

**PERCEPTIONS OF MANAGERS AND INTERNAL AUDITORS
AS TO FACTORS AFFECTING THE EFFECTIVENESS OF
INTERNAL AUDIT IN THE PUBLIC SECTOR CONTEXT**

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ABSTRACT: This study provides empirical evidence as to the main factors influencing internal audit effectiveness. Utilising data obtained from 79 Saudi Arabian public sector organisations, itself based on 442 usable questionnaire response, both conventional multiple regression and path analysis was used to examine the association between internal audit effectiveness and five principal factors, namely; the competence of internal audit, the size of the internal audit department, the relationship between internal and external auditors, management support for internal audit, and the independence of the internal audit department. The results suggest that management support for the internal audit function was the main driver in terms of ensuring the perceived effectiveness of the internal audit function from the perspective of both management and internal auditors. Management support was important as a construct in its own right but also via its links to issues of hiring qualified staff, providing sufficient resources, enhancing the relationship with external auditors, and having an independent internal audit department. These results are considered further within the their contextualisation obtaining as they do from an affluent country but one with a very recent tradition of governance and audit and with specific and strong cultural traditions including dominant state control, but it is concluded that there is likely to be scope for generalisation beyond the particular Saudi public sector context.

SUMMARY

As internal auditing has grown in importance within the wider environment of governance and control, issues as to how effectively it performs this role have emerged with greater prominence than before. Whilst there have been high profile cases where internal audit has been perceived to have been at least partially successful – as for example WorldCom – the recent global financial crisis has led to questioning of how successful internal audit is, both in its more conventional role of monitoring compliance with internal control and financial probity and its more recent, and to an extent, self proclaimed role as an integral part of the risk management culture within large economic entities, whether in the private or public sector. As compared with the attention directed toward external audit, studies of the effectiveness of internal audit have been relatively few in number. In this context the primary motivation of this study is to investigate factors which influence the perceived effectiveness of internal audit within public sector organizations in Saudi Arabia. As such it builds on previous research in developed and developing countries but introduces a new measure of internal audit effectiveness and seeks to explore in more detail than in previous studies the linkages and interrelationships between the various factors which are hypothesized as contributing to internal auditor effectiveness. The study is empirical in nature, using data obtained from more than 442 usable returned questionnaires, and provides evidence on the association between the effectiveness of internal audit and a

number of factors shaping the nature of the internal audit function. These factors are: the competence of internal audit, the size of the internal audit department, the relationship between internal and external auditors, management support for internal audit, and the independence of the internal audit department. The methodology employed establishes a managerial perspective on internal audit effectiveness and relates this to internal auditors' perceptions of the factors under examination by means of both conventional regression analysis and a more structured path analysis. The results show that all the factors are positively related to perceived internal audit effectiveness, but that managerial support for the function is the dominant factor, both directly and indirectly via its influence on the other factors subject to investigation.

1. INTRODUCTION

The role of internal audit has grown significantly in importance in recent years – as noted above both in relation to its traditional role in terms of monitoring internal control and financial compliance and probity and toward a wider internal consultative role within the overall risk management function of its host entity. In this context it is important to seek to investigate how effective internal audit is in its ascribed role and this study builds on a number of previous studies which have sought to investigate and evaluate aspects of internal audit performance and effectiveness (Asairy, 1993; Haimon, 1998; Dittenhofer, 2001; Mihret and Yismaw, 2007; Ahmed et al., 2009; Arena and Azzone, 2009; Cohen and Sayag, 2010). Clearly it is difficult to obtain definitive measures of the effectiveness of internal audit so the methodology employed in this study is to seek to relate internal managerial perceptions as to the effectiveness and quality of internal audit to internal audit practitioners perceptions as to the manner in which factors were perceived to be associated with 'good' internal audit operate in their individual organisations. The factors chosen are those identified from review of *International Standards for the Professional Practice of Internal Auditing* (ISPPIA) issued by the Institute of Internal Auditors (IIA)¹ together with other related documentation - primarily previous studies of the internal audit function for example, Asairy, 1993; Haimon, 1998; Wolderupheal, 1998; Schyf, 2000; Brierley et al., 2001; Gwilliam and El-Nafabi, 2002; Brierley et al., 2003; Ali et al., 2007;

¹ The IIA is an overarching international professional association which has the purpose of providing leadership for the global profession of internal auditing including certification, education, research, and technical guidance.

Mihret and Yismaw, 2007; Mulugeta, 2008; Ahmed et al., 2009. This review, details of which are discussed further below, led to the selection of the following five factors as likely to be significant in terms of their impact on internal audit effectiveness, namely; the competence of the internal audit; the size of the internal audit department; the relationship between internal and external auditors; management support for internal audit; and the independence of the internal audit department.

The relationship between these factors and internal audit effectiveness is initially modelled straightforwardly as shown pictorially in Figure 1 Appendix 1 and then in a manner designed to bring out the various interactions between the individual factors in the path analysis diagram set out in Figure 2 Appendix 1.

Beyond this opening introduction the paper is structured as follows. The next section, section 2, contains the research hypotheses. Section 3 presents the research methodology, defines the main variables and the manner in which they are measured how to measure them. Section 4 sets out the main results of the analysis, including the path analysis, and then the final concluding section contextualises and discusses the results and considers their wider implications.

2. FORMULATING THE HYPOTHESES

In this section more detailed consideration is given to the literature which supports the perspective that the five factors identified above are important and relevant to the notion and actuality of internal audit effectiveness. Against this background specific hypotheses are formed which are then tested by means of empirical analysis.

2.1 Competence of the Internal Audit Department

Staff competence is clearly identified in the professional literature as a key element in effective audit activity (IIA, 2006). Standards setters have consistently highlighted the importance of internal auditors possessing the knowledge, skills and other competencies necessary to undertake internal audit duties and responsibilities (ISPPA). Many previous academic studies have focused on the need for personnel to be appropriately qualified if a high level of internal audit effectiveness is to be achieved (El-Nafabi, 1998; Wolderupheal, 1998; Schyf, 2000; Brierley et al., 2001;

Gwilliam and El-Nafabi, 2002; Brierley et al., 2003; Mihret and Yismaw, 2007; Mulugeta, 2008).

With regard to the Saudi environment, but referring to external audit, the General Audit Bureau's (GAB)² summary reports for 2008 and 2009 identified lack of qualified staff as one of the main problems underlying the significant number of errors and irregularities that are occurring within audited organisations.

Against this background, the following hypothesis is formulated:

H1: The greater the competence of staff within the internal audit department (in terms of educational qualifications, professional qualifications, work experience, and continuing professional development) the more effective the internal audit

2.2 Size of the Internal Audit Department

There is clearly a need for the internal audit function to be equipped with sufficient resources if it is to discharge its responsibilities appropriately and suitably. ISPPIA, *Resource Management Standard*, requires the Chief Audit Executive (CAE)³ to make certain that internal audit resources are appropriate and sufficient, and that they are used effectively. It is also the responsibility of audit staff to bring any lack of resources to the attention of senior management (ISPPIA, Standards 2030 and 2230). Appropriate numbers of internal auditors should be in post (Practice Advisory 2030-1: *Resource Management*)⁴ and their training should be ongoing to assure continued professional competence.

Previous studies which focused on the relationship between the size of the internal audit function and the quality of internal audit work and have found positive linkages between the two include those of: El-Nafabi, 1998; Brierley et al., 2001; Gwilliam and El-Nafabi, 2002; Brierley et al., 2003; Ali et al., 2007; Mihret and Woldeyohannis, 2008; Mulugeta, 2008; Ahmed et al., 2009. Hence, the following hypothesis is formulated.

² The General Audit Bureau is a state controlled organisation which is responsible for the conduct and oversight of all public external auditing in Saudi Arabia.

³ In some public sector jurisdictions there is a statutory requirement for a CAE or equivalent – but this is not the case in Saudi Arabia.

⁴ The IIA Practice Advisory is guidance to assist internal auditors in applying ISPPIA.

H2: The larger the size of the internal audit department (in terms of number of staff) the more effective the internal audit

2.3 The Relationship between Internal and External Auditors

Co-ordination and co-operation between internal and external audit has long been seen as important and beneficial to the manner in which audit operates for the benefit of the organisational entity and outside stakeholders. Examples of such co-ordination and co-operation include joint planning and the exchange of information, opinion and reports so as to facilitate better quality audit and also to prevent unnecessary duplication of work.

Professional standards address the issue of the relationship between internal and external auditors. For example, ISPPA, *Coordination Standard*, suggests that at a minimum such co-ordination should be in terms of sharing information and co-ordination of activities. The standards require the establishment of a professional working relationship between the respective audit parties, a relationship which consequently assists internal auditors in achieving their objectives and providing a better service to the company, whilst from the external auditor's perspective the information provided by the internal auditor is likely to assist in the provision of a better quality audit opinion and possibly one delivered more resource efficiently in circumstances where the external auditor is able to rely to an extent on the work carried out by the internal auditor.

Again a number of previous studies have discussed and investigated the importance of co-ordination and co-operation between internal and external auditors– and in particular highlighted the lack of such co-ordination and co-operation as being a factor which has impaired the effectiveness of both forms of audit in the public sector in developing countries (Almohaimeed, 2000; Malta National Audit Office, 2000; Brierley et al., 2001; Gwilliam and El-Nafabi, 2002; Al-Garni, 2008; Golen,2008). Again in the Saudi context GAB summary reports – 2008 and 2009 have referred to failings in this respect in the public sector.

This leads to the third hypothesis being formulated as follows:

H3: The closer the working relationship between internal and external auditors (in terms of attitude, frequency of meetings, discussion of mutual interests and audit plan, sharing working papers, the extent of external auditor reliance on the internal audit work and management encouragement of co-operation between internal and external audit) the more effective the internal audit

2.4 Management Support

The interaction and relationship between senior management and internal auditors and the internal audit function is both important and complex. Senior management have an important say in the resources devoted to the internal audit function, they are likely also to input to the internal audit work plan and the nature and focus of the internal audit function. It is possible that they might see internal audit as a function monitoring both their performance and probity. Against this background the manner in which senior management seek to, and demonstrate, their support for internal audit is likely to provide an important signal as to the role and value of internal audit throughout the organisation, and thereby provide the internal audit department with the empowerment required for it to perform its duties and responsibilities. ISPPIA highlights the importance of the relationship between internal audit and senior management and how management can support internal audit. In this respect, senior management is required to be involved in the internal audit plan and its input should be considered by the CAE (ISPPIA, Standard 2010.A1). Internal audit is required to provide senior management with sufficient, reliable and relevant reports about the work performed, conclusions reached and recommendations made, it being stated in the standard that “[t]he Chief Audit Executive must report periodically to senior management and the board on the internal audit activity’s purpose, authority, responsibility, and performance relative to its plan” (ISPPIA, Standard 2060).

A number of previous studies and reports have focused on the crucial importance of the nature of the relationship between senior management and internal audit and investigated a variety of factors that contribute to this relationship. These have included those of: Malta National Audit Office, 2000; Schyf, 2000; Friedberg and Lutrin, 2001; Van Gansberghe, 2005; Baltci and Yilmaz, 2006; Mihret and Yismaw, 2007; Ahmed et al., 2009; Cohen and Sayag, 2010.

The fourth hypothesis is thus formulated as follows:

H4: The greater the management support to internal audit (in terms of involvement in internal audit planning, the manner in which it responds to internal audit reports, and the provision of sufficient resources to internal audit) the more effective the internal audit

2.5 Independence of the Internal Audit Department

Auditor independence has long been seen as a key driver of the audit role. Although the emphasis historically has been on independence as it relates to external audit, professional bodies and standard setters have placed increasing weight on the need for internal audit to be independent, notwithstanding the fact that internal auditors are normally, but not necessarily, employees of the organisation.⁵ The independence of the internal audit department has been identified as a key element of its effectiveness (CIPFA, 2003). Worldwide professional standards and guidance ISPPA and the IIA Practice Advisory; suggest that such independence can be gained by means of: reporting to levels within the organisation that allow the internal audit department to perform its responsibilities free from interference; avoiding conflict of interests; having direct contact with the board and senior management; having unrestricted access to records, employees and departments; the appointment and removal of the head of internal audit not being under the direct control of executive management; and not performing non-audit work.

Studies and reports which have discussed and investigated issues as to audit independence and considered the association between internal auditor independence and aspects of internal audit effectiveness in the public sector include: (Malta National Audit Office, 2000; Schyf, 2000; Brierley et al., 2001; Mulugeta, 2008; Ahmed et al., 2009; Cohen and Sayag, 2010.

Therefore, the fifth hypothesis is formulated as follows:

H5: The greater the independence of the internal audit department (in terms of reporting level, direct contact to the board and senior management, freedom from interference, freedom from conflict of interest, unrestricted access to all employees and departments, appointment and removal of head of internal audit, and the absence of non-audit activities such as routine financial accounting or internal control activities) the more effective the internal audit

⁵ Although Saudi public sector organisations may employ outside accountants and auditors or similar entities in a consulting role, direct outsourcing of the internal audit function itself is very rare.

3. RESEARCH METHODOLOGY

The underlying methodological approach followed in this study is empirical⁶ entailing quantitative analysis of data obtained from questionnaire surveys. The research design comprised obtaining a measure of the effectiveness of internal audit and regressing this against the five factors identified and discussed above. To this purpose separate questionnaires were sent to 223 senior managers in 79 Saudi Arabian public sector organisations and to 396 internal auditors in these same organisations. Usable responses were received from 203 senior managers (a usable response rate of 91%⁷) and from 239 internal auditors (a usable response rate of 60%). Both questionnaires were closed-ended in form, questions were designed with responses framed in terms of a five-point Likert Scale normally in terms allowing participants to state how strongly they agree or disagree with a statement. The researchers undertook a two stage pilot study to make sure that the research instrument was valid for the intended task, and to ensure that the questionnaires were understandable and free from difficulties. Participants in the first stage of the study were academics mainly, but not entirely, based in Saudi universities (9 in total) and in the second stage senior managers (15 in total) and internal auditors (23 in total). Useful suggestions and comments were received at both stages of the pilot, particularly the first stage, which led to significant improvements in the construction and understandability of both questionnaires.

The questionnaire sent to senior managers contained 15 questions the results of the responses to which were combined to provide a single measure of overall effectiveness. The questionnaire sent to internal auditors contained 62 questions across the five factors under primary investigation and a separate measure of effectiveness as perceived by internal auditors.⁸ The main source for individual questions was an extensive review and analysis of the existing literature and of

⁶ Alzeban and Gwilliam (2012) provide a more qualitative interpretation based on interview analysis of factors influencing internal audit effectiveness in the Saudi public sector.

⁷ The higher response rate for senior managers as compared with that for practising internal auditors might be a reflection of the fact that the senior management questionnaire was shorter and was more directly focussed.

⁸ The measure of overall internal audit effectiveness as perceived by internal auditors is not utilised in this study. At the aggregate level there was no significant difference in perceptions of effectiveness between senior managers and internal auditors

questions that have been used by other researchers, an approach recommended in methodological literature for studies of this nature (Bryman and Bell, 2007).

3.1 Measurement of the Effectiveness of Internal Audit

A key aspect in seeking to add to understanding and knowledge of the drivers of internal audit quality and effectiveness is the manner in which effectiveness is measured, or perhaps more accurately, proxied for. Previous studies, in both the public and private sector, have utilised a variety of approaches and measurement techniques. Some studies have focused primarily on compliance with ISPPA as for example in those of: Xiangdong, 1997; Spraakman, 1997; Fadzil et al. 2005. However such an approach has been criticised in that in focusing entirely on the execution of procedures it does not take into account the outcomes in terms of the requirements of the principal stakeholders (Lampe and Sutton, 1994).

Studies which have considered internal audit effectiveness by reference to the function's ability to satisfy the needs of auditees include those of: Barrett, 1986; Ziegenfuss, 2000; Frigo, 2002; Cohen and Savag, 2010. These studies sought to measure directly the auditee's satisfaction with the work of internal audit whereas other studies have used an indirect measure, in particular or the extent to which internal audit recommendations are endorsed and acted upon (Sawyer, 1995; Van Gansberghe, 2005; Mihret and Yismaw, 2007; Arena and Azzone 2009).

Other studies, for example (Dittenhofer, 2001) argue that wider measures in terms the capacity of internal audit to evaluate the achievement of auditees' goals and objectives - and to provide remedies should these goals and objectives not be realised. Undoubtedly, this notion demands an assessment of all those dimensions of business activity which internal audit observes and has the capacity to influence, and this extends to include corporate performance. Linked to this are those studies concentrate on the ability of the internal audit function to positively influence the quality of corporate governance (Gramling et al., 2004; Sarens, 2009), which by implication includes the capacity to ensure that risk management and internal control processes are effective.

Few studies have sought to use direct economic criteria although it has been argued that quality is only one aspect of effectiveness and that the cost of achieving that quality needs to be taken into account (Cashell and Aldhizer, 2002) and that studies which do not consider the interrelationship between quality and cost are only giving a partial account of effectiveness in the wider sense. Whilst there is undoubtedly some force to this argument the difficulty of collecting reliable data as to internal audit costs has meant that few studies have in fact gone down this route. (although auditees are likely to impute an implicit notion of cost-effectiveness when evaluating quality).

Based on this review of the previous literature and consideration of the relative advantages and disadvantages of the measures chosen by earlier researchers it was decided to employ a measure of internal audit effectiveness by reference to the quality of the function as perceived by auditees. This overall measure was itself aggregating auditee responses to questionnaire questions relating to aspects of the internal audit function including: ability to plan; improving the productivity of the organisation; ascertaining the consistency of the results with established objectives and goals, implementation of internal audit recommendations; evaluating and improving risk management; evaluating internal control systems and making recommendations for improvement. Specific economic data was not collected separately but within the questions was one relating to the economical and efficient use of resources

3.2 Measurement of the Independent Variables

The independent variables were measured by collating and aggregating internal auditor responses to the 47 questions referred to above.⁹ These questions were spread across the five principal factors as set out below (the majority of the sub-categories themselves containing multiple questions)

- The competence of the internal audit department was measured by four indicators, these being: educational qualifications, professional qualifications, work experience in the field of internal audit, and continuous development (average annual training hours).

⁹ The questionnaire comprised 62 questions in total – but 15 of these related to the internal auditors' assessment of overall internal audit effectiveness.

- The size of the internal audit department was measured by the number of internal auditors employed within it.
- The relationship between internal and external auditors was measured by a number of proxies, these being: attitude towards external auditors, co-ordination including discussing mutual interests, discussion of audit plan, external auditor's reliance on the work of internal audit, frequency of meetings, sharing working papers, and management encouragement to promote the relationship between these two groups.
- Management support for internal audit was measured by a number of indicators, these being: involvement in the internal audit plan, providing management with reports about the work the internal audit team performs, the management's response to internal audit reports, the resources of the internal audit department.
- The independence of the internal audit department was measured by nine items, these being: the level of independence, reporting level, direct contact to the board and senior management, conflict of interest, interference, unrestricted access to all departments and employees, appointment and removal of the head of internal audit, and performing non-audit activity.

3.3 Method of Analysis

Two main, linked, methods of data analysis were used in this study. First, straightforward OLS multiple regression (Pallant, 2007; Field, 2009) was performed to estimate the magnitude of the effect of the independent variables, the five factors identified above, on the effectiveness of internal audit (the dependent variable). Second, beyond the straightforward use of conventional OLS multiple regression, path analysis (Bryman and Cramer, 2005) was conducted to investigate further the associations and linkages amongst the variables of interest. Although path analysis is not in itself a new methodological technique, as far as the authors are aware it has not previously been used in a study of internal audit effectiveness in the developing world. For both methods the unit of analysis was the organisation (Collis and Hussey,

2009), with responses from senior managers being combined to provide an overall outcome for each of the 79 organisations and similarly the responses from internal auditors

The basic OLS regression model was then as shown below.

$$IAE = b_0 + b_1 COMP + b_2 SIZE + b_3 RELEX + b_4 MSUP + b_5 IND + e_i$$

Where:

| | |
|-------|---|
| IAE | = internal audit effectiveness |
| COMP | = competence of the internal audit department |
| SIZE | = size of the internal audit department |
| RELEX | = relationship between internal and external auditors |
| MSUP | = management support for internal audit |
| IND | = independence of the internal audit department |

The path analysis seeks to examine in more detail the interrelationships between the variables and for this purpose a path diagram (Figure 2, Appendix 1) was constructed. The underlying justification for the manner in which the relationships were specified comes from the interview analysis which was carried out in parallel with the questionnaire study. The interview process involved interviews with 29 senior managers and external auditors. Details as to the manner in which the interviews were conducted are reported in detail in Alzeban and Gwilliam (2012).

The path diagram (Figure 2, Appendix 1) shows the connections between the six variables (five independent variables and one dependent variable). Each p represents the path, and hence, the path coefficient that will be computed. The revised model proposes the following:

MSUP has a direct effect on IAE (P₁)

And also that MSUP has indirect effects on IAE as follows:

- A. MSUP affects IND (P₂) which in turn affects IAE (P₃).
- B. MSUP affects SIZE (P₄) which in turn affects IAE (P₆).

- C. MSUP affect SIZE (P₄) again, but this time SIZE affects IND (P₅) which in turn affects IAE (P₃).
- D. MSUP affects COMP (P₈) which in turn affects IAE (P₉).
- E. MSUP affects COMP (P₈) again, but this time COMP affects RELEX (P₁₀) which in turn affects IAE (P₁₂).
- F. MSUP affects RELEX (P₁₁) which in turn affects IAE (P₁₂).
- G. MSUP affects SIZE (P₄) again, but this time SIZE affects COMP (P₇) which in turn affects IAE (P₉).
- H. MSUP affects SIZE (P₄) again, and SIZE affects COMP (P₇) again, but this time COMP affects RELEX (P₁₀) which in turn affects IAE (P₁₂).

4. RESULTS

Initial correlation tests, reported in Table 1 below, showed a degree of correlation among the independent variables.

Table 1: Correlation between the IAE and the Five Independent Variables

| No | Variables | 1 | 2 | 3 | 4 | 5 | 6 |
|----|-----------|-------|-------|-------|-------|-------|---|
| 1 | IAE | 1 | | | | | |
| 2 | COMP | .59** | 1 | | | | |
| 3 | SIZE | .59** | .45** | 1 | | | |
| 4 | RELEX | .47** | .42** | .19 | 1 | | |
| 5 | MSUP | .66** | .44** | .46** | .40** | 1 | |
| 6 | IND | .43** | .21 | .24* | .21 | .38** | 1 |

*Correlation is significant at the 0.05 level

**Correlation is significant at the 0.01 level

Giving rise to the potential for issues as to multicollinearity (Pallant, 2007). Consequently tolerance and Variance Inflation Factor (VIF)¹⁰ measures for the regression model were computed and analysed. It is suggested in the literature that if the tolerance value is less than 0.10 and the VIF value is above 10, a potentially serious multicollinearity problem may exist (Pallant, 2007; Field, 2009). The results of the regression analysis (see Table 2) indicate that the levels of tolerance are all between 0.6 and 0.8, and are therefore well above the 0.1 level, and the VIFs are between 1.1 and 1.6 – again well below the suggested warning level of 10. Thus,

¹⁰ ‘Tolerance is an indicator of how much of the variability of the specified independent variable is not explained by the other independent variables in the model’ (Pallant, 2007, p.156). ‘VIF indicates whether a predictor has a strong linear relationship with the other predictor (s)’ (Field, 2009, p.224).

these levels are acceptable and there is reasonable confidence that issues as to multicollinearity are not likely to invalidate interpretation of the reported results.

Table 2 presents the basic regression results. The overall model is significant ($p < .01$) with an adjusted R^2 of .63.

Table 2: Regression Results of the Average Scores of the IAE in 79 Organisations against the Five Variables

| R = 0.808 | | R ² = 0.652 | | adjusted R ² = 0.628 | | | |
|-----------------|------|-----------------------------------|--------|---------------------------------|---------|-----------|-------|
| F = 27.378 | | Std. error of the estimate = .316 | | Sig = .000 | | | |
| Variable | B | Standard error of B | β.Beta | t | P-value | Tolerance | VIF |
| Constant | .551 | .265 | | 2.082 | .041 | | |
| COMP | .201 | .074 | .230 | 2.702 | .009 | .656 | 1.524 |
| SIZE | .213 | .064 | .277 | 3.352 | .001 | .699 | 1.430 |
| RELEX | .116 | .057 | .161 | 2.021 | .047 | .751 | 1.332 |
| MSUP | .262 | .075 | .308 | 3.507 | .001 | .616 | 1.624 |
| IND | .162 | .074 | .165 | 2.197 | .031 | .845 | 1.183 |

Predictors: (Constant), Competence of the internal audit department., Size of the internal audit department, Relationship between internal and external auditors, Management support to internal audit, Independence of the internal audit department.

As can be seen, the p values for MSUP, SIZE, and COMP are statistically significant ($p < .01$). These results would suggest quite strong support for Hypotheses 1, 2 and 4. IND and RELEX are also statistically significant but at ($p < .05$) which suggests support for Hypotheses 3 and 5, but not at the same level as for the other hypotheses

The regression results suggest that MSUP contributed the most to IAE which is supportive of the specified path analysis. The path analysis results (Figure 3, Appendix 1) show all the relevant path coefficients. It indicates that MSUP is significantly associated with the other four variables; SIZE (.46, $p < .01$); COMP (.289, $p < .05$); IND (.344, $p < .01$); and RELEX (.269, $p < .05$). The results also indicate that COMP is significantly associated with RELEX (.307, $p < .01$). These results provide quite strong evidence that MSUP is the foundation of the effectiveness framework and that it has an impact on the other variables.

In order to compute the total effect of MSUP on the IAE, the direct effect was added to the indirect effects. The indirect effect is computed by multiplying the coefficients for each path from MSUP to IAE (Allison, 1999; Bryman and Cramer, 2005). Table 3 summarises the calculation of the indirect effects of MSUP on IAE.

Table 3: Indirect Effects of MSUP on IAE

| Indirect effects of MSUP on IAE (Paths from MSUP to IAE) | amount |
|--|--------------|
| A- $P_2 \times P_3 (.344 \times .165)$ | .0568 |
| B- $P_4 \times P_6 (.460 \times .277)$ | .1274 |
| C- $P_4 \times P_5 \times P_3 (.460 \times .083 \times .165)$ | .0063 |
| D- $P_8 \times P_9 (.289 \times .230)$ | .0665 |
| E- $P_8 \times P_{10} \times P_{12} (.289 \times .307 \times .161)$ | .0143 |
| F- $P_{11} \times P_{12} (.269 \times .161)$ | .0433 |
| G- $P_4 \times P_7 \times P_9 (.460 \times .319 \times .230)$ | .0338 |
| H- $P_4 \times P_7 \times P_{10} \times P_{12} (.460 \times .319 \times .307 \times .161)$ | .0073 |
| Total indirect effect of MSUP on IAE | .3557 |

The total effect of MSUP on IAE is:

Total Effect = Direct Effect + Indirect Effects

$$.664 = .308 (P_1) + .356$$

This result (.664) is necessarily identical with the result when running the regression between only MSUP and IAE. The coefficient for MSUP (.664) represents its total effect on IAE, which is the sum of the direct and indirect effects (Allison, 1999, p.61). The path analysis strongly supports the perception that management support is a key driver of the perceived effectiveness or otherwise of the internal audit function.

5. CONCLUSION

The results of this study provides strong indicative evidence both as to the factors which contribute to the perceived effectiveness of the internal audit function – competence, independence, size of the function, the relationship between internal and external audit and the extent of management support for the internal audit function – and also as to the role of management support for the internal audit function as a key driver of the effectiveness of the function. This evidence pertains to a particular country, Saudi Arabia, which has all but unique characteristics in that it has a very

recent history of development and the assembly and construction of economic entities, both commercial and public, to which the internal audit function might be relevant. In contrast to the great majority of developing countries it is, however, very affluent – an affluence based primarily upon its large and easily extractable oil reserves. Furthermore, it has very particular characteristics in terms of social structure, hierarchy, control and authority and religious observance and custom. The question then does arise as to whether the results of this study translate easily either to other developing countries – which do not have access to almost unlimited oil reserves – or to developed countries with a much longer tradition of commercial enterprise, public sector institutions and forms of governance within those entities. This is a difficult question to answer. In developed countries the evolving forms of governance initiated by COSO in the USA and Cadbury in the UK have sought to interpose the audit committee between management and internal audit (and to an extent overarching both) and it might be argued that this would make the role of management support less important than in a country, such as Saudi Arabia, where audit committees are nascent and, where they exist, their effectiveness has been called into question (Al-Twajiry et al., 2002; Alruhaily, 2008). This may be so but it is at the least arguable that in developed countries executive management are still in a position either directly, or indirectly via the audit committee, to significantly influence the extent, direction and nature of the work of internal audit – and where management perceive the internal audit function to be a positive one within the company then that function is likely to be more effective. In developing countries where audit committees, or their equivalent, are recent in establishment and operate within cultural and hierarchical frameworks which may be very different to those in developed countries with different traditions and a longer history of more formalised governance, then it is even more likely that these findings will translate beyond the particular Saudi milieu in which they have been established.

REFERENCES

- Ahmad, H., Othman, R. and Jusoff, K. (2009). The Effectiveness of Internal Audit in Malaysian Public Sector. *Journal of Modern Accounting and Auditing*, 5 (9), pp. 53-62.
- Ali, A., Gloeck, J., Ali, A., Ahmi, A. and Sahdan, M. (2007). Internal Audit in the State and Local Governments of Malaysia. *Southern African Journal of Accountability and Auditing Research*, 7, pp. 25-57.
- Allison, P. (1999). *Multiple Regression*. Pine Forge Press, Inc.
- Almohaimeed, A. (2000). *Performance Auditing in the Saudi Public Sector: its nature and effectiveness*. Ph.D. Thesis. The UK: University of Kent at Canterbury.
- Alruhaily, A. (2008). Audit Committees as one of the Pillars of Corporate Governance: the Case of Saudi Arabia. *King Abdulaziz University Journal, College of Business and Economic*, 22 (1), pp.179-218.
- Alzeban, A. and Gwilliam, D. (2012). The Role and Practice of Internal Audit in the Saudi Public Sector. Working Paper. A22. King Abdulaziz University.
- Arena, M. and Azzone, G. (2009). Identifying Organizational Drivers of Internal Audit Effectiveness. *International Journal of Auditing*, 13, pp. 43-60.
- Asairy, S. (1993). *Evaluating the Extent of Effectiveness of Internal Auditing: an applied study on the Saudi joint stock companies*. Masters Dissertation. Saudi Arabia: King Abdulaziz University.
- Al-Garni, A. (2008). Government Auditing in Saudi Arabia: auditors' opinion in the General Audit Bureau. *Institute of Public Administration*, 48 (1), pp. 39-79.
- Al-Twajiry, A., Brierley, J. and Gwilliam, D. (2002). An Examination of the Role of Audit Committees in the Saudi Arabian Corporate Sector. *Corporate Governance*, 10 (4), pp. 288-297.
- Baltci, M. and Yilmaz, S. (2006). Keeping an Eye on Subnational Governments: internal control and audit at local levels. [Online] World Bank Institute, Washington, D.C. Available at: <http://siteresources.worldbank.org/WBI/Resources/InternalControlandAuditatLocalLevel-FINAL.pdf> [Accessed 14 August 2011].
- Barrett, M. (1986). Measuring Internal Auditing Performance. *Internal Auditing*, 2, pp. 30-35.
- Brierley, J., El-Nafabi, H. and Gwilliam, D. (2001). The Problems of Establishing Internal Audit in the Sudanese Public Sector. *International of Journal Auditing*, 5 (1), pp. 73-87.

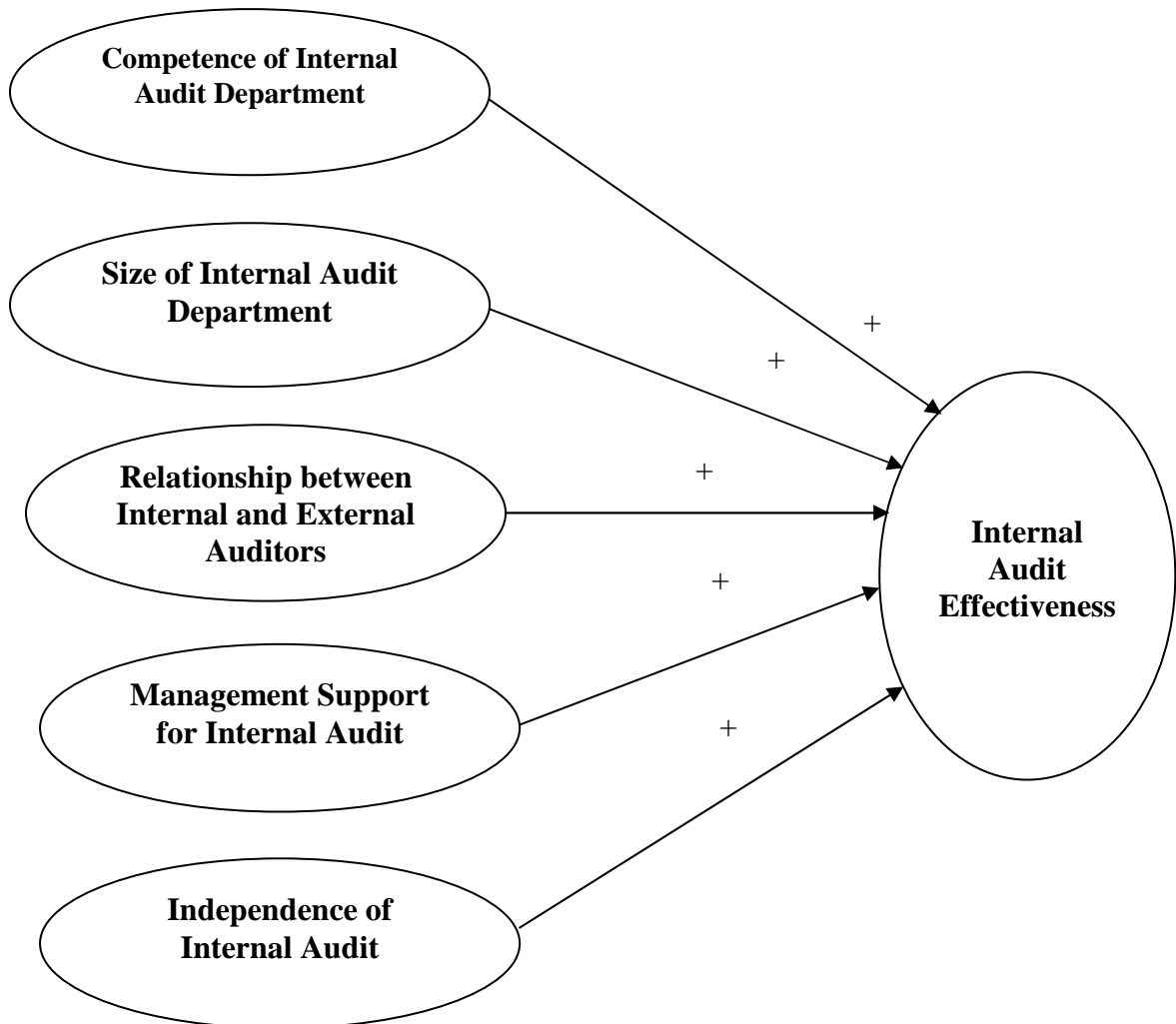
- Brierley, J., El-Nafabi, H. and Gwilliam, D. (2003). An Examination of Internal Audit in the Sudanese Public Sector. *Research in Accounting in Emerging Economies*, 5, pp. 177-195.
- Bryman, A. and Bell, E. (2007). *Business Research Methods*. 2nd ed. The US: Oxford University Press Inc.
- Bryman, A. and Cramer, D. (2005). *Quantitative Data Analysis With SPSS 12 and 13: a guide for social scientists*. London: Routledge.
- Cashell, J. and Aldhizer, G. (2002). An Examination of Internal Auditors' Emphasis on Value-added Services. *Internal Auditing*, 17 (5), pp. 19-31.
- Chartered Institute of Public Finance and Accountancy (CIPFA). (2003). *Code of Practice for Internal Audit in Local Government in the United Kingdom*. Consultative Draft. London: CIPFA.
- Cohen, A. and Sayag, G. (2010). The Effectiveness of Internal Auditing: An Empirical Examination of its Determinants in Israeli Organisations. *Australian Accounting Review*, 20 (3), pp. 296-307.
- Collis, J. and Hussey, R. (2009). *Business Research: a practical guide for undergraduate and postgraduate students*. 3rd ed. New York: Palgrave Macmillan.
- Cooper, D. and Schindler, P. (2008). *Business Research Methods*. 10th ed. International Edition. New York: McGraw-Hill Education.
- Dittenhofer, M. (2001). Internal Audit Effectiveness: an expansion of present methods. *Managerial Auditing Journal*, 16 (8), pp. 443-50.
- El-Nafabi, H. (1998). *The Nature and Practice of Financial Management and Audit in the Sudanese Public Sector*. Ph.D. Thesis. The UK: University of Wales Aberystwyth.
- Fadzil, F., Haron, H. and Jantan, M. (2005). Internal Auditing Practices and Internal Control System. *Managerial Auditing Journal*, 20 (8), pp. 844-866.
- Field, A. (2009). *Discovering Statistics Using SPSS*. 3rd ed. London: SAGE Publications Ltd.
- Friedberg, A. and Lutrin, C. (2001). The Internal Audit in U.S Local Government in the 1990s: a status report and challenges. *Journal of Public Budgeting, Accounting and Financial Management*, 13 (3), pp. 325-344.
- Frigo, M. (2002). *A Balanced Scorecard Framework for Internal Auditing Departments*. Florida: The Institute of Internal Auditors Research Foundation, Altamonte Springs.

- General Audit Bureau (GAB). (2008). *The GAB Summary Report*. [Online] *Okaz Newspaper*. Available at: <http://www.okaz.com.sa/okaz/osf/20080204/Con20080204170563.htm> [Accessed 4 February 2009, and 31 January 2012].
- General Audit Bureau (GAB). (2010). *The GAB Summary Report*. [Online] *Alriyadh Newspaper*. Available at: <http://www.alriyadh.com/2010/01/11/article488849.html> [Accessed 11 January 2010, and 31 January 2012].
- Golen, S. (2008). Communication Barriers between Internal and External Auditors. *ABEA Journal*, 27 (Fall), pp. 35-36.
- Gramling, A., Maletta, M., Schneider, A. and Church, B. (2004). The Role of the Internal Audit Function in Corporate Governance: a synthesis of the extant internal auditing literature and directions for future research. *Journal of Accounting Literature*, 23, pp. 194–244.
- Gwilliam, D. and El-Nafabi, H. (2002). The Possibility of Transition to Public Sector Modern Auditing Techniques and Procedures Found in Developing countries; the Case of Sudan. *Accounting Research, the Saudi Accounting Association*, 6 (2), pp. 161-196.
- Haimon, Z. (1998). *Evaluating the Effectiveness of Internal Auditing in Municipalities in Israel*. Ph.D. Thesis. The UK: City University Business School.
- Institute of Internal Auditors (IIA). (2006). *The Role of Auditing in Public Sector Governance*. Florida: the IIA. Available at: www.theiia.org/download.cfm?file=3512 [Accessed 10 January 2012].
- Institute of Internal Auditors (IIA). *International Standards for the Professional Practice of Internal Auditing*. Florida: the IIA. Available at: <http://www.theiia.org/guidance/standards-and-guidance/ippf/standards/>
- Institute of Internal Auditors (IIA). (2005). *Practice Advisory*. Florida: the IIA. Available at: <http://www.theiia.org/guidance/standards-and-guidance/ippf/practice-advisories/> [Accessed 23 November 2011].
- Lampe, J. and Sutton, S. (1994). Evaluating the Work of Internal Audit: A Comparison of Standards and Empirical Evidence. *Accounting and Business Research*, 24 (96), pp. 335-348.
- Mihret, D. and Yismaw, A. (2007). Internal Audit Effectiveness: an Ethiopian public sector case study. *Managerial Auditing Journal*, 22 (5), pp. 470-484.
- Mihret, D. and Woldeyohannis, G. (2008). Value-added Role of Internal Audit: an Ethiopian case study. *Managerial Auditing Journal*, 23 (6), pp. 567-595.
- Miles, J. and Shevlin, M. (2008). *Applying Regression and Correlation: a guide for students and researchers*. London: SAGE Publications Ltd.

- Mulugeta, S. (2008). *Internal Audit: reporting relationship in Ethiopian public enterprises*. [Online] MSc. Dissertation. Ethiopia: Addis Ababa University. Available at: <http://etd.aau.edu.et/dspace/bitstream/123456789/1966/1/Samuel%20Mulugeta.pdf> [Accessed 28 October 2011].
- National Audit Office (NAO). (2000). *Internal Audit Function within Government Ministries*. Report by the Auditor General, January 2000. Malta: NAO. Available at: <http://www.nao.gov.mt/> [Accessed 3 December 2011].
- Pallant, J. (2007). *SPSS Survival Manual*. England: McGraw-Hill Education.
- Sarens, G. (2009). Internal Auditing Research: where are we going? Editorial. *International Journal of Auditing*, 13 (1), pp. 1–7.
- Sawyer, L. (1995). An Internal Audit Philosophy. *Internal Auditor*, August, pp. 46-55.
- Schyf, D. (2000). Obstacles in Establishing and Operating a Public Sector Internal Auditing Function in a Developing Country: the South African experience. *Meditari Accountancy Research*, 8, pp. 145-181.
- Van Gansberghe, C. (2005). Internal Auditing in the Public Sector: a consultative forum in Nairobi, Kenya, shores up best practices for government audit professionals in developing nations. *Internal Auditor*, 62 (4), pp. 69-73.
- Wolderupheal, G. (1998). Ethiopia-Looking to the Future. *Internal Auditor*, February, pp. 16-18.
- Xiangdong, W. (1997). Development Trends and Future Prospects of Internal Auditing. *Managerial Auditing Journal*, 12 (4/5), pp. 200-204.
- Spraakman, G. (1997). Transaction Cost Economics: a theory of internal audit. *Managerial Auditing Journal*, 17 (7), pp. 323-330.
- Ziegenfuss, D. (2000). Measuring Performance. *Internal Auditor*, 57 (1), pp. 36-40.

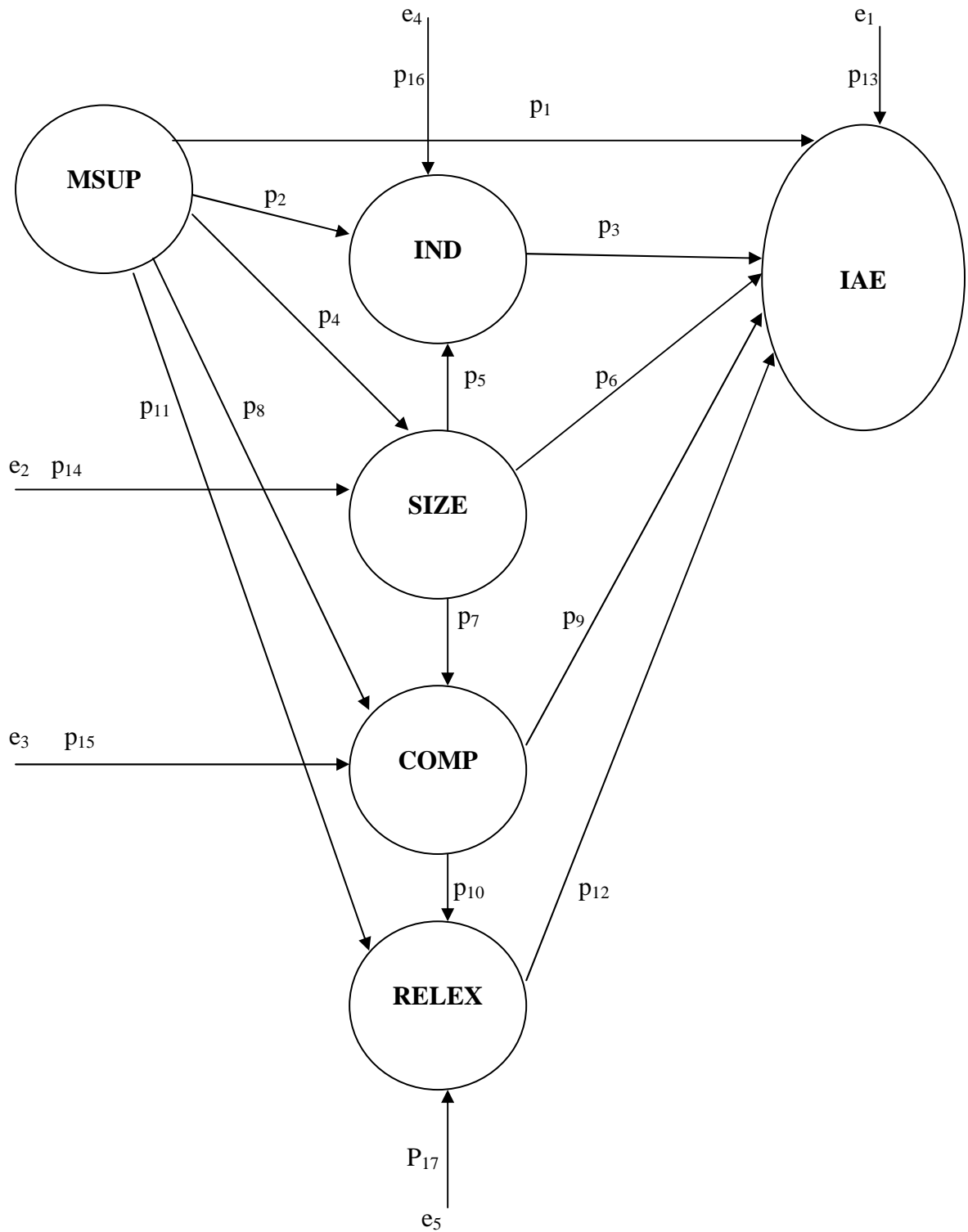
Appendix 1

Figure 1: Model of the Research



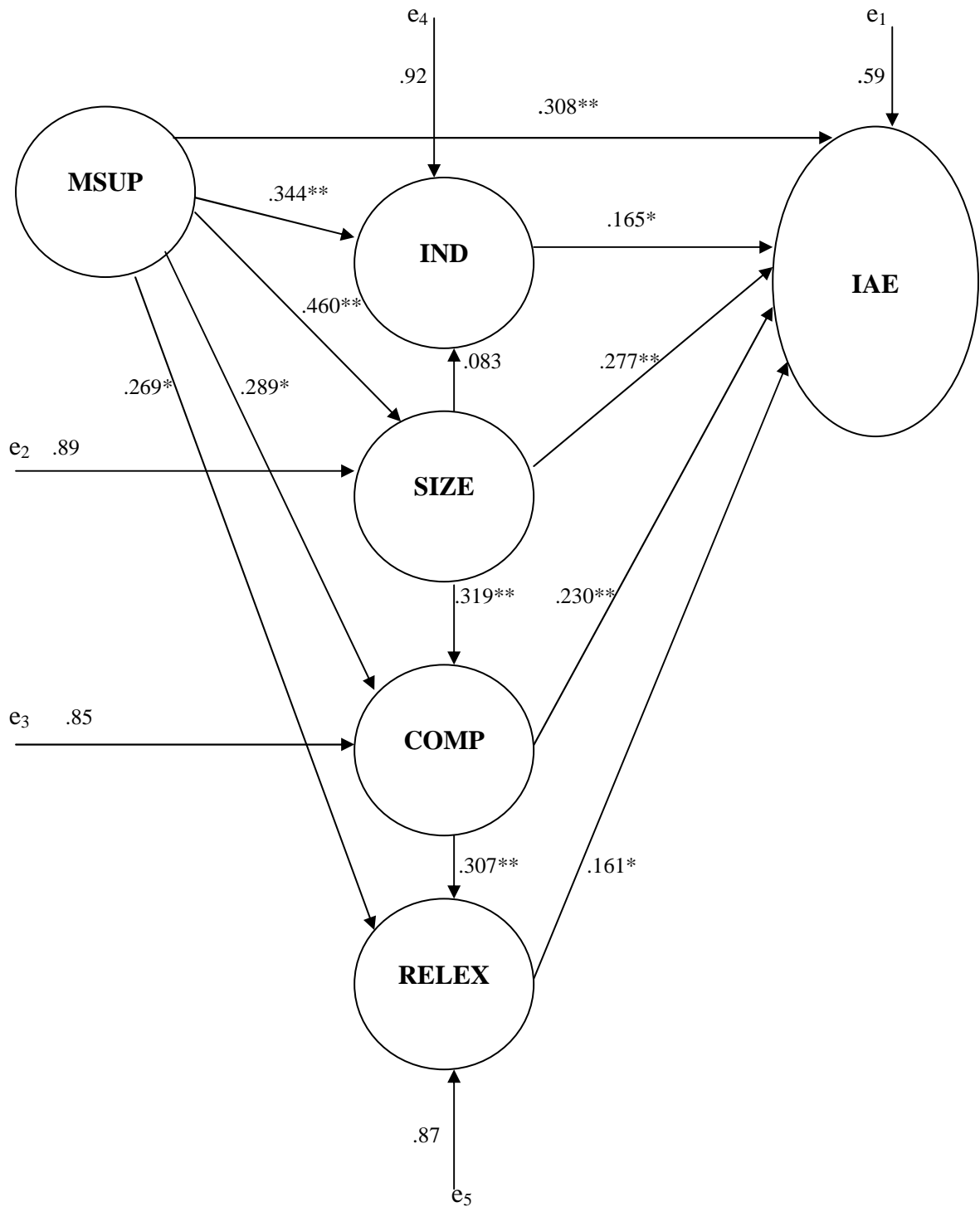
Appendix 1

Figure 2: Path Diagram for IAE



Appendix 1

Figure 3: Path Diagram for IAE with Path Coefficients (path analysis results)



* Significant at the 0.05 Level
 ** Significant at the 0.01 Level