

Privatization, Changes in Management Accounting Practices and their impacts on Financial Performance – Evidence from Iran

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Abstract

The purpose of this study is to investigate the impacts of external and internal organizational factors of the privatization process on management accounting practices and the impact of these changes on the financial performance of listed companies on Tehran Stock Exchange that more than 51% of the companies' shares have been transferred to the private sector. This research, based on institutional and structural theories, provides an exhaustive explanation of changes in management accounting practices by considering the conflict of the internal and external factors and the role of the human factor in the privatization process. In this study, according to the general policies of Article 44 of the Constitution, to increase competitive advantage, management accounting has been used as a mediating variable in the relationship between privatization and financial performance. To this research, 60 companies which their ownership transferred to the private sector during the period from 2002 to 2018 were investigated. To collect data, questionnaire survey and companies financial statements were adopted and to test the hypothesis Structural equation modeling using Smart PLS software.

The findings of the study show that external and internal organizational factors in the privatization process, have a significant impact on the management accounting practices that these changes effects on the financial performance of companies.

The result is that in the privatization process, the external and internal organizational factors and contradiction of the incompatibility of these factors with the human factor provide the conditions for changes in management accounting practices that effect on the financial performance of companies. The results of the current study could be useful for the effectiveness of management accounting changes and their impact on the financial performance of companies in the merger and acquisition processes in developing countries.

Keywords: Privatization, External Organizational Factors, Internal Organizational Factors, Management Accounting Practices, Management Accounting Innovations, Merger and Acquisition, Financial Performance.

Introduction

Increasing the volume of activities and inefficient and inefficient consumption of resources of state-owned companies in developing countries, including Iran, informed the government that in order to improve efficiency and increase the productivity of the country's material and human resources and make the government more efficient in policy-making and economic development transfer shares of state-owned companies to the private sector (Third

Plan Law). Considering the increasing trend of transferring state-owned companies to the private sector in recent years in accordance with the policies of Article 44 of the Constitution, there is a need to determine the effects of privatization policy on the performance and structure of companies, which is to increase the efficiency of their activities (Dehghan et al., 2015).

In the last decade, major changes have taken place in the business world; Among these developments can mention to the growth of the private sector, globalization, increased competition, and the transformation of large national organizations into multinational corporations (Spathis and Constantinides, 2004). In recent years, privatization has led to rapid changes in the environment and increased competitive pressure, which in addition to changing the external environment of organizations, affects the internal systems and their performance. As companies become more competitive, especially after privatization and efforts to reduce the cost of goods and services, desirable governance of the companies requires new techniques to adapt to change. Thus, management accounting is expected to be used more in the future to adapt and use innovative techniques to provide a superior advantage in competitive environments more than before (Ahmad, 2012). In this regard, there are many factors that have changed management accounting practices (including methods and techniques) of the organization and these changes can affect the financial performance of companies.

Given that Iran is a developing country, it is natural that domestic companies are constantly changing; In this regard, previous researches acknowledges that one of the most important and influential factors on companies change is the development of management accounting in the economies of developing countries; Also, considering that the move towards companies privatization is considered a very important change in developing countries such as Iran, it can be said that further researches in this area are an undeniable necessity (Safari-Sarchah et al., 2019; Askary et al., 2008a,b). Previous researches have presented evidence of the impact of intra-organizational factors and other possible factors on companies privatization (Parker, 1995; Wonderley, 2014; Al-Khasawneh et al., 2020; Safari Sarchah et al., 2019; Dianti Deilami et al., 2016; Dehghan et al., 2015; Johnson et al., 2000); But as far as we know and it is obvious, so far few studies have examined the external and internal factors of the privatization process on management accounting methods in Iran; Therefore, to fill this information gap, the present study intends to test these relationships experimentally. In this study, the role and effect of this relationship on the financial performance of companies are also examined.

According to the above contents in this study, we seek to investigate this issue:

1. Do external and internal organizational factors of the privatization process affect management accounting practices (including methods and techniques) in the selected privatized companies in Iran?
2. Can the relationship raised in the first question affect the financial performance of companies?

These findings help to better understand the companies privatization process, its importance, the important role of new management accounting practices in the development of emerging economies and the improvement of corporate financial performance through privatization.

The present study discusses the following information gaps and enriches the existing background in the following ways:

First, Iran is a developing country, and given the obvious importance of examining the

factors affecting on the development of start-up companies, it is important to examine how these companies change and evolve and their privatization process.

Second, previous studies have focused on the effect of internal organizational factors for the development of management accounting, while in this study, the effect of external organizational factors on the change of management accounting practices has been considered.

Third, the research background shows that few studies have been conducted on the impact of factors affecting the privatization process on the financial performance of companies in emerging economies, especially Iran, therefore the present study is one of the pioneering studies that test this important.

Fourth, the present study enriches the theoretical foundations and background of past studies through the application of institutional and structural theories used in management accounting studies.

Fifth, unlike most previous researches, in this study, conditions that have changed the management accounting methods from inside and outside the company and have led to the improvement of companies financial performance have been considered; Among these conditions, we can mention the variables of organizational contradictions and the human factor, which have been less studied in similar internal studies.

Given the above, the main question of the present study is:

Do the external and internal organizational factors of the privatization process change the management accounting practices and do these changes affect the financial performance of companies?

In this study, after stating the introduction, first, the theoretical foundations and background of the research are presented and the research hypotheses are explained based on it, then the research methodology is drawn, then the research findings are presented using data analysis, and finally, we discuss the findings, and then the final part, the conclusion, is presented.

Background

As governments grow, competition and productivity decrease, and thus efficiency decrease, so to promote the development and increase efficiency and productivity, state-owned enterprises should be gradually transferred to the private sector, thus allowing them to take advantage of competitive advantage. (Vanhonnaeker, 2020; Ghiasvand, 2011; Leykun, 2020; Termes et al., 2020). In this regard, to develop privatization and take advantage of competitive advantage, the government decides to limit the scope of its activities and transfer the ownership or management of some of its owned economic units to the private sector (Cosset et al., 2020; Peers et al. , 2012). In this regard, privatization seems to be a fundamental solution to solve political, bureaucratic, social, economic and managerial problems (Asghar et al., 2016; Ramamonjiravelo et al., 2020; Dubliss, and Kansal, 2020).

Burns et al. (1999, 2004) argue that in order to understand the change in management accounting, it is necessary to examine both the internal and external environments of an organization (Waweru et al., 2004; Yazdifar, 2003, 2004/5). Although external factors may play a dominant and certainly recurring role as drivers of change (Scapens et al.,2003). Many researchers have used both categories in their researches on management accounting systems (Haldma and Laats, 2002; Abdel-Kader and Luther,2008). Accordingly, the formation of a proper management accounting system is influenced by different types of environmental and organizational factors. In this regard, Table (1) provides a summary of

external and internal organizational factors, related studies and researches result in the field of management accounting.

Table 1. The results of researchers' researches in the study of external and internal organizational factors

| Factors | | Researchers and year of research | Research results |
|-----------------------|--|--|--|
| Competition | | Haldma and Laats, 2002; Waweru et al., 2004; Sulaiman and Ramli, 2008; TuanMat et al., 2010; Dianati Deilami et al., 2016; Pirayesh and Seydi, 2015 | Competition affects management accounting systems |
| Technology changes | | Haldma and Laats, 2002; Waweru et al., 2004; Burns and Baldvinsdottir, 2007; Albu and Albu, 2012; Arabi and Kavianifard, 2013; Dianati Deilami et al., 2016; Pirayesh and Seydi, 2015; Askarany and Yazdifar, 2007, 2012, 2015; 2017; Askarany et al., 2012; Askarany et al., 2010; Askarany et al., 2007a,b; Nakhaei et al., 2019; Yazdifar and Askarany 2012; Yazdifar et al., 2008; Yazdifar et al., 2005/2006; Yazdifar et al., 2006; Yazdifar et al., 2019; Yazdifar et al., 2016; Yazdifar and Tsamenyi, 2005. | Technology changes are affected by management accounting systems |
| Environmental factors | Economic factors | Hopwood, 1972; Amat et al., 1994 | Environmental factors affect management accounting systems. |
| | Changing the business environment, deregulating the financial sector, new employment practices | Albu and Albu, 2012 | |
| | The role of market forces | Alhashmi, 2014 | |
| | Competitors pressure, customers demand, high expectations of shareholders | Khani and Ahmadi, 2012 | |
| | Change in the social, political and cultural environment | Pirayesh and Seydi, 2015 | |
| Customer | | Alhashmi, 2014; Pirayesh and Seydi, 2015 | Customer affects management accounting systems. |

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|----------------------------|---|---|
| Ownership change | Jones,1985; Yazdifar et al., 2008; Tsamenyi et al. , 2013 | Ownership change improves management accounting practices |
| Organization strategies | Haldma and Laats, 2002; TuanMat et al., 2010; Verbeeten, 2010; Albu and Albu, 2012 | Organization strategies influence changes in management accounting practices |
| Culture | Macarthur, 2006; Albu and Albu, 2012; Alhashmi, 2014 | Culture influences management accounting practices. |
| Management style | Hopwood, 1972; Sulaiman and Ramli, 2008; Pirayesh and Seydi, 2015 | Management style affects the change in management accounting methods. |
| Organizational structure | Innes and Mitchell, 1990; Haldma and Laats, 2002; Waweru et al., 2004; Abdel-Kader and Luther, 2008; TuanMat et al., 2010; Verbeeten, 2010; Albu and Albu, 2012 | Organizational structure influences changes in management accounting practices. |
| Company size | Haldma & Laats, 2002; Waweru et al., 2004; Abdel-Kader and Luther, 2008; Albu and Albu, 2012 | Company size affects management accounting practices. |
| Staff | Innes and Mitchell, 1990; Laitinen, 2001; Granlund, 2001; Al-Nimer, 2010 | Employees influence management accounting methods. |
| Intra-organizational power | Amat et al., 1994; Collier, 2001 | Intra-organizational power affects the change in management accounting methods. |

The main idea of privatization thinking is that the competitive environment and the market governing system force private enterprises and units to perform more efficiently than the public sector (Seo, 2020; Goodarzvand Chegini and Mirzad Zare, 2010). According to Galyan and Lutz (2007), Weijermars and Moeller, (2020), Villegas et al. (2020) and Ramamonjarivelo et al. (2020), privatization can have an optimal impact on corporate financial performance. Today, the management of business units is faced with different and more complex decisions and conditions than in the past. Business unit managers want to evaluate the companies performance; Therefore, several criteria have been proposed to evaluate the performance of business units, but none of these criteria alone can explain the financial performance of business units (Mahoney, 2011).

Accounting criteria are always considered by analysts due to their simplicity in the calculation, high comprehensibility and also due to the fact that they are calculated based on audited figures (Aliabadi et al., 2013). But criticisms of traditional performance metrics have led to the emergence of economic performance metrics. However, the criteria of economic performance are not without problems and are associated with shortcomings. Based on this, it is inferred that choosing only one criterion and relying on it alone is not appropriate to

evaluate financial performance, and using a combination of criteria to make more informed economic decisions is recommended (Azarbayjani et al., 2011). Simultaneous use of value-based metrics and appropriate accounting metrics can be a better reflection of financial performance appraisal. In choosing the best method from among the various methods of evaluating the performance of companies, sufficient care must be taken (Nikoomaram and Alaviyan, 2009).

In this regard, in the present study, to evaluate the financial performance of companies, the criteria of return on assets ratio, Tobin's Q ratio, economic value-added, growth opportunities and efficiency of the company have been used. The rate of return on assets is one of the financial criteria based on financial accounting (Zarei et al., 2020). Using this ratio is a simple way to compare the financial performance of a company and its competitors. This ratio shows how efficient management has been in converting assets into profits (Yalcin et al., 2012). One of the most reliable indicators of corporate performance is Tobin's Q, introduced by the famous economist Tobin. The higher the ratio, the higher the market value of the company in the stock market (Kashanipour and Rasaeian, 2001; Jafari et al., 2019). Also, economic value-added, along with traditional criteria, increases the explanatory power of market value-added. In other words, economic value added has increasing information content (Asadi et al., 2013). In this regard, Ardakani et al. (2018) study examined the effect of capital structure on the rate of return on assets and economic value added due to the intensity of competition in the product market in the industry.

Growth opportunities are assessed by the firm's sales growth. Obviously, companies with higher sales growth will perform better in the end. This growth can increase the company's profits and ultimately increase the wealth of shareholders (Gord et al., 2014). For the measured performance according to the data envelopment analysis model for each company, a number between zero and one will be considered, which the higher this number indicates the company's ability to use cheap resources and sell its goods and services correctly. Therefore, companies that have an efficiency score of less than one should reduce costs or increase their sales revenue to achieve the necessary efficiency (Demerjian et al., 2012). In this regard, in the table (2), the relevant researches from the thematic dimension are briefly mentioned:

Table 2. Summary of research background

| Name and year | Title of research | Variables | Summary of research results |
|-----------------------|---|--|--|
| Oanh Le et al. (2020) | Investigating the factors affecting Application of management accounting In Vietnamese companies, | business environment, competitive environment, company size, organizational culture, organizational structure, technology, human resources and management accounting application | competitive environment, organizational structure, technology factors and company size, human resource management factor and organizational culture, have a positive impact and opinion of managers and environment Businesses have a negative impact on the application of management accounting. |
| Nguyen et al. (2019) | Investigating the effective factors in use | production and business characteristics, | CEO's knowledge of management accounting, company size, manager youth, |

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|-------------------------------|---|---|---|
| | management accounting of Small and Medium Enterprises in Hanoi Vietnam | competitiveness, business strategy , CEO awareness, human resources quality and management accounting | business characteristics, market competition and human resources quality has a positive effect on the application of corporate management accounting and the level of competition has the least effect. |
| Pradhan et al. (2018) | Investigating the effect of management accounting methods on supply chain and performance of Companies in India | management accounting methods and supply chain performance and overall company performance | Adopting different management accounting methods for supply chain activities is the most appropriate strategy to strengthen the performance of any firm. |
| Bachiller (2017) | Impact of assessment of privatization on the performance of the company by meta-analysis | ownership change or privatization and the company's performance | privatized companies by public offering are better performance than that of privatized companies using other methods, including private sales, and does not support of the common hypothesis that privatization in developing countries does not improve financial performance. |
| Maziriri and Mapuranga (2017) | Investigating the impact of management accounting practices on the business performance of South African SMEs | management accounting practices and business performance | Management accounting practices have a positive effect on the business performance of small and medium enterprises. |
| Abubakar Nuhu et al. (2016) | Investigating the relationship between the use of management accounting methods with organizational change and organizational performance | management accounting methods and organizational change and organizational performance | Companies that use traditional management accounting methods, The traditional methods are still prevalent and such methods do not change with organizational change or performance; Rather, companies that use new methods of management accounting, experience much greater change and stronger performance. |
| Dianati Deilami et al. (2016) | Investigating the relationship between privatization, management accounting | privatization, management accounting methods and financial performance | A positive relationship between privatization and management accounting tools and tools management accounting and financial performance and privatization and financial |

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|-----------------------|---|---|---|
| | methods and financial performance in Tehran Stock Exchange using management accounting tool as mediating variable | | performance exist in Tehran Stock Exchange companies, which is a management accounting tool as an intermediary variable. Therefore, in today's competitive environment, companies must use the most advanced management accounting methods to improve their performance. |
| Ghasemi et al. (2015) | Investigating the relationship between competition, strategy, management accounting system and performance | competition, strategy, management accounting system and company performance | Changes in competition increase performance directly and indirectly through changes in the management accounting system and strategy and strategy changes lead to improved organizational performance through changes in the management accounting system. changes in the competition also improve performance by changing management accounting practices. |
| Abolhassani(2010) | The effect of privatization of state-owned companies on their economic value added | privatization of state-owned companies and economic value added | Privatization has no effect on economic value added of companies and in fact, has no significant performance and return and the average economic value-added before and after privatization has not changed much. |

An institutional theory emphasizes the role of social institutions in influencing organizational behavior (Higgins and Larrinaga, 2014). According to this theory, organizations control and limit their organizational behavior by setting cultural, legal, and ethical boundaries that ensure their future success (Hoffman, 1999; Scott, 2013). In this regard, various institutional mechanisms are envisaged to increase credibility to ensure continuous access to financial resources, employees and customers (DiMaggio and Powell, 1983); By adopting such approaches, organizations are pressured to maintain their organizational survival (Scott, 1987). The institutional theory provides a framework for evaluating changes in management accounting technologies and the evolution of corporate activities and provides an understanding of the motivations of key actors (Abeydeera et al., 2016); Therefore, institutional theory can be used to evaluate changes and the main reasons for these changes. Contrary to the theory of legitimacy that corporate participation is necessary for management, institutional theory shows that in the absence of a clear reason for the activities of a firm, new methods should be developed, especially in the field of management accounting (Higgins and Larrinaga, 2014). In this regard, it is important to know that the institutional environment which companies operate is not static; Rather, they operate in a dynamic environment. Bartley (2003) showed that in response to the development of globalization, some organizations are trying to establish flexible regulations

in their field of activity. Concerns in this area indicate the pressure that, due to social changes, unions, and especially society, as the main stakeholder of the public sector, enter into organizations so that companies strive to be the best in their field.

As a result, we have witnessed the emergence of the issue of institutionalism among non-governmental organizations, unions, institutional investors and other stakeholders to deal with the irresponsible behaviors of organizations (Firoozkoohi and Zarei, 2019). Stubbs and Higgins (2014), citing institutional theory (new institutional sociology and old institutional economics), expand the levels of analysis at both the external (macro) and internal (micro) levels of the organization and develop the concept of changing organizational management accounting methods. (Quoted from Dianati-Deilami et al., 2016). This research has also tried to provide a better understanding of the effectiveness of management accounting methods by examining the impact of external and internal organizational factors on management accounting methods by applying institutional theory. Researchers of the old institutional economics theory focus on the internal level of the organization instead of the macro level.

As a result, the old institutional economy is unable to explain the impact of environmental pressures on the process of changing management accounting. In contrast, the new institutional sociology focuses on the extra-organizational level. Therefore, the new institutional sociology is weak in analyzing the internal dynamics of organizational change; Therefore, two theories can cover these shortcomings and complement each other. Consequently, it seems that the combination of these two theories is necessary to better understand the process of change in management accounting because it considers the internal and external organizational factors that shape the management accounting practices of the organization (Wanderley, 2014); Therefore, in this study, based on these two theories, the effect of external and internal organizational factors of privatization and also the contradiction due to incompatibility of these factors on the change of management accounting methods and its effect on the financial performance of companies have been measured.

On the other hand, according to previous researchers, the institutional theory about the time of change by human forces is not complete; In this regard, in order to complete the institutional theory and study the role of human forces in the process of changing management accounting, the structural theory is used in this research. The structural theory proposed by Giddens (1984) is considered one of the most influential theories of the present day in the field of humanities; This theory has also been considered by accounting researchers (for example, see Chan studies, 2015 and 2017).

In this regard, accounting researchers acknowledge that this theory can be useful in the development of management accounting studies. Previous studies acknowledge that human force is the most important factor in creating modern changes and transformations in the organization (Dahmardeh Ghalehno et al., 2020); Structural theory also discusses the factors of change in an organization and introduces the actions of human forces as one of the main factors influencing change in the organization; Therefore, based on this theory, this study emphasizes the existence of a dynamic relationship between change and transformation in the organization by human forces, and consequently, organizations can move forward through improved human forces actions (Giddens, 1984; Moungh Yin Chan et al., 2020). Therefore, in this study, based on this theory, human force is also brought as a variable and its effect on management accounting methods and ultimately the financial performance of companies is investigated.

Research Hypotheses:

According to the stated contents in the Theoretical Foundations section, the hypotheses of the present research are presented as follows:

Hypothesis 1: External organizational factors of privatization through management accounting methods (as a mediating variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

Hypothesis 2: Internal organizational factors of privatization through management accounting methods (as an intermediary variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

Hypothesis 3: Organizational contradictions in the privatization process through management accounting methods (as an intermediary variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

Hypothesis 4: The human factor in the privatization process through management accounting methods (as an intermediary variable) has a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

Hypothesis 5: Management accounting methods in the privatization process have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

Research Methodology

This descriptive-causal study was conducted with a cross-sectional approach on companies that have been transferred to implement the privatization policies from the beginning of 2002 to the end of 2018 and until the end of this year are members of the Tehran Stock Exchange and more than 51% of their shares have been transferred to the private sector. Their number was estimated at 60 companies. Due to the small statistical population, all members of the community (60 companies) were surveyed. The data collection tool in this study was the information of companies' financial statements and a researcher-made questionnaire, which the validity was confirmed after several periods of the application by professors and experts. The final version of the questionnaire, which was approved, consisted of 58 questions, followed by a 5-choice Likert scale. The reliability of the questionnaire was examined through Cronbach's alpha, which was confirmed with a value of 0.958 (greater than 0.7).

Research Findings

Descriptive analysis of research variables

Table (3) shows that the variables of the planning and budgeting system and the reporting system jointly have the highest average (4.67) and the human factor variable has the lowest average (4.40). On the other hand, skewness and elongation for all variables are between 2- to +2, which can be said that the data are almost normal.

Table 3. Descriptive indicators of research variables

| Variable | Average | Standard deviation | Skewness | Elongation |
|-------------------------------|---------|--------------------|----------|------------|
| Extra-organizational factors | 4.56 | 0.77 | - 1.12 | 1.65 |
| Intra-organizational factors | 4.57 | 0.80 | - 1.12 | 1.79 |
| Organizational contradictions | 4.55 | 0.58 | - 0.74 | 0.59 |
| The human factor | 4.40 | 0.84 | 0.061 | - 0.57 |

| | | | | |
|-------------------------------|------|------|--------|------|
| Performance evaluation system | 4.42 | 0.86 | - 1.41 | 1.45 |
| Balanced Scorecard | 4.52 | 1.18 | - 1.61 | 1.66 |
| Planning and budgeting system | 4.67 | 0.82 | - 1.34 | 1.71 |
| Reporting system | 4.67 | 0.84 | - 1.40 | 1.76 |

Inferential statistics

Before entering into the discussion of analysis and statistical testing of hypotheses, Table (4) shows whether the components of the questionnaire well assess the main variable of the research using the two indicators R^2 and Q^2 .

Table 4. R2 and Q2 Indicators

| Variable | R^2 | Q^2 |
|---------------------------------|-------|-------|
| Extra-organizational factors | - | - |
| Intra-organizational factors | 0.49 | 0.19 |
| Organizational contradictions | 0.25 | 0.16 |
| The human factor | 0.45 | 0.28 |
| Management accounting practices | 0.45 | 0.24 |

According to the above table, the criterion of R^2 for all studied variables is average and below average (approximately 0.33). Also, the Q^2 criterion for the desired variables is more than average and less than strong (between 0.15 and 0.35) and this confirms that the structural part of the model has a moderate fit.

Finally, the GOF statistic is used for the overall fit of the model.

GOF is equal to: $GOF = \sqrt{0.63 \times 0.57} = 0.599$

Given that the GOF value is greater than 0.36, it indicates that the overall model has a strong fit.

To examine the factors affecting the financial performance of companies, we enter this variable into the model and measure the impact of other research variables directly and indirectly on financial performance. The indicators of goodness of fit as shown in Table (5). also show that the R^2 index is weak but two indicators Q^2 and GOF are at the desired level.

Table 5. R2, Q2 and GOF indicators

| Variable | R^2 | Q^2 | GOF |
|-----------------------|-------|-------|-------|
| Financial performance | 0.111 | 0.291 | 0.463 |

How to calculate financial performance based on five measures

1- Return on assets (ROA)

The return on assets is equal to the net profit ratio to the total assets of the company.

2- Tobin's Q Index

Tobin's Q is equal to the market value ratio to the book value of the corporation.

3- Economic Value Added (EVA)

The economic value added is obtained from the following equation:

$$EVA = (r - c) \times \text{capital} \quad (1)$$

EVA: economic value-added, r: the rate of return on capital and equal to the net profit ratio

after tax to the company's capital, c: is the cost rate of capital and capital: the company's capital.

4- Company efficiency

To measure the company's efficiency, Demerjian et al. (2012) used a data envelopment analysis (DEA), model. This model is a statistical model used to measure system performance using input and output data.

$$max_v \theta = \frac{Sales}{v_1 CoGS + v_2 PPE + v_3 SG\&A + v_4 Other Assets} \quad (2)$$

Sales: Sales of the company

CoGS: The cost of goods sold

PPE: Pure property equable

SG&A: General and administrative costs

Other Assets are other assets of the company.

In this model, a special coefficient v is considered for each of the input variables, because the effect of all input variables on the output (sales) is not the same. The calculated value for the company's efficiency is in the range of zero to one, which is the maximum efficiency equal to 1, and the lower the value of obtained, the lower the company efficiency.

5. Growth opportunities

Growth opportunities are a qualitative variable for which there is no consensus to its calculation. After examining various methods, Kalapour and Trombley (1999), Karimi et al. (2010) and Moradi and Ahmadi (2011) concluded that the ratio of the value of the payroll market of shareholders and book value of total debt to book value of total assets has a better correlation coefficient with business unit growth. In this paper, the company growth opportunity is calculated as follows:

$$\text{growth opportunity} = \frac{\text{book value of the total debt} + \text{value of the payroll market of the shareholder}}{\text{'s book value of total assets}}$$

Now, according to the confirmation of the questions and the structure of the research model, the desired model can be adapted that results are as follows. Figure (1) shows the t-statistics for each of the path coefficients between the variables.

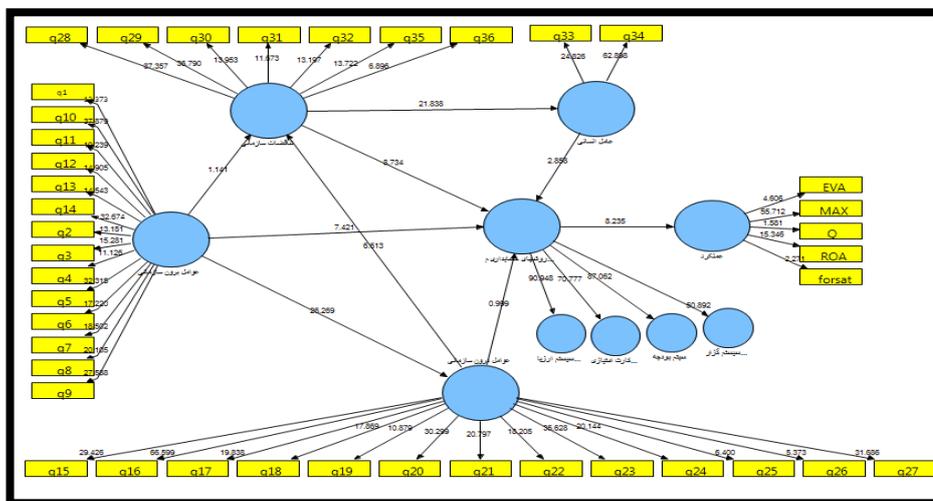


Figure 1. t-statistics for model path coefficients

Figure (2) shows the path coefficients related to the relationships between the research variables.

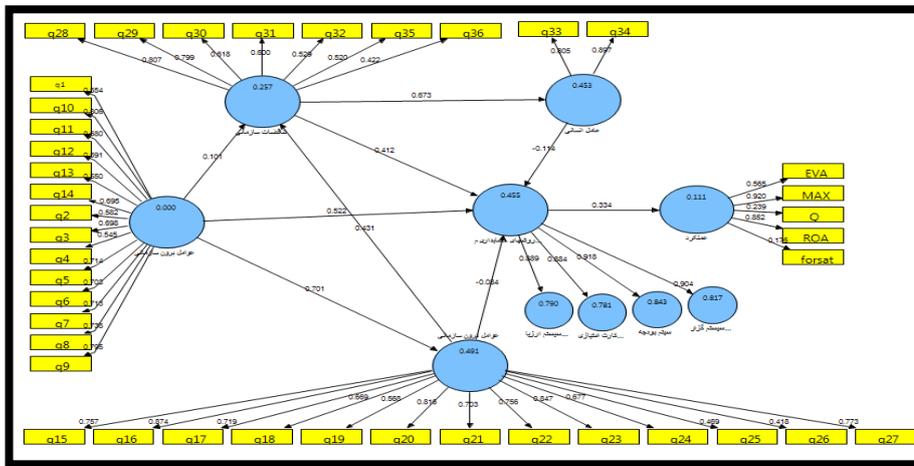


Figure 2. Model path coefficients

Now it is possible to analyze each of the research hypotheses:

Hypothesis1: External factors of privatization through management accounting methods (as an intermediary variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

In Figure (3), the path coefficient related to the effect of external organizational factors on management accounting methods (0.631) is reported and according to Figure (4), since the t-statistic for the mentioned path is (9.068) which is from 1.96 Increased, indicates the significance of the relevant path coefficient, but considering that the t-statistic for the path of the effect of management accounting methods on the company's financial performance (1/201) is less than 1.96, so management accounting methods have no significant effect on the company's financial performance.

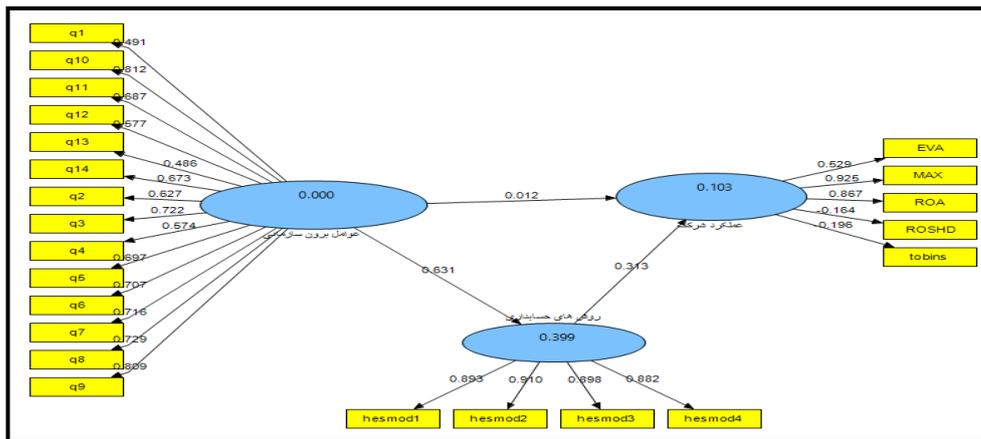


Figure 3. The model path coefficient

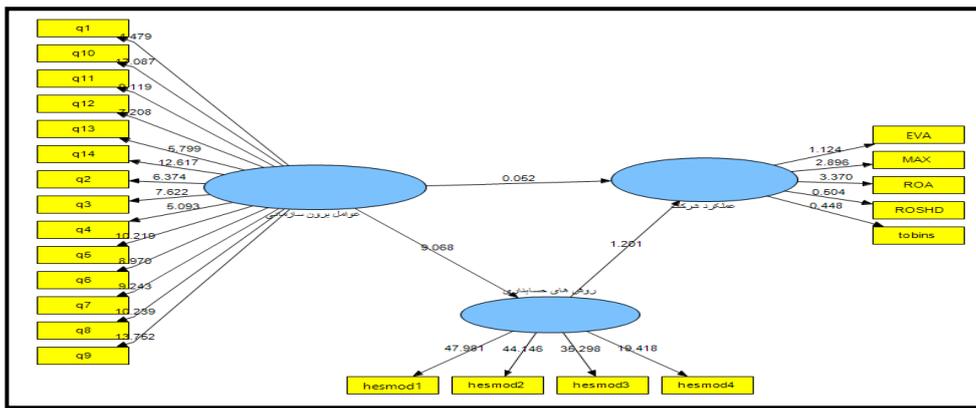


Figure 4. t-statistic for studying the significance of path coefficient

Hypothesis 2: Internal factors of privatization through management accounting methods (as an intermediary variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

In Figure (5), the path coefficient related to the effect of internal organizational factors of privatization on management accounting methods and also the effect of management accounting methods on financial performance is reported (0.480) and (0.405), respectively, and according to Figure (6), Since the t-statistic for the mentioned routes is (5.311) and (2.162), respectively, which is more than 1.96, it indicates the significance of the coefficient of the relevant routes.

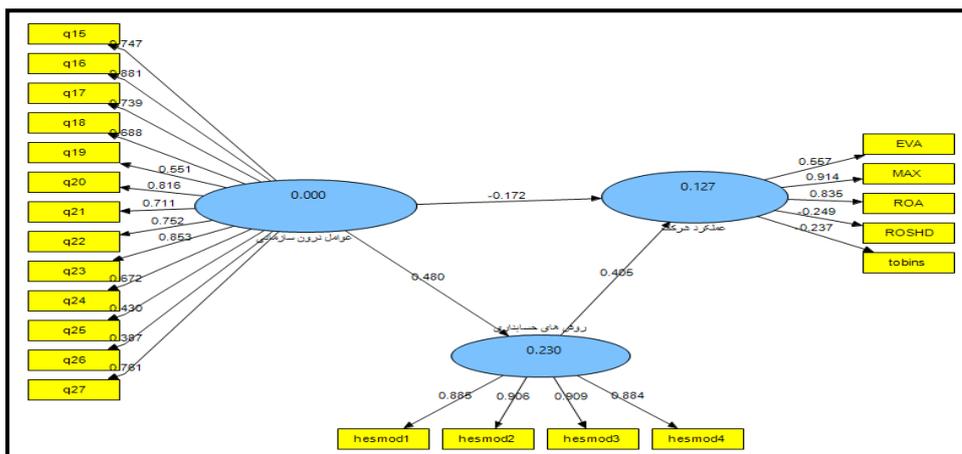


Figure 5. The model path coefficient

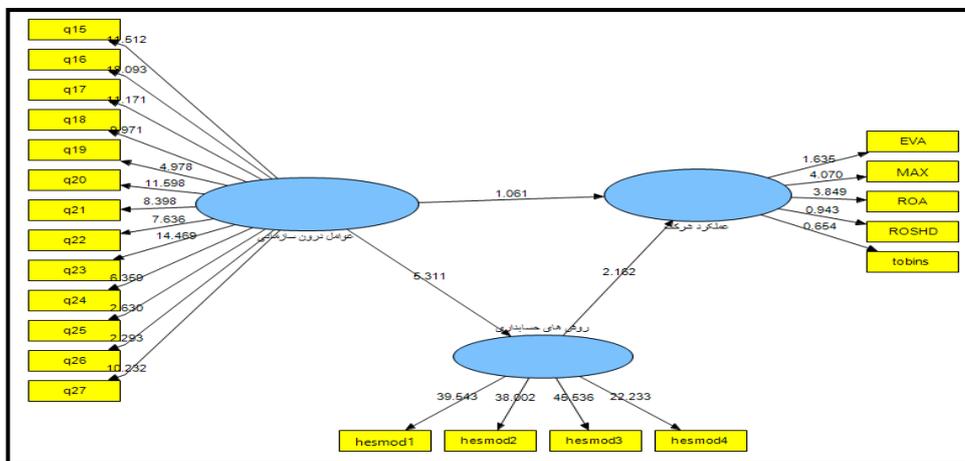


Figure 6. t-statistic for studying the significance of path coefficient

Hypothesis 3: Organizational inconsistencies in the privatization process through management accounting methods (as an intermediary variable) have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

In Figure (7), the path coefficient related to the effect of organizational inconsistencies on management accounting methods and also the effect of management accounting methods on financial performance are reported (0.593) and (0.497), respectively, and according to Figure (8), Since the t-statistic for the mentioned routes is (9.220) and (2.143), respectively, which is more than 1.96, it indicates the significance of the coefficient of the relevant routes.

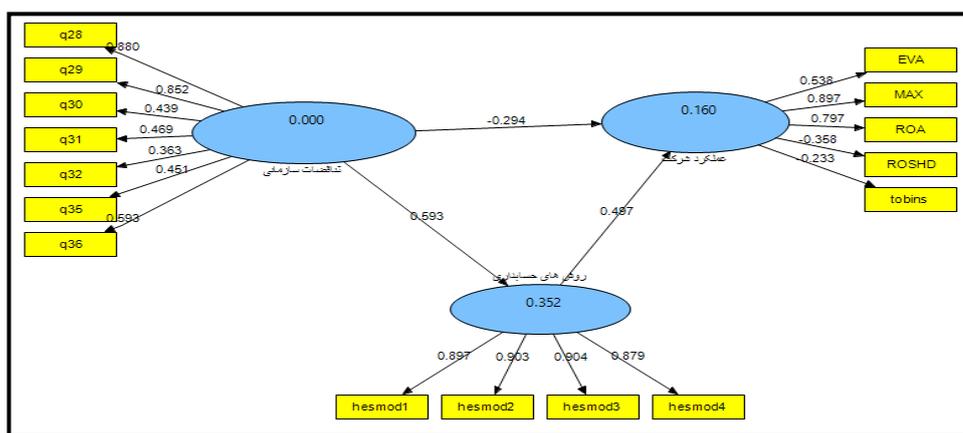


Figure 7. The model path coefficient

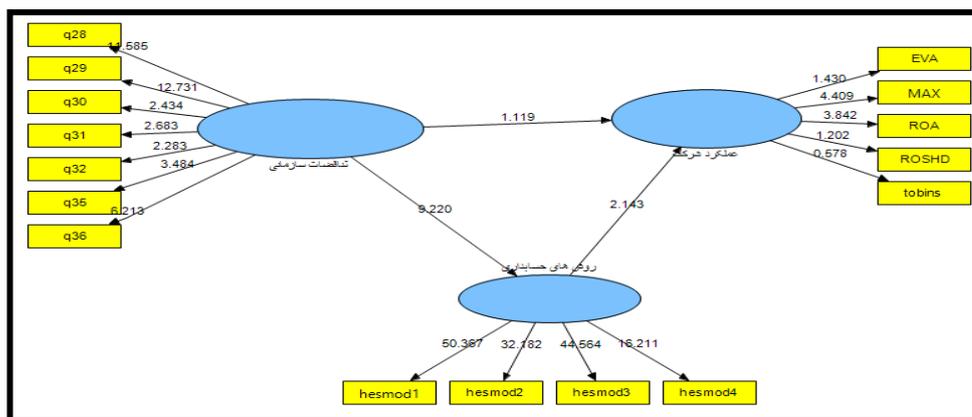


Figure 8. t-statistic for studying the significance of path coefficient

Hypothesis 4: The human factor in the privatization process through management accounting methods (as an intermediary variable) has a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

In Figure (9), the path coefficient related to the effect of human factor on management accounting methods (0.265) is reported and according to Figure (10), since the t-statistic for the path is (1.93), which is from 1.96 Is less, indicates the lack of significance of the relevant path coefficient, but given that the t-statistic for the path of the effect of management accounting methods on the company's financial performance (4.755) is more than 1.96, so in this hypothesis, only management accounting methods on performance The company's finances have a significant effect.

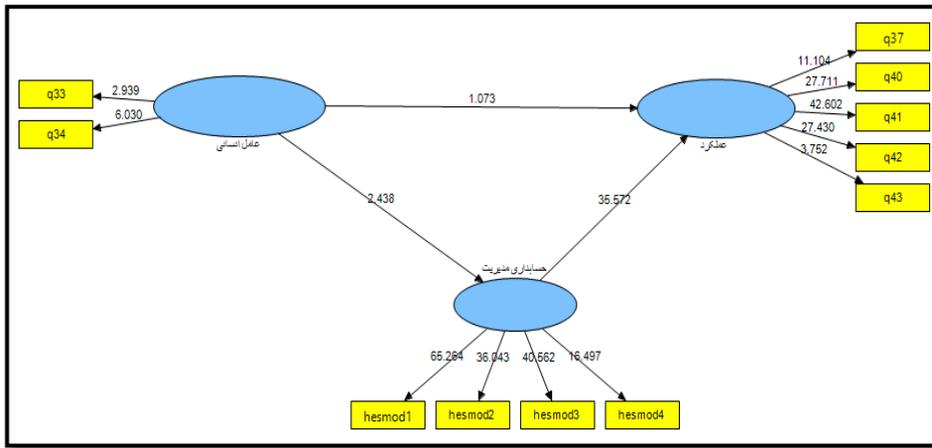


Figure 9. The model path coefficient

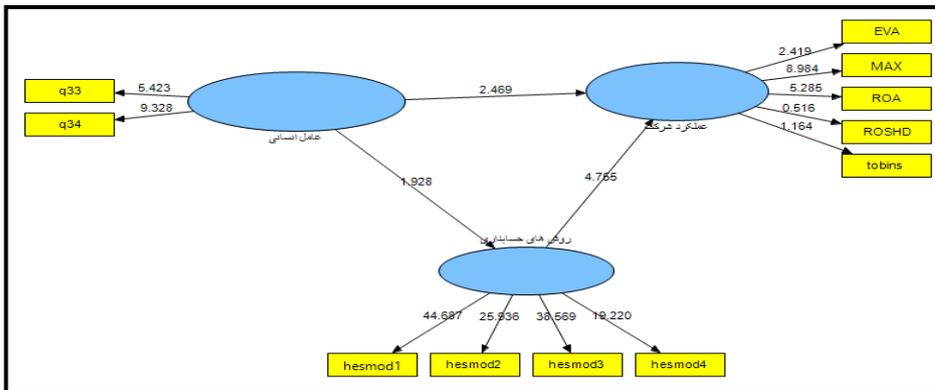


Figure 10. t-statistic for studying the significance of path coefficient

Hypothesis 5: Management accounting methods in the privatization process have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange.

In Figure (11), the path coefficient related to the effect of management accounting methods on financial performance (0.328) is reported, and according to Figure (12), since the t-statistic for the path (3.099) is from 1.96 has increased, indicates the significance of the relevant path coefficient.

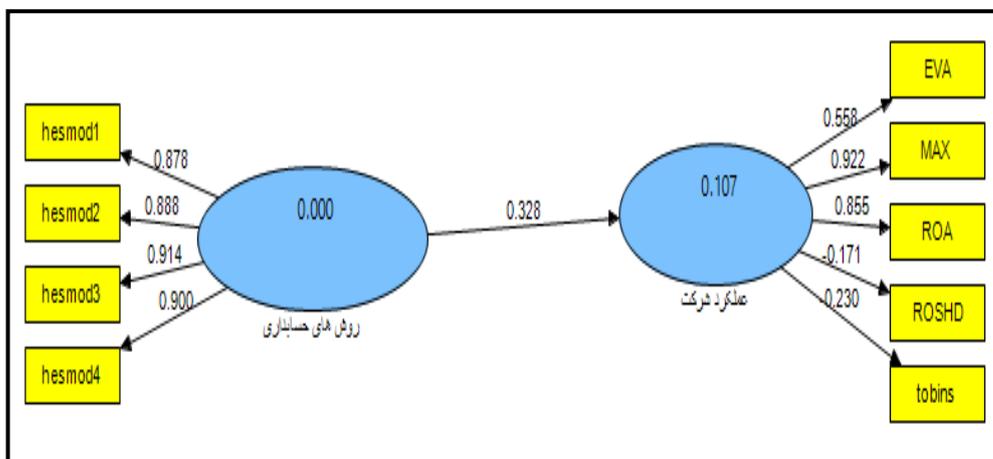


Figure 11. The model path coefficient

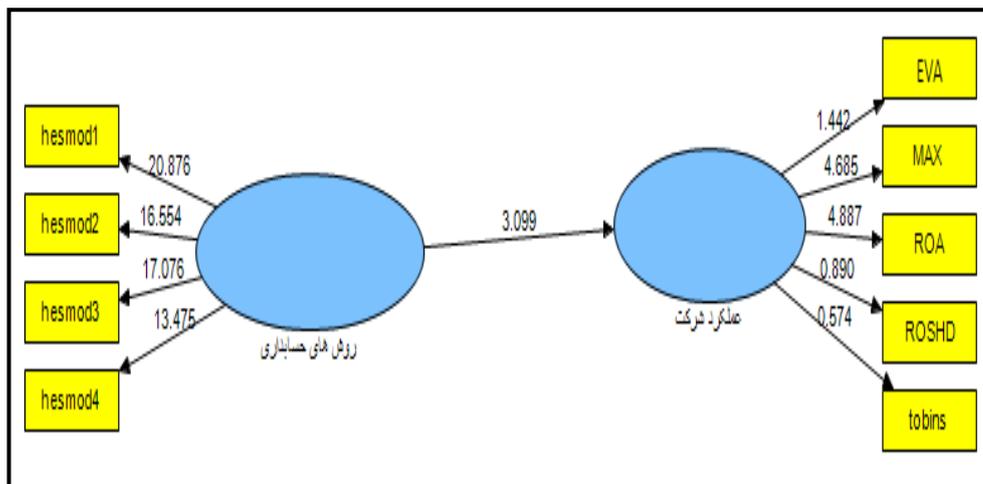


Figure 12. t-statistic for studying the significance of path coefficient

Discussion and Conclusion

Due to the importance of privatization, increasing competition between companies and its impact on management accounting methods and financial performance, recognizing the external and internal organizational factors resulting from privatization is becoming more important day by day. In this study, the effect of external and internal organizational factors of privatization through changing management accounting methods on the financial performance of companies listed on the Tehran Stock Exchange was investigated. The results of the first hypothesis show that external organizational factors through management accounting methods do not have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange. The results of this research are consistent with the results of Abolhassani (2010); But the results of research by Oanh Le et al. (2020), Bachiller (2017), Dianati Deilami et al. (2016) and Ghasemi et al. (2015) do not agree with the conclusion of this hypothesis.

According to the results of the second hypothesis, it can be said that the internal organizational factors of privatization through the mediating variable of management accounting methods have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange. The results of this study are in line with the results of Oanh Le et al. (2020), Bachiller (2017), Dianati Deilami et al. (2016) and Ghasemi et al. (2015) and no study was found to contradict the results of this hypothesis.

According to the results of the third hypothesis, it can be acknowledged that organizational contradictions in the privatization process through the mediating variable of management accounting methods have a significant effect on the financial performance of companies listed on the Tehran Stock Exchange. The results of this hypothesis indicate that the conflict of internal and external organizational factors such as market inefficiency with organizational strategy, conflict of the market and institutional forces and power relations within the organization, accumulation of organizational contradictions, change of structure and system (change of rules and resources) through the application of management accounting methods can have a positive and direct effect on improving the financial performance of companies listed on the Tehran Stock Exchange. Given that the present study is one of the pioneering studies that has tested this hypothesis, it is not possible to compare the third hypothesis with other previous studies.

According to the results of the fourth hypothesis, management accounting methods have a significant effect on the financial performance of the company and it can be

concluded that the human factor through management accounting methods has no significant effect on the financial performance of companies listed on the Tehran Stock Exchange. The results of this hypothesis indicated that contrary to the theoretical foundations of the research, employees can not have a significant impact on the financial performance of companies listed on the Tehran Stock Exchange by applying management accounting methods. The results of this hypothesis are consistent with the research of Moungh Yin Chan et al. (2020); But in a study by Nguyen et al. (2019), contrary to the results of the statistical test of the fourth hypothesis, they found that the quality of human resources has a positive effect on the application of corporate management accounting. According to the results of the fifth hypothesis, it can be said that management accounting methods in the privatization process have a positive and significant effect on the financial performance of companies listed on the Tehran Stock Exchange. The results of this study are in line with the results of Pradhan et al. (2018), Maziriri and Mapuranga (2017), Abubakar Nuhu et al. (2016), Dianati Deilami et al. (2016), Ghasemi et al. (2015) and a study inconsistent with the results of this hypothesis was not found.

As explained earlier, the economic zone of the world today does not reflect the fat government, so it seems that areas should be assigned to the private sector to create competition (Dianati Deilami et al., 2016). With the move towards privatization and changes in the pattern of competition and the introduction of global trade, the importance of management accounting can be seen, so that a weak management accounting system can significantly reduce the competitive advantages of companies. The theories supporting this research are institutional and structural theory which according to these theories, various internal and external organizational factors can affect the change of structure and create new developments in the company. Consequently, it is expected that the company's financial performance will improve after new developments such as privatization in the company and the application of new management accounting methods; Because these factors can affect the financial structure of the company.

Today, privatization-type economic reforms are considered a strategic approach in many countries, especially developing countries. The larger the governments, the less competition there is in the market and the fewer opportunity companies have to take advantages of the competitive; Therefore, it seems that areas should be assigned to the private sector in order to create competition. As we move toward privatization and changes in the pattern of competition and the introduction of global trade, the importance of management accounting and its methods becomes even more apparent. Given the importance of management accounting methods and privatization, the research framework takes into account the internal and external organizational factors, organizational contradictions and the role of the human factor seeks a comprehensive explanation of organizational change and the move towards privatization; Therefore, understanding the reaction between internal and external factors is important in explaining the change in management accounting methods. According to the results of the research, the managers of companies listed on the Tehran Stock Exchange are advised to pay attention to external and internal organizational factors of privatization and organizational contradictions created in the company to change management accounting methods; Managers also need to pay attention to internal organizational factors and contradictions created in the company; Because these factors can change the management accounting methods and improve the financial performance of the company. According to the results of the present study, the variables of external organizational factors and human factor change management accounting methods, but do not improve financial performance. The results of the present study also show that in today's competitive environment, to improve the financial performance of the company, companies must use management accounting tools to be able

to survive in the competitive arena.

In this study, companies whose shares were transferred to the private sector through the stock exchange and OTC were examined. It is suggested that in future researches, all companies, regardless of their divestiture percentage and considering other divestiture methods (negotiation and auction), be tested and based on the percentage and method of privatization, the impact of internal and external organizational factors through management accounting methods. Test the financial performance of companies and compare it with the results of previous studies. Also in this research, four management accounting methods based on Wonderley (2010) study have been considered; In future studies, it is suggested that the effect of privatization factors through all management accounting methods on companies' financial performance be investigated to determine which of the privatization factors through management accounting methods has improved the financial performance of companies.

Scientific and research researches often face limitations that impair the stability and validity of research findings. For example, lack of proper and timely access to financial information of some companies, as a limitation to access information of research variables, which led to the removal of some companies from the sample. Also, in similar researches in other countries, firstly, a much larger number of companies have been selected from our research sample, secondly, their researches cover a longer number of years, and thirdly, their data is a database, which leads to less time to collect and more time to analyze data.

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