A STUDY OF THE AUDIT INHERENT RISK: EVIDENCE OF EMERGING ECONOMY

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ABSTRACT
Auditors should determine inherent risk and control risk of financial statement material accounts during audit planning, and plan substantive procedures so as to decrease the detection risk to an appropriate level. Iran Audit organization has proposed the rate of inherent risk in some account balances level. This study aims to evaluate the rate of inherent risk in certain account balances level from the independent auditor's viewpoint and to determine whether they agree with the proposed percent by audit organization or not. So, some researches conducted on methods of evaluating inherent risk in account balance level are studied here and the resulting result was that evaluation are in terms of assessments of management assertions. Therefore, the average of five management assertions has been considered as the inherent risk level. It is concluded that generally speaking main differences between independent auditor's ideas and the proposed percent by audit organization concerning inherent risk rely on cash, purchase of the raw materials and commodity, wages, movable fixed assets and material consumption accounts, and there's no significant disagreement in other issues.

Keywords: Audit, Audit risk, Inherent risk.

INTRODUCTION
Today's society needs to have reliable financial information to survive. However, the purpose of those who try to put these pieces of fact together is different from the people who use them, so it is necessary to have some independent auditors, using their professional efficiency and honesty, determine whether the financial data clearly reflects reality or not (Salehi, 2008; Mieck et al, 1992). This wouldn't promise to detect all kinds of misstatements, though it may assure us of there not being some main misstatements. Considering the situations, auditors first decide to accept what extent of audit risk, and then try to plan and manage auditing, so as to keep audit risk in a certain level (Rezaazadeh, 2005).

According to article 11, Code 40 of auditing standards of Iran "auditor should estimate the inherent risk in financial statement level to make a general scheme and relate it to main account balance or to material classes of transactions, or may it assume their relevant inherent risk is high" (Rezaazadeh, 2005). If the auditors estimate the control and inherent risk more than what really is, auditing will be done more than what is actually needed, and it will decreases the sources uselessly. Contrary to this, estimating the control and inherent risk lower than what is real, will destroy the effectiveness of auditing that leads to complaints made against the auditor (Monroe and Ng, 2006).

In 2000, the American Institute of Certified Public Accountants (AICPA) scrutinized instances on which auditors having failed to detect the clients' fraud, led to the conclusion that in 44% out of 45 investigated cases, the reason was false audit planning. One of the factors relevant to audit planning was a failure in the proper assessing the inherent risk and balancing the audit planning based on this.

Wolligh (2004) conducted a study on factors with a high risk in long-term financial statements of insurance companies, listed from South Africa, in order to find certain account, potentially exposed to statements of insurance companies at South Africa. He asked the auditors to evaluate each of the assertions concerning special account balance as the inherent risk of that account or significant factors of insurance industry in the form of matrices, and considered the average inherent risk in a level to five assertions regarding each of the account titles as the inherent risk of that account. The research indicates that "policy liabilities" and "operating profit from long-term insurance activities" are potentially exposed to a significantly higher level of inherent risk than the other insurance-specific elements of the financial statements of long-term insurers.

In 2002, Iran Audit Organization, in publication No. 150 stated that "revised sections approaching audit risk management", has offered specific percent of
inherent risk at the account balance level for some certain accounts. The main issue, here, is that if the independent auditors agree with these offered percents.

**Audit Risk Model**

Audit risk model refers to that kind of risk so that auditors cannot consciously change their ideas in accordance with misstated financial statements (Noravoshi et al., 2004). The inherent risk is composed of components like inherent risk, control risk and detection risk.

Inherent risk is the probability of a significant misstatement occurring in an account, assuming the fact that there is no internal control for it. Control risk is the condition in which the client's internal control cannot prevent or detect a significant misstatement; while detection risk is that the auditing methods lead to the conclusion that there may be no significant misstatement in an account, though the account has actually one. Audit risk model is applied in both financial statement level and account balance level or material classes of transactions and its integrated components are expressed as follows: AR = IR × CR × DR. Audit risk model maybe used in planning and dividing audit tasks in a great activities, since it determines areas with a higher inherent risk and/or a lower internal control, so auditors can get the best benefit of the resources (Woodhead, 1992).

In other words, because the content tests cost much, doing them can increase the efficiency of audit only to a proper level for affecting audit (Dusenbury et al., 2006). Cossert (2004) explains the concept of audit risk model in "Modern Audit" resembling it to raindrops falling from a cloud which contains errors caused by the type and business identity of the client. These raindrops are referred to as the inherent risk. The first filter on the method of falling down the drops is the internal control system of the company. To evaluate how this filter cause the fall to stop, forms the auditors' assessment of control risk level. The second filter is the content test, managed by auditors. Assessing how this filter prevents the fall passed through the first filter to flow further, shows the detection risk level. So, audit risk is the probability of passing the raindrops through both filters and falling to the ground- which is the financial statement errors occurred, but didn't get detected by internal control system content tests.

Woodhead (1992) illustrated the audit risk model as in figure 1:

![Figure 1: Ladder Tree Diagram to Illustrate Alternative Audit Paths](image)

In the above first path, some of the occurred errors haven't been detected by means of internal controls and auditors tests. This way audit risk will be IR × CR × DR. Path 2 happens when the auditors would detect main errors not through internal controls, but by his tests; so, the insurance level will be against the risk, the percent of which is equal to one minus the risk percentage. That is the sum of detected main errors as compared to the existed main errors in the accounts. Therefore, the audit risk in this case will be IR × CR × (1-DR). In the same way, main errors having been detected and/or by prevented internal controls, the audit will flow in path 3 and there's no need to the content test anymore, so DR will be neglected and audit risk will be expressed as IR × (1-CR). In case, main errors never occur in a company, resultant auditing will be through path 4. Explaining these all, Woodhead said that the auditing procedure would take one of the mentioned paths. During his planning, the independent auditor wants the auditing process to take the first path. If he detects some main errors, he will take the second. The internal auditors mainly considers path 3 and ignores the fourth, since he cannot assume there'd be no main error at all.

In addition, Dusenbury et al. (1996) in a risk assessment, agreed-based model against a probability-based model and believe that Belief-based one would express auditor's ideas much better. For example, in case the auditor tends to ignore factors of inherent risk, he would consider it 100%. A probability-based model proposes that this means indeed there is some errors in the balance account, while this is not what the auditor really has in mind. Similarly, if the auditor evaluates the inherent risk equal to 70 per cent, according to probability-based model, there's a 70% possibility-led to the results that maybe the account balance is wrongly stated- and a 30% probability of no main error at all. However, in an Belief-based model, auditor will continue surveying until he decides that there's no main error in financial statements, but he evaluate the risk as 70%, i.e. there's a probability of 70% ignoring the inherent risk factors and just being aware of, and examining the 30% of them. This means main errors to an auditor would be regarding the probability of his being partly aware of the risk factors, but to 100% there may be no error at all. Moreover, Dusenbury et al. (1996)
said that many audit companies, apply the audit risk model based on rank assessment by means of terms like high, middle, low. This approach is examined along probability-based and agreed-based that manages the assessment in a quantitative manner.

Stone and Dilla (1994) came to a conclusion, everhow to assess the risk that auditors agree together mostly when they express their judgments through numbers rather than with words. In general, the results show that numerical expressions improve on the risk judgments by auditors.

INHERENT RISK

Hitzig (2001) defines the inherent risk as “an auditor’s impression of susceptibility to misstatement to form the basis for reasonable assurance, even though no audit procedures have been performed”. Inherent risk should be evaluated at the two following levels: generally at the financial statement level and at the level of claims concerning each of material account or classes of transactions. The inherent risk at the account balance depends on the identity and instinct of each account. Some accounts can be more misstated than others, and as a result would have a higher inherent risk than assessing inherent and control risk contains professional judgment, specially as to the inherent risk.

Richie and Khorward (2007) noted that the extent of inherent risk is determined by professional judgment. This can be between 50 to 100 percent. This way, a high inherent risk, respectively equals to 100, 75, and 50 percent (Rezaadad, 2005). Other researchers, as Messier et al, (2000) and Maletta (1993) estimated the inherent risk among zero to 100.

LITERATURE REVIEW

There has been some researches done on factors affecting inherent risk, for instance, Monroe's sampling frame in 1993 included 48 factors, 42 of which were of inherent risk and 6 were of control risk, that were called the most relevant factors in statements, instructions and auditing texts. The study led to the conclusion that financial pressure, frequent change or discharge of managers, application of subsidiary ledger of account receivable to ledger management unwillingness of accepting audit adjustments and the record of errors in account balances are of most important factors in computing inherent risk (Rezaadad, 2005).

Culp (1988) has studied how auditors assess inherent risk for inventory. So, the four inherent risk factors have been tested that includes: turnover of the controller, financing pressure, amount and complexity of overhead in inventory and the quality of personnel. The result reasoned that the quality of personnel has won the attention of auditors. Boritz et al, (1987) explains that liquidity problems, a history of errors and fraud, inventory levels, occurrences of charging and discharging the managers, the strength of internal control are some factors including inherent risk. Other researches on inherent risk spin around inherent risk and factors influencing it (Helias, 1996).

Braun (1995), in his case study over a sampling frame of 210 auditors, reported that the average of evaluating inherent risk for each of the three assertions of completeness, existence and accuracy for both of the account balance of inventory and accounts receivable, middle and assessing inherent risk for valuation assertion, has been high. According to this conclusion, auditors mind the valuation more than any other assertions. Moreover, Braun (2000) reported the impact level of inherent risk factors in four existence, completeness, accuracy and valuation assertions for both inventory and accounts receivable, from the viewpoint of chief managers of one of six main companies, and realized that main inherent risk factors are prior year misstatements, turnover of accounting personnel and competence of accounting personnel.

Shaier et al, (1998) evaluated the perception of the chief auditors’ in main companies in Sydney, Kuala Lumpur, and Auckland in concerning the identity and evaluating inherent risk in risk-based auditing. Some of the main factors in this regard are management's survey, financing pressure, transaction complexities and type of industry. Additionally, results show that two third of respondents evaluated the inherent and control risk distinctly (Shaier et al, 1998).

Hellias et al, (1996), conducted an empirical study in the UK regarding auditors' perception of inherent risk, applied a comprehensive list of inherent risk factors containing inherent risk factors at account balance level, and at financial statement level. Results show some factors such as the ratio of charging high ranked managers and the reward which is part of their income similarly would attract auditors.

Hassas Yeganeh and Elizyri (2013) have studied the perception of Iranian auditors of inherent risk, and have found that some variables such as rewards, companies’ ratio of trade risk and records of significant errors are of the main factors used to determine inherent risk.

Monroe and Ng (2000), studied if the order at which we get aware of different risk factors influences the auditors’ evaluation of inherent risk. They concluded that auditors would give the lion’s share to positive factors with a high inherent risk- in their assessments and take careful actions. So, the order of knowing the positive and negative factors with low inherent risk does not influence the assessment of inherent risk.
Taylor (2000) investigated the auditors' risk evaluation to determine the effect of industry specialization. He compared two groups of auditors: the first of whom were professional in banking and the second wasn't. The findings showed that the second group mainly distinguished a higher inherent risk in an asset valuation concerning loan receivables as a special kind of account balance in banking than did the professional group; while the difference in property and equipment account that is general in all industries wasn't that important. Furthermore, the unprofessionals had a lower confidence in their assessment rather than the professionals.

Kin Yew Low (2004) concluded that knowledge of auditors of the client's industry would allow him to do a different evaluation and would affect his nature, quality, and sensitivity in decision making.

Peter et al (1989) also studied how seasoned and professional auditors applied different factors in auditing judgment. They proposed a conceptual model for evaluating inherent risk presented as computer-based software.

A lot of researches has been done on the dependence vs. independence of inherent and control risk. Messier et al (2000) found that four factors of management tending to report the financial outcome at his own will, his motive to neglect controlling methods, efficiency of accounting personnel, and complexity of accounting affairs, will affect both the inherent and control risk.

Haskins and Dirsmith (1993) also studied 48 practical factor in inherent risk and control risk and gain the conclusion that nearly 58% of controlling environment has an equal effect on both inherent and control risks.

Ritchie and Khorwatt (2007) researched the perception and function of Libyan auditors in evaluation inherent and control risk. The result showed that most of auditors, mainly consider the factors of inherent risk for control risk; however, they are expert in distinguishing the factors of control risk.

The actual level of audit risk may be higher than the risk determined by audit risk model, since in this model multiplying the components of audit risk in each other, these components has been regarded as independent. But actually inherent risk is a function of internal control of the client and the control risk as well. So, some of audit institutions, evaluate a combination of inherent and control risk. Since auditors determine the inherent and control risk based on judgment this evaluation can be higher or lower than the actual inherent and control risk of the client. The difference can affect determining the detection and audit risk. However, the audit risk model is an important tool for audit planning.

As a result of different ideas among researchers, the relationship between the inherent and control risk is still a matter of discussion. The issue here is that professional standards allow the auditor to do separate evaluation or assess combination of the inherent and control risk, and said that the method by which auditors study the components of risk and combine them, include professional judgment.

Some researches investigated the relationship of inherent risk and other variables. For example, Mallette (1993) reasoned that inherent risk influences the auditor's decision to make sure of the internal auditor's function.

But Al- Harshani (2003) believes inherent risk has nothing to do with the internal auditor's function, which differed with last researches and professional guidelines that identify a negative relation between the two variables.

Austen et al, (2000) found that inherent risk factors at financial statements, including personal issues, management honesty, and accounting adjustment relate to the detected misstatements.

Elder and Allen (2000) came to the conclusion that the sampling size depends on the auditor's evaluation of both the inherent and control risk and when risk evaluations affect directly on sampling size, auditors tend to estimate the risk lower, in case they would find a lower sampling, this way the relationship in audit risk model will be preserved.

But as Bierstaker and Wright (2001) believe sometimes other individual's desires such as the clients, the partner or even people in society can affect the auditors planning and the selected sampling size, and this causes the relationship in the model to get confusing.

Research hypotheses and Methodology

According to above literature, the below 10 hypotheses were postulated in this study:

**First hypothesis:** The inherent risk of the immovable fixed assets in Iranian companies is less than 50%.

**Second hypothesis:** The inherent risk of the moveable fixed assets in Iranian companies is less than 60%.

**Third hypothesis:** The inherent risk of the trade accounts payables in Iranian companies is under 60%.

**Fourth hypothesis:** The inherent risk of the wages in Iranian companies is under 65%.
Fifth hypothesis: The inherent risk of the inventory in Iranian companies is below 70%.

Sixth hypothesis: The inherent risk of the trade receivables in Iranian companies is below 70%.

Seventh hypothesis: The inherent risk of the sales in Iranian companies is under 70%.

Eighth hypothesis: The inherent risk of the raw materials consumption in Iranian companies is below 75%.

Ninth hypothesis: The inherent risk of the purchasing raw materials and commodity in Iranian companies is less than 80%.

Tenth hypothesis: The inherent risk of cash in Iranian companies is less than 100%.

The research type here is an empirical study, based on the purpose, and is survey considering the data collection method. In order to prepare questionnaire, we first reviewed the works on the ways of assessing the inherent risk at the account balance level, and concluded that evaluations are at the management assertion level. Then, we defined a "relative inherent risk index" and used it to evaluate inherent risk at the account balance mentioned before; so, we take five assertions including completeness, existence, valuation, rights and obligations, presentation and disclosure, and considered the average of these five assertions as the inherent risk of that account balance.

The population of the study includes two distinct groups of Iranian accountants employed in the audit organization vs. those employed in other auditing firms (Audit firms). Here, the frame elements were selected through random sampling, considering this fact that primary information related to pretest implies a maximum standard deviation of individuals' responses as to inherent risk of accountabilities in financial statements of firms equals to 13.520% with a 95% confidence level, at least 45 certified public accountants in a frame of 873 samples, provide 4% precision. In the survey, we applied T-test and in all circumstances considered an invaluable p-value of less than 0.05, and in each of the hypothesis α = 0.05.

Testing Hypotheses and Analyzing

The testing of hypotheses is summarized in Table 1 which hypotheses are as follows:

H1: The inherent risk of the immovable fixed assets in Iranian companies is less than 50%.

With 95% confidence level, on average, the rate of the inherent risk of the immovable fixed assets in Iranian companies is less than 50%, and this verifies the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the immovable fixed assets is between 45.04% and 50.11%.

H2: The inherent risk of the moveable fixed assets in Iranian companies is less than 60%.

With 95% confidence level, on average, the rate of the inherent risk of the moveable fixed assets in Iranian companies is less than 60%, and this verifies the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the moveable fixed assets is between 50.87% and 58.36%.

H3: The inherent risk of the trade accounts payables in Iranian companies is under 60%.

With 95% confidence level, on average, the rate of the inherent risk of the trade accounts payables in Iranian companies is under 60%, and this verifies the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the trade accounts payables is between 54.9% and 58.9%; so, the average evaluation is 3.1% less than what the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

H4: The inherent risk of the wages in Iranian companies is under 65%.

With 95% confidence level, on average, the rate of the inherent risk of the wages in Iranian companies is under 65%, and this verifies the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the wages is between 54.41% and 59.5%; so, the average evaluation is 8.05% less than the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

H5: The inherent risk of the inventory in Iranian companies is below 70%.

With 95% confidence level, on average, the rate of the inherent risk of the inventory in Iranian companies exceeds or equals to 70%, and this rejects the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the inventory is between 68.11% and 72.63%; so, the average evaluation is 0.87% more than what the audit organization had proposed. So, the research hypothesis is rejected and null hypothesis is accepted.
H6: The inherent risk of the trade receivables in Iranian companies is below 70%. With 95% confidence level, on average, the rate of the inherent risk of the trade receivables in Iranian companies exceeds or equals to 70%, and this rejects the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the trade receivables is between 68.23% and 72.73%; so, the average evaluation is 0.47% more than what the audit organization had proposed. So, the research hypothesis is rejected and null hypothesis is accepted.

H7: The inherent risk of the sales in Iranian companies is under 70%. With 95% confidence level, on average, the rate of the inherent risk of the sales in Iranian companies is under 70%, and this confirms the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the sales is between 66.25% and 70.15%; so, the average evaluation is 1.8% less than what the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

H8: The inherent risk of the raw materials consumption in Iranian companies is below 75%. With 95% confidence level, on average, the rate of the inherent risk of the raw materials consumption in Iranian companies is under 75%, and this confirms the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the raw materials consumption is between 66.94% and 73.01%; so, the average evaluation is 5.03% less than what the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

H9: The inherent risk of the purchasing the raw materials and commodity in Iranian companies is less than 80%. With 95% confidence level, on average, the rate of the inherent risk of the purchasing the raw materials and commodity in Iranian companies is fewer than 80% and this confirms the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the purchasing the raw materials and commodity is between 67.42% and 72.52%; so, the average evaluation is 10.03% less than what the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

H10: The inherent risk of cash in Iranian companies is less than 100%. With 95% confidence level, on average, the rate of the inherent risk of the cash in Iranian companies is under 100%, and this confirms the hypothesis. Moreover, considering the upper and lower interval it can be said that with a 95% confidence level, the average evaluation of the inherent risk of the cash is between 86.61% and 91.26%; so, the average evaluation is 11.07% less than what the audit organization had proposed. Therefore, the research hypothesis is accepted and null hypothesis is rejected.

In order to determine the correlation or miscorrelation between the age and the inherent risk of each account title, a Pearson's correlation test has been done separately. Results represent, with a 95% confidence level, there is no significant correlation between the age and inherent risk of account titles. The p-value presented in Table 2 is over 0.05 in all circumstances, i.e. it confirms the H0 with a 95% confidence level. This test also aimed at revealing the correlation or miscorrelation between the auditors' record of service and inherent risk of each of the 10 account titles separately. The results denote that with a 95% confidence, there is no significant correlation between the record of service and inherent risk. The p-value presented in Table 3 is more than 0.05% that verifies the H0 with 95% confidence.

<table>
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<tr>
<th>Hypothesis</th>
<th>Audit Organization Number</th>
<th>Mean Degree of Acceptance</th>
<th>P-Value</th>
<th>Result</th>
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<td>6.205</td>
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<td>56.95</td>
<td>8.005</td>
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</tr>
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<td>62.87</td>
<td>0.785</td>
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<td>Sixth Hypothesis</td>
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<td>79.47</td>
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Table 2: p-value (Pearson's correlation test between the age and the inherent risk of each account title)

Table 3: p-value (Pearson's correlation test between the auditors' record of service and the inherent risk of each account title)

In addition, F-test is used to distinguish if there are some differences between auditor ideas with different audit rank regarding the evaluation of inherent risk of account titles. Results imply there is no significant difference between ideas of partners, supervisors, managers and chief auditors, on inherent risk of any of the account titles. The p-value presented in Table 4 is more than 0.05% that verifies the H0 with 95% confidence.
CONCLUSION

The study was aimed at finding out the inherent risk at some account balance level of financial statements, to offer some percent by the Iranian certified public accountants out of their judgment for compiling an audit plan, and to see if there is a significant disagreement between their ideas and the proposed percent by audit organization. Results of the hypotheses of this survey are declared briefly in Table 7. In general, there has been found any considerable difference between the ideas of the independent auditors and the proposed percentages by audit organization about inherent risk, which equals to 11.07% in cash accounts, 10.03% in purchasing the raw materials and commodities, 8.05% in wages, 5.54% in moveable fixed assets, and 5.63% in the raw material consumption. The differences in other accounts were not much striking, and are recorded as follows: 2.43% in moveable fixed assets, 3.11% in trade accounts payables, 0.87% in inventory, 0.47% in trade accounts receivables, and 1.82% in sales. Therefore, the fifth one (inventory) and the sixth (trade accounts receivable) hypotheses have been rejected with a slight difference.

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