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Designing an Earnings Management Improvement Model for Iranian knowledge-based Firms

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Abstract

The present study designs an earnings management improvement model appropriate for Iranian knowledge-based firms (KBFs). This study is interpretive in the model exploration phase and positivist in the model testing phase, and in general, this is applied research. The research sample in the qualitative phase comprises the experts in the field of earnings management, including accounting faculty members (8), senior managers of KBFs (7), and members of the Iranian National Tax Administration (INTA) (5); thus, a total number of 20 experts were interviewed to collect the qualitative data. The research questionnaire for collecting the quantitative data was designed according to the exploratory factor analysis (EFA). In the quantitative phase, using the sample size calculator (the G*Power software) at the alpha level of 0.1 and test power of 0.85, the final research sample comprises 153 participants. The research approach uses mixed methods, and the employed strategy is grounded theory. The constant comparative method in the three stages of open, axial, and selective coding based on the Strauss et al. (1996) method and the MAXQDA software was employed to analyse the data. The path analysis of the explored model was carried out based on the variance-based structural equation modeling (SEM) using SPSS version 24 and Smart PLS 3.0. The study results indicate 53 indicators, including more than 18 components and 7 latent variables.

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1. Introduction

The present era is the knowledge-based economy era (Moisio, 2018). The knowledge-based economy creates, acquires and transmits knowledge to improve economic growth and development. A review of world economic development history indicates that more developed societies have accelerated their national development process by applying and focusing on the knowledge-based economy. In this view, the core of knowledge-based economic activities is the KBFs because KBFs focus on societies with a high and sustainable growth rate (Skrodzka, 2016; Fakhari, Salmani and Daraei, 2013). Increased wealth is increasingly affected by increased knowledge in today's economy. That is, the more the role of knowledge in the economy improves, the more the process of wealth increase will be facilitated (Brödner, 2008).

In this path, the Literature review shows that the performance of the company and the role of its earnings management structure in it have been notified by the previous writers. In this regard, the research shows that earnings management has an important place in the company's development or weakness, especially in knowledge-based areas as Kim, Lee and Park (2022) have demonstrated that earnings management has a vital role in the previous company's performances and after transferring it. Thus, earnings management was essential in improving and developing the considered company.

According to this view, with the growth of KBFs, financial reporting has become the focus of the attention of managers, shareholders, stakeholders, regulators, and policymakers (Koolivandet al., 2021). The literature review demonstrates that prior empirical research has focused on financial reporting in the field of earnings management in KBFs (Arifin, 2017; Clarke, 2005; Jorissen, Lybaert and Van de Poe, 2006). It should be noted that the growth or the stagnation of KBFs can affect managers' decisions. In this regard, two trends can be explained in general. First is the time when the economy is in favorable conditions. In this situation, managers are required to present their reports based on stakeholders' expectations. Second, economic growth and development are in crisis and recession. In this situation, managers' failure to report positive results leads to less severe consequences. Thus, research suggests that, in this situation, firms' managers tend to engage in earnings management (Cimini, 2015). In terms of concept, earnings management is considered a valuable channel for transmitting information such as a firm's financial position to investors. In this respect, Jones (1991) and Roychowdhury (2006) introduce earnings management as an essential trait in assessing the economic and financial transparency of a firm (Lin and Shen, 2015). Thus, earnings management reflects statistics employed by managers for presenting information in firms' financial statements (Scott, 2015), while De Meo et al. (2017) examine earnings management in terms of managerial actions and state that managers engage in earnings management by manipulating financial statements through changing accounting methods and information. In a comprehensive definition of accounting, Zamora (2012) states that earnings management should be considered the deliberate manipulation of financial statements to deceive stakeholders about the firm's actual performance. The concept of earnings management refers to presenting unreal revenue figures in firms' financial statements (Garcia Osma, Gomez-Conde and Lopez-Valeiras, 2020). In this regard, the managers, leaders, and societies expect to see the company's financial statements with the general laws and regulations. This clarity will lead to improvement and development. Transparency in financial statements and reports can enable the company to answer stakeholders' questions. Therefore earnings management will be critical from this point of view (Mangala and Dhanda, 2021).

The theoretical review indicates that earnings management incentives are the reasons for managers' controlling information, which increases managers' tendency to engage in earnings management. However, in some situations, depending on firms' micro and macro environmental factors, specific incentives can increase or decrease. Earnings management can be defined as a deliberate intervention

in financial reporting to achieve earnings goals using different accounting methods (Callao, Jarne and Wroblewski, 2021).

The theoretical importance and necessity of paying attention to earnings management lie in its disastrous and negative economic consequences for the firm. Making decisions about income, financial strategies, and investment attraction are significant disadvantages of earnings management (Oktaviani and Mochklas, 2020). As Harris, Karl and Lawrence (2019) state, firms' managers are often interested in obtaining better short-term results. As a result, they move towards enhancing the stock price in the shortest time instead of developing long-term plans for the firm's growth and development. Thus, managers use earnings management to show a false picture of the firm's economic position. Therefore, earnings management is a method in which managers attempt to manipulate the firm's financial statements to maximize earnings in the short term.

The literature review indicates the existence of research gaps in earnings management in the Iranian context. In terms of systematic criticism, a review of the conducted research in this field demonstrates that different studies on earnings management and its effects have been conducted in various organizations. Most of these studies have been generally done using models based on the earnings of accounting methods, the discretionary accruals model (Jones, 1991), the modified jones model (Dechow et al., 1995), combined-competitive model (Bunge, 1976), a significant relationship has been found among these factors. It should be noted that, first, most of these studies have been conducted in organizations other than KBFs and considering the unique characteristics of these firms and their role in the knowledge-based economy, their financial transparency is of great importance; in addition, considering the significance of KBFs in the country, there is a need to research to design a model appropriate for KBFs to improve earnings management. Despite this research gap, no research has investigated this topic in Iran. Second, most earnings management studies are generally limited to models based on accounting methods, and influencing factors such as causal conditions and contextual and intervention factors, which require interpretive (qualitative) and paradigmatic (mixed methods) research, are not considered. Also, identifying strategies and consequences of applying the earnings management improvement model in KBFs is another research gap the present study attempts to fill by exploring the desired earnings management improvement model. Hence, KBFs need a model for improving earnings management as no model is appropriate for these firms' functions, approaches, and environmental factors.

The researcher is interested in this research. Some of the reasons and motivations of the writer are as follows: literature enrichment of the earnings management, considering the role and the place of being under the cultural, political, and economic influences, this paper focuses on theoretical reinforcement. The writer is interested in this research's political and influential role in knowledge-based companies. Knowledge-based companies have a significant role in improving and developing societies' economies; thus, researching knowledge-based companies is popular. In fact, because of the importance of earnings management's fundamental role in financial statements and the place of knowledge-based companies, the researcher's interest in finding a model based on the Iran context model will be highlighted.

Therefore, consistent with the research problem statement and purpose, this research's fundamental question is "what is the earnings management improvement model appropriate for Iranian KBFs?".

2. Theoretical Framework

2.1. Earnings management

Earnings are one of the main economic categories that reflects all the aspects of enterprises' activities; thus, maximizing earnings and minimizing costs is one of the main goals of every business

entity and KBF (Honcharenko, 2019). The earnings construct indicates the presence or absence of a firm's financial stability. This variable shows the increase in shareholder value and wealth. Firms with a positive earnings situation in financial reports can attract shareholders and investors (Tabassum, Kaleem and Nazir, 2015). Managers use earnings management to show unreal results about the achievement of the firm's goals and report information that is different from the reality of the current situation by using accounting distortions caused by accounting methods (Rezaei Lashkjany and Samadi Largani, 2017). The concept of earnings management as an essential structure was always emphasized. In recent years, many researchers from all over the world have considered this variable. This shows the importance of earnings management in accounting and financial reporting and its role in companies' improvement and development (Lin and Wu, 2022, Zalata et al., 2022; Osma, Gomez-Conde and Lopez-Valeiras,2022).

Earnings management doesn't show the actual financial statements; it shows the non-usage of accurate data in the financial prediction of the company in a long-term process and the company's future. The companies with more minor earnings management discomforts have more predicting ability toward the future changes in the financial sector. In general, the quality of financial reporting has an essential role in a company's decisions. In this regard, earnings and management directly relate to financial reporting (Mangala and Singla, 2021). As explained, earnings management has an essential role in misguiding the stockholders. Earnings management affects the accounting of financial statements by unreal and unclear information for the reported contracts. It deviates from the results and makes the info untrue (Kong, 2022). In another definition, earnings management can be studied from the attitude perspective. In this regard, earnings management is defined as a purposeful structure in financial reporting for achieving personal earnings. But these concepts are along with some ideas like behaviors, judgments, and personal and human decisions. Thus earnings management shows the behavior issues in the financial reporting. (Viana, Lourenco and Black, 2021).

Earnings management occurs when managers attempt to mislead stakeholders about the firm's current position by changing financial reports. Although prior literature suggests several incentives for managers to engage in earnings management, codes such as liabilities, debts, reward plans, stakeholders' expectations, and capital attraction can be considered the most important reasons for using earnings management. Therefore, in a definition, earnings management refers to managerial decision-making that leads to consequences such as non-reporting of the firm's earnings in the short term and maximizing firm value unrealistically (Alzoubi, 2016). According to Tabassum, Kaleem and Nazir (2015), managers use different forms of earnings management, which can be legal or illegal. There are two types of earnings management: real earnings management and accrual-based earnings management. Accrual-based earnings management focuses on changing accounting methods, while real earnings management means accelerating earnings by changing business activities. The literature on earnings management shows a variety of theories and models which are generally focused on the measurement and accounting formulas of earnings management. Models such as positive accounting theory (Watts and Zimmerman, 1990), agency theory (Jensen and Meckling, 1976), and income smoothing theory (Gordon, 1964) are the most important examples. Earnings management is management's intervention to report unreal information to stakeholders, which is done by changing financial statement procedures (Octaviani and Kartikaningdyah, 2019).

2.2. Earnings management in KBFs

In today's situation, the companies focus on the non-tangible assets and the fundamental knowledge for the lack of ability to predict environmental changes based on the profound technological, social, and economic changes in society. Therefore, moving toward improving and developing knowledge-based companies is considered the need of societies. Knowledge-based companies are learning

companies; these companies create, trade, and develop knowledge to produce various products. Although managing knowledge-based companies have multiple variables, the authorities and leaders have submitted them recently and policymakers (Hosseini et al., 2022).

As KBFsplay a considerable role in the economy, they need financial transparency, the determination of earnings and loss, and positive or negative business value. Managers attempt to indicate that their income matches the industry position to avoid being eliminated from the competitive environment. Thus, in KBFs, managers use earnings management to help the firm's performance by indicating a favorable position even if it is not real. Jiao, Mertens and Roosenboom (2007) find that the effect of earnings management in KBFs can be known in the direct relationship between earnings management and firm performance because earnings management is a method that can play a role in capital attraction and stock returns. Earnings management is a tool for changing the quality of real information, which improves the firm's attractiveness in an unreal way (An, Li and Yu, 2016). The importance of earnings management, especially in KBFs, is that shareholder wealth is affected by the association between earnings and stock returns and the relationship between earnings management and firm value. In prior research, earnings management has been used to measure information quality, but in the present study, earnings management is considered a model appropriate for KBFs. As (Jensen and Murphy, 1990) suggest, increasing a firm's power and prestige is one of the significant incentives for managers to change financial statements. Also, firms with great credibility are in a favorable competitive condition. Managers of KBFs attempt to raise more capital by using earnings management; thus, from theoretical necessity, earnings management can play an essential role in KBFs.

2.3. KBS in Iran

The emphasis of the modern economy is on intangible assets such as information and knowledge, which have become the main competitive advantage of firms. This is because the economy has become information- and knowledge-based. Thus, firms that base their activities on knowledge will have more wealth (Vrdoljak Raguž, BorovacZekan and Peronja, 2017). In this respect, KBFs can be considered the creators of a knowledge-based economy. In fact, without KBFs, it is not possible to reach a knowledge-based economy. Although the knowledge-based economy is a modern economy for facilitating the creation and distribution of wealth, its primary tool is the growth of KBFs (Allahyary and Abbasi, 2012). Focusing on knowledge-based activities in Iran is one of the country's critical economic factors emphasized in resistance economy policies. It can help improve production and employment in the country and is achievable through developing KBFs. A review of the KBFs in Iran shows that, in recent years, with the increase in economic pressures and income limitations, KBFs in Iran have grown. According to the innovation and prosperity fund report, currently, there are more than 2219 KBFs, of which nearly 1348 firms are in their infancy. Also, 725 firms produce goods and services, and 146 industrial firms have knowledge-based activities. However, 280 KBFs producing knowledge-based goods and services have an essential role in the country's economy and resistance economy as a macro-strategy of the national economy under the condition of international sanctions and the current economic crisis. Moreover, recent reviews indicate the increasing focus on the knowledge-based economy in Iran in recent years. According to the vice-presidency of information and technology assessments in 2020, Iran had 5700 new economic firms. However, the statistical data show the failure of a considerable percentage ofKBFs in Iran. The failure of 11 percent of KBFsin their early years and 80 percent of KBFs with more than a 5-year lifespan has highlighted the necessity of paying attention to KBFs more than before (Mohammadkazemi, Talebi and Davari, 2021).

3. Research Methodology

The present study is paradigmatic research because, according to philosophical presumptions, it emphasizes identifying and testing the earnings management model based on environmental, cultural, political, social, and economic conditions. Regarding reasoning and approach, this research is interpretive in the model exploration stage and positivist in the model testing stage. Thus, the research approach is mixed. The applied strategy of the research is grounded theory because the research purpose is to theorize and explore a model for improving earnings management in KBFs in Iran based on environmental conditions. Thus, the present study is conducted in two phases. The first phase, the model exploration, has been done based on Strauss et al. (1996) method. Accordingly, the research categories were identified after collecting qualitative data (themes derived from the literature + in-depth interviews) in the three stages of open, axial, and selective coding. The research sample, in the qualitative phase, comprises experts in the field of earnings management, including accounting faculty members (8 experts), the senior managers of KBFs (7 experts), and the members of the Iranian National Tax Administration (INTA) (5 experts), in total, 20 experts were interviewed for collecting the qualitative data. To test the validity of the research model in the qualitative phase, according to Creswell (2007), in the first step, with the method of matching participants' views, after coding by the researcher, the participants undertook the coding process of the open, axial. Selective coding and their opinions were collected and considered in the corrective coding. In the second step, with the method of peer review, after the process of coding, the collected qualitative data were given to five experts, and they were asked to do the coding. The results showed that more than 90 percent of the codes were close. Thus, it can be stated that the data and the coding are acceptable in terms of validity. In the third step of validity, the participatory nature of the research was tested. In this step, to further ensure the validity of the coding, the participants' views were simultaneously used in the coding. In the quantitative phase and the research model testing, the statistical population of research consists of the managers of KBFs and the available sample comprises Tehran's KBFs.The target population consists of the managers of KBFs. To calculate the research sample size in the quantitative phase, the G*Power software was used. Based on Cohen's suggestions, the lower the Alpha error level, the more generalizability of the sample results in a larger sample; in other words, the researcher is less likely to commit a Type I error. Moreover, the higher the power of the test, the lower the probability of a Type II error (Cohen, 1998).

3.1. Research findings

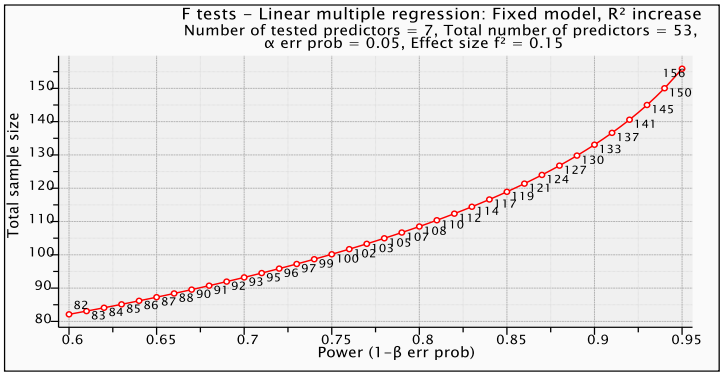

Figure 1. The software output for determining the size of the research sample

According to the software output in Figure (1), at the error level of 0.15 and the test power of 0.95, 7latent variables, and 53 observable variables, the statistical research sample has been estimated 153. The research questionnaire for qualitative data was developed based on the exploratory factor analysis. Table 1 presents the results of the exploratory factor analysis.

Table 1. The exploratory factor analysis of the model

Variable	KMO	Bartlett	Test result
Managers' individual factors	0.987	0.000	Confirmed
Management support system	0.852	0.021	Confirmed
Intra-organizational strategies	0.751	0.011	Confirmed
Information system	0.796	0.000	Confirmed
Environmental factors	0.840	0.000	Confirmed
Financial support system	0.898	0.035	Confirmed
Firm growth and development	0.931	0.000	Confirmed

The results presented in Table (1) (the exploratory factor analysis) show that the coefficients of all the variables are greater than 0.7; thus, each variable's exploratory indicators are homogeneous. Moreover, the significance coefficient of the Bartlett test is less than 0.5; therefore, the sampling adequacy for the exploratory factor analysis is also confirmed. Before collecting the final sample, the content validity of the explored questionnaire was quantitatively calculated and confirmed using the content validity ratio (CVR) and the Content Validity Index (CVI). Furthermore, in this section, a pre-test was used with a sample of 30, and the model's reliability based on Cronbach's Alpha test was also confirmed. Moreover, after collecting the final sample, the construct validity (convergent and discriminant)and the research model's reliability using reliability tests (Cronbach's alpha, shared reliability, and composite reliability) were tested and confirmed. The path analysis of the research model relationships was carried out using the variance-based structural equation modeling (SEM) method because the model was newly created (Hair, 2011).

3.2. Data analysis

3.2.1. Qualitative analysis

Based on the followed logic of the research, the qualitative analysis of the study has been done in the first section. This section first describes the participants' characteristics (including gender, education level, and major) in the qualitative section (experts). The results show that the research's qualitative section (experts) comprises 14 men and 6 women. Regarding the education level of experts, 15 experts have a doctoral degree and 5 have a master's degree. Also, in terms of major, 9 experts studied financial accounting, and 7 experts studied cost accounting.

3.2.2. Open and axial coding

Strauss et al. (1996) define open coding in qualitative research as part of latent content analysis that labels and categorizes the data through reviewing and analyzing them. In other words, in open coding, the concepts within interviews and documents are categorized based on how they are related. Thus, in this stage, the researcher concludes that the acquired information in the qualitative data (interview+documents) is categorized based on conceptual relation. In open coding analysis, we face two different methods. In this research, we used both methods, namely detailed analysis and key

concepts analysis. In this regard, Holton (2010) states that open coding is an analytical process through which the researcher identifies the research's concepts, components, and variables. The researcher bases the categories on all the collected data, such as interviews, observations, and events or notes (Criswell, 2005).

Table 2. The process of open and axial coding

Code number	Open codes	Factor loadings
1	Managers' value beliefs	0.817
2	Personality	0.801
3	Ethical behaviors	0.844
4	Managers' tendency to show themselves as expert managers	0.823
5	Risk taking	0.848
6	Overstatement of firm size	0.860
7	The careful compliance with organizational policies	0.768
8	Fulfillingtasks without considering the personal interests	0.749
9	Using specialized scientific techniques in reporting	0.880
10	Informing shareholders	0.884
11	Reward plan	0.845
12	Increasing internal control	0.868
13	Making courageous decisions	0.844
14	Manager's responsibility	0.792
15	Management's long-term tenure	0.710
16	Shareholders' support of management	0.883
17	Choosing management based on their competence	0.855
18	Implementing rules and regulations	0.804
19	Increasing monitoring costs	0/807
20	Increasing managers' accountability to shareholders	0.777
21	The board monitoring	0.634
22	Whistle-blowing	0.699
23	Tendency to share information with stakeholders	0.809
24	Commitment to honest reporting	0.735
25	Tendency to preserve professional values	0.840
26	Prioritizing financial health in reporting	0.921
27	Paying attention to the firm's goals in financial statements and reporting	0.715
28	Using financial information and data and reporting	0.794
29	The necessity of reporting earnings	0.919
30	Disclosing additional information if necessary	0.888
31	Managers'continues reporting	0.817
32	Exchanging new information	0.913
33	Complete and comprehensive information content	0.903
34	High-quality reporting by managers	0.838
35	Collecting data constantly	0.860
36	Political-legal factors	0.778
37	Initial demand	0.807
38	Competitive conditions	0.769
39	Resource supply	0.619
40	Economic perspective	0.661
41	Tax reduction	0.653
42	The reduction in the current value of tax debts	0.824
43	Maintaining a fixed dividend policy	0.809
44	The reduction in the cost of capital	0.693
45	The increase in current assets	0.821
46	Increase in return	0.823
47	Increasing market share	0.813

48	Increase in investment	0.804
49	Transparency in reporting	0.845
50	Measurability of financial goals	0.871
51	earnings variability	0.880
52	Sales increase	0.832
53	Earnings increase	0.791

Based on Table (2), after identifying 53 open codes, the researchers undertook the axial coding and identified categories according to the grounded theory process. In the next step, the researchers identified selective codes and developed theories.

3.3. Axial and selective coding

According to the coding process of the grounded theory, after determining the indicators in the open coding stage, we systematically related subcategories to categories based on axial coding. In this stage, Jensen and Murphy (1990) state that the main categories that are more abstract are developed to create increasing knowledge about the relationships. Table (3) presents the explored open and axial codes.

Table 3. The process of axial and selective coding

Axial codes	Selective codes
Managers' ethical perceptions Managers' inner factors Professional identity	Managers' individual factors
Shareholder participation Managerial power Management stability	Management support system
Organizational monitoring and controlling system Culture Decision-making system	Intra-organizational strategies
Information quality Information Sharing Information enrichment	Information system
Political-legal factors Initial demand Competitive conditions Resource supply Economic perspective	Environmental factors
Financial information Working capital	Financial support system
Firm development Firm financial transparency Firm business value	Firm growth and development

As indicated in Table (3), the coding process of grounded theory, the process of open, axial, and selective coding finally identified seven principal selective codes, including managers' individual factors, management support system, intra-organizational strategies, information system, environmental factors, financial support system, firm growth and development were identified.

3.4. The paradigmatic model of the research

After determining the categories of the paradigmatic model, in this stage, we organized, presented, and developed research theories based on the model exploration of Strauss et al. (1996).
Figure (2) indicates the conceptual model of the research organized theories.

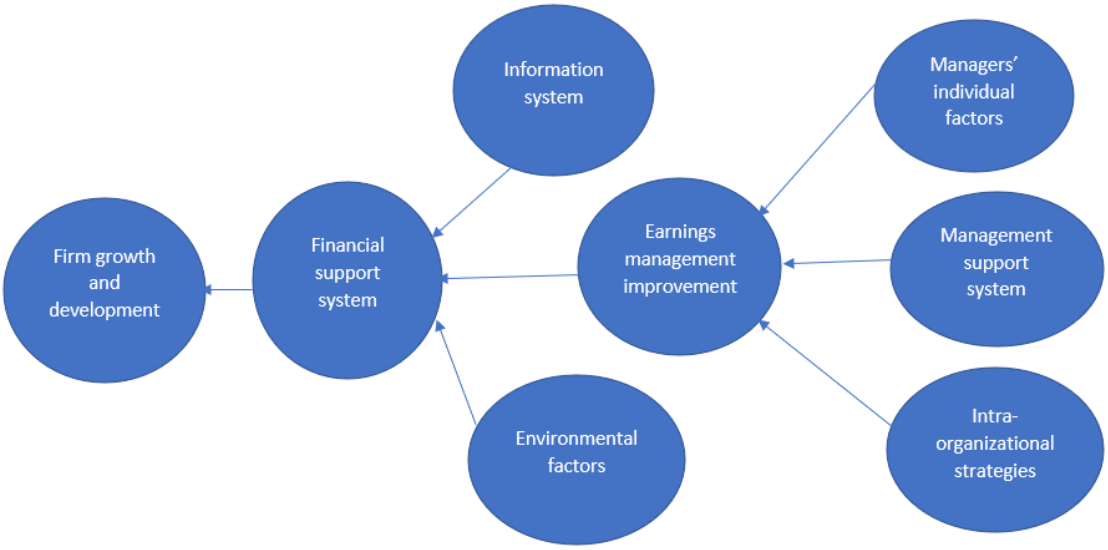

Figure 2. The explored conceptual model

Figure (2) shows the existing relationships in the research model. It can be stated that earnings management can be improved by paying attention to the factors of the research model.

3.5. Quantitative analysis

After exploring the research indicators, components, variables, and theories, we attempted to test the research model in the quantitative phase according to the mixed methods approach. In the next step, according to Hair (2011), to test and perform the path analysis of the relationships in the research model, the newly created models must be tested with a variance-based method. Thus, this section used the variance-based partial least squares structural equation modeling (PLS-SEM) method to determine the model's relationships.

3.6. Research measurement model

The PLS-SEM method provides the possibility to review the reflective measurement model statistically. According to the PLS algorithm, reflective measurement models are estimated based on the level of the correlation and the validity of indicators and observable measures. The confirmatory factor analysis shows the homogeneity of the indicators of every latent variable in the measurement model. Figure (3) indicates the implementation of the standard research model. This model makes it possible to test the factor loadings of variable measures, constructal idityindices (convergent validity + discriminant validity), and the reliability of the research model (composite reliability+ shared reliability+ Cronbach's alpha) (Balochi et al., 2017).

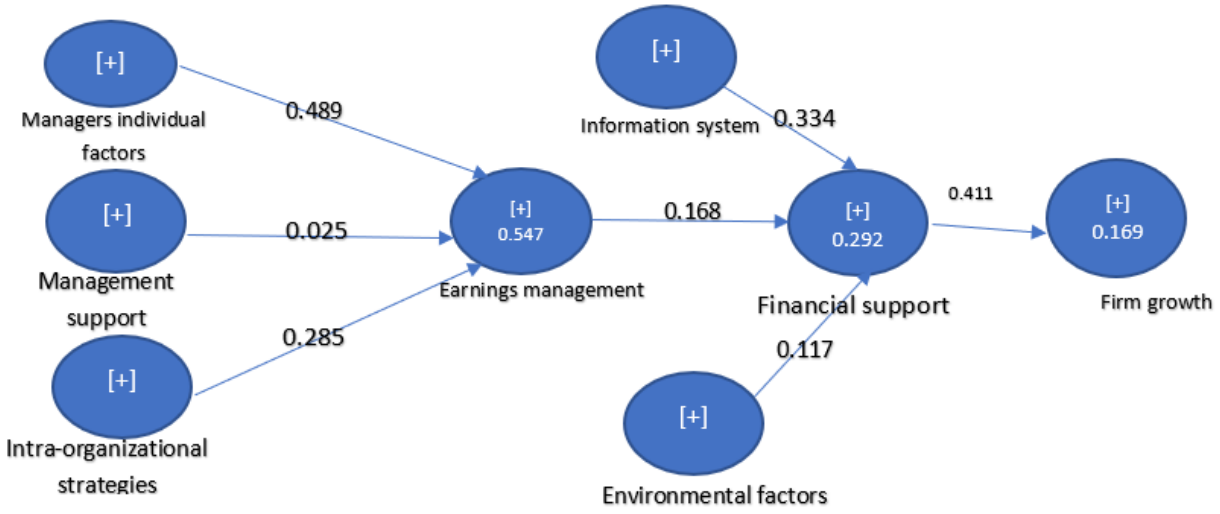

Figure 3. The standard model

In the next step, after implementing the standard model, the reliability and construct validity of the research were tested. Table (4) presents the research standard model and reliability.

Table 4. The standard model and reliability

latent research variables	Cronbach alpha	Spearman reliability	Composite reliability(CR)	Sharedreliability (AVE)
intra-organizational strategies	0.831	0.835	0.899	0.747
financial support	0.831	0.850	0.898	0.746
management support	0.771	0.778	0.867	0.686
firm growth	0.786	0.828	0.856	0.600
managers' individual factors	0.782	0.791	0.873	0.696
environmental factors	0.833	0.836	0.923	0.857
earnings management	0.776	0.790	0.868	0.687
information system	0.759	0.791	0.859	0.671

As shown in Table (4), the coefficients of Cronbach'salphafor all the research variables are greater than 0.7. As a result, the reliability of variables is confirmed by this test. Also, the coefficients of the CR of all variables are greater than 0.7; thus, the composite reliability of the model is confirmed. And the values ofAVE are greater than 0.5; thus, the shared reliability of the model is confirmed. Furthermore, as presented in Table (4), according to Hair et al. (2014 a,b), AVE≥ 0.5 and CR ≥ 0.7 and CR > AVE; thus, the convergent validity of the model is confirmed. In the next step, to address bias and correlation between the research indicators (discriminant validity), we used the *Fornell-Larcker* criterion, Table (5). The multitrait-multimethod (MTMM) matrix, Table (6), is the most critical test of *discriminant* validity; also, a comparison of composite reliability and the average variance extracted (AVE) were used to test convergent validity (Baluchi et al., 2017).

Table 5. The Fornell-Larckercriterion

The Fornell-Larcker Criterion	Intra-organizational strategies	Financial support	Management support	Firm growth	Managers'individual factors	Environmental factors	Earnings management	Information system
Intra-organizational strategies	0.864							
Financial support	0.619	0.864						
Management support	0.678	0.522	0.828					
Firm growth	0.604	0.411	0.635	0.775				
Managers'individual factors	0.691	0.534	0.982	0.643	0.834			
Environmental factors	0.566	0.408	0.597	0.542	0.603	0.926		
Earnings management	0.640	0.445	0.698	0.552	0.710	0.595	0.829	
Information system	0.615	0.505	0.698	0.584	0.714	0.571	0.620	0.819

According to Henseler, Ringle and Sinkovics (2009), the AVE of each variable should be greater than the squared correlations with all other variables. The software's output in Table (5) indicates that this test confirms the discriminant validity.

Table 6. The MTMM matrix

Heterotrait-Monotrait Ratio (HTMT)	Intra-organizational strategies	Financial support	Management support	Firm growth	Managers' individual factors	Environmental factors	Earnings management	Information system
Intra-organizational strategies	1							
Financial support	0.737							
Management support	0.844	0.644						
Firm growth	0.733	0.462	0.778					
Managers'individual factors	0.853	0.655	0.962	0.785				
Environmental factors	0.676	0.485	0.743	0.645	0.745			
Earnings management	0.780	0.532	0.883	0.653	0.892	0.733		
Information system	0.765	0.613	0.899	0.724	0.913	0.726	0.795	1

Also, Henseler, Ringle and Sarstedt (2015) developed the Fornell-Larckercriterion2015 and constructed a more reliable and complete index for testing the discriminant validity. Therefore, we used the MTMM matrix to ensure the absence of critical correlations among the indicators of constructs in the model.

As indicated in Table (6), all the two by two coefficients between variables are smaller than 1, no two variables have critical convergence, and the discriminant validity is confirmed.

3.7. Structural model

According to the structural equation modeling (SEM) algorithm, after testing the measurement model, the research hypotheses were tested based on path analysis in the significance state (Baluchi et al., 2017). Figure (4), the model in the significance state, indicates the hypotheses analysis and the explored theories of the research.

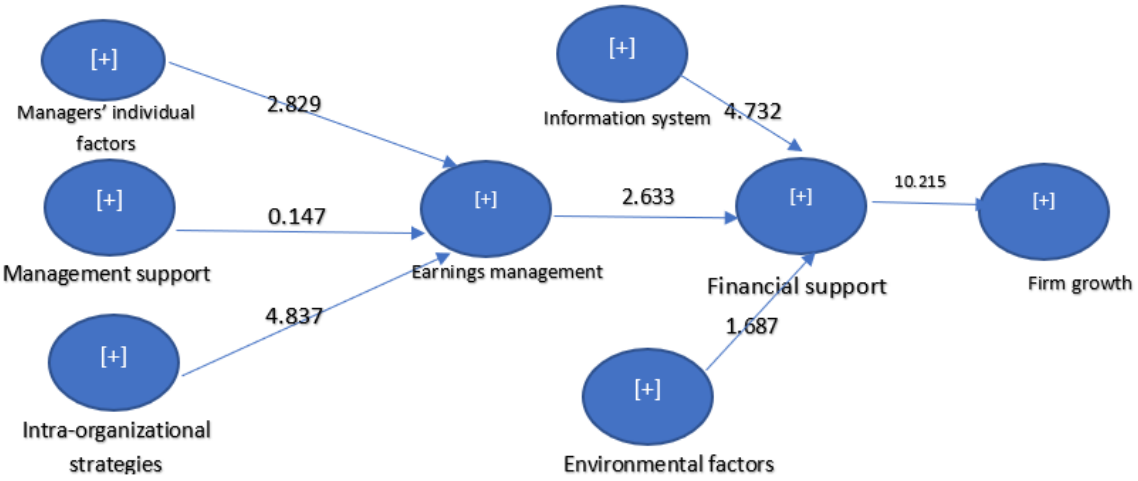

Figure 4. The research model in the significance state

Figure (4), the structural model, shows that the significant coefficients of managerial support and environmental factors are in the range (-1.96 and 1.96); thus, they are rejected. And the rest of the explored theories are outside the range (-1.96 and 1.96); thus, they are confirmed.

3.8. Fitness of the research model

Following Hair et al.(2012), we used the measurement model quality test to assess the fitness of the measurement model. This test replaces the goodness-of-fit (GoF) indices in covariance-oriented software, and the test results are presented in Table (7).

Table 7. The measurement model quality

Variables	The coefficients of model quality	Assessment
Intra-organizational strategies	0.454	strong
Financial support	0.455	strong
Management support	0.362	strong
Firm growth	0.344	Nearly strong
Managers' individual factors	0.378	strong
Environmental factors	0.447	strong
Earnings management	0.361	strong
Information system	0.342	Nearly strong

According to the results of the software output presented in Table (7), the coefficients of all the latent variables of the research are greater than or close to 0.35. Based on Cohen (1998), it can be argued that the research model is at a strong level.

4. Discussion and Conclusion

This study began with the critical question of the earnings management model appropriate for Iranian KBFs.Considerable results were obtained in this study. It should be noted that the prior research generally investigated earnings management, focusing on the pathology aspects and the measurement of accounting methods. At the same time, this study aims to improve earnings management in KBFs. To this end, 53 indicators were identified, including more than 18 components and 7 latent variables. According to the grounded theory strategy, the explored causal conditions include managers' individual factors with three sub-components of managers' ethical perceptions, inner factors, and professional identity. Also, management support with three sub-components of shareholder participation, management power, and management stability affects the improvement of earnings management. Moreover, intra-organizational strategies with three sub-components of the organizational monitoring and controlling system, culture, and decision-making system also influence factors. The structural equation modeling (SEM) results also indicate that managers' individual factors with a significance coefficient of 4.732 and intra-organizational strategies with a coefficient of 4.837 are outside the range (1.96 and -1.96). Thus, it is also confirmed in terms of positivism. But management support with the coefficient of 0.147 is in the range (-1.96 and 1.96); thus, this theory is rejected. In this section, it can be argued that if managers of KBFsshapedesired ethical perceptions and implemented good intra-organizational, earnings management in these firms would probably be improved. The identified contextual factors include information systems with three sub-components: information quality, information sharing, and information enrichment. The path analysis also shows that the significance coefficient of the information system equals 4.437. Because this coefficient is outside the range (-1.96 and 1.96) thus, the contextual role of the information system in improving earnings management can be confirmed. Therefore, the managers of KBFs can improve earnings management by enhancing information quality, sharing, and enrichment. Based on the obtained results from the identification of intervening factors, environmental factors comprise 5 indicators of political-legal factors, initial demand, competitive conditions, resource supply, and economic perspective. However, the analysis of the quantitative results indicates that environmental factors have a coefficient of 1.687, which is in the range (-1.96 and 1.96); thus, the role of the explored environmental factors is rejected. Furthermore, the financial support system with two sub-components of financial information and working capital plays a strategic role in the research model. The results obtained using the SEMtechniquealso confirm the strategic role of the financial support system because this variable with the coefficient of 2.633 is outside the range (-1.96 and 1.96); thus, it can be stated that its strategic role is accepted. And finally, firm growth with three sub-components of firm development, firm financial transparency, and firm value is the consequence of the explored model. Also, the significance coefficient of this variable equals 10.210, which is outside the range (-1.96 and 1.96); thus, the consequent role of the firm growth is confirmed. Hence, if the managers of KBFs develop their plans based on the research model, it will probably lead to improved firm growth.

4.1. Research implications

Based on the obtained results, some suggestions are proposed in this section. About influencing factors, as was mentioned in the discussion and results section, the influencing roles of managers'

individual factors and intra-organizational strategies were confirmed. Thus, it is suggested that managers' value beliefs, personalities, and ethical behaviors be considered to enhance the individual factors of managers. We suggest paying attention to values such as integrity, personal growth, and responsibility of the managers of KBFs to enhance the value beliefs of managers because these values weaken, motivate, and inspire people to succeed. Furthermore, we suggest that three sections, namely the expectations, personality structure, and managers' attitudes toward earnings management, be considered. To this end, psychological skills training can be beneficial. For ethical behaviors, we suggest that the internal oversight of managers also be improved in addition to organisational oversight. Regarding professional identity, we recommend that managers strictly follow organizational policies, fulfil their responsibilities without considering personal interests, and apply specialized scientific techniques in reporting. Thus, through informing, increasing knowledge, and supporting risk-taking, managers should be assured that there is no need to use earning management because if managers pay attention to these factors, they will be less motivated to engage in earnings management. Therefore, we can hope for an improvement in earnings management. Moreover, the results show that intra-organizational strategies are also influencing factors. In this regard, we suggest increasing monitoring costs, enhancing managerial accountability to shareholders, improving board monitoring, and encouraging whistle-blowing to enhance the organizational monitoring and controlling system as one of the dimensions of organizational strategies. Moreover, by increasing information sharing with stakeholders, honesty in reporting, and cherishing professional values, we can foster desirable corporate culture, a component of organizational strategy, in line with improving earnings management. Furthermore, the decision-making strategy can also be improved by prioritizing financial health in reporting, paying attention to the firm's goals in financial statements, and using financial information and reporting. The results confirmed the role of the information system as the contextual factor in earnings management improvement. Therefore, it is suggested that indicators such as the necessity of managers' periodic earnings reports to stakeholders, disclosing additional information by managers, if necessary, managers' continuous reporting, exchanging new information, complete and comprehensive information content, managers' high-quality reporting, continuous data collection be considered so that we can witness a change in firms' information system. Because the improvement in contextual factors helps earnings management as the central theme and desired strategies and beneficial consequences. In the present study, we identified two strategies: financial information improvement and working capital improvement. In this regard, strategies such as tax reduction, reduction in the current value of tax debts, a fixed dividend policy, reduction in the cost of capital, and increased current assets are introduced to improve earnings management. Thus, earnings management will probably improve if managers put these strategies on their schedules. According to the results, firm growth is identified as the consequence of the earnings management improvement model. Therefore, increasing returns, market share, investment, reporting transparency, measurability of goals, earnings variability, sales, and earnings can lead to firm growth resulting from earnings management improvement. Thus, if managers take action to enhance these factors, the consequent firm growth will be achieved.

4.2. Research limitations and further directions of the study

The basis of every research is the information by which the research hypotheses are tested. Thus, the higher the quality of research data, the more acceptable results are obtained and the higher the validity of the research. All research has limitations that cause problems in achieving desired results, and the present study is no exception. The present study is subject to some limitations, which are as follows. First, in exploratory research, due to coding and identifying indicators and components by

the researcher and the researcher's involvement in the research, the obtained results are likely to be affected by the researcher's personal opinion. Second, the different interpretations of experts in the qualitative phase and participants' different interpretations of questionnaire items in the quantitative phase can be a research limitations. Third, some variables that can affect the results were not controlled.

In the present study, the exploration section confirmed environmental factors and managerial support influencing earnings management. Still, in the model testing section, these factors were rejected based on the obtained results from the SEM method. Thus, we have two suggestions for future research. First, future research should conduct deeper interviews and code indicators to the point of theoretical saturation because this factor has probably created limitations in this research. Second, future research is needed to examine the effect of management support on earnings management based on the indicators of this study in another statistical population to confirm the obtained results further.

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