

Description concerning the measurement model for tax avoidance in private companies, effective factors and the relationships between them based on interpretive structural modeling

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Abstract

This research is aimed to explain the tax avoidance measurement model in private companies, the effective factors and the relationships between them based on interpretive structural modeling. In terms of the purpose, the current research is in the category of fundamental research, and in terms of nature and method, it is descriptive and a case study in private companies. The statistical population of this research is experts familiar with the subject matter of the research, which includes professors and experts related to the field of taxation. A sample of 20 experts answered the questions through purposeful judgmental sampling. In order to present the model, interpretive structural modeling has been used. The results of interpretive structural modeling showed that internal organizational factors in the process of tax avoidance include financial leverage, company size, quality of internal information, ownership structure and corporate governance. Also, external organizational factors include financial constraints, customer focus, product market competition, corporate social responsibility, and social trust. Finally, based on the mentioned factors, the research model was presented. Also, the results of the Meek Meek matrix analysis showed that the ten factors related to the explanation of the pattern of influence on the tax avoidance process in private companies are divided into three categories of permeating, dependent and linked factors from the dimension of permeability and dependence. The factors of customer focus and social trust have low influence and high dependence, so they are dependent factors. The factors of corporate social responsibility, ownership structure, corporate governance and quality of internal information are influential factors or main drivers because they have high influence power and low dependence power. Also, the factors of financial leverage, company size, competition in the product market, and financial limitations are strategic variables of the research and are classified as linked variables.

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1 Introduction

Tax is defined as a cost that all companies and individuals are obliged to pay in proportion to earning income and profits from their economic activities. In general, efforts and legal solutions to reduce tax costs are defined as Tax Avoidance [31]. Previous studies have also described tax avoidance with terms such as aggressive tax planning and tax dodging [25, 35]. Based on the definition of the Organization for Economic Co-operation and Development (OECD) [12], tax avoidance can be defined as an attempt by taxpayers to reduce their tax liability legally. Although in practice, this effort is in conflict with the main intention of paying taxes and the intention of the legislator, but it can be done legally and through means [12].

Also, previous studies have paid less attention to the point of why the discussion of tax avoidance occurs in private companies. In fact, it seems that the discussion of tax avoidance is more relevant for companies with separate ownership. In fact, tax avoidance is a decision that is the result of different steps, such as the imposition of profit and loss by company decision-makers and their economic analysis, taking into account the time value of money. Therefore, examining the challenges of tax avoidance, especially in private companies, is less. It has been noticed and the poverty of literature in this field is felt.

The discussion of tax avoidance is one of the important topics in the field of taxation, and many studies and investigations have not been done in this field. The important point is that in some cases, tax evasion is mistakenly considered the same as Tax evasion [9]. While, tax avoidance is the effort to reduce the taxes payable. Tax avoidance is a process by which companies reduce income tax payments to the tax authority by using legal loopholes in order to reduce the amount of tax payable [5].

The evolution of social relations and developments in human societies, the need to pay attention to the limits and duties and powers of governments is of particular importance, given that the private sector is more efficient and governments are shrinking, but anyway, what in expanding governments or in shrinking governments; There is definitely a need for proper incomes [19]. Taxes are the most important source of income for the government, in addition to that, they are also an important tool for applying the government's financial policies, since taxes affect the allocation of resources, they will have important effects on real economic variables. What are the effects of corporate tax on the structure of the economy, investment and growth; It is very important [1].

In addition to being a source of income for the government, corporate tax also affects private sector investment. The important thing about tax avoidance is to weigh the pros and cons. From a positive point of view, tax avoidance is a form of saving that transfers resources from the government to shareholders and thus increases the after-tax value of the company. From a negative point of view, this leads to a decrease in government revenues for infrastructure and welfare and public services [23]. One of the main bases of direct taxes is corporate income tax, which includes taxes on government companies and taxes on non-government companies. The main way of applying profit tax is on companies, and in most countries of the world, corporate tax forms a significant part of the government's tax revenue. A company is one of the ways that people acquire ownership of assets, as a result, corporate income tax is like the income tax of company owners or their agents [2]. If the factors of production can be moved from the corporate sector to non-corporate sectors, the tax will be transferred to the entire economy, on the other hand, since there is a tax on total income in most countries, the corporate tax is considered a double tax [3]. There are many internal and external factors that can affect the tax avoidance of companies. For example, the discussion of tax avoidance is mostly mentioned in the case of companies in which the issue of separation of ownership and control is raised, because real people, due to the possibility of being discovered and fined, risk aversion, or internal motivations such as social duty, they are less involved in tax evasion and avoidance; But in companies, usually, shareholders expect managers to look for their personal interests and as long as the additional benefits resulting from possible debt reduction are greater than the additional costs expected for them, they will seek to reduce tax liabilities and increasing tax avoidance [27]. Desai et al. [8], it was suggested that the way of governance and leadership of companies has an effect on the level of tax avoidance of companies. They believe that tax avoidance in companies that have a strong governance system increases the value of the company. Poor corporate governance increases the level of tax avoidance. Risk-neutral shareholders expect managers on their behalf to focus on maximization, which includes opportunities to reduce the tax liability, such that its additional benefits outweigh its additional costs. Some research shows that companies use methods such as tax shelter and tax avoidance as a substitute for the tax advantage of financial leverage. Therefore, it is expected that tax avoidance has a negative and significant relationship with the amount of financial leverage [4]. Many factors such as company size, internal information quality, financial restrictions, customer focus, product market competition, corporate social responsibility and social trust can affect tax avoidance. But in our country, there is not enough research on the impact of a set of these factors in a private company, and the research gap is clearly felt. According to the stated principles, the present research tries to explain the pattern of measuring tax avoidance in private companies, the effective factors and the relationships between them based on interpretive structural modeling.

2 Theoretical Foundations and Research Background

Due to its many economic consequences, tax avoidance has attracted the attention of many academic and practical researches, and many researches have been conducted on the factors affecting tax avoidance. Identifying the effective components on the effective tax rate and tax management can help policymakers and legislators in the formulation of tax laws at the corporate level. Also, the examination of this issue can clarify the implementation of tax laws. In addition, according to the research, the profits announced by the companies have a high information content. The tax cost incurred by companies is a significant amount that ultimately causes a change in net profit. Therefore, it is important to examine the factors affecting tax avoidance [24]. The tax avoidance factor is one of the important and at the same time vague components of economic growth. Increasing tax avoidance can positively or negatively affect economic growth according to economic conditions in different countries. On the one hand, increasing tax avoidance can negatively affect economic growth by reducing government revenues and government investments, and on the other hand, by increasing disposable income and personal capital, it can increase economic growth [20].

In recent years, the field of taxation has increasingly received the attention of governments in public and even political discussions [15]. Taxes are an essential aspect of modern life and besides playing an important role in the field of financial reporting, they form the major part of government revenues, especially in developed countries. The funds that governments get from taxes are paid for providing essential services and public goods. Therefore, people's willingness to pay taxes plays an important role in creating economic and social welfare of any country. However, in reality, sometimes such a desire to pay taxes is not seen. Generating tax revenue is one of the important economic fields. Developing economies are not able to achieve tax revenue targets while it is different in developed economies. Various economic, political and especially cultural factors are effective in the realization of government tax revenues and in many cases, governments use tax incentives to realize tax revenues [10].

2.1 Tax Culture in Tax Avoidance

Model (2.1)

$$\begin{aligned} Cash_ETR_Volatility_{t+1,5} = & \alpha_0 + \alpha_1 TAX_Culture_{it} + \\ & \alpha_2 SIZE_{it} + \alpha_3 PTBI_{it} + \alpha_4 Leverage_{it} + \alpha_5 Vol_PTBI_{it} + \\ & \alpha_6 BTM_{it} + \alpha_7 ABN_Accruals_{it} + \alpha_8 VOL_Specialitems_{it} + \\ & \alpha_9 Vol_CashFlow_{it} + \alpha_{10} CHG_NOLCF_{it} + \alpha_{11} NOLCF_{it} + \\ & \alpha_{12} TAX_{it} + \alpha_{13} (TAX_Culture_{it} \times TAX_{it}) + \varepsilon_{it} \end{aligned} \quad (2.1)$$

Model (2.2)

$$\begin{aligned} SD_RET_{t+1} = & \beta_0 + \beta_1 Tax_Culture_{it} + \beta_2 PTBI_{it} + \\ & \beta_3 Vol_PTBI_{it} + \beta_4 BTM_{it} + \beta_5 Leverage_{it} + \beta_6 SIZE_{it} + \\ & \beta_7 ABN_Accruals_{it} + \beta_8 Return_{it} + \beta_9 Inst_Own_{it} + \\ & \beta_{10} Shares_Out_{it} + \beta_{11} Vol_Specialitems_{it} + \\ & \beta_{12} Vol_CashFlow_{it} + \beta_{13} TAX_{it} + \beta_{14} LOSS_{it} + \\ & \beta_{15} CHG_NOLCF_{it} + \beta_{16} NOLCF_{it} + \beta_{17} (TAX_Culture_{it} \times TAX_{it}) + \varepsilon_{it} \end{aligned} \quad (2.2)$$

Model (2.2), [14].

2.2 Effective tax rate

Model (2.3)

$$\begin{aligned} TaxPlanning = & \alpha + \beta_1 FED + \beta_2 FED \times PROSPECTOR + \\ & \beta_3 PROSPECTOR + \gamma Controls + \varepsilon \end{aligned} \quad (2.3)$$

Model (2.4)

$$\begin{aligned} TaxPlanning = & \alpha + \beta_1 ACCD + \beta_2 NONACCD + \beta_3 ACCD \times PROSPECTOR + \\ & \beta_4 NONACCD \times PROSPECTOR + \beta_5 PROSPECTOR + \gamma Controls + \varepsilon \end{aligned} \quad (2.4)$$

Based on the research of Higgins et al. [17], and Khajawi and Kiamaher [22].

Description	Symbol	Variable title
Annual standard deviation of income tax	cash ERT volatility	The dependent variables
Standard deviation of monthly stock returns	SD- RED	
Tax culture	Tax Culture	independent variable
Effective rate of corporate tax (it is the result of dividing the diagnostic tax of the tax office by the profit before the declared tax).	TAX	Modifier variable
The natural logarithm of the value of the company's assets	SIZE	
Profit before tax	PTBI	
Book value of total liabilities to book value of total assets	LEVERAGE	
Standard deviation of profit before tax	Vol PTBI	
Company common stock	BTM	
Earnings before unexpected items minus operating cash flow	Abnarluate	
Standard deviation of special cases	VolSpecialitem	
Standard deviation of operating cash flow	Cash Flow	
Fluctuations in operating loss carryforwards	Vol CHG NOLCF	
Operating loss carryforwards	NOLCF	
Return on buying and holding shares annually	Return	
The natural logarithm of the company's common stock	SHARES- OUT	
Loss of the company	LOSS	

Variable	
Tax avoidance	
Effective tax rate (ETR)	The ratio of corporate tax expense to pre-tax profit A decrease in the effective tax rate indicates a high level of tax avoidance [17]; Therefore, the calculated tax rates are multiplied by a negative number of one (-1)
Book tax difference (BTD)	The ratio of the difference between profit before tax and tax income on total assets Tax revenue is obtained by dividing the tax expense by the legal tax rate. An increase in the tax book difference indicates a high level of tax avoidance [17].

2.3 Transparency of financial reporting and tax compliance

The research model will be as follows:

Model (2.5)

$$TAXAVOID_{i,t} = \beta_0 + \beta_1 TRANS_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 LEV_{i,t} + \beta_4 ROA_{i,t} + \beta_5 CINT_{i,t} + \beta_6 INCINT_{i,t} + \varepsilon_{i,t} \quad (2.5)$$

where in:

TAX AVOID_{i,t}: tax avoidance

TRANS_{i,t}: Financial reporting transparency

SIZE_{i,t}: Company size

LEV_{i,t}: financial leverage

ROA_{i,t}: profitability

CINT_{i,t}: investment intensity in fixed assets

INCINT_{i,t}: Intensity of investment in inventory

The transparency of financial reporting (TRANS_{i,t}) is an independent variable of the research, and in this research two criteria of disclosure quality and profit transparency have been used to determine it.

1. Disclosure quality (DISC): To measure this variable, the points belonging to each company are used, these points were extracted by the Tehran Stock Exchange Organization and through the announcement of the quality of disclosure and appropriate information. This criterion was also used in the research of Mehrazin et al. [29], Gelb and Polzarvin [13], Lin et al. [28].
2. Earning Transparency: This criterion is used according to Chyz et al. [6], and its value is equal to the determination coefficient R², the regression caused by stock returns on earnings and changes in profitability (model 2.6).

Model (2.6)

$$R_{i,t} = \alpha_0 + \alpha_1 E_{i,t}/P_{i,t-1} + \alpha_2 \Delta E_{i,t}/P_{i,t-1} + \varepsilon_{i,t} \quad (2.6)$$

In this model, the variables are:

$R_{i,t}$: annual return of stock i in year t

$E_{i,t}$: Earnings per share before extraordinary items of firm i in year t

$\Delta E_{i,t}$: change in earnings per share before extraordinary items from year $t-1$ to year t

$P_{i,t-1}$: stock price at the end of year $t-1$

The dependent variable of this research is tax avoidance (TAX AVOID $_{i,t}$) of companies. For this purpose, three alternative scales are used to measure tax avoidance, which are as follows:

1) Effective rate of tax cost [xxxv](ETR $_{i,t}$): It is obtained by dividing the tax cost of company i in year t by the pre-tax income of company i in year t [16].

2) Effective rate of cash tax paid (CASH ETR $_{i,t}$): the ratio of cash tax paid (paid) of company i in year t to the pre-tax income of company i in year t .

3) tax book difference [xxxvi](BTD $_{i,t}$): the difference between accounting profit and taxable profit of company i in year t , which is calculated through the difference between accounting profit (profit before tax deduction) and taxable profit [8]. Also, in order to homogenize, this variable was divided by the book value of total assets. It should be noted that the taxable profit is obtained by dividing the company's tax expense by the legal tax rate, which is equal to 22.5%.

2.4 Ownership structure and tax avoidance

The assumed tax avoidance model (BTD, 1-CASHETR) is as follows:

Regression 1 (2.7)

$$\begin{aligned} X = & B_0 + B_1 ASSETS + B_2 BVE_{it} + B_3 SGR_{it} + B_4 LEV_{it} + B_5 ROA_{it} \\ & + B_6 QRATIO_{it} + B_7 OPERCYCLE_{it} + B_8 AGE_{it} + B_9 CASH_{it} \\ & + B_{10} CAPEXP_{it} + B_{11} LOSS + B_{12} BIG_AUDIT_{it} + \sum it \end{aligned} \quad (2.7)$$

The following regression relationship is used to calculate INVMILLS. In the following model, each of the independent variables of the hypotheses (structure) (ownership) is placed instead of X . In this model, instead of X , 1BH, HB2 and INIST are placed once. It is obtained by inverting the disturbance term of the INV_MILLS variable.

Regression 2 (2.8)

$$\begin{aligned} X = & B_0 + B_1 ASSETS + B_2 BVE_{it} + B_3 SGR_{it} + B_4 LEV_{it} + B_5 ROA_{it} \\ & + B_6 QRATIO_{it} + B_7 OPERCYCLE_{it} + B_8 AGE_{it} + B_9 CASH_{it} \\ & + B_{10} CAPEXP_{it} + B_{11} LOSS + B_{12} BIG_AUDIT_{it} + \sum it \end{aligned} \quad (2.8)$$

To calculate INVMILLS, the regression equation (2.8) is used, which is placed instead of X of each of the independent variables of the hypotheses (ownership structure, BH2, BH1 and INIST).

2.5 Financial leverage and tax avoidance

To achieve the objectives of the research, the general ordinary least squares regression model of composite data and specifically the general framework of the model presented by Gunn et al. [15], are used.

Model (2.9)

$$\begin{aligned} Lev_{it} = & \alpha + \beta_1 TA_{it} + \beta_2 Size_{it-1} + \beta_3 Growth_{it-1} + \beta_4 DivPay_{it-1} \\ & + \beta_5 ROA_{it-1} + \beta_6 Collateral/Asset_{it-1} + \varepsilon_{it} \end{aligned} \quad (2.9)$$

$$\begin{aligned} Lev_{it} = & \alpha + \beta_1 TA_{it} + \beta_2 TA_{it} * COD_{it} + \beta_3 COD_{it} + \beta_4 Size_{it-1} + \\ & + \beta_5 Growth_{it-1} + \beta_6 DivPay_{it-1} + \beta_7 ROA_{it-1} + \\ & + \beta_8 Collateral/Asset_{it-1} + \varepsilon_{it} \end{aligned}$$

2.6 Tax avoidance

The tax avoidance variable was calculated based on the adjusted model of Desai and Dharmapala [7], which includes two steps; In the first step, in order to estimate the discretionary arrears, the total arrears are calculated, and then the DA-modir discretionary arrears are calculated using the modified Jones model [21]. The discretionary arrears (DA-mod) are calculated using equation (2.10).

Model (2.10)

$$\frac{Accruals_{it}}{Assets_{it-1}} = \alpha \left(\frac{1}{Assets_{it-1}} \right) + \beta_2 \left(\frac{\Delta Sale_{it} - \Delta AR_{it}}{Assets_{it-1}} \right) + \beta_3 \left(\frac{PPE_{it}}{Assets_{it-1}} \right) + \varepsilon_{it} \quad (2.10)$$

Where:

Accrualsit: total arrears of company i in year t 1-Assetsit total assets of company i in year t-1

ASaleit: Change in sales of company i in year t

AARit: change in company i's accounts receivable in year t.

PPEit: property of machinery and equipment of company i in year t

In the second step, a part of the difference between accounting profit and taxable profit (BTD) which cannot be referred to profit management, is calculated and based on this, the tax avoidance variable is calculated using equation (2.11):

Model (2.11)

$$BTD_{it} = b_0 + b_1 DA - mod_{it} + \varepsilon_{it} \quad (2.11)$$

where in:

BTDit: the difference between the accounting profit and the taxable profit of company i in year t divided by the total assets for company i in year 1. Accounting profit is the profit before tax deduction and taxable profit is the tax expense divided by the tax rate of accepted companies. It has been obtained in the Tehran Stock Exchange.

DA: - modit optional arrears for company i in year t divided by total assets for company i in year 1-t

It ε : residual of company i in year t.

In equation (2.10), the remaining amount is a part of the difference between accounting profit and taxable profit, which cannot be explained by changes in optional arrears, and is actually a measure of tax avoidance.

It should be noted that in the initial model presented by Desai and Dharmapala [7], total arrears were used as an indicator of profit management. Abdelfattah and Aboud [1], presented research called "Tax avoidance, corporate governance and corporate social responsibility: the case of the Egyptian capital market". This article examines the relationship between tax avoidance, corporate governance and corporate social responsibility (CSR) disclosure, as well as the impact of CSR on stock market returns using a sample of Egyptian companies in the period 2007-2016. They provide new strong evidence that corporate tax avoidance is positively related to CSR disclosure. They also found evidence that businesses with more complex boards, with the presence of family members or external members, provide more CSR disclosure. Finally, the findings of this study show that companies that make more CSR disclosures have higher stock returns, indicating that CSR adds value to the company. These findings have important implications for capital market users and policy makers in emerging economies.

Gunn et al. [15], conducted research entitled "Methodology to measure the quality of tax avoidance based on findings from the Netherlands". This research first raises the criticism that studies on tax avoidance have not considered an important aspect, and that is paying attention to the quality of tax avoidance, which has not been addressed in academic studies. For this reason, this study has presented a new methodology for measuring the quality of tax avoidance. This study has examined ten indicators related to the research topic in 14 Dutch companies. In fact, the methodology of this research was based on the selection of different case studies. The first step is based on the selection of related studies, the second step is the answer to why and how to use quantitative methodology, and finally the third step is based on showing the quality indicators derived from the studies. One of the most important findings of the research is that the results are influenced by the quality of the data provided. In fact, the lack of data has had a negative effect on the results in some cases. Therefore, it can be claimed that transparency is an essential element and if companies have sufficient information transparency, the quality of tax audits will increase greatly.

Also, research findings show that companies can provide better tax transparency by increasing technical expertise and appropriate measures. Also, the methodology presented in this research can be effective in future studies on the quality of information disclosure and social responsibility of companies. It is important to mention that this study emphasizes internal validity and the need to examine external validity and improve it in future studies is felt.

Di Gioacchino and Fichera [9], conducted a study titled "Tax evasion and tax ethics based on social network analysis". This research has presented a model that includes incentives to pay taxes, penalties, tax morale and ethics, and credit and honor in social behavior. One of the assumptions of this study is that each person is influenced by others in the tax attitude. The current research model has been simulated for different situations with different parameters. One of the most important research findings is the role of financial powers. In fact, the results showed that the use of financial powers according to knowledge in the network structure can be positively effective on the tax regime, and in short, financial powers can increase tax payment and prevent tax evasion.

Faraji et al. [11], conducted research called "comparability of financial statements, product market competition and tax avoidance". Companies are always looking for ways to pay less tax through tax avoidance. By highlighting companies' similarities and differences, comparing financial statements enables users to identify unusual corporate transactions and reduce managers' tendency to avoid taxes. Therefore, the purpose of this study is to investigate the effect of comparing financial statements on tax avoidance and also to investigate the moderating role of market competition in this field. For this purpose, using multiple regression analysis on panel data, the data of 110 companies admitted to the Tehran Stock Exchange during the period of 2013-2018 have been analyzed. The results show that comparing financial statements as a governance mechanism prevents managers' opportunistic behaviors, including tax avoidance. The findings also show that the negative relationship between comparability and tax avoidance is less severe in firms in highly competitive industries. This result supports the view that competitive pressure can increase managers' incentives to avoid taxes by providing more money to invest and face competition.

Nazemi and Poorangha [30], conducted research called "Investigation of the Supervisory Role of the Board of Directors in Tax Avoidance of Family Companies Listed in the Tehran Stock Exchange". The main goal of their research is to test the relationship between family ownership and tax avoidance of companies listed on the Tehran Stock Exchange, taking into account the moderating role of the effective supervision of the board of directors. For this purpose, effective tax rate criteria have been used to measure tax avoidance. The statistical population of this research is all the companies admitted to the Tehran Stock Exchange and the statistical sample includes 87 companies admitted to the Tehran Stock Exchange, which were investigated during the years 1386 to 1393. The average comparison test of two independent populations and multivariate linear regression statistical analysis were used to test the research hypotheses. The results of the research show that the amount of tax avoidance in family companies is relatively lower than the amount of tax avoidance in other companies. Also, there is a significant positive relationship between the percentage of shares owned by the CEO in family companies and the effective tax rate, and the variables of the supervisory role of the board of directors moderate this relationship. Therefore, in family companies, the independence of the board of directors and the size of the board of directors intensify and the duality of the role of the CEO and the chairman of the board weakens the relationship between the percentage of shares owned by the CEO and the effective tax rate.

Shibani Tzerji et al. [32], conducted research called "Investigating the effect of customer concentration on tax avoidance by considering the company's market share". The purpose of their research was to investigate the effect of customer focus on tax avoidance by considering the company's market share. The standard for measuring tax avoidance is the difference between the legal and actual tax rates of the company. The research sample included 79 companies listed in the Tehran Stock Exchange for the period of 2014 to 2014 and the data were analyzed using regression. The research findings showed that the company's customer focus has a positive and significant effect on its tax avoidance activities. In addition, the positive relationship between customer focus and tax avoidance is more prominent when the company has a lower market share in the industry in which it operates. The level of customer concentration affects the operational performance, cash flow risk and financial policies of the company, hence it is expected to affect the level of participation in tax avoidance activities. The company's customer focus leads to the demand for maintaining more liquidity and less financial fluctuations. Since tax planning can increase cash flows and accounting profits, companies with a concentrated customer base may be more likely to participate in tax avoidance activities.

According to the stated principles and theories, the aim of the current research is to present the model of internal and external factors in the tax avoidance process of companies listed in the Tehran Stock Exchange. To achieve the stated goal, the following questions must be answered:

1. What are the internal factors of the company's tax avoidance process?
2. What are the extra-organizational factors of the company's tax avoidance process?

3. What is the pattern of measuring tax avoidance in private companies, the effective factors and the relationships between them?

3 Research Methodology

This research is fundamental research in terms of dealing with the basics of explaining the tax avoidance measurement model in private companies, the effective factors and the relationships between them based on interpretive structural modeling. It is also practical research due to providing practical recommendations. Therefore, it can be said that this research is of fundamental-applied type. The present research is exploratory in nature; Below is an issue that has not been addressed in this way and at this level before. For this purpose, a combined approach was used, the purpose of which is to combine qualitative and quantitative research methods to achieve a suitable method in order to achieve the research goals. In exploratory research projects, the researcher tries to find out about an uncertain situation. For this purpose, qualitative data is collected first. Carrying out this step leads the researcher to describe countless aspects of the investigated phenomenon. By using this initial identification, the desired components for designing the model are provided to the researcher. Next, the researcher designs the research model using Interpretive Structural Modeling (ISM).

3.1 The Studied community and Sample

The statistical population of this research was experts familiar with the subject matter of the research, which includes professors and experts related to the field of taxation. A sample of 20 experts were questioned in this research. All the experts are managers and tax experts and several university professors related to the subject, who were selected by purposeful sampling. To check the validity of the measurement tool, content validity was used and the questionnaire was given to professors and experts to confirm the validity of the questions. In the purposeful sampling of the current research, judgmental purposeful sampling has been used, which means that a limited number of people had the appropriate information to answer the research questions, and finally 20 tax experts answered the questions. Questionnaires were collected through structured interviews. Experts in this research were people who had at least 10 years of experience in tax affairs or teaching in finance or tax affairs.

3.2 Data Collection Method

The method of data collection in this research is as follows:

Library method: Library resources were used to compile theoretical foundations, definitions and concepts, which were the most important and useful sources of articles, theses, conferences and books related to the research topic, databases and information sources and libraries of the country's universities.

Field method: In order to collect the desired information and measure the research indicators, a qualitative questionnaire for interpretive structural modeling, which has a matrix structure, was used. The indicators measured in the research, before being put to the survey in the form of a questionnaire, were exposed to the judgment of several experts in the field of research in universities, and finally, the questionnaire was agreed upon as a tool for data collection and model design. The model of these questionnaires is pre-designed questionnaires specific to the ISM model, and the research indicators are obtained from the research literature.

3.3 Data Analyzing Method

The correct classification and analysis of data and the correct use of existing techniques will ultimately lead to reliable results. After the researcher has collected, extracted and classified the data and prepared the frequency distribution table and distribution ratios, a new stage of the research process, which is known as data analysis, should begin. The important point in the analysis is that the researcher must analyze the information and data in the direction of the goal, answering the research questions and also evaluating them. Therefore, after the researcher determined his research method and collected the necessary data using appropriate tools, now it is his turn to categorize and analyze the collected data by using appropriate techniques that are compatible with the research method, and finally questions who have guided him in the research up to this stage, put them in the test crucible and clarify their task and finally be able to find an answer to the question that this research was a systematic effort to obtain. In this research, the Interpretive Structural Modeling (ISM) method was used to analyze and model the data.

4 Discussion and Results

In the analysis by means of interpretive structural modeling, at first, the variables that can affect the system are identified, these variables can include people, goals and tasks. In this step, the self-interaction matrix (SSIM) is created, in this matrix, symbols are used that show accessibility.

V: If element i affects element j

A: If element j affects element i

X: mutual influence of elements i and j

O: If there is no connection between elements i and j

To form the Initial reachability matrix, the symbols mentioned in the previous step should be converted into zero and one symbols. In this way, the initial accessibility matrix is obtained. After obtaining the Initial reachability matrix, the Final reachability matrix is obtained by considering the transferability in the relationships obtained. This matrix shows the degree of dependence and influence of each factor. The penetration power is obtained from the sum of the numbers in each row and the degree of dependence is obtained from the sum of the numbers in each column. In this step, using the final accessibility matrix, the output and input set for each agent is obtained. The output set for each agent includes the agent itself and the factors that affect them, and the input set for each agent also includes the agent itself and the factors that are influenced by them. After determining the output and input set and the sharing between the two output and input sets is determined for each obstacle. It is obtained through the joint set for each obstacle. Factors whose output and common set are completely coordinated and have the lowest power of influence are placed at the lowest level of the interpretive structural hierarchy. When the factors of the highest level are determined in the first iteration, these factors should be removed from the other factors. This process continues until the level of all factors is determined.

In order to collect the opinions of experts regarding the identification of the relationships between the extracted factors and to provide a structural model of interpretation of these factors, a questionnaire was designed and distributed among 20 tax experts. By reviewing the available literature through structured interviews with experts, 12 main factors introduced from the literature were confirmed as follows (Table 1).

Table 1: Introduced factors affecting the tax avoidance process

Row	Criterion	Sub-criteria	Symbol
1	Internal factors	Financial Leverage	V1
2		size of the company	V2
3		Internal information quality	V3
4		Ownership structure	V4
5		Corporate governance	V5
6	External factors	Financial limitations	V6
7		Customer focus	V7
8		Product market competition	V8
9		Corporate social responsibility	V9
10		social trust	V10

To carry out this research, a self-interaction matrix is first created, in this matrix, the VOXA symbols described in the previous section are used to extract the self-interaction matrix from the experts' point of view, which can be seen in Table (2).

In order to obtain the primary access matrix, the symbols mentioned in table (2) must be converted into zero and one symbols. In this way, the primary access matrix is obtained according to table (3) and the following rules:

1. If the entry (i, j) in the structural self-interaction matrix is symbol V, then in the primary access matrix (i, j) the number will be one and the entry (j, i) will be zero.
2. If the entry (i, j) in the structural self-interaction matrix is symbol A, then in the initial access matrix (i, j) the number will be zero and the entry (j, i) will be the number one.
3. If the entry (i, j) in the structural self-interaction matrix is symbol X, then in the primary access matrix (i, j) the number will be one and the entry (j, i) will be the number one.
4. If the entry (i, j) in the structural self-interaction matrix is symbol O, then in the initial access matrix (i, j) the number will be zero and the entry (j, i) will be zero.

Table 2: Self-interaction matrix (SSIM)

V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	Factors
	A	A	A	A	X	O	X	O	V	V1
		O	A	O	A	O	O	O	O	V2
			O	O	O	V	V	A	V	V3
				O	O	O	V	A	V	V4
					V	V	V	A	V	V5
						V	V	O	O	V6
							A	A	A	V7
								A	O	V8
									O	V9
										V10
										V10

Table 3: Primary access matrix

V10	V9	V8	V7	V6	V5	V4	V3	V2	V1	Agents
1	0	1	0	1	0	0	0	0	0	V1
0	0	0	0	0	0	0	0	0	1	V2
1	0	1	1	0	0	0	0	0	1	V3
1	0	1	0	0	0	0	0	1	1	V4
1	0	1	1	1	0	0	0	0	1	V5
0	0	1	1	0	0	0	0	1	1	V6
0	0	0	0	0	0	0	0	0	0	V7
0	0	0	1	0	0	0	0	0	1	V8
0	0	1	1	0	1	1	1	0	0	V9
0	0	0	1	0	0	0	0	0	0	V10

After the primary accessibility matrix was obtained, the secondary relationships of the indicators were controlled. The secondary relationship is such that if index i leads to index j and also index j leads to index k, then index i will also lead to index k.

If this condition was not established in the initial access matrix, the modified matrix and the missing relationships should be replaced; This process is called adapting the initial access matrix. In this step, all the secondary relationships between the variables were checked and the final access matrix was obtained according to Table (4).

The houses marked with *1 indicate that they were zero in the initial access matrix and got one after adaptation (with the help of MATLAB programming). In this matrix, the power of penetration and the degree of dependence of each variable are also shown.

The influence of a variable is obtained from the sum of the variables affected by it and the variable itself, and the degree of dependence of a variable is obtained from the sum of the variables that are affected by it and the variable itself. MATLAB software was used to calculate the final access matrix. Finally, the power value or repetition 4 was calculated. The final formula for calculating this power was obtained from the following relationship, where R_j is the initial availability matrix and R_f is the final availability matrix. The power of the test is indicated by K .

Model (4.1):

$$R_f = R_j^K = R_j^{K+1}, K > 1 \tag{4.1}$$

In the next step, using the access matrix, after determining the input and output sets, the share of these sets is obtained for each of the factors. The output set of an agent includes the agent itself and the agents that affect them, which can be identified by the "1"s in the corresponding line. The input set of an agent includes the agent itself and the factors that are affected by them, which can be identified by the "1"s in the corresponding column. After determining the input and output sets, their share is determined for each of the agents.

Factors whose output and common sets are completely similar are placed at the highest level of the hierarchy of the interpretive structural model. In order to find the constituent components of the next level of the system, the

Table 4: Modified final access matrix

infiltrate	V10	V9	V8	V7	V6	V5	V4	V3	V2	V1	Agents
6	1	0	1	*1	1	0	0	0	*1	*1	V1
6	*1	0	*1	*1	*1	0	0	0	*1	1	V2
7	1	0	1	1	*1	0	0	*1	*1	1	V3
7	1	0	1	*1	*1	0	*1	0	1	1	V4
7	1	0	1	1	1	*1	0	0	*1	1	V5
6	*1	0	1	1	*1	0	0	0	1	1	V6
1	0	0	0	*1	0	0	0	0	0	0	V7
6	*1	0	*1	1	*1	0	0	0	*1	1	V8
10	*1	*1	1	1	*1	1	1	1	*1	*1	V9
2	*1	0	0	1	0	0	0	0	0	0	V10
	9	1	8	10	8	2	2	2	8	8	Dependency

components of the highest level are removed in the mathematical calculations of the relevant table, and the operations related to determining the components of the next level are performed like the method of determining the components of the highest level. This operation is repeated until the constituent components of all levels of the system are determined.

Table 5: Leveling of factors (first iteration stage)

Level	Common collection	Input set	Output set	Agents	Row
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-7-8-10	V1	1
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-7-8-10	V2	2
	3	3-9	1-2-3-6-7-8-10	V3	3
	4	4-9	1-2-4-6-7-8-10	V4	4
	5	5-9	1-2-5-6-7-8-10	V5	5
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-7-8-10	V6	6
1	7	1-2-3-4-5-6-7-8-9-10	7	V7	7
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-7-8-10	V8	8
	9	9	1-2-3-4-5-6-7-8-9-10	V9	9
	10	1-2-3-4-5-6-8-9-10	7-10	V10	10

Table 6: Leveling of factors (second iteration stage)

Level	Common collection	Input set	Output set	agents	Row
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8-10	V1	1
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8-10	V2	2
	3	3-9	1-2-3-6-8-10	V3	3
	4	4-9	1-2-4-6-8-10	V4	4
	5	5-9	1-2-5-6-8-10	V5	5
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8-10	V6	6
	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8-10	V8	8
	9	9	1-2-3-4-5-6-8-9-10	V9	9
2	10	1-2-3-4-5-6-8-9-10	10	V10	10

After determining the levels of each of the factors and also considering the final accessibility matrix, the interpretive structure model is drawn. The final model obtained consists of 5 levels. The factors that are at the higher levels of the hierarchy have less influence and more effectiveness. The customer focus factor is more effective in relation to the research topic and explaining the pattern of influence of fundamental factors on the tax avoidance process in private companies, and in contrast to the corporate social responsibility factor, they have the most influence and the least

Table 7: Leveling of factors (third iteration stage)

level	Common collection	Input set	Output set	agents	Row
3	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8	V1	1
3	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8	V2	2
	3	3-9	1-2-3-6-8	V3	3
	4	4-9	1-2-4-6-8	V4	4
	5	5-9	1-2-5-6-8	V5	5
3	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8	V6	6
3	1-2-6-8	1-2-3-4-5-6-8-9	1-2-6-8	V8	8
level	9	9	1-2-3-4-5-6-8-9	V9	9

Table 8: Leveling of factors (fourth iteration stage)

level	Common collection	Input set	Output set	agents	Row
4	3	3-9	3	V3	3
4	4	4-9	4	V4	4
4	5	5-9	5	V5	5
	9	9	3-4-5-9	V9	9

Table 9: Leveling of factors (fifth iteration stage)

level	Common collection	Input set	Output set	agents	Row
5	9	9	39	V9	9

influence. Other variables have both influencing and influencing effects in the presented model (Figure 1).

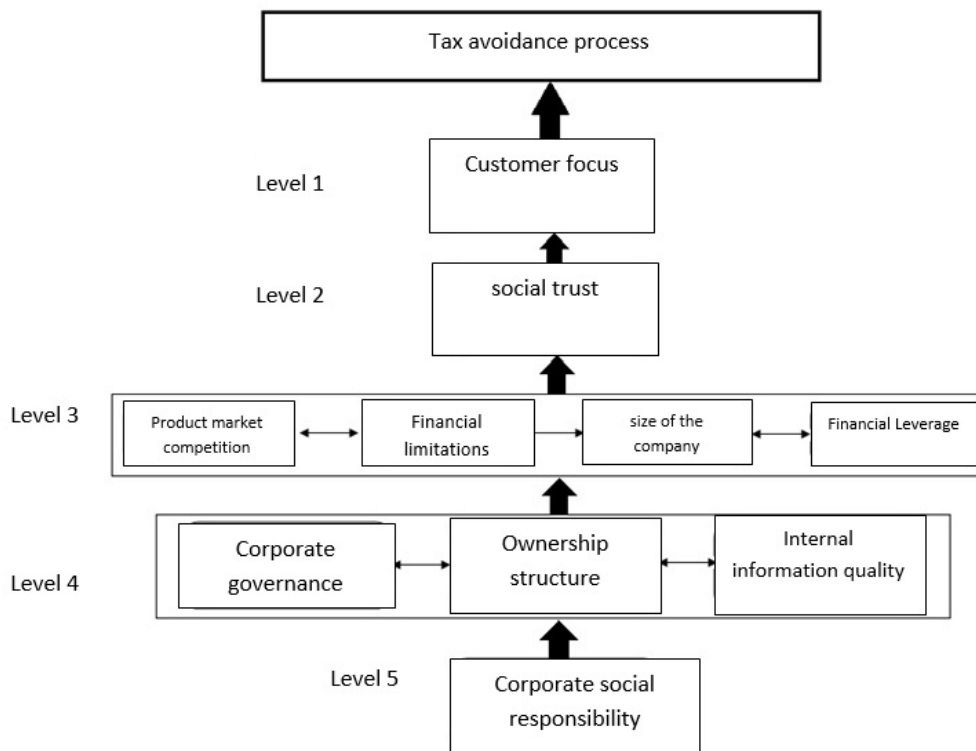


Figure 1: The interpretive structural model of the research

After drawing the structural model, the permeability-dependence matrix diagram has been created and the variables have been classified into the following four categories.

1. Autonomous variables: this category includes variables that have weak and moderate power of direction and dependence. These variables are relatively unconnected to the system and have little and weak connections with the system.
2. Dependent variables: these types of variables have low guiding power but relatively high dependence. These variables are usually outcome or objective variables.
3. Linked variables: the third category are variables that have high guiding power and high dependence. These variables are non-static, because any kind of change in them can affect the system, and finally, the system feedback can change these variables again and again.
4. Influential variables: Variables that have high guiding power but low dependence is classified as influent variables, or in other words, stimuli.

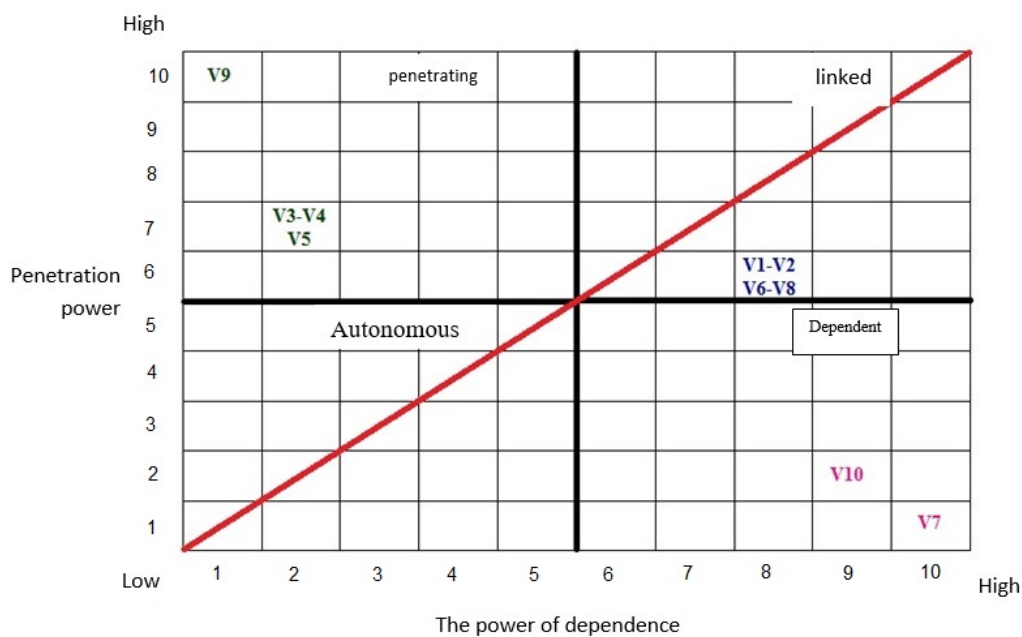


Figure 2: Mikmek analysis diagram

The results of the Mikmek analysis showed that 10 factors related to the explanation of the pattern of influence of fundamental factors on the process of tax avoidance in private companies are divided into three categories of penetrating, dependent and linked factors. Factors of customer focus and social trust because they have low power of influence and high power of dependence, so they are dependent factors. The factors of corporate social responsibility, ownership structure, corporate governance and quality of internal information are influential factors or main drivers because they have high influence power and low dependency power. Also, financial leverage factors, company size, competition in the product market, and financial constraints that are in the vicinity of the strategic red line, in addition to being strategic research variables, are classified as linked variables.

5 Conclusion

The results of interpretive structural modeling showed that internal organizational factors in the process of tax avoidance include financial leverage, company size, quality of internal information, ownership structure and corporate governance. Also, external organizational factors include financial constraints, customer focus, product market competition, corporate social responsibility, and social trust. Finally, based on the mentioned factors, the research model was presented. After determining the levels of each of the factors and also considering the final accessibility matrix, the interpretive structure model was drawn. The final model obtained consists of five levels. The factors that are in the higher levels of the hierarchy have less influence and more influence. The customer focus factor is more effective in relation to the research topic and explaining the pattern of influence of fundamental factors on the tax avoidance

process in private companies. Having concentrated customers in a company can be a factor to encourage the company to maintain cash. Customer focus is associated with higher cash flow risk. If a company relies on several major customers, losing a deal with one of these customers can lead to a sharp drop in cash flow for that company. This can happen because the customer has gone bankrupt or switched to another supplier. The company is also likely to have a significant amount of bad debt, which will lead to a significant reduction in future cash inflows. Consequently, a supplier with concentrated customers may consider maintaining excess cash to protect against potential cash flow risk. The level of customer concentration affects the operational performance, cash flow risk and financial policies of the company, hence it is expected to affect the level of participation in tax avoidance activities. The company's customer focus leads to the demand for maintaining more liquidity and less financial fluctuations. The results obtained in this research are in line with the researches of Shibani Tzerji et al. [32], and Huang et al. [18]. On the other hand, the social responsibility factor of the company has the most influence and the least influence. Social responsibility activities are generally carried out by companies in the form of corporate social responsibility, which includes aspects of profit, humanity and the environment, and tax compliance. Paying taxes is a form of corporate social responsibility activity indirectly to society because taxes are basically used to support national development and improve people's welfare. If a company that carries out CSR activities but avoids taxes, it loses its reputation in the eyes of stakeholders and destroys the positive effect related to the CSR activities carried out. Therefore, companies that practice corporate social responsibility do not tend to avoid taxes because it is not an ethical and responsible action. Research conducted by Lanis and Richardson [26], stated that there is a negative relationship between corporate social responsibility and tax avoidance. While in the research of Wahyudi [34], it is stated that there is no significant effect between corporate social responsibility and tax avoidance. The studies of Lanis and Richardson [26], and Siswanti and Kiswanto [33], also show that the more corporate social responsibility is disclosed by the company, the less tax avoidance by the company. Therefore, a socially responsible company should use less tax avoidance methods. Other variables examined in the research have both influence and impact in the presented model, such as social trust, financial leverage, ownership structure, etc. In addition, the results of the Mik-Mak analysis showed that 10 factors related to the explanation of the pattern of influence of fundamental factors on the process of tax avoidance in private companies are divided into three categories of penetrating, dependent and linked factors. Factors of customer focus and social trust, because they have low power of influence and high power of dependence, so they are dependent factors. The factors of corporate social responsibility, ownership structure, corporate governance and quality of internal information are influential factors or main drivers because they have high influence power and low dependency power. Also, financial leverage factors, company size, competition in the product market, and financial constraints that are in the vicinity of the strategic red line, in addition to being strategic research variables, are classified as linked variables. Also, the criterion of "social trust" is the most important and therefore the most important sub-criteria in presenting the tax avoidance model. After that, the criterion of "financial limitations" is placed in the second priority. The factors of competition in the product market and social responsibility of the company are ranked third and fourth.

Since tax is considered one of the main revenues of the government, trying to persuade people to pay it and prevent tax evasion is one of the government's priorities. Many developed countries of the world use tax revenues to improve and build cities and create security within the country. Iran is one of the countries that has little tax income and most of the country's expenses are provided through oil revenues. Due to the unprecedented drop in oil prices and the budget deficit, the importance of tax revenues doubles. Based on the results of the present research, the highest degree of importance goes back to the criteria of social trust, financial constraints, competition in the product market, company size and customer focus, respectively. Therefore, social trust is an important and cultural element. The existing literature in this field also shows that social trust has a wide range of social and economic consequences, such as facilitating economic growth and social productivity, international trade and investment, financial development, corporate financing, and mergers and acquisitions. Works affect. According to the obtained results, we predict that in societies with higher levels of social trust, managers will refrain from actions that may lead to damage of the trust given to them by the society. As a result, they are expected to pay their fair share of corporate tax. Therefore, we expect social trust to be negatively associated with tax avoidance. Also, when companies are under financial constraints, compared to other companies that have better access to the capital market, due to the fact that access to foreign financial resources is expensive, they have more incentive to avoid paying taxes to secure financial resources. By using bold tax behavior, financially constrained companies can save more cash, and these companies tend to use the saved cash to solve the investment problem. According to the results of the research, it is suggested that the tax affairs organization should audit the companies that have significant financial limitations more carefully, because their probability of tax avoidance is higher than other companies and from the bold tax strategy. they follow Therefore, they are classified as high-risk tax companies. Also, the results show that companies that have more power in the product market, or in other words, are in a monopoly situation, will engage in more tax avoidance activities. It is suggested that the legislative bodies should pay more attention in formulating laws and regulations related to regulatory affairs

in industries where there is less competition, and stricter laws to prevent activities that cause tax evasion or payment avoidance activities. Illegal taxes in the mentioned companies are considered. Paying attention to the factors affecting tax avoidance both in society and in the environment of organizations can play a vital role in reducing tax avoidance. A society where there is lower tax avoidance and organizations trust the government and do not avoid paying their taxes can be very productive and progressive. This two-way positive behavior will have positive consequences for both individuals and businesses active in the environment.

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