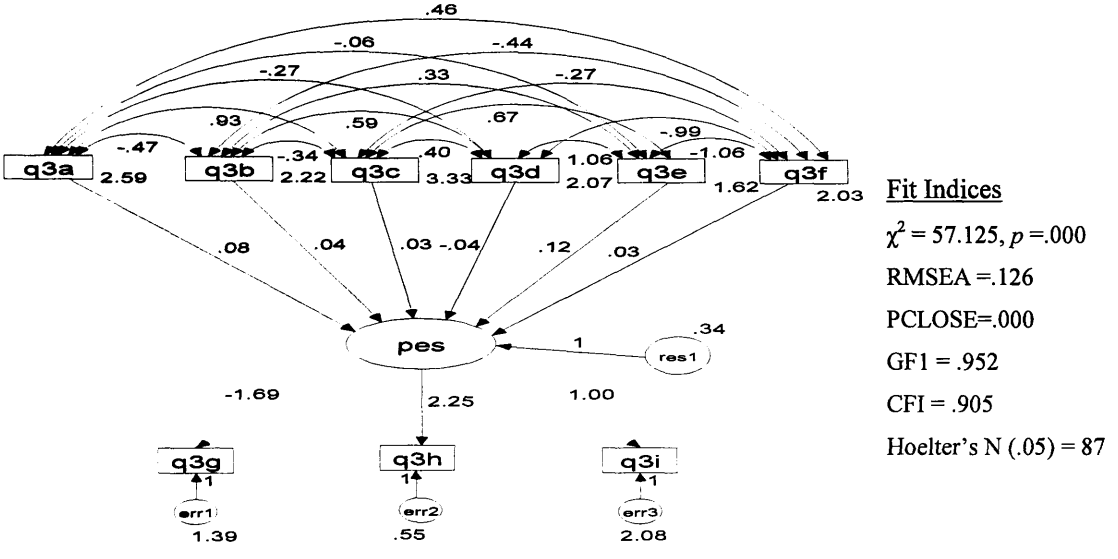
[44] It is acknowledged here that the distinction between items 6 (*'my appraiser is more concerned with my overall performance than with not meeting specific goals'*) and 5 (*'normally my appraiser expects me to meet my goals but accepts good reasons for any shortfalls in performance'*) is not so sharp. Both items are probably interchangeable in meaning. This is a conceptual issue reflecting the blurred line in differentiating supervisor attitude to target deviations between the broad based and the low TF styles. Same situation applies with Hopwood's PC and NA styles.

done rather than the latter, thus factor variances are usually estimated. To assess the consistency of data with the hypothesised model, the chi-square test is usually employed. However, this test is sensitive to sample size and may to lead to a Type II (Type I) error with small (large) sample sizes. Consequently, several fit indices with recommended cut-off points are often used by researchers in assessing model fit. The popular fit indices in use that is least affected by sample size include the root mean square error of approximation (RMSEA) and the Bentler comparative fit index (CFI) (Fan et al., 1999). The CFI compares the hypothesised model fit with a null (or independent) model, and the value ranges from 0 – 1. By convention CFI >.90 is generally considered to indicate a well-fitting model (Bentler, 1992), though Hu and Bentler (1999) advise a revised cut-off value close to .95. On the other hand, RMSEA does not require comparison with a null model but measures average lack of fit (i.e. discrepancy) per degree of freedom, and has a known distribution related to the non-central chi-square distribution. Browne and Cudeck (1993) advice that RMSEA values ≤.05 indicate a close fit of the model to the data while values ≤ 0.08 indicate a mediocre fit, and values ≥0.1 indicate a poor fit. Hu and Bentler (1999) also suggest a RMSEA <=.06 as a cut-off for a good model fit. In addition, other researchers call for the use of RMSEA confidence intervals to assess the precision of the RMSEA estimates (Steiger & Steiger, 1990).

In the SEM methodology literature, the recommendation for properly specifying causal-indicator models is to relate the construct to its effects - in addition to its causal indicators (Bollen and Lennox, 1991; Jarvis et al., 2003). Thus, PES is modelled as a non-latent construct with 6 causal indicators (i.e. items 1 – 6 of the measurement instrument above) and 3 effect indicators (i.e. items 7 – 9). The result of this SEM model is depicted in Figure 5.1 below. The SEM is estimated using Maximum Likelihood extraction method (the Asymptotically Distribution Free method gives slightly improved indices). As can be seen from the result, the chi-squared goodness of fit (χ^2 = 57.125, p =.000), the root mean square

error of approximation (RMSEA =.126, *pclose* = .000), and the comparative fit index (CFI =.905).[45] These results all indicate that the model does not fit the data well.

Figure 5.1: PES - MODEL 1

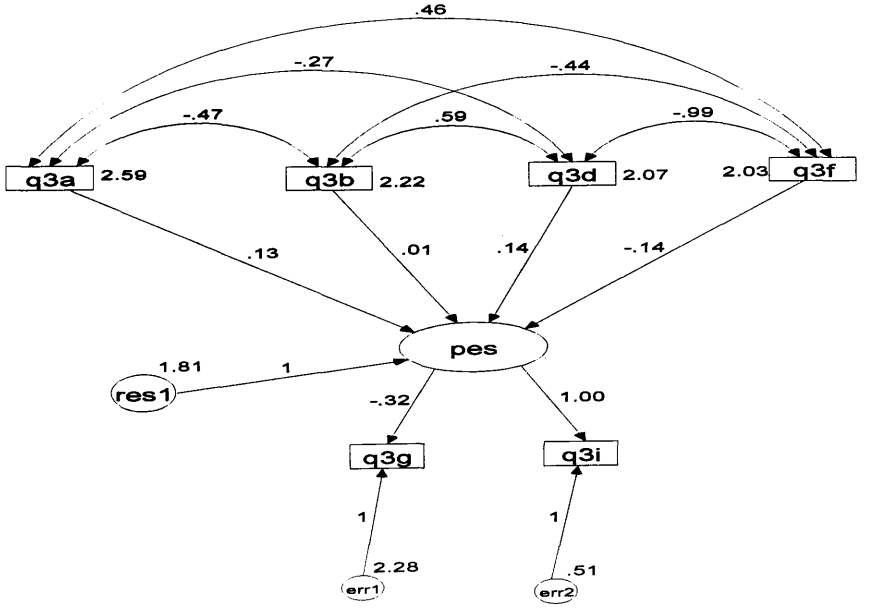


Given the ill-fit of this initial PES measurement, it was modified by dropping some redundant measures but still consistent with our theory. Since PES is conceptualised as a continuum, it is more efficient to measure it by reference to the end-points of the scale rather than by reference to both end-points as well as the mid-point. This is in line with most of the reviewed literature which measure PES by reference to the end-points of the scale, i.e. high/low budget emphasis. Thus, items 2 (i.e. q3c) and 5 (i.e. q3e) of the instrument were dropped from the causal indicators. Nonetheless, the remaining causal indicators appropriately relate to the underlying issue identified by Hopwood in his original study. And between the freely estimated effects indicators, item 7 (i.e. q3h) was dropped leaving only items 9 (i.e. q3i) and 8 (q3g). Dropping item 7 (q3h) is in line with Govindarajan (1984) who measured PES as the extent to which

[45] The 90% confidence interval for RMSEA: LO 90 =.095; HI 90 =.160. The Pclose gives a test of close fit i.e. it tests the null hypothesis that RMSEA is no greater than .05)

rewards are based on subjective judgement i.e. item 8 (q3g). In any case, using item 7 rather than item 8 does not yeild a better model fit. The resulting model and the results of estimating it is presented in Figure 5.2. The fit statistics (χ^2 = 1.939 p =.585; RMSEA =.000, *pclose* =.770; CFI =1.000) indicate a high consistency between data and the new hypothesised PES measurement model. The results of this 2nd PES measurement model show it has vastly superior model fit compared to the first model, and the regression weights (unstandardized) are also improved.[46] Reverse coding items 3 (q3b) and 6 (q3d), or items 1 (q3a) and 4 (q3f) to reflect PES as continuum does not change the model's fit statistics, what changes are the sign of their covariance with other items and the sign of their regression weights. The regression weights of all the causal indicators are significantly different from zero except for that of item 3 (q3b). However, the regression weight of the freely estimated effect indicator is not significant. In conclusion, the chi-square overall model fit test and the other fit indices indicate that this PES measurement model fits the data well and thus these indicators can be considered as reliable measures of PES, consistent with our theory.

Figure 5.2: PES - MODEL 2



Fit Indices

χ^2 =1.939 , p =.585

RMSEA =.000

PCLOSE =.770

GFI =.997

CFI =1.000

Hoelter's N (.05) =947

[46] 90% confidence interval for RMSEA: LO 90 =.000, HI 90 =.093.

5.5 Operationalising PES

Having validated the measurement items in the formative PES measurement model in Figure 5.2, the next concern is how to combine these item scores to represent the PES construct for use in further analysis. This sort of formative measurement model is what Law et al. (1998, p. 745) classed as the aggregate (i.e. non-latent) model and they state that under such models "the multidimensional construct is formed as an algebraic composite of its dimensions.... (and) can be a linear or non-linear combinations of its dimensions, and the dimensions may also have unit weights or differential weights while forming the overall construct." In line with Law et al. (1998), it is therefore proposed that PES be scored as the sum of all its indicators. Given that the importance of each item is taken into account by respondents in scoring the measures, it is not necessary to use a weighted sum. However, to make the PES score conceptually consistent as a continuous construct of extent of focus on targets (i.e. short-term orientation), items 3, 6, and 8 are reverse coded.[47] And to maintain the scale range of 1 – 7, the aggregate score is divided by 6 (i.e. the number of items). This PES measure is referred to as Target-Focused style -1 (TF1) represented thus:

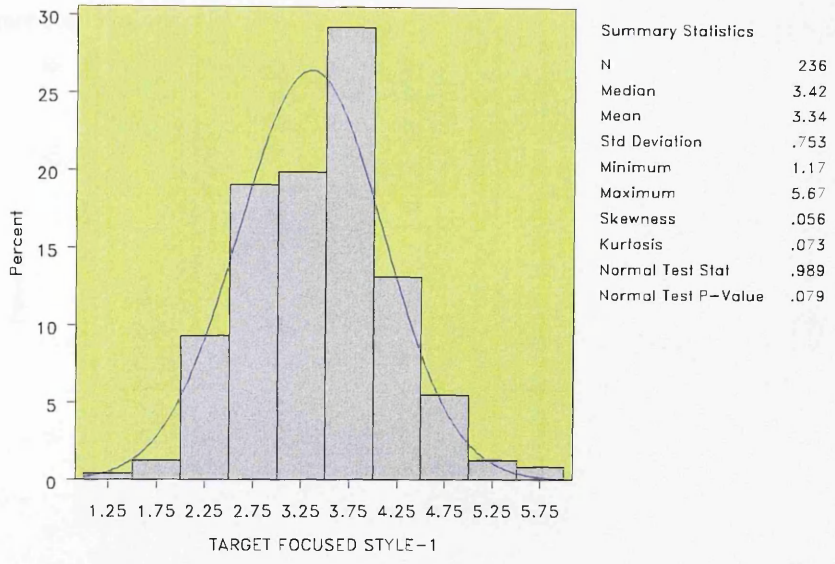
$$TF1 = [q3a + (8 - q3b) + (8 - q3d) + q3f + (8 - q3g) + q3i] \div 6.$$

TF1 is a more comprehensive PES measure that simultaneously incorporates the 3 main PES dimensions identified in the literature, while also maintaining focus on the central issue highlighted by Hopwood's original study. High scores for TF1 represent focus on short-term performance while low scores represent focus on long-term performance. A histogram of the distribution of this measure with summary statistics is provided in the Figure 5.3 below, and it shows that TF1 has values ranging from 1.17 to 5.87 (theoretical range is 1 – 7), with mean (median) of 3.34 (3.42). The skewness (.056), kurtosis (.073), and test of normality (z =.989,

[47] Item 3 (i.e. q3b) is –'my appraiser mainly uses qualitative information (e.g. quality of work done) in evaluating my performance'; item 6 (q3d) – 'my appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term'; and item 8 (q3g) – 'my rewards depend mainly on information other than how well I meet my specific goals'.

p-value= .079) statistics indicate that TF1 has a normal distribution, as can also be seen from the histogram.

Figure 5.3 Histogram & Summary Statistics of Target Focused 1 (TF1) PES Measure



In addition to the TF1 PES measure, two other PES measures are proposed for comparability of this study's analysis with previous studies, for parsimony, and for triangulation purposes. The first of these 2 additional PES measures is based on only items 6 and 4 of the PES instrument. [48] This measure may be considered a parsimonious version of TF1 which still captures the important dimensions of evaluative style as educed by Hopwood – at least within the case organisation, and. The use of just 2 measurement items also parallels Hopwood's empirical measurement of PES using only 2 items. This 2nd PES measure is referred to as Target-Focused style -2 (TF2), and is derived as the average of the 2 items scores after reverse coding item 6 represented thus:

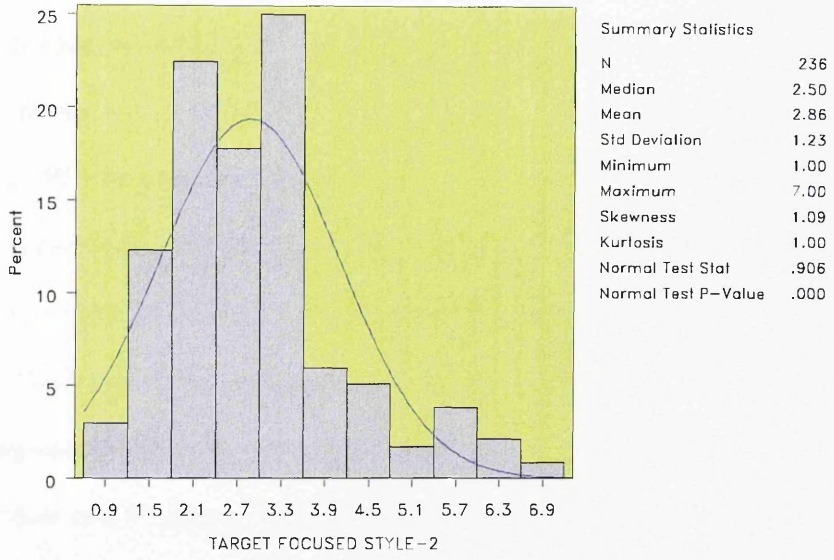
$$TF2 = [q3f + (8 - q3d)] \div 2$$

This scoring construes PES as a continuum, and also gives a consistent scale that represents focus on the short-term for high scores and focus on the longer-term for low scores. A histogram of the distribution of this measure with summary statistics is provided in the figure

[48] Item 6 (i.e. q3d) is 'my appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term'; and item 4 (q3f) is 'my appraiser expects me to meet my goals and is unwilling to accept explanations for any shortfalls in meeting them.'

5.4 below. Unlike TF1, the actual and theoretical range of TF2 is the same, i.e. 1 – 7, but it is positively skewed with more observations scoring low values resulting in low mean (median) values of 2.86 (2.5).

Figure 5.4 Histogram & Summary Statistics of Target Focused 2 (TF2) PES Measure



The 2nd additional PES measure is based on adaptation of Hopwood's original instrument. The adapted instrument asked respondents to indicate the importance of each of the criteria listed below in their superiors' evaluation of their performance as shown in Appendix 3 page 281, under item 5. The criteria scored on a 1 – 7 scale (anchored by 1 = not at all important, to 7 = very important) are:

a. How well I communicate and build relationships with colleagues and clients
b. How well I get along with my appraiser
c. How well I met my goals and deadline targets
d. The quality of my work
e. My actions that produce long-run effectiveness rather than short-run results
f. How much effort my appraiser perceives I put into the job
g. How long I have been in my current position

Previous studies that employed similar measures as these used different scoring methods in terms of what items were used and how these were combined (see Otley and Fakiolas, 2000

for a detailed discussion). Using the rating scores from only items *a* (i.e. q5a), *c* (q5c), and *d* (q5d) from this measure, a 3rd PES measure is proposed which, consistent with the first 2 measures, construes PES as a continuum. This 3rd PES measure is referred to as Target-Focused style - Hopwood (TFH) and is derived as:

$$TFH = (q5c \times 2) \div (q5a + q5d)$$

TFH is an attempt to mirror Hopwood's 2 item based PES measure, but using the absolute importance rating scores rather than the rank scores. Again, TFH is consistent with the dimension of PES he depicted, i.e. the importance of budget target achievement relative to other performance criteria reflecting a short vs. long-term focus and essentially measured by two items. The equivalents of these two Hopwood's items used by subsequent studies to his study are: '*how well I met my goals and deadline targets*' i.e. q5c, and '*my actions that produce long-run effectiveness rather than short-run results*' i.e. q5e. However, in this study items q5a '*how well I communicate and build relationships with colleagues and clients*', and q5d '*the quality of my work*' is used in constructing the TFH measure because both items represented more concrete long-term dimensions of performance in the case organisation than did the general question measuring this (i.e. item q5e). This is also reflected in the survey by the frequency of importance rankings accorded each item as presented in Table 5-1 below. Respondents were asked in the survey to rank the importance of each criteria in their performance evaluation from 1 – most important to 7 – least important.[49]

Table 5-1 show that more respondents ranked item q5d '1', i.e. as the most important criteria in their supervisors evaluation of their performance (frequency = 41.53%, mean importance rank = 2.35). This is followed by q5a (frequency = 24.15%, mean importance rank = 2.91), then q5c (frequency = 17.37%, mean importance rank = 3.01), before q5e (frequency 5.08%, mean importance rank = 4.52). Even the respondents themselves believed these 3 criteria should be the most important as reflected in the mean ranks by respondents – 1.79 for q5d, followed by 2.74 for q5c and 2.81 for q5a.

[49] See Appendix 3, page 258 for a screen shot of the survey items.

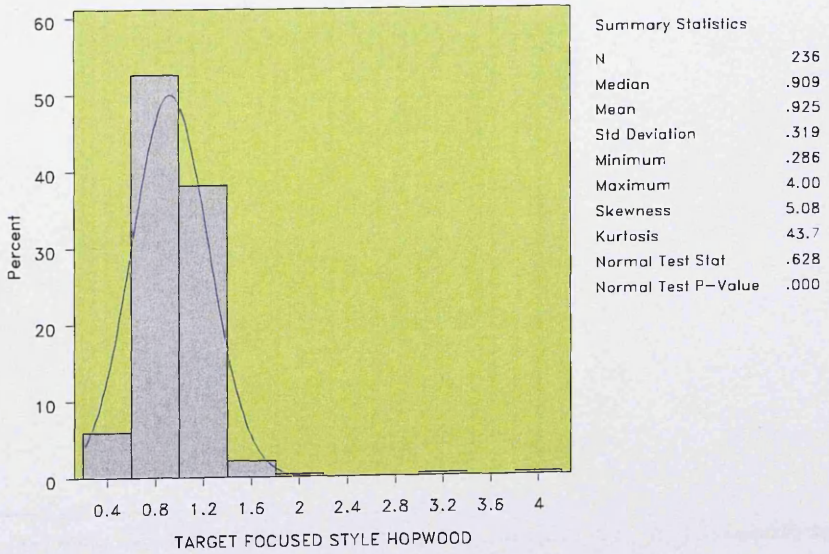
Table 5-1 Frequency & Mean of Importance Rankings of Evaluative Criteria

	[A] Frequency of Importance Rankings: (Rankings: 1 = 'most important' to 7 = 'least important')							Mean of Criteria Importance Rankings			
Criteria	1	2	3	4	5	6	7	[A]Mean	S.D	[B]Mean	S.D
q5d	**41.53**	**25**	**12.71**	9.74	5.51	2.12	**2.12**	2.35	1.66	1.79	1.25
q5a	**24.15**	**22.88**	**19.5**	**17.37**	8.47	4.66	1.7	2.91	1.66	2.81	1.46
q5c	**17.37**	**25.43**	**25.42**	13.56	10.59	5.09	1.69	3.01	1.57	2.74	1.32
q5f	4.66	11.87	16.1	**20.76**	**25**	**18.22**	1.7	4.2	1.57	4.86	1.27
q5e	5.08	8.06	11.44	**21.61**	**24.57**	**19.92**	7.2	4.52	1.64	3.76	1.35
q5b	3.81	5.51	7.21	11.86	**16.1**	**31.36**	**19.91**	5.28	1.75	6.17	1.4
q5g	1.69	2.12	5.51	2.54	8.48	15.68	**58.47**	6.25	1.53	6.19	1.23

[A] Mean of how important respondents believed their supervisors rank the criteria.
[B] Mean of how important respondents believe the criteria should be ranked

Thus in the context of the case organisation the TFH PES measure, as constituted here, is conceptually equivalent to the broad dimensions of short-term vs. long-term concerns by which Hopwood (1972) categorised evaluative style. A histogram of the distribution of TFH with the summary statistics is presented in Figure 5.5 below. The statistics show values for this construct range from .288 to 4 (theoretical range is 1 – 5) and mean (median) of .925 (.909). The histogram shows 3 extreme scores relating to 3 different observations in the data viz.; 2, 3 and 4. Deleting these observations or replacing them with median values only reduces the mean and substantially the skew of distribution but it still remains non-normal, as such leaving the observations may not impact on results of data analysis using this construct than otherwise.

Figure 5.5 Histogram & Summary Statistics: Target Focused Style - Hopwood



In summary, 3 measures of TF PES is used in this study – TF1, TF2, and TFH.[50] TF1 is the prime PES measure proposed in this study comprising the average score from 6 items. This measure of PES is based on the 3 main dimensions of PES constituting its conceptual domain as synthesized from the review of previous studies, mostly empirical management accounting research studies. On the other hand, TF2 is based on only 2 of the items used in TF1, and as such could be regarded as a more parsimonious version of TF1. However, it still captures the tension between focus on short-term vs. long-term performance as educed by Hopwood (1972). Also, TFH is based on 2 measurement items, but different from those used for TF1 and TF2. The items come from measures adapted from Hopwood's evaluative style measurement instrument. Therefore both TF2 and TFH measures, particularly TFH, provide PES measures that are comparable to those used by previous studies, and also provide a means of triangulating the results from the data analysis using the prime PES measure, i.e. TF1.

[50] In the rest of the study, 'TF' and 'TF PES' would be used generally to denote Target Focused Performance Evaluative Style encompassing the three specific measures i.e. TF1, TF2, and TFH

Chapter 6 Data Analysis/Hypothesis Testing

This chapter presents results of the data analysis and hypothesis testing. The first section provides a description of the survey data in terms of the chronology of events, demographic information, and analysis of the data for response bias. The second section provides description of how the variables were constructed, as well as the validation of the measures to assure that the instruments consistently measured the constructs intended to be measured. In the third section, a brief overview of the statistical procedures used to test the hypothesis proposed in Chapter 3 is provided, then followed by the presentation of the hypothesis test results in the fourth section.

6.1 Response Rate & Demographic information

As earlier mentioned in Section 4.1, data were collected via a web survey of a large professional accounting services firm referred to in this study as ABC LLP. The survey was conducted over a 3 week period from the 25th of August to the 16th of September 2005. The timing of the survey in August when most people traditionally took their vacation was not ideal and was likely to affect participation in the survey. However, this was the best opportunity for the survey to be implemented in ABC LLP for several reasons. First, the firm was planning to conduct its own survey later in the year and did not want this study's survey to affect responses to their own survey. They expressed great concern that this survey be conducted in time to give some gap between it and the implementation of their own survey. Secondly, a later date would have involved the last and first quarters of the year which were traditionally the busiest part of the year for ABC LLP, and thus not an ideal time to conduct the survey. Finally, given time and other resource constraints for this study the survey could not be postponed for a more ideal time in the following year. A chronology of events and response rates to the survey is shown in Panel A of Table 6-1.

A link to the web survey was sent out in email invitations to ABC LLP's staff in the Midlands region, excluding support staff and Partners. The first set of email invitations were sent out on the 25th of August 2005 to staff in one office, while the second set of email invitations were sent out roughly a week later on the 31st of August to staff in the rest of the Midlands offices. The email invitations were sent out to an estimated 1,261 ABC staff, and the total response rate was 25% (i.e. 320 responses). After the first invitation to about 75 people, 16% (i.e. 12 people) responded before the second invitation, out of which only 9% were usable. After the second invitation was sent out to the rest of the potential participants, an additional 210 people responded representing 17% of all potential participants, but only 13% were usable. Four days before the survey was closed, a reminder email was sent to all participants and an additional 98 responses were received bringing the total response rate to 25%. However, only 236 responses in total, i.e. 19%, were usable.

Table 6-1 Survey Time Line & Response Rates

Panel A: Response rates					
Event	Date of Event	Response before Next event	Usable response	Total Usable Response	Total Response rate
1st email invitation to staff in Milton Keynes (about 75)	25th August	12	7	7	16%
1st email invitation to rest of staff in the Midlands region	31st August	210	158	165	17%
Reminder email sent to all locations	12th September	98	71	236	25%

Panel B: ***Means T-test of Differences***					
Variable	Respondents	N	Mean	Difference	t Value
Effort	Early	165	5.41		
	Late	71	5.69	-.284	-2.06*

* $p < .05$ *(2-tailed).*

Unusable responses resulted from incomplete survey responses. This further provides justification for the reduced length of the questionnaire. As described in Section 4.2.7, ABC LLP wanted the original questionnaire length reduced and even then a quarter of the people who started to respond to the survey did not complete it. This may be an indication of their busy work schedule. It may also be an indication that the survey was a bit tedious for them

and had it been longer as originally intended the response rate might have been even smaller. The initial judgement on the questionnaire length was probably wrong, and the firm was probably right in getting the survey length reduced. The overall response rate of 25% (19% usable) is reasonable considering the run of response rates in management accounting research, and the time of year the survey was conducted, i.e. late August/early September when people were on holidays etc. In addition, response rates to internal surveys conducted by the organisation were generally between 20 – 30%, and the firm considered the 25% response rate as reasonable and within their expectations.

Given the significant number of responses received after the reminder, a t-test was conducted to identify any significant differences between the late and early respondents mean scores for each of the 31 variables covered in the survey. The only significant difference in mean scores is shown in Table 6-1 Panel B. This shows that late respondents indicated putting more effort into their jobs compared to early respondents (significant at the 5% level), and this perhaps is reflected by their late response to the survey. Otherwise no other significant differences between early and late respondents were found.[51] Thus the significant difference noted in the effort variable may well be due to chance given the number of variables examined.

Demographic Information

Demographic information of the respondents is shown in Table 6-2 below. The table shows that a greater percentage of respondents are male, i.e. 56.8% compared to 43.2% female respondents. From ABC LLP 2005 and 2006 annual reports, women made up 51% and 50% of ABC LLP global client service and practice support staff. The ratio in this survey looks reasonably representative of gender composition in the firm considering that the survey only covered one UK region. Otherwise, it is difficult to interpret the gender statistic without additional information as to the gender composition in the entire population of ABC staff

[51] Mean scores for another variable – relative emphasis on financial goals (REFG) - was marginally different (*t-value* = 1.82, $p = .071$) between late and early respondents

invited to the survey. Nonetheless, the number of responses from both genders appears proportionate enough to allow comparisons between the groups if needed. Table 6-2 also show the average age of all respondents to be 34 years with 19.9% of respondents less than 25 years, 64.9% between 26 – 40 years, and 15.2% over 40 years old. The age distribution looks as would be expected in this type of organisation.

Table 6-2 Summary of Key Demographic Information

(N = 236) *Variable*	*Mean*	*Median*	*Std. Dev*
Age	34.25	35.00	7.378
Employment Tenure	6.01	5.00	4.059
Grade Tenure	3.07	2.00	2.038
Time of Last Performance Review	3.61	3.00	2.003

Line of Service	*Frequency*	*Percent*
Assurance (Audit)	96	40.7
Advisory (Consulting)	46	19.5
Tax	94	39.8

Gender	*Frequency*	*Percent*
Female	102	43.2
Male	134	56.8
Total	236	100.0

Age Category	*Frequency*	*Percent*
under 21 yrs	3	1.3
21 - 25 yrs	44	18.6
26 - 30 yrs	61	25.9
31 - 35 yrs	57	24.2
36 - 40 yrs	35	14.8
41 - 45 yrs	22	9.3
46 - 50 yrs	8	3.4
over 50 yrs	6	2.5

Employment Tenure	*Frequency*	*Percent*
under 2 yrs	60	25.4
2 - 4 yrs	46	19.5
4 - 6 yrs	42	17.8
6 - 8 yrs	29	12.3
8 - 10 yrs	21	8.9
10 - 12 yrs	13	5.5
12 - 14 yrs	8	3.4
over 14 yrs	17	7.2

Grade Tenure	*Frequency*	*Percent*
under 2 yrs	123	52.1
2 - 3 yrs	35	14.8
3 - 4 yrs	28	11.9
4 - 5 yrs	20	8.5
5 - 6 yrs	11	4.7
6 - 7 yrs	9	3.8
7 - 8 yrs	2	0.8
over 8 yrs	8	3.4

Time Of Last Performance Review	*Frequency*	*Percent*
None yet	8	3.4
0 - 2 months	56	23.7
2 - 3 months	93	39.4
3 - 5 months	60	25.4
5 - 7 months	13	5.5
7 - 9 months	2	0.8
9 - 12 months	1	0.4
over 12 months	3	1.3

Note: The top limit of each category in the scales for *Age*, *Employment Tenure*, *Grade Tenure*, and *Time of Last Performance Review* was used as the point estimates in coding scores for each variable; for e.g. the 21 – 25 years age bracket, was coded as 25 years.

Table 6-2 also shows that respondents have on average been with the organisation (employment tenure) for 6 years with 25.4% under 2 years with the firm, 19.5% 2 - 4 years, 17.8% 4 – 6 years, and 37.3% over 6 years. The distribution of the employment tenure is as would be expected in an accounting firm where majority of the people are on training

contracts of not more than 3 years, and where the culture tends to be either move up or move out. Similarly, the respondents have on average been in their current position in the organisational hierarchy (grade tenure) for 3 years, with 52.1% being in their current grade for less than 2 years, 26.7% 2 – 4 years, and 21.2% over 4 years. Again, the distribution of grade tenure seem as would be expected in this sort of organisation and concurs with the observation made about the employment culture in accounting firms. Thus the demographics of the respondents suggests that they are a fair representation of the organisation surveyed and typical of what might be expected in accounting firms in general.

The data was further analysed based on the demographic information to identify any potential demographic factor that should be controlled when testing the hypothesis. The data was split into three groups based on the median value of each demographic variable; i.e. age, employment tenure, grade tenure, and time of last review. Scores above the median formed one group, scores below the median formed another group, and scores at the median formed the third group. A t-test was then conducted to identify any significant differences in the criterion variables mean scores between the 3 groups for each demographic variable.[52] Also, differences in means for these criterion variables were compared between male and female respondents.

The result of the means t-test show significant differences in the MP mean scores (t = -2.165, *p-value* = .035) of respondents below the median grade tenure of 2 years (N =25, *mean* = 4.84; *std dev* =1.068) and those at the median grade tenure (N = 26, *mean = 5.38; std dev = .697*). This implies that respondents with grade tenure (**GT**) between 2 - 3 years performed better than those who had been at their grade level for less than 2 years. However, there were no significant differences in performance between managers above the median GT, i.e. over 3 years (N = 75, mean = 5.27, *std dev* = 1.223), and those below the median GT i.e. under 2

[52] The criterion variables are actual performance rating (AP); managerial performance –(MP); Effort (EFF); intention to turnover (IT); and quality threatening behaviour (QTB).

years. Also there were no differences between respondents above and those at the median GT. Furthermore GT show no significant correlation with MP (*rho* = .06, *p-value* = .54). Given these results, there is no strong reason to control for GT in subsequent analysis though the results hint that managers' performance improved with time at current grade but may then begin to decline if they stayed longer than 3 years at the same grade. The hint at a curvilinear relationship between performance and grade tenure is plausible and not unexpected. People generally get better at their jobs with time, i.e. performance improves with grade tenure; however, better performers get promoted and moved on while under-performers stay longer at the grade. It might also be that those who stay longer at a grade, for whatever reason, become disenchanted and de-motivated to put in a better performance. This is a potentially interesting question to explore in a longitudinal study, i.e. what are the reasons behind longer stay at a grade and what impact does this have on performance.

Comparison of means scores on the criterion variables between the genders showed a significant difference in effort (EFF) between the male and female groups (*t* = *-2.99*, *p-value* = .003). The results show that female respondents exert more effort in their work (*N* = 102, mean = 5.71, *std dev* = .929) compared to the male respondents (*N* = 134, *mean* = 5.33; *std dev* = .987). Correlation between the EFF and the gender variable (male =1, female =0) was also negative and significant (*rho* = -.167, *p-value* = .005). This difference might be attributable to the tendency of males to generally understate the effort they put into an activity. Nonetheless, this implies that gender should be controlled for in all analysis involving the EFF variable. There were no other significant differences in the cohort of responses to each criterion variable, and thus no need to control for other demographic variables when testing the hypotheses.

6.2 Validation of Variable Constructs

In Section 4.4 the survey instruments used to measure the constructs of interest were described in detail, and Chapter 5 was devoted to a detailed review of the concept, measurement and validation of the focal construct, i.e. target-focused (TF) PES, measures. This section provides a description of how the other variables used in the study were constructed as well as the validation of the measures to assure that the instrument consistently measure the constructs intended to be measured.

Measurement of the constructs is validated using structural equation modelling (SEM) based on confirmatory factor analysis (CFA). As earlier discussed in Section 5.4, the advantages of using SEM over traditional factor analysis technique for CFA are that firstly all the parameters, i.e. the factor loadings, variances and covariances, and the residual error variances and covariances of the observed variables can be modeled and estimated. Secondly, the fit of the measurement model can be assessed to test how well the hypothesized latent construct agrees with the data using the chi-square test and other fit indices. If the chi-square statistic is highly significant, the hypothesized model is rejected and the model could be modified to achieve a better fit. Model modification is usually guided by both the modification indices and theory, thus giving a better understanding of the construct. Moreover, the standardized regression weights (i.e. factor loadings) from a SEM analysis are comparable to the factor loadings derived using the traditional factor analysis techniques. The SEM statistical program AMOS 6 was used to estimate the CFA for all the constructs. In the subsequent sub-sections the results of the CFA using SEM is presented for the variables measured using more than one item.

6.2.1 Equity and Fairness Perception - EFP

EFP was measured using 5 items (see Table 4-3 for item details) scored on a 7 point scale with high scores indicating more EFP – i.e. perception of greater equity and fairness. The results of estimating the CFA model for EFP using SEM is given in Table 6-3. The model is depicted in Figures 6.1 and 6.2 below showing the unstandardized regression weights from the analysis. As previously explained in Section 5.4 it is necessary to fix one loading to the value one (1) in order to give the latent factor an interpretable scale. Thus the loading for item *q8e* was fixed to one as shown in Figure 6.1.[53] All the fit indices for the initial model (Figure 6.1) indicate that this model did not fit the data well ($\chi^2 = 65$, df = 5, $p < .001$; GFI = .89; TLI = .76; RMSEA = .226, *pclose* <.001).[54] Although Table 6-3 show the regression weights (i.e. factor loadings) to be significant and reasonably high, all above .61, the percentage of variance in the measurement items explained by the EFP factor is below 40% for 2 out of the 5 items. Altogether, the results suggest modifying the model to improve the model fit.

The modifications suggested by the modification indices produced by AMOS were not theoretically very meaningful and did not improve the model fit. Post hoc analysis of the model then involved re-examining the individual measurement items resulting in a decision to drop one item (*q8a*) from the scale on the grounds of possible redundancy. This item asked how equitable respondents perceived their rewards in general to be whereas items *q8b*, *q8c*, and *q8d* asked the same question but referred to specific forms of rewards operated in ABC LLP. Deletion of item *q8a* resulted in the second EFP model (Model 2) depicted in Figure 6.2 below.

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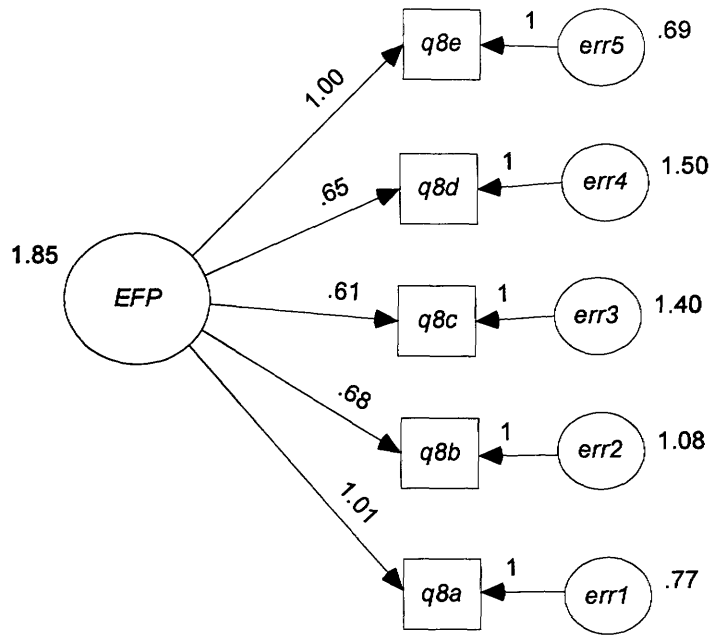
[53] Choice of which item loading is fixed to 1 is largely arbitrary, and the standardized regression weights as well as the variances is unaffected regardless of the item loading that is fixed. However, in this study the choice of the item loading fixed to 1 is based on the item that seem a prior to have the most face validity in measuring the construct.

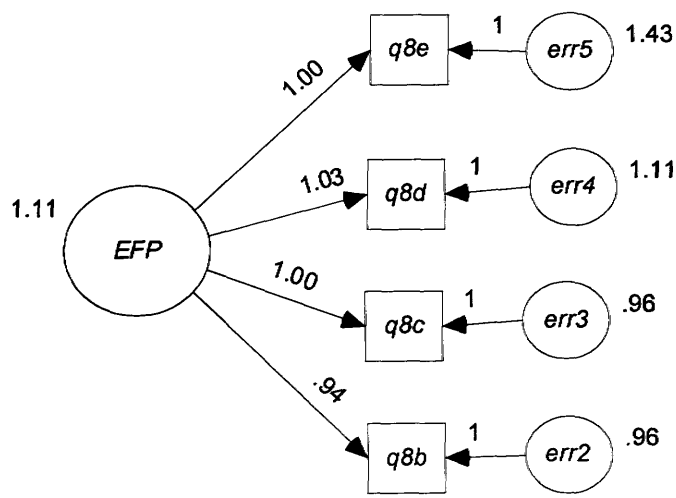
[54] RMSEA measures the discrepancy per degree of freedom (recommended cut off <= .06 but combined with the *pclose*); *pclose* examines the null hypothesis that RMSEA <= .05, i.e. it gives the probability of a close model fit. Hoelter's N (.05) gives the critical size the sample size must reach for the model to be accepted by chi square at the .05 significance level. The rule of thumb is a Hoelter's N > 200. GFI represents the percent of observed covariances explained by the covariances implied by the model – analogous to R^2 in multiple regression, but deals with error in reproducing the variance-covariance matrix rather than error variances. Recommended cut off GFI >= .90. TLI in brief measures the percentage of covariation in the data that can be reproduced by the specified model penalised for model complexity. TLI cut off by convention is >= .90

Figure 6.1 CFA Model - Equity & Fairness Perception - Model 1



Chi square = 65.009, df = 5, p = .000, Chi sq / df = 13.002.
GFI = .891. TLI = .757. NFI = .871 RMSEA = .226, pclose = .000
Hoelter's N .05 = 41.000

Figure 6.2 CFA Model - Equity & Fairness Perception – Model 2



Chi square = 5.484, df = 2, p = .064, Chi sq / df = 2.742.
GFI = .989. TLI = .961. NFI = .980 RMSEA = .086, pclose = .177
Hoelter's N .05 = 257.000

Results of estimating this second model show improved fit statistics and a better fit of the model to the data (χ^2 = 5.48, df = 2, p =.064; GFI = .99; TLI = .96; RMSEA = .086 *pclose* =

.177). Table 6-3 also show the regression weights in the model to be significant and higher, all above .93 (and .65 standardized). Also, the percentage of variance in each item (SMC) explained by the factor is above 50% except for one item with 44% variance explained. In addition, re-examination of Cronbach alpha for this scale shows only a slight decrease from .84 for the five items to .80 for the four items. Thus the four items reliably measure the EFP construct, and the average of the aggregate item scores is used to form the EFP construct.

Table 6-3 Maximum Likelihood Estimates: EFP Models in Figures 6.1 & 6.2

Model Parameter Estimates (N = 236)	*Model 1 (5 items)*			*Model 2 (4 items)*		
	Unstandardized (Standard error)	*Standardized*	*P*	*Unstandardized (Standard error)*	*Standardized*	*P*
q8a ← EFP	1.01 (.067)	.84	<.001	-	-	-
q8b ← EFP	.68 (.068)	.67	<.001	.94 (.109)	.71	<.001
q8c ← EFP	.61 (.072)	.57	<.001	1.00 (.121)	.73	<.001
q8d ← EFP	.66 (.074)	.59	<.001	1.03 (.122)	.72	<.001
q8e ← EFP	1.00	.85	na	1.00	.66	na
Variance						
EFP	1.85 (.243)		<.001	1.11 (.219)		<.001
err1 (error in q8a)	.78 (.116)		<.001	-		-
err2 (error in q8b)	1.08 (.118)		<.001	.96 (.123)		<.001
err3 (error in q8c)	1.40 (.144)		<.001	.97 (.128)		<.001
err4 (error in q8d)	1.50 (.154)		<.001	1.11 (.143)		<.001
err5 (error in q8e)	.69 (.110)		<.001	1.44 (.167)		<.001

Squared Multiple Correlations	q8a	q8b	q8c	q8d	q8e
Model 1	.71	.44	.33	.35	.73
Model 2	-	.51	.54	.52	.44

Note: Model 1 - $\chi^2(5) = 65$, $p < .001$; GFI = .89; TLI = .78; RMSEA = .226, *pclose* =.000
Model 2 - $\chi^2(2) = 5.48$, $p = .064$; GFI = .99; TLI = .96; RMSEA = .086, *pclose* =.177

6.2.2 Goal Commitment - GC

GC was measured using 3 items (see Table 4-4 for item details) scored on a 7 point scale with high scores indicating greater goal commitment. Results of estimating the CFA model for GC using SEM is presented in Table 6-4, and the model is depicted in Figure 6.3. The model is just-identified, i.e. there are as many unknown as there are known parameters, consequently

the chi square and other fit indices cannot be used to assess the fit of the model. However, Table 6-4 show the regression weights are all significant with standardized weights of .53 for *q10a*, .83 for *q10b*, and .59 for *q10d*. The GC factor explains 28% of variance (SMC) in item *q10a*, 34% variance in *q10d*, and 69% variance in *q10b*. On the whole, it is difficult to assess acceptability of the model based on the normal fit statistics, however it is accepted on the basis of face validity and significant parameter estimates given also a Cronbach alpha of .67. The average of the aggregate item scores is therefore used to form the GC construct.

Figure 6.3 CFA Model - Goal Commitment (GC)

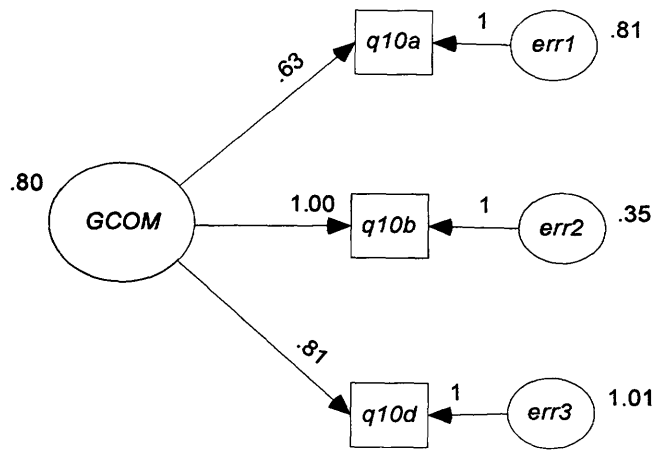


Table 6-4 Maximum Likelihood Estimates: GC Model in Figure 6.3

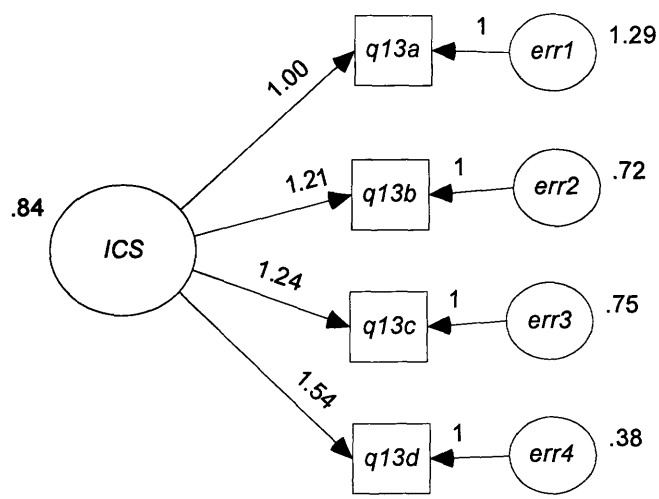
Model Parameter Estimates (N =236)	*Unstandardized (Standard Error)*	*Standardized*	*P*
q10a ← GC	.63 (.112)	.53	<.001
q10b ← GC	1.00	.83	na
q10d ← GC	.81 (.154)	.59	<.001
Variance			
in GC	.78 (.170)		<.001
err1 - error in q8a	.81 (.093)		<.001
err2 - error in q8b	.35 (.141)		.013
err3 - error in q8c	1.0 (.129)		<.001
Squared Multiple Correlations	q10d	q10a	q10b
Model 1	.34	.28	.69

Note: Fit statistics (χ^2, TLI, RMSEA etc) could not be computed because the model is just-identified

6.2.3 Interactive Use of Control Systems – ICS

ICS was measured using 4 items (see Table 4-8 for item details) scored on a 7 point scale with high scores indicating greater ICS. Results of estimating the CFA model for ICS using SEM is given in Table 6-5, and the model is depicted in Figure 6.4 below. The chi square test and the RMSEA index indicate that this model did not fit the data well (χ^2 = 8.2, df = 2, p =.017; RMSEA = .115, *pclose* = .068), although other fit indices were ok (e.g. GFI = .98; TLI = .96). Table 6-5 also show significant and reasonably high (standardized) regression weights ranging from .63 to .92. The proportion of variance in each measurement item (SMC) explained by the ICS factor is above 60% except for one item with 40% variance explained.

Figure 6.4 CFA Model - Interactive Use of Control Systems - Model 1



Chi square = 8.198, df = 2, p = .017, Chi sq / df = 4.099.
GFI = .982. TLI = .961. NFI = .983 RMSEA = .115, pclose = .068
Hoelter's N .05 = 172.000

Output of the AMOS modification indices indicated that modelling the error terms for items *q13a* and *q13b* (i.e. *err1* and *err2*) to co-vary would improve model fit with an estimated reduction in chi square of at least 6.898.[55] Allowing for such a correlation makes sense as responses to item *q13a* may likely be related to responses to *q13b* and both items were close

[55] Item q13a reads: 'information about my performance against agreed goals is the subject of face-to-face discussions with my appraiser whether or not my performance diverges from the agreed objectives/targets' Item q13b reads: 'information about my performance against agreed goals is used by my appraiser mainly to encourage me to continually seek information and ways of improving my work performance'

to each other in the survey. Figures 6.5 depicts the ICS model after making this change and the fit statistics indicate a considerable fit of the model to the data (χ^2 = .04, df = 1, p = .848; GFI = 1.0; TLI = 1.0; RMSEA = .00, *pclose* = .886). Nonetheless, there were little or no changes in the parameter estimates and percentage of variances explained as shown in Table 6-5. Cronbach alpha for this scale is .86. Altogether these four items reliably measure the ICS construct and the average of the aggregate item scores is used to form the construct.

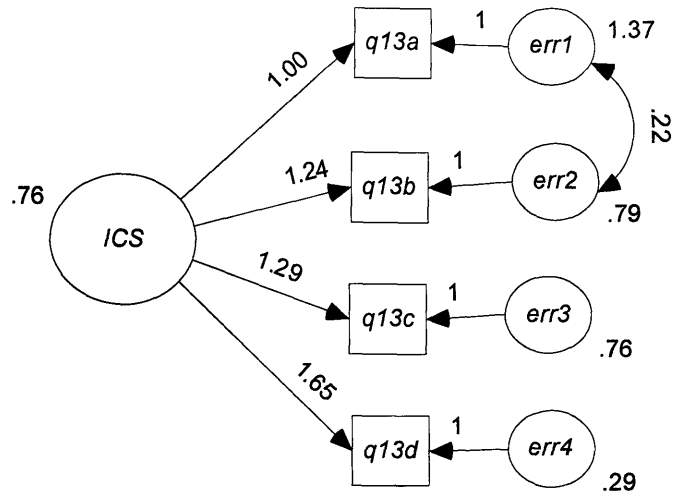
Table 6-5 Maximum Likelihood Estimates: ICS Models in Figures 6.4 & 6.5

Model Parameter Estimates (N = 236)	*Model 1*			*Model 2 (with correlated error terms)*		
	Unstandardized (Standard error)	*Standardized*	*P*	*Unstandardized (Standard error)*	*Standardized*	*P*
q13a ← ICS	1.00	.63	na	1.00	.60	na
q13b ← ICS	1.21 (.121)	.80	<.001	1.24 (.12)	.77	<.001
q13c ← ICS	1.24 (.126)	.80	<.001	1.29 (.138)	.79	<.001
q13d ← ICS	1.54 (.148)	.92	<.001	1.65 (.17)	.94	<.001
Covariances						
err1 ↔ err2				.225 (.083)		.007
Variance						
ICS	.84 (.65)		<.001	.76 (.159)		<.001
err1 (error in q13a)	1.29 (.130)		<.001	1.37 (.136)		<.001
err2 (error in q13b)	.72 (.087)		<.001	.79 (.092)		<.001
err3 (error in q13c)	.75 (.086)		<.001	.76 (.092)		<.001
err4 (error in q13d)	.38 (.087)		<.001	.29 (.10)		.004

Squared Multiple Correlations (SMC)	q13a	q13b	q13c	q13d
Model 1	.40	.63	.63	.84
Model 2	.34	.60	.63	.88

Note: Model 1 - $\chi^2(2) = 8.19$, p =.017; GFI = .98; TLI = .96; RMSEA = .115, *pclose* = .086; HN(.05) =172
Model 2 - $\chi^2(1) = 0.37$, p =.848; GFI = 1.0; TLI = 1.0; RMSEA = .000, *pclose* = .886; HN(.05) = 24542
[A]Standard Errors in Parentheses

Figure 6.5 CFA Model - Interactive Use of Control Systems - Model 2



Chi square = .037, df = 1, p = .848, Chi sq / df = .037.
GFI = 1.000. TLI = 1.012. NFI = 1.000 RMSEA = .000, pclose = .886
Hoelter's N .05 = 24542.000

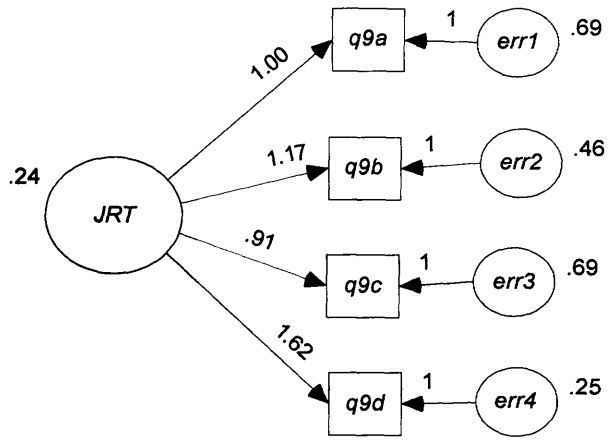
6.2.4 Job Related Tension – JRT

JRT was measured using 4 items (see Table 4-6 for item details) scored on a 7 point scale with high scores indicating greater JRT. Results of estimating the CFA model for JRT using SEM is given in Table 6-6, and the model is depicted in Figure 6.6 below. The chi square test, the RMSEA and TLI indices all indicate a poor fit of the model (χ^2 = 18.2, df = 2, p =.000; RMSEA = .186, *pclose* = .002; TLI =.74), although other fit indices (e.g. GFI = .97; NFI = .90) indicate a good fit. Results, in Table 6-6, also show significant (standardized) regression weights ranging from .47 to .85. The percentages of item variances (SMC) explained by the JRT factor is all above 40% except for item *q9a* with 26% and *q9c* with 22% variance explained.

The AMOS modification indices showed that allowing the error terms for items *q9a* and *q9c* to co-vary would improve model fit considerably, with an estimated reduction in chi square of at least 14.01 (other changes suggested were to predict item *q9a* by item *q9c*, and vice versa

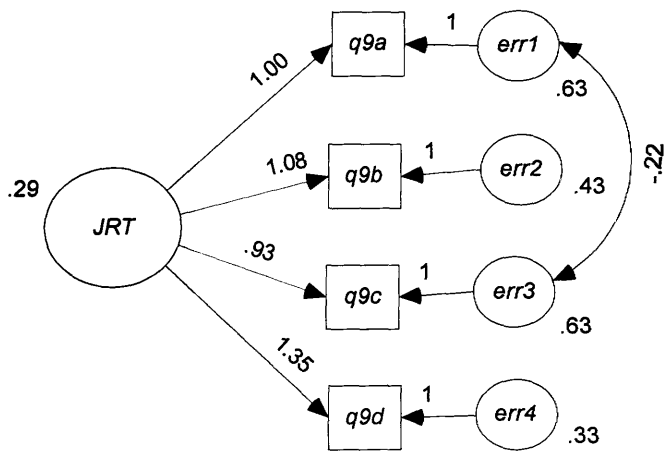
but with lower improvement to fit).[56] Again, it is reasonable to expect such a covariance between the items. Not being able to influence a superior's decisions and actions that affect one (item *q9c*) would be related to feelings of having too much workload (item *q9a*).

Figure 6.6 CFA Model – Job Relate Tension - Model 1



Chi square = 18.232, df = 2, p = .000, Chi sq / df = 9.116.
GFI = .966. TLI = .744. NFI = .907 RMSEA = .186, pclose = .002
Hoelter's N .05 = 78.000

Figure 6.7 CFA Model – Job Relate Tension - Model 2



Chi square = .127, df = 1, p = .722, Chi sq / df = .127.
GFI = 1.000. TLI = 1.028. NFI = .999 RMSEA = .000, pclose = .790
Hoelter's N .05 = 7124.000

[56] Question item asked respondents to indicate how often they were concerned with: *"Feeling that you have too heavy a workload, one that you find very difficult to finish during an ordinary working day"* (item *q9a*); and *"Feeling unable to influence your immediate superior's decisions and actions that affect you"* (item *q9c*).

After making this change depicted in Figure 6.7 above, the covariance of both items is -.22 (p<.001) and the fit statistics indicated a much closer fit of the model with the data (χ^2 = .127, df = 1, p = .722; GFI = 1.0; TLI = 1.0; RMSEA = .00, *pclose* = .790).[57] Table 6-6 also show the JRT factor now explains more than 50% variance in each item. Cronbach alpha for this scale is .69 thus the items reliably measure the JRT construct and the average of the aggregate item scores is used to form the construct.

Table 6-6 Maximum Likelihood Estimates: JRT Models in Figures 6.6 & 6.7

Model Parameter Estimates (N = 236)	*Model 1*			*Model 2 (with correlated error terms)*		
	Unstandardized (Standard error)	*Standardized*	*P*	*Unstandardized (Standard error)*	*Standardized*	*P*
q9a ← JRT	1.00	.51	na	1.00	.53	na
q9b ← JRT	1.17 (.189)	.65	<.001	1.08 (.162)	.79	<.001
q9c ← JRT	1.24 (.126)	.47	<.001	.93 (.18)	.56	<.001
q9d ← JRT	1.62 (.256)	.85	<.001	1.35 (.197)	.67	<.001
Covariances						
err1 ↔ err3				-.216 (.051)		<.001
Variance						
JRT	.24(.065)		<.001	.30 (.075)		<.001
err1 (error in q9a)	.69 (.071)		<.001	.63 (.071)		<.001
err2 (error in q9b)	.46 (.065)		<.001	.43 (.052)		<.001
err3 (error in q9c)	.69 (.070)		<.001	.64 (.070)		<.001
err4 (error in q9d)	.25 (.084)		.003	.33 (.060)		<.001

Squared Multiple Correlations (SMC)	q9a	q9b	q9c	q9d
Model 1	.26	.42	.22	.71
Model 2	.56	.67	.53	.79

Note: Model 1 - $\chi^2(2) = 8.19$, p =.017; GFI = .98; TLI = .96; RMSEA = .115, *pclose* = .086; HN(.05) = 172
Model 2 - $\chi^2(1) = 0.37$, p =.848; GFI = 1.0; TLI = 1.0; RMSEA = .000, *pclose* = .886; HN(.05) = 24542

[57] The suggested changes from the modification indices and the negative covariance might imply that people took on more work than they can bear perhaps to impress their superior and thus increase or maintain their influence over decisions concerning them.

6.2.5 Organisational Commitment – OC

OC was measured using 4 items (see Table 4-9 for item details) scored on a 7 point scale with high marks indicating greater commitment to the organisation. Results of estimating the CFA model for OC using SEM is given in Table 6-7, and the model is depicted in Figure 6.8. The results show that all the fit indices indicate the model closely fits the data ($\chi^2 = 1.89$, df = 2, $p = .388$; RMSEA = .00, *pclose* = .573; GFI = .99; TLI = 1.0). Results in Table 6-7 also show significant (standardized) regression weights ranging from .42 to .91. The percentage of variance in each measurement item (SMC) explained by the OC factor were all above 40% except for items *q12f* with only 17% variance explained. Cronbach alpha for this scale is reasonably high at .78 thus the items reliably measure the OC construct. Therefore, the average of the aggregate item scores is used to form the construct.

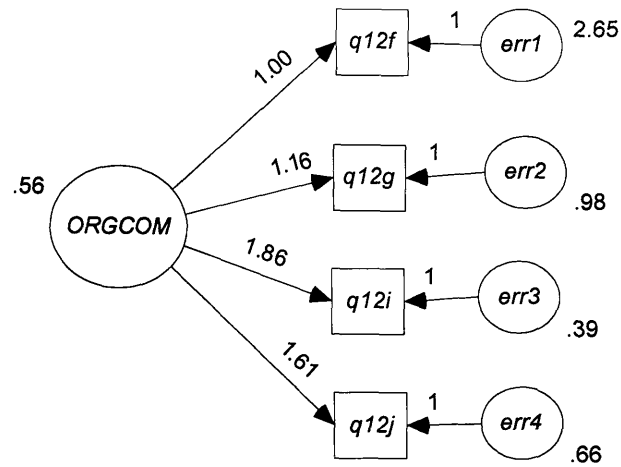
Table 6-7 Maximum Likelihood Estimates: OC Model in Figure 6.8

Model Parameter Estimates (N = 236)	*Unstandardized (Standard error)*	*Standardized*	*P*
q12f ← OC	1.00	.42	na
q12g ← OC	1.16 (.198)	.66	<.001
q12i ← OC	1.86 (.299)	.91	<.001
q12j ← OC	1.61 (.256)	.83	
Variance			
GC	.56 (.177)		<.001
err1 - error in q12f	2.65 (.252)		<.001
err2 - error in q12g	.98 (.101)		.013
err3 - error in q12i	.39 (.112)		<.001
err4 - error in q12j	.66 (.100)		

Squared Multiple Correlations	q12f	q12g	q12i	q12j
Model 1	.17	.44	.83	.69

Note: $\chi^2(2) = 1.89$, $p = .388$; GFI = .99; TLI = 1.0; RMSEA = .00, *pclose* = .573; HN(.05) = 744

Figure 6.8 CFA Model – Organisational Commitment

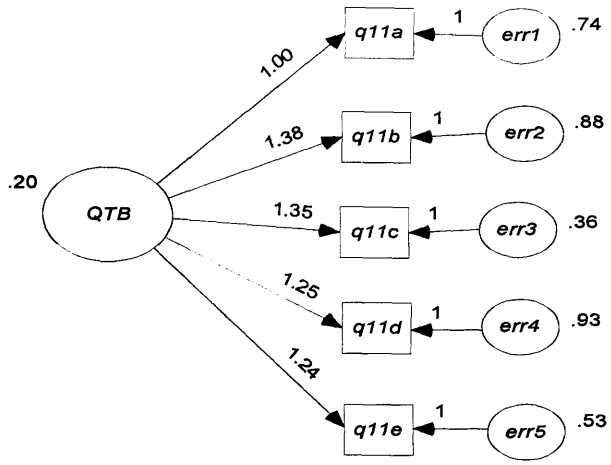


Chi square = 1.893, df = 2, p = .388, Chi sq / df = .947.
GF1 = .996. TLI = 1.001. NFI = .995 RMSEA = .000, pclose = .573
Hoelter's N .05 = 744.000

6.2.6 Quality Threatening Behaviour – QTB

QTB was measured using 5 items (see Table 4-7 for item details) scored on a 7 point scale with high scores indicating greater QTB. Results of estimating the CFA model for QTB using SEM is given in Table 6-8. The model is also depicted in Figure 6.9. All the fit indices indicate the model closely fits the data (χ^2 = 8.72, p = .121; GFI = .99; TLI = .96; RMSEA = .056, *pclose* = .365), with significant (standardized) regression weights ranging from .46 to .71. The percentage of variance in each item (SMC) explained by the QTB factor ranged from 21% to 50%, however Cronbach alpha for the scale is .69. The 5 items reliably measure the QTB construct, and the average of the aggregate score is used to form the construct.

Figure 6.9 CFA Model – Quality Threatening Behaviour



Chi square = 8.718, df = 5, p = .121, Chi sq / df = 1.744.
GFI = .985. TLI = .958. NFI = .953 RMSEA = .056, pclose = .365
Hoelter's N .05 = 299.000

Table 6-8 Maximum Likelihood Estimates: QTB Model in Figure 6.9

Model Parameter Estimates (N = 236)	*Unstandardized (Standard error)*	*Standardized*	*P*
q11a ← QTB	1.00	.46	na
q11b ← QTB	1.38 (.272)	.55	<.001
q11c ← QTB	1.35 (.245)	.71	<.001
q11d ← QTB	1.25 (.260)	.50	<.001
q11e ← QTB	1.24 (.237)	.61	<.001
Variance			
QTB	.20 (.063)		<.001
err1 - error in q11a	.74 (.076)		<.001
err2 - error in q11b	.88 (.101)		<.001
err3 - error in q11c	.36 (.057)		<.001
err4 - error in q11d	.93 (.101)		<.001
err5 - error in q11e	.53 (.064)		<.001

Squared Multiple Correlations	q11a	q11b	q11c	q11d	q11e
Model 1	.21	.30	.50	.25	.37

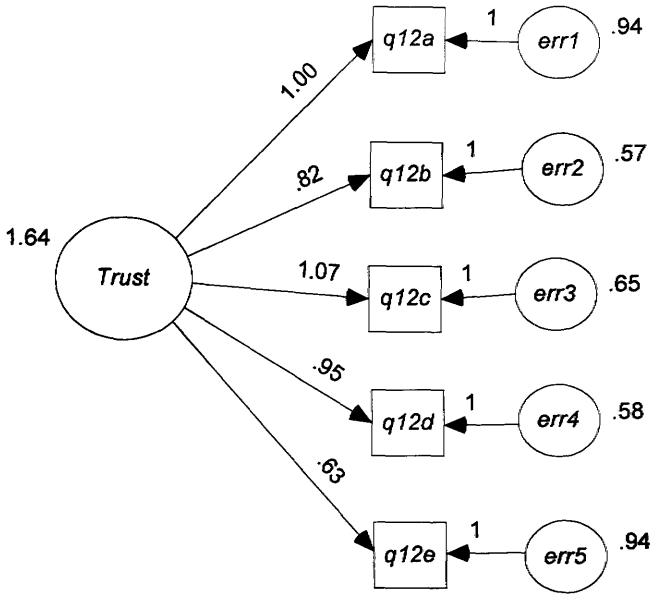
Note: $\chi^2(5) = 8.72, p = .121$; GFI = .99; TLI = .96; RMSEA = .056, *pclose* = .365; HN(.05) = 299

6.2.7 Supervisory Trust – ST

ST was measured using 5 items (see Table 4-10 for items details) scored on a 7 point scale with high scores indicating greater ST. The results of estimating the CFA model for ST using SEM is given in Table 6-9 and the model depicted in Figure 6.10. The chi square test and the RMSEA indicate a poor fit of the model (χ^2 = 29, df = 5, p =.000; RMSEA = .143, *pclose* = .001), however other fit indices indicate a good fit (GFI = .95; TLI =.93; NFI = .96). Results in Table 6-9 also show high and significant (standardized) regression weights ranging from .64 to .86. The percentage of variance (SMC) explained by the ST factor is above 63% except for items *q12e* with 26% variance explained. Given the ill fit of the model going by the χ^2 test, the model was modified. The modification indices from estimating the 1st model indicated that allowing the error terms for items *q12a* and *q12e* (i.e. *err1* and *err3*) to co-vary would improve model fit considerably with an estimated reduction in χ^2 of at least 14.75.[58] The two items relate to the affect-based dimension of ST and thus the suggested covariance of the error terms might be an indication of this relationship. After making this change depicted in Figure 6.11, the covariance between the two items is .40 (p <.001), and the fit indices indicate a much closer fit of the model to the data (χ^2 = 5.75, p =.219; GFI = .99; TLI = .99; RMSEA = .043, *pclose* = .475). Nonetheless, there were little or no changes in the parameter estimates and percentage of variances explained as shown in Table 6-9. Cronbach alpha for this scale is .89, thus these items reliably measure the ST construct, and the average of the aggregate item scores is used to form the construct.

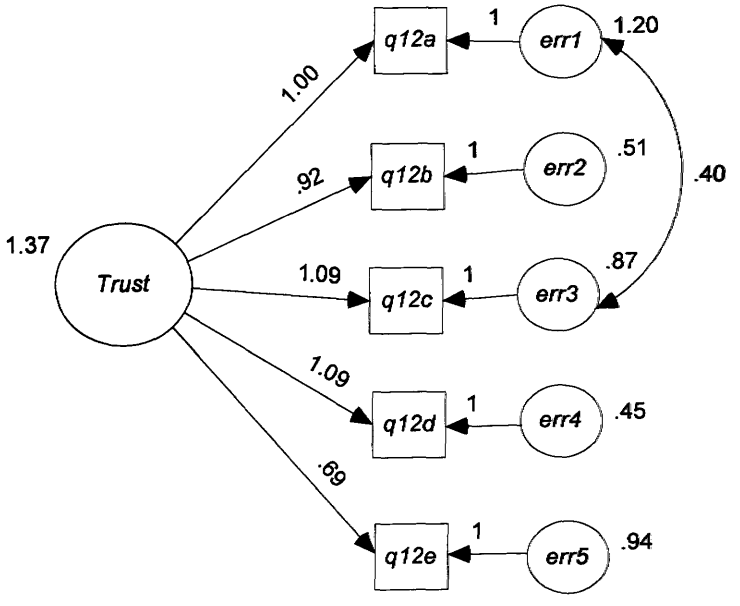
[58] Question item asked respondents to indicate how much they agreed with the statements: *"I can talk freely to my appraiser about difficulties I am having at work and know s/he will listen"* (item *q12a*); and *"If I shared my personal problems with my appraiser s/he will respond constructively and understandingly"* (item *q12c*)

Figure 6.10 CFA Model – Supervisory - Model 1



Chi square = 29.039, df = 5, p = .000, Chi sq / df = 5.808.
GF1 = .952. TLI = .930. NFI = .958 RMSEA = .143, pclose = .001
Hoelter's N .05 = 90.000

Figure 6.11 CFA Model – Supervisory Trust - Model 2



Chi square = 5.747, df = 4, p = .219, Chi sq / df = 1.437.
GF1 = .991. TLI = .994. NFI = .992 RMSEA = .043, pclose = .475
Hoelter's N .05 = 388.000

Table 6-9 Maximum Likelihood Estimates: ST Models in Figures 6.6 & 6.7

Model Parameter Estimates (N = 236)	*Model 1*			*Model 2 (with correlated error terms)*		
	Unstandardized (Standard error)	*Standardized*	*P*	*Unstandardized (Standard error)*	*Standardized*	*P*
q12a ← ST	1.00	.80	na	1.00	.73	na
q12b ← ST	.82 (.063)	.81	<.001	.92 (.076)	.83	<.001
q12c ← ST	1.07 (.071)	.86	<.001	1.1 (.072)	.81	<.001
q12d ← ST	.95 (.070)	.85	<.001	1.09 (.088)	.88	<.001
q12e ← ST	.627 (.062)	.64		.69 (.073)	.64	<.001
Covariances						
err1 ↔ err3				-.403 (.096)		<.001
Variance						
ST	1.64 (.231)		<.001	1.37 (.223)		<.001
err1 (error in q12a)	.94 (.110)		<.001	1.20 (.134)		<.001
err2 (error in q12b)	.57 (.069)		<.001	.51 (.066)		<.001
err3 (error in q12c)	.65 (.091)		<.001	.87 (.106)		<.001
err4 (error in q12d)	.59 (.078)		<.001	.45 (.075)		<.001
err5 (error in q12d)	.94 (.093)		<.001	.94 (.094)		

Squared Multiple Correlations (SMC)	q12a	q12b	q12c	q12d	q12e
Model 1	.64	.66	.74	.72	.41
Model 2	.53	.69	.65	.78	.41

Note: Model 1 - $\chi^2(5) = 29$, $p = .00$; GFI = .95; TLI = .93; RMSEA = .143, *pclose* = .001; HN(.05) = 90
Model 2 - $\chi^2(4) = 5.75$, $p = .219$; GFI = .99; TLI = .99; RMSEA = .043, *pclose* = .475; HN(.05) = 388

6.3 Analytical Models for Hypothesis Testing

The hypotheses put forward in the study were tested using means t-tests, correlation and regression analysis. The direct effect hypotheses were tested using regression analysis in addition to both parametric and non-parametric correlation analysis. The moderation and mediation hypothesis were also tested using regression analysis. The combination of moderation and mediation relationships in the mediated moderation models were tested using regression analysis based on the analytical strategy articulated by Muller et al. (2005). Based on a series of linear regression models, they articulated and illustrated an analytical strategy for testing the combination of moderation and mediation processes which they referred to as moderated mediation and mediated moderation. The chronology of the hypotheses to be

tested is almost in tandem with their analytical strategy as discussed later below. Thus, we test for direct effects of TF PES followed by tests for any moderated effects, then for any mediated effects and finally for a combination of the moderated and mediated effects. The core regression models employed in testing the hypotheses are:

$$Y_i = \alpha_{10} + \beta_{11} X_i + \varepsilon_1 \quad \text{Equation 1}$$

$$Y_i = \alpha_{20} + \beta_{21} X_i + \beta_{22} Mo + \beta_{23} X_i Mo_i + \varepsilon_2 \quad \text{Equation 2}$$

$$Me_i = \alpha_{30} + \beta_{31} X_i + \varepsilon_3 \quad \text{Equation 3}$$

$$Y_i = \alpha_{40} + \beta_{41} X_i + \beta_{42} Me_i + \varepsilon_4 \quad \text{Equation 4}$$

Where Y_i = criterion variables (QTB, IT, EFF, MP and AP);

X_i = focal independent variable TF PES (measured by TF1, TF2, TFH);

Mo_i = moderator variables (GD, ICS, OHL, OC, ST);

X_iMo_i = interaction between TF PES and the moderator variable; and

Me_i = mediator variables (EFP, GC, JRT, JS).

6.3.1 Analytical Strategy for Testing Direct and Moderated Effect Hypothesis

To test the hypothesis of a direct effect of X_i on Y_i, the regression model in Equation 1 is employed. The direct effect hypothesis is supported if β_{11} estimates are significant and in the hypothesized direction – if stipulated. To test the moderation effects hypothesis, the regression model in Equation 2 is employed. The moderating effect hypothesis is established if β_{23} estimates are significant. To facilitate interpretation of the moderation effect and help assess any directional hypothesis, simple regression of Y_i on X_i for high, low and medium levels of the moderator Mo_i is also plotted. Typically, high (low) values of the moderator are defined as the mean plus (minus) one standard deviation, while the middle values are defined as all other values between the high and low values of the moderator.

6.3.2 Analytical Strategy for Testing Mediated Effect Hypothesis

The most popular strategy for testing mediating/intervening effect is the procedure proposed by Baron and Kenny (1986) (MacKinnon et al., 2000, 2002, 2007; Muller et al., 2005). Baron and Kenny (1986) stipulated four conditions for a mediating effect to be established viz.:

1) there must be an overall effect of the independent variable on the outcome variable, i.e. estimates of β_{11} in Equation 1 must be significant
2) there must be an effect of the independent variable on the mediating variable, i.e. estimates of β_{31} in Equation 3 must be significant
3) there must be an effect of the mediator on the outcome variable, i.e. estimates of β_{42} in Equation 4 must be significant; and finally
4) allowing for the effect of the mediator on the outcome variable, the residual effect of the independent variable on the outcome variable must be smaller than the overall effect, i.e. absolute value estimates of β_{41} must be smaller than that of β_{11} (note this condition assumes only a partial mediation)

An implied equality in these series of relationship is that:

$$\beta_{11} - \beta_{41} = \beta_{31} \times \beta_{42} \qquad \text{Equation 5}$$

This means that the indirect effect computed as the difference between the overall or total effect (i.e. β_{11}) less the direct effect (i.e. β_{41}) should be equal to the indirect effect computed as the product of the effect of the independent variable on the mediating variable (i.e. β_{31}) and the effect of the mediator on the dependent variable (i.e. β_{42}).[59] Therefore statistical significance of meeting condition (4) is established by testing for the significance of the quantity on either side of the equation (MacKinnon et al., 2002; Muller et al., 2005).

However, some authors question the necessity of condition (1) in establishing a mediated effect. On one hand, Holmbeck (1997) distinguishes between a mediated and an indirect effect. According to Holmbeck (1997), whereas a mediated effect first requires a significant

[59] Total and overall effect would be used interchangeably to describe the direct (i.e. residual) plus indirect (i.e. mediated) effects of the independent variable on the dependent variable.

relationship between the independent and criterion variable consistent with condition (1), an indirect pathway or indirect effect exists where there is no significant relationship between the independent and criterion variable but the intermediate variable has significant relationship with the independent as well as the criterion variable.

On the other hand, Mackinnon et al. (2000) and Shrout and Bolger (2002) in their discussions use mediated and indirect effects interchangeably indicating no difference between the two terms. Mackinnon et al. (2000) note that the causal step procedure of Baron and Kenny (1986) assume only a partial mediation effect and does not take account of other inconsistent mediation models where condition (1) is not necessary to establish a mediated effect. Such inconsistent mediation models exist when the mediator suppresses the direct effects of the independent variable on the criterion variable. Mackinnon et al. (2002) identified such suppressor effects as occurring when the direct effect (i.e. β_{41}) and the mediated/indirect effect (i.e. $\beta_{31} \times \beta_{42}$) have opposite signs and thus may cancel out resulting in an overall effect (i.e. β_{11}) that is zero or non-significant (see Mackinnon et al., 2002, p. 178; Shrout and Bolger, 2002, p.430 for illustrations). In addition to the suppressor effect described above, Shrout and Bolger (2002) identify suppressor effects that could also occur when the causal process between the independent and criterion variable become more distal such that the direct effect size becomes smaller and more likely to be transmitted through additional links in the causal chain, and/or affected by competing causes, and/or affected by random factors. They demonstrate in such cases that the mediated effect may be detected confidently but not the total effects of the independent variable on the criterion variable. Thus in distal causal processes there is more power to detect a mediated effect but limited power to detect a direct effect as such effect diminishes through time affected by competing causes and/or random factors. Consequently, condition (1) of the Baron and Kenny (1986) procedure is not a necessary condition to establish a mediation effect when the mediating variable is expected to suppress the direct effects of the independent variable.

An alternative strategy for testing mediation effects, particularly where suppression is expected, is simply to test for the significance of the indirect effect i.e. $\beta_{31} \times \beta_{42}$ (MacKinnon et al., 2000; MacKinnon et al. 2007; Preacher et al., 2007). When a mediated effect is established then a (non-)significant estimate of β_{41} provides evidence of a (complete) partial mediation (MacKinnon et al., 2007, p.602). To test the significance of the indirect effect, the standard error of the indirect effect (i.e. SE_{ab} where $a = b_{31}$ and $b = b_{42}$) is first computed according to Sobel's (1982) first order solution (MacKinnon et al., 2002). Then dividing the indirect effect, i.e. $a \times b$, by its standard error (SE_{ab}) yields a z-statistic that can be used in a z-test to determine the statistical significance of the indirect effect ($a \times b$). The z-statistics using Sobel's (1982) first order solution for the SE_{ab}, is given as:

$$z = \frac{a \times b}{SE_{ab}} = \frac{a \times b}{\sqrt{a^2 s_b^2 + b^2 s_a^2}}$$

Given that some of the indirect effects hypothesized in the study involve a suppression effect, this alternative strategy would be employed in this study. Thus a significant Sobel's z evidences a mediation effect. In most cases, however, Sobel's z should be consistent with the Baron and Kenny strategy except models where the mediator completely suppresses the overall effect being investigated.

6.3.3 Analytical strategy - Mediated Moderation Effects

To test a mediated moderation (and equivalently moderated mediation) hypothesis, Muller et al. (2005) advocate a statistical procedure based on the Baron and Kenny causal step procedure for testing a mediation effect. The strategy involves the use of three regression equations (variable subscripts have been omitted for ease of reading) viz.:

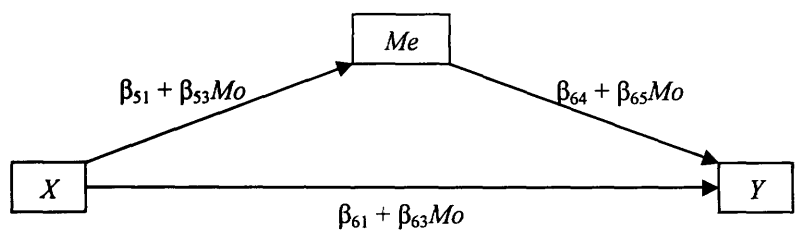
$$Y = \alpha_{20} + \beta_{21}X + \beta_{22}Mo + \beta_{23}XMo + \varepsilon_2 \qquad \text{Equation 2}$$

$$Me = \alpha_{50} + \beta_{51}X + \beta_{52}Mo + \beta_{53}XMo + \varepsilon_5 \qquad \text{Equation 6}$$

$$Y = \alpha_{60} + \beta_{61}X + \beta_{62}Mo + \beta_{63}XMo + \beta_{64}Me + \beta_{65}MeMo + \varepsilon_6 \qquad \text{Equation 7}$$

It can be seen that Equations 6 and 7 are adaptations of Equations 3 and 4 above. Muller et al. (2005, p.855) assert that the parameters in these equations can be interpreted as given in Table 6-10 if *Me* (i.e. the mediator) and *Mo* (i.e. moderator) variables are centred, and *X* is contrast coded and assumed to be uncorrelated to *Mo*. They assert that mediated moderation, and equivalently moderated mediation, can happen in several ways as depicted in Figure 6.12 below, which is a mediation model allowing for the moderation of the different paths.

Figure 6.12 Illustration of Moderated mediation & Mediated moderation



Muller, Judd, & Yzerbyt (2005, p855)

Thus from Equations 6 and 7; β_{53} tests for the moderation of the $X \rightarrow Me$ path, β_{65} tests the moderation of the $Me \rightarrow Y$ path, and β_{63} tests for the moderation of the (residual/direct) $X \rightarrow Y$ path. While β_{23} from Equation 2 tests the moderation of the X → Y path, i.e. the moderation of the overall/total effects. Analogous to Equation 5 (i.e. $\beta_{11} - \beta_{41} = \beta_{31} \times \beta_{42}$), they show the following equality holds between the beta estimates of these equations:[60]

$$\beta_{23} - \beta_{63} = \beta_{64}\beta_{53} + \beta_{65}\beta_{51} \qquad \text{Equation 8}$$

Given this equality, they assert that a mediated moderation requires that there is first a moderation of the total effects and the issue then is whether the moderation is accounted for by the mediating process. If this is the case, then it means that there must be mediation with one or both of the indirect paths moderated. Consequently, the moderation of the direct effect should be smaller in absolute value compared to the moderation of the total effect (Muller et al., 2005, p.856).

[60] Muller et al. (2005, p.863) indicate that the equality of the beta estimates will only hold exactly in a sample data if the moderator is a contrast coded variable, but if not then the equality will only be approximate.

Table 6-10 Interpretation of Regression Slope Parameters

Slope parameters	Interpretation of slope parameters
β_{21}	Total effects of X on Y at the average level of Mo
β_{22}	Moderator effect on Y on average across the two levels of X
β_{23}	Change in the total effects of X on Y as Mo increases
β_{51}	The effect of X on Me at the average level of Mo
β_{52}	Moderator effect on Me on average across the two levels of X
β_{53}	Change in effects of X on Me as Mo increases
β_{61}	Residual direct effects of X on Y at the average level of Mo
β_{62}	Moderator effect on Y on average within the two levels of X and at the average level of Me
β_{63}	Change in the residual direct effects of X on Y as Mo increases
β_{64}	Mediator effect on Y on average within the two levels of X and at the average level of Mo
β_{65}	Change in the mediator effect on Y as Mo increases

In summary, the conditions for mediated moderation to be established are as follows:

1) there must be a moderation of the total effect of the independent variable on the outcome variable, i.e. estimates of β_{23} in Equation 2 must be significant

2)
   a. the effect of the independent variable on the mediating variable depends on the moderating variable and at the same time the partial effects of the mediator on the criterion variable is non-zero, i.e. estimates of both β_{53} in Equation 6 and β_{64} in Equation 7 must be significant; and/or
   b. the partial effect of the mediator on the criterion variable depends on the moderating variable and the average effect of the independent variable on the mediator is non-zero, i.e. estimates of both β_{65} in Equation 7 and β_{51} in Equation 6 must be significant

3) the moderated direct effect of the independent variable on the criterion variable should be smaller in absolute value compared to the moderated total effects; i.e. absolute value estimates of β_{63} in Equation 7 should be smaller than those of β_{23} in Equation 2.

In the case of moderated mediation; Muller et al. (2005) assert that condition (1) should not hold i.e. β_{23} must be zero (i.e. non-significant), but condition (2) holds the same. In other words there must be a mediation of the overall effects, and this indirect effect depends on the level of the moderator, thus the moderator must not moderate the overall effects. Furthermore, given the relationship expressed in Equation 8 (i.e. $\beta_{23} - \beta_{63} = \beta_{64}\beta_{53} + \beta_{65}\beta_{51}$) and the condition that $\beta_{23} = 0$, it then follows that β_{63} must also be significant (i.e. non-zero).

Having established the primary analytical strategies for testing the hypothesis, the subsequent sections presents the results of the data analysis starting with descriptive statistics of the data and on to the tests of the hypotheses.

6.4 Results

In Section 5.5, TF1 was proposed as the prime TF PES measure augmented with two additional measures viz.; TF2 and TFH. While TF1 and TF2 are general measures of evaluative style based on the same measurement items, TF2 is considered a parsimonious version of TF1 based on only 2 items equating to short vs. long –term dimensions of evaluative criteria. On the other hand TFH is considered an equivalent PES measure but based on instrument adapted from Hopwood (1972). Though TFH like TF2 is based on 2 items, it is more specific to the case organisation in that it is based on the most important criteria actually observed in the organisation going by the importance rankings accorded the items constituting it. Data analysis is conducted using all three measures but for parsimony, discussions would focus on the prime measure (i.e. TF1) except where there are significant differences between results obtained using TF1 and the additional measures.

6.4.1 Descriptive Statistics

Descriptive statistics of the key variables employed in the hypotheses tests are presented in Table 6-11 which shows the actual and theoretical minimum and maximum values, the median, mean, and standard deviations. The statistics show that the variables have ranges close to their theoretic range, and means close to their theoretic means. There is also a reasonable dispersion around the mean for most variables. As might be expected for this sort of study, some of the variables show evidence of skewness and kurtosis. Parametric and non-parametric correlations of these variables are presented in the 2nd panel of the table in Appendix 4. Pearson parametric correlation coefficients are displayed in the lower diagonal while the Kendall tau non-parametric coefficients are displayed in the upper diagonal. Both correlation techniques show largely the same results both in direction and significance except in 4 cases where the Pearson but not the Kendall tau coefficients were significant viz. correlation between: EFP & TFH; JS & TFH, OC & TFH, ST & TFH; and another 2 cases where the reverse was the case viz. correlation between AP & TF2; and between QTB & ST.

Table 6-11 Descriptive statistics of Key Variables

(N = 236) Variable	*Label*	*No. of items*	*Cronbach Alpha*	*Theoretical range*	*Actual range*	*Median*	*Mean*	*Std Dev*	*Skewness*	*Kurtosis*
Actual Performance Rating[a]	AP	1	-	1 - 5	2 - 5	3.00	3.49	.72	.08	-.25
Effort	EFF	1	-	1 - 7	2 - 7	6.00	5.49	.99	-.35	-.09
Equity & Fairness Perception	EFP	4	.80	1 - 7	1 - 7	4.40	4.34	1.18	-.38	-.15
Goal Commitment	GC	3	.67	1 - 7	2.33 - 7	5.33	5.31	.88	-.47	.16
Goal Difficulty	GD	1	-	1 - 7	1 – 7	4.00	3.97	1.32	.01	-.46
Interactive Use Of Control Systems	ICS	4	.86	1 - 7	1 – 7	4.50	4.44	1.23	-.44	-.21
Intention To Turnover	IT	1	-	1 - 7	1 – 7	3.00	2.96	1.65	.93	.23
Job Related Tension	JRT	4	.69	1 - 5	1.5 - 5	3.25	3.21	.672	.19	-.12
Job Satisfaction	JS	1	-	1 - 7	1 - 7	5.00	4.84	1.44	-.73	.12
Managerial Performance[b]	MP	1	-	1 - 7	1 - 7	5.00	5.21	1.11	-1.02	1.59
Organisational Commitment	OC	4	.78	1 - 7	1.25 - 7	4.75	4.76	1.19	-.54	.15
Organisational Hierarchical Level	OHL	5	-	1 - 5	1 - 5	3.00	2.78	1.07	.29	-.73
Quality Threatening Behaviour	QTB	5	.69	1 - 5	1 - 4.6	2.60	2.56	.67	.24	-.01
Relative Emphasis On Financial Goals	REFG	1	-	0 - 100	0 - 100	50.00	42.02	30.19	.07	-1.15
Relative Emphasis On Quantitative Goals	REQG	1	-	0 - 100	0 - 100	42.50	45.20	25.03	.04	-.77
Supervisory Trust	ST	5	.89	1 - 7	1 - 7	5.20	5.17	1.19	-.59	.28
Target Focused Style-Full	TF1	6	-	1 - 7	1.17 - 5.67	3.42	3.34	.75	.06	.07
Target Focused Style-Short	TF2	2	-	1 - 7	1 - 7	2.50	2.86	1.24	1.09	1.00
Target Focused Style Hopwood	TFH	Ratio 2:1	-	.14 – 7	.29 - 4	.91	0.93	.32	5.08	43.65

Note: Standard error (SE) of skewness = .158; SE of kurtosis = .316.
[a] $N = 228$, and SE skewness = .161; SE kurtosis = .321. [b] $N = 126$, and SE skewness = .216; SE kurtosis = .428

6.4.2 Tests of Hypothesis 1 & 2 – Directs Effects of TF PES

Recall that Hypothesis 1(a) and 1(b) posit a positive association between TF PES and quality threatening behaviour (QTB), and TF PES and intention to turnover (IT). QTB and IT were regressed on TF1 to test these hypotheses, and results from the regression analysis are presented in Table 6-12 below. The results show that TF1 is a significant predictor of QTB (b_{11} =.16, *p-value* <.01) though with a small variance explained (R^2 = .03). The results using TF2 and TFH measures are also consistent with that using TF1 but with higher R^2, .10 and .05 respectively. Thus Hypothesis 1(a) is supported.

In the second panel of Table 6-12, the results show that TF PES is positively associated with IT as expected though the association is not significant using the TF1 measure (b_{11} = .06, p >.10). However, parameter estimates for the TF2 measure (b_{11} = .21) and the TFH measures (b_{11} = .80) are positive and significant. Thus although Hypothesis 1(b) is not supported using TF1 PES measure, there is indication of a positive association as supported using the TF2 and TFH PES measures.

Table 6-12 Summary of regression analysis: TF PES Predicting QTB & IT

(N = 236)			TF1			TF2			TFH		
Equation Parameters & Expected sign			*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Y = **QTB**	Constant		2.01**	.196		2.06**	.105		2.13**	.131	
	TF (b_{11})	+	.16**	.057	.18	.18**	.034	.32	.47**	.134	.22
	R^2			.034			.104			.05	
	F			8.14**			27.21**			12.35**	
Y = **IT**	Constant		2.77**	.490		2.35**	.269		2.22**	.327	
	TF (b_{11})	+	.06	.143	.03	.21**	.086	.16	.80**	.334	.16
	R^2			.001			.025			.024	
	F			.151			5.99**			5.77**	

Note β is unstandardized beta & B is standardized beta;
^ p < .10; * p < .05; **p < .01. Note: For hypothesis testing purposes a 10% significance level is of course a test at the 5% level if the hypotheses are directional. However, in this table and subsequent tables of results the 2-tailed p-values are reported and used in testing the hypotheses. This allows for discussion of significant results opposite in direction to the hypothesis.

Given that higher TF PES is associated with higher QTB and possibly higher IT, further analysis was conducted to check if there were differences in QTB and IT between high TF PES based mainly on financial measures and high TF PES based mainly on non-financial measures. In order words we investigate to see if the observed positive association is driven by the nature of the performance measure used in a target focused manner in performance evaluation. First, data was grouped into high (low) TF PES if the TF PES score was above (below) the TF PES median. Then the high TF PES groups were subdivided into high TF PES based mainly on financial or non-financial measures based on if scores on the relative emphasis on financial goals (REFG) measure were above or below the REFG median. Scores above the REFG represented TF PES based mainly on financial measures, and scores below represented TF PES based mainly on non-financial measures. This grouping was represented by the variable *TF1_Fin*, *TF2_Fin*, and *TFH_Fin* respectively for the 3 PES measures with a value of '1' representing high TF PES based mainly on financial measures and '0' otherwise. Finally, the QTB and IT mean scores for the two sub-groups were compared. The results, presented in the first panel of Table 6-13 below, show no significant differences in QTB (for TF1, $t = .69$, $p = .49$) and in IT (for TF1, $t = .49$, $p = .622$) between the two sub-groups. The same results apply using the TF2 and TFH measures. This implies that when quantitative financial and quantitative non-financial measures are used in the same target focused manner, they result in similar unintended consequences. Thus Hypothesis 2(a) and 2(b) are supported.

To evaluate this point further data was grouped into two based on whether performance measures were mainly quantitative or mainly qualitative. Scores above (below) the median on the relative emphasis on quantitative goals (REQG) measure were identified as use of more quantitative (qualitative) performance measures.[61] This was represented by a dummy variable *Quant* which equalled 1 (0) if performance measures were more quantitative (qualitative).

[61] REQG measure asked respondents to indicate the emphasis their superior currently placed on meeting quantitative vs. non-quantitative goals when evaluating their performance. And the REFG measure asked respondents to indicate the amount of emphasis superiors placed on meeting the financial vs. non-financial measures of their quantitative measures. See Appendix 3, page 259

Result of the analysis, presented in the 2nd panel of Table 6-13, show that those whose performance measures were mainly quantitative did not report significantly different levels of QTB (t = .66, p =.51) and IT (t = -.95, p =.34) compared to those with mainly qualitative performance measures.

Table 6-13 T-test of Differences in QTB & IT Means

Groups based on Nature of Performance Measures - Financial vs. Quantitative Non-financial Measures; Quantitative vs. Non-quantitative

		TF1_Fin[a]			*TF2_Fin*[a]			*TFH_Fin*[a]		
	Group	N	Mean (Std. Dev)	*t* (2-tailed Sig.)	N	Mean (Std. Dev)	*t* (2-tailed Sig.)	N	Mean (Std. Dev)	*t* (2-tailed Sig.)
QTB	1	50	2.70	.69	46	2.85	1.21	43	2.74	1.30
			(0.59)	(.490)		(0.60)	(0.23)		(0.68)	(0.20)
	0	44	2.61		40	2.68		55	2.55	
			(0.75)			(0.73)			(0.75)	
IT	1	50	3.00	.49	46	3.13	-0.43	43	2.88	-0.65
			(1.93)	(.622)		(1.96)	(0.67)		(1.62)	(0.52)
	0	44	2.82		40	3.30		55	3.11	
			(1.59)			(1.62)			(1.75)	

		Quant[b]		*Fin*[b]		
	Group	N	Mean (Std. Dev)	*t* (2-tailed Sig.)	N	Mean (Std. Dev)	*t* (2-tailed Sig.)
QTB	1		2.59	0.66		2.67	1.73
		118	(0.67)	(0.51)	80	(0.67)	(0.08)
	0		2.53			2.49	
		118	(0.68)		114	(0.68)	
IT	1		2.86	-0.95		2.93	-0.09
		118	(1.67)	(0.34)	80	(1.78)	(0.93)
	0		3.06			2.95	
		118	(1.63)		114	(1.66)	

[a] *TF1_Fin* = 1 for high TF1 PES based mainly on financial measures and 0 for high TF1 PES based mainly on non-financial measures; same for *TF2_Fin*, and *TFH_Fin*.
[b] *Quant* = 1 (0) when mainly quantitative (non-quantitative) performance measures are emphasized; *Fin* = 1 (0) when mainly financial (non-financial) performance measures are used.

In addition, comparisons were also made between those whose performance measures were mainly quantitative financial and those with more quantitative non-financial measures. This was measured by the dummy variable *Fin* which equalled 1 (0) for scores above (below) the REFG median. Again no significant differences were found between the two groups, although

those with more financial measures reported marginally more QTB (t = 1.73, p =.08). This marginal difference provide some support to the findings of Hopwood (1972) and others, i.e. that emphasis on the short-term meeting of budget targets, which are quantitative and financial, are associated with dysfunctional behaviours. However, it is also shown here to be of less importance with the more general quantitative vs. qualitative measures thus extending the findings of earlier studies. Furthermore, combining this and the finding of similar QTB levels between the high TF PES financial and non-financial groups indicate that using quantitative non-financial measures in the same target focused manner as quantitative financial measures produces similar unintended consequences. Thus this study further extends earlier studies in showing that emphasis on achieving targets in general, budget or non budget related, has similar unintended consequences.

6.4.3 Tests of Hypothesis 3 –Direct (Curvilinear) Effects of TF PES

Recall that Hypothesis 3 posits a convex, i.e. inverted U-shaped, curvilinear relationship between TF PES and effort (EFF), and TF PES and performance. Recall also that performance is measured in terms of the actual performance ratings respondents received in their last performance review (AP) and by managers self rated measure of performance, i.e. managerial performance (MP). A hierarchical regression analysis was employed to evaluate the hypothesized curvilinear relationship. EFF was regressed on the gender control variable in the first step, then the linear TF PES term was added in the second step, and the curvilinear term (i.e. squared TF PES) was entered in the last step. Similarly, the criterion variables (AP and MP) were regressed on the linear TF PES term in the first step, and the curvilinear TF PES term was added in the second step. If the relationship between TF PES and the criterion variables are best represented by linearity, then a significant amount of the variation in these variables should be explained by the TF PES term alone. If on the other hand the inclusion of the squared TF PES term explains a significant amount of variation beyond that explained by the linear term and the squared term is also significantly different from zero, then a curvilinear

form best represents the relationship between TF PES and the criterion variable. Results are presented in Table 6-14 below.

Table 6-14 Summary of hierarchical regressions: Linear & curvilinear TF PES predicting Effort

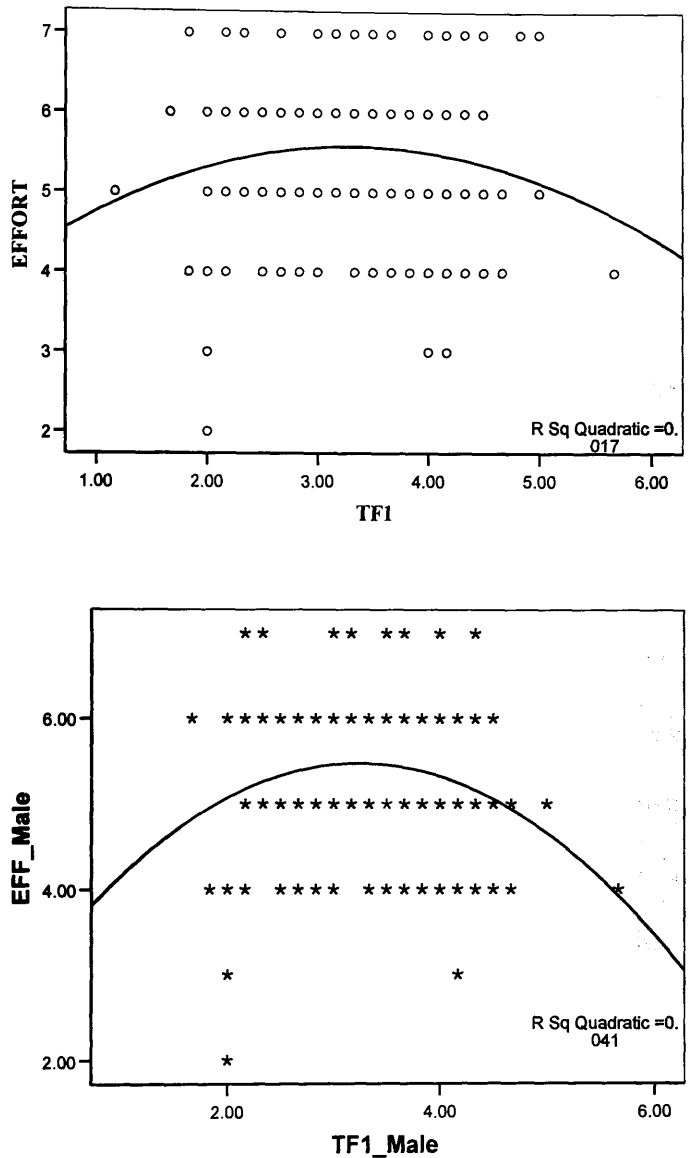
N = 236		TF1			TF2			TFH		
Expected Sign										
Step 1		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Constant		5.71**	.095							
Gender	?	-.38**	.126	- .19						
F			8.912**							
R^2			.037							
Step 2		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Constant		5.81**	.298		5.54**	.176		5.65**	.211	
Gender	?	- .38**	.127	-.19	-.37**	.126	-.19	-.37*	.127	-.19
TF		-.03	.084	-.02	.06	.051	.07	.06	.198	.02
F			4.50*			5.08**			4.49*	
R^2			.037			.042			.037	
ΔR^2			.001			.005			.000	
Step 3		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Constant		4.11**	.880		6.11**	.366		5.73**	.377	
Gender	?	-.38**	.126	-.19	-.37**	.126	- .19	-.37**	.128	-.19
TF	+	1.03*	.526	.796	-.33	.222	-.42	-.07	.527	-.02
TF^2	-	-.16*	.077	-.83	.06	.031	.50	.04	.142	.05
F			4.44**			4.475**			3.00*	
R^2			.054			.055			.037	
ΔR^2			.017*			.013^			.000	
2nd Panel		TF1 (Male Subgroup)[a]						TF1 (Female Subgroup)[b]		
Step 1		*β*	*SE*	*B*				*β*	*SE*	*B*
Constant		5.33**	.086					5.71**	.093	
TF		-.06	.115	-.05				.01	.122	.01
F			.27						.003	
R^2			.002						.000	
Step 2		*β*	*SE*	*B*				*B*	*SE*	*B*
Constant		8.41**	1.347					6.49**	1.221	
TF	+	1.70*	.777	1.29				.46	.711	.38
TF^2	-	-.26	.115	-1.35				-.07	.104	-.38
F			2.77^						.211	
R^2			.041						.004	
ΔR2			.039^						.004	

Note β is unstandardized beta, & *B* is standardized beta. [a]$N = 134$; [b]$N = 102$
^$p < .10$, *$p < .05$. **$p < .01$.

The result of the hierarchical regression of EFF on gender and the linear and squared TF PES terms is shown in the first panel of Table 6-14 above. In the 1st step gender was negatively and significantly related to effort (EFF), justifying its inclusion as a control variable. In the 2nd step the linear TF1 term was not significantly related to EFF and did not add much to the variance attributed to gender. Similar results were obtained using TF2 and TFH. In the final step, the squared TF PES term was entered. In this step, the squared TF1 term was found to be negatively and significantly related to EFF, and the linear term was also positive and significantly related to EFF. Adding the squared TF1 term explained a significant 1.7% variance in EFF beyond that explained by gender and the linear term in the 2nd step (*F-change* = 4.2, $p < .05$). Results using TF2 and TFH are not significant however. The TF1 result provides support for Hypothesis 3(a). The positive linear term and negative squared term imply an inverted 'U' relationship meaning that TF PES engenders greater effort up to a point after which effort begins to decline. A scatter graph of EFF and TF1 with the curvilinear regression trend line imposed on it is shown in the first panel of Figure 6.13. An examination of this graph shows however that the curvilinear relationship is not so apparent; rather it seems more like there is no discernible pattern of association between TF1 and EFF.

Given the significant differences in EFF between men and women, further analysis was conducted separately for the 2 groups. As before, EFF was first regressed on the linear TF1 term and then on both the linear and curvilinear TF1 term. The results presented in the second panel of Table 6-14 suggests that the curvilinear effect observed in the first analysis relate only to the male group and not the female group. For the male group, the addition of the curvilinear term explain a marginally significant 3.9% additional variation, just as the regression model on the whole is only marginally significant ($F = 2.77, p < .10$). However, the curvilinear term is not significant even though the linear term is. A scatter graph of EFF and TF1 for the male group with the curvilinear regression trend line imposed is also presented in the second panel of Figure 6.13 below.

Figure 6.13 Graph of the curvilinear relationship between TF1 PES and Effort



Again, visual inspection of the graph above does not indicate any apparent pattern of relationship between the variables. So although there is a statistically significant convex relationship between TF1 and EFF, which seems to relate to men more than to women, this relationship is not substantively significant. In summary therefore, the results statistically provide support for Hypothesis 3(a) using the TF1 measure of PES, and further analysis indicates that the result is not substantive. Given the visual evidence from the graphs coupled with the marginal significance of the model for the male sub-group for whom only the

hypothesized relation seemed to hold, a decision was made to drop the curvilinear term from further analysis.

Hypothesis 3(b)

Results from the 2 step hierarchical regression of actual performance ratings (AP) and the self rated measure of managerial performance (MP) on the linear and curvilinear TF PES terms is shown in Table 6-15 below. In the first panel of the table, the results with AP as the dependent variable do not support Hypothesis 3(b). Addition of the squared TF1 term does not add significantly to explaining the variance in AP and the squared term is also not significant, The result rather show a negative and significant linear association between TF1 and AP (b = -.18, p < .05). Results using the TFH measure also show a negative but non-significant linear relationship, and also show no significant curvilinear relationship. Results using the TF2 measure indicate a non-significant negative linear relationship; however, it also shows a significant curvilinear relationship with AP that is concave in shape. The scatter graph of AP on TF2 with the curvilinear regression line superimposed is presented in Figure 6.14 and it does rather suggest no apparent relationship between the variables. Thus the statistically significant curvilinear effect appears not be substantively significant. Results in the second panel of Table 6-15 with MP as the dependent variable do not also provide support for a curvilinear relationship. On the other hand, the results show a positive and significant linear association between TF PES and MP across all 3 TF PES measures (for TF1, b = .37, p < .01)

Further analysis was conducted to explore the nature of the negative association between TF PES and AP given the strong positive association between TF PES and MP. In the survey the questionnaire item for MP was only presented to managers and above, so AP was now regressed on both the linear and squared TF PES terms separately for those with and those without a score on the MP variable. The results were consistent with the results of the initial regression of AP on linear and curvilinear TF PES terms for both groups of respondents. In

the 1st step AP is negatively associated with TF PES for the two groups and across all 3 TF PES measures, but only significant using the TF1 measure. Using the TF1 PES measure; β = -.164, p = .029 for those with MP scores; and: β = -.222, p = .049 for those without MP scores. In the 2nd step, the squared TF PES term is not significant for both groups across all 3 PES measures. Thus as more emphasis is placed on achieving set targets, performance is seems deteriorated given the actual performance ratings, but improved according to self rated managerial performance. This may be an indication of performance target ratcheting, i.e. where superiors raise the expected performance levels a notch higher in subsequent periods based on employees past superior performance. Thus as more emphasis is placed on achieving targets managers respond by improving their performance which nonetheless still falls short of their superiors expectations because the expectations have been set to a higher level than in previous periods. If so, employees would feel more pressure and may seek to alleviate some of the pressure by resorting to more dysfunctional behaviour and social withdrawal. This may partly explain the positive association between TF PES and dysfunctional behaviour in the form of QTB, and social withdrawal represented by IT.

Figure 6.14 Graph of the curvilinear relationship between TF2 PES and AP

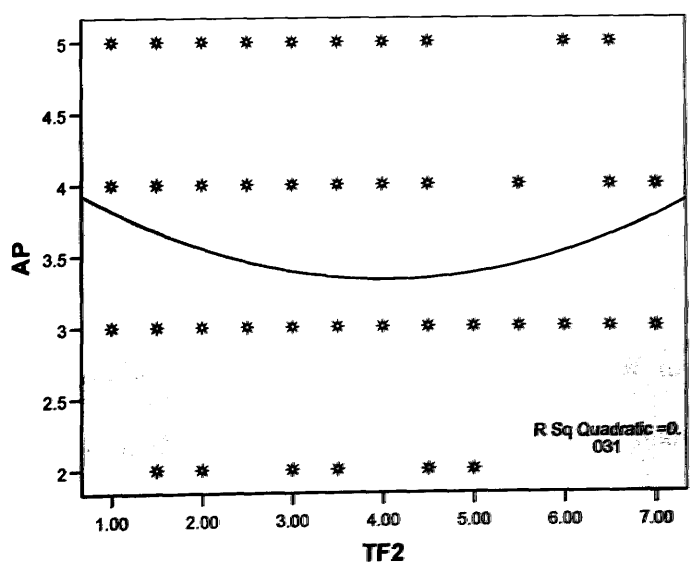


Table 6-15 Summary of hierarchical regressions: Linear & curvilinear TF PES predicting AP & MP

Y = AP[a]		TF1			TF2			TFH		
(Expected sign)										
Step 1		***β***	***SE***	***B***	***β***	***SE B***	***B***	***β***	***SE***	***B***
Constant		4.1**	.216		3.64**	.120		3.63**	.146	
TF	+	-.18*	.063	.19	-.06	.038	-.10	-.15	.149	-.07
F		8.36**			2.05			1.00		
R^2		.036			.009			.004		
Step 2		***β***	***SE***	***B***	***β***	***SE B***	***B***	***β***	***SE***	***B***
Constant		3.50**	.691		4.19**	.270		3.99**	.281	
TF	+	.20	.421	.20	-.42*	.168	-.72	-.71^	.399	-.314
TF^2	-	-.06	.063	-.40	.05*	.023	.65	.16	.107	.267
F		4.59*			3.56*			1.63		
R^2		.039			.031			.014		
ΔR^2		.004			.022*			.010		
Y = MP[b]										
Step 1		***β***	***SE***	***B***	***β***	***SE B***	***B***	***β***	***SE***	***B***
Constant		3.99**	.414		4.61**	.228		4.62**	.242	
TF		.37**	.122	.26	.21**	.073	.25	.64**	.241	.23
F		9.11**			8.35**			6.97**		
R^2		.068			.063			.053		
Step 2		***β***	***SE***	***B***	***β***	***SE B***	***B***	***β***	***SE***	***B***
Constant		3.28**	1.227		4.83**	.526		4.25**	.281	
TF	+	.83	.755	.59	.06	.325	.08	1.20	.729	.44
TF^2	-	-.07	.113	-.33	.02	.043	.18	-.15	.184	-.22
F		4.72*			4.26*			3.82*		
R^2		.071			.065			.058		
ΔR^2		.003			.002			.005		

Note β is unstandardized & B is standardized beta. [a] $N = 228$; [b] $N = 126$. ^$p < .10$; *$p < .05$; **$p < .01$.

6.4.4 Tests of Hypothesis 4 – GD Moderation of TF PES Direct Effects

Recall that Hypothesis 4 posits that goal difficult (GD) moderates the effect of TF PES on quality threatening behaviour (QTB) – Hypothesis 4(a); intention to turnover (IT) – hypothesis 4(b); effort (EFF) – hypothesis 4(c); and performance (AP and MP) – hypothesis 4($d_{1\&2}$). Furthermore, it is hypothesized that this moderation occurs such that TF PES is positively related to QTB, IT and EFF when GD is high than when GD is low or at medium levels; and that TF PES is more positively related to MP and AP at moderate and low levels of GD than at high levels of GD. Recall also that the moderation relationship is evaluated via

Equation 2, i.e. $Y = \alpha_{20} + \beta_{21}X + \beta_{22}Mo + \beta_{23}XMo + \varepsilon_2$, and that the hypothesis is supported if β_{23}, the interaction between TF PES and GD, is significant. In all the moderation models, the independent variables were centred for ease of interpreting the parameter estimates. Results from the regression analysis of TF PES, GD and their interaction predicting QTB, IT, EFF, AP and MP is presented in Table 6-16 below.

Table 6-16 Summary of regression analysis: TF PES, GD and their interaction predicting QTB, IT, EFF, AP & MP

N = 236			TF1			TF2			TFH		
Equation 2	*Parameters & Expected sign*		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Y = QTB	Constant		2.56**	.043		2.56**	.042		2.56**	.043	
	TF – b_{21}	+	.16**	.058	.18	.17**	.034	.31	.47*	.195	.22
	GD – b_{22}	(+)	.07*	.033	.14	.06^	.032	.11	.06^	.032	.12
	TF×GD – b_{23}	+	.01	.043	.02	.01	.023	.04	-.02	.091	-.02
	F			4.32**			10.29**			5.34**	
	R^2			.053			.117			.065	
Y = IT	Constant		2.95**	.105		2.94**	.104		2.98**	.104	
	TF – b_{21}	+	-.02	.143	-.01	.16^	.086	.12	1.47**	.476	.28
	GD – b_{22}	(+)	.24**	.090	.19	.23**	.079	.18	.24**	.079	.19
	TF×GD – b_{23}	+	.20^	.105	.12	.12*	.057	.14	-.50*	.221	-.21
	F			4.49**			6.48**			6.51**	
	R^2			.055			.077			.078	
Y = EFF	Constant		5.66**	.095		5.66**	.095		5.65**	.095	
	Gender		-.29*	.127	-.15	-.29*	.127	-.15	-.29*	.127	-.15
	TF – b_{21} ?	+	.01	.084	.01	.08	.051	.10	.04	.283	.01
	GD – b_{22}	(+)	-.15**	.048	-.2	-.16**	.048	-.22	-.16**	.048	-.21
	TF×GD – b_{23}	?	-.09	.061	-.09	-.02	.034	-.03	.07	.131	.04
	F			5.34**			5.50**			5.04**	
	R^2			.085			.087			.080	
Y = MP[a]	Constant		5.19**	.093		5.18**	.097		5.18**	.101	
	TF – b_{21}	+	.51**	.120	.36	.24**	.073	.28	.87*	.406	.32
	GD – b_{22}	(+)	.15*	.068	.17	.14^	.071	.17	.11	.073	.13
	TF×GD – b_{23} +	?	-.35**	.086	-.35	-.11*	.046	-.20	-.16	.179	-.13
	F			10.33**			5.75**			3.35*	
	R^2			.203			.124			.076	
Y = AP[b]	Constant		3.48**	.047		3.48**	.048		3.48**	.048	
	TF – b_{21} ?	+	-.19**	.064	-.19	-.05	.039	-.09	-.35	.218	-.16
	GD – b_{22}	(+)	-.05	.036	-.08	-.04	.037	-.08	-.05	.037	-.09
	TF×GD – b_{23} +	?	.03	.048	.04	.02	.026	.04	.14	.101	.13
	F			3.40*			1.25			1.44	
	R^2			.044			.016			.019	

[a]$N = 126$; [b]$N = 228$; ^$p < .10$; *$p < .05$; **$p < .01$. *Note expected coefficient sign in bracket is not formally stated in a hypothesis but is apparent in the hypothesis development*

Results in the 1st, 3rd, and 5th panels of Table 6-16 above show that the interaction of TF PES and GD did not have any significant effect on QTB, EFF, and AP respectively, i.e. $b_{23} = 0$. Thus Hypotheses 4(a), 4(c), and 4(d_2) are not supported. However, the results also indicate that at moderate levels of GD, high TF1 still leads to significantly high QTB and low AP. Also at moderate levels of TF1, GD leads to significantly more QTB and less EFF. The conclusion therefore is that high TF1 leads to high QTB regardless of the level of GD, and conversely GD leads to high QTB regardless of the level of TF1. Thus high TF PES and high GD may have substitutionary effects. Results are similar using TF2 and TFH measures.

Results in the 2nd panel of the table show that TF1 does not have any significant effect on IT given moderate levels of GD (b_{21} = -.02, $p > .10$), but at moderate levels of TF1 GD significantly increases IT (b_{22} = .24, $p < .01$). The results further show that the TF1 and GD interaction term is positive and marginally significant (b_{23} = .20, *p-value* = .061) thus providing some support for Hypothesis 4(b). This result implies that TF1 impact on IT depends on the level of GD; in this case TF1 seems to increase IT when GD is high. The results using TF2 and TFH measures are similar with significant interaction term, but the sign of the interaction term is reversed in the case of TFH. In order words, given easier rather than difficult targets higher levels of TFH lead to increased IT. It is not immediately clear why this is the case as it is expected that results using all 3 PES measures should be similar in direction if not in significance. Perhaps this reflects the relative rather than absolute nature of the adapted Hopwood measure such that increasing emphasis on the more quantitative and target focused performance criteria relative to the more qualitative less target focused ones while required performance levels are low may be considered unchallenging than increasing relative emphasis on the qualitative less target focused criteria.

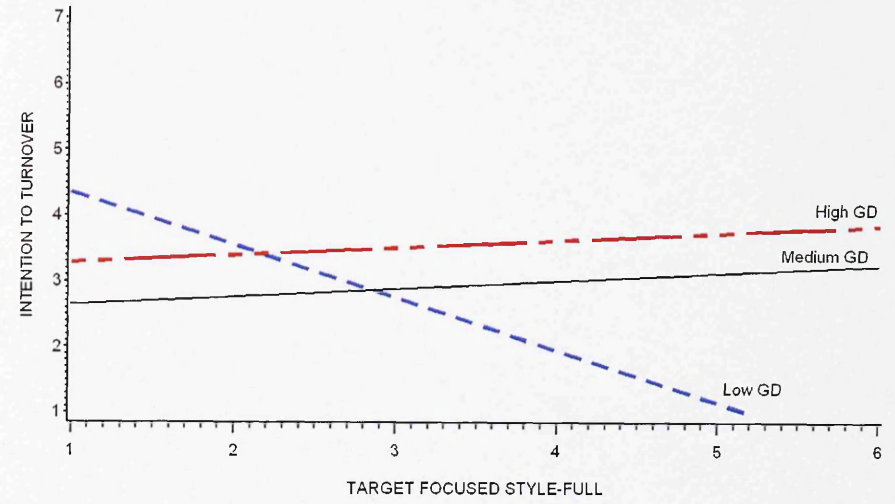
Similarly, results in the 4th panel of the table show that at moderate i.e. average GD, TF1 is positively and significantly associated with MP (b_{21} = .51, $p < .01$), and GD is also positively and significantly associated with MP at average levels of TF1 (b_{21} = .15, $p < .05$). The results

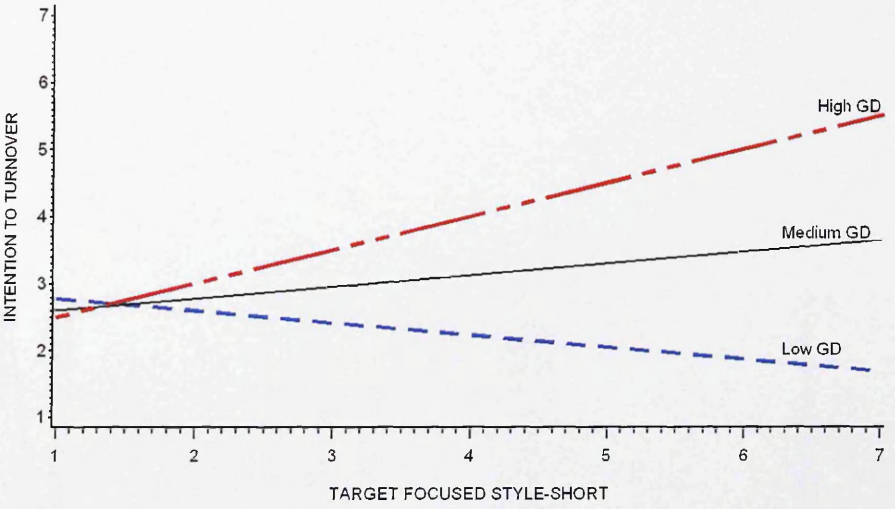
further show that the TF1 and GD interaction term is negative and significant (b_{23} = -.35, p < .01). This implies, as expected, that high TF1 (i.e. focus on achieving targets) leads to lower MP when GD is high, and conversely higher MP at low to moderate GD. Therefore Hypothesis 4(d_1) is supported. Thus having specific targets to aim for does provide managers motivation to improve their performance, as does also emphasis on achieving targets. However, high focus on achieving targets affects performance more positively when GD is at low to moderate levels than when GD is high. Results using TF2 and TFH are also similar except that the interaction term is not significant for the TFH measure.

To evaluate Hypothesis 4(b) and 4(d_1) further, and also facilitate interpretation of the moderation effects, simple regressions of IT on TF PES, and MP on TF PES was plotted for 3 subgroups of GD viz.: high GD (1 std dev above the GD mean); low GD (1 std dev below GD mean); and medium GD (all values in between ±SD). The graphs are presented in Figures 6.15 and 6.16 below. As can be seen from the 1st panel of Figure 6.15 TF1 increases IT more when GD is high than when GD is moderate or low confirming support of Hypothesis 4(b). Also, in the 1st panel of Figure 6.16, it can be seen that TF1 increases MP when GD is at a low or moderate level compared to when GD is high. The significant interactions imply that the slopes are significantly different from each other, but it does not provide information as to whether the simple slopes are significantly different from zero.

Post hoc analysis examining the significance of the slopes of the simple regression lines of IT and of MP on TF1 respectively at high and low GD is conducted via two additional regressions similar to Equation 2. However, in these regressions the moderator, i.e. GD, is recoded so that high GD is assigned a value of zero in the 1st analysis, and then low GD assigned a value of zero in the 2nd analysis.

Figure 6.15 Goal Difficulty Moderation of the TF PES Effect on Intention to Turnover





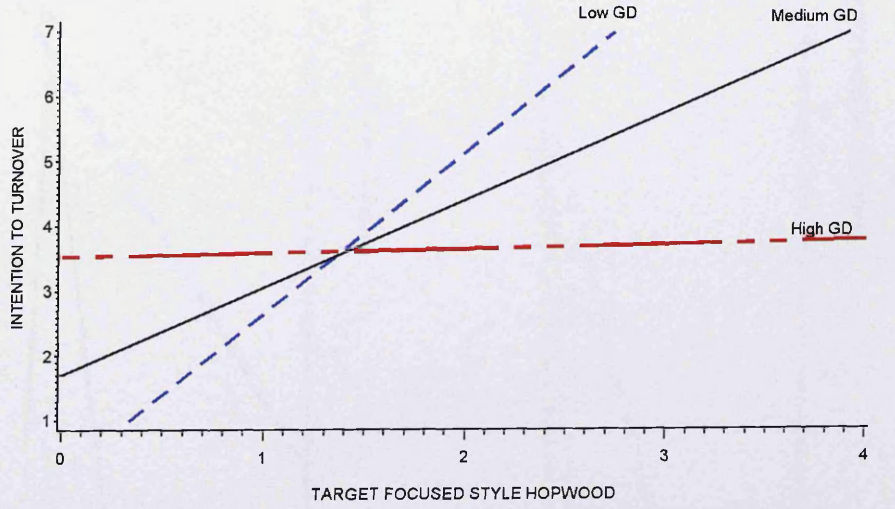
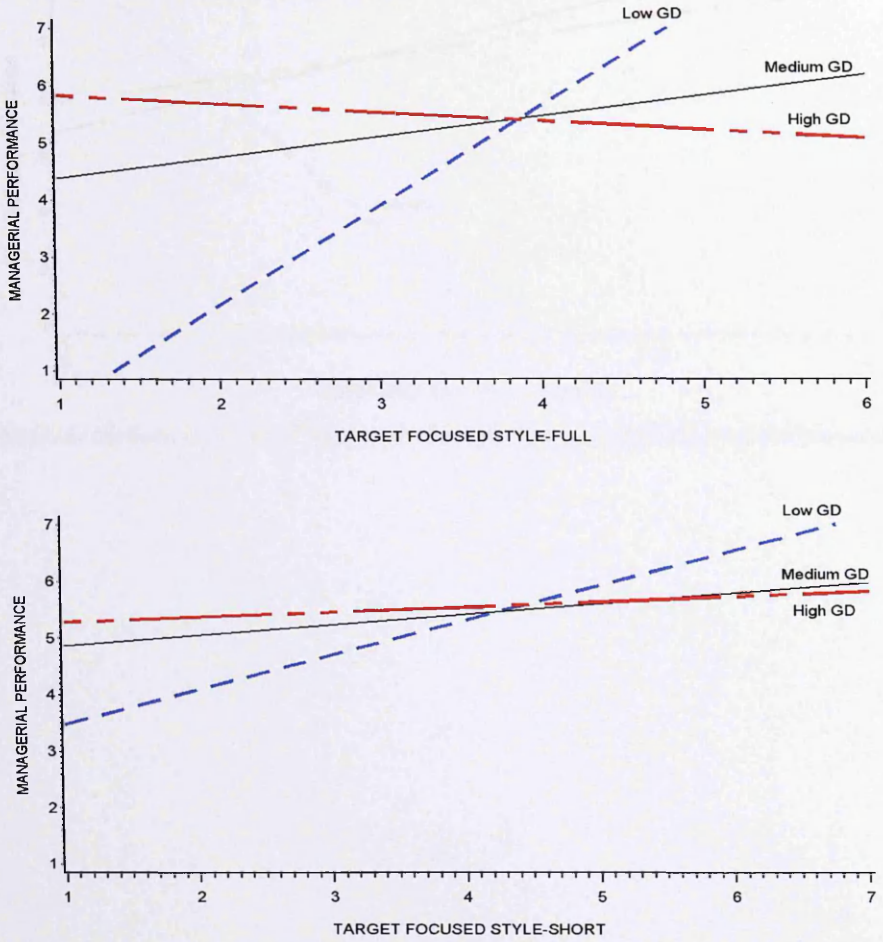
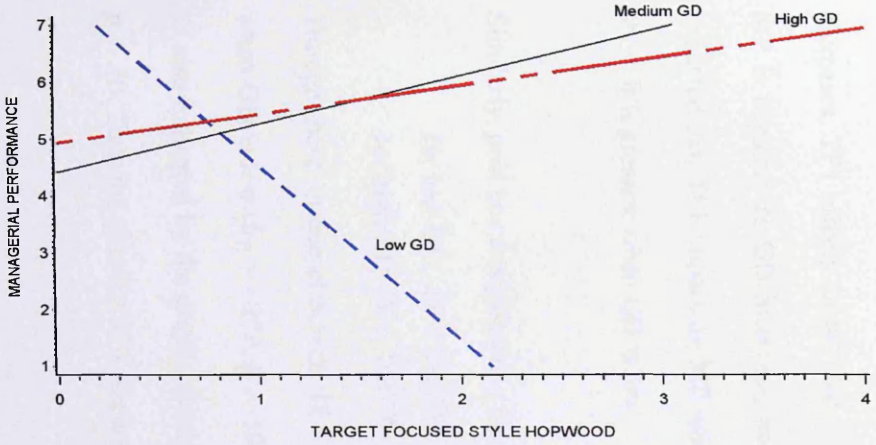
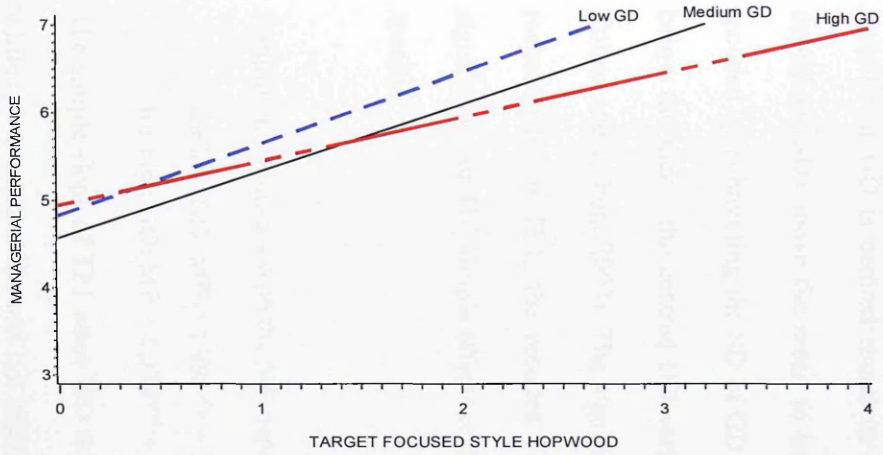


Figure 6.16 Goal Difficulty Moderation of the TF PES Effect on Managerial Performance







Note: In the bottom panel, 2nd figure on the right is drawn after deleting 4 observations with standardized residuals greater than 4 S.D from the mean of TFH

Recall that GD is centred round its mean, so for high GD representing scores 1 standard deviation (SD) above the mean to be assigned a value of zero, the centred GD variable is recoded by subtracting the SD of GD which is 1.32. In the case of low GD, i.e. scores 1 SD below the mean, the centred GD variable is recoded by adding the SD (Aiken et al., 1991; Cohen and Cohen, 2003). The significance of the TF1 term in the regression of IT and MP respectively on TF1, the recoded GD and their interaction term provides a test of the significance of TF1 simple effects on IT and MP when GD is zero, i.e. at low or at high GD as specified.

Running the analysis with the MP dependent variable yields the following results:

for low GD: MP = 4.995** + .983*TF1*** + .145*GD** - .354*(TF1 × GD)***
for high GD: MP = 5.379** + .045*TF1* + .145*GD** - .354*(TF1 × GD)***

The simple slope of TF1 when GD is low is positive and significant (i.e. b_{21} = .983, p < .01), while it is much smaller and not significant when GD is high (i.e. b_{21} = .045, p > .10). Recall from Table 6-16 that (b_{21} = .51, p < .01) when GD is moderate. It can be seen then that as GD increases, TF1 effects on MP reduces though still positive. Thus the trend of TF1 effect on MP is negative as GD increases, and conversely positive as GD reduces. However, it was expected that TF1 impact on MP would be greatest when GD is moderate whereas the result show it is greatest when GD is low.

Similarly, post hoc analysis using the IT dependent variable yields the results:

for low GD: IT = 2.633** - .279*TF1* + .239*GD*** + .198(*TF1*×*GD*)^
for high GD: IT = 3.267** + .244*TF1* + .239*GD*** + .198(*TF1*×*GD*)^

Though these simple effects of TF1 on IT are not significant, the results show it is negative when GD is low (b_{21} = -.279, p > .10), but positive when GD is high (i.e. b_{21} = .244, p > .10) as also indicated by the graphs. Recall from Table 6-16 that when GD is moderate b_{21} = -.02, p > .10. Thus the trend of TF1 impact on IT as GD increases is positive, and TF1 increases IT

only when performance targets are set at a high level of difficulty, i.e. when GD is high. This provides strong support for Hypothesis 4(b).

In summary the result provide support for Hypotheses 4(b) and 4(d_1), i.e. the effect of TF PES on intention to turnover and managerial performance depends on the level of goal difficulty (GD). When the goal difficulty (GD) is low or moderate, TF PES increases performance but does not affect performance when GD is high. On the other hand when GD is high, TF PES tends to increase intention to turnover (IT) but tends to decrease it when GD is low.

6.4.5 Tests of Hypothesis 5 – OHL & Performance Measure Characteristics

Recall that Hypothesis 5(a) states that there is no difference in the level of quantitative information used at low vs. high organisational hierarchical level (OHL); H5(b) states that quantitative (non-)financial information is used more extensively at (low) high OHL; and H5(c) states that the PES dominant at low and high OHL would be different. To reduce the error rates from comparing means between the 5 levels of the OHL, and to also take account of the correlations between the variables of interest the one-way MANOVA technique was employed. First, relative emphasis on quantitative goals (REQG) and relative emphasis on financial goals (REFG) was grouped together as dependent variables (DVs) in one analysis, while the 3 TF PES measures (i.e. TF1, TF2, and TFH) were grouped together as DVs in another analysis - making 2 one-way MANOVAs conducted. Using the MANOVA technique enables one to determine first whether differences in means between the 5 OHLs are large enough to indicate that at least two of the corresponding population means must also differ. If so, then post hoc tests are conducted to further determine which variable means are significantly different between the 5 OHLs, and then to identify the OHLs involved. Results of the 2 one-way MANOVA is presented in Table 6-17 below.

Table 6-17 Summary of One-way MANOVAs. IV: OHL; DVs: REQG, REFG; & TF1, TF2, TFH

Panel 1: *Descriptive Statistics*		REQG	REFG	TF1	TF2	TFH
		Mean	Mean	Mean	Mean	Mean
Hierarchical Levels	N	(Std Dev)	(Std Dev)	(Std Dev)	(Std Dev)	(Std Dev)
Support = 1	21	39.90	26.38	3.50	3.10	.92
		(33.22)	(30.98)	(.83)	(1.10)	(.21)
Executive Assistant = 2	89	44.87	32.58	3.37	2.88	.93
		(23.06)	(28.34)	(.68)	(1.15)	(.17)
Manager = 3	60	49.95	53.38	3.39	2.87	.99
		(25.57)	(27.20)	(.82)	(1.31)	(.52)
Senior Manager = 4	52	42.79	44.9 (30.48)	3.26	2.87	.87
		(25.14)		(.74)	(1.37)	(.27)
Director = 5	14	43.93	66.07	3.01	2.36	.86
		(20.21)	(17.00)	(.82)	(1.12)	(.16)

Panel 2: *Multivariate Tests*		MANOVA–2[a]	MANOVA–1[a]
Wilks' Lambda – *W*		.834	.957
	F	5.46**	.85

Panel 3: *Tests of Between Subject Effects*		REQG	REFG	TF1	TF2	TFH
	F	.91	9.17**	1.16	1.19	.12

[a]The criterion variables in MANOVA-2 are REQG and REFG; and in MANOVA-1 TF1, TF2 and TFH.[62]
^ $p < .10$; * $p < .05$; ** $p < .01$.

Data in the 1st panel of the table show the means and standard deviations of the 5 categories of the OHL (i.e. support, executive assistant, manager, senior manager, and director) for each DV of interest. The 2nd panel of the table presents the results of the 2 MANOVA analysis conducted. Results of analysis with REQG and REFG as the DVs is presented under the heading 'MANOVA-2' while results using the 3 TF PES measures as the DVs is presented under the heading 'MANOVA-1'. In the 1st analysis, i.e. 'MANOVA-1', the multivariate test of differences using Wilks' Lambda is not significant ($W = .957$, $F[12, 606.17] = .85$, $p > .10$). This implies there are no significant differences in the mean levels of TF PES used at different OHL, thus Hypothesis 5(c) is not supported. In the 2nd analysis, i.e. 'MANOVA-2', Wilks' Lambda is significant ($W = .834$, $F[8, 462] = 5.46$, $p < .01$) indicating that at least 2 OHLs had significantly different means on either the REQG and/or the REFG variable. Results of the post hoc tests of between subject effects shown in the 3rd panel of the table reveal that

[62] When all variables are used in one MANOVA; Wilks' Lambda is still significant and test of between subject effects are significant for only REFG, and the multiple comparison results are unchanged.

significant differences in mean exist only in relation to the REFG variable. Thus Hypotheses 4(a) and 4(b) are supported meaning there are no significant differences in the level of REQG at different OHLs, but the level of REFG differed among at least 2 OHLs.

Further post hoc analysis involving multiple comparisons of REFG means was conducted to identify which of the 5 OHLs means significantly differed. First, Levene's test of equality of error variances [$F(4,231) = 2.93$, $p < .05$] indicated unequal error variances of the REFG scores, thus the post hoc analysis was conducted using the Games-Howell test.[63] Result of the multiple mean comparisons is shown in Table 6-18 below, and it suggests that there is more REFG at successively higher OHL, considering just the differences in mean scores. The exception being that there is more REFG at *Manager* (OHL = 3) compared to *Senior Manager* (OHL = 4) levels. In terms of statistical significance, the results show that at *Managers* level there is significantly more REFG compared to *Support* (OHL = 1) and *Executive Assistants* (OHL = 2) levels. Similarly, at *Directors* level (OHL = 5) there is significantly more REFG compared to *Support* (OHL = 1), *Executive Assistants* (OHL = 2), and *Senior Managers* levels.

Table 6-18 Multiple Comparison of Differences in REFG Mean scores between OHLs

Differences in REFG Mean scores between OHLs	Mean Diff (Std Error)	Mean Diff (Std Error)	Mean Diff (Std Error)	Mean Diff (Std Error)
OHLs → ↓	**2**	**3**	**4**	**5** (Director)
Support - 1	-6.20	-27.00**	-18.52	-39.69**
	(7.40)	(7.62)	(7.97)	(8.15)
Executive Assistant - 2		-20.80**	-12.32	-33.49**
		(4.62)	(5.19)	(5.45)
Manager - 3			8.48	-12.69
			(5.50)	(5.74)
Senior Manager - 4				-21.17*
				(6.21)

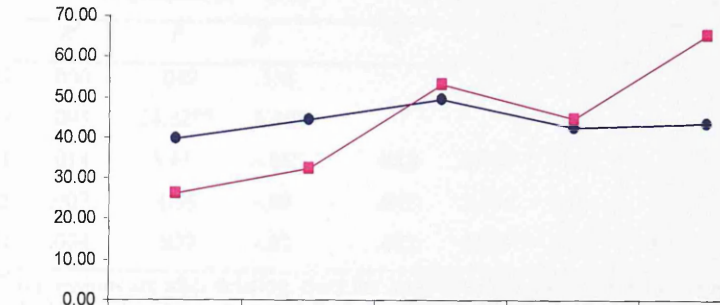
[a]The criterion variables in MANOVA-2 are REQG and REFG; and in MANOVA-1 TF1, TF2 and TFH.[64]
^ $p < .10$; * $p < .05$; ** $p < .01$.

[63] The Games-Howell test does not assume equality of variance or equal sample sizes for the groups that are compared unlike the more popular Tukey's honestly significant difference (HSD) test.
[64] When all variables are used in one MANOVA; Wilks' Lambda is still significant and test of between subject effects are significant for only REFG, and the multiple comparison results are unchanged.

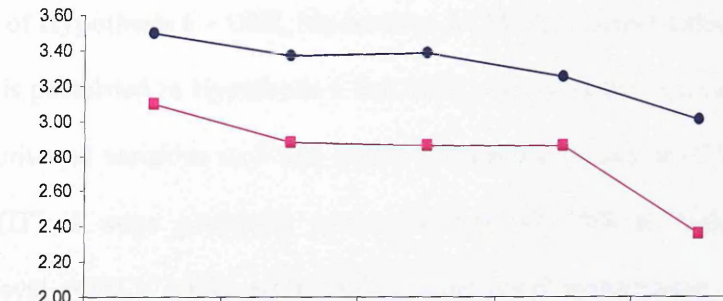
To evaluate this assertion further, a graph of the 5 OHLs means on the REQG, REFG, as well as the TF PES measures is presented in Figure 6.17. As anticipated, the 1st panel of Figure 6.17 indicate little or no difference in the level of REQG across the 5 OHLs. As also anticipated, it depicts progressively higher REFG at higher OHL excepting as already noted that REFG is more at *Manager* level compared to *Senior Manager* level. The 2nd and 3rd panels of Figure 6.17 depict the graphs of the 5 OHLs mean scores on the TF PES measures. Though the tests of differences in the MANOVA indicated no significant differences, the figures show, as anticipated, that progressively lesser TF1 and TF2 PES is employed higher up the hierarchy. However, the graph in the 3rd panel show more TFH higher up the hierarchy up to *Manager* level, and then lower TFH after this level. Thus with the exception of the *Manager* levels, the graph conforms to expectations with lesser TFH used higher up the OHL.

These conclusions are further supported by the results of regressing REQG, REFG, and the TF PES measures on OHL. The results of these regressions presented in Table 6-19 show that the OHL beta estimate for REQG is not significant confirming the hypothesis that there is no difference in REQG at different OHL. But for REFG, the OHL beta estimate is positive and significant implying more REFG at higher OHL, thus confirming the hypothesis. On the hand, the OHL beta estimates for all 3 TF PES measures are negative in the first instance and also significant when observations with abnormal residuals above 3 standard deviations are successively deleted. The results thus imply progressively less TF PES at higher OHL. In summary therefore, the graphs and regression results provide support for Hypotheses 5(a) and 5(b), as well as Hypothesis 5(c), i.e. there is more REFG and less TF PES higher up the hierarchy.

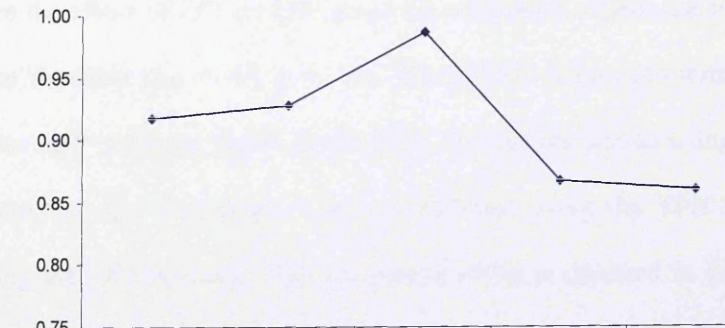
Figure 6.17 Graphs of REQG, REFG, & TF PES Means for the 5 Hierarchical Levels



	Support	Exec Asst	Mgr	Snr Mgr	Director
REQG	39.90	44.87	49.95	42.79	43.93
REFG	26.38	32.58	53.38	44.90	66.07



	Support	Exec Asst	Mgr	Snr Mgr	Director
TF1	3.50	3.37	3.39	3.26	3.01
TF2	3.10	2.88	2.87	2.87	2.36



	Support	Exec Asst	Mgr	Snr Mgr	Director
TFH	0.92	0.93	0.99	0.87	0.86

Table 6-19 Summary of Regression Analysis: OHL predicting REQG, REFG, & TF PES

	1st Regression (N = 236)			2nd Regression[a]			3rd Regression[b]		
IV[+] = OHL	R^2	F	β	R^2	F	β	R^2	F	β
DV[+] = REQG	.000	.049	.338						
DV = REFG	.093	24.02**	8.59**						
DV = TF1	.014	3.41^	-.08^	.016	3.70^	-.09^			
DV = TF2	.007	1.59	-.09	.012	2.74^	-.12	.017	3.85^	-.13^
DV = TFH	.004	.832	-.02	.022	5.23*	-.03*	.032	7.525**	-.03**

Note: 2nd and 3rd regressions are after deleting, from the immediate previous regression, observations with standardized residual more than 3 standard deviations from the residuals mean.
[a] N = 235 for TF1; 233 for TF2 and TFH. [b] N = 230 for TF2 and TFH
[+] IV = independent variable; DV = dependent variable.
^p < .10; *p < .05; **p < .01.

6.4.6 Tests of Hypothesis 6 – OHL Moderation of TF PES Direct Effects

Recall that it is postulated in Hypothesis 6 that OHL moderates the relationship between TF PES and the criterion variables such that quality threatening behaviour (QTB), and intention to turnover (IT) is more positively associated with TF PES at higher organisational hierarchical level (OHL), while effort (EFF), managerial performance (MP) and actual performance rating (AP) is more positively associated with TF PES at lower OHL.

The result of the moderated regression analysis is shown in Table 6-20. It shows that OHL only moderates the effect of TF1 on EFF given the marginally significant interaction term in the 3rd panel of the table (b_{23} = -14, p < .10). The positive interaction term implies that the effect of TF1 on EFF increases higher up the OHL. Results are similar using the other 2 PES measures except that the interaction term is significant using the TFH measure but not significant using the TF2 measure. The moderation effect is depicted in Figure 6.18a for 3 OHL groupings viz.: above managers comprising senior managers and directors; managers; and below managers comprising support and executive assistants. The figures show that EFF is more positively associated with TF PES at high OHL than at low OHL, the reverse of the hypothesis.[65]

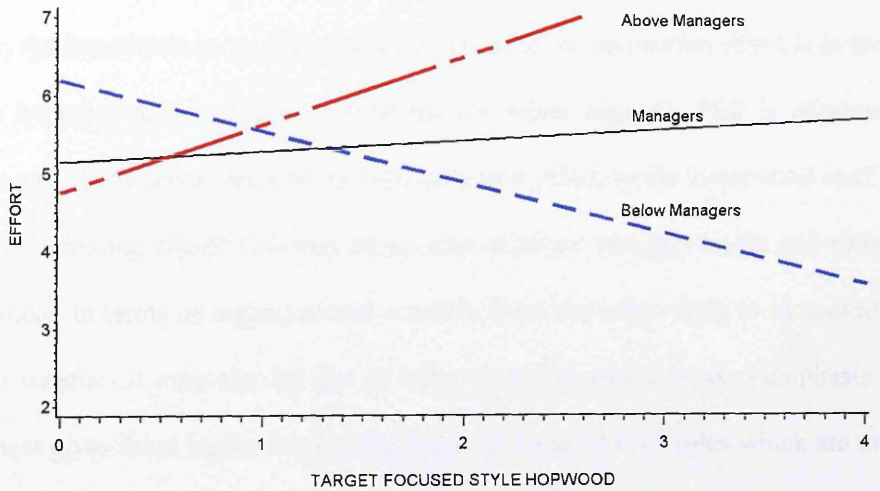
[65] If just the executive assistant, manager and senior manager levels is considered, the graph looks very much the same as that depicted in Figure 6.18 see Appendix 5.

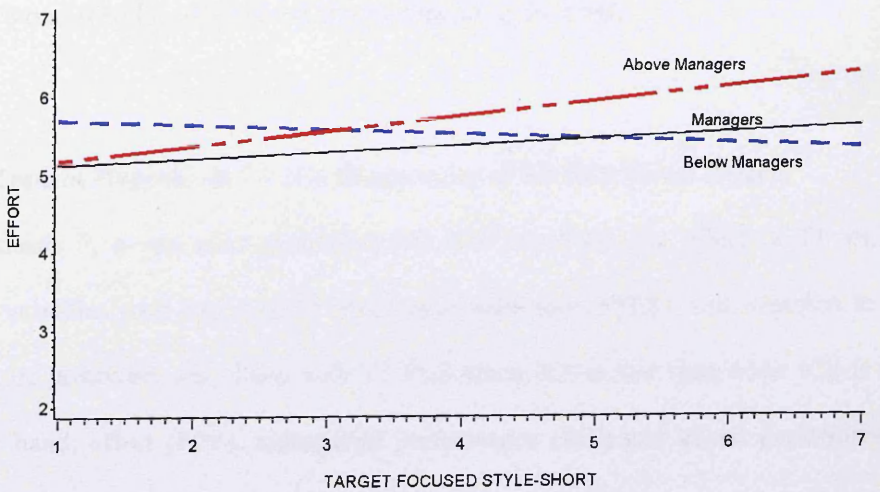
Table 6-20 Summary of Regression Analysis: TF PES, OHL and their interaction predicting QTB, IT, EFF, MP, & AP

N = 236			TF1			TF2			TFH		
Equation Parameters			*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
	Expected sign										
Y = QTB	Constant		2.56**	.043		2.56**	.041		2.56**	.043	
	TF – b_{21}	+	.18**	.058	.20	.19**	.034	.34	.53**	.141	.25
	OHL – b_{22}	(?)	.06	.041	.09	.06	.039	.09	.05	.040	.07
	TF×OHL – b_{23}	+	-.03	.052	-.04	-.04	.032	-.08	-.21	.194	-.07
	F			3.51*			10.57**			5.10**	
	R^2			.043			.12			.062	
Y = IT	Constant		2.96**	.109		2.97**	.107		2.94**	.106	
	TF – b_{21}	+	.04	.145	.02	.20*	.087	.15	.98**	.350	.19
	OHL – b_{22}	(?)	-.08	.102	-.05	-.06	.100	-.04	-.10	.100	-.06
	TF×OHL – b_{23}	+	.02	.130	.01	.07	.083	.05	-.84^	.482	-.12
	F			.28			2.36^			3.12*	
	R^2			.004			.030			.039	
Y = EFF	Constant		5.72**	.097		5.71**	.096		5.734**	.097	
	Gender	(?)	-.37**	.129	-.19	-.36**	.130	-.18	-.41**	.129	-.21
	TF – b_{21}	+	-.04	.084	-.03	.05	.051	.06	-.09	.207	-.03
	OHL – b_{22}	(?)	.01	.060	.02	.02	.060	.02	.03	.060	.04
	TF×OHL – b_{23} -	-	.14^	.076	.12	.08	.049	.11	.69*	.284	.17
	F			3.14*			3.24*			3.78**	
	R^2			.052			.053			.061	
Y = MP[a]	Constant		5.03**	.155		5.06**	.155		5.02**	.155	
	TF – b_{21} ?	+	.46*	.190	.33	.35**	.120	.42	.31	.333	.11
	OHL – b_{22}	(?)	.22	.146	.14	.17	.145	.10	.26^	.145	.16
	TF×OHL – b_{23} -	-	-.08	.177	-.06	-.16	.115	-.20	.86	.527	.20
	F			4.00**			4.12**			4.08**	
	R^2			.090			.092			.091	
Y = AP[b]	Constant		3.49**	.047		3.49**	.048		3.49**	.048	
	TF – b_{21} ?	+	-.19**	.064	-.20	-.05	.039	-.09	-.22	.157	-.10
	OHL – b_{22}	(?)	.01	.045	.01	.01	.045	.01	.02	.046	.03
	TF×OHL – b_{23} -	-	.09	.060	.10	-.02	.038	-.03	.33	.220	.11
	F			3.60*			.74			1.09	
	R^2			.046			.010			.014	

[a]*N* = 126; [b]*N* = 228; ^*p* < .10; **p* < .05; ***p* < .01. *Note expected coefficient sign in bracket is not formally stated in a hypothesis but is apparent in the hypothesis development*

Figure 6.18 OHL Moderation of the TF PES / Effort Relationship - 1





As in the previous section, post hoc analysis examining the significance of TF1 simple effects on EFF at high and low OHL yields:

for low OHL: EFF = 5.703** - .374*Gender*** - .187*TF1* + .013*OHL* + .141(*TF* × *OHL*)^

for high OHL: EFF = 5.732** - .374*Gender*** + .116*TF1* + .013*OHL* + .141(*TF1* × *OHL*)^

Though these simple effects are not statistically significant it is positive at high OHL (b_{21} = .116, $p > .10$) and negative at low OHL (b_{21} = -.187, $p > .10$). Recall from Table 6-20 that at average, i.e. middle, OHL b_{21} = -.04, $p > .10$. Thus the trend of TF1 impact on EFF as OHL rises is positive. Moreover, TF1 impacts positively on EFF only at high OHL. Similar results are obtained using the TFH measure.

In summary, OHL only moderates TF PES impact on EFF in line with Hypothesis 6(c). However, the hypothesis is not fully supported because the interaction effect is in the opposite direction hypothesized. Contrary to expectations, when high TF PES is employed senior managers and above report responding with increased effort, while lower level staff report no change or decreasing effort. This may be because at senior manager levels and above there is more at stake, in terms of organisational rewards, from not responding to increased focus on achieving targets. It may also be that in some circumstances increased emphasis on target achievement gives these higher level managers more focus in their roles which are most likely loosely defined. All other sub-hypothesis under Hypotheses 6 is not supported, i.e. the effects of TF PES on QTB, IT, MP and AP do not depend on the OHL.

6.4.7 Tests of Hypothesis 7 – ICS Moderation of TF PES Direct Effects

In Hypothesis 7, it was also postulated that ICS moderates the effect of TF PES on the criterion variables such that quality threatening behaviour (QTB), and intention to turnover (IT) is more positively associated with TF PES when ICS is low than when ICS is high. On the other hand, effort (EFF), managerial performance (MP) and actual performance rating (AP) is more positively associated with TF PES when ICS is high than when it is low. Results

of the moderated regressions of the criterion variables on TF PES are presented in Table 6-21. Results relating to the criterion variables QTB, EFF, MP and AP in the 1st, 3rd, 4th and 5th panels of Table 6-21 show no significant interaction effect (i.e. $b_{23} = 0$) therefore Hypothesis 7(a), 7(c), 7($d_{1\&2}$) are not supported. Nonetheless, results in the 1st, 2nd and 3rd panels of the table also show that at average levels of TF1, ICS has a negative and significant effect on QTB and IT, and a positive and significant effect on EFF. This implies that at moderate levels of TF1, high ICS leads to increased EFF but reduced QTB and IT. The results are also consistent using the TF2 and TFH PES measures.

On the other hand, results in the 2nd panel of Table 6-21 show that ICS moderates the effect of TF1 on IT given the significant interaction term ($b_{23} = -.35, p < .01$). The moderation effect is depicted in Figure 6.19 representing simple regressions of IT on TF1 at high, low and medium values of ICS. It shows, as expected, that IT is more positively associated with TF1 when ICS is low compared to when ICS is medium or high providing support for Hypothesis 7(b). Post hoc analysis of the significance of the TF1 effects at low and high ICS also confirms this. The post hoc analysis results yields:

for low ICS: $IT = 3.65 + .53TF1^{**} - .51ICS^{**} - .35(TF1 \times ICS)^{**}$

for high ICS: $IT = 2.39 - .32TF1 - .51ICS^{**} - .35(TF1 \times ICS)^{**}$

This shows that TF1 significantly increases IT when ICS is low ($b_{21} = .53, p < .01$) but IT is reduced, though not significantly, when ICS is high ($b_{21} = -.32, p > .10$). Recall from Table 6-21 that when ICS is moderate that TF1 has a positive but non-significant effect on IT ($b_{21} = .10, p > .10$). Thus the trend of TF1 effects on IT as ICS increases is negative, thus the negative interaction term indicating TF1 overall positive impact on IT decreases as ICS increases. Moreover, TF1 significantly increases IT only when ICS is low. Therefore high ICS mitigates TF1 effects on IT. These results are also consistent using the TF2 and TFH measures except that the interaction term for the TFH measure is not significant. In summary, the results provide support for Hypothesis 7(c) but not the other sub-hypotheses. Thus the

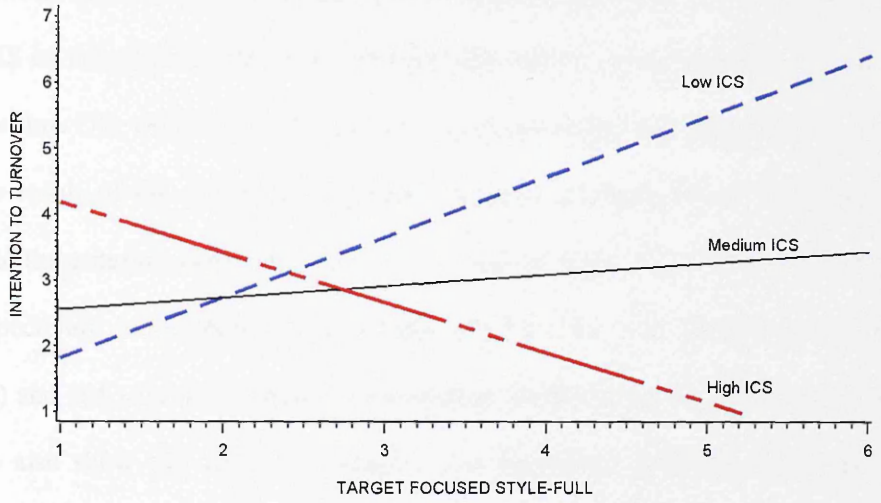
impact of TF PES on IT depends on the level of ICS such that TF PES significantly increases IT only when ICS low and not when ICS is high.

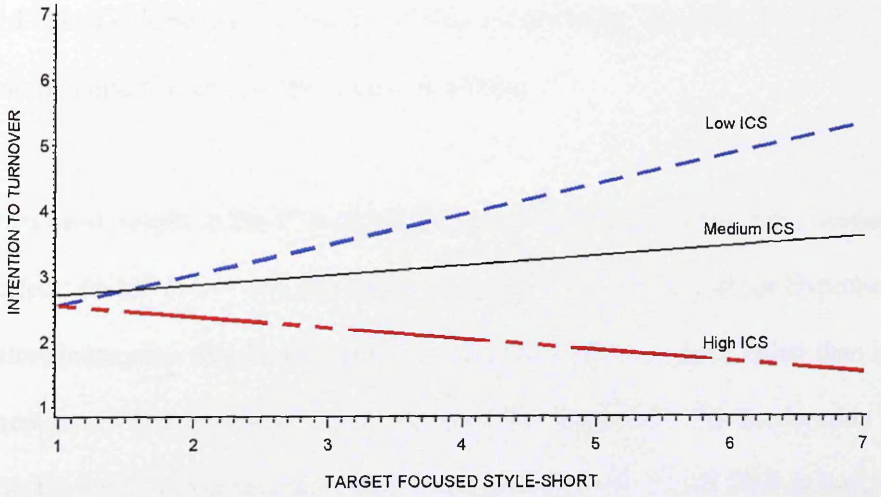
Table 6-21 Summary of regression analysis: TF PES, ICS and their interaction predicting QTB, IT, EFF, AP & MP

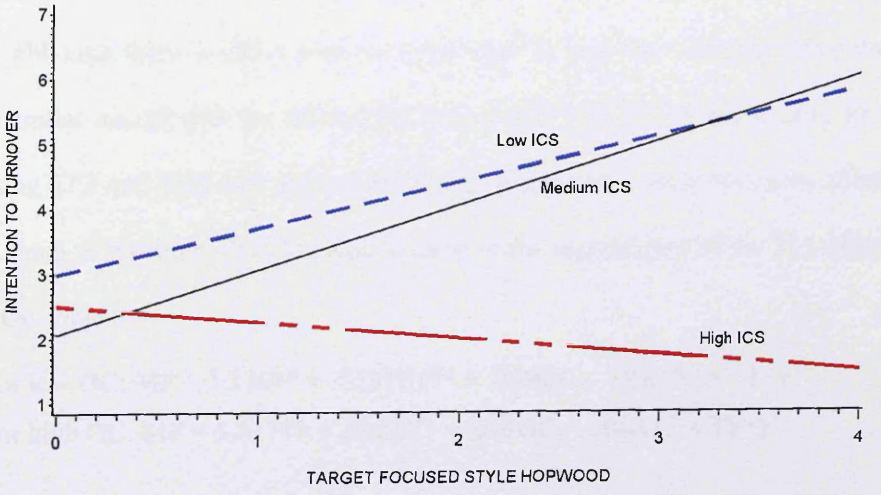
N = 236			TF1			TF2			TFH		
Equation Parameters &			*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
	Expected sign										
Y = QTB	Constant		2.57**	.042		2.56**	.041		2.56**	.041	
	TF – b_{21}	+	.21**	.057	.23	.15**	.034	.28	.47**	.218	.23
	ICS – b_{22}	(-)	-.18**	.035	-.32	-.12**	.033	-.22	-.15**	.034	-.27
	TF×ICS – b_{23}	-	-.04	.047	-.05	-.01	.027	-.03	-.00	.14	-.00
	F			11.64**			13.89**			10.72**	
	R^2			.131			.152			.122	
Y = IT	Constant		3.02**	.102		2.92**	.101		2.96**	.101	
	TF – b_{21}	+	.10	.139	.05	.10	.084	.08	.65	.532	.13
	ICS – b_{22}	(-)	-.51**	.084	-.38	-.41**	.082	-.31	-.44**	.083	-.33
	TF×ICS – b_{23}	-	-.35**	.114	-.20	-.18**	.066	-.17	-.13	.334	-.04
	F			13.51**			13.04**			11.72**	
	R^2			.149			.144			.132	
Y = EFF	Constant		5.72**	.096		5.69**	.094		5.71**	.095	
	Gender	(?)	-.40**	.126	-.20	-.38**	.124	-.19	-.39**	.126	-.20
	TF – b_{21}	+	-.08	.087	-.06	.07	.052	.08	-.14	.328	-.05
	ICS – b_{22}	+	.14**	.052	.18	.15**	.051	.18	.13*	.051	.16
	TF×ICS – b_{23}	+	-.01	.071	-.01	-.06	.041	-.09	-.16	.206	-.08
	F			4.20**			5.13**			4.15**	
	R^2			.068			.082			.067	
Y = MP[a]	Constant		5.23**	.099		5.22**	.099		5.21**	.098	
	TF – b_{21}	+	.33*	.137	.24	.20**	.077	.24	.19	.491	.07
	ICS – b_{22}	(+)	-.01	.084	-.01	.09	.080	.10	.04	.080	.05
	TF×ICS – b_{23}	+	-.07	.113	-.07	-.07	.058	-.11	-.32	.300	-.19
	F			3.14*			3.71*			2.85*	
	R^2			.072			.084			.065	
Y = AP[b]	Constant		3.49**	.048		3.49**	.049		3.49**	.048	
	TF – b_{21}	+	-.20**	.067	-.21	-.05	.040	-.09	-.44^	.252	-.20
	ICS – b_{22}	(+)	.04	.040	.06	.01	.039	.01	.01	.039	.01
	TF×ICS – b_{23}	+	-.01	.053	-.02	.01	.031	.01	-.22	.157	-.16
	F			3.12*			.70			1.06	
	R^2			.040			.009			.014	

[a]$N = 126$; [b]$N = 228$; ^$p < .10$; *$p < .05$; **$p < .01$. *Note expected coefficient sign in bracket is not formally stated in a hypothesis but is apparent in the hypothesis development*

Figure 6.19 ICS Moderation of the TF PES / Intention to Turnover Relationship







6.4.8 Tests of Hypothesis 8 – OC Moderation of TF PES Direct Effects

In Hypothesis 8, it was postulated that organisational commitment (OC) moderates the effects of TF PES on the criterion variables such that QTB, and IT is more positively associated with TF PES at low OC; while EFF, MP, and AP is more positively associated with TF PES at high OC. The result of the moderated regression analysis is presented in Table 6-22. Results relating to the criterion variables QTB, IT, EFF and AP in the 1st, 2nd, 3rd and 5th panels of the table respectively do not show any moderation effect (i.e. $b_{23} = 0$). Therefore Hypothesis 8(a), 8(b), 8(c) and 8(d_2) are not supported. Nonetheless, results in the 1st, 2nd, 3rd and 4th panels of the table also show that OC has a negative and significant effect on QTB and IT, and a positive and significant effect on EFF. Thus at average levels of TF1, increasing OC lowers QTB and IT, and enhances EFF. Result are also similar using the other 2 TF PES measures except that the impact of OC on MP is also significant.

On the other hand, results in the 4th panel of the table show that OC marginally moderates TF1 positive effects on MP ($b_{23} = -.19$, $p < .10$), thus providing some support for Hypothesis 8(d_1). This negative interaction term implies that TF1 impact on MP decreases, rather than increases, as OC increases. Thus Hypothesis 8(d_1) is not fully supported. The moderation effect is depicted in Figure 6.20 representing simple regressions of MP on TF PES at low, high and moderate OC. It shows that MP is more positively associated with TF1 at low rather than at high OC, although there is still a positive association at high OC. Results using the other 2 PES are similar except that the interaction term using TFH is not significant. In addition, results using TF2 and TFH also show a marginally significant interaction term affecting EFF in the 3rd panel of the table. Post hoc examination of the significance of the TF1 effects at low and high OC yields:

for low OC: MP = 5.176** + .553TF1** + .059OC - .194(OC × TF1)^

for high OC: MP = 5.317** + .091TF1 + .059OC - .194(OC × TF1)^

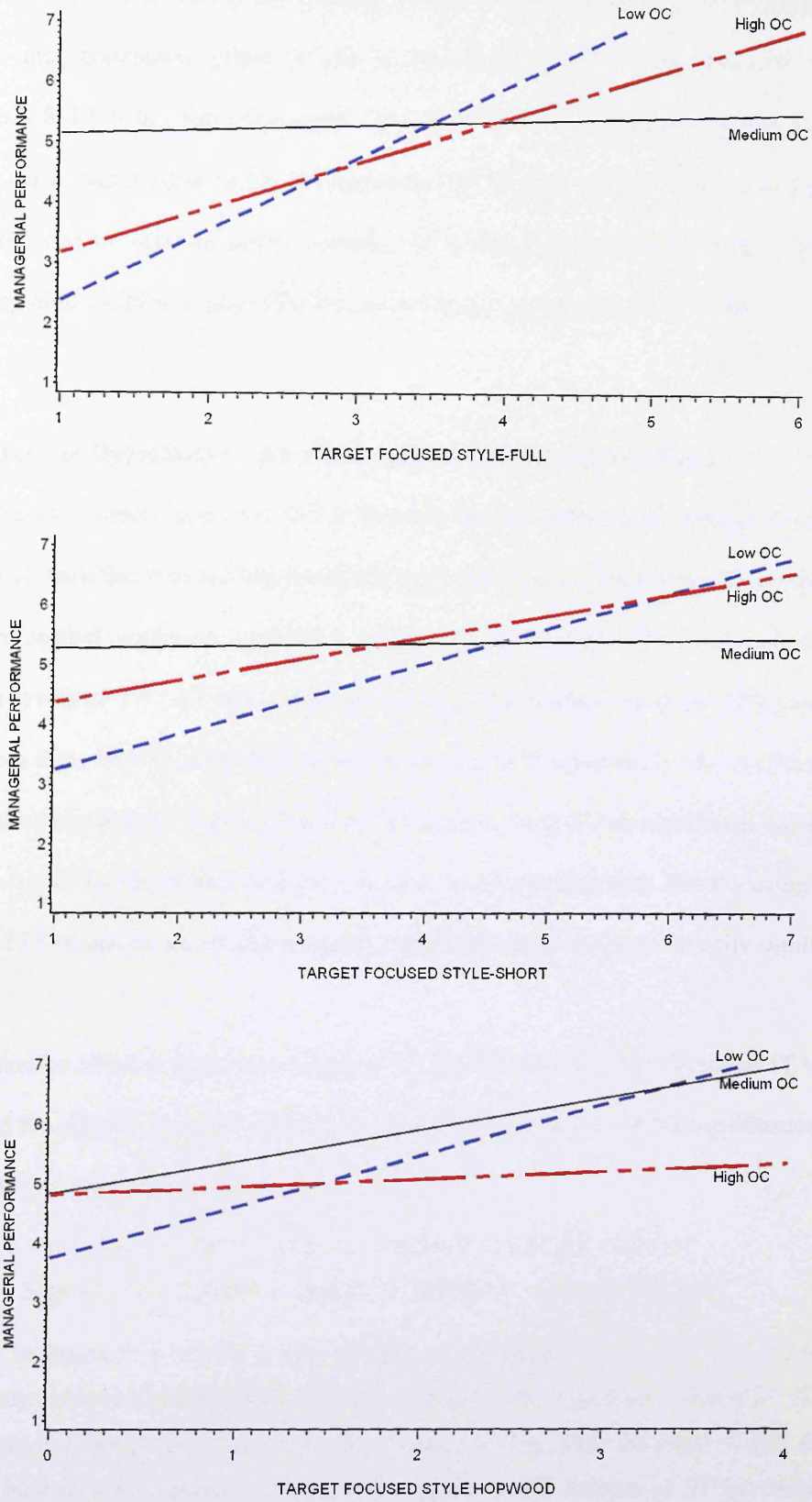
Thus TF1 significantly increases MP when OC is low (b_{21} = .553, p < .01) and moderate (b_{21} = .32, p < .05 from Table 6-22), but has no significant effect on MP when OC is high (b_{21} = .091, p > .10). Therefore the trend of TF1 effects as OC increases is negative.

Table 6-22 Summary of regression analysis: TF PES, OC and their interaction predicting QTB, IT, EFF, AP & MP

N = 236			TF1			TF2			TFH		
Equation	*Parameters & Expected sign*		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Y = QTB	Constant		2.56**	.041		2.56**	.040		2.56**	.041	
	TF – b_{21}	+	.18**	.055	.20	.16**	.033	.30	.28^	.169	.14
	OC – b_{22}	(-)	-.19**	.035	-.33	-.16**	.034	-.29	-.16**	.035	-.28
	TF×OC – b_{23}	-	-.01	.047	-.02	.01	.024	.02	-.09	.096	-.07
	F			12.71**			17.43**			11.88**	
	R^2			.141			.184			.133	
Y = IT	Constant		2.96**	.086		2.96**	.086		2.98**	.086	
	TF – b_{21}	+	.13	.116	.06	.13^	.070	.09	.67^	.351	.13
	OC – b_{22}	(-)	-.85**	.072	-.61	-.83**	.073	-.60	-.83**	.073	-.60
	TF×OC – b_{23}	-	-.09	.098	-.05	-.01	.052	-.01	.30	.199	.10
	F			46.33**			46.77**			46.94**	
	R^2			.375			.377			.378	
Y = EFF	Constant		5.72**	.096		5.71**	.094		5.69**	.095	
	Gender	(?)	-.40**	.127	-.20	-.41**	.125	-.21	-.37**	.126	-.19
	TF – b_{21}	+	-.05	.085	-.04	.06	.051	.07	-.16	.255	-.05
	OC – b_{22}	+	.12*	.053	.15	.14**	.053	.17	.13*	.053	.15
	TF×OC – b_{23}	+	-.01	.072	-.01	-.07^	.038	-.12	-.26^	.145	-.15
	F			3.58**			4.85**			4.48**	
	R^2			.058			.061			.072	
Y = MP[a]	Constant		5.25**	.096		5.20**	.095		5.2**	.097	
	TF – b_{21}	+	.32*	.124	.23	.20**	.074	.24	.67*	.330	.25
	OC – b_{22}	+	.06	.094	.06	.19*	.092	.18	.19*	.094	.18
	TF×OC – b_{23}	+	-.19^	.112	-.15	-.09^	.054	-.16	-.05	.176	-.03
	F			4.41**			5.03**			3.78*	
	R^2			.098			.11			.085	
Y = AP[b]	Constant		3.49**	.047		3.48**	.048		3.48**	.048	
	TF – b_{21}	+	-.19**	.065	-.20	-.06	.039	-.11	-.32	.196	-.14
	OC – b_{22}	+	-.03	.040	-.05	-.04	.041	-.07	-.04	.041	-.07
	TF×OC – b_{23}	+	-.05	.054	-.06	-.02	.029	-.04	-.13	.111	-.10
	F			3.23*			1.25			1.22	
	R^2			.042			.016			.016	

[a]N = 126; [b]N = 228; ^p < .10; *p < .05; **p < .01. *Note expected coefficient sign in bracket is not formally stated in a hypothesis but is apparent in the hypothesis development*

Figure 6.20 OC Moderation of the TF PES / Effort Relationship



To conclude, these results do not provide support for any of the sub-hypothesis in Hypothesis 8. Although TF PES effect on MP depends on the level of OC supporting Hypothesis 8(d_2), however the moderation effect is not in the exact direction hypothesized. Therefore Hypothesis 8(d_2) is not fully supported. Thus high TF PES stimulates more motivation to improve performance when OC is low than when OC is high. Consequently, given that OC is usually boosted by offering higher rewards, these results suggest that doing so while also employing high TF PES is more effective when OC is low than when OC is high.

6.4.9 Tests of Hypothesis 9 – ST Moderation of TF PES Direct Effects

In Hypothesis 9, supervisory trust (ST) is hypothesized to moderate the effects of TF PES on QTB and IT such that they are less positively associated with TF PES when ST is high. Result of the moderated regression analysis is shown in Table 6-23. The results show that at moderate levels of TF1, ST has a negative and significant effect on both QTB and IT. The results also show that ST only significantly moderates TF1 effect on IT (b_{23} = -.25, p < .05). The negative moderation term implies that TF1 positive though non-significant impact on IT decreases as ST increases thus providing support for Hypothesis 9(b). Results using the TF2 and TFH PES measures are similar except the interaction term is not statistically significant.

The moderation effect is depicted in Figure 6.21, and it shows that TF1 increases IT when ST is low and the effect is reversed when ST is high. Post hoc analysis of the significance of TF1 effects on IT at low and high ST yields:

for low ST: IT = 3.58** + .233TF1 - .544ST** - .245(ST × TF1)**
for high ST: IT = 2.269** - .358TF1^ - .544ST** - .245(ST × TF1)**

Thus TF1 increases IT when ST is low, though not significant (b_{21} = .233, p > .10) but IT is significantly reduced when ST is high (b_{21} = -.358, p < .10). And from Table 6-23 TF1 has a negative but not significant effect on IT (b_{21} = -.06, p > .10). Thus the trend of TF1 effect on IT as ST increases is negative, i.e. the positive impact on IT reduces as ST increases and is significantly reversed when ST is high. In conclusion therefore, Hypothesis 9(b) is supported as the results show there is a negative and marginally significant association between TF PES

and IT when ST is high, but a positive though non-significant association when ST is low. On the other hand, Hypothesis 9(a) is not supported meaning that TF PES effect on QTB does not depend on the level of ST.

Table 6-23 Summary of regression analysis: TF PES, ST and their interaction predicting QTB & IT

N = 236		TF1			TF2			TFH		
Equation Parameters & Expected sign		*β*	*SE*	*B*	*β*	*SE*	*B*	*β*	*SE*	*B*
Y = QTB[a] Constant		2.55**	.040		2.54**	.041		2.55**	.040	
TF – b_{21}	+	.13*	.054	.14	.10**	.036	.18	.29	.194	.13
ST – b_{22}	(?)	-.21**	.033	-.37	-.17**	.036	-.30	-.20**	.034	-.36
TF×ST – b_{23}	-	-.06	.041	-.09	-.03	.021	-.09	-.02	.068	-.03
F			18.08**			18.99**			16.72**	
R^2			.189			.197			.178	
Y = IT[a]: Constant		2.93**	.097		2.91**	.101		2.95**	.098	
TF – b_{21}	+	-.06	.132	-.03	-.03	.089	-.02	.77	.473	.15
ST – b_{22}	(?)	-.54**	.082	-.40	-.56**	.089	-.41	-.57**	.083	-.41
TF×ST – b_{23}	-	-.25*	.100	-.15	-.06	.051	-.07	.17	.165	.10
F			19.31**			17.39**			17.97**	
R^2			.200			.184			.189	

^p < .10; *p < .05; **p < .01.

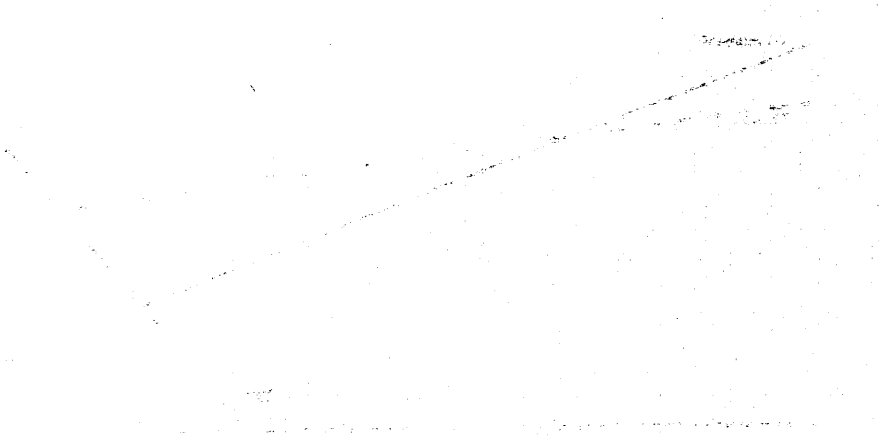
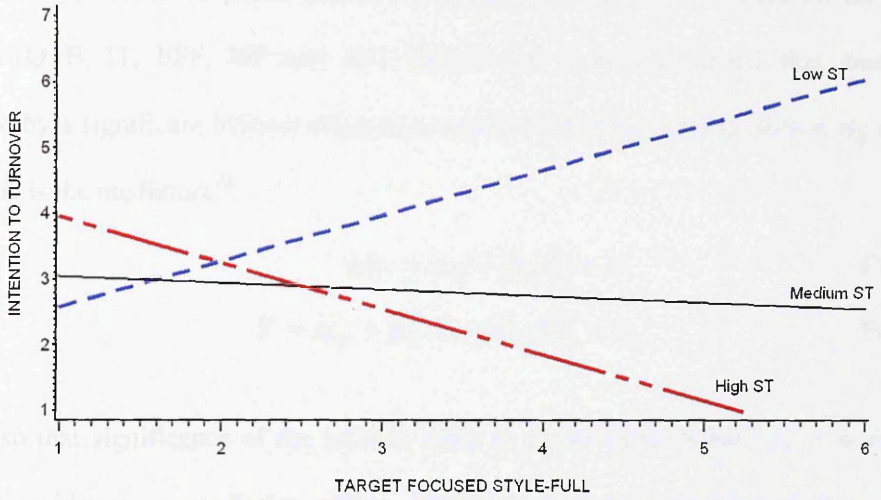
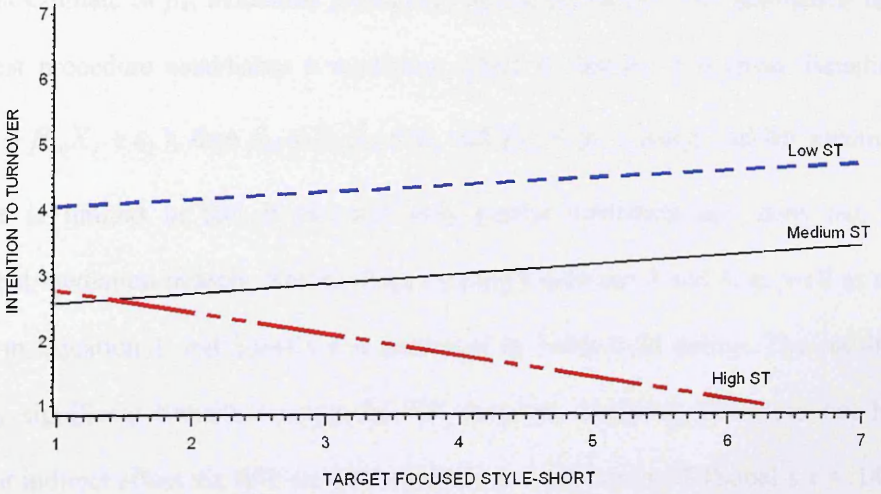
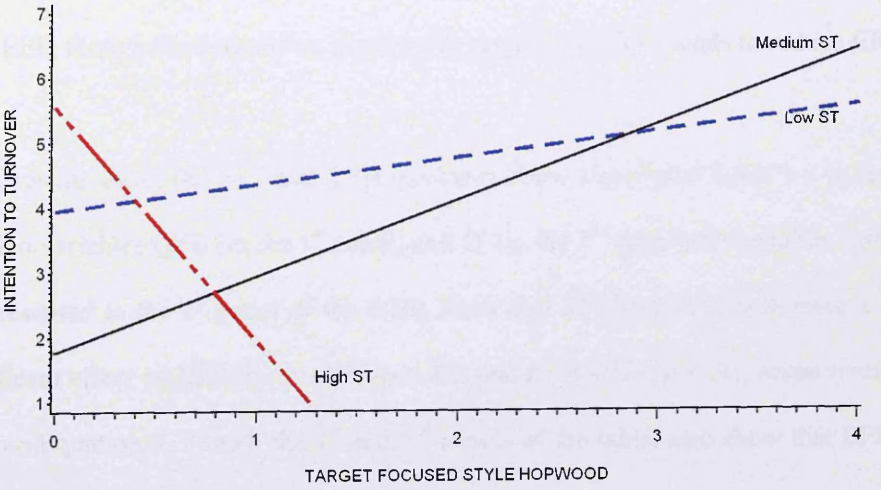


Figure 6.21 ST Moderation of the TF PES / Intention to Turnover Relationship







6.4.10 Tests of Hypothesis 10 – EFP Mediation of TF PES Direct Effects

Recall that Hypothesis 10 posits that EFP mediates the effect of TF PES on the criterion variables (QTB, IT, EFF, MP and AP). Recall also from Section 6.3 that mediation is evidenced by a significant indirect effect represented by $\beta_{31} \times \beta_{42}$ from the following equations (where *Me* is the mediator):[66]

$$Me_i = \alpha_{30} + \beta_{31} X_i + \varepsilon_3 \qquad \text{Equation 3}$$

$$Y_i = \alpha_{40} + \beta_{41} X_i + \beta_{42} Me_i + \varepsilon_4 \qquad \text{Equation 4}$$

Recall also that significance of the indirect effect is tested using Sobel's *z*, so a significant Sobel's *z* evidences a mediation effect. Where mediation is established then a (non-) significant estimate of β_{41} evidences (complete) partial mediation. The alternative Baron and Kenny test procedure establishes a mediation effect if first $\beta_{11} \neq 0$ (from Equation 1 i.e. $Y_i = \alpha_{10} + \beta_{11} X_i + \varepsilon_1$); then $\beta_{31} \neq 0$; $\beta_{42} \neq 0$; and $|\beta_{41}| < |\beta_{11}|$. But as earlier mentioned this procedure is limited in that it assumes only partial mediation and does not hold for inconsistent mediation models. Results from running Equations 3 and 4, as well as estimates of β_{11} from Equation 1 and Sobel's *z* is presented in Table 6-24 below. The results do not show any significant Sobel's *z* using the TF1 measure, implying TF1 does not have any significant indirect effect via EFP on QTB (Sobel's $z = .148$) or on IT (Sobel's $z = .148$). Thus hypothesis 10 is not supported. The result shows TF1 does not seem to have any significant effect on EFP; though the association is generally negative i.e. TF1 tends to reduce EFP.

However, results using the TF2 and TFH measures show significant Sobel's *z* in relation to the criterion variables QTB (in the 1st panel) and IT (in the 2nd panel) of the table. Equations 3 results, presented in the 1st panel of the table, show that TF2 and TFH both have a negative and significant effect on EFP ($b_{31} = -.293, p < .01$; and $b_{31} = -.774, p < .01$, respectively). And results from Equation 4, in both the 1st and 2nd panels of the table, also show that EFP in turn has a negative and significant impact on QTB and on IT allowing for the effect of TF2 (i.e. b_{42}

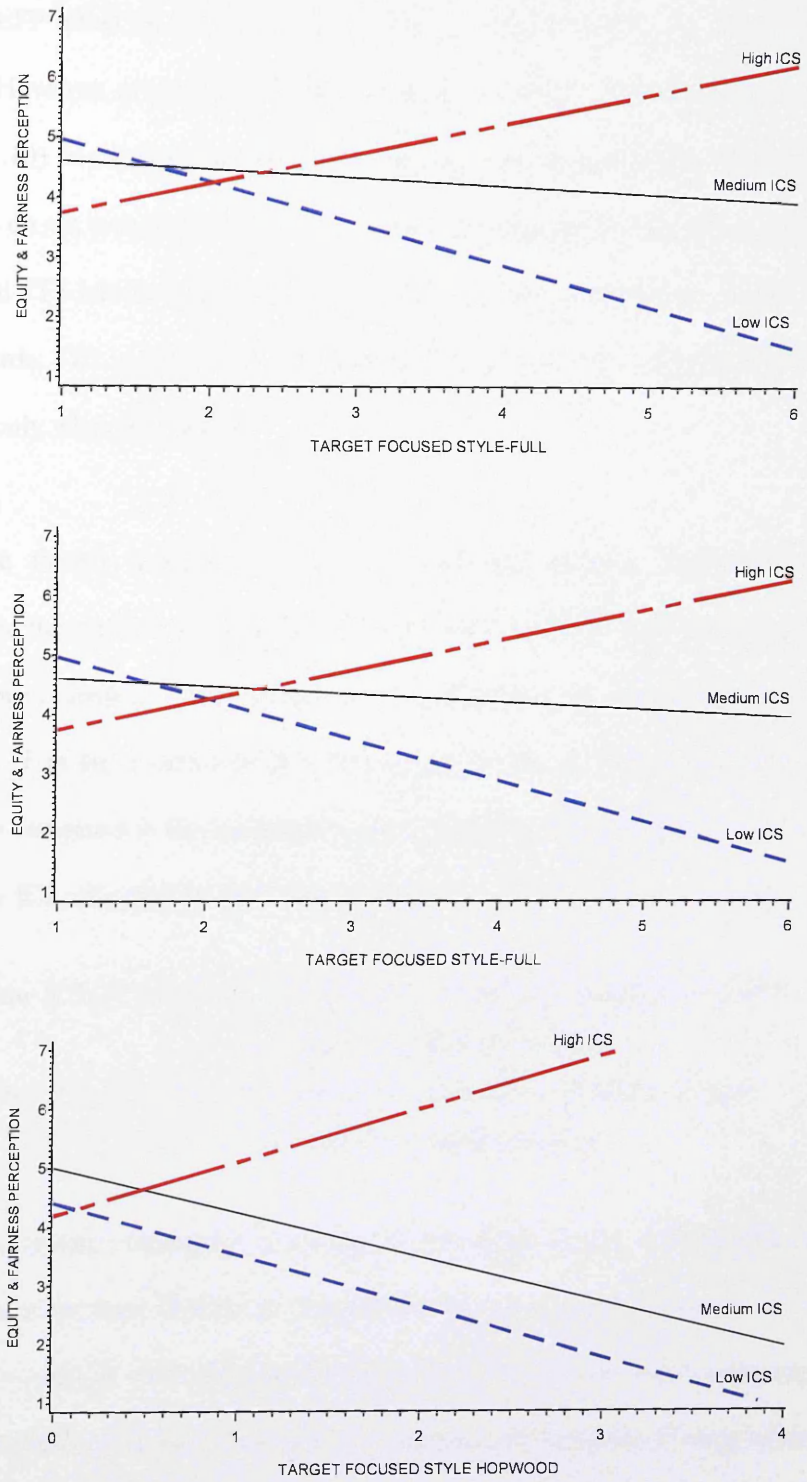
[66] Note that the equations are estimated independently, i.e. equation 3 values are not fitted into equation 4

= -.178, $p < .01$ for QTB; and b_{42} = -.586, $p < .01$ for IT), and allowing for the effect of TFH (i.e. b_{42} = -.20, $p < .01$ for QTB; and b_{42} = -.579, $p < .01$ for IT). This effect of EFP on QTB and on IT is also the same using the TF1 PES measure. Thus allowing for the effect of TF PES, regardless of how it is measured, higher EFP leads to lower QTB and lower IT, and vice versa. When the impact of EFP is controlled, TF2 residual/direct effect on QTB (i.e. b_{41} = .123) and on IT (b_{41} = .039 in the 2nd panel) is smaller than the observed total/overall effects (b_{11} = .1757 for QTB, and b_{11} = .211 for IT). Similarly, TFH residual/direct effect on QTB (i.e. b_{41} = .317 in the 1st panel), and on IT (b_{41} = .354 in the 2nd panel) is smaller than the observed overall effects (b_{11} = .4716 for QTB, and b_{11} = .802 for IT). These results suggest that TF PES reduces EFP, and then the reduced EFP induces more QTB and IT beyond the levels directly attributable to the impact of TF PES. In other words, high TF PES diminishes the impact of EFP such that QTB and IT increases even more. Given that b_{41} estimate in relation to QTB is significant, it implies that TF PES increase of QTB is partially transmitted directly and via EFP. On the other hand, the non-significant b_{41} estimate in relation to IT means the TF PES increase of IT is entirely transmitted via EFP. A breakdown of the total/overall effects of TF2 and TFH on QTB and IT is given below and it shows that this model adequately accounts for the overall effects of TF2 and TFH on QTB and IT.

	TF2 effect on QTB	TFH effect on QTB
Indirect effect (b_{31}× b_{42}):	(-.2931×-.1785) = .0523	(-.7737×-.2003) = .155
Direct effect (b_{41}):	.123	.317
Total:	.1753	.472
Overall effects (b_{11}):	.1757	.472
Spurious effect:	.0004	.000
	TF2 effect on IT	TFH effect on IT
Indirect effect (b_{31}× b_{42}):	(-.2931×-.5866) = .1719	(-.7737×-.579) = .448
Direct effect (b_{41}):	.039	.354
Total:	.2109	.802
Overall effects (b_{11}):	.2109	.802
Spurious effect:	.0000	.000

In summary, the results do not provide support for any of the sub-hypotheses under Hypothesis 10 using the TF1 PES measure, i.e. TF1 does not have an indirect effect via EFP

Figure 6.22 ICS Moderation of TF PES Effect on EFP



Results in the 2nd panel of Table 6-26 relate to examination of the potential moderated mediation of TF1 effects on QTB given that ICS does not moderate TF1 overall effect on QTB, i.e. $b_{23} = 0$. Recall that a moderated mediation then exists if $b_{51,65} \neq 0$ or/and $b_{53,64} \neq 0$,

on any of the criterion variables. However, using TF2 and TFH PES measures Hypothesis 10(a) and 10(b) are supported, i.e. there is an indirect effect on QTB and on IT via EFP. It is also worth noting that the conclusions reached using Sobel's *z* is consistent with the Baron and Kenny criteria given that the overall effect is not suppressed and mediation is only partial.

Table 6-24 Summary of Regression Analysis results: EFP Mediation of TF PES direct effects.

(N = 236)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 1: $Y = \boldsymbol{QTB}$	TF: (b_{11})	+	.1636**	.0574	.1757**	.0337	.4716**	.1342
Equation 3: [++] $Y = EFP$	TF: (b_{31})	?	-.0151	.102	-.2931**	.0592	-.7737**	.2353
Equation 4: $Y = \mathbf{QTB}$	TF: (b_{41})	+	.16**	.053	.123**	.034	.317*	.129
	EFP: (b_{42})	-	-.2174**	.034	-.1785**	.0354	-.2003**	.035
	Sobel's *z*		.148		3.533**		2.851**	
Equation 1: $Y = \boldsymbol{IT}$	TF: (b_{11})	+	.0556	.1431	.211*	.0862	.8020*	.3339
Equation 4: $Y = \mathbf{IT}$	TF: (b_{41})	+	.047	.130	.039	.083	.354	.312
	EFP: (b_{42})	-	-.5989**	.0832	-.5866**	.0874	-.5790**	.0849
	Sobel's *z*		.148		3.985**		2.962**	
Equation 1:[a] $Y = \boldsymbol{EFF}$	TF: (b_{11})	+	-.0299	.0836	.0566	.0508	.0634	.1977
Equation 4:[a] $Y = \mathbf{EFF}$	TF: (b_{41})	+	-.031	.084	.044	.053	.020	.202
	EFP: (b_{42})	+	-.0577	.0536	-.0434	.0562	-.0564	.0548
	Sobel's *z*		.147		.763		.982	
Equation 1:[b] $Y = \boldsymbol{MP}$	TF: (b_{11})	+	.3690**	.1223	.2123**	.0735	.6352**	.2406
Equation 3:[b] $Y = EFP$	TF: (b_{31})	?	-.0188	.1298	-.2215**	.0752	-.7109**	.2452
Equation 4:[b] $Y = \mathbf{MP}$	TF: (b_{41})	+	.371**	.122	.201*	.076	.593*	.249
	EFP: (b_{42})	+	-.1154	.0842	-.0529	.0879	-.0591	.0882
	Sobel's *z*		-.144		.589		.653	
Equation 1:[c] $Y = \boldsymbol{AP}$	TF: (b_{11})	+	-.1830**	.0633	-.0551	.0385	-.1495	.1489
Equation 3:[c] $Y = EFP$	TF: (b_{31})	?	-.0213	.1062	-.2979**	.0604	-.7902**	.2402
Equation 4:[c] $Y = \mathbf{AP}$	TF: (b_{41})	+	-.181**	.063	-.035	.040	-.091	.152
	EFP: (b_{42})	+	.0782*	.0394	.0685	.0421	.0745^	.0410
	Sobel's *z*		-.200		-1.543		-1.59	

[a]Gender is a covariate, i.e. partialled out, in this equation. [b]$N = 126$; [c]$N = 228$

[++] Results of EFP regression on TF PES (i.e. b_{3i} estimate) is same for panels Y = QTB; IT; & EFF.

^ $p < .10$; * $p < .05$; ** $p < .01$.

6.4.11 Tests of Hypothesis 11 – EFP Mediates OHL Moderation of TF PES Effects

Hypothesis 11 posits that EFP is a mechanism by which the hypothesized OHL moderation of the direct effects of TF PES is produced. In particular it was hypothesized that the effect of TF PES on EFP varies as a function of OHL such that at lower (higher) OHL TF PES is positively (negatively or non-significantly) related to EFP, and EFP in turn is negatively related to QTB and IT, and positively related to EFF, MP and AP. Recall from Section 6.3 that such a mediated moderation (as well as a moderated mediation) effect is assessed using 3 regression equations viz.:

$$Y = \alpha_{20} + \beta_{21}X + \beta_{22}Mo + \beta_{23}XMo + \varepsilon_2 \quad \text{Equation 2}$$

$$Me = \alpha_{50} + \beta_{51}X + \beta_{52}Mo + \beta_{53}XMo + \varepsilon_5 \quad \text{Equation 6}$$

$$Y = \alpha_{60} + \beta_{61}X + \beta_{62}Mo + \beta_{63}XMo + \beta_{64}Me + \beta_{65}MeMo + \varepsilon_6 \quad \text{Equation 7}$$

Recall also that for a mediated moderation to be established there must be moderation of the overall effect in the first place, i.e. $\beta_{23} \neq 0$; then either β_{51}, $\beta_{65} \neq 0$ and/or β_{53}, $\beta_{64} \neq 0$, and finally $|\beta_{23}| > |\beta_{63}|$. On the other hand, for a moderated mediation to be established there must not be moderation of the overall effects, i.e. $\beta_{23} = 0$ and there would be a mediation of the overall effects thus either also β_{51}, $\beta_{65} \neq 0$ or β_{53}, $\beta_{64} \neq 0$, and additionally $\beta_{63} \neq 0$ given that $\beta_{23} = 0$.

Recall also from Section 6.4.6 that OHL does not moderate TF1 effects on QTB, IT, MP and AP, i.e. $\beta_{23} = 0$. Consequently, Hypothesis 11 is not supported in relation to these variables. Results are the same using TF2 and TFH PES measures. However, OHL does moderates TF1 effects on EFF such that TF1 induces more effort higher up the OHL. Recall also from the preceding section that, using the TF2 and TFH PES measures, EFP mediates the effects of TF PES on only QTB and IT. Therefore Hypothesis 11 is considered only in relation to EFF, while a possible moderated mediation relationship is explored in relation to QTB and IT. The results from estimating Equations 6 and 7 are presented in Table 6-25 below.

Table 6-25 Summary of Regression Analysis results: EFP Mediation of OHL Moderation of TF PES direct effects.

(N = 236)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 6:[a] *Y = EFP*	TF: (b_{51})	?	.028	.077	-.298**	.075	-.133^	.078
	OHL: (b_{52})	?	-.061	.074	-.086	.072	-.081	.075
	TF×OHL: (b_{53})	?	.004	.072	.030	.071	-.033	.074
Equation 7:[a] **Y = EFF**	TF: (b_{61})	+	-.016	.063	.026	.066	-.025	.065
	OHL: (b_{62})	?	.009	.060	.019	.061	.017	.063
	TF×OHL: (b_{63})	-	.123*	.059	.068	.062	.042	.061
	EFP: (b_{64})	+	-.062	.054	-.056	.056	-.062	.054
	EFP×OHL: (b_{65})	?	-.049	.050	-.029	.052	-.041	.051
Equation 6:[++] *Y = EFP*	TF: (b_{51})	?	.025	.077	-.299**	.075	-.134^	.078
	OHL: (b_{52})	?	-.048	.072	-.075	.071	-.068	.073
	TF×OHL: (b_{53})	-	.001	.072	.026	.071	-.028	.073
Equation 7: **Y = QTB**	TF: (b_{61})	+	.11**	.040	.123**	.042	.088*	.042
	OHL: (b_{62})	?	.03	.038	.043	.038	.035	.039
	TF×OHL: (b_{63})	+	-.42	.038	-.014	.039	-.027	.039
	EFP: (b_{64})	-	-.22**	.034	-.189**	.035	-.208**	.035
	EFP×OHL: (b_{65})	?	.02	.033	.013	.033	.019	.033
Equation 7: **Y = IT**	TF: (b_{61})	+	.029	.098	.087	.102	.043	.100
	OHL: (b_{62})	-	-.124	.092	-.101	.093	-.129	.095
	TF×OHL: (b_{63})	+	.039	.092	.141	.095	-.041	.094
	EFP: (b_{64})	-	-.599**	.084	-.581**	.086	-.595**	.084
	EFP×OHL: (b_{65})	?	.066	.079	.026	.081	.068	.079

[++]Equation 6 result with Y = EFP (i.e. b_{51} - b_{53} estimates) is the same for panels Y = QTB; and Y = IT.
[a]Gender was partialled out in both Equations 6 and 7.
^$p < .10$; *$p < .05$; **$p < .01$.

As can be seen from the 1st panel of the table, TF1 does not have a significant effect on EFP, i.e. $b_{51} = 0$, and neither is the impact of EFP on EFF dependent on the OHL, i.e. $b_{65} = 0$. Also, TF1 impact on EFF is not dependent on OHL, i.e. $b_{53} = 0$. Also, EFP does not have a significant impact on EFF, i.e. $b_{64} = 0$. Thus hypothesis 11 is not supported given the conditions for a mediated moderation highlighted above was not met. In addition, results in the 2nd and 3rd panels of the table do not provide evidence of a moderated mediation relationship in relation to QTB nor IT as neither the 3rd nor 2nd condition highlighted above was met; i.e. $b_{63} = 0$; though $b_{51} \neq 0$ $b_{65} = 0$; and though $b_{64} \neq 0$ $b_{53} = 0$. These results are the same using the TF2 and TFH PES measures.

6.4.12 Tests of Hypothesis 12 – EFP Mediation of ICS Moderation of TF PES Effects

It was posited in Hypothesis 12 that EFP is the mechanism by which ICS moderates the effects of TF PES on the criterion variables. In particular it was hypothesized that the effect of TF PES on EFP varies as a function of ICS such that at high ICS TF PES is positively related to EFP, but negatively or non-significantly relate to EFP when ICS is low. Then EFP, in turn, is negatively related QTB and IT, and positively related to EFF, MP and AP. Recall that the result of the tests of the moderating effects of ICS is significant only with respect to IT as reported in Section 6.4.7, i.e. $b_{23} \neq 0$. Also as previously indicated, the mediating role of EFP is significant with respect to QTB and IT, using the TF2 and TFH PES measures. Therefore Hypothesis 12 will be examined in relation to IT, and a potential moderated mediation relationship is explored in relation to QTB. Given that ICS moderates TF1 overall effects on IT, then a mediated moderation relationship exists if also $b_{51,\,65} \neq 0$ or/and $b_{53,\,64} \neq 0$, and if $|b_{23}| > |b_{63}|$. The result of estimating Equations 6 and 7 is presented in Table 6-26 below.

Results from analyzing Equations 6, presented in the 1st panel of Table 6-26, shows that TF1 has a negative but non-significant effect on EFP (i.e. $b_{51} = -.075$, $p > .10$). However, the significant TF× ICS interaction (i.e. $b_{53} = .163$, $p < .01$) indicates that TF1 effect on EFP depends on the level of ICS. Results using TF2 and TFH PES are similar except that TF2 and TFH also have significant negative effects on EFP as earlier noted, i.e. $b_{51} \neq 0$. ICS moderation of TF1 effect on EFP is illustrated in Figure 6.22 below, which represents simple regressions of EFP on TF1 at low, medium and high ICS. As expected, it shows that TF1 reduces EFP when ICS is low and increases it when ICS is high. Post hoc analysis of the significance of these effects at high (+1 SD) and low (-1 SD) ICS yields:

for low ICS: EFP = 3.755** - .276TF1** + .444ICS** + .163(TF1 ×ICS)**
for high ICS: EFP = 4.846** + .126TF1 + .444ICS** + .163(TF1 ×ICS)**

Thus TF1 significantly reduces EFP when ICS is low ($b_{51} = -.276$, $p < .01$), whereas EFP is not significantly affected when ICS is high ($b_{51} = .126$, $p > .10$) or moderate ($b_{51} = -.075$, $p > .10$ from Table 6-26). Hence the trend of TF1 effect on EFP as ICS increases is positive, i.e.

TF1 increases EFP as ICS increases and conversely TF1 reduces EFP as ICS decreases. However, TF1 reduction of EFP is only significant when ICS is low.

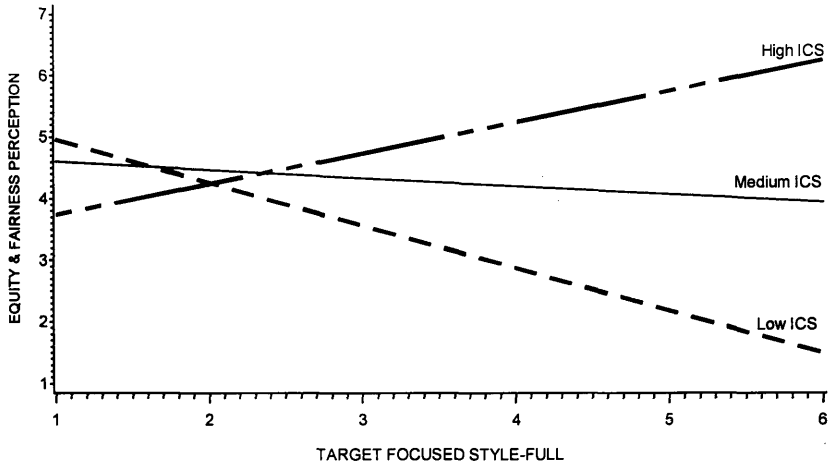
Table 6-26 Summary of Regression Analysis results: EFP Mediation of ICS Moderation of TF PES direct effects.

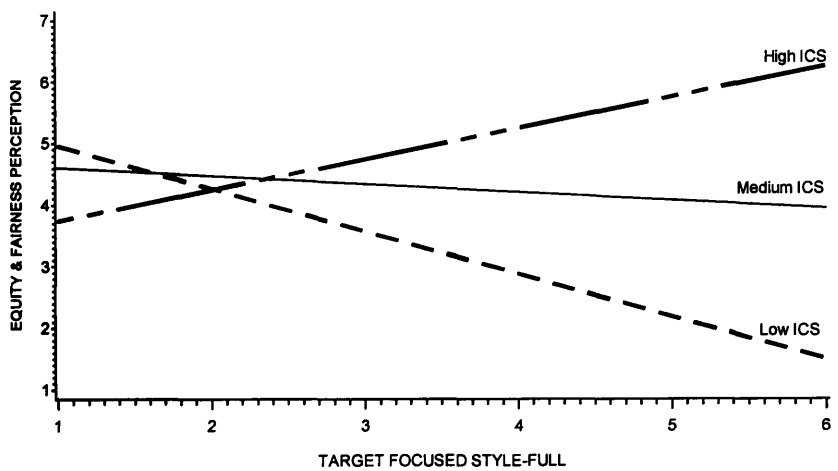
(N = 236)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		β	*SE*	β	*SE*	β	*SE*
Equation 2[+]: *Y = IT*	TF×ICS: (b_{23})	+	-.298**	.084	-.204*	.083	-.158^	.086
Equation 6[++]: *Y = EFP*	TF: (b_{51})	?	-.075	.070	-.223**	.069	-.167*	.069
	ICS: (b_{52})	+	.444**	.058	.379**	.056	.439**	.058
	TF×ICS: (b_{53})	+	.163**	.058	.101^	.056	.119*	.058
Equation 7: **Y = IT**	TF: (b_{61})	+	.095	.097	..086	.099	.097	.099
	ICS: (b_{62})	-	-.319**	.089	-.255**	.087	-.279**	.091
	TF×ICS: (b_{63})	-	-.235**	.082	-.150^	.082	-.103	.082
	EFP: (b_{64})	-	-.431**	.091	-.453**	.093	-.457**	.092
	EFP×ICS: (b_{65})	?	.068	.058	.022	.060	.052	.058
Equation 7: **Y = QTB**	TF: (b_{61})	+	.126**	.041	.112**	.041	.095*	.041
	ICS: (b_{62})	-	-.089*	.038	-.058	.036	-.082*	.038
	TF×ICS: (b_{63})	-	.008	.035	.045	.034	-.006	.034
	EFP: (b_{64})	-	-.181**	.038	-.169**	.039	-.172**	.039
	EFP×ICS: (b_{65})	?	.008	.024	.019	.025	.011	.024

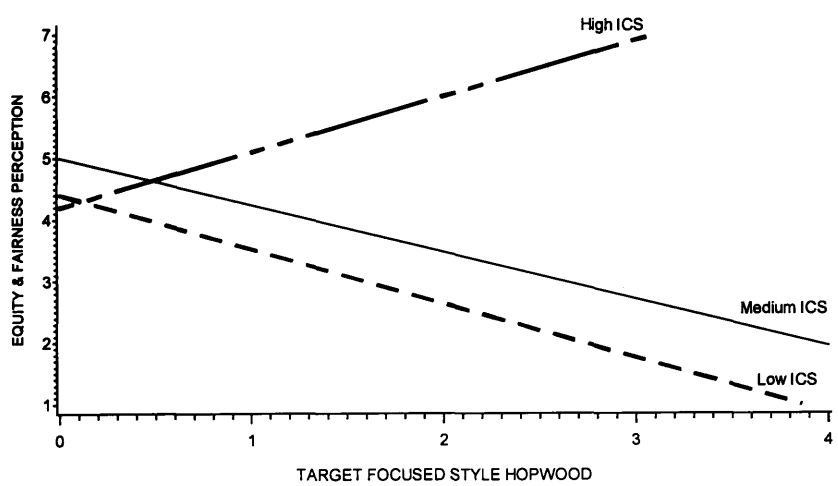
[+] TF PES variables are contrast coded and thus beta estimates are different from those in Table 6-21. [++]Results of estimating Equation 6 is same for panels Y = IT; and Y = QTB.
^$p < .10$; *$p < .05$; **$p < .01$.

Furthermore, Equation 7 results in the 1st panel of the table confirm earlier results in Section 6.4.7. It also shows that TF1 effect on IT is dependent on the level of ICS even allowing for the effects of EFP (i.e. $b_{63} = -.235, p < .01$). As already illustrated in Figure 6.19 Section 6.4.7, this implies that TF1 significantly increases IT only when ICS is low. In addition, Equation 7 results also show that EFP has a negative and significant effect on IT (i.e. $b_{64} = -.431, p < .01$) and that this effect is not dependent on the level of ICS (i.e. $b_{65} = .068, p > .10$). Altogether these results (i.e. $b_{23} \neq 0$, $b_{53} \neq 0$, and $b_{64} \neq 0$) indicate that a mediated moderation relationship exist given also that $|b_{23}| = .298$ is greater than $|b_{63}| = .235$. Therefore Hypothesis 12(b) is supported.

Figure 6.22 ICS Moderation of TF PES Effect on EFP







**Results in the 2nd panel of Table 6-26 relate to examination of the potential moderated mediation of TF1 effects on QTB given that ICS does not moderate TF1 overall effect on QTB, i.e. $b_{23} = 0$. Recall that a moderated mediation then exists if $b_{51,65} \neq 0$ or/and $b_{53,64} \neq 0$,

and if also $b_{63} \neq 0$. Thus the significant TF×ICS interaction (i.e. $b_{53} = .163$, $p < .01$) and significant EFP effect on QTB (i.e. $b_{64} = -.181$, $p < .01$) is indicative of possible moderated mediation. However, given that TF1 residual effect on QTB is not moderated by ICS (i.e. $b_{63} = .008$, $p > .10$) this moderated mediation relationship is not statistically established. Though the findings do not provide evidence of a moderated mediation model, the results nevertheless suggests that TF1 has an indirect effect on QTB via EFP which depends on the level of ICS. In other words, TF1 reduces EFP and (lower) EFP in turn results in higher QTB. However, this occurs only when ICS is low.

To facilitate further interpretation of the significant mediated moderation relationship established in the previous paragraphs, TF1 total indirect effect on IT at high and low values of ICS can be computed. This is computed as the product of the simple effects of TF1 on EFP and EFP on IT at these values of ICS. TF1 simple effects on EFP at high and low ICS has already been computed in the paragraphs above. Similarly, the simple effects of EFP on IT at high and low ICS, allowing for TF1 effects, yields:

for low ICS: IT = 3.363** + .385TF1** - .319ICS** - .235(TF1×ICS)**
- .514EFP** + .068(EFP×ICS)

for high ICS: IT = 2.971** +.095TF1 - .319ICS** - .235(TF1×ICS)**
- .431EFP** + .068(EFP×ICS)

The above equations confirm that, allowing for the effects of TF1, EFP significantly reduces IT regardless of the level of ICS (i.e. from above equations $b_{64} = -.514$, $p < .01$ when ICS is low, and $b_{64} = -.431$, $p < .01$ when ICS is high). So, ICS does not moderate the impact of EFP on IT. It also confirms earlier results that TF1 significantly increases IT only when ICS is low (TF1 residual effect $b_{61} = .385$, $p < .01$ from above equations) whereas it does not affect IT when ICS is high ($b_{61} = .095$, $p > .10$ from above equations) or when ICS is moderate ($b_{61} = .095$, $p > .10$ from Table 6-26). TF1 indirect effect on IT when ICS is high and when ICS is low, as the product of the simple effects of TF1 on EFP and EFP on IT (i.e. $b_{51} \times b_{64}$), yields:

at low ICS (-1 SD): -.276 × -.514 = .142
at high ICS (+1 SD): .126 × -.431 = -.054

These computations show that TF1 has considerably more effect on IT via EFP when ICS is low than when ICS is high. When ICS is high TF1 has little or no indirect effect on IT via EFP, but when ICS is low the indirect effect is much more substantial. This significant positive effect of TF1 on IT, when ICS is low, is also transmitted both indirectly via EFP and directly given that the residual/direct effect of TF1 on IT is significant (i.e. $b_{61} = .385, p < .01$ from above equations). Moreover, from Table 6-26 the moderated residual/direct effect of TF1 on IT (i.e. $|b_{63}| = .235$) is smaller than the moderated total/overall effects (i.e. $|b_{23}| = .298$). Thus TF1 reduces EFP and the lower EFP, in turn, results in higher IT.

In summary, the results only provide support for the mediated moderation model of Hypothesis 12(b). The overall effect of TF PES on intention to turnover (IT) is moderated by the interactive use of control systems (ICS) such that TF PES induces greater IT only when ICS is low and this results entirely indirectly from TF PES reduction of equity and fairness perceptions (EFP). On the other hand, when ICS is high TF PES does not impact significantly on IT and on EFP.

6.4.13 Tests of Hypothesis 13 – EFP Mediation of ST Moderation of TF PES Effects

Recall that in Hypothesis 13, EFP was also postulated to be the mechanism by which supervisory trust (ST) moderates the effects of TF PES on the criterion variables. In Section 6.4.7, ST was observed to moderate only the effect of TF PES on IT. And as noted before EFP mediated the effects of TF PES on only IT and QTB. Consistent with previous sections, Hypothesis 13 will therefore be examined only in relation to IT while a possible moderated mediation relationship is explored in relation to QTB. The result of examining both models of relationship is presented in Table 6-27 below.

Table 6-27 Summary of Regression Analysis results: EFP Mediation of ST Moderation of TF PES direct effects

(N = 236)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 2[+]*: Y = **IT***	TF×ST: (b_{23})	+	-.190*	.081	-.148^	.086	-.100	.081
Equation 6[++]*: Y = EFP*	TF: (b_{51})	?	.016	.065	-.116^	.068	-.104	.065
	ST: (b_{52})	+	.512**	.054	.481**	.057	.524**	.053
	TF×ST: (b_{53})	+	.070	.054	.051	.057	.133*	.053
Equation 7: **Y = IT**	TF: (b_{61})	+	.015	.094	.014	.100	.052	.097
	ST: (b_{62})	-	-.349**	.093	-.343**	.095	-.364**	.095
	TF×ST: (b_{63})	-	-.169*	.078	-.094	.091	-.043	.079
	EFP: (b_{64})	-	-.357**	.096	-.373**	.096	-.363**	.098
	EFP×ST: (b_{65})	?	.089	.056	.058	.062	.078	.057
Equation 7: **Y = QTB**	TF: (b_{61})	+	.102**	.039	..083*	.041	.078^	.044
	ST: (b_{62})	-	-.138**	.038	-.123**	.039	-.146**	.039
	TF×ST: (b_{63})	-	.006	.032	.028	.037	-.036	.033
	EFP: (b_{64})	-	-.129**	.039	-.119**	.039	-.113**	.04
	EFP×ST: (b_{65})	?	.044	.023	.054*	.026	.041^	.024

[+] TF PES variables are contrast coded and thus beta estimates are different from those in Table 6-23. [++]Results of regressing EFP on TF PES (i.e. b_{31} estimate) is same for panels Y = QTB; IT; & EFF.
^$p < .10$; *$p < .05$; **$p < .01$.

Recall from Section 6.4.9 that ST moderates TF1 effect on IT ($b_{23} \neq 0$) such that TF1 increases IT only when ST is low, but IT is significantly reduced when ST is high. However, the results in the 1st panel of Table 6-27 indicate that these effects are not transmitted via EFP. Firstly, results from Equation 6 show that TF1 effect on EFP does not depend on the level of ST ($b_{53} = .07, p > .10$); in fact TF1 does not affect EFP once ST is controlled ($b_{51} = .016, p > .10$). However, allowing for the effects of TF1, ST significantly increases EFP ($b_{52} = .512, p < .01$). Secondly, results from Equation 7 in this panel show that EFP significantly reduces IT ($b_{64} = -.357, p < .01$) regardless of the level of ST (i.e. $b_{65} = .089, p > .10$). Thus, given that $b_{51} = 0$, $b_{65} = 0$, and also that $b_{53} = 0$ even though $b_{64} \neq 0$, the conditions for a mediated moderation is not met and therefore Hypothesis 13(b) is not supported. Results using TF2 is similar to the TF1 results. However, results using TFH provide support for the hypothesis given that $b_{53,\ 64} \neq 0$. First TFH impact on EFP depends on the level of ST ($b_{53} = .133, p < .05$). This implies that the trend of TFH impact on EFP is positive as ST increases. Given that TFH simple effect on EFP is negative when ST is moderate (i.e. $b_{51} = -.104, p > .10$ from

Table 6-27) the moderation is such that TFH reduces EFP when ST is low and increases EFP when ST is high. At the same time EFP has a significant impact on IT (b_{64} = -.363, p < .01) which implies that IT reduces as EFP increases and increases as EFP reduces. Thus when ST is low TFH increase of IT is entirely via EFP. TFH reduces EFP, and the reduced EFP in turn results in higher IT.

Results in the 2nd panel of Table 6-27 relate to the examination of a possible moderated mediation of TF1 effects on QTB given that ST does not moderate TF1 overall effect on QTB (i.e. b_{23} = 0). As already noted, TF1 does not impact on EFP (i.e. b_{51} = 0) and this is not dependent on the level of ST (i.e. b_{53} = 0). Also, EFP has a significant impact on QTB (b_{64} = -.129, p < .01), and this is not dependent on the level of ST (b_{65} = .044, p > .10). Finally, TF1 direct impact on QTB is also not dependent on the level of ST (b_{63} = .006, p > .10). Recall that a moderated mediation is only established if b_{23} = 0, $b_{63} \neq 0$, and at the same time $b_{51,65} \neq 0$ and/or $b_{53,64} \neq 0$. Therefore the results do not provide support for a moderated mediation relationship. The same conclusion is reached using either the TF2 or TFH PES measure as b_{63} = 0.

In summary, results do not provide support for Hypothesis 13. In other words, though TF1 increases IT when supervisory trust (ST) is low and significantly reduces it when ST is high, these effects at low or high ST are not transmitted via equity and fairness perception (EFP). TF1 does not have any impact on EFP regardless of the level of ST, and EFP significantly reduces IT regardless of the level of ST. Results using the TF2 measure is also consistent with that of TF1. On the other hand, results using TFH provide evidence of a mediated moderation. TFH only reduces IT when ST is low and this is transmitted via reduced EFP, i.e. TFH reduces EFP and reduced EFP in turn engenders more IT. Results of the exploratory moderated mediation relationship in relation to QTB do not provide evidence of such a relationship.

6.4.14 Tests of Hypothesis 14 – GC Mediation of TF PES Direct Effects

Recall that Hypothesis 14 postulates that goal commitment (GC) mediates the effect of TF PES on the criterion variables. Recall also that a significant Sobel's z provides evidence of a mediation effect. Result of testing Hypothesis 14 is presented in Table 6-28.

Results in the 1st panel of the table relating to QTB show a significant Sobel's z ($z = 2.009$, $p < .05$) meaning that GC mediates the effects of TF1 on QTB. In detail, the results show that TF1 significantly increases GC ($b_{31} = .2029$, $p < .01$) and GC, in turn and allowing for the effect of TF1, significantly reduces QTB ($b_{42} = -.1576$, $p < .01$). And when the effect of GC on QTB is controlled, TF1 residual/direct effect on QTB is still significant (i.e. $b_{41} = .194$, $p < .01$) and greater than its overall/total effect on IT (i.e. $b_{11} = .1636$, $p < .01$). In other words, TF1 impact on QTB is both direct and indirect via GC, but GC actually suppresses some of TF1 effects on QTB such that TF1 overall impact on QTB is reduced though still significant. Results using TF2 is consistent though not significant, and results using TFH is consistent and marginally significant. In this case of a partial mediation, it is worth noting that the conclusion reached using the Baron and Kenny criteria is consistent with the Sobel's z criteria.

Similarly, results in the 2nd panel of the table relating to the criterion variable IT also show a significant Sobel's z. This means that GC also mediates TF1 effects on IT. Firstly, as discussed above, TF1 increases GC (i.e. $b_{31} \neq 0$). Secondly, allowing for TF1 effects, GC in turn significantly reduces IT ($b_{42} = -.6212$, $p < .01$). Thirdly, when the effect of GC on IT is controlled, TF1 residual/direct effect on IT (i.e. $b_{41} = .182$, $p > .10$) is not significant and is also greater in absolute value than TF1 overall effects on IT (i.e. $b_{11} = .0556$, $p > .10$). This means that GC completely suppresses TF1 effects on IT. Thus the overall effect of TF1 on IT is not observed because as TF1 increases IT and it equally increases GC, and GC in turn reduces IT such that TF1 overall impact on IT is completely suppressed and thus not significant. Again, results using the TF2 and TFH measures are consistent with these results, though Sobel's z is not significant.

Table 6-28 Summary of Regression Analysis results: GC Mediation of TF PES direct effects.

(N = 236)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 1: Y = **QTB**	TF: (b_{11})	+	.1636**	.05734	.1757**	.0337	.4716**	.1342
Equation 3:[a] *Y = GC*	TF: (b_{31})	+	.2029**	.0750	-.0264	.0464	.3326^	.1785
Equation 4: Y = **QTB**	TF: (b_{41})	+	.194**	.057	.173**	.033	.519**	.133
	GC: (b_{42})	-	-.1576**	.0491	-.1096*	.047	-.1415**	.0484
	Sobel's *z*		-2.009*		.552		-1.571	
Equation 1: Y = **IT**	TF: (b_{11})	+	.0556	.1431	.2111*	.0862	.802*	.334
Equation 4: Y = **IT**	TF: (b_{41})	+	.182	.138	.196*	.082	1.014**	.317
	GC: (b_{42})	-	-.6212**	.1182	-.5838**	.1155	-.6386**	.1152
	Sobel's *z*		-2.405*		.564		-1.766^	
Equation 1:[b] Y = **EFF**	TF: (b_{11})[c]	+	-.0299	.0836	.0566	.0508	.0634	.1977
Equation 4:[b] Y = **EFF**	TF: (b_{41})	+	-.101	.081	.065	.049	-.049	.190
	GC: (b_{42})	+	.3453**	.0693	.3335**	.0683	.3324**	.069
	Sobel's *z*		2.378*		-.565		1.738^	
Equation 1:[d] Y = **MP**	TF: (b_{11})	+	.369**	.1222	.2123**	.0735	.635**	.2406
Equation 3:[d] *Y = GC*	TF: (b_{31})	+	.2951**	.0959	.0097	.0596	.3394**	.1918
Equation 4:[d] Y = **MP**	TF: (b_{41})	+	.319*	.126	.21**	.072	.565	.241
	GC: (b_{42})	+	.1711	.1138	.2429*	.1089	.2066^	.1115
	Sobel's *z*		1.349		.1625		1.279	
Equation 1:[e] Y = **AP**	TF: (b_{11})	+	-.183**	.0633	-.0551	.0384	-.1495	.1489
Equation 3:[e] *Y = GC*	TF: (b_{31})	+	.2353**	.0750	-.0201	.0458	.3325^	.1760
Equation 4:[e] Y = **AP**	TF: (b_{41})	+	-.197**	.065	-.055	.039	-.16	.15
	GC: (b_{42})	+	.0592	.0561	.022	.0558	.0318	.0563
	Sobel's *z*		.999		-.293		.54	

[a]Results from regressing GC on TF PES (i.e. b_{3l} estimate) is same for panels Y = QTB; IT; & EFF.
[b]*Gender* is a covariate, i.e. partialled out, in the equation.
[c]b_{11} reported here is the estimate from the regression of EFF on gender and the linear TF PES term. Nonetheless, using the TF1 measure, a significant b_{11} (1.03) also resulted from the regression of EFF on gender, linear and quadratic TF1 while the quadratic term was not significant
[d]$N = 126$; [e]$N = 228$ ^$p < .10$; *$p < .05$; **$p < .01$.

Again, results in the 3rd panel of the Table 6-28 relating to the criterion variable effort (EFF) show a significant Sobel's *z* indicating that GC mediates TF1 effects on EFF. As before TF1 increases GC ($b_{31} \neq 0$), and GC in turn increases EFF ($b_{42} = .3453, p < .01$). When the impact of GC is controlled, TF1 residual/direct effect on EFF (i.e. $b_{41} = -.101$, $p > .10$) is not significant and is greater in absolute value than its overall/total effects on EFF (i.e. $b_{11} = -.0299$, $p > .10$). Thus GC completely suppresses TF1 effect on EFF. TF1 overall (linear) impact on EFF is negative but not significant because TF1 also increases GC which increases EFF in turn, therefore TF1 overall impact on EFF is suppressed and thus not significant.

Results using the TF2 and TFH measures are also consistent with these results; except that Sobel's *z* is not significant using the TF2 measure.

In the 3rd and 4th panels of Table 6-28, Sobel's *z* is not significant indicating that GC does not mediate the effects of TF1 on managerial performance (MP) and on actual performance rating (AP). However, the results generally show that TF1 increases GC but GC has no significant impact on MP and AP. Using the TF2 and TFH measures, the same conclusion is reached i.e. no evidence of TF PES indirect effect on MP and AP via GC. In summary, the results provide support for Hypothesis 14(a), 14(b), and 14(c). In other words, TF1 has an indirect impact on quality threatening behaviour (QTB), intention to turnover (IT) and on effort (EFF) via GC. In all cases, GC acts as a suppressor of the full impact of TF1, and in the case of IT and EFF it completely suppresses TF1 impact on these variables. On the other hand, Hypothesis 14($d_{1\&2}$) is not supported, i.e. TF1 does not have any indirect effect on managerial performance (MP) and actual performance rating (AP) via GC.

6.4.15 Tests of Hypothesis 15 – GC Mediation of GD Moderation of TF PES Effects

Following on from Hypotheses 4 and 14, it was postulated in Hypothesis 15 that goal difficulty (GD) moderation of TF PES effects on the criterion variables is produced via goal commitment (GC.) Tests of Hypothesis 4 in Section 6.4.4 revealed that GD only moderates the effect of TF PES on intention to turnover (IT) and managerial performance (MP). Therefore Hypotheses 15(a), 15(c) and 15(d_2) – relating to quality threatening behaviour (QTB), effort (EFF), and actual performance rating (AP) - are not supported. Also, results from the previous section show that GC mediates the effect of TF PES on QTB, IT and EFF. Consequently, Hypothesis 15 will be examined in relation to IT and MP, while a possible moderated mediation relationship is explored in relation to QTB and EFF. The results of testing these relationships are presented in Table 6-29 below.

Table 6-29 Summary of Regression Analysis: GC Mediation of GD Moderation of TF PES effects.

($N = 236$)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 2:[+] ***Y = IT***	TF×GD: (b_{23})	+	.189*	.079	.160*	.079	-.028	.081
Equation 6:[++] ***Y = GC***	TF: (b_{51})	+	.166**	.056	-.019	.058	.006	.058
	GD: (b_{52})	?	-.084^	.043	-.079^	.044	-.078^	.044
	TF×GD: (b_{53})	?	-.054	.043	-.034	.044	-.021	.044
Equation 7: **Y = IT**	TF: (b_{61})	+	.075	.103	.221*	.101	.162	.103
	GD: (b_{62})	+	.205**	.078	.215**	.078	.219**	.079
	TF×GD: (b_{63})	+	.164*	.077	.139^	.077	-.041	.077
	GC: (b_{64})	-	-.55**	.118	-.539**	.115	-.558**	.116
	GC×GD: (b_{65})	(??)	-.059	.077	-.032	.076	-.051	.077
Equation 2:[a, +] ***Y = MP***	TF×GD: (b_{23})	??	-.271**	.069	-.170*	.073	.055	.077
Equation 6:[a] ***Y = GC***	TF: (b_{51})	+	.222**	.079	.009	.082	.034	.083
	GD: (b_{52})	?	-.032	.059	-.041	.059	-.042	.061
	TF×GD: (b_{53})	?	-.075	.059	-.038	.059	-.019	.061
Equation 7:[a] **Y = MP**	TF: (b_{61})	+	.356**	.096	.167^	.099	-.021	.104
	GD: (b_{62})	+	.129^	.071	.099	.075	.122	.102
	TF×GD: (b_{63})	??	-.268**	.068	-.147*	.072	.055	.075
	GC: (b_{64})	+	.047	.115	.186	.117	.194	.119
	GC×GD: (b_{65})	??	.166*	.070	.106	.075	.118	.076
Equation 7: **Y = QTB**	TF: (b_{61})	+	.111*	.044	.159**	.042	.119**	.043
	GD: (b_{62})	+	.065^	.033	.064^	.033	.084*	.033
	TF×GD: (b_{63})	+	-.022	.033	.018	.032	.014	.033
	GC: (b_{64})	-	-.131**	.050	-.099*	.048	-.104*	.049
	GC×GD: (b_{65})	(??)	-.042	.033	-.044	.032	-.050	.032
Equation 6:[b] ***Y = GC***	TF: (b_{51})	+	.169**	.056	-.016	.058	.007	.058
	GD: (b_{52})	?	-.092*	.043	-.084^	.045	-.085^	.045
	TF×GD: (b_{53})	?	-.054	.043	-.032	.044	-.023	.044
Equation 7:[b] **Y = EFF**	TF: (b_{61})	+	-.057	.061	.064	.060	-.039	.060
	GD: (b_{62})	+	-.113*	.047	-.129	.047	-.134**	.047
	TF×GD: (b_{63})	??	-.055	.045	-.033	.046	-.078^	.045
	GC: (b_{64})	+	.316**	.069	.309**	.068	.306**	.068
	GC×GD: (b_{65})	??	-.033	.045	-.032	.045	-.035	.045

[+]TF PES variables are contrast coded and thus β_{23} estimates are different from those in Table 6-16.
[++]Equation 6 result with Y = GC (i.e. b_{51} - b_{53} estimate) is same for panels Y = IT; and Y = QTB.
[a]$N = 126$. [b]Gender was partialled out in both Equations 6 and 7.
'??' denote where the IV effect is expected to be more (negative) positive at *medium* compared to *low* or *high* levels of the moderator, rather than effect comparison between low and high moderator levels.
^$p < .10$; *$p < .05$; **$p < .01$.

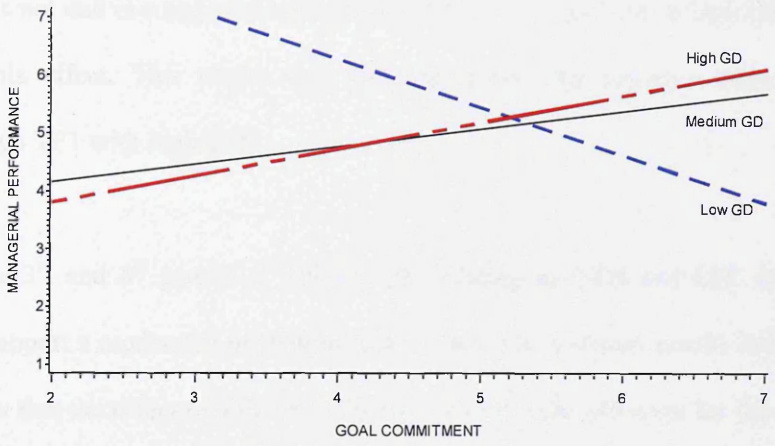
Results in the 1st panel of the table relate to the criterion variable IT. Results from estimating Equation 6 confirm that, allowing for the effects of GD, TF1 still has a positive and significant effect on GC (i.e. $b_{51} = .166$, $p < .01$) regardless of the level of GD (i.e. $b_{53} = -.054$,

p >.10). Furthermore, Equation 7 results show that TF1 residual/direct effect on IT is not significant (i.e. b_{61} = .075, p > .10), but confirms that this depends on the level of GD (i.e. b_{63} = .164, p < .05). The form of GD moderation of TF1 effect on IT was earlier illustrated in Figure 6.15 Section 6.4.4, and in the post hoc analysis. The analysis revealed that TF1 increases IT as GD increases, and that TF1 has a positive though non-significant association with IT when GD is high and a negative non-significant association when GD is low. Equation 7 results also confirm that GC has a negative and significant impact on IT (i.e. b_{64} = -.55, p < .01), and that this effect does not vary according to the level of GD (i.e. b_{65} = -.059, p > .10). Given that b_{53} = 0, though $b_{64} \neq 0$, and also that $b_{51,,65}$ = 0 not all the conditions for a mediated moderation relationship is met. Therefore the mediated moderation relationship postulated in Hypothesis 15(b) is not supported. The same conclusion is reached using both TF2 and TFH PES measures, i.e. Hypothesis 15(b) is not supported.

Results in the 2nd panel of Table 6-29 relate to the criterion variable MP. In this panel, Equation 7 results also confirm that, allowing for the effects of GC and GD, TF1 still has a positive and significant direct effect on MP (i.e. b_{61} = .356, p < .01). It also confirms that TF1 residual/direct effect on MP still depends on the level of GD (i.e. b_{63} = -.268, p < .01). The form of the moderation effect of GD was earlier illustrated in Figure 6.16 Section 6.4.4 and in the post hoc analysis. The analysis revealed that TF1 effect on MP decreases as GD increases, and that TF1 positive effect on MP is only significant when GD is low. When GD is high the effect is not significant. Furthermore, Equation 7 results show that allowing for TF1 effect, GC seems to have no impact on MP (i.e. b_{64} = .047, p > .10) but this really depends on the level of GD (i.e. b_{65} = .166, p < .05). This interaction term is positive implying that GC has more positive effects on MP as GD increases. This moderation effect is illustrated in Figure 6.23 below which shows GC's effect on MP is more positive when GD is high than when GD is moderate or low. Recall that TF1 increases GC regardless of the level of GD, and when GD is high TF1 reduces MP. But also GC has a positive impact on MP when GD is high. Thus GC suppresses the negative impact of TF1 on MP when GD is high. Given that $b_{23} \neq 0$, $b_{51,\,65} \neq 0$,

and $|b_{23}| = .271$ is greater than $|b_{63}| = .268$, there is evidence of a mediated moderation relationship. Therefore Hypothesis 15(d_1) is supported. Results using TF2 and TFH are in the same direction but not significant.

Figure 6.23 GD Moderation of GC effect on MP



To further facilitate interpretation of results, post hoc analysis of the simple effects of TF1 on GC and of the simple effects GC on MP allowing for TF1 effects was conducted. Post hoc analysis of TF1 simple effects on GC at low and high GD yields:

for low GD: GC = 5.442** + .321TF1* - .032GD - .075(TF1×GD)
for high GD: GC = 5.359** + .124TF1 - .032GD - .075(TF1×GD)

This confirms that TF1 has a positive effect on GC regardless of the level of GD; however this effect is much more significant when GD is low to moderate than high. Also, post hoc analysis of the simple effects of GC on MP at low and high GD allowing for TF1 effects, and by the same token the simple direct effects of TF1 on MP yields:

for low GD: MP = 5.009** + .711TF1** + .129GD^ - .268(TF1×GD)**
- .173GC + .166(GC×GD)*
for high GD: MP = 5.349** + .002TF1 + .129GD^ - .268(TF1×GD)**
+ .268GC** + .166(GC×GD)*

These results show how GC mediates the effects of TF1 on MP at high levels of GD. First, when GD is low TF1 has a significant and positive direct effect on MP (from above equation

b_{61} = .771, p < .01). But GC does not have any significant effect on MP (b_{64} = -.173, p > .10) even though TF1 significantly increases GC when GD is low. However, when GD is high TF1 does not seem to have any impact on MP (b_{61} = .002, p > .10) because this is transmitted entirely via GC. TF1 increases GC even when GD is high, and GC in turn significantly increases MP (b_{64} =.268, p < .01). Therefore the negative trend of TF1 impact on MP as GD increases does not end in a negative association between TF1 and MP at high GD because GC suppresses this effect. This means that GC counteracts the negative impact on MP of combining high TF1 with high GD.

Results in the 3rd and 4th panels of Table 6-29 relating to QTB and EFF do not provide evidence to support a moderated mediation relationship. For instance, results in both panels of the table show that the effect of TF1 on QTB and on EFF, after allowing for the effect of GC, does not depend on the level of GD (i.e. b_{63} = 0). Recall that one of the conditions established for a moderated mediation is that $b_{63} \neq 0$, and since this condition is not met there is insufficient evidence for a moderated mediation. The same conclusions are reached using TF2 and TFH PES measures.

In summary, only Hypothesis 15(d_1) is supported, i.e. TF1 effect on MP varies according to the level of GD such that TF1 increases MP when GD is low and does not seem to affect MP when GD is high. Though TF1 decreases MP as GD increases, it does not seem to affect MP when GD is high because TF1 increases GC regardless of GD levels, and GC significantly increases MP when GD is high. Thus at high GD, GC suppresses the negative impact of TF1 on MP.

6.4.16 Tests of Hypothesis 16 – JRT Mediation of TF PES Direct Effects

Hypothesis 16 posits that the effect of TF PES on the criterion variables (i.e. QTB, IT, EFF, MP and AP) is mediated by job related tension (JRT) such that TF PES is positively related to JRT, and JRT in turn is also positively related to QTB and IT, and negatively related to EFF, MP and AP. Recall that mediation is established if Sobel's z is significant. The result of testing these hypotheses is presented in Table 6-30 below.

Results in the 1st panel of the table relate to the criterion variable QTB. Results from estimating Equation 3 show that TF1 has a positive, as anticipated, though non-significant effect on JRT ($b_{31} = .0669, p > .10$). Equation 4 results also show, as anticipated, that JRT has a positive and significant impact on QTB ($b_{42} = .5838, p < .01$) allowing for TF1 direct effect on QTB which also is significant (i.e. $b_{41} = .125, p < .01$). However, Sobel's z is not significant thus TF1 have no significant indirect effect on QTB via JRT. Using TF2 and TFH, b_{42} and b_{41} are also positive and significant. Results using TF2 and TFH measures are similar except that the impact on JRT is significant ($b_{31} = .1502, p < .01$; and $b_{31} = .2553, p < .10$ respectively). Consequently, Sobel's z is significant using TF2 and TFH measures indicating significant indirect effect on QTB via JRT. As such, TF2 and TFH overall/total effect on QTB is greater, in absolute value, than the respective direct effects (i.e. (i.e. $|b_{11}| > |b_{41}|$). In other words, TF2 and TFH increase QTB directly and indirectly via their impact on JRT. So Hypothesis 16(a) is not supported using TF1 though relationships are in the direction hypothesized, but results using the TF2 and TFH measures support the hypothesis.

Results in the 2nd panel of the table relate to the criterion variable IT. Results from estimating Equation 4 show, as anticipated, that JRT has a positive and significant effect on IT ($b_{42} = .8079, p < .01$), allowing for TF1 direct effect on IT which is not significant (i.e. $b_{41} = .002, p > .10$). The results show that Sobel's z is not significant and thus there is insufficient evidence of a mediated effect. Therefore, Hypothesis 16(b) is not supported. However, similar to results in the 1st panel of the table b_{42} (and of course b_{31}) is significant using TF2 and TFH measures.

Also, Sobel's z is significant using these PES measures implying significant indirect effects. Using the TF2 measure, given that there is no significant direct effects on IT (i.e. $b_{41} = .097, p > .10$), the results imply that JRT completely mediates TF2 effect on IT. On the other hand, given that TFH direct effect on IT is marginally significant (i.e. $b_{41} = .605, p < .10$), it implies that JRT only partially mediates TFH effects on IT.

Table 6-30 Summary of Regression Analysis results: JRT Mediation of TF PES direct effects.

($N = 236$)			TF1		TF2		TFH	
Equation Parameters	*Expected sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 1: **Y = QTB**	TF: (b_{11})	+	.1636**	.0573	.1757**	.0337	.4716**	.1342
Equation 3[++]*: Y = JRT*	TF: (b_{31})	+	.0669	.0582	.1502**	.0342	.2553^	.1367
Equation 4: **Y = QTB**	TF: (b_{41})	+	.125**	.046	.094**	.029	.325**	.11
	JRT: (b_{42})	+	.5838**	.052	.5468**	.0536	.5755**	.0521
	Sobel's z		1.143		4.032**		1.841^	
Equation 1: **Y = IT**	TF: (b_{11})	+	.0556	.1431	.2111*	.0862	.808*	.3339
Equation 4: **Y = IT**	TF: (b_{41})	+	.002	.136	.097	.086	.605^	.32
	JRT: (b_{42})	+	.8079**	.1522	.7589**	.1575	.7733**	.1517
	Sobel's z		1.123		3.245**		1.753^	
Equation 1:[a] **Y = EFF**	TF: (b_{11})[67]	+	-.0299	.0836	.0566	.0508	.0634	.1977
Equation 4:[a] **Y = EFF**	TF: (b_{41})	+	-.044	.083	.029	.053	.012	.198
	JRT: (b_{42})	-	.204*	.0931	.1858^	.0965	.1996*	.0935
	Sobel's z		1.018		1.763^		1.406	
Equation 1[b]*:* **Y = MP**	TF: (b_{11})	+	.369**	.1222	.2123**	.0735	.6352**	.2406
Equation 3[b]*: Y = JRT*	TF: (b_{31})	+	.0434	.0748	.1444**	.0429	.2392	.1446
Equation 4[b]*:* Y = MP	TF: (b_{41})	+	.372**	.123	.237**	.077	.658**	.244
	JRT: (b_{42})	-	-.0601	.1472	-.174	.1532	-.0963	.1496
	Sobel's z		-.334		-1.075		-.599	
Equation 1[c]*:* **Y = AP**	TF: (b_{11})	+	-.183**	.0633	-.0551	.0384	.1495	.1489
Equation 3[c]*: Y = JRT*	TF: (b_{31})	+	.0717	.0597	.1517**	.0344	.2631^	.1376
Equation 4[c]*:* **Y = AP**	TF: (b_{41})	+	-.183**	.064	-.058	.040	-.149	.15
	JRT: (b_{42})	-	.004	.0707	.0179	.0744	-.0032	.0721
	Sobel's z		.0607		.243		-.046	

[a]*Gender* is a covariate, i.e. partialled out, in this equation; [b]$N = 126$; [c]$N = 228$
[++]Results of regressing GC on TF PES (i.e. b_{31} estimate) is same for panels Y = QTB; IT; & EFF.
^ $p < .10$; * $p < .05$; ** $p < .01$.

Results in the 3rd panel of the table relate to EFF. Equation 3 results presented in the 1st panel already show TF1 to have no significant effect on JRT, but TF2 and TFH does have

[67] Note b_{11} reported here is the estimate from the regression of EFF on gender and just the linear TF PES term

significant positive effects on JRT. Equation 4 results in the 3rd panel of the table show that TF1 has no significant direct effect on EFF (b_{41} = -.0299, p > .10). But contrary to expectation, it shows that JRT has a positive and significant impact on EFF (b_{42} = .204, p < .05). However, Sobel's z is not significant and thus Hypothesis 16(c) is not supported. In other words TF1 has no indirect effect on EFF via JRT. Also, results using TF2 and TFH are similar, except that it also shows a marginally significant indirect effect of TF2 on EFF via JRT. Finally, results in the 4th and 5th panels of the table relate to MP and AP but these also show that Sobel's z is not significant for all 3 PES measures. Thus Hypothesis 16(d) is not supported, i.e. JRT does not mediate TF PES effects on MP and on AP.

In summary, none of Hypothesis 16 sub-hypotheses is supported using the TF1 PES measure, i.e. JRT does not mediate TF1 effects on QTB, IT, EFF, MP and AP. However, using TF2 and TFH PES measures there is evidence that JRT partially mediates TF PES effects on QTB and completely mediates TF PES effect on IT. The mediation is such that TF PES increases JRT and JRT in turn increases QTB and IT.

6.4.17 Tests of Hypothesis 17 – JRT Mediation of ICS Moderation of TF PES Effects

In Hypothesis 17, it was also postulated that ICS moderation of TF PES effects on the criterion variables is produced via JRT. Results in Section 6.4.7 show that ICS only moderates TF PES effect on IT therefore Hypothesis 17 relating to QTB, EFF, MP and AP is not supported. Also, results from the preceding section show that (using the TF2 PES measure) JRT possibly mediates TF PES effects on QTB, IT and EFF. Consequently, Hypothesis 17 is examined in relation to only IT, and a possible moderated mediation relationship is explored in relation to QTB and EFF. Result of examining these relationships is presented in Table 6-31 below.

Table 6-31 Summary of Regression Analysis results: JRT Mediation of ICS Moderation of TF PES direct effects.

(N = 236)		TF1		TF2		TFH	
Equation Parameters		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 6:[++] **Y = *JRT***	TF: (b_{51})	.061	.044	.133**	.043	.058	.044
	ICS: (b_{52})	-.128**	.037	-.097**	.035	-.117**	.037
	TF×ICS: (b_{53})	-.032	.037	-.006	.035	-.008	.037
Equation 7: **Y = IT**	TF: (b_{61})	.096	.098	.106	.101	.141	.099
	ICS: (b_{62})	-.435**	.084	-.368**	.082	-.407**	.085
	TF×ICS: (b_{63})	-.276**	.082	-.199*	.082	-.151^	.083
	JRT: (b_{64})	.634**	.147	.635**	.151	.652**	.149
	JRT×ICS: (b_{65})	-.054	.114	-.014	.117	-.064	.115
Equation 7: **Y = QTB**	TF: (b_{61})	.107**	.035	.081*	.036	.093**	.035
	ICS: (b_{62})	-.100**	.030	-.072*	.029	-.095**	.030
	TF×ICS: (b_{63})	-.003	.029	.025	.029	-.022	.029
	JRT: (b_{64})	.549**	.053	.540**	.054	.55**	.053
	JRT×ICS: (b_{65})	.002	.041	-.009	.042	-.001	.041
Equation 7:[a] **Y = EFF**	TF: (b_{61})	-.072	.062	.026	.063	-.049	.062
	ICS: (b_{62})	.194**	.054	.163**	.052	.190**	.053
	TF×ICS: (b_{63})	.057	.052	-.063	.052	.065	.052
	JRT: (b_{64})	.277*	.093	.252**	.095	.269**	.093
	JRT×ICS: (b_{65})	-.084	.072	-.058	.074	-.083	.072

[++]Results of regressing JRT on TF PES (i.e. b_{31} estimate) is same for panels Y = IT; QTB; & EFF.
[a]Gender was partialled out in both Equations 6 and 7.
^ $p < .10$; * $p < .05$; ** $p < .01$.

From the 1st panel of the table, the results relating to IT show that, allowing for the effect of ICS, TF1 does not have any significant impact on JRT (b_{51} = .061, $p > .10$) regardless of the level of ICS (b_{53} = -.032, $p > .10$). Also, it shows that JRT significantly increases IT (b_{64} = .634, $p < .01$) regardless of the level of ICS (b_{65} = -.054, $p > .10$). Therefore given that neither b_{51} and b_{65}, nor b_{53} and b_{64} are concurrently significant, the conditions for a mediated moderation are not fully met. Thus Hypothesis 17(b) is also not supported. This result also hold across all 3 PES measures, i.e. b_{51} and b_{65} is concurrently significant nor is b_{53} and b_{64}.

Results in the 2nd and 3rd panels of the table related to QTB and EFF. The results show that, allowing for the effects of JRT, TF PES direct impact on these variables do not depend on the level of ICS (i.e. $b_{63} = 0$ across all 3 PES measures). As $b_{63} = 0$ there is insufficient evidence of a moderated mediation. Moreover, TF PES impact on JRT (i.e. b_{51}) and ICS moderation of

JRT impact on QTB and EFF (i.e. b_{65}) are not concurrently significant. Also, neither is ICS moderation of TF PES effects on JRT (i.e. b_{53}) and JRT effect on QTB and EFF allowing for TF PES effects (i.e. b_{64}) concurrently significant. In summary, Hypothesis 17 is not supported and there is insufficient evidence for a moderated mediation relationship between TF PES and QTB, and TF PES and EFF.

6.4.18 Tests of Hypothesis 18 – JS Mediation of TF PES Direct Effects

Recall that Hypothesis 18 posits that JS mediates TF PES effects on the criterion variables such that TF PES is negatively related to JS, while JS in turn is negatively related to QTB and IT, and positively related to EFF, MP and AP. Result of testing these hypotheses is presented in Table 6-32.

Results in the 1st panel of the table relate to QTB, and results of Equations 3 show that TF1 has a negative but non-significant effect on JS (b_{31} = -.0276, $p > .10$). As expected, Equation 4 results show that JS has a negative and significant impact on QTB (b_{42} = -.1676, $p < .01$), allowing for the direct effect of TF1 which is still significant (b_{41} = .159, $p < .01$). But the results also show that Sobel's z is not significant implying that JS does not mediate TF1 effects on QTB. However, results using TF2 and TFH measures show a significant Sobel's z. Both PES measures show a negative and significant impact on JS (i.e. b_{31} = -.2546, $p < .01$ for TF2, and b_{31} = -.9393, $p < .01$ for TFH). And similar to results using TF1, JS has a negative and significant effect on QTB (i.e. b_{42} = -.1425, $p < .01$ for TF2, and b_{42} = -.1536, $p < .01$ for TFH) allowing for TF PES direct effect (i.e. b_{42}) which is also positive and significant. Thus results using TF2 and TFH indicate significant indirect effects on QTB via JS such that TF2 and TFH reduce JS, and the reduced JS induces more QTB beyond levels directly attributable to TF2 and TFH. Thus JS partially mediates TF PES effects on QTB. It can be seen therefore that the absolute value of the overall/total effect on QTB (i.e. $|b_{11}|$ = .1757 for TF2, and .4716 for TFH) is greater than the residual/direct effects ($|b_{41}|$ = .139 for TF2, and .327 for TFH). So

though Hypothesis 18(a) is not supported using TF1, results using the TF2 and TFH measures provide sufficient evidence supporting the hypothesis.

Table 6-32 Summary of Regression Analysis results: JS Mediation of TF PES direct effects.

(*N* =236)			TF1		TF2		TFH	
Equation Parameters	*Expected Sign*		*β*	*SE*	*β*	*SE*	*β*	*SE*
Equation 1: Y = **QTB**	TF: (b_{11})	+	.1636**	.0573	.1757**	.0337	.4716**	.1342
Equation 3[++]: *Y = JS*	TF: (b_{31})	-	-.0276	.1245	-.2546**	.0741	-.9393**	.2875
Equation 4: Y = **QTB**	TF: (b_{41})	+	.159**	.054	.139**	.033	.327*	.130
	JS: (b_{42})	-	-.1676**	.0281	-.1425**	.0283	-.1536**	.0289
	Sobel's *z*		.221		2.839**		2.784**	
Equation 1: Y = **IT**	TF: (b_{11})	+	.0556	.1431	.2111*	.0862	.808*	.3339
Equation 4: Y = **IT**	TF: (b_{41})	+	.032	.096	-.007	.06	-.001	.232
	JS: (b_{42})	-	-.8545**	.0504	-.8561**	.0516	-.8548**	.0515
	Sobel's *z*		.222		3.364**		3.206**	
Equation 1[a]: Y = **EFF**	TF: (b_{11})	+	-.0299	.0836	.0566	.0508	.0634	.1977
Equation 4[a]: Y = **EFF**	TF: (b_{41})	+	-.028	.083	.079	.052	.138	.201
	JS: (b_{42})	+	.0738^	.0437	.0889*	.0445	.0804^	.0446
	Sobel's *z*		-.220		-1.727^		-1.578	
Equation 1[b]: Y = **MP**	TF: (b_{11})	+	.369**	.1222	.2123**	.0735	.6352**	.2406
Equation 3[b]: *Y = JS*	TF: (b_{31})	-	.0325	.1446	-.1733**	.0852	.7299**	.2744
Equation 4[b]: Y = **MP**	TF: (b_{41})	+	.367**	.123	.23	.074	.719**	.246
	JS: (b_{42})	+	.0566	.0761	.1041	.0772	.1143	.0783
	Sobel's *z*		.215		-1.124		-1.279	
Equation 1[c]: Y = **AP**	TF: (b_{11})	+	-.183**	.0633	-.0551	.0384	.1495	.1489
Equation 3[c]: *Y = JS*	TF: (b_{31})	-	-.0447	.1286	-.264**	.0750	-.9588**	.2909
Equation 4[c]: Y = **AP**	TF: (b_{41})	+	-.181**	.063	-.047	.040	-.117	.152
	JS: (b_{42})	+	.0369	.0327	.0298	.0341	.0334	.0341
	Sobel's *z*		-.332		-.847		-.941	

[a]*Gender* is a covariate, i.e. partialled out, in this equation; [b]*N* = 126; [c]*N* = 228
[++]Results of regressing *JS* on TF PES (i.e. b_{31} estimate) is same for panels Y = QTB; IT; & EFF.
^ $p < .10$; * $p < .05$; ** $p < .01$.

Results in the 2nd panel of the table relate to IT. As already discussed above TF1 does not have a significant impact on JS (i.e. $b_{31} = 0$). In this panel, Equation 4 results also show that JS has a negative and significant effect on IT ($b_{42} = -.8545$, $p < .01$) allowing for the direct effect of TF1 which is not significant ($b_{41} = .032$, $p > .10$). Again Sobel's z is not significant and thus Hypothesis 18(b) is therefore not supported using TF1 PES measure. However, Sobel's z is significant using the TF2 and TFH PES measures implying that JS does mediate the TF PES

effects on IT. But the residual/direct effect on IT is not significant (b_{41} = -.007, p > .10 for TF2, and b_{41} = -.001, p > .10 for TFH) while the overall/total effect is (i.e. b_{11} = .2111, p < .05 for TF2, and b_{11} = .808, p < .05 for TFH). These results imply that JS completely mediates TF2 and TFH effect on IT. As such, the overall/total effects (i.e. $|b_{11}|$ = .211 and .808) are greater than the direct effects ($|b_{41}|$ = .007 and .001 respectively). Again, Hypothesis 18(b) is not supported using TF1 but results using the TF2 and TFH measures provide evidence supporting the hypothesis.

Results in the 3rd panel of the table relate to EFF, and the Equation 4 results also show that JS has a positive and significant impact on EFF (i.e. $b_{42} \neq 0$) across the 3 PES measures – though only marginally significant using TF1 and TFH. The result also show that TF PES, across the 3 measures, has no significant direct effect on EFF (i.e. $b_{41} = 0$). Consequently Sobel's z is not significant using TF1 and TFH measures but marginally significant using TF2. On the whole therefore, the results do not support Hypothesis 18(c). Results in the 3rd and 4th panels of the table relate to MP and AP respectively, and it shows no significant Sobel's z across the 3 PES measures. Thus JS does not mediate TF PES effect on MP and on AP.

In summary, none of Hypothesis 18 is not supported using TF1 PES measure, i.e. JS does not mediate TF1 effects on QTB, IT, EFF, MP and AP. However, using TF2 and TFH PES measures, results provide some evidence that JS partially mediates TF PES effects on QTB, and completely mediates TF PES effect on IT. The mediation effects are such that TF PES reduces JS, and decreased JS in turn leads to more QTB and IT.

6.5 Table Summary of Key Results

A condensed summary of key results is presented in Table 6-33 below, and notes on how to interpret information in the table is provided in the bullet points below.

- Rows A – D indicate the hypotheses tested – i.e. direct effects; moderation effects; mediation effects; and mediated moderation.
- Columns 1 – 5 indicate the criterion variable involved in the hypothesis test, and sub-columns show the particular TF PES measure involved i.e. TF1, TF2 and TFH.
- In row A (direct effects), only TF PES is the independent variable (IV). In rows B – D, each sub-rows show the other IVs (i.e. the moderators and mediators) involved in testing the hypothesis indicated in italics, e.g. Hypothesis 3 = H_3.
- Results are read horizontally along the rows with each cell showing the sign (+, -) of only the significant test parameter of interest, empty cells represent insignificant results.
- For rows A – C results are interpreted perfectly. For e.g.
  - Row A × Column 1(TF1): shows the results of testing hypothesis on the direct effects of TF PES on the criterion variable QTB. The '+'sign indicates that using the TF1 measure, TF PES is positively associated with QTB.
  - Row B1× Column 2 (TF2): show result of testing hypothesis on GD moderation of TF PES effect on IT. The '+' sign indicate the sign of GD×TF2 interaction, i.e. TF2 (positive) effect on IT increases as GD increases.
  - Row C2 × Column 1 (TF1): show result of testing hypothesis on GC mediation of TF PES effect on QTB. The first sign which is '+' means TF1 is positively associated with GC, and the second sign which is '-' means GC is negatively associated with QTB allowing for TF1 effects.
  - For Row D the tests here involve two regressions: 1st - a moderated regression with the mediator as the DV; 2nd - another moderated equation with the criterion variable at the top of the column as the DV. The mediator is also an IV and its effect is also moderated. Signs in each cell relate to significant test parameters in the equations, but the parameter combinations are not always the same. Additional foot notes at the end of the table explain which parameters are involved, and the meaning of other notations used in the table.

Table 6-33 Summary of Significant Results

	1) Quality Threatening			2) Intention to Turnover			3) Effort			4) Managerial			5) Actual Perf Rating		
	TF1	TF2	TFH	TF1	TF2	TFH	TF1	TF2	TFH	TF1	TF2	TFH	TF1	TF2	TFH
A. Direct effects: $H_{1\&2}$	+	+	+	ss	+	+	+ -[1]			+[2]	+[2]	+[2]	-[2]	+ -[1]	
B. Moderation															
1. GD: H_3				*+	+	-				-	-	ss			
2. OHL: H_5				os	os	*-	*+[3]		+						
3. ICS: H_6				-	-	ss									
4. OC : H_7							ss	*-[4]	*-[4]	*-[4]	*-[4]	ss			
5. ST : H_8				-	ss	os									
C. Mediation															
1. EFP : H_9	ss	- -	- -	ss	- -	- -									
2. GC : H_{13}	+ -	ss	ss	+ -	ss	*(+ -)	+ +	ss	ss						
3. JRT : H_{15}	ss	+ +	*(+ +)	ss	+ +	*(+ +)	ss	*(+ +)[5]	ss						
4. JS : H_{17}	ss	- -	- -	ss	- -	- -	ss	*(- +)	ss						
D. Mediated Moderation															
1. EFP – OHL : H_{10}															
2. EFP – ICS : H_{11}	(+ -)[6(a)]	(*+ -)[6(a)]	(+ -)[6(a)]	+ -[6(a)]	*+ -[6(a)]	(+ -)[6(a)]									
3. EFP – ST : H_{12}		(*- +)[6(b)]	(+ -)[6(c)]												
4. GC – GD : H_{14}										+ -[6(d)]					
5. JRT – ICS : H_{16}															

+(-) = positive (negative) and significant effect at 5% level; and *+(*-) = positive (negative) and significant at 10% level of significance.

ss (os) = same sign (opposite sign) with the significant TF PES measure in the same column box – read horizontally

[1]Curvilinear hypothesis supported – positive then negative effect i.e. inverted 'U', but effect not substantive so disregarded in other analysis.

[2]Curvilinear hypothesis not supported but evidence of a linear association.

[3]Hypothesis supported but in opposite direction. TF PES increased effort higher up than lower down the OHL

[4]Hypothesis supported but in opposite direction, though graph looks in the right direction for TFH, i.e. high TF with high OC then high EFF

[5]Mediation hypothesis supported at the 10% level, but effect of JRT on EFF in the opposite direction predicted.

[6]Results without brackets indicate support for the mediated moderation hypothesis. Results in bracket mean Hypothesis not supported because no moderation of overall TF effect but possible moderated mediation (though not supported as other necessary conditions are not met):

(a) 1st equation: significant TF×ICS interaction effect on EFP. 2nd equation: significant EFP effect on QTB & IT controlling for TF, ICS, TF×ICS and EFP×ICS interactions.

(b) 1st equation: significant TF2 effect on EFP. 2nd equation: significant EFP×ST interaction effect on QTB controlling for TF2, ST, EFP, and TF2×ST interaction.

(c) 1st equation: significant TFH×ST interaction effect on EFP. 2nd equation: significant EFP effect on QTB controlling for TFH, ST, TFH×ST and EFP×ST interactions.

(d) 1st equation: significant TF1 effect on GC. 2nd equation: significant GC×GD interaction effect on MP controlling for TF1, GD, GC, and TF1×GD interaction.

6.6 The Relative Importance of Moderator Variables

Recall that initial results indicate that TF PES is negatively and significantly associated with quality threatening behaviour (QTB) and actual performance rating (AP), and that results of the single moderator models indicate no significant moderation of these effects by any of the moderator variables examined. On the other hand TF PES appeared to have no significant association with IT, while results of the single moderator models indicated that TF PES effect on (IT) is moderated by 3 variables viz.: goal difficulty (GD), interactive use of control systems (ICS), and supervisory trust (ST). The moderation effects show that TF PES is positively and significantly associated with IT when GD is high as well as when ICS is low, and negatively and significantly associated with IT when ST is high. Recall also that initial results show TF PES to have a positive and significant effect on managerial performance (MP), while the single moderator models indicate that GD and organisational commitment (OC) moderate this effect. The moderation effects show that TF PES effects on MP remain positive and significant only when GD is low and also when OC is low, i.e. TF PES does not have any significant effect on MP when GD is high as well as when OC is high. Finally, initial results also showed that TF PES did not have any significant linear effect on effort (EFF), while the single moderation models show that the association is moderated by organisational hierarchical level (OHL). TF PES was found to have a positive and significant effect on EFF at high OHLs.

Having tested the significance of each of the moderation effects separately in single moderator models, the relative importance of each moderator variable and the moderation effect is however unclear. Many of the single moderator models have low explanatory power, and it is unclear which variables may have incremental explanatory power. To clarify these issues a combined moderation model is examined using hierarchical regression where the moderator variables are combined together in steps.

In the first step, each of the criterion variables i.e. QTB, IT, MP, EFF, and AP is regressed on TF PES, GD, OC, and the interaction of TF PES with GD and OC. This model will be referred to as model 1. GD and OC are entered in the first step of the hierarchical regression as they have been previously identified in the literature as having significant direct associations with dysfunctional behaviour. In the second step, OHL and its interaction with TF PES are added to the predictors in model 1. This will be referred to as model 2. In the 3rd step, interactive use of controls (ICS) and its interaction with TF PES are added to the predictors already in model 2. This will be referred to as model 3. In the final step, i.e. model 4, ST and its interaction with TF PES are added to the predictors in model 3. The model represented in each hierarchical regression step is depicted below:

Model 1

$$Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC$$

Model 2

$$Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC + \beta_6 OHL + \beta_7 TF \times OHL$$

Model 3

$$Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC + \beta_6 OHL + \beta_7 TF \times OHL + \beta_8 ICS + \beta_9 TF \times ICS$$

Model 4

$$Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC + \beta_6 OHL + \beta_7 TF \times OHL + \beta_8 ICS + \beta_9 TF \times ICS + \beta_{10} ST + \beta_{11} TF \times ST$$

After the first step, i.e. Model 1, variables are entered into the regression such that no variable entering later is presumed to be a cause of a variable entered earlier. The advantage of such ordering is that variables that may be a source of spurious relationship are entered earlier so that a unique partitioning of the total variance explained in the dependent variables may be made to each variable added later (Cohen and Cohen, 2003). Results of the hierarchical regressions are presented in Tables 6-34 and 6-35 below.

Table 6-34 Summary of Hierarchical Moderated Regression Analysis (QTB, IT, & EFF)

	[a]Expected Sign	[b]Y = QTB N = 236			[c]Y = IT N = 236			[d]Y = EFF N = 236			
Step 1		*β*	*SE*	*B*	*β*	*SE*	*B*	*[a]E.S*	*β*	*SE*	*B*
Constant		2.562**	.041		2.958**	.085			5.678**	.095	
TF	+	.183**	.041	.206	.109	.117	.050	+	-.015	.085	-.011
GD	(+)	.045	.031	.088	.127*	.066	.102	(+)	-.138**	.048	-.186
TF×GD	+	-.017	.043	-.026	.070	.090	.044	??	-.089^	.065	-.094
OC	(-)	-.179**	.035	-.317	-.817**	.073	-.589	(+)	.086^	.053	.104
TF×OC	-	-.011	.050	-.014	-.045	.103	-.024	+	-.060	.075	-.054
GENDER								?	-.316**	.127	-.160
F		8.07**			28.953**					4.142**	
R^2		.149			.386					.098	
Adjusted R^2		.131			.373					.074	
Step 2	*[a]E.S*	*β*	*SE*	*B*	*β*	*SE*	*B*	*[a]E.S*	*β*	*SE*	*B*
Constant		2.561**	.041		2.963*	.086			5.697**	.095	
TF	+	.195	.057	.218	.091	.118	.041	+	-.012	.085	-.009
GD	(+)	.030	.033	.060	.149*	.069	.120	(+)	-.148**	.050	-.200
TF×GD	+	-.015	.043	-.023	.065	.090	.041	??	-.099^	.065	-.104
OC	(-)	-.184**	.035	-.325	-.811**	.074	-.584	(+)	.078	.053	.095
TF×OC	-	-.012	.050	-.016	-.044	.104	-.024	+	-.071	.074	-.064
GENDER								?	-.324**	.128	-.164
OHL	(?)	.057^	.040	.091	-.084	.084	-.055	(?)	.056	.061	.062
TF×OHL	+	-.019	.049	-.023	.056	.103	.028	-	.144*	.074	.123
F		6.081**			20.821**					3.695**	
Adjusted R^2		.131			.371					.084	
ΔR^2		.008			.004					.017	
Step 3	*[a]E.S*	*β*	*SE*	*B*	*β*	*SE*	*B*	*[a]E.S*	*β*	*SE*	*B*
Constant		2.563**	.041		2.988**	.087			5.715**	.096	
TF	+	.231**	.057	.259	.122	.121	.056	+	-.048	.088	-.037
GD	(+)	.015	.033	.030	.115^	.069	.092	(+)	-.139**	.051	-.189
TF×GD	+	-.034	.043	-.052	.017	.091	.010	??	-.092^	.066	-.097
OC	(-)	.144**	.037	-.255	-.735**	.078	-.530	(+)	.054	.057	.066
TF×OC	-	0.00	.052	0.00	.019	.108	.010	+	-.065	.078	-.059
GENDER								?	-.344**	.129	-.174
OHL	(?)	.044	.040	.070	-.109^	.084	-.071	(?)	.066	.062	.072
TF×OHL	+	-.024	.050	-.030	.021	.104	.011	-	.138*	.075	.118
ICS	(-)	-.121**	.039	-.222	-.214**	.082	-.159	(+)	.081^	.059	.102
TF×ICS	-	-.017	.052	-.326	-.169^	-.110	-.095	+	-.039	.079	-.037
F		6.049**			17.387**					3.256**	
Adjusted R^2		.194			.386					.088	
ΔR^2		.037**			.019*					.011	
Step 4	*[a]E.S*	*β*	*SE*	*B*	*β*	*SE*	*B*				
Constant		2.543**	.041		2.953*	.088					
TF	+	.182**	.058	.204	.038	.123	.018				
GD	(+)	.016	.032	.032	.116*	.068	.093				
TF×GD	+	-.018	.043	-.027	.044	.091	.027				
OC	(-)	-.106**	.038	-.187	-.670**	.080	-.483				
TF×OC	-	.045	.052	.059	.095	.111	.051				
GENDER											
OHL	(?)	.036	.039	.058	-.123^	.084	-.080				
TF×OHL	+	-.043	.050	-.053	-.010	.106	-.005				
ICS	(-)	-.028	.047	-.587	-.054	.100	-.544				
TF×ICS	-	.020	.061	.028	-.105	.131	-.059				
ST	(?)	-.152**	.048	-.273	-.258**	.101	-.189				
TF×ST	-	-.062	.054	-.094	-.107	.114	-.066				
F		6.386**			15.401**						
Adjusted R^2		.201			.403						
ΔR^2		.045**			.022*						

^ $p < .10$; * $p < .05$; ** $p < .01$. *Note 1-tailed significance level is reported; 2-tailed significance was previously reported in the single moderator models. Also 2-tailed significance is reported where no predictions were possible.*

[a] Expected signs in brackets relate to effects not formally stated in a hypotheses but are apparent from the moderation hypothesis development. '?' denote situations where no predictions were possible, and '??' denote where more TF positive effects is expected at *medium* compared to *low* or *high* levels of the moderator, rather than effect comparison between low and high moderator levels.

[b] VIF ≤ 2.2. Results in step 4 are very much the same after deleting 2 observations with standardized residuals greater than 3 standard deviations, AR^2 is .252.
[c] VIF ≤ 2.2. After deleting 4 obs. in the first regression with std residuals > 2 std dev and then 2 further obs. AR^2 is .525 (N =230) and TF (b = .163), OHL (b = -.095), and ICS (b = -.119) are significant at the 10% level, while ST (b = -.144) and TF×ST (b = -.174) betas are also significant at the 5% level. [d] VIF ≤ 1.5

In respect of quality threatening behaviour (QTB), results in Table 6-34 show that Model 1 ($Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC$) yielded R^2 and adjusted R^2 (AR^2) of .149 and .131 respectively. Inclusion of OHL and its interaction with TF PES in step 2, i.e. Model 2, did not significantly increase the Model's predictive power, but the inclusion of ICS and its interaction with TF PES in Model 3 showed incremental explanatory power explaining an additional 3.7% ($p < .01$) of the variation in QTB above Model 2. Also the inclusion of ST and its interaction with TF PES in the final model, i.e. Model 4, explained an additional 4.5% ($p < .01$) of the variation in QTB above the variation explained by Model 3.

Model 4's R^2 (AR^2) of .221 (.201) show only a slight improvement over the highest R^2 (AR^2) of .189 (.179) obtained in the single moderator models with ST as the moderator. The results are also similar to those obtained in the single moderator models with two exceptions; the positive (negative) direct effects of GD (ICS) on QTB are not significant whereas these associations were shown to be significant in the single moderator models with the same signs. Besides these exceptions, the full model results are consistent with the single moderator model results in showing no significant interaction terms and a positive and significant TF PES association with QTB (b = .182, p < .001), and a negative and significant OC and ST association with QTB (b_{OC} = -.106, p < .001, and b_{ST} = -.152, p < .001).

Model 4's standardized beta coefficients indicate that TF PES has the most significant direct effect on QTB followed by ST. Thus, after allowing for the effects of the other moderator variables, GD and ICS direct effects on QTB do not seem as important as was indicated by the single moderator model results. However, in Model 3 (i.e. $Y = \alpha_0 + \beta_1 TF + \beta_2 GD + \beta_3 TF \times GD + \beta_4 OC + \beta_5 TF \times OC + \beta_6 OHL + \beta_7 TF \times OHL + \beta_8 ICS + \beta_9 TF \times ICS$) ICS has incremental explanatory power with a significant negative effect on QTB (b = -.121, $p < .01$).

These results suggest therefore that ICS effects on QTB are transmitted via supervisory trust (ST). As highlighted in the theory development section, ICS has the potential to increase trust by providing an opportunity for increased communication. Barrett et al. (2005) also note it has the potential to dampen trust if used in an interrogative and intrusive way. However, the high positive correlation between ICS and ST ($rho = .651, p < .01$) support the proposition that ICS promotes ST, and thus its direct effect on QTB are transmitted via increased supervisory trust (ST).

On the other hand, the non-significant effect of GD on QTB, allowing for the effects of TF PES, OC and their interaction, conflicts with previous findings that show GD as the most consistent variable with significant effects on QTB (Kelley and Margheim, 1990; Otley and Pierce, 1996a; Pierce and Sweeney, 2004). This may be partly due to the coverage of more hierarchical levels and service areas in this study than in previous studies. Perhaps GD is an important explanatory variable of QTB at lower OHLs within audit service areas, but not generally so throughout an accounting firm. The conflicting result may also be partly due to the more comprehensive measurement of TF PES in this study compared to previous studies. This study found TF PES to be relatively more important in explaining QTB when previous studies did not find any significant effects.

With respect to intention to turnover (IT), Model 1 yielded R^2 (AR^2) of .386 (.373) and Model 2 did not significantly add to the variance explained by Model 1. However, Model 3 explained an additional 1.9% ($p < .05$) of the variation in IT above Model 2, and Model 4 also showed incremental explanatory power explaining an additional 2.2% ($p < .05$) of the variation in IT above Model 3. Model 4 with R^2 (AR^2) of .431 (.403) also show little improvement in explanatory power over the highest R^2 (AR^2) of .375 (.367) obtained in the single OC moderator model. However, the full model results do not show significant moderation effects for GD, ICS, and ST as obtained in the single moderator models although the coefficient signs are consistent.

Besides these exceptions, the full model results are consistent with the single moderator model results in showing no significant TF PES and OHL effects and significant negative effects of OC and ST (b = -.670, p < .01; and b = -.258, p < .01 respectively). Equally, the results consistently show GD effects on IT to be positive and significant (b = .116, p < .05). However, ICS negative effect on IT is not significant as indicated in the single moderator model, although it is significant in the penultimate step (b = -214, p < .01), i.e. model 3 without ST moderation effect. As already discussed in the previous paragraph, ICS effect seems to be transmitted via ST. In terms of the relative importance of the direct effects on IT, the standardised beta coefficients indicate that OC is the most important explanatory variable followed by ST.

With respect to effort (EFF), Model 1 yielded R^2 (AR^2) of .098 (.074) and Model 2 did not significantly increase Model 1's explanatory power. Equally, Model 3, the full model, did not significantly increase the variance explained by Model 2. Model 3 being the full model for EFF yielded R^2 (AR^2) of .126 (.088). Again, these do not improve much over the highest R^2 (AR^2) of .085 (.069) obtained in the single moderator model with GD as the moderator. The results are also consistent with those obtained in the single moderator models except for two interaction terms which were not significant in any of the single moderator models, but now shown to be marginally significant. These are the interactions between TF PES and GD (b = -.092, p < .10), and TF PES and ICS (b = .081, p< .10). Besides these effects, the full model results confirm those from the single moderator models in consistently showing significant gender differences in EFF (b = -.344, p< .01), a negative and significant GD effect on EFF (b = -.139, p< .01), and a positive and significant interaction between TF PES and OHL (b = .138, p < .05). Considering the standardised beta coefficients in model 3, GD has the most significant effect on EFF followed by ICS.

With respect to managerial performance (MP), results in Table 6-35 show R^2 (AR^2) of .249 (.218) for Model 1. Inclusion of OHL and the interaction with TF PES in Model 2 explained an additional 4.4% (p < .01) variation in MP; while inclusion of ICS and the interaction with

TF PES in Model 3, the full model, did not significantly improve the explanatory power of the model 2. Model 3 with R^2 (AR^2) of .299 (.244) shows only a slight improvement over the highest R^2 (AR^2) of .203(.183) obtained in the single GD moderator model. Again, results of Model 3 are similar to those obtained in the single moderator models with one exception. The results show that TF PES interaction with OHL is positive and significant (b = .238, p < .05), whereas this interaction term was negative and not significant in the single OHL moderator model. This positive interaction term indicates that TF PES positive impact on MP increases at higher OHL. Besides this exception, the results are consistent with the single moderator model results in showing TF PES interactions with GD and OC to be negative and significant (b = -.440, p < .01, and b = -.317, p < .01 respectively), and TF PES effect on MP to be positive and significant (b = .416, p < .01). In terms of the relative importance of each independent variables effect on MP, the standardized beta coefficients show TF PES has the most significant effect followed by GD.

With respect to actual performance ratings (AP), Model 1's R^2(AR^2) = .051 (.030). Model 2 and Model 3, the full model, did add significantly to the explanatory power of the preceding model. Model 3's R^2 (AR^2) of .111 (.009) does not improve much over the highest R^2 (AR^2) of .046 (.033) obtained in the single moderator model with OHL as the moderator. Again, results from Model 3 are consistent with those from the single moderator models except that it shows the negative OC and ICS effects on AP to be marginally significant, and also the positive interaction term of TF PES with OHL to be marginally significant. This marginally significant interaction term suggest that TF PES negative effect on AP reduces higher up the hierarchy. More importantly the results confirm the negative and significant TF PES effect on AP (b = -.201, p <.01) as obtained in all the single moderator models. The standardized beta coefficients also indicate that TF PES has the most significant direct impact on AP followed by ICS.

Table 6-35 Summary of Hierarchical Moderated Regression Analysis (MP and AP)

	[a]Expected Sign		[b] Y = MP N = 126			Y = AP N = 228		
Step 1			*B*	*SE*	*B*	*β*	*SE*	*B*
	Constant		5.243**	.088		3.489**	.047	
	TF	+	.417**	.121	.282	-.189**	.065	-.196
	GD	(+)	.135*	.068	.160	-.053^	.036	-.097
	TF×GD	??	-.404**	.093	-.374	.016	.050	.023
	OC	(+)	.088	.078	.094	-.038	.041	-.062
	TF×OC	+	-.331**	.107	-.263	-.051	.057	-.063
	F			7.968**			2.390*	
	R^2			.249			.051	
	Adjusted R^2			.218			.030	
Step 2		[a]*E.S*	*β*	*SE*	*B*	*β*	*SE*	*B*
	Constant		5.269**	.087		3.498**	.048	
	TF	+	.424**	.119	.287	-.188**	.066	-.196
	GD	(+)	.114^	.070	.136	-.057^	.038	-.104
	TF×GD	??	-.422**	.091	-.391	.010	.050	.015
	OC	(+)	.073	.075	.078	-.041	.041	-.068
	TF×OC	+	-.350**	.105	-.279	-.057	.058	-.069
	OHL	(?)	.106	.085	.103	.023	.047	.035
	TF×OHL	-	.258**	.104	.193	.078	.057	.090
	F			6.985**			1.997^	
	Adjusted R^2			.251			.030	
	ΔR^2			.044*			.009	
Step 3		[a]*E.S*	*β*	*SE*	*B*	*β*	*SE*	*B*
	Constant		5.285**	.089		3.492**	.049	
	TF	+	.416**	.124	.282	-.201**	.068	-.210
	GD	(+)	.103	.071	.122	-.047	.039	-.086
	TF×GD	??	-.440**	.094	-.408	.024	.051	.034
	OC	(+)	.094	.080	.100	-.064^	.044	-.105
	TF×OC	+	-.317**	.111	-.252	-.072	.061	-.088
	OHL	(?)	.100	.086	.096	.031	.047	.046
	TF×OHL	-	.238*	.107	.179	.086^	.058	.099
	ICS	(+)	-.050	.084	-.056	.066^	.046	.113
	TF×ICS	+	-.103	.113	-.086	.037	.062	.047
	F			5.487**			1.788^	
	Adjusted R^2			.244			.030	
	ΔR^2			.006			.009	

^ $p < .10$; * $p < .05$; ** $p < .01$. *Note 1-tailed significance level is reported; 2-tailed significance was previously reported in the single moderator models.* [a] Expected sign; see notes in the previous table. .[b] No VIF > 1.5; results are similar after deleting 2 obs. with std residual > 3 std dev, except that OC is significant (b = .155, p<.05) and adjusted R^2 improves to .282.

In summary, the full combined moderator models do not show substantive improvement in explanatory power over the single moderator models. Furthermore, results of the full combined moderator model are largely consistent with those obtained in the single moderator models. Results from the full combined moderating model show moderation effects that are consistent with those obtained from the single moderator models for all the dependent variables except in 3 cases. Whereas the single moderator model results indicate that interactive use of control systems and goal difficulty moderate TF PES effects on intention to turnover, the interaction of these variables with TF PES are not significant in the full combined model (i.e. Model 4) results. Furthermore, the full combined moderator model

results also show that organisational hierarchical level (OHL) moderate TF PES effects on managerial performance (MP), i.e. the positive impact increases at higher OHLs, this interaction was not significant in the single moderator model results.

With regards to the simple effects of the independent variables, results from the full model are also largely consistent with those obtained in the single moderator models. With respect to quality threatening behaviour (QTB), the results confirm TF PES effects to be positive and significant, and organisational commitment (OC) and supervisory trust (ST) effects to be negative and significant. In addition, it shows TF PES to be the most important explanatory factor of QTB, followed by ST. But the results do not confirm the single moderator results which indicate that GD and ICS have significant effects on QTB. On one hand, the hierarchical regression results show GD does not have any significant effect on QTB allowing for the effects of TF PES and OC. This conflict somewhat with results of previous studies conducted mostly at lower OHLs in audit service areas of accounting firms. In these studies, GD was the most consistent variable with a significant positive association with QTB. On the other hand, the hierarchical regression results suggest that ICS effects are transmitted via ST.

For intention to turnover (IT), the full combined moderator model show significant simple effects consistent with those obtained in the single moderator models except in one case. The full model results confirm OC and ST effects to be negative and significant, and GD effect to be positive and significant. But it did not show ICS effects to be significant as obtained in the single moderator model; it suggests rather that ICS effects on IT are transmitted via ST. The results also reveal that OC has more impact on IT than the other variables, followed by GD.

With respect to MP, again the simple effects that are significant are very similar in both the full combined and single moderator models except in one case. All the single moderator models consistently show TF PES effects on MP to be positive and significant, and this is also confirmed in the combined moderator models. However, the full model results do not confirm GD positive effect on MP to be significant as obtained in the single moderator model. For

EFF, results of the full combined and the single moderator models show consistent significant simple effects, again with one exception. The full model results confirm that GD has a negative and significant effect on EFF, while ICS has a positive and significant effect. But the results do not confirm OC positive effects on EFF to be significant as obtained in the single moderator model. Finally, for AP both full combined model and the single moderator models show consistent significant simple effects. The full model results confirm TF PES effect on AP to be negative and significant.

Bearing in mind the order of entering the explanatory variables, the magnitude and significance of the change in R^2 of the hierarchical regressions show that Model 1 is the most parsimonious combined moderating model for actual performance ratings and effort, and Model 2 for managerial performance. For quality threatening behaviour and intention to turnover, Model 4 explained significantly more variance than the other models.

Chapter 7 Summary and Discussion of Findings, Conclusions, and Limitations

This study examined the consequences of performance management and control systems (PMCSs) with particular reference to performance evaluative styles (PES). The style of PMCS use in performance evaluation was conceptualised with reference to the focus on targets, i.e. target-focused performance evaluative style (TF PES). Accordingly, a prime general measure of TF PES was developed in addition to two other firm specific measures. The firm-specific measures include a parsimonious version of the prime measure and a measure adapted from Hopwood's evaluative style measurement instrument. Both negative and positive consequences of PMCSs were examined in terms of TF PES effects on dysfunctional behaviour, effort and performance. Dysfunctional behaviour was represented by quality threatening behaviour (QTB) encompassing short-termism, data manipulation and impression management, and also by social withdrawal represented by intention to turnover (IT). Performance, on the other hand, was represented by the actual performance rating (AP) received from formal performance appraisal, and by a self rating of managerial performance (MP).

From review of previous research studies, several potential factors that moderate and others that mediate PMCSs effects on behaviour and performance were identified and thus investigated. The potential moderating factors identified and investigated include goal difficulty (GD), organisational hierarchical level (OHL), interactive use of control systems (ICS), organisational commitment (OC), and supervisory trust (ST). While the potential mediating factors identified and investigated include equity and fairness perception (EFP), goal commitment (GC), job related tension (JRT), and job satisfaction (JS). Finally, in order to elucidate a better understanding of the complexities of the way PMCSs impact on behaviour and performance, the study modelled and investigated how the interplay of these moderating and mediating factors impact on the effects of the PMCS. This chapter provides a

summary and discussion of the major results of the study as well as conclusions based on these findings. In addition, the limitations of the study are also highlighted and potential directions for future studies suggested.

7.1 TF PES Impact on Dysfunctional Behaviour (Overall Effects on Quality Threatening Behaviour, & Intention to Turnover)

The study found that the style of use of PMCS as represented by a TF PES significantly increases dysfunctional behaviour, i.e. QTB, and also tends to increase IT. However, the significance of the positive impact on IT is sensitive to the way TF PES is measured.[68] These results are in line with a priori expectations and thus provide additional evidence of the unintended negative consequences of PMCSs as also highlighted by previous studies (e.g. Hopwood, 1973; Hirst, 1981; 1983; Anthony and Govindarajan, 2004).

Furthermore, the study found that the level of QTB and IT does not differ between those whose performance measures are predominantly quantitative and those with predominantly non-quantitative measures. Focusing on the group with more quantitative performance measures, it was also found that the level of IT did not differ between those with predominantly financial measures and those with predominantly non-financial measures. On the other hand, the level of QTB was marginally more for those with predominantly quantitative financial measures than those with predominantly quantitative non-financial measures. However, QTB and IT levels of those evaluated using high TF PES that is based predominantly on financial measures did not differ from that of those evaluated using high TF PES based predominantly on quantitative non-financial measures. This implies that the impact of PMCSs on dysfunctional behaviour arises from the way performance measures are used, whether financial or non-financial, rather than the nature of the measures.

[68] TF PES positive association with IT is significant using the alternate PES measures.

Given that PMCSs are usually based mainly on financial measures, previous studies tend to suggest that the negative consequences of PMCSs are attributable to the predominant use of financial measures. Consequently, the widely proffered solution to these unintended negative consequences is the use of more non-financial measures as propagated in such performance management frameworks as the Balanced Scorecard etc. However, the findings of this study show that these unintended negative consequences of PMCSs are not attributable to the predominant use of financial measures. Rather, using financial and non-financial measures in the same way, i.e. in a TF PES, results in similar levels of dysfunctional behaviour. Thus, it is very doubtful that this much propagated remedy for the ills of PMCSs is effective, even as empirical evidence of the efficacy of this remedy is sparse.

7.2 Moderating and Mediating Influences on the Overall Effect on QTB & IT

Having established TF PES overall effect on QTB to be positive and significant, possible moderating and mediating influences on this effect were investigated in an attempt to unravel the mechanisms underpinning this strong positive association. However, none of the moderating variables examined were found to moderate TF PES impact on QTB, i.e. TF PES significantly increases QTB regardless of the level of GD, OHL, ICS, OC, or ST. This result, though contrary to expectations, indicate the strong negative effects of PMCSs on dysfunctional behaviour, although unintended. In a way the results are similar to the experimental study results of Schweitzer et al. (2002) where they found that use of targets in performance measurement and evaluation lead to unethical behaviour regardless of whether rewards where linked to achievement of the targets or not.

On the other hand, some mediating influences were found but the significance of these depended on how TF PES is measured. Using the primary TF PES measure, only GC

significantly mediated, albeit partially, TF PES's effect on QTB.[69] The study found that GC partially suppresses TF PES's increase of QTB. Though TF PES has a strong positive impact on QTB, it also has a concurrent positive impact on GC and GC in turn has reduces QTB. Thus TF PES overall impact on QTB is actually smaller compared to the direct/residual impact on QTB. In other words, although TF PES has very strong positive impact on QTB, increasing managers' commitment to their performance goals significantly reduces the level of QTB exhibited.

The other negative consequence of TF PES examined in this study is the impact on IT. As indicated above TF PES has a positive but insignificant overall effect on IT. The examination of possible moderating influences revealed 3 significant variables that moderate TF PES impact on IT viz. GD – albeit marginally significant, ICS and ST. It was found that TF PES tends to increase IT when GD is high but tends to reduce IT when GD is low or moderate. However, TF PES significantly increases IT when ICS is low, but tends to reduce IT when ICS is high. On the other hand, it was found that TF PES significantly reduces IT when ST is high but tends to increase IT when ST is low or moderate. It is worth noting that ICS and ST are highly correlated (Pearson *rho* = .651, $p < .01$ – see Appendix 4). Low ICS implies that there is little interaction between superiors and their subordinates. Therefore there is less chance of exchanging job relevant information, and little opportunity to clarify expectations from both sides in the face of changing operating conditions. In addition, there appears to be low trust levels as well. It appears that TF PES much more encourages people to withdraw from the organisation under these conditions, i.e. low ICS, than when simply trust levels are low notwithstanding that ST is also low in such conditions. On the other hand, TF PES actually leads to lower IT when ST is high as higher ST levels, also promoted by high ICS, improves subordinates acceptance of the performance evaluation process.

[69] Using the alternate PES measures, the impact of TF PES on QTB was found to be exerted both directly and indirectly via 3 mechanisms viz.: EFP, JRT, and JS. TF PES reduces EFP and JS, and lower levels of EFP and JS in turn induces more QTB above levels directly attributed to TF PES. Also, TF PES increases JRT and higher JRT in turn lead to more QTB than directly caused by TF PES. The results all show the strong impact of TF PES on QTB.

The examination of the possible mediating influences again shows GC to be a significant variable mediating the impact of TF PES on IT. But in this case, GC completely suppresses the impact of TF PES on IT.[70] The study found that TF PES increases GC and GC in turn reduces IT such that the overall impact on IT is not significant and is smaller than the direct/residual impact of TF PES.

This finding, i.e. GC's significant mediating role, underscores the heavy focus accorded budgetary participation in the budgetary control literature. Subordinates' participation in setting their performance targets is thought to encourage higher performance as initially suggested by Argyris (1952). But it is also noted that this may be due to subordinates negotiating lower performance targets or building slack into the budget (Dunk and Nouri, 1998; Merchant 1985b; Young, 1985). Moreover, it is also acknowledged that participation could be real or 'pseudo', thus effects of participation may differ from one research setting to another if it is real in one setting and artificial in the other. This is probably reflected in the conflicting empirical evidence of the effect of participation and evaluative style (see Table 2-2: compare Brownell, 1982a, with Dunk, 1989; and Imosili, 1989; also compare Lau et al, 1995; with Brownell & Dunk, 1989; and Brownell and Hirst, 1986). More recent findings show that participation leads to greater GC and GC leads to better performance (Chong and Chong, 2002; Wentzel, 2002). This study's findings provide additional evidence that GC is a mechanism by which the effect of 'real' participation is transmitted. The study also extends previous studies in showing that GC also reduces dysfunctional behaviour. Moreover, whether participation is real or pseudo is not easily established using the popular measure of participation found in the MCS literature, even more so when used in a survey. Comparatively, GC can be more easily gauged using surveys and this further underscores its importance as a mediating influence on the effects of PMCSs. Thus it may be a fruitful

[70] Using the alternate PES measures, EFP, JRT, and JS were also significant mediating variables with similar patterns of relationships as observed in the case of QTB; i.e. TF PES reduces EFP and JS and lower EFP and JS in turn induces greater IT respectively. Also, TF PES increases JRT and higher JRT in turn increases IT.

approach for future researchers to consider GC in studying the influence of participation on PMCSs' effects.

7.3 Interplay of Moderating & Mediating Influences on PMCS' Effect on QTB & IT

The study found no conclusive evidence of interplay of moderating and mediating variables influencing TF PES's impact on QTB. While this is contrary to prior expectations, it however confirms the significance of TF PES positive impact on QTB as a serious, though unintended and perhaps unavoidable, negative consequence of using PMCSs. Nevertheless, an interesting pattern of relationships was found involving the mediating variable EFP and the moderating variable ICS. The findings suggest that EFP mediates TF PES's impact on QTB depending on the level of ICS (i.e. a moderated mediation relationship given no moderation of the overall effects). It was found that TF PES significantly reduces EFP only when ICS is low, and that lower EFP in turn induces greater QTB beyond levels directly attributable to TF PES. In other words, when ICS is low, TF PES has a direct positive impact on QTB and also an indirect positive impact on QTB via EFP. But there is no significant indirect effect via EFP when ICS is high. It is also worth noting the positive and significant correlation between ICS and EFP (*rho* = .416, $p < .01$ – see Appendix 4). Thus it appears that while high ICS promotes what may be considered 'normal' operating conditions, low ICS certainly spells trouble as there is lower trust, and lower perceptions of equity and fairness which leads to greater dysfunctional behaviour among the workforce.

Similarly, the interplay of ICS and EFP was found to affect TF PES impact on IT, but this time the evidence is statistically significant. The overall positive impact of TF PES on IT is not apparent when analysed alone. However, this is shown to depend on the level of ICS as TF PES significantly increases IT when ICS is low, and tends to reduce it when ICS is high. Furthermore, the study found that this moderation effect of ICS is explained by EFP, i.e. TF

PES evokes less EFP, but significantly more so when ICS is low and lower EFP in turn increases IT. In contrast, when ICS is high, TF PES impact on IT is mitigated by higher EFP as TF PES tends to positively impact on EFP when ICS is high.

These results in relation to ICS give credence to Chenhall (2003) premise that MCSs focused on tight financial controls are systematically combined together with open and flexible interpersonal interactions in successful organisations. This premise suggests that flexible interpersonal communications mitigate the negative consequences of tight financial control. This study provides evidence showing the effects of the presence of, and also absence of, the combination of a target-focused PMCS with interactive use of control systems (ICS) and the mechanism underpinning this effect. Consequently, previous studies that failed to take into account the existence of such a control system package, i.e. combination of control system elements, may have under-specified models with the serious implication of spurious and inconsistent findings. Therefore this study extends the MCS literature, on one hand, in showing the effects of the combination of specific control system elements on behaviour. On the other hand, this study further extends the literature in identifying a mechanism that underpins the effects of such a control system package, as well as highlighting other mechanisms that do not explain these effects.

7.4 TF PES Impact on Effort (EFF)

This study found some evidence of a curvilinear effect of TF PES on EFF such that TF PES positively impacts on EFF up to a point and subsequently the effect becomes negative. However, it was also found that this convex effect was not substantive though statistically significant. Nonetheless, the curvilinear relationship highlights the importance of testing for non-linear effects in MCS studies as most researchers simply model a linear relation between an element of a MCS and its consequences even when sometimes theory suggests otherwise.

Finding a significant linear relationship in the first instance might not necessarily mean non-linear relationships do not also hold without explicitly testing for such.

In addition, the study found that the linear impact of TF PES on EFF depends on the OHL. It was found that TF PES has a positive effect on EFF at higher OHLs, but tends to reduce EFF at middle and lower OHLs. This may also explain the overall negative but non-significant impact of TF PES on EFF. Thus while those at higher OHLs increase their effort in response to increased focus on targets, those at the lower OHL tend to reduce or simply maintain their effort level. This may be an indication that TF PES is perceived as the norm at low OHLs and increasing its intensity therefore tends to negatively affect effort, while at high OHLs the reverse holds. This view is supported by the study's finding that more intense, i.e. high, TF PES is used more at low OHL and less intense TF PES at high OHL. It may be that at high OHL increasing the intensity of TF PES signals top management focus and/or ailing performance in line with Otley's (1978) conjecture that difficult economic performance may lead to greater use of a PMCS in a target-focused style. Imosili (1989) also attributed the finding of little variation from a TF style of PMCS use in his research site to the difficult economic situation faced by the firm he studied.

Furthermore, the study found that GC completely mediates TF PES impact on EFF, i.e. the effect on EFF is indirect via GC. The pattern of effects is such that, as already discussed above, TF PES induces greater commitment towards goal achievement of performance goals, and then GC in turn leads to increased effort. This finding is in line with goal theory predictions that greater commitment to a goal or target is associated with higher performance. In most of the theoretic models of the positive effect of specific goals on performance, both in accounting and psychology studies, effort is always highlighted as the mechanism underpinning this relationship (see for e.g. Hirst, 1987a; Locke and Latham, 1990b). However, this mechanism is often not explicitly modelled and tested in the empirical accounting literature (Naylor and Ilgen, 1984). This study formally provides evidence

supporting this premise. As before, this result also underscores the importance of GC as a mechanism by which many of the effects of PMCS is transmitted.

Examination of the interplay between moderating and mediating influences did not however reveal any significant relationship affecting TF PES impact on EFF. Thus TF PES engenders more effort higher up the hierarchy and this effect, regardless of the hierarchical level, is transmitted indirectly via increased commitment to goal achievement promoted by TF PES.

7.5 TF PES Impact on Performance (Overall Effects on Managerial Performance & Actual Performance Rating)

The study found a positive and significant impact of TF PES on managerial performance (MP), irrespective of how TF PES is measured. However, the effect is linear and, contrary to expectations, no curvilinear relationship was found. Similarly, no curvilinear relationship between TF PES and actual performance rating (AP) was found, contrary to prior expectations. Rather, it was found that superiors' rating of performance as low is associated with use of higher TF PES, particularly moving from a low to medium TF PES. Thus while subordinates perceived their performance levels to be improving as higher TF PES is employed, superiors on the other hand rated performance lower.

These results could be attributed to the tendency of superiors, and top management in general, to always expect higher performance levels compared to past performance levels, i.e. performance target ratcheting. Thus, though managers improve their performance as more emphasis is placed on achieving targets, this still falls short of superiors' higher expectations leading to lower performance ratings. Such a phenomenon would always increase the pressure to perform which managers may seek to alleviate by resorting to more dysfunctional behaviour (i.e. QTB in this study) and then to social withdrawal (i.e. IT in the present study)

when they feel less able to cope with the pressure. Thus the somewhat contradictory effect of TF PES on MP and AP, reflecting perhaps conflicting perceptions of performance between superiors and subordinates, may also partly explain the positive association between TF PES and dysfunctional behaviour.

Another plausible and similar explanation for the results can be based on Otley's (1978) conjecture as mentioned in the previous section. Although performance evaluation happens later in the year, it is likely that managers monitor through the year subordinates they think are not confident or not performing well. For e.g. new subordinates may get closer and more detailed attention than older staff. Therefore managers conveying the PES may already have an idea of the performance rating they will award prior to the formal evaluation at the end of the year. And when they think someone is going to perform poorly a more intense, i.e. higher, TF PES may be used for the subordinate. This may actually lead to improvement in performance and indeed the subordinates think their performance is better although it may not improve enough to change their superiors' belief. Notwithstanding the source, as it were, of such differences between managers and subordinates perception of performance, these differences may lead subordinates to engage in greater dysfunctional behaviour and social withdrawal.

7.6 Moderating and Mediating Influences on the Overall Effect on MP

The examination of possible moderating influences on TF PES impact on AP revealed no significant moderation effect. On the hand, the study found that TF PES effect on MP depends on the level of goal difficulty (GD). It was found that the positive effect on MP is substantial and significant when the level of GD is low or moderate but almost absent when GD is high. In addition, it was found that TF PES effect on MP also depends on the level of

organisational commitment (OC) such that the effect is significant when OC is low and moderate, but not significant when OC is high - although the effect is still positive.

These results imply that having specific targets to aim for does provide managers motivation to improve their performance as does emphasis on achieving targets in performance evaluation. However, increasing focus on achieving targets coupled with low to moderate levels of GD more positively affects performance than when coupled with high GD. These findings provide some support to Merchant and Manzoni (1989) finding that, in the context of emphasis on achieving budget targets, setting highly achievable targets provide considerable challenge with many other benefits including improved motivation, resource planning, control, as well as reduced risk of dysfunctional behaviour. It appears therefore that TF PES and GD may have substitutionary effects such that focus on goals could be achieved either by making it difficult or by showing much interest in the goal. But combining both means might be an overkill which does not help and actually hinder – considering that TF PES leads to increased intention to turnover when GD is also high. In addition, TF PES stimulates more motivation to improve performance when OC is low than when high perhaps because it focuses the mind more on achieving targets, i.e. it provides more motivation in low OC conditions. Consequently, given that OC is usually boosted by offering higher rewards, these results suggest that doing so while employing high TF PES is more effective when OC is low and than when OC is high.. This result corroborates Chong and Eggleton's (2007) finding that a heavy reliance on incentive based compensation schemes provides more motivation to improve performance when OC is low and has no effect on performance when OC is high.

Furthermore, none of the mediating variables investigated significantly mediated TF PES effect on MP suggesting the effect is all direct. But when the interplay of moderating and mediating influences was considered, the study found that the impact of TF PES on MP when GD is high is entirely mediated by GC. As noted earlier, the combination of TF PES and GD leads to greater IT and also leads to lower MP. However, the negative impact on MP is not so

significant because GC is equally increased by TF PES, regardless of GD levels, and GC in turn has a counteracting positive and significant impact on MP. Thus individual's attachment to and determination to reach a goal increases with more focus on achieving targets, and this completely suppresses the otherwise negative impact of PMCS on performance when performance targets are set at a difficult level. In other words, if for some reason GC is low and unaffected by TF PES, then combining high focus on targets with difficult target levels not only increases dysfunctional behaviour but also negatively affects performance. Again this highlights GC as an important mechanism that mediates the effects of PMCSs.

7.7 OHL as an Antecedent of TF PES

This study also investigated the impact of hierarchical levels on the way PMCSs are used. The findings show that similar levels of quantitative performance measures are used across different organisational hierarchical levels (OHLs). However, more quantitative non-financial information is used more extensively at lower OHLs, while financial measures which are more aggregate measures of performance is used more extensively at higher OHLs. As discussed in the theory and hypothesis development Section 3.4.2, financial information is somewhat more predictable than non-financial measures as it reflects aggregate actions of many lower level subordinates. More extensive use of such information at higher OHL may be because it is seen as ameliorating the difficulty in measuring performance at higher OHLs posed by the non-programmability of tasks and the longer action-results time frame. Nonetheless, though more emphasis is placed on financial measures at higher hierarchical levels, the positive and negative consequences of TF PES is similar whether based mainly on financial or non-financial measures as already discussed in Section 7.2. Equally, TF PES effects are similar across OHLs except that TF PES elicits greater effort at higher compared to lower OHLs. Thus, the use of PMCS based mainly on financial control at higher OHLs is not the source of the negative unintended effects associated with PMCS; rather it is the way in

which it is used. Therefore it suggests that the call by the Beyond Budgeting proponents to abandon financial control altogether is not entirely warranted.

7.8 Other Findings – Gender Differences

The study found that female workers exerted more effort in their work than men. Though this may be due to men's general tendency to underrate the effort they put into any activity, gender differences were further explored using means t-tests for the variables found to correlate significantly with gender (see Appendix 4). This exploratory analysis revealed that, in addition to women reporting their effort levels to be higher; they also perceived their performance goals to be less difficult ($t = 2.89$, $p < .01$); they had more frequent contact with supervisors ($t = -1.86$, $p < .10$); they were more in number at the lower hierarchical levels ($t = 3.38$, $p < .01$) thus lower in number at higher levels; and they had longer tenures at current grades ($t = -2.18$, $p < .05$). These results corroborate the findings made by Hunton et al. (1996) in their study of hierarchical and gender differences among accountants in private manufacturing companies. They found that female accountants were greater in number at lower hierarchical levels while males were greater at higher levels. They also found that female accountants had longer tenure at each hierarchical level except at the highest level where they had similar tenures with males. Given that females are more in number at lower OHLs, it suggests that these are young women since most people at lower OHLs in this firm are young going by the demographic information. Thus the differences observed between males and females in this study considered together, and in the light of the Hunton et al.'s study, raise interesting research questions; i.e. why are there fewer women in the upper hierarchies of accounting firms, are 'glass ceilings' for women in these sort of firms? Put another way; are there gender discriminations in accounting firms, and if so what factors account for it?

7.9 Key Contributions and Conclusions

The use of performance and management and control systems (PMCSs), particularly those based on budgetary control, in performance evaluation was widely documented in early empirical studies of the late 1970's to 1990's. It has been quite awhile since these early studies and control practices have changed since then, e.g. budgets are not singularly as important as they used to be. It would appear that targets in general have been substituted for budgets, but there is not much empirical evidence on how managers use these performance targets and its consequences. It is not obvious that what was previously documented on the style of use of control systems is still as pervasive now. Therefore this study contributes to the literature in expanding Hopwood's original concept to the use of targets more generally, not just financial budgets, and thus provides a broader framework for studying PES.

Targets or goals may be seen as simpler than budgets and easier to control, as such there may or may not be dysfunctional behaviour associated with their use. Moreover, goal theory only focuses or acknowledges the positive side of using targets. However, it must be recognised that the use of PMCS in a target focused (TF) manner, as is often the case, has both a positive and a 'dark' side. Consequently, focusing on only the positive or negative effects of a PMCS does not inform an organisation of the full consequences and thus how organisational participants' behaviour and performance are best managed. This study contributes to the literature in providing empirical evidence that use of performance targets in a TF PES not only encourages better performance but also leads to more dysfunctional behaviour. Thus, it is more needful to identify those factors or conditions that affect the way PMCS's use both positively as well as negatively affects the behaviour and performance of organisational participants, and how they interrelate in affecting the eventual consequences of PMCSs.

Previous PMCS studies, particularly those focused on audit service areas of accounting firms, document a significant positive association between goal difficulty and dysfunctional

behaviour but do not document significant associations between PES and dysfunctional behaviour (e.g. Otley and Pierce, 1996a). This may lead managers not to consider PES as being as important as the difficulty of the performance targets they set. The findings of this study indicate that they should. High levels of target difficulty elicit dysfunctional behaviour irrespective of the level of TF PES, just as high TF PES equally does irrespective of the level of target difficulty. And though the wider budgetary control literature associates dysfunctional behaviour with high TF PES based mainly on financial targets, the study's findings indicate that high TF PES whether based on financial measures or quantitative non-financial measures had similar effects on dysfunctional behaviour. This has implications for practice. Employing a plethora of non-financial performance measures may not yield the dividends of significantly curbing short-termism among managers, as is popularly promoted in the literature, if these measures are used in the same high TF PES as the financial targets tend to be used. Thus managers still need to bear in mind that the way performance measures are used impacts on behaviour much more than just the effect of the nature of the measures.

Suggestions have been made in the literature that the type of responsibility centre studied may explain some of the inconsistent results of earlier studies (Otley, 1978; Brownell, 1982a). The responsibility centres these authors studied represented different hierarchical levels in that each study's sampled organisational members were at, equivalently, different hierarchical levels. This pointed to possible differences in both the use and the consequences of PMCS at different hierarchical levels. However, subsequent studies have focused investigation of PMCS at a single hierarchical level and type of responsibility centre with little comparison between responsibility centres or hierarchical levels. Thus, empirical evidence on the effect of OHL on the use of PMCSs is still relatively scarce, as is evidence on any differences in the consequences of the way PMCS is used at different OHLs. In this regard, this study contributes to the PMCS literature in providing empirical evidence indicating that the nature of performance measures used differs between OHLs, and that the predominant style of use of PMCS also differ at different OHLs. The study shows that more financial measures or targets

are predominantly used at higher OHLs but in a lesser TF PES, while non-financial measures are predominantly employed at lower OHLs but in a more TF PES.

Even more interesting is the finding that higher TF PES seems to have more positive effects on effort, and possibly performance, at higher OHL than at lower OHL. But at the same time it does not have different effects on dysfunctional behaviour at different OHL. On the one hand, these findings support the contingency theory of control systems in that the nature of performance measures and the manner in which PMCS is used may be contingent on OHL. But on the other hand, it also shows both similar and dissimilar effects of using PMCSs in a TF PES at different OHLs. This perhaps further highlights the conflicting equilibrium assumptions encountered in the literature in using the theory to inform empirical investigations. If equilibrium conditions are assumed, then differences in effects of TF PES would not be expected, as observed in relation to dysfunctional behaviour, and one could conclude that the dominant PES observed at different OHLs is appropriate for those levels. On the other hand, if disequilibrium is assumed then differences in effects of PES would be expected as also observed in relation to effort and performance, and one could conclude that TF PES is more appropriate at higher OHL. Therefore managers need to bear in mind some of these complexities while trying to apply contingency theory motivated research findings in their work situations.

Recent changes in the accounting firm environment show that the use of control systems in a more interactive manner is becoming more visible than before. Few empirical PMCS studies employ Simons' model of interactive control systems, framed in this study as interactive use of controls (ICS). The few that do so only apply the concept in examining control systems at top management levels. However, ICS could also be in operation at lower managerial levels and this study demonstrates the application of this concept at these levels, as well as at top management levels. Hopefully, this opens the door for future studies to consider how these systems apply at lower organisational levels. Furthermore, few studies consider the

combination of different aspects of the control systems and the possible impact of this on work performance and behaviour. Calls have been made in the literature for PMCS studies to consider the effects of combination of control system features (Chenhall, 2003). Thus this study contributes to the literature in answering this call by investigating the consequences of such combination of control systems features often examined separately, i.e. the interaction of ICS and TF PES. The findings from this investigation also give credence to such calls, as it reveals that while a high TF PES elicits dysfunctional behaviour, combining it with a high ICS seems to mitigate such behavioural responses. Given that ICS is a key control system feature, the absence or presence of such combination of control system features may also partly explain some of the conflicting findings of previous studies.

Another key contribution of this study is the application of a relatively new analytical strategy in examining the complex relationships between control systems and behaviour, as well as performance. This study demonstrates the application of the mediated moderation, and the moderated mediation, analytical strategy to management accounting research. By employing this regression based analytical strategy it was possible to tease out some of the complexities in the relationships examined. It is hoped that this demonstration makes the strategy more accessible to management accounting researchers and that future studies will be able apply it in investigating the complexities of the impact of PMCS thus enhancing our understanding of these relationships.

7.10 Study Limitations

One major limitation often cited against a case study of a single organisation is generalizability to other settings, and this limitation also applies to this study. However, to the extent that findings of the study support prior theories and empirical evidence from previous studies this limitation or critique does not really hold much weight. Another limitation of the study lies in the inherent limitations imposed by the data collection method. The accuracy of

data collected via surveys, whether web or mail based, is affected by a number of factors including coverage, sampling, measurement, and non-response issues. However, effort was made to address these issues in this study. For instance coverage and measurement error are not much of an issue by the fact that the target sample was pre-identified and the questionnaire rigorously developed from prior discussions with the target organisation. Then series of pilot tests were conducted, both outside and within the case organisation, before the survey was deployed. However, it is felt that the inability to discuss the results of the study with some of the respondents limits the insight that can be drawn from the findings of the study.

In this study, differences in PES between different organisational hierarchical levels (OHLs) was investigated, as well as differences in the impact of PES on behaviour and performance at different OHLs. Similarly, differences in demographics and in the criterion variables examined in this study between the lines of service (LOS) were also examined. However, there was no examination of possible differences between different OHLs within each LOS on account mainly of sample size limitations. It is possible that there might be differences that are significant enough to impact on the results. For example, the models examined here might have different explanatory powers at different OHL in each LOS. The focus on one LOS and on one or two adjacent OHLs by previous empirical studies of accounting firms may have been informed by the desire to control for possible differences between LOS and across OHLs. These diversities might have also contributed to the low explanatory power of some of the single moderator models, although this also implies that the effects observed in this study may be much stronger than indicated without these diversities. Therefore, the results reported in this study should be interpreted bearing this limitation in mind.

In addition, it has to be noted that the process of gaining access impacted on the study to some degree. For example, the need to reduce the survey items and changes made to the wording of

some of the survey items to accommodate the interests of the case organisation limited the ability to investigate other related issues of interest, and shaped some of the hypotheses. Nonetheless, this process also enhanced the study in helping to sharpen the study's focus, and in enabling the use of shorter survey items with minimal loss of reliability as indicated by the reliability statistics of the concepts measured.

While much care was taken to ensure that respondents correctly interpret the survey items through pre-survey interviews and various pilot tests of the survey instrument, one cannot absolutely assure this consistency among respondents to the survey. For instance, did respondents consistently make the correct distinction between financial and non-financial measures in answering the related question? Those interviewed and comments received during the pilot tests did not express any ambiguity in making such distinction. Nevertheless, some measures are inherently ambiguous in that it is difficult to neatly classify these as financial or non-financial. For example time budgets are generally perceived as non-financial but these can be argued to be the same as the financial cost budgets they underpin. Equally, are sales revenues financial measures or the representation of the sales volumes underpinning them, which would be regarded as non-financial measures? Thus there are sometimes significant overlaps in categorising performance measures as financial or non-financial, which may have been encountered this study. This should also be borne in mind while interpreting the results of the study.

7.11 Recommendations for Future Studies

A number of factors suspected as influencing the effects of PMCS use on behaviour and performance were investigated in this study. Some of the factors were found to have significant influences while others did not. Yet these are by no means the only factors that could exert influences on the effects of PMCS use. Using the approach and analytical strategies employed in this study, future researchers can test for significance of other factors they can identify from the MCS literature and other literature. Furthermore, future researchers can also model the significant factors found in this study, as well as other studies, to test which of these better explains or has greater influence on the impact of PMCS use. In this regard, the SEM technique, which is still a relatively unpopular technique in management accounting research, would be very valuable. The study also uncovered possible gender discrimination within professional accounting firms. Future researchers could examine this issue further to substantiate if gender discrimination is widespread in these type of firms, and if so identify the reasons behind it and how this might bear on use and consequences of PMCSs.

Appendix 1: Sample Introductory Letter to Bank B

Contact name.....
Contact address.....

Date.....

Dear Mr ....

RE: Aligning Performance Management Systems with Strategic Objectives

As part of an on-going programme of work at the Lancaster University Management School (LUMS), I am investigating the effects of various performance management systems on the implementation of strategic objectives. My current study is investigating

- The role of performance management systems, how they are used and the factors that influence this process; and
- How managers balance multiple measures of performance in the implementation of strategic objectives, with particular reference to performance evaluation practices and its consequences; and
- The different ways in which systems are used by managers at different organizational levels

Following the recent takeover of Bank NA by RS Group, it occurred to me that you probably have two distinct systems that you may be in the process of combining. It would therefore be of considerable interest to observe and document these systems. I realise that such a project would involve the time of your staff, but I would hope that there would be considerable benefit to yourselves in studying

- How your systems work in practice and your employees' general perception of and reaction to the systems in place; and
- How they compare to other firms' systems, with possible suggestions for change

I would intend to carry out the work with the assistance of a doctoral researcher at LUMS, Mr. Valentine Ururuka. Before joining the research programme at LUMS, Mr. Ururuka had completed an MSc in Accounting and Financial Management with distinction and as the best student of 2001 in this Department. Prior to this, he had worked for 6 years with Citibank in Nigeria after his first degree.

If this study is of interest to you, I should be pleased to discuss the matter further, either with yourself or with whomever you would wish to nominate. Perhaps your secretary could let me know (by e-mail on d.otley@lancs.ac.uk) of a suitable time to telephone you, or to arrange to visit.

Yours sincerely,

Professor David Otley
Department of Accounting & Finance,
Lancaster University Management School,
Lancaster, LA1 4YX, UK

Appendix 2: Introductory Email to ABC LLP

From: Otley, David
Sent: 15 September 2004 21:39
To: moira.a.elms@uk.pwc.com
Subject: Performance Management

Dear M...,

P... G... has passed your note to me as the person interested in a possible project with ABC LLP. First let me introduce myself. I am David Otley and am Professor of Management & Accounting in the Lancaster University Management School, with major research interests in the operation of management control and performnace management systems, including their inter-relationship with performance appraisal and remuneration systems. Incidently, I am also Senior Moderator for the ICAEW Advanced Stage examinations, with a particular interest in the final case study examination.

My specific motivation for looking for a contact is that I currently have a bright PhD student (Valentine Ururuka, a Nigerian who has work experience in banking, and who completed a distinction level Masters degree with us at Lancaster recently) who is formulating a project for his PhD research. There is some flexibility still in what he plans to do, but it will involve the differing ways in which control is exercised and performance is managed, paying particular attention to difference at different hierarchical levels. It will also involve studying how the conflicts bewteen short-term and longer-term performance are identified and managed in practice. However, there would be significant scope for this to be formulated in a way that addresses issue in which ABC LLP might currently be interested.

Perhaps the best way forward might be for us to meet to explore whether there are possibilities for a mutual collaboration that might benefit us both. I am in London fairly frequently, so I hope we can arrange a convenient date. One possibility at present is Wed 29 September; another would be in the pm of 7 October (or the 6th or 8th even). Or on whatever later dates are convenient for yourself.

I look forward to hearing from you,

Best regards,

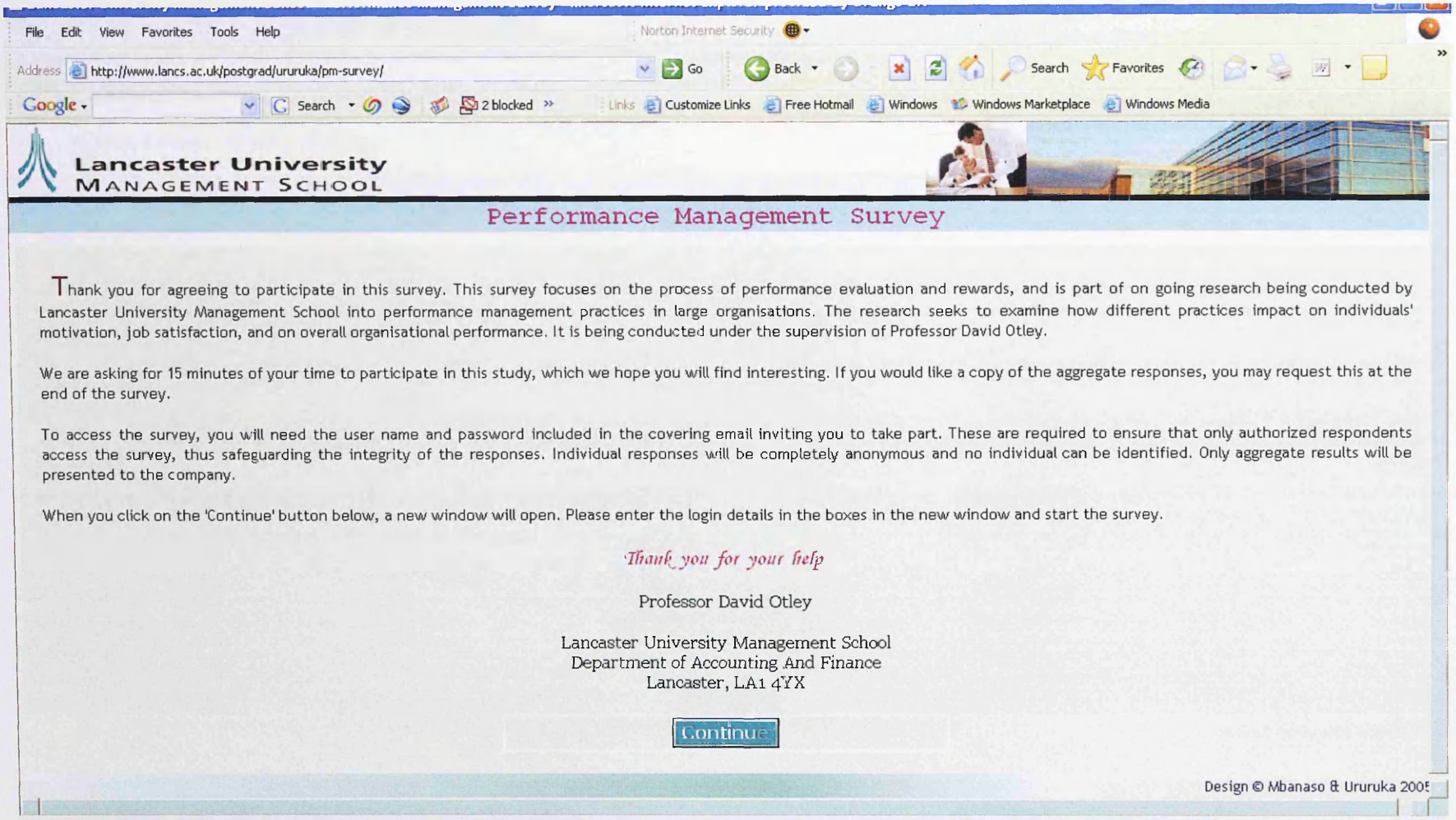
David Otley

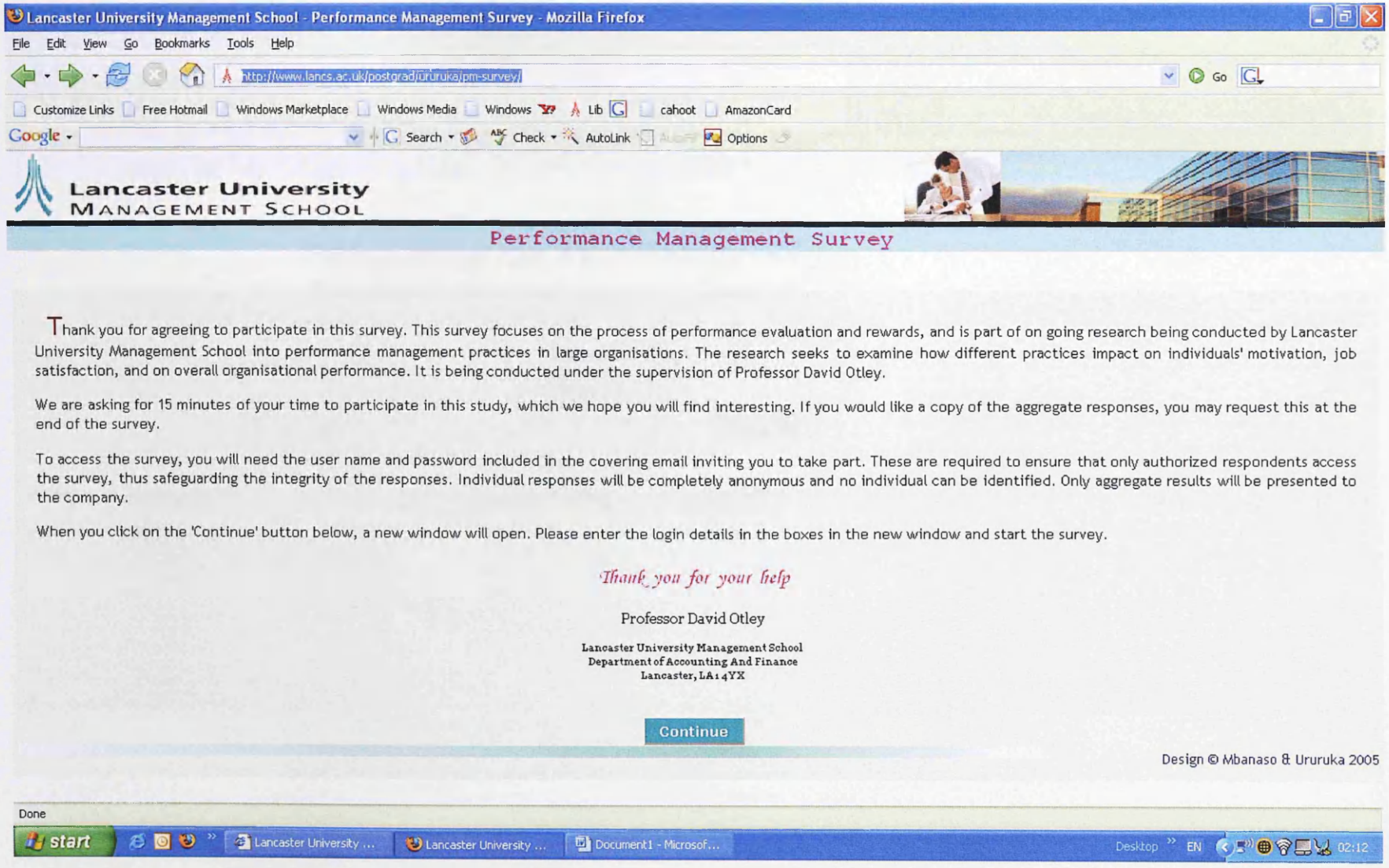
Professor David Otley
Lancaster University Management School
Lancaster LA1 4YX, UK.

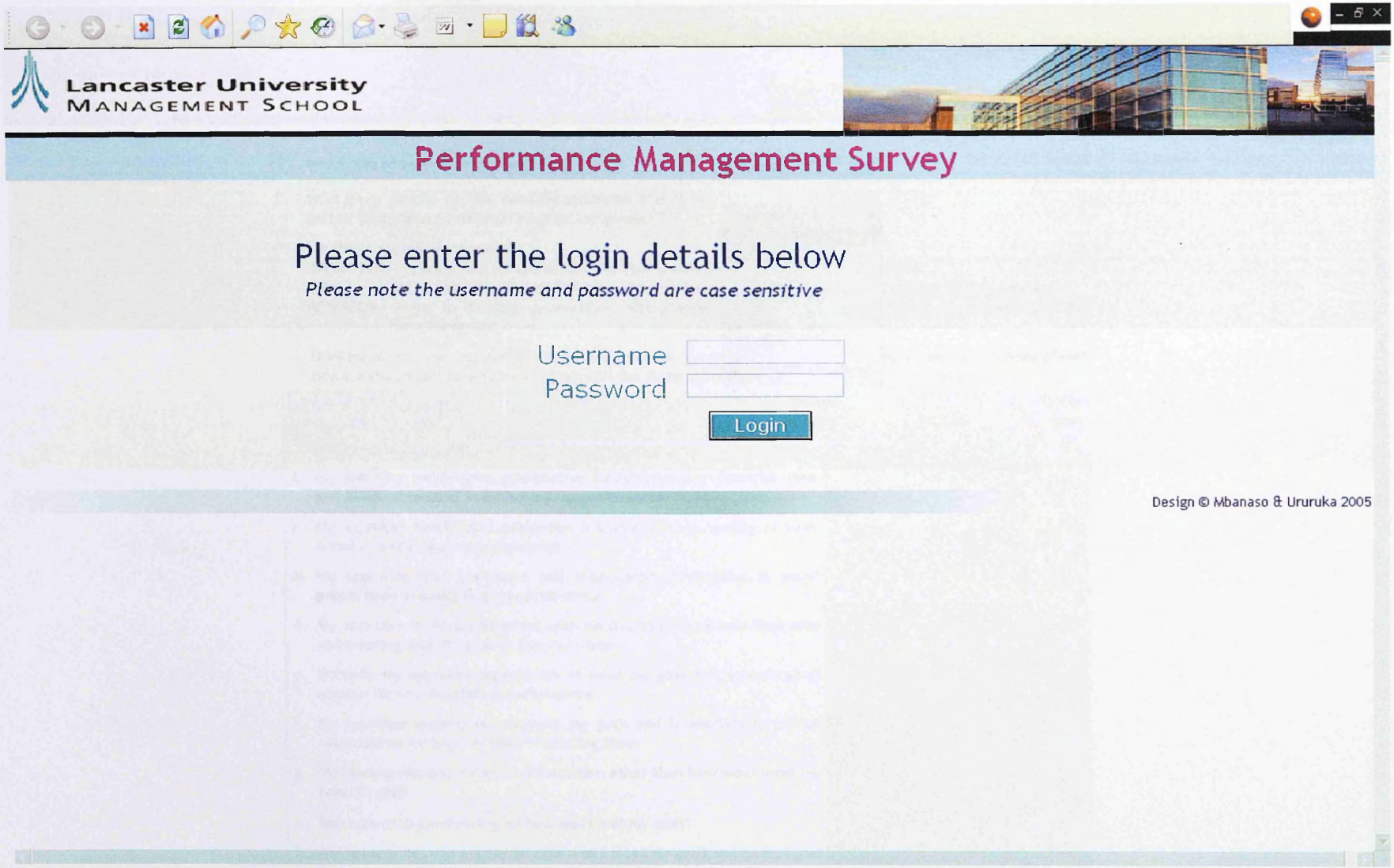
Tel: +44 (0) 1524 593636

e-mail: d.otley@lancs.ac.uk

Appendix 3: Screen Shots of the Survey Web Pages




Lancaster University Management School - Performance Management Survey - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://www.lancs.ac.uk/postgrad/ururuka/pm-survey/
Customize Links Free Hotmail Windows Marketplace Windows Media Windows Lib cahoot AmazonCard
Google Search Check AutoLink Options
Lancaster University
MANAGEMENT SCHOOL
Performance Management Survey
Thank you for agreeing to participate in this survey. This survey focuses on the process of performance evaluation and rewards, and is part of on going research being conducted by Lancaster University Management School into performance management practices in large organisations. The research seeks to examine how different practices impact on individuals' motivation, job satisfaction, and on overall organisational performance. It is being conducted under the supervision of Professor David Otley.
We are asking for 15 minutes of your time to participate in this study, which we hope you will find interesting. If you would like a copy of the aggregate responses, you may request this at the end of the survey.
To access the survey, you will need the user name and password included in the covering email inviting you to take part. These are required to ensure that only authorized respondents access the survey, thus safeguarding the integrity of the responses. Individual responses will be completely anonymous and no individual can be identified. Only aggregate results will be presented to the company.
When you click on the 'Continue' button below, a new window will open. Please enter the login details in the boxes in the new window and start the survey.
Thank you for your help
Professor David Otley
Lancaster University Management School
Department of Accounting And Finance
Lancaster, LA1 4YX
Continue
Design © Mbanaso & Ururuka 2005
Done
start
Lancaster University ...
Lancaster University ...
Document1 - Microsof...
Desktop
EN
02:12


Lancaster University
MANAGEMENT SCHOOL
Performance Management Survey
Please enter the login details below
Please note the username and password are case sensitive
Username
Password
Login
Design © Mbanaso & Ururuka 2005

0% complete

1. Which line of service do you work for? Select

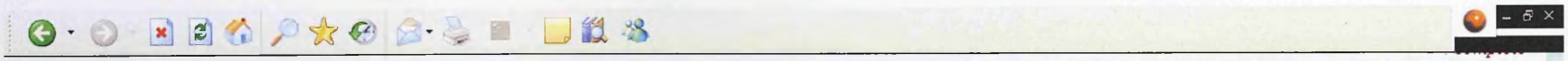
2. How many people do you normally supervise directly as part of your current role or on a typical assignment? Select

Select
None
1 - 3
4 - 6
7 - 9
10 - 12
13 - 15
16 - 18
Over 18

3. For the purposes of this survey:
APPRAISER *- refers to the person conducting your annual pe* *raisal;*
GOALS *- refer to the pre-set specific levels of performance* *ormance objectives; and*
REWARDS *- refer to bonuses, promotions, high profile j* *pment opportunities, public recognition etc.*

Thinking about your last annual performance review, (ever *ad an annual appraisal) please* indicate the extent to which you agree with the statements

	Strongly Disagree			Neutral			Strongly Agree
	1	2	3	4	5	6	7
a. My appraiser mainly uses **quantitative** information (e.g. financial, time and deadline targets) in evaluating my performance	○	○	○	○	○	○	○
b. My appraiser mainly uses **qualitative** information (e.g. quality of work done) in evaluating my performance	○	○	○	○	○	○	○
c. My appraiser uses qualitative **and** quantitative information in **equal proportions** in evaluating my performance	○	○	○	○	○	○	○
d. My appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term	○	○	○	○	○	○	○
e. Normally my appraiser expects me to meet my goals but accepts good reasons for any shortfalls in performance	○	○	○	○	○	○	○
f. My appraiser expects me to meet my goals and is unwilling to accept explanations for any shortfalls in meeting them	○	○	○	○	○	○	○
g. My rewards depend mainly on information **other than** how well I meet my specific goals	○	○	○	○	○	○	○
h. My rewards depend mainly on how well I met my goals	○	○	○	○	○	○	○
i. My rewards depend equally on how well I meet my goals and on non-goal							



1. Which line of service do you work for? **Select**

2. How many people do you normally supervise directly as part of your current role or on a typical assignment? **Select**

3. For the purposes of this survey:
   APPRAISER *- refers to the person conducting your annual performance review/appraisal;*
   GOALS *- refer to the pre-set specific levels of performance specified in your performance objectives; and*
   REWARDS *- refer to bonuses, promotions, high profile job assignments, development opportunities, public recognition etc.*

   Thinking about your last annual performance review, (even if you have not yet had an annual appraisal) please indicate the extent to which you agree with the statements below:

	Strongly Disagree			Neutral			Strongly Agree
	1	2	3	4	5	6	7
a. My appraiser mainly uses **quantitative** information (e.g. financial, time and deadline targets) in evaluating my performance	○	○	○	○	○	○	○
b. My appraiser mainly uses **qualitative** information (e.g. quality of work done) in evaluating my performance	○	○	○	○	○	○	○
c. My appraiser uses qualitative **and** quantitative information in **equal proportions** in evaluating my performance	○	○	○	○	○	○	○
d. My appraiser is more concerned with my overall performance than with not meeting specific goals in the short-term	○	○	○	○	○	○	○
e. Normally my appraiser expects me to meet my goals but accepts good reasons for any shortfalls in performance	○	○	○	○	○	○	○
f. My appraiser expects me to meet my goals and is unwilling to accept explanations for any shortfalls in meeting them	○	○	○	○	○	○	○
g. My rewards depend mainly on information **other than** how well I meet my specific goals	○	○	○	○	○	○	○
h. My rewards depend mainly on how well I met my goals	○	○	○	○	○	○	○
i. My rewards depend equally on how well I meet my goals and on non-goal related information	○	○	○	○	○	○	○
	1	2	3	4	5	6	7

Continue

15% complete

4. Please indicate your belief about the effort you need to put into your job

	Well Below Average			Average			Well Above Average
	1	2	3	4	5	6	7
a. Compared to similar jobs in the organisation how much effort does your current job position require	○	○	○	○	○	○	○
b. Compared to other people in similar job positions in the organisation, how much effort would you say you put into your job	○	○	○	○	○	○	○

5. Listed below are some criteria that people in other businesses have indicated to be important in their appraiser's evaluation of their performance. Please indicate how important you believe each criterion is in your appraiser's evaluation of your performance (even if you have not yet had an annual appraisal).

	Not at all important			Moderately important			Very important
	1	2	3	4	5	6	7
a. How well I communicate and build relationships with colleagues and clients	○	○	○	○	○	○	○
b. How well I get along with my appraiser	○	○	○	○	○	○	○
c. How well I met my goals and deadline targets	○	○	○	○	○	○	○
d. The quality of my work	○	○	○	○	○	○	○
e. My actions that produce long-run effectiveness rather than short-run results	○	○	○	○	○	○	○
f. How much effort my appraiser perceives I put into the job	○	○	○	○	○	○	○
g. How long I have been in my current position	○	○	○	○	○	○	○
Are there any others? (Please list below.)							
h.	○	○	○	○	○	○	○
i.	○	○	○	○	○	○	○

15% complete

4. Please indicate your belief about the effort you need to put into your job

	Well Below Average			Average			Well Above Average
	1	2	3	4	5	6	7
a. Compared to similar jobs in the organisation how much effort does your current job position require	○	○	○	○	○	○	○
b. Compared to other people in similar job positions in the organisation, how much effort would you say you put into your job	○	○	○	○	○	○	○

5. Listed below are some criteria that people in other businesses have indicated to be important in their appraiser's evaluation of their performance. Please indicate how important you believe each criterion is in your appraiser's evaluation of your performance (even if you have not yet had an annual appraisal).

	Not at all important			Moderately important			Very important
	1	2	3	4	5	6	7
a. How well I communicate and build relationships with colleagues and clients	○	○	○	○	○	○	○
b. How well I get along with my appraiser	○	○	○	○	○	○	○
c. How well I met my goals and deadline targets	○	○	○	○	○	○	○
d. The quality of my work	○	○	○	○	○	○	○
e. My actions that produce long-run effectiveness rather than short-run results	○	○	○	○	○	○	○
f. How much effort my appraiser perceives I put into the job	○	○	○	○	○	○	○
g. How long I have been in my current position	○	○	○	○	○	○	○
Are there any others? (Please list below.)							
h.	○	○	○	○	○	○	○
i.	○	○	○	○	○	○	○

Continue

30% complete

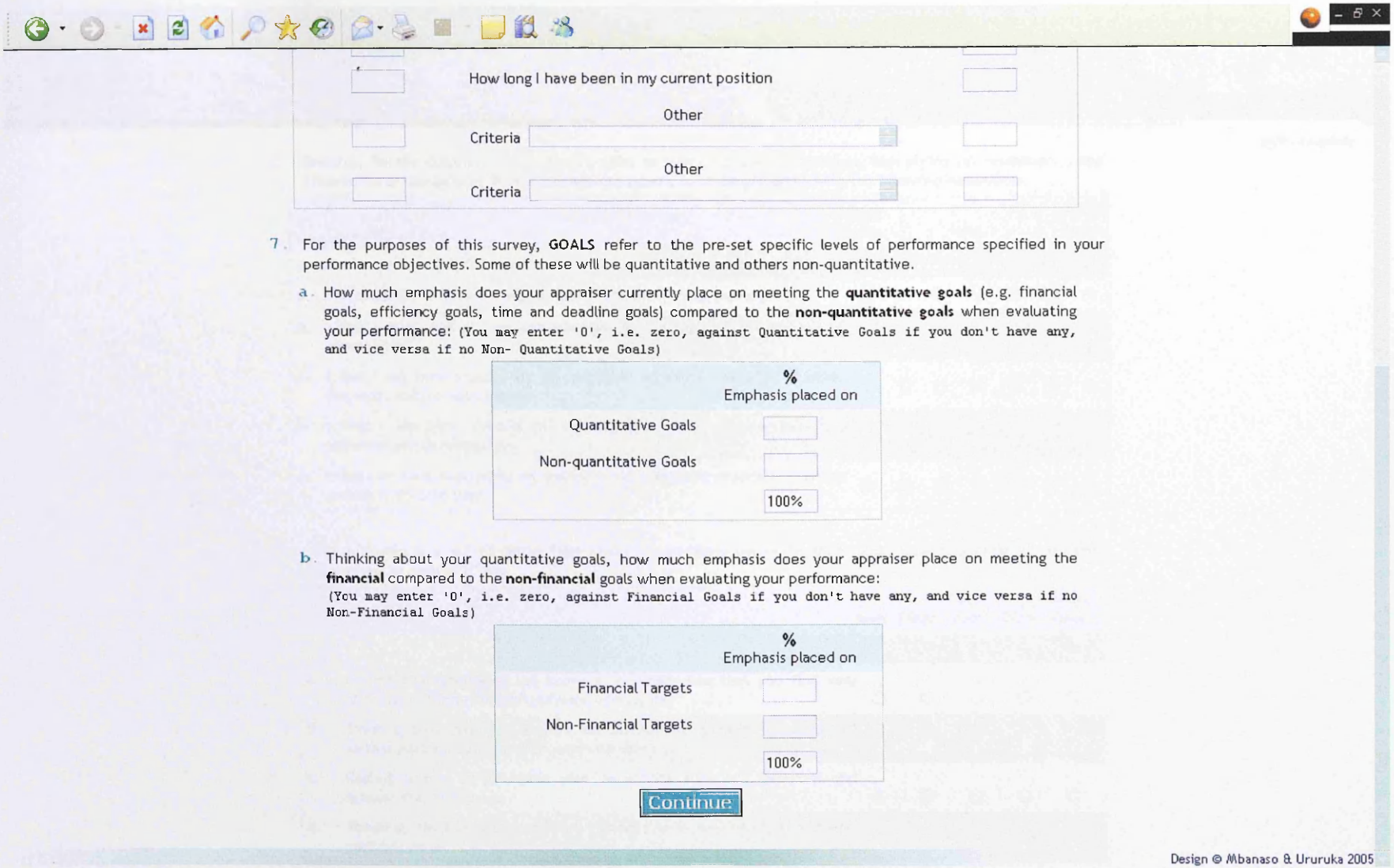
6. Please rank the following criteria in the order of importance that you believe your appraiser uses in evaluating your performance (even if you have not yet had an annual appraisal). Then using column 2, please indicate how you think they should rank in order of importance.

[1 = most important; 2 = next most important; .... 7(or 9) = least important (9 if you input additional criteria)]

[COLUMN 1] Criteria I believe **my appraiser uses** in order of importance	Criteria	[COLUMN 2] Criteria **I think should be used** in order of importance
	How well I communicate and build relationships with colleagues and clients	
	How well I get along with my appraiser	
	How well I met my goals and deadline targets	
	The quality of my work	
	My actions that produce long-run effectiveness rather than short-run results	
	How much effort my appraiser perceives I put into the job	
	How long I have been in my current position	
	Other Criteria	
	Other Criteria	

7. For the purposes of this survey, **GOALS** refer to the pre-set specific levels of performance specified in your performance objectives. Some of these will be quantitative and others non-quantitative.

a. How much emphasis does your appraiser currently place on meeting the **quantitative goals** (e.g. financial goals, efficiency goals, time and deadline goals) compared to the **non-quantitative goals** when evaluating your performance: (You may enter '0', i.e. zero, against Quantitative Goals if you don't have any, and vice versa if no Non- Quantitative Goals)


How long I have been in my current position
Other
Criteria
Other
Criteria
7. For the purposes of this survey, GOALS refer to the pre-set specific levels of performance specified in your performance objectives. Some of these will be quantitative and others non-quantitative.
a. How much emphasis does your appraiser currently place on meeting the quantitative goals (e.g. financial goals, efficiency goals, time and deadline goals) compared to the non-quantitative goals when evaluating your performance: (You may enter '0', i.e. zero, against Quantitative Goals if you don't have any, and vice versa if no Non- Quantitative Goals)
%
Emphasis placed on
Quantitative Goals
Non-quantitative Goals
100%
b. Thinking about your quantitative goals, how much emphasis does your appraiser place on meeting the financial compared to the non-financial goals when evaluating your performance:
(You may enter '0', i.e. zero, against Financial Goals if you don't have any, and vice versa if no Non-Financial Goals)
%
Emphasis placed on
Financial Targets
Non-Financial Targets
100%
Continue
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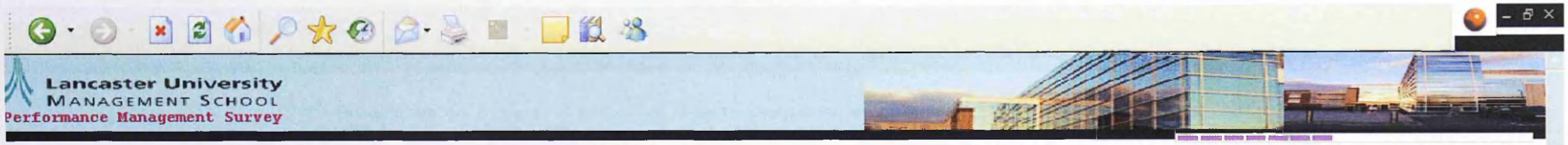


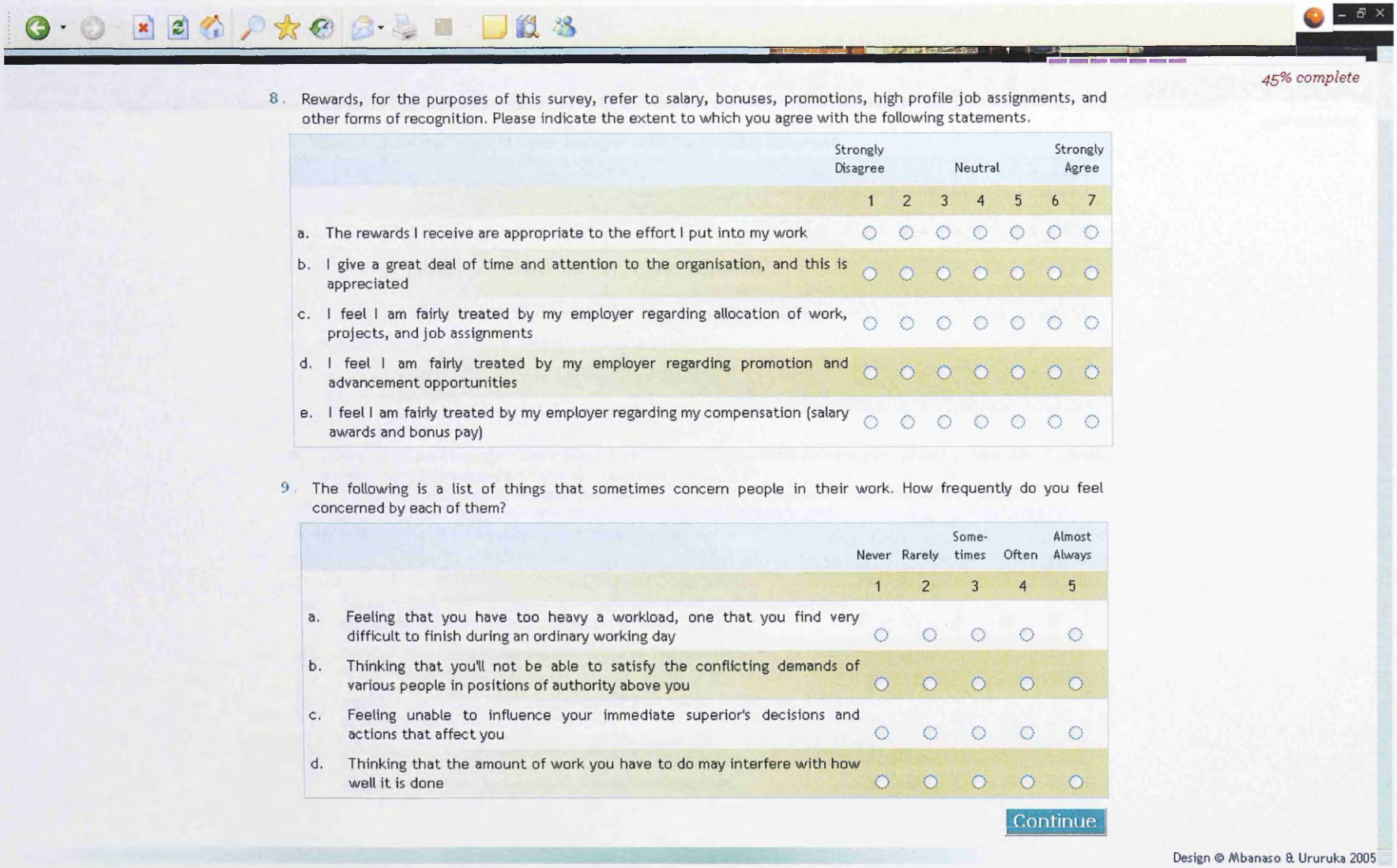
45% complete

8. Rewards, for the purposes of this survey, refer to salary, bonuses, promotions, high profile job assignments, and other forms of recognition. Please indicate the extent to which you agree with the following statements.

	Strongly Disagree			Neutral			Strongly Agree
	1	2	3	4	5	6	7
a. The rewards I receive are appropriate to the effort I put into my work	○	○	○	○	○	○	○
b. I give a great deal of time and attention to the organisation, and this is appreciated	○	○	○	○	○	○	○
c. I feel I am fairly treated by my employer regarding allocation of work, projects, and job assignments	○	○	○	○	○	○	○
d. I feel I am fairly treated by my employer regarding promotion and advancement opportunities	○	○	○	○	○	○	○
e. I feel I am fairly treated by my employer regarding my compensation (salary awards and bonus pay)	○	○	○	○	○	○	○

9. The following is a list of things that sometimes concern people in their work. How frequently do you feel concerned by each of them?

	Never	Rarely	Some-times	Often	Almost Always
	1	2	3	4	5
a. Feeling that you have too heavy a workload, one that you find very difficult to finish during an ordinary working day	○	○	○	○	○
b. Thinking that you'll not be able to satisfy the conflicting demands of various people in positions of authority above you	○	○	○	○	○
c. Feeling unable to influence your immediate superior's decisions and actions that affect you	○	○	○	○	○
d. Thinking that the amount of work you have to do may interfere with how well it is done	○	○	○	○	○



45% complete

8. Rewards, for the purposes of this survey, refer to salary, bonuses, promotions, high profile job assignments, and other forms of recognition. Please indicate the extent to which you agree with the following statements.

	Strongly Disagree			Neutral			Strongly Agree
	1	2	3	4	5	6	7
a. The rewards I receive are appropriate to the effort I put into my work	○	○	○	○	○	○	○
b. I give a great deal of time and attention to the organisation, and this is appreciated	○	○	○	○	○	○	○
c. I feel I am fairly treated by my employer regarding allocation of work, projects, and job assignments	○	○	○	○	○	○	○
d. I feel I am fairly treated by my employer regarding promotion and advancement opportunities	○	○	○	○	○	○	○
e. I feel I am fairly treated by my employer regarding my compensation (salary awards and bonus pay)	○	○	○	○	○	○	○

9. The following is a list of things that sometimes concern people in their work. How frequently do you feel concerned by each of them?

	Never	Rarely	Some-times	Often	Almost Always
	1	2	3	4	5
a. Feeling that you have too heavy a workload, one that you find very difficult to finish during an ordinary working day	○	○	○	○	○
b. Thinking that you'll not be able to satisfy the conflicting demands of various people in positions of authority above you	○	○	○	○	○
c. Feeling unable to influence your immediate superior's decisions and actions that affect you	○	○	○	○	○
d. Thinking that the amount of work you have to do may interfere with how well it is done	○	○	○	○	○

Continue

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55% complete

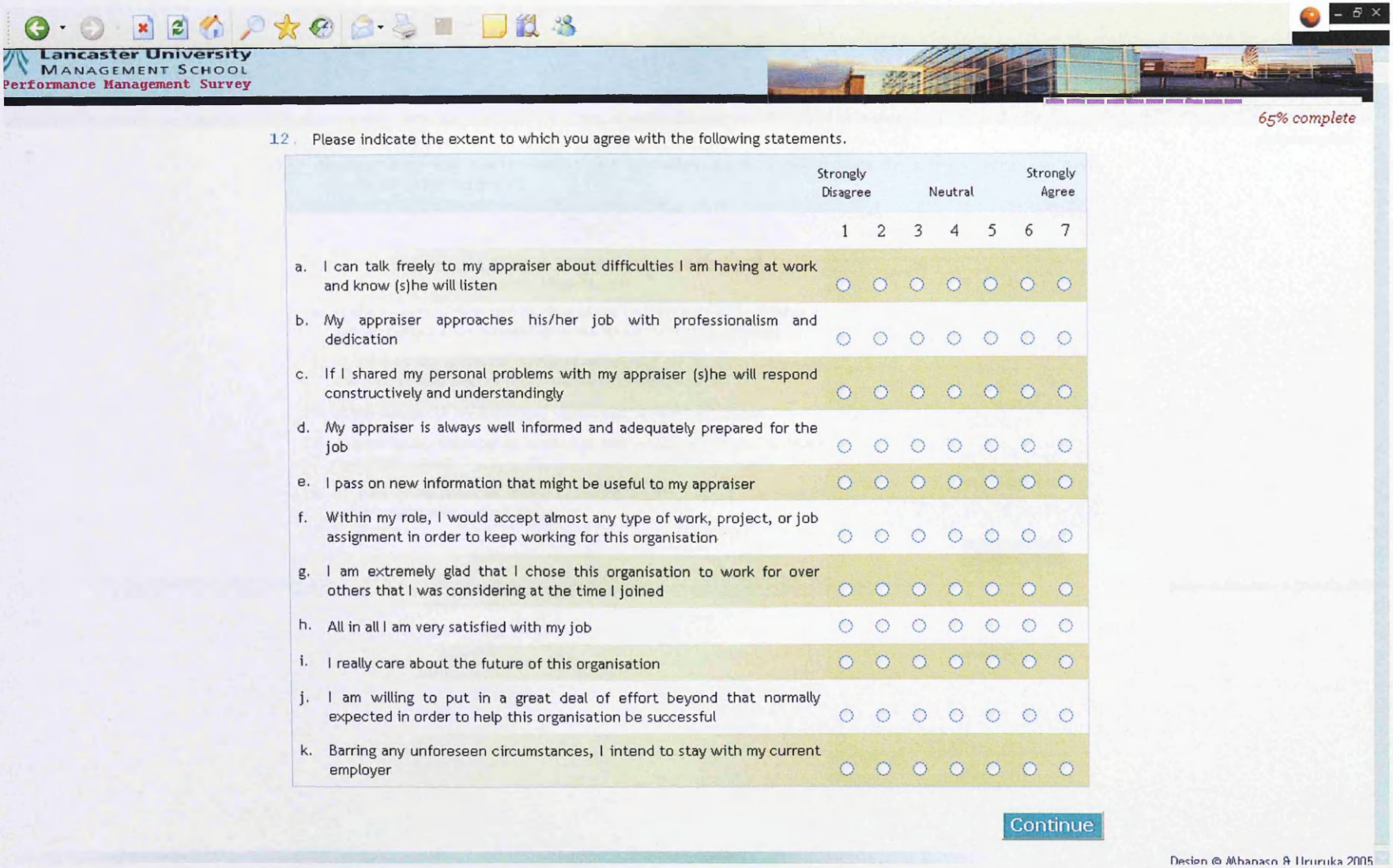
10. Please indicate the extent to which you agree with the following statements.

	Strongly Disagree			Neutral			Strongly Agree
	1	2	3	4	5	6	7
a. I think my performance goals align well with my unit's objectives	○	○	○	○	○	○	○
b. I strive very hard to attain my performance goals	○	○	○	○	○	○	○
c. I should not have too much difficulty in reaching my goals	○	○	○	○	○	○	○
d. It takes a high degree of effort, job skill and know-how on my part to fully attain my goals	○	○	○	○	○	○	○

11. Listed below are pressures some people in other organisations claim to have experienced in their jobs. To what extent have you experienced these in your current job?
(Even if the questions don't particularly apply to your job, please give the nearest possible answer)

	Never	Rarely	Some-times	Often	Almost Always
	1	2	3	4	5
a. Taking actions that enhance short-term performance of the firm even though it negatively impacts long-term performance	○	○	○	○	○
b. Feeling I cannot record all the time I spend on a specific work, project, or job assignment	○	○	○	○	○
c. Having to do things you feel are against your better judgement in the course of your work	○	○	○	○	○
d. Having to stay longer hours in the office to indicate you are working hard	○	○	○	○	○
e. Feeling it necessary to avoid or skip a required procedure	○	○	○	○	○

Continue


Lancaster University
Management School
Performance Management Survey
65% complete
12. Please indicate the extent to which you agree with the following statements.
Strongly Disagree
Neutral
Strongly Agree
1 2 3 4 5 6 7
a. I can talk freely to my appraiser about difficulties I am having at work and know (s)he will listen
b. My appraiser approaches his/her job with professionalism and dedication
c. If I shared my personal problems with my appraiser (s)he will respond constructively and understandingly
d. My appraiser is always well informed and adequately prepared for the job
e. I pass on new information that might be useful to my appraiser
f. Within my role, I would accept almost any type of work, project, or job assignment in order to keep working for this organisation
g. I am extremely glad that I chose this organisation to work for over others that I was considering at the time I joined
h. All in all I am very satisfied with my job
i. I really care about the future of this organisation
j. I am willing to put in a great deal of effort beyond that normally expected in order to help this organisation be successful
k. Barring any unforeseen circumstances, I intend to stay with my current employer
Continue
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75% complete

13. Thinking of the way in which performance information is used, please indicate the extent to which you agree with the following statements

"Information about my performance against agreed objectives/targets..."	Strongly Disagree 1	2	3 Neutral	4	5	6	Strongly Agree 7
a. Is the subject of face-to-face discussions with my appraiser whether or not my performance diverges from the agreed objectives/targets	○	○	○	○	○	○	○
b. Is used by my appraiser mainly to encourage me to continually seek information and ways of improving my work performance	○	○	○	○	○	○	○
c. Is the subject of my appraiser's regular and frequent attention	○	○	○	○	○	○	○
d. Is used by my appraiser to encourage and inspire me, and to facilitate my development	○	○	○	○	○	○	○
e. Is used by my appraiser mainly in making decisions about allocation of work assignments and resources	○	○	○	○	○	○	○

Continue

85% complete

14. How long have you been with PwC? **Select**

15. What is your present grade? (Please select an equivalent grade if your grade is not listed) **Select**

16. How long have you been in your present grade? **Select**

17. When was your last annual performance review conducted? **Select**

18. How often are you in contact with the person conducting your annual performance review?

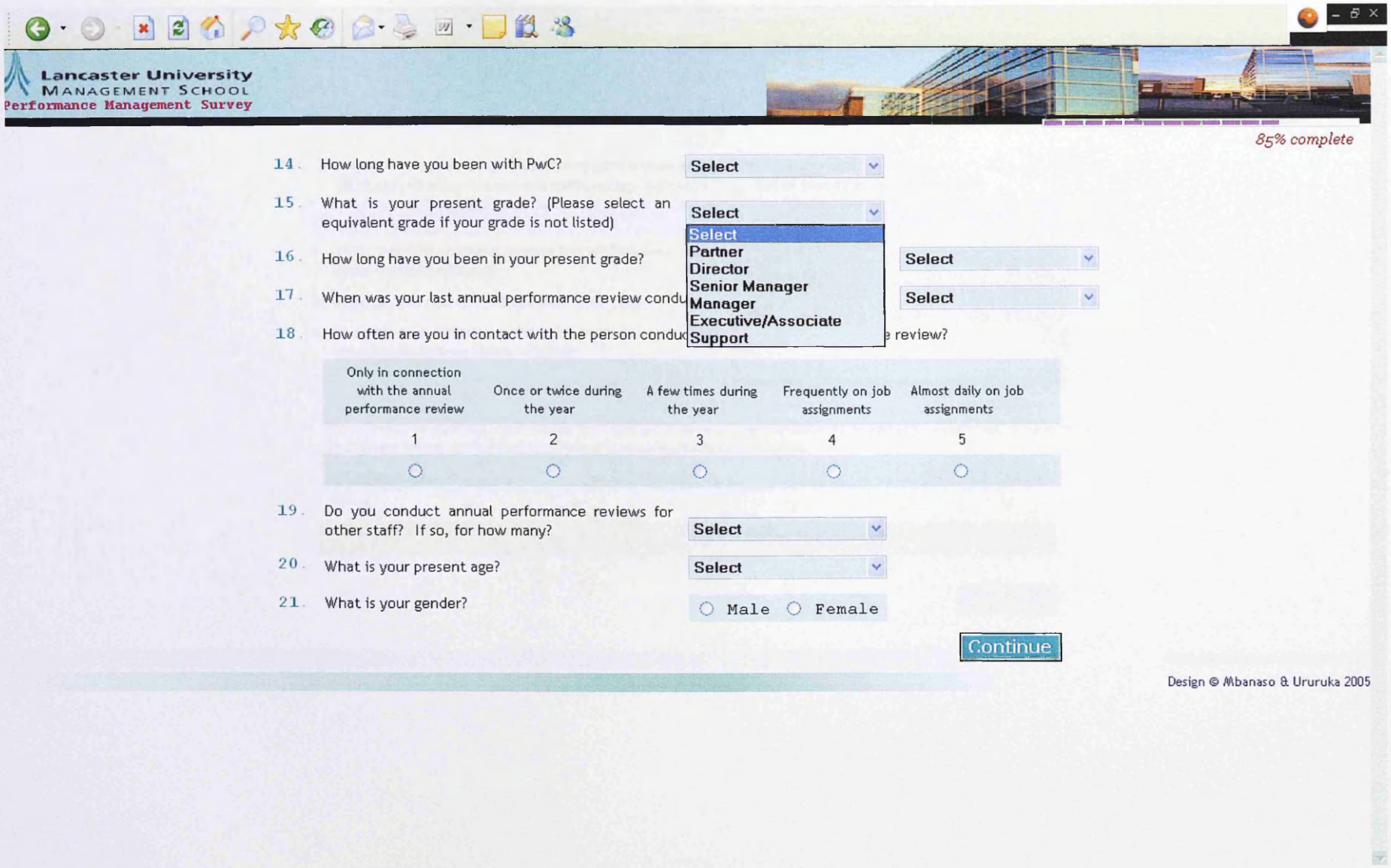
Only in connection with the annual performance review	Once or twice during the year	A few times during the year	Frequently on job assignments	Almost daily on job assignments
1	2	3	4	5
○	○	○	○	○

19. Do you conduct annual performance reviews for other staff? If so, for how many? **Select**

20. What is your present age? **Select**

21. What is your gender? ○ Male ○ Female

Continue


Lancaster University
Management School
Performance Management Survey
85% complete
14. How long have you been with PwC?
Select
15. What is your present grade? (Please select an equivalent grade if your grade is not listed)
Select
Select
Partner
Director
Senior Manager
Manager
Executive/Associate
Support
16. How long have you been in your present grade?
Select
17. When was your last annual performance review condu
Select
18. How often are you in contact with the person condu
review?
Only in connection with the annual performance review
Once or twice during the year
A few times during the year
Frequently on job assignments
Almost daily on job assignments
1
2
3
4
5
19. Do you conduct annual performance reviews for other staff? If so, for how many?
Select
20. What is your present age?
Select
21. What is your gender?
Male
Female
Continue
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95% complete

22. This question relates to the outcome of your last annual performance appraisal.
(Although you may not use the exact ratings indicated here, please specify as near as possible)

	1	2	3	4	5
a. What was the outcome of your last performance review (your evaluation rating)	○	○	○	○	○
b. What do you feel the rating should have been	○	○	○	○	○
c. If there is a difference between your answers above, why do you believe this is justified					

23. Considering everything, how would you rate your level of performance as a manager/supervisor compared to your peers (other managers/supervisors) in your Business Area/Region.

Well Below Average						Well Above Average
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Continue

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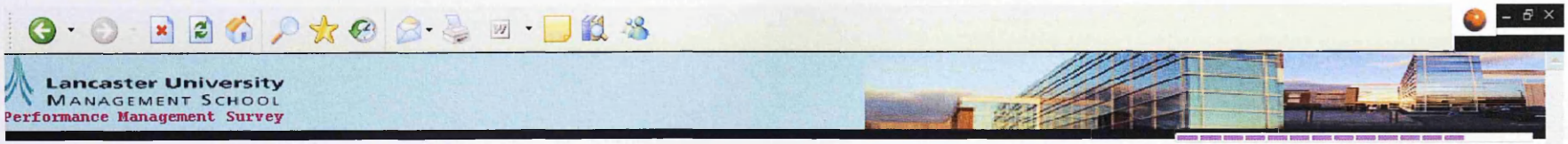

95% complete

22. Considering everything, how would you rate your level of performance as a manager/supervisor compared to your peers (other managers/supervisors) in your Business Area/Region.

Well Below Average						Well Above Average
1	2	3	4	5	6	7
○	○	○	○	○	○	○

Continue

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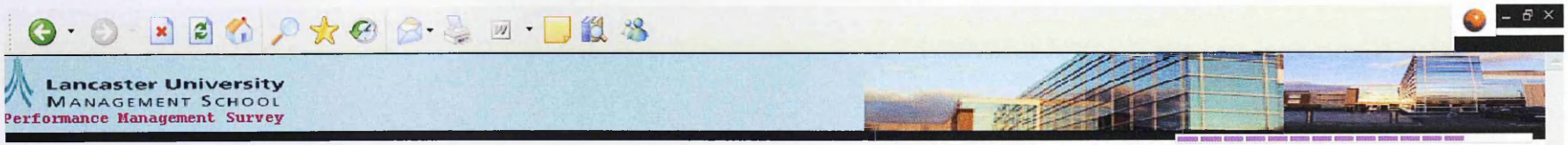

95% complete

22. This question relates to the outcome of your last annual performance review/appraisal.
(Although you may not use the exact ratings indicated here, please specify as near as possible)

	1	2	3	4	5
a. What was the outcome of your last performance review/evaluation rating	○	○	○	○	○
b. What do you feel the rating should have been	○	○	○	○	○
c. If there is a difference between your answers above, why do you believe this is justified					

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24. Listed below are some criteria that appraisers in other businesses indicate are important in the evaluation of their staff members' performance.

i. Please indicate the level of importance you attach to each criterion when evaluating your staff members' performance; and

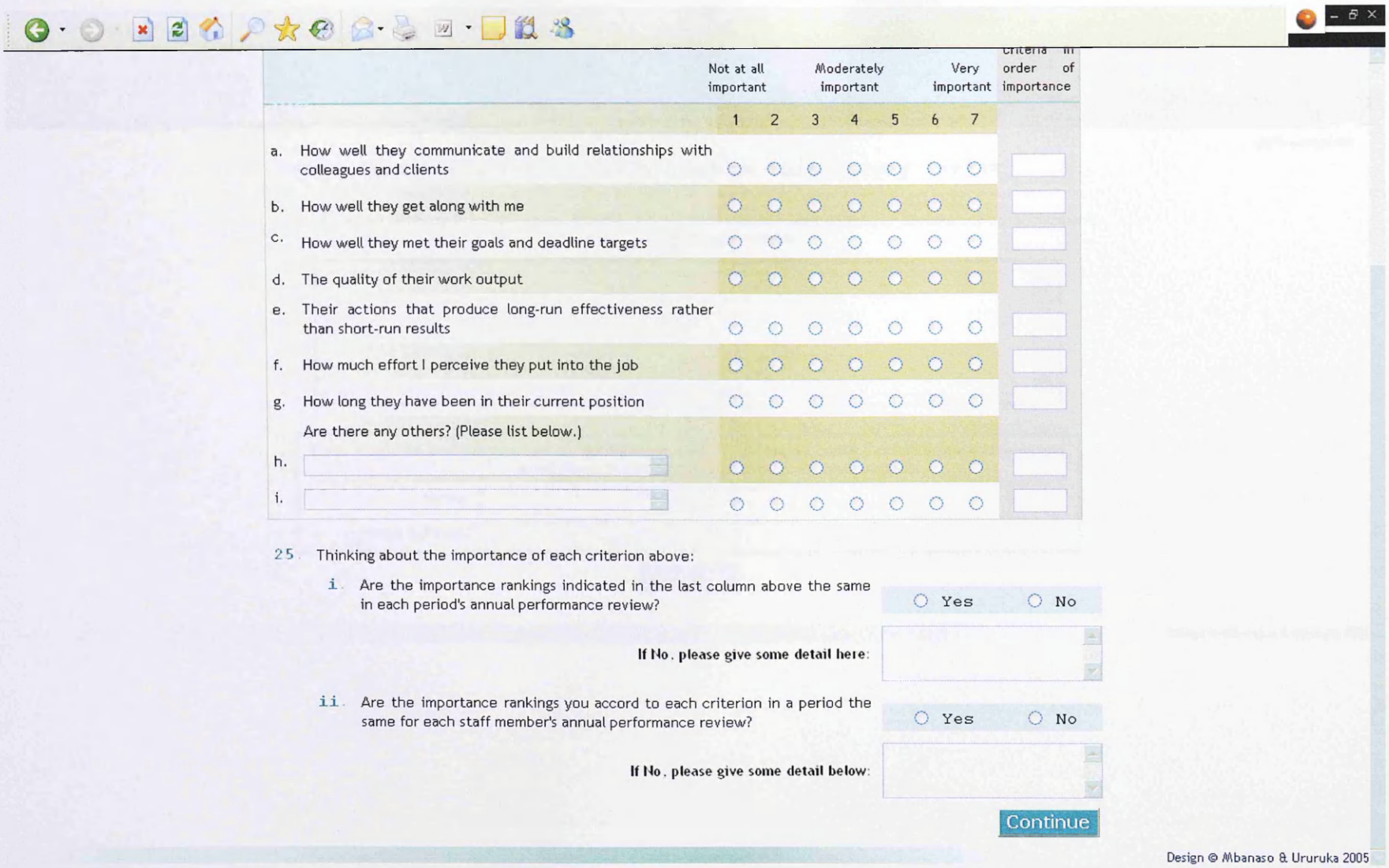
ii. Using the right column, rank the criteria in order of importance:

(1 = most important; 2 = next most important and so on...)

	Not at all important			Moderately important			Very important	Rank the criteria in order of importance
	1	2	3	4	5	6	7	
a. How well they communicate and build relationships with colleagues and clients	○	○	○	○	○	○	○	
b. How well they get along with me	○	○	○	○	○	○	○	
c. How well they met their goals and deadline targets	○	○	○	○	○	○	○	
d. The quality of their work output	○	○	○	○	○	○	○	
e. Their actions that produce long-run effectiveness rather than short-run results	○	○	○	○	○	○	○	
f. How much effort I perceive they put into the job	○	○	○	○	○	○	○	
g. How long they have been in their current position	○	○	○	○	○	○	○	
Are there any others? (Please list below.)								
h.	○	○	○	○	○	○	○	
i.	○	○	○	○	○	○	○	

25. Thinking about the importance of each criterion above:

i. Are the importance rankings indicated in the last column above the same



	Not at all important		Moderately important				Very important	Criteria in order of importance
	1	2	3	4	5	6	7	
a. How well they communicate and build relationships with colleagues and clients	○	○	○	○	○	○	○	
b. How well they get along with me	○	○	○	○	○	○	○	
c. How well they met their goals and deadline targets	○	○	○	○	○	○	○	
d. The quality of their work output	○	○	○	○	○	○	○	
e. Their actions that produce long-run effectiveness rather than short-run results	○	○	○	○	○	○	○	
f. How much effort I perceive they put into the job	○	○	○	○	○	○	○	
g. How long they have been in their current position	○	○	○	○	○	○	○	
Are there any others? (Please list below.)								
h.	○	○	○	○	○	○	○	
i.	○	○	○	○	○	○	○	

25. Thinking about the importance of each criterion above:

i. Are the importance rankings indicated in the last column above the same in each period's annual performance review? ○ Yes ○ No

If No, please give some detail here:

ii. Are the importance rankings you accord to each criterion in a period the same for each staff member's annual performance review? ○ Yes ○ No

If No, please give some detail below:

Continue

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99% complete

★★★★★ Thank you for participating in this survey ★★★★★

If you have had difficulty in answering any question and would like to comment on this, or to make any other comment on this survey, please do so below:

If you would like some feedback on the survey result, please provide your contact details below and we would email you a copy of the aggregate responses once available.

Name:

Email address:

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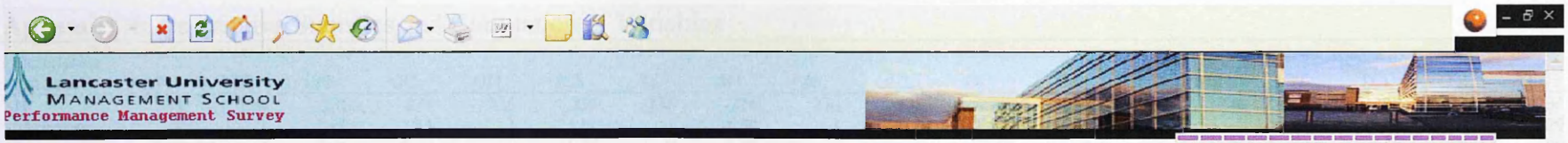

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★★★★★ Thank you for participating in this survey ★★★★★

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United Kingdom

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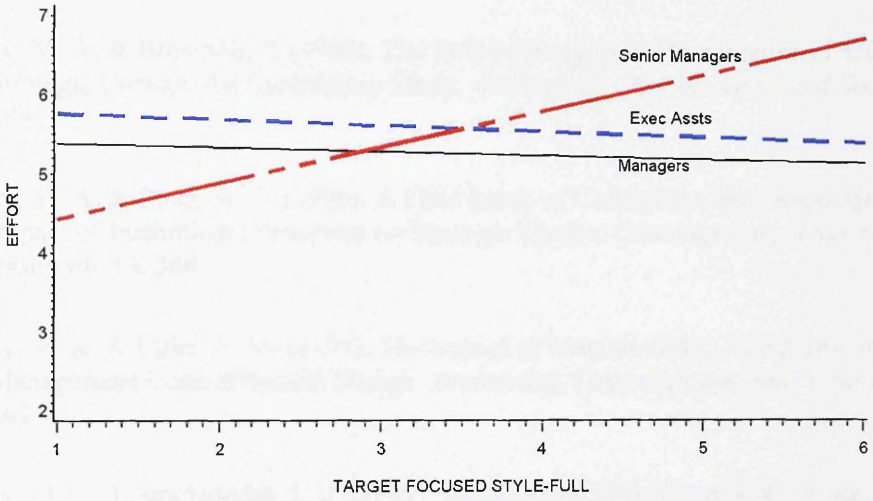
Appendix 4: Descriptive Statistics and Correlation of Variables

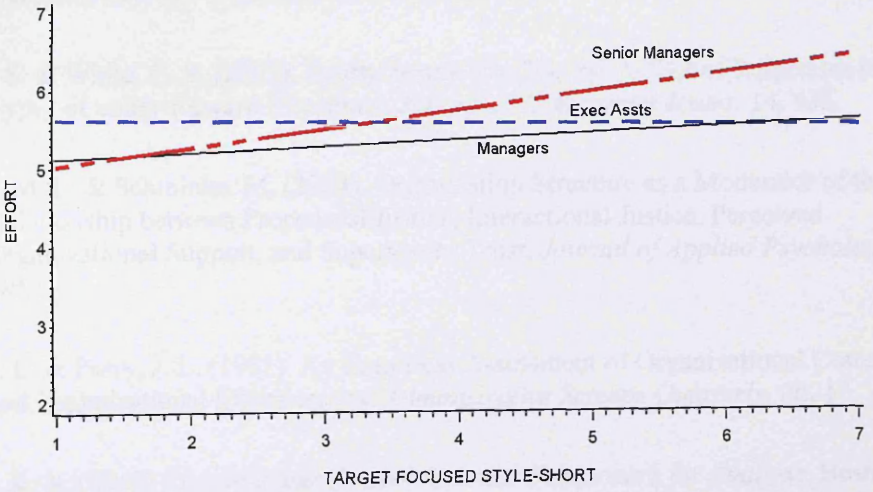
Descriptive statistics	AP	EFF	EFP	GC	GD	ICS	IT	JRT	JS	OHL	OC	QTB	REFG	REQG	ST	TF1	TF2	TFH
N	228	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236	236
Minimum	2	2	1.00	2.33	1	1.00	1	1.50	1	1	1.25	1.00	0	0	1.00	1.17	1.00	0.29
Maximum	5	7	7.00	7.00	7	6.75	7	5.00	7	5	7.00	4.60	100	100	7.00	5.67	7.00	4.00
Mean	3.487	5.492	4.338	5.309	3.966	4.443	2.958	3.210	4.839	2.784	4.764	2.561	42.02	45.20	5.171	3.342	2.862	0.925
Std. Dev	0.724	0.978	1.175	0.878	1.324	1.231	1.650	0.672	1.435	1.072	1.188	0.672	30.19	25.03	1.185	0.753	1.235	0.319
Skewness	0.081	-0.347	-0.377	-0.465	0.007	-0.439	0.934	0.189	-0.725	0.294	-0.539	0.244	0.08	0.04	-0.593	0.056	1.088	5.078
Std. Error	0.161	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158	0.158.	0.158	0.158	0.158	0.158	0.158
Kurtosis	-0.248	-0.090	-0.150	0.155	-0.459	-0.208	0.226	-0.123	0.121	-0.731	0.150	-0.012	-1.15	-.77	0.284	0.073	1.004	43.652
Std. Error	0.321	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316	0.316

[A]Corr	AP	EFF	EFP	GC	GD	[B]GEN	ICS	IT	JRT	JS	MP	OHL	OC	QTB	REFG	REQG	ST	TF1	TF2	TFH
AP	1	.202**	.123*	0.058	-0.074	-0.050	0.045	-0.040	-0.012	0.077	.189*	0.009	-0.020	-0.096	-0.090	-.132*	0.002	-.157**	-.141*	-0.072
EFF	.219**	1	-0.057	.249**	-.221**	-.167**	.137**	-0.091	0.100	.108*	.376**	-0.040	.128*	0.003	-0.010	0.004	0.090	-0.020	0.046	-0.013
EFP	.131*	-0.077	1	.186**	-.109*	0.019	.288**	-.340**	-.312**	.411**	-0.107	-0.038	.294**	-.259**	0.002	0.021	.385**	0.008	-.194**	-0.058
GC	0.029	.291**	.272**	1	-0.080	0.017	.325**	-.229**	-0.072	.252**	.189**	0.089	.261**	-.113*	.116*	.122*	.306**	.146**	-0.034	0.069
GD	-0.086	-.234**	-.157*	-0.114	1	.193**	-.169**	.210**	.139**	-.213**	0.056	.225**	-.161**	.110*	.132**	0.002	-.139**	0.024	0.076	-0.031
GEN	-0.053	-.192**	0.040	0.025	.191**	1	0.034	-0.001	0.002	0.039	0.063	.192**	0.051	0.030	0.080	0.039	0.021	-0.035	-0.029	-0.040
ICS	0.026	.159*	.416**	.446**	-.204**	0.036	1	-.245**	-.124**	.289**	0.054	-.107*	.270**	-.210**	0.045	.121**	.488**	.118*	-.110*	0.073
IT	-0.042	-0.079	-.427**	-.316**	.200**	-0.022	-.325**	1	.245**	-.638**	-0.006	-0.007	-.502**	.238**	-0.004	-0.047	-.313**	0.003	.121*	0.051
JRT	-0.011	.139*	-.446**	-0.124	.193**	-0.005	-.205**	.329**	1	-.213**	-0.008	0.049	-.197**	.427**	0.085	-0.032	-.282**	0.066	.173**	0.031
JS	0.078	0.102	.545**	.318**	-.220**	0.033	.371**	-.743**	-.315**	1	0.064	0.015	.533**	-.266**	0.022	0.030	.322**	0.002	-.163**	-0.045
MP	0.176	.361**	-0.115	.194*	0.163	0.079	0.056	-0.002	-0.022	0.070	1	0.072	0.081	-0.006	0.114	.152*	-0.038	.174*	0.135	0.122
OHL	0.016	-0.032	-0.045	0.115	.280**	.216**	-.130*	-0.056	0.063	0.055	0.101	1	0.029	0.091	.248**	0.006	-0.050	-0.069	-0.096	-0.097
OC	-0.064	.134*	.417**	.325**	-.154*	0.046	.357**	-.606**	-.311**	.659**	0.125	0.042	1	-.212**	0.019	0.076	.301**	0.047	-0.064	-0.053
QTB	-0.117	-0.012	-.382**	-.155*	.145*	0.026	-.265**	.289**	.595**	-.360**	0.043	0.070	-.314**	1	.122**	0.086	-.268**	.115*	.196**	0.078
REFG	-0.116	0.025	-0.006	.142*	.169**	0.079	0.077	0.000	.133*	0.010	0.095	.305**	0.024	.179**	1	.383**	0.001	.200**	.144**	0.084
REQG	-.158*	0.013	0.014	.172**	0.034	0.048	.218**	-0.026	-0.004	0.015	0.170	0.014	0.064	.145*	.488**	1	0.053	.374**	.169**	.219**
ST	-0.024	0.087	.532**	.409**	-.174**	0.056	.651**	-.423**	-.420**	.452**	-0.098	-0.044	.396**	-.393**	-0.025	0.054	1	-0.010	-.238**	-0.025
TF1	-.189**	-0.014	-0.010	.174**	0.038	-0.045	.197**	0.025	0.075	-0.014	.262**	-0.120	0.071	.183**	.292**	.483**	-0.047	1	.490**	.266**
TF2	-0.095	0.077	-.308**	-0.037	0.112	-0.032	-.157*	.158*	.276**	-.219**	.251**	-0.082	-0.104	.323**	.219**	.255**	-.369**	.621**	1	.224**
TFH	-0.067	0.035	-.210**	0.121	0.118	-0.074	0.010	.155*	0.121	-.209**	.231**	-0.060	-.152*	.224**	.211**	.347**	-.191**	.365**	.418**	1

[A] *Corr* – correlation. *Note*: Results in the lower diagonal are Pearson correlation coefficients; and results in the upper diagonal are Kendall tau coefficients; [B] *GEN* - Gender
$^{**}p < .01$ (2-tailed), $^{*}p < .05$ (2-tailed)

Appendix 5: OHL Moderation of TF PES Effect on Effort Relationship - 2





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