

**Human Resource Management Inefficiency and Tax Management****Hamed Esmailnozar**M.Sc. in Accounting, Department of
Accounting, Takestan Higher
Education Institute, Qazvin, Iran.Hamedesmaeilnozar@gmail.com

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Farzin RezaeiAssociate Professor, Faculty
Member, Department of
Accounting, Qazvin Branch,
Islamic Azad University,
Qazvin, IranFarzin.rezaei@qiau.ac.ir

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Fathalla Tariverdi FishaniM.Sc. in Accounting, Faculty
Member, Qazvin Branch, Kar
Higher Education Institute,
Qazvin, Iran.Fishani1350@yahoo.com

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Abstract

Human resource (HR) costing, documented as one of the cost components influencing a company's profit and loss, is subject to tax investigation and proceedings within allowable expenses in Articles 147, 148, and 149 of Iran Tax Laws. In this sense, spending on HRs and benefiting their power demands efficient management. Given the costs incurred for HRs, inefficiency in HR management arises in case of the under-use or over-use of this power. The present study aimed to reflect on the relationship between the inefficiency of HR management and tax management in the companies listed on the Tehran Stock Exchange. For this purpose, tax management was evaluated by three measures of cash tax avoidance, accrual tax avoidance, and book-tax differences, and then the inefficiency of HR management was assessed with reference to the models developed by (Richardson, 2006) and (Pinnuck and Lillis, 2007), which were based on under- and over-investment in HRs . The statistical sample also consisted of 180 companies operating from 2014 to 2023. The study results revealed that over-investment in HR costing could not affect tax management, but under-investment could have simply a significant positive effect on accrual tax avoidance.

Keywords: Tax Avoidance, Tax Management, Human Resource Management Inefficiency

1. Introduction:

Investment efficiency entails preventing the consumption of resources for some activities receiving over-investment as well as directing resources to those experiencing under-investment. Based on the resources available and production practices, companies can be categorized into two groups: capital and user, whose managers are obliged to make regular investments in order to recruit, retain, and use capital and human resources (HRs) in an efficient manner. In this regard, skilled HRs are of utmost importance since they lead to productivity, and ultimately wealth creation. Therefore, attracting qualified HRs and spending on them to reach empowerment is vital. Nevertheless, the issue of representation associated with managers and owners can result in making some wrong decisions due to their preferences in selecting HRs and costing to empower them, which may not make it possible to fulfill the ultimate goal of wealth creation. Accordingly, HR management, which can be constructive with potentially wealth-creating capacity, may be accompanied by inefficiency due to the issues of representation and power share in the management of a company among top managers. In view of HR accounting, the HRs of any company are as valuable as other physical assets, which must be identified, measured, and reported in financial statements in accordance with the laws and standards enforced for tangible and intangible assets. In keeping with the existing laws and standards, capital expenditures are subject to Articles 147, 148, and 149 of Iran Tax Laws, and tax exemptions. HR costing in companies should also have some advantages, according to the tax laws stipulated, such as tax management. Inefficiency in HR management here means selecting non-qualified individuals to take on some responsibilities or spending more or less on HRs to empower them. According to Iran Tax Laws, Articles 147 and 148 related to



allowable expenses and the associated directives and executive bylaws, such as expenses need to meet some requirements, including salaries and benefits, as well as costs for employment, severance pay, medical and health care, termination of service, social security insurance, continuous training, and internal and external missions, as the examples. Failure to comply with the requirements in these Articles results in reimbursements and taxation. Tax management implies exploiting the maximum capacity of tax laws to underpay or delay in tax payment. In fact, one of the tax strategies implemented by the financial management of companies is the use of allowable expenses. According to the laws in Iran Labor Laws and Tax Laws related to employees (viz. Articles 82-92, 131, 137, 190, 197, and 199), tax management can handle allowable expenses (as that in Articles 147 and 148 of Iran Direct Tax Laws) and make use of them properly in the cost price of companies' products or services. Moreover, tax management can identify and measure the profit from operating activities in a correct and acceptable manner for companies.

Tax avoidance is thus one of the short-term strategies adopted by managers. Among the most important reasons to use such strategies is to have savings from tax avoidance activities, as stated by Phillips. These savings can provide a valuable source of funding to reduce companies' financial constraints and minimize financing through debt or cash. Cash savings from tax management may further encourage managers to invest in inefficient projects to keep cash within companies, even if there are no good opportunities to invest, and cause over-investment. As well, according to (Jensen, 1986), whenever there is cash surplus due to companies' activities, managers tend to abuse it. With regard to their managerial authority and personal interests, such managers may abandon investing in efficient projects with a positive net present value and, consequently, suffer from under-investment. As companies are obliged to continuously manage HRs and considering business requirements to cover costs and the possibility of non-compliance with tax laws, which are mostly delayed, the question arises whether inefficiency of HR management leads to tax management or not.

2. Literature, Theoretical Foundations, Background, and hypotheses

2.1 Literature review: Labor market regulation is one of the important social factors. Therefore, the labor and tax laws in each country can create a more efficient labor market. In this sense, the laws and regulations that provide job security are called labor protection laws, and the resources generated for this purpose are utilized for public spending to support the unemployed, including income support, education, and various other measures under the heading of Unemployment Protection (Filippetti and Guy, 2020). In companies, managers are the policy-makers and have authority to make tax-related decisions with a proper understanding of the accounting system and existing laws, to reduce the costs of representation with a more supervisory role on the board, and thus minimize information asymmetry and non-transparency of financial information, and tax management (Kavianifard et al., 2020). Tax avoidance in companies is assumed as a tax strategy to decrease the costs of corporate income tax (barzegar and khalili, 2019). Currently, tax avoidance as an opportunistic behavior, is one of the main problems faced by tax systems. In this respect, various factors can affect tax avoidance, including social trust. Therefore, managers of companies with a high level of social trust are less inclined to practice opportunistic behavior and tax avoidance due to the ethical norms governing there (Rezaei pitenoei et al., 2020). Managers often do not pay attention to outside the company and the community in which they are operating for their intra-organizational decisions such as those related to tax avoidance, so high or low social capital cannot shape the decisions made regarding tax avoidance by their companies (Barzegar and Ebrahimi, 2019).

HR information systems also support HR accounting activities by providing important tools and programs for measuring human capital. Moreover, HR accounting ensures that HR information systems contain accounting information, and provides important information about companies' HRs (Asfahani, 2021). Accordingly, an environment that is associated with market sensitivity and inefficient investment

in HRs may be to the benefit of managers because they are allowed to favor their own interests in doing businesses. HR inefficiencies are likely to be facilitated by some justifications for opportunistic behavior, managerial rents, and the hoarding of bad news over long periods of time. Hiding bad news about the consequences of HR inefficiencies may be accompanied by compensation contracts and even add to job worries, which can accelerate managerial opportunism and provide encouragements to avoid taxes. Concealing negative news about HR inefficiency over a long period of time can further hinder remedial actions by the management and challenge the management strategies to boost operational efficiency (Taylor et al., 2019). HR information systems and HR accounting are the components of strategic HR management that have thus far experienced significant changes (Asfahani, 2021). HR efficiency can affect the ability of investors to understand companies' financial statements, interpretations of resource utilization and earnings stability, as well as cash flow and its risks. Increasing the costs of external financing also makes companies to confide more in domestic budgets for their financing and investments. HR inefficiency is likely to shape operating cash flow and thus tax avoidance (Taylor et al., 2019). Unlike capital, HRs are used primarily for a company's operating cash flow, not through financing or debt. If inefficient HR employment reduces companies' earnings and their internal revenues so that companies fail to meet their current needs and expenses (i.e., wages, profits, and taxes), their incentives to save money, which may contain tax avoidance, also increase. For example, a conservative approach to hiring and firing may limit the profitability of a company's operations and motivate managers to pursue tax avoidance activities to augment cash flow. In particular, inefficiency at work may affect the company's ability to adequately supervise and control. The misuse of HRs in corporate positions, on the one hand, results in excessive costs of salaries and benefits in accordance with Article 84 of tax laws and lead to savings in tax payment. However, since the appointment has been made improperly, it will redouble customer dissatisfaction, as well as low quality standards. This will reduce sales, increase waste and rework, as well as after-sales service costs. In the end, some costs mentioned in the provisions of tax laws are not allowable ones. Among other things, due to the use of inefficient HRs, are creating unabsorbed overhead costs and abnormal loss, which do not diminish tax payments in manufacturing companies in accordance with the provisions of tax laws because they are not subject to allowable expenses. The recruitment of HRs in for-profit companies accordingly depends on several factors, which can be structural, according to the economic structure, or socio-political (civil) and security structures. Factors such as the growth in product sales market, stock market, industry size, stock returns, and return on assets are among the economic examples affecting the recruitment of HRs with an economic approach. If this is less affected by the aforementioned economic factors, inefficiency in HR investment is likely to occur. Therefore, the question arises whether the inefficiency of investing in HRs is of use in tax avoidance by the companies listed on the Tehran Stock Exchange or not?

2.2 Background and hypotheses : Vitols (2021) in a study entitled "Board-level employee representation and tax: Avoidance in Europe", had also shown that one of the supportive measures to combat tax avoidance was to use board-level employee representation.

In a study by Asiri et al. (2020) titled "Is tax avoidance related to investment efficiency?", they found that there is indeed an association between tax avoidance and investment inefficiency (underinvestment and overinvestment).

In a study by Kovermann and Wendt (2019) titled "Tax avoidance in family firms: evidence from large private firms", it was reported that for private family firms, the benefits of avoiding taxes outweigh the non-tax costs and also as the number of family shareholders increases, these firms engage more in tax avoidance activities to satisfy the increased demand for dividends.

The results of a study conducted by Jiménez-Angueira (2018) titled "The effect of the interplay between corporate governance and external monitoring regimes on firms' tax avoidance" showed that companies



with weak corporate governance had a lower level of tax avoidance under external oversight than other companies in the studied population.

In a study by Khurana et al. (2018) titled “Tax Avoidance, Managerial Ability, and Investment Efficiency”, the results showed that tax avoidance in firms with high (low) management ability is associated with increased (decreased) return on investment as well as increased (decreased) investment efficiency.

In a study titled “Tax avoidance and corporate investment behavior: the role of information environment”, Comprix et al. (2016) reported that tax avoidance has a significant relationship with over-investment and level of investment.

Gallemlere and Labro (2015) conducted a study titled “The importance of internal information environment for tax avoidance”. This study reported that the ability of a firm to avoid paying taxes is affected by the quality of its internal information environment, as firms with higher quality internal information have lower effective tax rates. Also, in firms where information plays an important role, internal information quality has a stronger impact on tax avoidance. The results of this research indicate that firms that operate under higher levels of environmental uncertainty can benefit more from higher-quality internal information in terms of reducing their effective tax rates. The results also showed that high-quality internal information allows firms to achieve low effective tax rates without increasing the risk of their tax strategies.

In a study by (Drake, 2012) titled “Does firm life cycle explain the relationship between book-tax differences and earnings persistence?”, it was shown that after controlling for the life cycle, there is no relationship between large positive book-tax differences and lower earnings persistence. This study also proposed an economic theory for the relationship between book-tax differences and earnings persistence as an alternative explanation for the findings of previous studies.

In the present study, we investigated whether the following hypotheses can be confirmed or rejected:

H1. Overinvestment in HR has a significant effect on cash tax avoidance.

H2. Overinvestment in HR has a significant effect on accrual tax avoidance.

H3. Underinvestment in HR has a significant effect on cash tax avoidance.

H4. Underinvestment in HR has a significant effect on accrual tax avoidance.

3. Research design and measurement of variables: This study was designed as a correlational research with an ex post facto approach to discovering inter-variable correlations. The study classifies as an applied research in terms of purpose. Considering the use of real-world information and various statistical methods to confirm or refute the hypothesis, the study falls within the realm of the positive accounting theory. This research relies on deductive-inductive reasoning, in the sense that it takes a deductive approach to the processing of theoretical foundations and research background through a library study of relevant sources and takes an inductive approach to data collection for confirming or rejecting the hypothesis. In this study, we have used the information contained in the financial statements of companies listed on the Tehran Stock Exchange (TSE), which tend to be of higher quality and credibility than other available information because these statements are supervised by the Securities and Exchange Organization of Iran and undergo annual audits. Thus, the statistical population of this study comprised all companies listed on TSE. The samples were selected by the systematic screening method. Data collection was performed using the library method. The required information was gathered from the documents provided on the TSE website and the databases provided in the Rahavard Novin software.

The samples were selected based on the following criteria:

- 1- Being listed on TSE before 2010.
- 2- The company’s fiscal year ending at the end of March.
- 3- No change in the company’s fiscal year during the period of interest.

- 4- Availability of the financial statements and accompanying notes of the parent company for the period of interest separately from those of the consolidated companies.
- 5- No delisting or suspension of the stock symbol during the period of interest.
- 6- Not being an investment, bank, insurance, or leasing company.

3.1 Research model

The hypotheses have been tested using the following model:

$$\text{Taxmg}_{it} = \alpha + \beta_1 \text{Over(under)NH}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{lev}_{it} + \beta_4 \text{MTB}_{it} + \beta_5 \text{CASH}_{it} + \beta_6 \text{ROA}_{it} + \beta_7 \text{NOL}_{it} + \beta_8 \text{CAP}_{it} + \beta_9 \text{GSALE}_{it} + \varepsilon$$

3.2 Definition and calculation of variables

The variables presented in the models are defined in the Table 1 as follows.

Table 1. The definition of research variables

Variable	Symbol		Type of variable	Method of calculation
Cash tax avoidance (tax management)	Tax CETR		Dependent	$\text{CETR} = \frac{\text{Tax paid}}{ \text{Pre-tax profit or loss} }$ $\text{TaxCETR} = 1 - \text{CETR}$
Accrual tax avoidance (tax management)	Tax ETR		Dependent	$1 - \text{ETR} = \frac{\text{Tax declared}}{ \text{Pre-tax profit or loss} }$ $\text{TaxCETR} = 1 - \text{CETR}$
Book-tax difference (tax management)	Tax BTD		Dependent	$\text{BTD} = \frac{\text{Tax declared} - \text{Tax assessed}}{ \text{Pre-tax profit or loss} }$
HR management inefficiency	Nethire		Independent	<p>In the model of Pinnuck and Lillis (2007), the first step is to estimate the impact of investment factors on HR. Here, the error terms represent HR management inefficiencies. The model of Pinnuck and Lillis (2007) is as follows:</p> $\text{nethire}_{i,t} = \beta_0 + \beta_1 \text{gsale}_{i,t} + \beta_2 \text{gsale}_{i,t-1} + \beta_3 \Delta \text{roa}_{i,t-1} + \beta_4 \Delta \text{roa}_{i,t} + \beta_5 \text{roa}_{i,t} + \beta_6 \text{ret}_{i,t} + \beta_7 \text{size}_{i,t-1} + \beta_7 \text{quick}_{i,t-1} + \beta_7 \Delta \text{quick}_{i,t-1} + \beta_7 \Delta \text{quick}_{i,t} + \beta_7 \text{lev}_{i,t} + \beta_7 \text{loss1}_{i,t-1} + \beta_7 \text{loss2}_{i,t-1} + \beta_7 \text{loss3}_{i,t-1} + \beta_7 \text{loss4}_{i,t-1} + \varepsilon_{i,t}$ <p>If $\varepsilon_{i,t}$ is greater than zero, it indicates overinvestment in HR. If $\varepsilon_{i,t}$ is less than zero, it indicates underinvestment in HR.</p> <p>Richardson (2006) has used the generalized momentum method for model estimation. The variables of this model are as follows:</p> <p>$\text{nethire}_{i,t}$: Percentage change in the number of employees between years t and t-1 divided by the expected change in a firm's labor force in year t-1</p> <p>$\text{cash}_{i,t-1}$: Cash divided by the book value of all assets.</p> <p>$\text{size}_{i,t-1}$: Firm size, which is obtained from the natural logarithm of the book value of assets.</p> <p>Sales Growth Rate ($\text{GSALE}_{i,t}$): sales difference between period t and t-1 divided by sales in period t-1</p> <p>$\text{ROA}_{i,t}$: Return on assets, which is obtained by dividing the net profit of the period by the book value of assets.</p> <p>$\text{lev}_{i,t-1}$: Leverage, which is obtained by dividing total liabilities by total assets.</p> <p>Return on equity ($\text{ret}_{i,t}$): the sum of changes in stock prices and dividends divided by the stock price in period t-1</p> <p>$\text{quick}_{i,t}$: The ratio of cash and short-term investments to current liabilities</p> <p>$\text{loss1}_{i,t-1}$: =1 if the firm has reported a loss in a previous period, =0 otherwise.</p> <p>$\text{loss2}_{i,t-1}$: =1 if the firm has reported a loss for the second time this year, =0 otherwise.</p> <p>$\text{loss3}_{i,t-1}$: =1 if the firm has reported a loss for the third time this year, =0 otherwise</p>

				loss _{4,t-1} : =1 if the firm has reported a loss for the fourth time this year, =0 otherwise
Overinvestment	OverNH		Independent	In the model of Pinnuck and Lillis (2007), $\varepsilon_{it}>0$ indicates overinvestment in HR.
Underinvestment	UnderNH		Independent	In the model of Pinnuck and Lillis (2007), $\varepsilon_{it}<0$ indicates underinvestment in HR.
Ratio of market value to book value of equity	MTB _{it}		Control	Market value of equity (share price \times the number of shares issued by the end of the fiscal year) divided by the book value of equity
Profitability change	NOL _{it}		Control	= 1 if the firm's net profit is lower than last year, = 0 otherwise
Capital-intensive	CAP _{it}		Control	Tangible assets divided by the book value of the assets
Firm size	size _{it}		Control	Natural logarithm of the book value of assets
Financial leverage	lev _{it}		Control	The ratio of total liabilities to the book value of assets
Cash	CASH _{it}		Control	Cash divided by the book value of the assets
Profitability	ROA _{it}		Control	Net profit divided by the book value of assets
Sales growth rate	GSALE _{it}		Control	Sales difference between fiscal periods t and t-1 divided by sales in period t-1

4. Results

4.1 Descriptive statistics of research variables

To start analyzing the data, first, the descriptive statistics of research variables were examined.

Table 2: Centrality, dispersion, and distribution of research variables

Variable	observations	Mean	Median	Max	Min	Standard deviation	Skewness	Kurtosis
Tax CETR	1800	0.111	0.118	0.607	0	0.096	0.355	3.011
Tax ETR	800	0.102	0.098	0.624	0	0.094	0.629	3.990
Tax BTD	1800	0.095	0.050	0.590	0	0.117	1.913	6.662
OverNH	1800	0.054	0.000	0.720	0	0.119	2.589	9.890
UnderNH	1800	-0.178	-0.134	0	-0.970	0.188	-1.274	4.723
Size	1800	1.9533	13.829	1.2499	10.504	1.441	0.605	3.952
Lev	1800	0.576	0.603	0.996	0.041	0.212	-0.407	2.467
MTB	1800	3.596	2.878	9.962	-8.199	2.678	0.211	4.064
Cash	1800	0.037	0.027	0.190	0.002	0.035	6.821	5.974
ROA	1800	0.103	0.084	0.621	-0.541	0.133	0.476	4.705
GSALE	1800	0.155	0.141	0.999	-0.932	0.297	0.114	3.928
CAP	1800	0.236	0.204	0.996	0.012	0.167	1.430	5.719
Variable	observations	The firm's profit has decreased from the previous year (=1)			The firm's profit has not decreased from the previous year (=0)			
NOL	1800	779	43.3%	1021	56.7%			

Source: research findings

Table 2 In the examined population, the highest level of cash tax avoidance is related to Pars Khodro Company in 2021, the highest level of accrual tax avoidance is related to Ghaen Cement Company in 2019, the highest level of book-tax difference is related to Saipa Company in 2015. The highest level of overinvestment is related to Khark Petrochemical Company in 2016 and the highest level of underinvestment is related to Shazand Company in 2021. The highest and lowest firm size is related to Iran Khodro Company in 2021 and Alomrad Company in 2015, respectively. The highest level of financial leverage is related to Pars Khodro Company in 2018 and the lowest level is related to Alomrad Company in 2018. The highest ratio of market value to book value of equity is related to Kashi Pars Company in 2016 and the lowest is related to Qazvin Sugar Company in 2020. The highest amount of cash is related to Bama Company in 2020 and the lowest is related to Iran Daroo in 2021. The highest

return on total assets is related to Khark Petrochemical in 2021 and the lowest is related to Iran Khodro Diesel Company in 2020. The highest sales growth rate is related to Sina Daroo Company in 2015 and the lowest is related to Shahd Iran Company in 2021. Finally, the highest value of tangible assets is related to Plasco Company in 2016 and the lowest is related to Navardaluminum Company in 2015.

4.2 Descriptive statistics of HR management inefficiency model

Table 3: Centrality, dispersion, and distribution measures of variables of HR management inefficiency model

Variable	observations	Mean	Median	Max	Min	Standard deviation	Skewness	Kurtosis
Nethire	1800	0.13	0.12	0.94	-0.92	0.28	-0.33	4.37
Ret	1800	0.0007	0.0001	0.009	-0.009	0.001	2.24	9.006
Roa _{t-1}	1800	0.11	0.09	0.62	-0.28	0.13	0.067	4.31
ΔRoa	1800	-0.009	-0.005	0.43	-0.51	0.08	-0.04	8.45
Gsale	1800	0.15	0.14	0.99	-0.93	0.29	0.11	3.92
Gsale _{t-1}	1800	0.14	0.14	0.99	-0.89	0.29	-0.07	3.96
Quick	1800	0.22	0.16	0.98	0.009	0.17	1.58	5.66
Quick _{t-1}	1800	0.22	0.15	0.98	0.01	0.17	1.59	5.61
ΔQuick	1800	-0.0004	-0.002	0.73	-0.69	0.16	0.15	6.55

Variable	observations	Loss (=1)		Profit (=0)	
Loss1	1800	184	10.2%	1616	89.8%
Loss2	1800	110	6.1%	1690	93.9%
Loss3	1800	61	3.4%	1739	96.6%
Loss4	1800	27	1.5%	1773	98.5%

Source: research findings

Table 3 As can be seen, the highest level of HR investment change is related to Iran Daroo Company in 2016 and the lowest is related to Shazand Petrochemical Company in 2014. The highest return on equity is related to Razak Pharmaceutical Company in 2017 and the lowest is related to Pars Khodro Company in 2018. The highest quick ratio is related to Bama Company in 2016 and the lowest is related to Qazvin Sugar Company in 2021. The highest firm size is related to Iran Khodro Company in 2021 and the lowest value is related to Alomrad Company in 2015. The highest leverage is related to Pars Khodro Company in 2018 and the lowest is related to Alomrad Company in 2018. The highest cash is related to Bama Company in 2021 and the lowest is related to Iran Daroo in 2021. The highest return on total assets is related to Khark Petrochemical in 2021 and the lowest is related to Iran Khodro Diesel Company in 2021. The highest sales is related to Sina Daroo Company in 2015 and the lowest is related to Shahd Iran Company in 2021.

Table 4: Test of the first research hypothesis

Explanatory variables	Coefficient	Standard deviation	Student's t Statistic	Significance level
C	0.20	0.06	2.98	0.0029
OverNH	0.003	0.02	0.17	0.8584
Size	-0.007	0.004	-1.58	0.1130
Lev	-0.04	0.01	-2.25	0.0247
MTB	0.0005	0.001	0.55	0.5758
Cash	0.06	0.08	0.76	0.4429
ROA	0.18	0.03	5.16	0.0000
Nol	0.01	0.006	2.33	0.0200
CAP	0.008	0.02	0.31	0.7525

GSALE	0.02	0.009	2.47	0.0137
Coefficient of determination	0.55	Adjusted coefficient of determination		0.50
F statistic	10.13	Significance level of F statistic		0.0000
Durbin Watson statistic		1.66		

Source: research findings

Results for H1

Table 4 As the above table shows, the significance level of t-statistic for the independent variable overinvestment in HR is 0.85, which is greater than 0.05. Therefore, we can state with 95% confidence that the relationship between these two variables is not significant. Since this independent variable has a positive coefficient, it can be said that there is a positive but statistically insignificant relationship between overinvestment in HR and cash tax avoidance. Thus, the first hypothesis is rejected. Also, since the obtained t-statistic for the control variables leverage, profitability, profitability change, and sales growth rate is less than 0.05, one can say with 95% confidence that they have a significant relationship with the dependent variable cash tax avoidance. On the contrary, the t-statistic obtained for the control variables firm size, market value to book value of equity, cash, and fixed assets is greater than 0.05, which means, at the 95% confidence level, that there no significant relationship between them and the dependent variable cash tax avoidance. The adjusted coefficient of determination is 0.50, which means 50% of the changes in the dependent variable are explained by the independent and control variables of the model. The obtained significance level is 0.000 (<0.05) indicating the statistical significance of this test result. Overall, it can be concluded that there is a significant linear relationship between the independent and control variables and the dependent variables. The Durbin Watson statistic is 1.66, indicating that there is no autocorrelation between the research variables.

Table 5: Test of the second research hypothesis

Explanatory variables	Coefficient	Standard deviation	Student's t Statistic	Significance level
C	0.17	0.05	3.49	0.0005
OverNH	0.003	0.02	0.14	0.8868
Size	-0.007	0.003	-2.01	0.0440
Lev	-0.003	0.01	-0.19	0.8470
MTB	-0.0003	0.001	-0.35	0.7226
Cash	0.01	0.08	0.22	0.8239
ROA	0.18	0.03	5.72	0.0000
Nol	0.01	0.006	2.24	0.0253
CAP	-0.003	0.02	-0.16	0.8675
GSALE	0.01	0.009	1.77	0.0762
Coefficient of determination	0.66	Adjusted coefficient of determination		0.65
F statistic	5.67	Significance level of F statistic		0.00000
Durbin Watson statistic		1.78		

Source: research findings

Results for H2

Table 5 According to the above table, the significance level of t-statistic for the independent variable overinvestment in HR is 0.88. Since this value is greater than 0.05, it can be stated with 95% confidence that the relationship between these two variables is statistically insignificant. Here too the independent variable has a positive coefficient, which means there is a positive but statistically insignificant relationship between overinvestment in HR and accrual tax avoidance. Therefore, the second hypothesis is also rejected. The t-statistic obtained for the control variables firm size, profitability, and profitability change, is less than 0.05, meaning that they have a significant relationship with the dependent variable accrual tax avoidance. However, since the t-statistic for the control variables leverage, market value to

book value of equity, cash and fixed assets is greater than 0.05, we can say with 95% confidence that there no significant relationship between them and cash tax avoidance. For this hypothesis, the adjusted coefficient of determination is 0.65, meaning that the independent and control variables explain 65% of the changes in the dependent variable. As before, the significance level is less than 0.05, showing that the test result is statistically significant. Overall, these results show that there is a significant linear relationship between the independent and control variables and the dependent variables. Here, the Durbin Watson statistic is 1.78, which means the variables have no autocorrelation.

Table 6: Test of the third research hypothesis

Explanatory variables	Coefficient	Standard deviation	Student's t Statistic	Significance level
C	0.20	0.06	3.04	0.0024
<i>UnderNH</i>	0.01	0.01	1.18	0.2369
<i>Size</i>	-0.007	0.004	-1.59	0.1110
<i>Lev</i>	-0.04	0.01	-2.24	0.0250
<i>MTB</i>	0.0005	0.001	0.55	0.5804
<i>Cash</i>	0.06	0.08	0.69	0.4871
<i>ROA</i>	0.18	0.03	5.13	0.0000
<i>Nol</i>	0.01	0.006	2.31	0.0212
<i>CAP</i>	0.008	0.02	0.32	0.7467
<i>GSALE</i>	0.02	0.009	2.47	0.0134
Coefficient of determination	0.55	Adjusted coefficient of determination		0.50
F statistic	10.17	Significance level of F statistic		0.0000
Durbin Watson statistic		1.76		

Source: research findings

Results for H3

Table 6 As the above table illustrates, the significance level of t-statistic for the independent variable underinvestment in HR is 0.23, which is greater than 0.05. Thus, we can state with 95% confidence that there is no significant relationship between these two variables. Since this independent variable has a positive coefficient, one can state there is a positive but statistically insignificant relationship between underinvestment in HR and cash tax avoidance. Accordingly, the fourth hypothesis is also rejected. Since the obtained t-statistic for the control variables leverage, profitability, and sales growth rate is less than 0.05, it can be stated with 95% confidence that these variables have a significant relationship with cash tax avoidance. On the contrary, the t-statistic obtained for the control variables firm size, market value to book value of equity, cash, profitability change, and fixed assets is greater than 0.05, which means, at the 95% confidence level, that there no significant relationship between them and the dependent variable cash tax avoidance. Here, the adjusted coefficient of determination is 0.50, meaning 50% of the changes in the dependent variable are explained by the independent and control variables. The obtained significance level is 0.000, which is less than 0.05, indicating the statistical significance of this test result. From these results, it can be concluded that there is a significant linear relationship between the independent and control variables and the dependent variables. The Durbin Watson statistic for this hypothesis is 1.76, indicating that there is no autocorrelation between the research variables.

Table 7: Test of the fourth research hypothesis

Explanatory variables	Coefficient	Standard deviation	Student's t Statistic	Significance level
C	0.18	0.05	3.59	0.0003
<i>UnderNH</i>	0.02	0.01	1.96	0.0504
<i>Size</i>	-0.007	0.003	-2.01	0.0438
<i>Lev</i>	-0.003	0.01	-0.19	0.8474
<i>MTB</i>	-0.0003	0.01	-0.36	0.7148
<i>Cash</i>	0.009	0.08	0.11	0.9094

ROA	0.18	0.03	5.67	0.0000
Nol	0.01	0.006	2.21	0.0272
CAP	-0.003	0.02	-0.14	0.8857
GSALE	0.01	0.009	1.78	0.0739
Coefficient of determination	0.66	Adjusted coefficient of determination		0.65
F statistic	6.10	Significance level of F statistic		0.0000
Durbin Watson statistic		1.98		

Source: research findings

Results for H4

Table 7 In these results, the significance level of t-statistic for the independent variable underinvestment in HR is 0.87 (>0.05), showing that there is no statistically significant relationship between these two variables at the 95% confidence level. The positive coefficient of this independent variable means that the insignificant relationship between underinvestment in HR and accrual tax avoidance is of the positive type. Therefore, the fifth hypothesis of the research is confirmed. The t-statistic obtained for the control variables firm size, profitability, and profitability change is less than 0.05. Therefore, we can state with 95% confidence that firm size, profitability, and profitability have a significant relationship with accrual tax avoidance. On the contrary, the t-statistic for the control variables leverage, market value to book value of equity, cash, and fixed assets is greater than 0.05, indicating that there no significant relationship between them and accrual tax avoidance. For this hypothesis, the adjusted coefficient of determination is 0.65, meaning that 65% of the changes in the dependent variable are explained by the independent and control variables. Again, the significance level is less than 0.05, meaning that the test result is statistically significant. Overall, it can be concluded that there is a significant linear relationship between the independent and control variables and the dependent variables. Here, the Durbin Watson statistic is 1.98, demonstrating the lack of autocorrelation between the variables.

5. Discussion and Conclusion

Testing the study hypothesis demonstrated that over-investment in HRs could have a significant positive effect on cash and accrual tax avoidance. In fact, additional costs for training, missions, salaries and benefits, and other things, especially those approved in Articles 147, 148, and 149 of Iran Tax Laws had not resulted in tax savings due to their ineffectiveness in improving companies' operational efficiency. Indeed, higher HR costing in the form of salaries and benefits, or indirectly, which could increase job motivation, could be effective and tax management could be fulfilled provided that it was accompanied by efficient productivity in companies. As well, under-investment in HRs had not brought a significant positive effect on cash tax avoidance, while it had a significant impact on accrual tax avoidance. Since under-investment in HRs was kind of savings in allocating costs to HR, tax investigation and proceedings in under-investment conditions had been reduced due to no cash outflow. Inefficient investment in HRs could thus have two aspects: the volume of investment in HRs and right or wrong investments, viz. allocating funds to HRs in terms of their effective performance. The type of contract could also add to the risk of improper allocation of funds to HRs. Concluding the type of contract, according to Iran Labor Law, includes commission, hourly pay, and hourly fee could thus have different aspects of the investment risk in HRs. In general, signing a contract could have different aspects of the risk of investing in HRs. According to Article 35 of Iran Labor Law and the collection of tax regulations dealing with tax exemptions, the study findings showed that the managers of Iranian companies listed on the Tehran Stock Exchange had focused on under-investment as a strategy to legally avoid tax payment. Therefore, it was suggested to review the type of contracts signed for this purpose. Failure to allocate financial resources or not to do so to train and improve employee skills could thus cause inefficiency in companies' operating costs. Finally, the management decision could arise in the form of increased accrual tax. In fact, it could



augment tax payment, which could minimize tax avoidance. The study results here were in line with the reports by Taylor et al. (2019). In this regard, Comprix et al. (2016) had further found that tax avoidance was associated with over-investment, and Khurana et al. (2018) had demonstrated that tax avoidance in companies with high (or low) managerial ability could reduce return on investment. Tax avoidance could also bring higher investment efficiency. In this respect, Zheng (2019) had concluded that tax avoidance was inversely correlated with investment efficiency. Asiri et al. (2020) had similarly shown that tax avoidance was associated with investment inefficiency. In this sense, minab and matinfard (2018) had reported an inverse relationship between tax avoidance and investment inefficiency, and Rahimi and Forughi (2020) had obtained similar results, confirming that tax avoidance was inversely correlated with investment inefficiency. As well, zeinali (2019) had established that investment sensitivity was directly associated with tax avoidance.

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