

# Decision-Making Based on Human Resource Accounting Information and Its Evaluation Method

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## Abstract

Skillful and specialized human resources are of vital importance for an organization just like its physical properties and investments. Managers of the organizations spend a lot of money for training and educating their workers and employees in order to increase the efficiency of the organization under their control, but human resources accounting system which should be used for human resources information processing have not been used practically by any organization in Iran. This paper explores firstly, whether investment decisions are affected by human resource accounting information disclosed in the financial statements or not? Secondly it explores as to what factors can interfere in this effect? Thirdly it examines which evaluation method of human resource is the most appropriate method consistent with Iranian companies in terms of qualitative characteristics of accounting information? The results indicate that human resource accounting (HRA) information disclosure in financial statements is relevant and affect on the optimal investment decisions. Furthermore, other results state that the most effective and appropriate evaluating method of human resource consistent with current status of Iranian companies and institutions is the original cost method (Historical cost).

**Keywords:** Cost of human resource, Decision-making, Evaluating methods of HR, Human Resources Accounting (HRA).

## 1. Introduction

Accounting has special position and plays an important role in economic, trade and manufacturing currents (Tomassini, et al. 1977). It is a man-made art and its principles and procedures have been evolved over a long period to aid business in reporting for the management and public. Of the four factors of production, viz., man, money, material and land, the last three of them are amenable to conventional accounting, but the first one, i.e., the human resource has not been subject to such accounting (Carne, Barcons et. al 1995).

Over the last two decades the idea of accounting for human resources is gaining active consideration. So, HRA is not a new issue in economics. Economists consider human capital as a production factor, and they explore different ways of measuring its investment in education, health, and other areas. Accountants have recognized the value of human assets for at least 70 years. Research into true HRA began in the 1960s by Rensis Likert (Bowers, 1973). Likert defends long-term planning by strong pressure on human resources' qualitative variables, resulting in greater benefits in the long run.

Looking at different proposals (Conner, 1991), the resource theory considers human resources in a more explicit way. This theory considers that the competitive position of a firm depends on its specific and not duplicated assets. The most specific (and not duplicated) asset that an enterprise has is its personnel. It takes advantage of their interdependent knowledge. That would explain why some firms are more productive than others. With the same technology, a solid human resource team makes all the difference (Archel, 1995).

HRA has attracted a considerable amount of interest in a comparatively short period of time. Although many works on behavioral and organizational aspects of accounting have been conducted, but research, writings, enthusiasms as well as criticisms and disappointments have greatly flourished in HRA area (Topomy Deb, 2009). Business enterprises often proclaim that their labor force is their most important asset, while at the same time they fail to recognize it in managerial planning, decision-making and in published annual reports. HRA attempts, in most cases, have been directed to an internal, management control perspective. However, the potential usefulness of HRA information would seem to be even greater for the external decision-makers than for the company's management (Jan Bratton, 2003).

There are two reasons for including human resources in accounting (Ripoll and Labatut, 1994). First, people are a valuable resource to a firm so long as they perform services that can be quantified. The firm need not own a person for him to be considered a resource. Second, the value of a person as a resource depends on how he is employed. So management style will also influence the human resource value. The present paper focuses on HRA information in aspects - usefulness, decision- making, valuation and related issues.

## 2. Human Resource Accounting in Aspects Reporting and Decision-Making

The American Accounting Association (1970) defines HRA as "the human resources identification and measuring process and also its communication to the interested parties." The immediate impact of human resource costs on reported profits may lead to decisions that are influenced by tax considerations toward reporting larger or smaller profits for a period.

For example, a manager trying hard to minimize tax payments, will look with great favor on human resource investment that is expensed than on physical resource investment to get a short run tax advantage, while a manager already conscious of the embarrassing aspects of a declining profit trend may favor physical resource investment over human resource investment so as to postpone the impact upon reported profits. HRA could avoid this unintended and unjustified bias.

It may be suggested further that HRA is in itself a way of communicating to the people of an organization that their role is considered valuable and that managers are going to be evaluated, at least in part, on the basis of their contribution to the development of the human resource under their control. If this communication is effective, it will most certainly affect decisions and behavior. The assessment of human resource conditions is likely to encourage managers to take long run view of their decisions (Bino Catusus, 2009). The impact of human resource investments as well as other decisions and management styles are now represented as a human resource condition precedent to the ultimate productivity or effectiveness of the organization.

HRA is not useful to the management alone in achieving its economic goals. It could also be the source of important information for investment decision purposes. The inclusion of appropriate human resource data in published financial statements would, in all likelihood, make such statements for more meaningful in predicting future performance which is, of course, the principal concern of investors (Jawahar Lal, 2009).

When managers go through the process of HRA measurement treating human resources as capital assets, they are more likely to make decisions that treat the company's employees as long-term investments of the company. Flamholtz (1976) describes the HRA paradigm in terms of the "psycho-technical systems" (PTS) approach to organizational measurement. According to the PTS approach, the two functions of measurement are: first, process functions in the process of measurement and second, numerical information from the numbers themselves. Whereas one role of HRA is to provide numerical measures, an even more important role is the measurement process itself. The HRA measurement process as a dual function attempts to increase recognition that human capital is paramount to the organization's short and long-term productivity and growth. When managers go through the process of measuring human resources, they are more likely to focus on the human side of the organization and are more likely to consider human resources as valuable organizational resources who should be managed as such (Sullen, 2007).

### **3. Literature Review**

During the two last decades, several advocates of HRA, including Herman & Mitchell (2008), Flamholtz et al. (2003), Pekin Ogan (1988), Chris Dawson (1994), Flamholtz (2004), Lev & Schwartz (1971), Elias (1972), Hendricks (1976) and others have suggested that HRA could benefit external users of financial statements. External decision makers must know the changes in human assets in order to evaluate properly assets and income. The conventional accounting profit may be misstated and the asset base distorted, if the condition of human assets changes during the period, (Flamholtz, 1999).

Herman Theeke, John B. Mitchell (2008) discussed how reporting under a human resource liability paradigm fits into the traditional accounting framework of contingent liabilities; examine the financial effects of such reporting on market valuation and internal planning; and explore measurement of human resource liabilities. From reviews of financial effects of human resource liability reporting the research logically extends those results to support the proposed paradigm. The paper provides support for the feasibility and need to adopt a human resource liability paradigm for valuing, reporting and managing human resources.

Flamholtz et al. (2003) utilized the HRA measure of expected realizable value, and found that employees' participation in a management development program increased the value of the individuals to the firm. In addition the authors noted that the HRA measures provided upper level management with an alternative accounting system to measure the cost and value of people to an organization. Thus HRA represented both a paradigm or way of viewing human resource decisions, and the set of measures for quantifying the effects of human resource management strategies upon the cost and value of people as organizational resources.

Chris Dawson (1994) indicated relationship between two prescriptive models of HRA - the replacement cost model (RCM) and the stochastic rewards valuation model (SRVM). Investigates not only the operationalization of the two models, but also the reasoning used by managers in determining or arriving at the data. Goes on to discuss the general benefits and limitations of simulation methodologies and how they relate to prescriptive and descriptive approaches to the study of management.

Pekin Ogan(1988) reported the results of a field experiment designed to assess the impact of HRA information on layoff decisions made by managers. The findings of this study indicates that HRA information does make a difference in personnel layoff decisions and enables managers to increase their level of confidence regarding decisions of this sort.

Tomassini (1977) provided to a sample comprising of accounting students, traditional financial information and information containing human resources accounting. HRA information led to remarkable differences in decision-making.

Hendricks (1976) performed a study using accounting and finance students as subjects. His simulated investors made two stock investment/capital allocation decisions, one with and one without human resource cost data. In this research, HRA had a meaningful impact on adopted decisions statistically.

Schwan (1976) considered the effects of human resource cost measures on banker decision-making. He found that the inclusion of HRA data in published financial statements resulted in, one, significantly different ratings of management's preparedness to meet future challenges and opportunities and, two, statistically different predictions of a firm's net income.

Acland (1976) selected a sample comprising of 500 financial analysts and provided financial reports for some of them and reports containing behavioral indexes to some other analysts so that they can make decisions about investments in one or two companies. Insertion of behavioral indexes caused that some analysts would make decision differently from those

who had only financial information. This difference was visible in the analysts who had received HRA information with behavioral indexes. Research was performed about relative impact of disclosure of HRA monetary information versus non-monetary information.

Flamholtz (1976) asked official accountants to select between two persons for occupying a position. He gave three kinds of information to the accountants, traditional information about function, non monetary information about HRA and monetary information about it. This information was given about three cases A, B and C respectively to the accountants. In contrary to Flamholtz's expectation, non-monetary information had impact on decisions.

Nabil Elias (1972) provided 2 groups of financial reports (one, traditional report and another, reports containing HRA information) in his research to the sample including accounting students, financial analysts and accountants. Research results showed that HRA information had meaningful impact on decisions statistically, although the relationship between HRA information and the adopted decisions was not strong.

#### **4. Hypotheses Development**

The Main purpose of the research is to study the impact of provision of HRA information on investment decisions in order to improve the quality of financial decisions made by the groups inside and outside an organization through entering HRA information in total decision making traditional variables. So, the following hypotheses have developed:

Hypothesis 1: The presentation of HRA information has information increasing content.

Hypothesis 2: There is significant relationship between individual's background and experience and impact of HRA information on decision-making.

Hypothesis 3: There is significant relationship between individual's personal viewpoints about assessment of HR and impact of HRA information on decision-making.

Hypothesis 4: There is significant difference between the evaluating methods of HRA with respect to the qualitative characteristics of accounting information.

#### **5. Materials and Methodology**

In this paper the services, investment and manufacturing companies decision makers of Tehran Stock Exchange, were selected as the statistical population in 2009 to do the research by making use of the views and opinions of this expert group. Hence, the research statistical unit is an investment, services and manufacturing active company and member of TSE, while the resource of the collection data are following:

1- Investment experts and analysts and financial managers working in listed companies in TSE.

2- Managers and experts of auditing institutions of Tehran.

The authors selected 68 companies of Tehran Stock Exchange as sample size by using Random Sampling Technique. Furthermore, we distributed 238 questionnaires between investment experts and analysts and financial managers and experts of auditing companies

due to unlimited statistical population, but questionnaires received from respondents was 162.

This research in terms of methodology is a descriptive/correlation research. The tools being used in this research is questionnaire. The responses to structured questionnaire collated by using SPSS software in the significant level ( $\alpha=5\%$ ), and the relevant statistical methods like Mean value, Standard deviation, Correlation coefficient, T-test, F- Test, Chi-square ( $\chi^2$ ) and Compare Means test have adopted to arrive at meaningful conclusions.

## **6. The Questionnaire Design**

The authors have used systematic or closed questionnaire for collecting data. In this case, we have prepared two questionnaires. In the first questionnaire, the financial statements of two hypothetical companies without providing of HRA information were prepared and presented to the members of statistical population and they were asked to allocate Rials 50,000,000 in the above-mentioned companies as investment which is called the first behavior.

In the second questionnaire, the financial statements containing HRA information were distributed among the same members of the population two weeks after collecting the first questionnaire and they were asked to do the same investment again which is called the second behavior. It should be mentioned that the second questionnaire includes 9 questions for measuring the experience variable and 11 questions for measuring individuals' personal viewpoints and finally, with regard to the fourth hypothesis of this paper, a questionnaire including 7 questions has been designed which refers to the degree of possessing primary and secondary characteristics of accounting information for each evaluating method.

## **7. Research Variables**

### *7.1 Dependant Variable*

The dependant variable of this research is the investment decision- making. The concept of Decision making is selection of shares of a company among shares of some different companies on the basis of financial statements information.

### *7.2 Independent Variables*

#### **7.2.1 The Presentation of HRA Information**

This variable was measured through the presentation of financial statements of two hypothetical companies working in the same industry, the same size and are equal in the number of ordinary shares with equal prices.

#### **7.2.2 Background and Experience of Individuals**

Age, Degree of education, Number of years of business experience, The type of occupation, Experience of evaluating stocks, Number of years of managerial experience, The number of studied articles & participated seminars relating to HRA, Number of personal stock transactions, Number of courses completed in accounting and finance.

#### **7.2.3 The Individuals' Personal Viewpoints about HRA**

This variable measured by 11 questions about HRA as follows:

- 1) Companies that disclose more HR information, transaction their shares will be done more easily.
- 2) If the corporations disclose higher HR information in annual reports, the optimal investment decisions will increase by users' groups.
- 3) HRA information reporting will be good marketing to recruit good people.
- 4) HRA information reporting will help investors for performance measurement of managers and entire business unit.
- 5) If companies disclose HRA information properly, the employees will be sure are supported by the company.
- 6) Although the organizations can indicate the employees as asset in balance sheet, they are not owners of the persons.
- 7) Evaluation of human resources leads to behavioral reaction as asset which marks efficiency of the organizations problematic.
- 8) Real status of human resources is evaluated better through discussion with managers until financial statements are referred in this regard.
- 9) In case of evaluation of internal human resources, it is not necessary to evaluate external human resources such as Goodwill resulting from presence of the customers.
- 10) Decreasing or increasing in investment on human resources is disclosed through their submission in the financial statements in better way.
- 11) Presentation of human resources value in financial statements is contrary the Generally Accepted Accounting Principles.

#### 7.2.4 The Most Appropriate Evaluating Method of Human Resource

In this section questions related to the selection of the most appropriate method of applicability have been designed based on theory of accounting measurement. These methods include historical cost, replacement cost, opportunity cost, stochastic method with rewards, estimated feature cost and estimated feature benefits. Qualitative characteristics include objectivity, reliability, relevancy, punctuality, impartiality, cost-effectiveness, adaptability with the current systems of accounting.

### **8. Hypotheses Testing and Findings of The Research**

With regard to the questions mentioned in the questionnaires and based on the results of the information analysis, the research findings can be summarized as follows:

#### *8.1 Hypothesis 1*

As said before, we have used two questionnaires related to the balance sheet and income statement of two hypothetical companies before and after provision of HRA information to

survey of the first hypothesis. After examination, Mean, Standard deviation and Standard error of allocated amount of each hypothetical company (A & B) is summarized in the table 1 & 2.

Table 1. First Behavior: Mean amount allocated in Company A & B

Company	Mean	St. deviation	St. error	Percentage (%)
A	8,435,130	724564	63765.2	83.2 %
B	41,564,870	724564	63765.2	16.8 %

Table 2. Second Behavior: Mean amount allocated in Company A & B

Company	Mean	St. deviation	St. error	Percentage (%)
A	35,456.118	724564	63765.2	70.9%
B	14,543,882	724564	63765.2	29.1 %

As per table 1 the mean amount allocated in Company A was Rls. 8,435,130 in First behavior and Rls. 35,456.118 in Second behavior. Furthermore, the mean amount allocated in Company B was Rls. 41,564,870 in First behavior and Rls.14,543,882 in Second behavior.

In addition, to examine the first hypothesis of this study, T-test was used. As shown in table 3, the critical- T value is equal to 2.864 and Calculated-T value is equal to 16.425 that can be concluded the calculated-T is more than critical-T and it is placed in the  $H_1$  area. So, the first hypothesis is confirmed and we can say the HRA information has impact on decision-making to traditional accounting information,

Table 3. Decision-making based on HRA between 2 groups

T critical value	T calculated	Degree of freedom	Sig.
2.864	16.425	161	0.032

## 8.2 Hypothesis 2

The second hypothesis of this study to survey individuals' background and experience and the impact of HRA information on the investors' decision-making. This hypothesis was examined by using the F-test. The results of the hypothesis test indicate that the critical-F value with degree of freedom 9 and 152 and the alpha level of 5% is equal to 1.98. With regard to that the calculated-F value is equal to 69.7 %, so, we can conclude that the calculated F is placed in the  $H_0$  area and it is less than critical-F value. Therefore, the second hypothesis is rejected. Table 4 shows the result briefly.

Table 4. The impact of background and experience on Decision-making)

Resource	Degree of freedom	Calculated F	Critical F
Regression	9	0.6971	1.98
Residuals	152		

The correlation coefficient between the difference score and age was 0.348 and the correlation between the difference score and experience was 0.636. Both correlations were

significantly different from zero at the 0.05 level.

The correlation between age and business experience was 0.821. Because the difference score was related to both age and experience and because age and experience were highly correlated, two partial correlations were computed. First, a low partial correlation of 0.098 was calculated for the difference score and age, controlling for experience. Second, a partial correlation of 0.286 was computed for the difference score and experience, controlling for age. This coefficient was significant at the 0.05 level. The two partial correlations indicate that experience rather than age is more important in explaining variation in the dependent variable, the difference score. Thus, the business experience may be a possible cause of decision differences when HRA information is added to traditional accounting information.

### 8.3 Hypothesis 3

The third hypothesis of the study to examine the relationship between individuals' personal viewpoints and the impact of HRA information on decision-making. Chi-square test was used to examine this hypothesis. As shown in the table 4 the critical value of chi-square with 10 degree of freedom in alpha level 0.05 is equal to 11.63. Calculated chi-square value is equal to 39.48 and we can conclude that the calculated Chi-square is more than critical value of chi-square and it is placed in  $H_1$  area, so the third hypothesis is accepted. The results are summarized in table 5.

Table 5. The impact of individuals' viewpoints on decision-making)

Critical chi-square	Calculated chi-square	Degree of freedom	Sig.
11.63	39.48	10	0.026

Furthermore, to test Hypothesis 3, the difference score was correlated with the responses to each of the eleven HRA viewpoints. The correlation coefficients and level of significance of each using a one-tailed test are shown in Table 6. The results of correlations between difference score individuals' personal viewpoints about HRA as follows:

Table 6. Correlation coefficient (r)

Questions	N	Correlation coefficient (r)	Sig.
1	162	0.50	0.020
2	162	-0.65	0.030
3	162	0.41	0.328
4	162	-0.21	0.087
5	162	0.59	0.123
6	162	-0.34	0.046
7	162	0.66	0.456
8	162	0.38	0.034
9	162	-0.66	0.031
10	162	0.73	0.025
11	162	0.17	0.427

#### 8.4 Hypothesis 4

The fourth hypothesis of the study examined that the most appropriate method for assessing of HRA information based on qualitative characteristics. To examine this hypothesis was used compare means test. The results of questionnaire analysis indicate that there is significant difference among evaluation methods of HR in terms of applicable statistically. Furthermore, the results state that historical cost method has more consistent with qualitative characteristics of accounting information in the Iranian context. So, the fourth hypothesis is confirmed. The results survey of six evaluation methods of HRA as follows:

Table 7. Compare between evaluation methods of HR

Evaluation Methods	Historical Cost	Replacement Cost	Opportunity Cost	Stochastic rewards	Estimated Future Cost	Estimated Future benefit
Means	2.4553	2.1222	1.8789	1.1323	2.1460	1.4244

### 9. Conclusion

With considering to the results of the study, lack of HRA information disclosure in financial statements and notes of financial statements will lead to obliquity of users. As study results show, the use of HRA information in financial statements has incremental impact on individuals' decision-making process in order to stock investment statistically. HRA information can play a crucial role in internal managerial decision-making, and its measures can be used to show that investments in a company's human resources may result in long-term profit for the company.

There are several studies, which have found a significant association between HRA information and decision-making. The major findings of the study confirm results of Herman & Mitchell (2008), Flamholtz et al. (2003), Pekin Ogan (1988), Chris Dawson (1994), Flamholtz (2004), Lev & Schwartz (1971), Elias (1972), Hendricks (1976). Furthermore, the results indicate that background and experience of individuals' variables no has impact on decision-making based on HRA information. In the researcher's opinion one of the factors causing this difference could be due to different cultures. Other results states that there is significant relationship between the individuals' viewpoints about the evaluation of human resources and the impact of HRA information on the investment decisions. So, we can state that HRA is relevant and accountants can clarify it in management accounting information and disclose in notes of financial statements or they can provide it in financial statement (such as balance sheet or income statement) in order to better understanding.

The last discussion of the paper had examined the most appropriate of evaluation method of HR based on viewpoints of experts and by using qualitative characteristics of accounting information. Results of the survey indicate that historical cost method, also called the original cost, is the most applicable method in current status of Iranian companies. In this method human resource cost (HRC) includes the acquiring, recruit, training and development costs. This method has greater acceptability by tax agencies and it is more common than other methods in the accounting operations of assessment assets. Concerning the findings

mentioned above we found that the inclusion of HRA data in published financial statements resulted in, one, significantly different ratings of analysts' preparedness to meet future challenges and opportunities in Iranian context and, two, statistically different evaluating of a firm's position in terms of external users.

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