Specifying Determinants of Auditing Professional Skepticism

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INTRODUCTION

Skepticism, as a method of doubt is essential to the process of scientific research, philosophical dialogue, and critical intelligence. According to the glossary of the IASB Handbook (2008), professional skepticism (hereafter, PS) is “an attitude that includes a questioning mind and a critical assessment of evidence” [28], and is an essential ingredient of the financial statement audit. Importance of the use of PS is emphasized by the academic and professional auditing literatures [14,17,21].

There is widespread agreement on the importance of professional skepticism in audit practice [15,21,11]. Therefore, professional skepticism is an essential feature of contemporary audits. Despite its importance, there is no consensus in the academic literature on the definition and measurement of PS [14,21]. For example, as will be discussed in more depth in this paper, the predominant focus of the academic literature on PS considers auditors’ skeptical disposition as the antithesis of trust [7,6,25]. However, some studies describe trust as only one facet of an auditors’ skeptical disposition, along with other facets such as locus of control and need for closure [14,29].

The academic literature take a neutral perspective. For example, Hurtt (2007) defines PS in terms of various characteristics of skeptics (e.g., a questioning mind, suspension of judgment, self-confidence) that focus more on having and pursuing doubt than on a particular direction of doubt. However, other academic literature appears to take more of the presumptive-doubt perspective, viewing auditors as exhibiting more PS when they consider it more likely that the financial statements are materially misstated or when they accumulate more evidence in order to conclude material misstatement is not present.

Also there is criticism that auditing standards need to provide better guidance on how to implement the concept of professional skepticism [23]. The recognized importance of PS, the lack of clarity concerning definitions and the need for more guidance warrant the need for research that explores the concept of PS in depth. However, only limited research on this topic has been conducted to date [14].

PS refers to relationships between judgment, actions and decisions regard to accessible evidence. PS reflects a developed assessment of the risk that an assertion is incorrect, conditional on the information available to the auditor. In many of cases, the testable assertion means that financial statements are free from important misstatements, but this definition may contains other assertions too. Based on these discussions, “Skeptic” is a behavior that demonstrates more doubt about some assertions and ideas. If auditor has inordinate PS, it may not
practical to lead a weighted efficient and effective auditing activity. In the other words, having extra PS may
doesn’t have positive and impressive results.

Hence, this issue that actually what are factors that affect on PS, is the major problem that professional
auditors and moral standard setter units concerned with it and is the main objective of this paper.

We’re going to present a model that contains most effective variable that influence on PS of auditors. On
the other hand, other objective of this research is identifying relationship of PS between practitioners of
governmental and private auditing firms.

Idealistic objective of this study is revising auditing standards. If judgment is final step in auditing process;
so goal of this research is apply an inter-specialty approach to specify effective factors in PS of independent
auditors. Also particular objective is presenting an operational and localized of PS regard to environment of Iran
and specify how potential factors affect on PS of auditors. Practical objective of this research is contribution to
standard setter and authoritative bodies in education fields, to concentrate on key aspects that are needed to
growth skeptical characteristics of a qualified auditor. Results of this paper can be use for Certified Public
Accountants associations and other supervisor institutions that control the role of auditors.

To remove disagreements between practitioners and theorists about definition of PS, and with regard to key
implications of PS in judgment process of auditors, we’re going to present a new viewpoint to this concept that
entails applications based on economic, cultural and psychological characteristics of country of Iran, which is
considered as an emerging audit market. Achieved results will be helpful for other developing countries to
conduct skepticism attribute of auditors in these countries.

To describe theoretical benefits of this research, we can refer this thought that in accounting literatures,
judgment and its process is studied too much in auditing context. One of the basic underlying concept that
supports judgment process is Brunswik Lenses that was introduced between 1980 and 1990 decades, which
often concentrated on weighting elements that had influence on decision making. In this research we have tried
to rely on updated theoretical literatures such as Nelson [21] and Hurtt [14]. In these empirical studies,
researchers presented model for professional judgment of auditors. By this manner, we can recognize elements
that influence on skeptical traits of auditors. PS influences on action and judgment of auditors, thus we can
create new models for judgment and decision making process. Identifying determinants of PS can help standard
setters to achieve a deep perception about this subject.

Researches that their subjects are about judgment in auditing have invention and innovation. Because
moreover of accounting field, area of judgment has some psychological and behavioral aspects, that are very
important to create a deep perception in this area. PS is a behavioral subject, and investigates fundamental
theoretical concepts and postulates used in auditing and assurance standards. It can improve understanding about
our culture and incentive factors in our society. Thus, this study by means of positive perspectives, help us to
clarify components of descriptive theories that illustrate reasons of recommendation of PS by means of a new
approach.

Review of theoretical framework:

The need for development of a specific PS scale for auditing has been stressed by several authors
[6,14,15,21].

Nelson [21] presented a summarized model for PS. At the center of the model is the idea that there is a
difference between skeptical judgment and action. Evidence provides an important input to the judgment process.
Other inputs to the judgment process include the auditor’s knowledge, other non-knowledge attributes such as
auditor traits, and incentives. Also Nelson suggests that it is possible that regard other cultural factors.

Hurtt’s model [14] is another model concerning about PS. She deducted three sets of characteristics of
skepticism from philosophical literature, audit standards and literatures about skepticism. These three
scrapbooks together, determine a person’s PS: (1) Examination of evidence, (2) perception of evidence
providers, and (3) exercise based on reliable evidence. These triple complex together determine general level of
PS of people according to figure 1.
As indicated in figure 1, the attributes in regard to the examination of evidence include having “questioning mind”, “suspending in judgment” and “search for knowledge”. Questioning mind consists of a necessity to reasons, evidence, justification or proof. Suspending in judgment is a characteristic indicating that a skeptic is a trait that requires a person to form judgments slowly, requiring discussion and additional affirming information to reach that judgment. Search for knowledge consider being curiosity.

The attributes related to understanding evidence-providers comprise of ‘interpersonal understanding’ of the motivation and integrity of evidence-providers.

The characteristics to perform based on the evidence consist of ‘self confidence’ and ‘self determination’. Self confidence means the professional intrepidity to perform based on the evidence that has been collected. Self-determination is the individual’s conclusions regarding the adequate amount of evidential issue.

These three collections of attributes determine the individual’s overall level of PS, which in order is assumed to drive skeptical behavior [14]. There are some empirical evidence representatives that the scores on the Hurtt Professional Skepticism Scale are related to skeptical behavior [14,27,10]. In this paper, we used model of Hurtt [14] to demonstrate and investigate relevant factors affecting on PS of auditors. But we follow her model by means of factor analysis method.

Hurtt [14] based on two fundamental parts of Nelson [21] develops a framework consist of skeptic judgment and action. Skeptic judgment happens when an auditor conclude that perhaps there is a potential issue that requires more effort and attempt. Skeptic action happens when an auditor, based on skeptic judgment, change his or her behavior. Both skeptic judgment and action are essential for auditors. By means of skeptical judgment, enough and required prerequisite to have skeptic action is provided.

Hurtt [14] in her framework, studied both of factors that make different judgments and actions, or factors that are consequences of judgments and actions. All of these factors reflect level of skeptical characteristics of auditors. Her model is an optimized version of Nelson’s model, which has replaced requirements for PS (that is auditors’ attributes, knowledge, ability, and incentives) with more widespread classifications such as auditor, evidence, customer and characteristics of external environment.

Thus, in this research we considered PS as an observable variable that investigated by means of six latent variable consist of questioning mind, suspending in judgment, looking for knowledge, interpersonal understanding, self confidence and self determination.

Research literature:

According to Nelson’s model [14], PS generally has two separate section contains skeptical judgment and action. As indicated in the dentitions of PS provided in the auditing standards (AU 230), PS is an outcome of auditors’ judgment, but PS is revealed by skeptical behavior, and therefore is an attribute of auditor performance. Thus, in this section we demonstrate relevant antecedent researches and studies.

Skeptical judgment:

Hurtt et al conducted an empirical study on PS of audit professionals in firms. She concluded despite auditors adjust their investigations depending on level of risk exposure increases (with more worksheets review), but more skepticism auditors significantly found more errors in a worksheets. In addition, skepticism attribute has interaction with audit risk; So that more skepticism auditors identify more contradictions.

Popova in his paper explored skepticism, client-specific experiences, and audit judgments among senior undergraduate and graduate accounting majors. He concluded trait skepticism and client experience interact to
influence auditors’ hypothesis evaluation and search for audit evidence, with negative client experiences leading to greater fraud-related hypotheses.

Quadackers et al [28] investigating neutrality versus presumptive doubt, studied auditors’ professional scepticism. In their study, two scales were used to measure PS. Skepticism has a negative relationship with levels of trust (as measured by Rotter interpersonal trust-RIT), and positive relationship with levels of trait skepticism (as measured by HPSS). They concluded in a high internal control risk setting, the number of error explanations generated is considerably higher and weight of error explanations is relatively higher for high RIT scores auditors.

Farag and Elias surveyed the impact of accounting students’ professional scepticism on their ethical perception of earnings management. They concluded that students scoring high in trait skepticism view earnings management situations as more unethical than students who score low on trait scepticism.

Rosman [30] studied the role of personality and motivation in PS when tone at the top varies. His statistical population was graduate accounting students. Results show extroverts people were more skeptical with stronger support from a superior and vice versa, whereas the opposite was observed for introverts. Further, highly motivated students exhibited higher levels of trait skepticism, regardless of audit firm tone at the top or personality type of them.

Rose [29] in his article as “Financial Reporting and Intentional Misstatement Judgments: Effects of Experience and Trust, shows that audit professionals who are less trusting pay more attention to evidence of aggressive reporting and are more likely to believe that deliberate misstating has occurred. Further, fraud-specific experience directly influenced judgment.

Payne and Ramsay [25] investigate fraud risk assessments and auditors’ PS among audit professionals. Results show that when low fraud risk is estimated during the planning stage, skepticism declines. Therefore, the prime level of fraud risk auditors result conduces less skepticism. Also, senior-level auditors were overall less skeptical than staff auditors.

Harding and Trotman [13] investigated enhancing PS via the fraud brainstorming discussion outcomes among audit professionals. They concluded that when the view derived from client management, the auditors responded with more skeptical judgments than when the view arisen from the partner or no view was prepared. In addition, external viewpoint (which emphasizes that management representations should be viewed with doubt) generally enhances the level of skepticism of management’s view than an internal viewpoint.

In another experimental study, Plumlee et al. [26] investigated training auditors to think skeptically among audit professionals. Results show that participants who received both divergent and convergent training were more likely to create and eventually choose the correct explanation compared to those who received only one kind or no training. Additionally, divergent thinking training increased both the number and quality of interpretation created for an unusual condition.

Carpenter et al [5] investigated the incremental advantages of a forensic accounting course on skepticism and fraud-related judgments. Their sample was undergraduate and graduate accounting students. Participants show more PS after finishing the forensics course than when they began. Also they exhibit more skepticism when they used training. Moreover, the judgments of students trained in forensic accounting were similar to those of a group of experts. Nolder [22] examined the professional scepticism construct through the lens of attitude theory. He examined elements that affect in shaping a skeptical attitude. Particularly, auditors’ sentimental reactions in high level of uncertainty settings will influence their degree of skepticism.

Brown et al [3] investigates on effects of earnings forecasts and heightened PS on the outcomes of client-auditor negotiation among audit professionals. They show auditors who bear heightened PS are less likely to agree to client preferences than auditors who do not have heightened PS. This effect is more significant when the client has incentives to manage earnings. Carpenter and Reimers [4] worked on effects of a partner’s force and the attendance of fraud on auditors’ fraud judgments and actions among audit professionals of various firms. They showed when auditors are responsible to a superior who emphasizes PS, audit managers make higher fraud risk assessments and responded to the risks with suitable audit procedures when fraud is present, compared to those audit managers accountable to a partner who does not stress PS.

Skeptical action:

Wang and Tuttle [37], King and Dopuch and Bowlin et al [2] examined auditor rotation and its relationship with PS. King and Dopuch conclude that the imposition of mandatory auditor rotation decreased willingness to bias reports in favour of management, relative to the regime in which neither mandatory auditor rotation nor mandatory retention was imposed. Wang and Tuttle [37] show the same results as mandatory rotation results in the auditor being more likely to adopt non-cooperative negotiation strategies between auditors and management. The result of Bowlin et al [2] show when auditors assess managers’ honesty, auditor rotation decreases the trust of auditors on managements’ presented by financial statements and increases audit effort. But, if auditors evaluate managers in terms of their potential dishonesty, auditor rotation increases the trust that auditors place in managers’ representations and decreases audit effort.
Griffith et al. [11] investigate auditing complex estimates. They study audit professionals and PCAOB inspection reports. They find that auditors be inclined to concentrate on given auditing management’s process for reaching to estimates, rather than trying to determine the estimated amount independently and then confirming their estimate with management’s. Auditors over trust in management assertions, fail to accept external evidence conflicts with management assumptions.

Kim and Yi [18] in their archival study investigate external environmental characteristics. They wanted to know whether auditor appointment by the regulatory authority improve audit quality or not? They find that firms with appointed auditors are less likely to report income-increasing accruals. They also find that firms with compulsory auditor change have lower discretionary accruals accruals compared to firms with voluntary auditor change.

Patel et al [24] study cultural influences on judgments of professional accountants in auditor–client conflict resolution. They find that cultural values influence the judgments of professional accountants with regard to auditor-client conflict resolution. Particularly, Australian professional accountants are less likely to resolve audit conflicts by concurring to clients than Indian and Chinese Malaysian accountants, and are also less accepting of determining audit conflicts in this way.

Research methodology:

Statistical population and sample:

Statistical population in this research is consisting of Iranian Accepted Certified Public Accountants (IACPAs) practitioner in auditing profession. To calculate sample volume, we used Cochran method. For population compound around of 1400 members, 154 people considered as the research sample.

\[ n = \frac{Z^2 \cdot p \cdot q \cdot N}{d^2(N-1) + Z^2 \cdot p \cdot q} \]

According to mentioned formula, the quantity of sample is equal to 154 people. We distributed 350 questionnaire forms randomly to independent auditors and achieved 219 correct reliable answer from them, which is sufficient.

Research type and method:

We can categorize this research in both fundamental and applied researches, because of its objective that is developing knowledge and awareness about PS in accounting profession. We can classify this research, in terms of its instrument in collecting data that is by questionnaire, in survey-descriptive classification. Also, it is considered as deducting and library kind of researches, because of its theoretical framework and literature review. Collecting data and conclusions, to accept or reject hypothesis and measurement of variables, performed in inductive method by means of standard questionnaire. The variables mentioned in main questions of this research are considered as latent variables, that they are measured by different questions in questionnaire. Six latent variables that have potential effect on PS, according to literature review of the research, generally are respectively, questionning mind, suspension in judgment, search for knowledge, interpersonal understanding, self confidence and self determination; that are defined subsequently:

Questionning Mind is continious curiosity about this assertion that if collected evidence and information confirm not existance of important missatements. Suspension in judgment is to perform professional care in investigates, and achievement of essential information from different resouces. In the other words, auditor shouldn't represent an opinion until he or she collect reliable documents to confirm issued opinion. Search for knowledge differs with questionning mind. Questionning mind refers to be skeptic and deisbelieve assertions of management, whereas search for knowledge stresses on curiosity attribute. search for knowledge has a general and overall viewpoint, and its objective isn't changing achiened results or getting new conclusions and specific information. Interpersonal understanding considers incentives and integrity of evidence providers people. Self-confidence is inner silence of people and not to be panicky and anxiety at the moment of professional judgment. Self-determination means that each auditor should be able to evaluate and conclude results independently, by means of enough and reliable evidence.

As well as control variables in this research are gender, age, ownership of audit firm, and employment position.

Measurement of variables:

In this research, we used Hurtt's [14] questionnaire to measurement of PS. To investigate whether distribution of scores of PS scale is normal, Kolmogorov-Smirnov test has been used, and to examine reliability of research instrument we used Cronbach's Alpha, and to evaluate of validity of questionnaire we employed step by step extraction method by means of maximum likelihood approach. This method is the best for Confirmatory Factor Analysis (CFA) researches. We used factor analysis to achieve our purpose to present an applicable model. Also to recognition of political patronage of government, we compare variations in PS based on
variations in ownership of auditing firms. Hypothesis tests in this study have been performed by use of factor analysis and structural models. CFA has been used as research method. CFA is a subset of factor analysis approach, that itself be considered as subgroup of correlation methods. Also, we used PASW ver. 18, and Lisrel ver. 8.0 as softwares of research to data analysis.

The main dependent variable investigated in this research is auditors' PS. By means of various factors that have potential effect on PS, we can present a model to fundamental analysis of PS and its functions, as an essential part of audit profession.

Dependent variable (PS in auditing) contains six mentioned factors, that is measured by Hurtt's questionnaire [14]. This questionnaire encompasses thirty questions to measurement of six latent variables by Likert distribution.

Research hypotheses:

Based on objectives of the research, generally we can say that we are going to know what is determinants of PS, and does affect firms' ownership on auditors PS? Therefore, hypotheses of research are respectively: Governmental firms auditors' PS has a meaningful relationship with their attribute such as search for knowledge; suspension in judgment; self-determination; questioning mind; interpersonal understanding; self-confidence; and search for knowledge. Also, we can order mentioned hypothesis for private audit firms. In next step, we compare auditors' search for knowledge; suspension in judgment; self-determination; questioning mind; interpersonal understanding; and self-confidence attribute in governmental and private audit firms. Finally, we consider level of auditors' PS in governmental and private audit firms.

Research findings:

Descriptive statistics:

Gender distribution of statistical sample shows that about 71 percent are men and residual 29 percent are women. Age distribution of participants shows that 47 percent of auditors placed in 21 to 30 years old group, 43 percent placed in 31 to 40 years old group, and residual 10 percent of them placed in other groups by age.

Also, about 60 percent of the participants are senior auditor level, 23 percent at partner level, 10 percent in manager level, and other 7 percent are partners. Tables 1 and 3 show descriptive statistics of self-determination, search for knowledge, self-confidence, suspension in judgment, interpersonal understanding, and questioning mind attributes in governmental and private firms. According to these tables the mean of scores of self-determination, search for knowledge and self-confidence in private firms is higher than governmental counterparts, whereas the mean of scores of suspension in judgment, interpersonal understanding, and questioning mind attributes in governmental firms is higher than private audit organizations.

<table>
<thead>
<tr>
<th>Statistics</th>
<th>Self-determination</th>
<th>Search for knowledge</th>
<th>Self-confidence</th>
<th>Supension in judgment</th>
<th>Interpersonal understanding</th>
<th>Questionning mind</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median</td>
<td>4.167</td>
<td>4.667</td>
<td>4.400</td>
<td>5.000</td>
<td>3.800</td>
<td>4.667</td>
</tr>
<tr>
<td>Mode</td>
<td>4.17</td>
<td>4.50</td>
<td>4.40</td>
<td>5.80</td>
<td>3.80</td>
<td>5.00</td>
</tr>
<tr>
<td>St. deviation</td>
<td>0.518</td>
<td>0.593</td>
<td>0.869</td>
<td>0.774</td>
<td>0.625</td>
<td>0.815</td>
</tr>
<tr>
<td>Minimum</td>
<td>2.33</td>
<td>2.83</td>
<td>1.40</td>
<td>1.60</td>
<td>2.50</td>
<td>2.07</td>
</tr>
<tr>
<td>Maximum</td>
<td>5.80</td>
<td>5.83</td>
<td>6.00</td>
<td>6.00</td>
<td>5.60</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Hypotheses test:

First of all, to hypotheses test we have to examine whether distribution of scores is normal. To do this, we used Kolmogorov-Smirnov test. Results show normal distribution of scores of PS scale. Since conclusions of this research is exactly based on distributed questionnaire among auditors, then to generalize results of sample to population of auditors, we have to examine reliability and validity of that. Reliability is a measurement instrument that mainly focuses on precision of raised results. Validity refers to precision, stability and repeatability of results of study. To investigate of reliability of research instrument we can use Cronbach's alpha based on standardized items. According to table 3, Cronbach's alpha coefficient of overall model is 0.786 that indicate a good result. Also, table 4 represents Cronbach's alpha coefficient of individual latent variables of PS.
Cronbach's alpha coefficient, which represents reliability of research implement, for four variables is less than 50 percent and utmost 0.626 for the attribute of suspension in judgment. If coefficient of Cronbach's alpha was greater than 0.7, then we can conclude that examination has acceptable reliability. Thus albeit Cronbach's alpha of model is higher than 0.7, but most of attributes have values less than 0.5, and this means that results of 30-item scale may has not enough generalizability, thus we have to justifity model of 30-item scale and improve Alpha coefficient and overall fitness of model.

Another problem that we have to investigate in questionnaire is its validity. Validity of examination means its ability to measurement of attribute that examination has made for it. To consider validity we used step-by-step extraction in maximum likelihood approach. This method is most appropriate manner in confirmatory factor analysis (CFA). CFA contains a set of statistical approaches to make a model for relationships of independent and dependent variables (structural model), and latent and observable variables (measurement model). In statistical analysis, covariance matrix of measured variables is used and its main objective is examination of structural relations based on theories and available findings of studies.

In factor analysis, it must first ensure that if we can use the data in analysis. In other words, the number of desired data is suitable for factor analysis or not? For this purpose, the KMO scale and the Bartlett test is used. KMO scale investigates the partial correlation between variables and it is a measure of adequacy of sampling and indicates whether the variance of variables influenced by variation of some of latent or observable variables. The range of this index is between zero and one, and if the index is close to one, then data are suitable for factor analysis and otherwise (usually less than 0.6), the results of factor analysis are not enough relevant.

Bartlett's test also checks whether the correlation matrix is known, and thus to identify the structure (factor model) will appropriate because of the hypothesis of a known correlation matrix is rejected.

Table 3 shows the KMO value is equal to 0.76 that is more than 0.6, and indicating competency of sampling. Bartlett test value is smaller than 0.50, which indicates no identity matrix. Thus, we can use factor analysis to explain structure of the model.

The table indicates that the model composed of 30 items is not reliable and 20 items of the questionnaire have communalities less than 0.5. Thus, to achieve the proper fit of the model we can eliminate items that have communalities less than 0.5 by means of maximum likelihood approach. The maximum likelihood method is the most appropriate method in confirmatory factor analysis. For example, the first item that should be removed is the fifth item of interpersonal understanding latent variable, because its communality is equal to 0.115. If we use this method, we will achieve to a model by KMO of 0.8 and the RMSEA fit index of 0.089. Other features of the model are as follows:

According to results of fit, these indices indicate a poor fit of the basic model by method of stepwise variable elimination for PS. Therefore, we used Lisrel software to do study more accurately and achieve a proper fit of model. In this method, items that have less explanatory power for the variance of errors excluded respectively in terms of the minimum coefficient of determination R2 and in each step, overall fit indices examined.
As noted earlier, the Lisrel default method in structural equation modeling, is the maximum likelihood method. This method estimates a set of parameters and based on the initial values, the fitness function is calculated. This function describes fitness of parameters by research data. In this way, to achieve a smaller fitness function calculation of the second estimate adjusted based on preliminary estimates. This process continues until formation of the smallest fitness function. In this research, this method is used to achieve the optimal model.

Total 30 items together were not capable to forming a model because error covariance was negative. This problem was resolved by removing six items, and finally a model with 23 items was formed.

Table 5: Steps to optimizing measurement model of PS

<table>
<thead>
<tr>
<th>Number and name of latent variables</th>
<th>Number of items</th>
<th>Minimum R²</th>
<th>Goodness of fit indices</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>RMSEA</td>
</tr>
<tr>
<td>Search for knowledge, Suspension in judgment, Self-determination, Interpersonal understanding, self-confidence, and questioning mind (6 indices)</td>
<td>23</td>
<td>0.068</td>
<td>0.089</td>
</tr>
<tr>
<td>Search for knowledge, Suspension in judgment, Interpersonal understanding, self-confidence, and questioning mind (5 indices)</td>
<td>18</td>
<td>0.16</td>
<td>0.095</td>
</tr>
<tr>
<td>Search for knowledge, Suspension in judgment, Interpersonal understanding, self-confidence, and questioning mind (4 indices)</td>
<td>14</td>
<td>0.29</td>
<td>0.089</td>
</tr>
<tr>
<td>Search for knowledge, Interpersonal understanding, self-confidence, and questioning mind (3 indices)</td>
<td>13</td>
<td>0.27</td>
<td>0.090</td>
</tr>
<tr>
<td>Search for knowledge, Interpersonal understanding, self-confidence, and questioning mind (5 indices)</td>
<td>11</td>
<td>0.28</td>
<td>0.097</td>
</tr>
<tr>
<td>Search for knowledge, Interpersonal understanding, self-confidence, and questioning mind (4 indices)</td>
<td>10</td>
<td>0.31</td>
<td>0.098</td>
</tr>
<tr>
<td>Search for knowledge, Interpersonal understanding, and self-confidence (3 indices)</td>
<td>7</td>
<td>0.39</td>
<td>0.060</td>
</tr>
</tbody>
</table>

According to the mentioned table, the final model to measure PS includes three latent variables contains searching for knowledge, interpersonal understanding, and self-confidence. Fitness of model is excellent because of its RMSEA, which is equal to 0.06. In addition, chi-square to degree of freedom ratio is 1.25, which shows the model has a perfect fit. Chi-square coefficient is not proper for small statistical samples and in massive samples with positive degree of freedom usually results meaningful responses and must of models will be rejected. Therefore, we used revised criteria such as NFI, IFI, NNFI, GFI, and NGFI, which results of the above table indicates the model has a perfect fit.

In research conducted by Hurtt (2010) investigates influence of six latent variables on auditor’s PS. The structural analysis performed in this study, which was carried out in economic environment of Iran, shows three factors contains suspension in judgment, self-determination, and questioning mind don’t have significant association with PS. Based on the results of factor analysis, 23 question of the questionnaire has been removes. By means of residual seven questions, the best fit has been found. Table 6 shows a summary of the remaining factors.

Table 6: constitutive items to measure optimum model of auditors PS

<table>
<thead>
<tr>
<th>Item</th>
<th>Question</th>
<th>Mean</th>
<th>St. dev.</th>
<th>T-Value</th>
<th>R²</th>
<th>Standardized solution factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kwldge2</td>
<td>I enjoy trying to determine if what I read or hear is true.</td>
<td>4.950</td>
<td>1.1104</td>
<td>Fixed</td>
<td>0.54</td>
<td>0.73</td>
</tr>
<tr>
<td>Kwldge4</td>
<td>I often do not accept something, unless I test its accuracy.</td>
<td>4.556</td>
<td>1.1779</td>
<td>6.68</td>
<td>0.49</td>
<td>0.70</td>
</tr>
<tr>
<td>SIfCn2</td>
<td>have confidence in myself.</td>
<td>4.944</td>
<td>0.9971</td>
<td>Fixed</td>
<td>0.54</td>
<td>0.74</td>
</tr>
<tr>
<td>SIfCn3</td>
<td>I am self-assured.</td>
<td>5.006</td>
<td>1.0394</td>
<td>14.95</td>
<td>0.74</td>
<td>0.86</td>
</tr>
<tr>
<td>SIfCn4</td>
<td>I am confident of my abilities.</td>
<td>4.845</td>
<td>1.1181</td>
<td>14.87</td>
<td>0.72</td>
<td>0.85</td>
</tr>
<tr>
<td>IntUnd3</td>
<td>I am interested in what causes people to behave the way that they do.</td>
<td>4.127</td>
<td>1.3645</td>
<td>Fixed</td>
<td>0.74</td>
<td>0.86</td>
</tr>
<tr>
<td>IntUnd4</td>
<td>I like to understand the reason for other people’s behaviour.</td>
<td>4.361</td>
<td>1.2265</td>
<td>5.27</td>
<td>0.39</td>
<td>0.62</td>
</tr>
</tbody>
</table>
Structural model indicating relationships between exogenous latent variable (PS) and endogenous latent variables (search for knowledge, self-confidence, and interpersonal understanding) has been shown respectively in figure 2 and 3.

Fig. 2: Structural section of model of investigating PS in terms of standardized solutions

Fig. 3: Structural section of model of investigating PS in terms of T-values

Measurement and structural equations of the model estimated by Lisrel software, are listed as below:

<table>
<thead>
<tr>
<th>Measurement Equations:</th>
<th>Structural Equations:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge2 = 0.82*Knowledge, Errorvar.= 0.57, R² = 0.54</td>
<td>Knowledge = 0.75*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>Knowledge4 = 0.83*Knowledge, Errorvar.= 0.71, R² = 0.49</td>
<td>Knowledge = 0.75*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>SilCnf2 = 0.74*SilCnf, Errorvar.= 0.45, R² = 0.54</td>
<td>SilCnf = 0.57*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>SilCnf3 = 0.90*SilCnf, Errorvar.= 0.28, R² = 0.74</td>
<td>SilCnf = 0.57*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>SilCnf4 = 0.95*SilCnf, Errorvar.= 0.36, R² = 0.72</td>
<td>SilCnf = 0.57*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>IntUnd3 = 1.17*IntUnd, Errorvar.= 0.49, R² = 0.74</td>
<td>IntUnd = 0.54*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
<tr>
<td>IntUnd4 = 0.76*IntUnd, Errorvar.= 0.92, R² = 0.39</td>
<td>IntUnd = 0.54*PS., Errorvar.= 0.43, R² = 0.57</td>
</tr>
</tbody>
</table>

Covariance Matrix of Latent Variables:

<table>
<thead>
<tr>
<th>Knowledge</th>
<th>SilCnf</th>
<th>IntUnd</th>
<th>P.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge</td>
<td>1.00</td>
<td>0.43</td>
<td>0.43</td>
</tr>
<tr>
<td>SilCnf</td>
<td>0.43</td>
<td>1.00</td>
<td>0.43</td>
</tr>
<tr>
<td>IntUnd</td>
<td>0.43</td>
<td>0.31</td>
<td>1.00</td>
</tr>
<tr>
<td>P.S.</td>
<td>0.43</td>
<td>0.31</td>
<td>1.00</td>
</tr>
</tbody>
</table>

Chi-Square=25.45, df=11, P-value=0.00783, RMSEA=0.060
In each equation for free parameters (for example, Knowledge4) three types of information are provided. These are: estimated values not standardized; the standardized error; and T-statistic. For example, the equation reveals the relationship between the Knowledge variable and Knowledge4, shows the estimated value equal to 0.83, the standardized error equal to 0.12, and T-value equal to 6.68. But in fix parameters (such as Knowledge2), T-statistic doesn’t calculated. Not standardized parameters estimates indicate proportion of change in dependent variable, with each unit change in the independent variable, while the other independent variables assumed be constant. Direction of changes is determined through positive or negative sign of the parameters, so that the positive sign represents an increase in value of the dependent variable and vice versa. For example, the first equation of structural section of model shows each unit change in PS, causes 0.54 increases in the interpersonal understanding. Therefore, estimations in these models are similar to the standard estimates of regression coefficients in the regression analysis.

In the above equations, standard error is shown in parentheses below the parameter estimates. The statistic shows the accuracy of estimation of parameters. The smaller standard error indicating that it is precisely estimated, although the standard error of zero values can be problematic.

Another statistic is given in calculations is squared multiple correlation R² that is similar to R² in regression analysis and shows how much variability in dependent variable explained by independent variable(s) in the equation. Cronbach's alpha coefficient of model with seven items is equal to 0.757, that is higher than critical level of 0.6, to confirm the adequacy of the sampling results indicate that, despite the relative be stabilized alpha coefficient (0.786 in 30-items model, to 0.757 in 7-items model), but the fit indices in Table 7 has improved considerably.

Table 7: Comparison of fitness indices of initial model and improved model of measuring PS

<table>
<thead>
<tr>
<th>Goodness of fit indices</th>
<th>Initial model (24-items)</th>
<th>Optimum model (7-items)</th>
</tr>
</thead>
<tbody>
<tr>
<td>RMSEA</td>
<td>0.086</td>
<td>0.060</td>
</tr>
<tr>
<td>NFI</td>
<td>0.82</td>
<td>0.97</td>
</tr>
<tr>
<td>NNFI</td>
<td>0.84</td>
<td>0.97</td>
</tr>
<tr>
<td>CFI</td>
<td>0.85</td>
<td>0.98</td>
</tr>
<tr>
<td>IFI</td>
<td>0.86</td>
<td>0.98</td>
</tr>
<tr>
<td>St. RMR</td>
<td>0.078</td>
<td>0.034</td>
</tr>
<tr>
<td>GFI</td>
<td>0.83</td>
<td>0.98</td>
</tr>
<tr>
<td>AGFI</td>
<td>0.79</td>
<td>0.95</td>
</tr>
<tr>
<td>Chi square to degree of freedom</td>
<td>3.48</td>
<td>1.25</td>
</tr>
</tbody>
</table>

According to Tables 8, KMO coefficient of optimized model is equal to 0.727, which is in acceptable range. In addition, 77 percent of the variance is explained by three factors.

Table 8: Evaluating fitness of improved model

<table>
<thead>
<tr>
<th>KMO and Bartlett's Test</th>
<th>Approx. Chi-Square</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</td>
<td>832.553</td>
<td>.000</td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td>21</td>
<td>1000</td>
</tr>
</tbody>
</table>

Communalities:

<table>
<thead>
<tr>
<th>Initial</th>
<th>Extraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge2</td>
<td>0.321</td>
</tr>
<tr>
<td>Knowledge4</td>
<td>0.300</td>
</tr>
<tr>
<td>SICnfd2</td>
<td>0.482</td>
</tr>
<tr>
<td>SICnfd3</td>
<td>0.606</td>
</tr>
<tr>
<td>SICnfd4</td>
<td>0.586</td>
</tr>
<tr>
<td>IntUnd3</td>
<td>0.338</td>
</tr>
<tr>
<td>IntUnd4</td>
<td>0.295</td>
</tr>
</tbody>
</table>

Extraction Method: Maximum Likelihood.

Total Variance Explained

<table>
<thead>
<tr>
<th>Factor</th>
<th>Initial Eigenvalues</th>
<th>Extraction Sums of Squared Loadings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td>2.967</td>
<td>42.384</td>
</tr>
<tr>
<td>2</td>
<td>1.375</td>
<td>19.638</td>
</tr>
<tr>
<td>3</td>
<td>1.050</td>
<td>14.999</td>
</tr>
</tbody>
</table>
Other findings:

In the previous section, it was shown that PS is affected by auditors' search for knowledge, self-confidence and interpersonal understanding. In this section, the effect of independent variables affecting on PS, along with control variables including gender, educational level, occupational level, kind of audit firm ownership, age and duration of their employment is investigated by factor analysis.

Based on the results of the factor analysis, the factors influencing PS by auditors include kind of audit firm ownership, age of respondents, and the duration of their employment. Test results of the factor analysis indicates that in our statistical sample, age, gender and educational level do not correlate with PS and it is impossible to develop a model by means of them.

Fig. 4: Factor analysis results entails control variables

Based on the results of the factor analysis (Figure 4), it was found that factors affecting on auditors' PS are search for knowledge, self-confidence, interpersonal understanding, ownership of audit firm, respondent's age and the duration of their employment. Hence, formula of auditors' PS would be as follows:

\[ Y = 0.34X_1 - 0.99X_2 - 0.94X_3 + 0.77X_4 + 0.56X_5 + 0.54X_6 + \varepsilon \]

Subject to:

- \( Y \) = Auditors' PS
- \( X_1 \) = Firm ownership
- \( X_2 \) = Age
- \( X_3 \) = Duration of employment
- \( X_4 \) = Search for knowledge
- \( X_5 \) = Self-confidence
- \( X_6 \) = Interpersonal understanding
- \( \varepsilon \) = Residual errors

Referred equation shows examined relationships. Type of firm ownership has a positive correlation with PS and duration of auditors' employment has a negative correlation with PS. It means that in private audit firms' auditors has more PS. In addition, by increase of age of auditors and duration of their employment, PS of auditors will reduce simultaneously.

We used t-test to compare mean of two statistical populations. Comparing the results also indicate that among factors determinant the extent of PS, search for knowledge, self-confidence and interpersonal understanding are different among public and private firms. Furthermore, self-determination, suspension in judgment, and questioning mind in both private and public firms has no significant difference. Table 9 indicates the mentioned results.
In a specific industry on skeptic

significant association between questioning mind and PS is inconsistent with
it risk contracts, it is suggested that audit firms use auditors with higher professional
hallenging work done by customers, continuous
rpenter
gument, self

In the other words, the answers may be thei
questi

Research limitations

recommended.
and positive relations between auditors' independency and skeptic actions for future rersearches will be useful and
reseaning and skeptic judgments, emotions and skepicism, customer uniformity and auditors' skeptical judgments,
72x192]experience. In this regard, it is suggested to study massive effects of speciality i
CPAs.

used for audit organizations and other relevant institutions in
appr

furthermore, its suggested to improve PS among auditors, this subject should be considered in performance
planning and policy making, to recruit auditors and
planners

forensic accounting courses causes more PS than the past. Also, the influence of auditors' employment duration on
PS is accordance with results obtained by Rose [29], and Popova [27].
Therefore, in high audit risk contracts, it is suggested that audit firms use auditors with higher professional
experience than others. Because these personnel have more PS. Also, we concluded that gender of auditors has
no significant impact on their PS; thus, it is suggested in universities’ student recruitment or in audit firms’
employ both males and females can be used without concern of loss of PS.

Obtained results in this study about variables of self-confidence and self-determination, is according to the
survey results in research conducted by Rosman [30]. Rosman [30] conclude that auditors who are highly
motivated, regardless of the character of audit firm management support or type of firm ownership, shows more
skepic, attribute. The results of search for knowledge, is a

obtained results in this study about variables of self-confidence and self-confidence, and interpersonal understanding; and control variables
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The results show that control variables influence on PS, unlike the investigation of Hurtt [14], representative
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go to test for Equality of Means

Table 9: Comparing mean scores of PS determinants in private and public sector

<table>
<thead>
<tr>
<th>Factor</th>
<th>Levene's Test for Equality of Variances</th>
<th>-test for Equality of Means</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>Sig.</td>
</tr>
<tr>
<td>StfDm</td>
<td>3.374</td>
<td>0.067</td>
</tr>
<tr>
<td>Knwldg</td>
<td>4.396</td>
<td>0.017</td>
</tr>
<tr>
<td>StfCsr</td>
<td>1.000</td>
<td>0.989</td>
</tr>
<tr>
<td>SusJdg</td>
<td>1.043</td>
<td>0.208</td>
</tr>
<tr>
<td>IntUnd</td>
<td>2.248</td>
<td>0.135</td>
</tr>
<tr>
<td>QstMnd</td>
<td>202</td>
<td>0.653</td>
</tr>
</tbody>
</table>

Conclusions and Suggestions for future researches:

As already mentioned, the purpose of this paper is to further clarify the operational concept of PS, and the factors
affecting on it. Results show that among the six factors derived from the model of Hurtt [14], PS is influenced by three
factors include search for knowledge, self-confidence, and interpersonal understanding; and control variables
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obtained results in this study about variables of self-confidence and self-confidence, and interpersonal understanding; and control variables
including audit firm ownership, age and duration of auditors' employment are influential on PS.

Lack of communication factors such suspension in judgment, self-determination, and questioning mindset with auditors’ PS is inconsistent with with investigation of Hurtt [14], but influence of three variables, contains search for knowledge, self-confidence and interpersonal understanding, is accordance the results of Hurtt [14]’s research on PS.

Aforesaid results suggest in admission of auditors we have to attend and concentrate on individual characteristics of applicants, such as their effort to search for knowledge, self-confidence, and interpersonal understanding, and proportionate to appraised risk level of various customers, audit firms should use auditors that are able to get good grades in PS. Furthermore, it's suggested to improve PS among auditors, this subject should be considered in performance appraisals of auditors in audit firms and professional participants in auditing.

The results of this study provide useful information about the factors affecting auditors' PS. These results can be used for audit organizations and other relevant institutions in planning and policy making, to recruit auditors and CPAs.

For future research It is suggested to investigate whether skepticism attribute can influenced by education or experience. In this regard, it is suggested to study massive effects of speciality in a specific industry on skeptic judgments and actions. Also, survey of the role of motivation in skeptic judgments, relationships between moral reasoning and skeptic judgments, emotions and skepticism, customer uniformity and auditors’ skeptical judgments, and positive relations between auditors’ independency and skeptic actions for future researches will be useful and recommended.

Research limitations:

All researches may confront with some limitations. The main limitation of this study is using of questionnaire to collect information that is considered as an inherent limitation. Although questionnaire measures understanding and perception of people about reality, but their perception may not reflect the reality. In the other words, the answers may be their personal interpretation of reality.
REFERENCES


