

Full Length Research Paper

Assessment of quality for internal audit functions: A quest for a valid and reliable instrument

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Accepted 24 January, 2012

The primary objective of this study is to construct a valid and reliable instrument to quantitatively measure the level of conformance by internal auditors towards the International Professional Practice Framework (IPPF). A comprehensive review of literature concerning the existing instruments is clearly presented. This study involves distribution of the new instrument to 400 internal auditors, auditors, accountants and account executives in Kuala Lumpur, Malaysia. The present study concludes that most of the existing instruments measuring internal audit quality suffer major weaknesses that limit its value. The development process of the new instrument was clearly highlighted in the methodology section. A new approach of measurement was used as a solution to existing instruments. The results indicated that the new instrument satisfies the criteria for a valid and reliable research instrument and conform to the existing framework suggested by the Institute of Internal Auditors (IIA). The instrument could serve as additional assessment tools for audit committee in assessing the quality of internal audit functions in line with the new Bursa Malaysia Listing Requirements.

Key words: Quality of internal audit functions, internal auditing assessment tool, quality conformance and International Professional Practice Framework (IPPF).

INTRODUCTION

The existence of well-publicized articles on corporate failure around the world suggests weak corporate governance as being a major source of the failures. This suggests that auditors both external and internal, audit committee and board of directors may not properly discharge their professional and statutory responsibilities. Interestingly, a study by Smith (2010) acknowledges the critical role of internal auditors to improve the organizational governance in the US. In a more recent study by Sarens and Mohammad (2011) who investigate factors associated with the convergence of internal auditing toward best practices indicated that internal audit function in emerging countries converge more rapidly to best practices than internal audit function in developed countries. Consistent with the findings by Sarens and Mohammad (2011), Malaysia recognizes the

importance of internal auditing and the roles of internal auditors in the governance process within an organization (Bursa Malaysia, 2009). In fact, the announcement by Bursa Malaysia on the amended Listing Requirements (IIA, 2008) had mandated the existence of internal audit function among all public listed companies. In addition, the listing requirement also required the audit committee to review the competency of internal audit function. This is an expansion of the existing audit committee's functions to an extent create a problem that justify the present study.

The issue or research questions raise are what would be the basis to measure the competency level of internal audit function? In an effort towards objective measures, is it possible to quantitatively measure the competency of internal audit function? These are two main questions or issues that need to be resolved in ensuring efficient implementation of the revised listing requirement which would be effective on 31 January 2009. Moreover, considering the nature of research in internal auditing

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which is currently limited to descriptive type (Sarens, 2011), the present study hope to enhance the literature by suggesting an instrument to quantitatively assess the internal audit quality. Thus, the primary objective of this study is to construct a valid and reliable instrument to quantitative measure the level of conformance of internal audit towards the IPPF.

LITERATURE REVIEW

Various approaches were utilized to measure the quality of internal auditors but none of these attempts was able to quantify the measures (IIA, 2006, 2007; IIA, 2007). Some of the existing measures however were based on the IIA Standards (IIA, 2006; IIA, 2007). Sarens and Mohammad (2011) concluded that the use of the IIA standards and an external quality assessment are found to be positively and significantly associated with convergence of internal audit toward US best practices. Almost all of instruments surveyed as listed in Table 1 utilized categorical measure as well as binary of "Yes" or "No" which limit the data for descriptive statistics. Most of the results obtained from the instruments were limited to the presentation of percentage of each category. In addition, few of the instruments used five-point Likert-based scale of excellent, good, fair, poor and not available (Sciarra, 2006a, b). Few of the surveys for example IIA (2006) required the respondents to describe and explained in words their respond on each of attribute in the instrument. Thus, qualitative data were primarily provided. The qualitative data is undeniably important but it could be very subjective and may not permit advanced statistical analysis. Moreover, the problem concerning social desirability (McLeod, 2007) is almost unavoidable. Nonetheless, study by Dieter De and Anne-Laure (2011) offers new perspective by introducing assessment of internal audit quality based on ISO with a check list approach.

Most of the instruments had adopted the IIA's Professional Practice Framework (predecessor of the IPPF) as a basis for their measurement of quality but unfortunately not the whole attributes standard and performance were adopted. The adoption of full set of the standard, that is, performance standard and attributes standard is believe to be able to provide better coverage of quality (Sarens and Mohammad, 2011). The only instrument concern both standards was Tool 19 which formed part of the quality assessment manual (IIA, 2006). Its cover the whole standards of 1000 to 2600. Nonetheless, major limitation of this instrument was the use of categorical measure. The respondents are required to indicate each component of the standards based on three scales of generally conform (GC), partially conform (PC) and does not conform (DNC). This method of measurement limits the ability to perform various statistical tests as the data gathered were nominal in nature and also

exposed to social desirability issue (McLeod, 2007).

Overall observation of the existing instruments measuring the quality of internal audit function revealed three main weaknesses. First, there is no consistency on the attributes used to tap the construct, that is, the quality of internal audit. Second, most of the instruments do not incorporate the whole of IIA's IPPF as a basis of measuring quality. Finally, all of the instruments do not attempt to quantify their measures and this is evidenced by the use of categorical scales. In addition to the aforementioned review, the next paragraph discusses issues concerning the sample size, measurement and statistical tests for the development of the new instrument.

As this development involves pilot test as well as some statistical analysis, the issues concerning sample size, pilot test, measurement scales and factor analysis is discussed. The first issue on the determination of sample size is something that cannot be neglected. There are two approaches recommending the guidelines for sample size, one by suggesting the minimum number of subject or respondent and the second approach suggest the ratio of subject to items or variables. Barrett and Kline (1981) suggested that the sample size should be from an N of 50 to 400. Another study by Comfrey and Lee (1992) reported that sample size may be determined based on the following scales of 50- very poor; 100- poor; 200- fair; 300- good; 500- very good and 1000 or more- excellent. The second approach is by using ratio of subject to variables or items. A ratio of 15 respondents or 30 respondents for every one variable is recommended in the study of multiple regressions where the generalization of the results is critical. Interestingly, according to Osborne and Costello (2004), the determination of sample size for pilot test is equally important as the sample size for study.

With regard to factor analysis, few studies suggest a minimum subject to item ratio of at least 5:1 (Gorsuch, 1983; Hatcher, 1994). Ledakis (1999) further reported a minimum number of 200 required before attempting any factor analysis. It is surprising to note that many studies that utilized factor analysis did not seriously consider these sample size guidelines. According to Tabachnick and Fidel (2001), the use of insufficient sample size to perform factor analysis will eventually result in extraction of erroneous factors. Another study that survey 1076 peer-reviewed, published journal articles in psychology revealed that 40.5% of the studies that utilized factor analysis used less than 5:1 respondent to item ratio (Costello and Lee, 2003). In concurrence with various studies on sample size for factor analysis (Tabachnick and Fidel, 2001; Osborne and Costello, 2004), Coakes and Steed (2003) had also suggested an absolute minimum ratio of five participants to one variable, but not less than 100 participants per analysis. Although, a sample size of 200 or more is preferred, it is important to note that the word variables in the sample size ratio highlighted does not refer to the research variables of

Table 1. List of existing instruments on quality of internal audit.

No.	Author	Scales	Component assessed	Cont.	Limitations
1	Dieter De and Anne Laure (2011)	-Qualitative approach -Incorporation of checklists and narratives	-Evaluate compliance with the know your customer (KYC) and anti-money laundering (AML) requirements in the Luxembourg retail and private banking sector	-ISO based -Designed based on multiple focus group and interviews	-Not based on the IPPF
2	IIA (2007)	-Categorical -GC, generally conform -PC, partially conform	-Planning -Purpose, authority and responsibilities -Internal assessment -Professional development -Quality assurance program -Policies and procedures -Resource management -Organizational independence -Risk management -Recording of information -Engagement supervision -Communicating results -Engagement planning	-Provide detail element based on IPPF -Serve as external assessment for standard 1300 -detail evaluation on standard 2010 to 2200	-Categorical in nature -Some of the standards are not covered
3	IIAM (2007)	-Subjective- based on respondents' own description	-Positioning and audit strategies (40%) - Audit charter - Sponsorship/funding - Independence -Process/Enabler (30%) -Risk assessment and audit planning -Audit methodology -Audit engagement -Audit tools and technology -Audit resource capability (30%) - Roles and responsibilities -Manpower planning -Professional development	-Cover both attribute standards and performance standards of the IPPF -Assigned weight to each category.	-Respond are very subjective -Limit the ability to analyse the data -Mainly qualitative in nature

Table 1. Contd.

4	Sciarra (2006a)	-Likert-based 1-Excellent 2-Good 3-Fair 4- Poor 5-N/A	-Knowledge and skills -Training -Information -mis@Cellaneous	-Various aspect of each categories were assessed	-Very general questions asked -Not based on IPPF -Subjective measures
5	Sciarra (2006b)	-Likert-based	-Relationship with management -Audit staff -Scope of audit works -Audit process and report -Management of internal audit functions -Value added	-Various aspect of quality assessed -Detail question for each attributes	-Questions may result in bias interpretation -Subjective measures -Not based on IPPF
6	IIA (2006)	-Subjective answer eg: Explain Describe - Categorical	-Organizational and environment -Background of the organization -Risk management -Governance -Accountability and oversight -The internal audit functions -Background of internal audit functions -Internal audit practice environment -Relationship with senior management and board -Management of activities -Information technology. -Internal Assessment of: -Ongoing review -Periodic review	-Mainly for external quality assessment -Very comprehensive -Provide detail items in each elements -Based on IPPF and code of ethics -CAE is identified as the person responsible for internal assessment.	-Very subjective measures -All are open ended questions -There is no specific question to tap individual components assessed
7	IIA (2003)	-categorical	-Purpose, authority and responsibilities -Independence -Objectivity -Proficiency -Due professional care -Quality assurance and improvement in internal audit function -Providing assurance and generating improvement in the organization	-Based on IPPF -Serve as basis to measure effectiveness -Provide detail attributes	- Subjective measures -Limit answer to Yes or No -Not based on IPPF

the study. Instead, it refers to the number of questions included in the instrument to measure particular construct (Ledakis, 1999). By analyzing published literature on factor analysis, Osborne and Costello (2004) revealed that most articles utilized sample which are lower than the ratio of 5:1. In addition, conclusions were drawn based on this questionable analysis (that is, due to insufficient sample size). Thus, before performing any factor analysis, it is crucial to have appropriate number of sample size. In fact, this is always overlooking by many researches in social science (Osborne and Costello, 2004). There were various guidelines concerning the appropriate number of sample before attempting any factor analysis. In general, large samples are better than smaller samples. Larger samples tend to minimize probability of errors, maximize the accuracy of population estimates and ultimately improve the generalizability of the results.

The second issue is on the measurement used in the data collection. In fact, the previous section highlighted limitations of existing instrument mainly focuses on the measurement method used. Initially, it is important to identify the types of data gathered whether they are ordinal, ratio, nominal or interval. According to Keller and Warrack (2000), if data can be ordered preferentially, those data are considered as ranked data and are said to have an ordinal scale. The responses using Likert-based scale is considered as non-quantitative data because the data are ranked based on preferences. In addition, Douglas et al. (2006) suggested that we are unable to differentiate the magnitude of the differences between the ranks. For instance, is the difference between "strongly disagree" and "disagree" the same as the difference between "strongly agree" and "agree"? Therefore, we can only conclude that rating 1 is better than rating 2 or 3 and 4, but we cannot determine how much better the rating is quantitatively. Thus, it is clear that the data obtained using the aforementioned scale is ordinal in nature, which limit non-parametric tests.

Kimbrough (2006) had provided improvement to the assessment scales by designing instrument that incorporates more objective measurement. Instead of using traditional Likert-based scale, which the aforementioned argument considered as non-quantitative, Kimbrough introduced more objective scale which is aimed at providing quantitative measure. By using Kimbrough's scale, one could determine the differences between the ranks. For instance, the difference between the ranks was 25%, and similar or constant percentage was maintained throughout the scale.

This may be correct for Kimbrough to argue that such scale may provide quantitative measures considering the argument by Douglas et al. (2006). Example of Kimbrough's scale is as follows:

1	2	3	4	5
0%	25%	50%	75%	100%

The third issue is the statistical tests. Generally, an instrument is reliable when it measures what it is suppose to measure and statistically represent the degree of its consistency (Hair et al., 1998). There are various statistical tests available to test the reliability of an instrument but the present study limit the discussion on Cronbach's Alpha. It is important to understand types of score used in the Cronbach's alpha as a basis of interpretation on the reliability of an instrument. Scores are the respondent's answer to items on an instrument which can be classified as the true score and the error score. The error score can be further categories as systematic error which is affected by the research methodology used. The second category is termed as random error due to random character of the respondents. A reliable instrument will have smaller error (that is, both random and systematic) component in relation to the true score component, which reflect the ratio of the true score to the total score (Coakes and Steed, 2003; Coakes, 2009).

Cronbach's alpha measures the level of reliability of an instrument based on the value of alpha. Smaller value denotes less reliable instrument as it does not measure the true score.

Thus, the higher value of alpha is preferred. Alpha equals 1.0 when all items measure only the true score and there is no error component while the value of alpha equals zero when only an error component was measured instead of the true score. According to Garson(2008), it has become standards that, a moderate cut-off value of alpha (0.60) is common in exploratory research. However, in most cases, the value of alpha should be at least 0.70 or higher in order to achieve adequate scale (Eide et al., 2001; Green and Salkind, 2008).

In fact, many researchers requires a cut-off of 0.80 to be considered as a good scale (Carmines and Zeller, 1979). Another issue in Cronbach's alpha test is the number of items in an instrument tested. The value of alpha increases as the number of items in the scale increases thus indicated that an instrument with fewer items would result in lower alpha, and an instrument with more items may result in higher value of alpha. Therefore, one of the methods to increase the value of alpha is by increasing the number of items in a particular instrument as more questions logically could be able to better describe the specific construct. It is important to note that comparison of alpha levels between scales with differing numbers of items is not appropriate (Carmines and Zeller, 1979).

In addition to Cronbach's alpha, factor analysis is another statistical approach that can be used to analyze interrelationship among large numbers of variables or items and to explain those variables based on their common underlying dimensions or factors (Green and Salkind, 2008). The analysis involved condensing the information contained in a number of original variables into the smaller set of dimensions known as factors with a

minimum lost of information. In fact, it contributes to the development of reliable instrument as it tests the extent to which the questions or variables designed tap into the same construct. There are various types of factor analysis but the present study limit the discussion to principal axis factoring (PAF) which is also known as principal factor analysis (PFA) (Field, 2005; Green and Salkind, 2008). The aforementioned review served as the basis for development of the new instrument presented in the next section. The new instrument that needs to be developed in this study should be able to overcome the limitations as well as provide quantitative measure for quality assessment of the internal audit functions.

METHODOLOGY

This section presents the steps in the development of the instrument which involved the basis of development, the structure, measurement, data collection and statistical tests. The development of the new instrument was based on two main sources of IPPF (IIA, 2011) and quality assessment manual (IIA, 2006). The new instrument is known as conformance evaluation of standard for the professional practice of internal auditing. The next paragraph discusses both sources in brief.

The IPPF was issued by IIA (2011) which serve as a main reference for internal auditors. The IPPF comprise four main components, including the definition of internal auditing, the standards, the code of ethics and other guidelines. The standards were further divided into attributes standard and performance standard. The attributes standard highlights the organization as well as the entity performing the internal audit functions. The performance standard describes more on the nature of internal audit functions. Both of these standards provide basis to measure internal auditor's performance.

The IPPF had listed three main purposes of the standard (IIA, 2011). First, is to provide fundamental principles of practice for internal auditor. Second, to establish a framework for internal auditor to discharge their value added activities. Third, is to provide basis for the evaluation of internal audit performance and finally to improve processes and operation of organization. The new instrument will rely entirely on the IPPF in designing the attributes to measure quality of internal audit functions.

The secondary source for the development was the quality assessment manual (IIA, 2006) that serves as the complement that provide important basis for the development of the new instrument. The manual provide principle guidance on the conformity of the IPPF (IIA, 2011). The manual consist of five chapters covering various scope of quality assessment for internal auditors as well as various sample of reports and assessment tools. As previously reported, Tool 19 which is part of quality assessment manual was utilized for the development which involve matching the detail explanation on quality assessment based on the IPPF (IIA, 2011).

Technically, the use of Tool 19 (IIA, 2006) seems to be the best basis for the new instrument. This is further supported by the recommendation made by Bruce (2007) that Tool 19 is the best measure currently available for measuring the effectiveness of internal audit. Recent study by Sarens and Mohammad (2011) further justify the use of these standards issued by IIA. Detail coverage of IPPF standard becomes the main reason for the use of Tool 19. In Tool 19, where the overall results reported GC, it is an indicator that the qualities of internal audit are very high. The result that reported PC, obviously signify lower level of quality while DNC connote lowest level of quality. Apparently, the best measure of quality for internal audit functions reflected from the degree of conformance of the internal auditors towards the IIA's IPPF. The

new internal audit conformance instrument was developed based on Tool 19 from the IIA Quality Assessment Manual 5th Edition (IIA, 2006). However, as previously highlighted on the limitation of Tool 19, the new instrument shall use percentage of conformance as a measure of quality to enable the ratio type of data to be collected. The next part of this section discussed the structure of the new instrument.

Structure of the new instrument

The next section describes the structure of the instrument which is divided into four parts presented in Figure 1. Section 1 of the instrument focuses on the respondent's details. Sufficient instruction to the respondent was provided in this section to assist them in completing the instrument. There are five questions in this part such as the respondents' gender, employment category, primary functional title, size of the organization and working experience. Section 2 is the main structure of the instrument. It comprises 37 questions. These 37 questions are the main attributes to measure the degree of conformance of internal audit department to IPPF. This section begins by providing brief introduction to respondent with the aim of the instrument, measuring the extent to which the internal audit functions conform to the IPPF. Out of the 37 questions, there were 12 questions designed based on standard 1000 to 1300 of the attribute standards. These questions cover the entire element of purpose, authority, responsibility, independence, proficiency, due care and quality assurance. Question 13 to 37 covers the performance standards 2000 to 2600. Section 3 of the instrument presents two open ended questions. These questions required respondent to suggest any other quality assurance issues to be highlighted and to provide their opinion on the overall quality of internal audit department.

Measurement procedures

The new instrument should be able to anticipate all the limitations concerning existing instruments as highlighted in the literature. The measurement scale suggested by Kimbrough (2006) was further modified in this present study to ensure that ratio data can be collected. The modified scale enables the respondent to indicate degree or magnitude of conformance from 0 to 100%. Zero percent represent nonconformance and 100 percent denote maximum conformance. Example of the modified scale is as shown in Figure 1.

The modified scale is considered appropriate and be able to provide high degree of data that is, ratio data. In addition, the scale enables respondents to indicate any number on individual question, thus, allowing the ratio type of data to be collected. Statistically, ratio type of data is the highest quality of data permitting various tests (Keller and Warrack, 2000; Coakes and Steed, 2003; Green and Salkind, 2008). Thus, the modified scale was utilized as a measurement tool to gather quantitative data in this study.

Review of validity

This section describes the process and procedures adopted to review the validity of the instrument. The first draft of the instrument was email to Michelle Scott, Director of Research and Analysis, IIA USA and Institute of Internal Auditors Malaysia (IIAM) Technical Director mainly to review the validity of the questions measuring the intended construct. Both reviewers confirm that the IPPF and quality assessment manual are the most appropriate source of information to be relied upon in the development of the instrument. Thus there is no issue on the validity of the instrument measuring what it purported to measure as it is based on well-established frameworks.

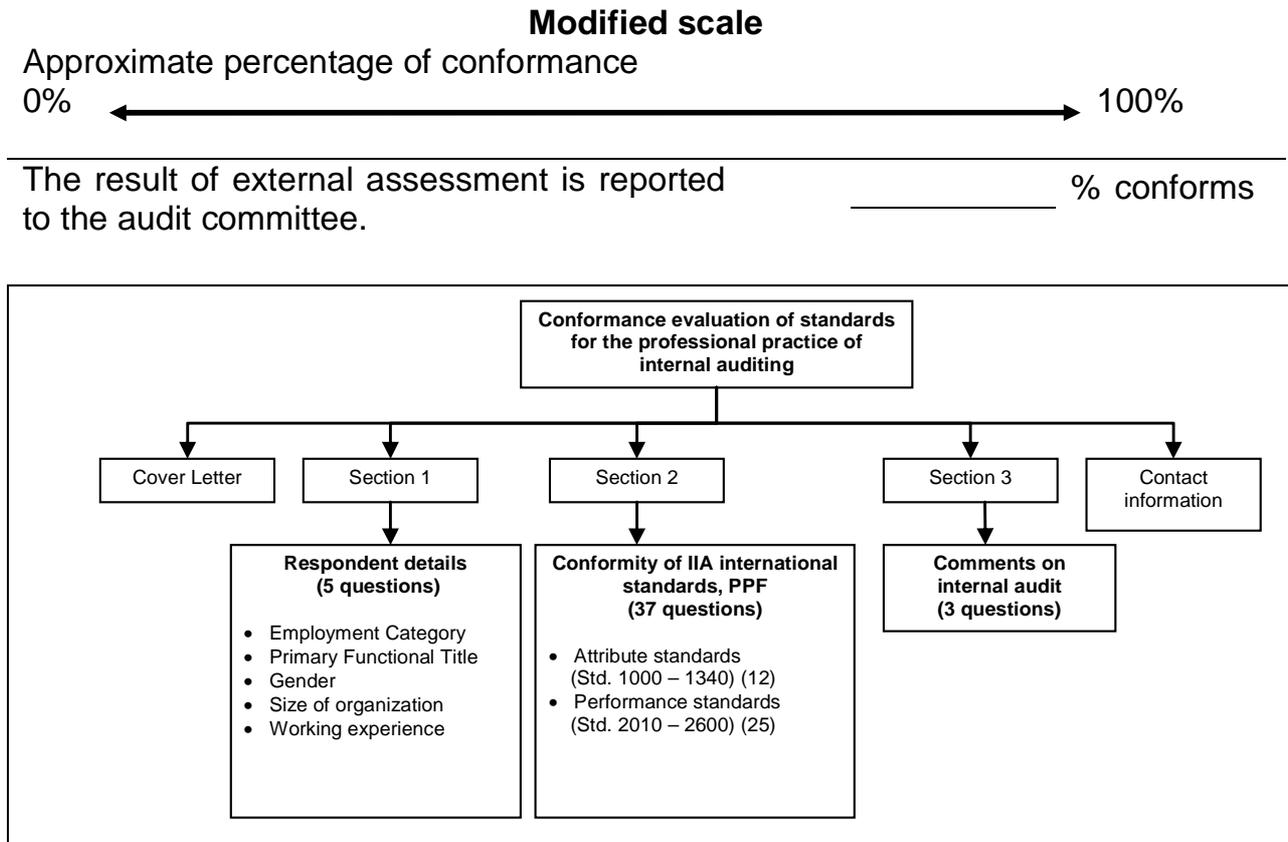


Figure 1. Sample of modified scale and structure of the new instrument.

Additionally, two separate focus group interviews were performed aim at improving the instrument and to obtain opinion on other relevant aspect to be included in the instrument. The first interview involved a group of nine participants holding chief audit executive (CAE) position participated in the informal interview in conjunction with the IIAM's ERM training session. They are required to comment on the instrument measuring quality of internal auditors. Overall conclusion of the session results in rewording the instrument is aimed at simplicity. The second focus group interview involved a group of 22 internal auditors holding various positions and from various industries participated in the session. These diverse compositions of participants are expected to provide valuable comments on the instruments as well as the issues concerning the present study. The participants were also asked to comments on the measurement scales and all of them do not encourage the use of Likert-based scales. The scales are said to influence respondents decision making where they are keen not to make any decision. For instances, in a five-point or seven-point scales, the respondents tend to indicate 3 or 4, respectively. Therefore, further justifies the use of the modified scales in this study.

Determination of sample size and data collection

The present study adopts the ratio of five respondents for every one question (Gorsuch, 1983; Hatcher, 1994). Although, a more stringent requirements are available, the adoption of the previously mentioned ratio was fairly justified via various findings (Coakes and Steed, 2003; Osborne and Costello, 2004; Field, 2005). A ratio of

five respondents for every single question is considered appropriate particularly for performing factor analysis and reliability test. The instrument which consists of 12 questions measuring attribute standards and 25 questions for performance standards. The minimum sample size required is 60 for attribute standards and 125 for performance standards. A total of 400 copies were distributed to 400 internal auditors, auditors, accountants and account executives in accounting firms and commercial industries around Kuala Lumpur and this is hope to satisfy the suggested sample size requirement of 5:1.

RESULT AND INTERPRETATION

Since there are two separate parts of the new instruments (attribute standards and performance standards), two set of reliability tests were performed to analyze the instruments' internal consistency. Cronbach's coefficient alpha was utilized for all set of analysis. Panel A in Table 2 reported the number of respond received in the study.

As presented in Panel B of Table 2, the alpha value for both part of the instruments measuring attribute standards and performance standards reported the value of coefficient alpha of 0.878 and 0.902 respectively. These results seem acceptable to justify the reliability of the newly developed instrument (Eide et al., 2001; Garson,

Table 2. Number of respond received.

Standard	No. of questions	Respond required (ratio 5:1)	Distributed	Return	Rejected (blank)	Usable
Panel A:						
Attribute Standards	12	60	400	196	22	174
Performance Standards	25	125	400	196	22	174
Panel B:						
Results of reliability tests						
Instrument	Cronbach's alpha		Cronbach's alpha based on standardised items			
attribute standards	0.878		0.878			
performance standards	0.902		0.902			

2008; Green and Salkind, 2008). The previously mentioned results were expected as the developments of the instrument in the present study were based on the existing well-constructed framework issued by IIA (2011) as well as quality assessment manual (IIA, 2006). This is further justified by the finding from Sarens and Mohammad (2011) concerning the IPPF.

With reference to factor analysis, the first cycle of analysis in this study involves all variables to measure the attribute standards. The results of correlation matrix table revealed that, all of the variables had values greater than 0.30 which indicate the suitability of the data set for factor analysis. The KMO test indicated a result of 0.923 and Bartlett's test is significant at 0.000. The anti-image covariance matrix revealed that, all the measurement of sampling adequacy are well above the acceptable level of 0.50 that is, range from 0.878 to 0.976. The results of communalities range from 0.779 to 0.901. Interestingly, the present analysis results in only one factor with Eigenvalue of 13.516. This factor accounted for

84.473 of the variances. As there was only one factor generated from the analysis. The factor loadings for the items range from 0.949 to 0.830 (Table 3).

The second cycle of factor analysis involves all variables to measure the performance standards of the IPPF. The results of correlation matrix table revealed all of the variables had the value of more than 0.30 which indicate the suitability of the data set for factor analysis.

The KMO test indicated a result of 0.860 and Bartlett's test is significant at 0.000. The anti-image covariance matrix revealed that all the measurements of sampling adequacy are well above the acceptable level of 0.50 that is, range from 0.726 to 0.951.

The result based on the communalities table range from 0.670 to 0.921. The similar pattern of result as in the analysis for attribute standards was replicated. There is only one factor extracted with Eigenvalue of 25.765. This factor had explained 85.882% of the variances (Table 4). Factor loadings range from 0.960 to 0.819.

DISCUSSION

In an attempt to develop a valid and reliable instrument, the study had review the existing instruments as well as issue concerning the sample size, measurement and statistical tests. Thorough processes were undertaken in ensuring the validity of the instrument being developed via expert reviews. The result confirm the use of the IPPF (IIA, 2011), quality assessment manual (IIA, 2006) and was consistent with the result of Sarens and Mohammad (2011). The two factors which result from the analysis perfectly fit into the attribute and performance standards. In addition, the result from factor analysis does not alter the existing structure of the IPPF. All questions that measure attribute standards loaded perfectly on one and only one factor. Similar result was replicated for performance standards. Thus, support and confirm the existing structure of IPPF designed by IIA (2011) that segregate between attribute standards and performance standards. Therefore, it is clear that the use of internal

Table 3. Factor loadings for quality conformance: attribute standards.

Factor description and variables (Loading >0.50)				
Factor	Item	The question	Load	% of variance explained
Factor 1: Attribute standards	2.12	Any non-compliance will be reported to the CEO or audit committee	0.949	84.473
	2.6.4	The probability of significant error or non-compliance	0.948	
	2.6.3	The assurance of risk management, control and governance processes	0.947	
	2.6.5	Cost and benefits analysis in performing their duties	0.941	
	2.9	The CAE execute is periodically review via self-assessment	0.934	
	2.8	The CAE established periodic quality assessment program	0.933	
	2.6.1	The amount of work to be performed	0.924	
	2.6.2	The materiality on specific assurance tasks	0.919	
	2.10	External quality assurance assessment is conducted every five years	0.916	
	2.4	Internal auditor discloses to appropriate parties any incidences that affect their independence	0.910	
	2.1	An internal audit charter is established which is consistent with the standards	0.907	
	2.2	The CAE reports directly to the audit committee	0.896	
	2.11	The result of external assessment is reported to the audit committee	0.887	
	2.7	All internal audit staffs have the opportunity to improve and update their knowledge and skills by attending training and conferences	0.887	
	2.3	Internal auditor practices unbiased attitude all the time in performing their duties	0.883	
	2.5	All internal audit staffs are equipped with knowledge and skills required to perform their duties	0.830	
Cumulative variance explained				84.473

auditors' level of conformance towards the IPPF could serve as the measurement for their competency. The present study also introduced a modified measurement scales from the existing literature that enable quantitative assessment of the level of conformance. The instrument is also hope to serve as additional assessment tools to be considered by audit committee in discharging their new responsibility on internal audit (Bursa Malaysia, 2009). It is also hope that this paper could initiate more research to further refine the instrument with the aim to provide valid and reliable assessment tool for internal auditors. The

present study limit the research setting to auditing practitioners in Malaysia and it is interesting and would be valuable contribution to the literature if future research could test the instrument at different research settings. In addition, future research may also utilize other statistical test to assess the reliability of the instrument. Indeed, this could also add to the present limited literature concerning assessment tools that could enhance more research on internal auditing. Despite the fact that the present study managed to quantitatively measure the internal auditors' level of conformance towards IPPF, one may argue

that it is still a subjective measures. For example a 45% response by one internal auditor may not necessarily mean the same 45% of implementation by another internal auditor. Moreover, the use of self-reported questionnaires may be subjected to arguments on the validity of the response. There might have been a possibility that the internal auditors tried to portray a positive image by indicating that they were complying with the IPPF at a higher percentage when in actual fact, they may not have necessarily conformed as high as what was indicated in the questionnaires. This issue again led to the problem termed as

Table 4. Factor loadings for quality conformance: performance standards.

Factor description and variables (Loading >0.50)				
Factor	Item	The Question	Load	% of variance explained
Factor 1: Performance standards	2.15	The CAE ensures all resources approved in audit plan are efficiently deployed	0.960	85.882
	2.16	There are policy and procedures established to guide all internal audit functions	0.955	
	2.25.1	objective	0.951	
	2.14	The CAE audits plan and resources requires approval from board	0.951	
	2.28	The conclusion made by internal auditor is based on careful analysis and evaluation	0.950	
	2.25.2	Significant risk exposure	0.948	
	2.13	The annual planning of internal audit functions is designed based on risk assessment	0.948	
	2.20	Internal audit functions assessed the effectiveness and efficiency of information and control system	0.944	
	2.37	The CAE reports to the board or audit committee to resolve the issue should the dispute continues	0.944	
	2.18	Performance of audit activities as against the plan is periodically reported to the board	0.944	
	2.34	The CAE is responsible to communicate the final results of audit activity	0.943	
	2.22	The engagement objectives must seriously consider the risk, control and governance processes	0.943	
	2.21.3	Communicate risk information within the organization	0.943	
	2.35	The CAE established monitoring procedures to ensure all recommendations made are performed by the management	0.942	
	2.25.3	Adequacy and effectiveness of risk management	0.936	
	2.27	Internal audit assessed the quality of information required to achieve the engagement objective	0.936	
	2.21.1	Instill ethical values	0.935	
	2.19	The internal audit functions facilitate the organization's ERM.	0.931	
	2.36	When management decided to accept risks beyond the organisation's risk tolerance, CAE will hold discussion with management to resolve the issue	0.928	
	2.23	The scope of internal audit functions must be able to satisfy the necessary need for internal auditor to perform their task	0.924	
	2.17	The CAE promotes information sharing and improve coordination with other entities	0.922	
	2.33	Reason and impact of any non-compliance of standards by internal auditors are clearly disclosed	0.919	
	2.24	The allocations of necessary resources are critical to ensure the achievement of engagement objective	0.910	
	2.21.2	Review organization's performance	0.909	
	2.29	The internal auditor carefully maintains all facts supporting their conclusion	0.903	
	2.25.4	Opportunity to provide significant improvement	0.887	
	2.26	Internal audit work programme includes details of procedures and documentation to achieve engagement objective	0.872	
	2.31	The objectives, scope, conclusion, recommendations and action plan are included in the audit report	0.867	
	2.3	Review of internal audit working paper is a means for quality improvement.	0.844	
	2.32	Accuracy, clear, concise, complete and timely is the characteristics of internal audit report	0.819	
Cumulative variance explained				85.882

social desirability (McLeod, 2007).

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