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Improving Competitiveness in Iran Laminated Flooring Market with Structural Equation Modeling Approach

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The competitiveness of the laminated flooring industry was assessed in Iran. The statistical population was 200 persons, calculated using the stratified random method and the Cochran formula. The sample size was 132. After reviewing the literature, a conceptual model derived from the theoretical framework was presented. A researcher-made questionnaire was used to collect data. Content validity and confirmatory factor analysis were used to determine the validity of the questionnaire. Its reliability was calculated and confirmed using Cronbach's alpha coefficient. The results were processed using structural equation modeling (SEM). The results showed a significant relationship between factors affecting perceived value, environmental and intra-organizational factors, and competitiveness in the laminated flooring industry. The evaluation of the quality of the model showed that the factors affecting the perceived value (strong effect = 0.632) and intra-organizational factors and environmental factors (moderate effect = 0.211 and 0.171) that were calculated, respectively, had the greatest effect on competitiveness. Moreover, these independent variables allocated 91.6% of competitiveness variations as the dependent variable.

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INTRODUCTION

During the last 100 years, there has been a significant increase in the consumption of wooden and decorative commodities into the market, the widespread uses of wood for manufacturing doors and windows, and in using wooden floors in the Iranian market. Wood, due to its special texture, is one of the largest and the most widely used natural interior decorative material. It is used in various parts of houses, such as solid wood doors, wall coverings, floors, and interior furniture. The wood used on the house floor is called wood parquet. Wood parquets have various shapes. However, in recent years, the parquet manufacturers turned to a new product called laminated parquet.

One of the fields in which the globalization of the economy has penetrated as new literature is the topic of economic competitiveness, which dates back to the early 1990s. The growth of literature in this field (both theoretical and applied) has resulted in compiling composite indices in a short time, and currently, competitiveness indices are presented annually by reputable international institutions, and economists, business activists, and economic policy makers considered as an important issue.

Competitiveness means the ability and performance of an enterprise, an economic sector, or a country in selling and supplying goods and services in a market compared to

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other companies, sub-sectors, and countries in the same market. Competitiveness refers to the ability to increase market share or profitability and stay in the world competition scene for a long run.

As globalization is increasing broadly, competitiveness is considered an important issue among policy makers at different levels (country, industry, and enterprise) in different parts of the world (Shurchuluu 2002). Competitiveness is categorized at three levels: national or country, industry, and company (Webster 2002). An industry can be competitive and create more value in competitive markets. Of course it should have good coordination with the factors of the national environment and have proper balance between the forces of its internal structure (Dess *et al.* 2013). One of the characteristics of today's successful companies is competitiveness. Competitiveness at the company level can be defined as the company's ability to design, produce, or provide products having lower price or higher quality compared to competitors' products at an equal environment (D'Cruz and Rugman 1992). In the globalized economy, the competitiveness of a company means the possibility of obtaining a suitable and stable position in international markets. More than anything else, the power of competitiveness comes from having new perspectives about it. The condition of this competition is that the company can recognize the changes in the environment and inside the company and adapt these changes by observing the rules of the competitive market better than the competitors (Chikan 2008).

The concept of competition at the firm-level is widely used in discussions related to strategic management. Competition at the firm-level is synonymous with business performance in strategic management (Guerras-Martin *et al.* 2014). In strategic management, a company's competitive strategy is related to how it competes in the business areas in which the company operates. In other words, competitive strategy means how the company intends to create and maintain a competitive advantage with respect to competitors. Competitive advantage is obtained through strategic management of resources, capabilities, and competencies, as well as the company's response to opportunities and threats in the external environment (McGee and Sammut-Bonici 2014). Bingol *et al.* (2017) investigated the effect of strategic management tools on company performance and found that changes in strategic management are the result of changes in markets, from regional to international and from local to national. Then, competitiveness increases.

Laminated flooring is a multi-layered product with decorated coatings, which are available in different designs and wear-resistant coating due to the similarity of its surface to natural wood and sometimes stone. The inner layer of laminated flooring usually consists of melamine resin impregnated decorative paper with an anti-abrasion layer of aluminum oxide, pressed on medium- or high-density fiberboard panels (MDF or HDF). These types of flooring are available as easy and quick installation that can be installed on any surface. These types of flooring are not screwed or glued to the underlying surface. Instead, the advantage of not using glue is that by using the jointing system in the form of channels and stable and resistant tongues creates stylish and beautiful surfaces. Laminate floorings are currently facing augmented consumption and are one of the most common floor covering choices compared to natural wood, stone, or tile. The main reasons are ease of installation, availability of various wood designs, high durability, and lower cost compared to other floorings.

According to the annual statistics published by the Association of European Producers of Laminated Flooring published in January 2019, the total global sale of laminated flooring in 2018 was 455 million square meters. It is necessary to explain that

these statistics are presented based on member companies in this association. According to this report, the sales of laminated flooring in 2017 was 477 million square meters, and in 2018, the total sales of this product decreased by 4.6%. Western European countries owned 49% of the total sales of laminated flooring in 2018, Eastern European countries 28%, North American countries 10%, Asian countries 7%, Latin American countries 4%, and other countries 2% (EPLF 2019). The economically important flooring market looks not only promising but also highly competitive because it engages several producers and materials (Roos and Hugosson 2008).

In Iran, there are currently more than 10 active companies in the field of laminate parquet manufacturing with a production capacity of more than 20 million square meters per year. This industry in Iran operates in a wide range of production capacities from small-scale to large-scale industrial units. Thus, it can play a significant role in economic growth, job creation, and the development of export markets. However, various wood industries in Iran are facing important challenges such as lack of raw materials, lack of renovation of old production lines, high production costs, unwillingness of the private sector to invest, *etc*. Currently, such industries face wide challenges in the field of developing target markets and entering regional and international arenas.

Sotoudeh *et al*. (2016) stated that this industry confronts a lot of challenges and obstacles in the global expansion. The growth of the sector is restricted by several factors, including a lack of capital and technology, dependence on a limited number of wood species, unorganized industrial structure, and legal affairs.

In recent years, manufacturing companies in Iran have faced many problems in cost-effective production and export of their products due to several factors such as international sanctions and exchange rate fluctuations. Lack of serious attention to elements such as new technologies in production, innovations in human resources, marketing and sales, insufficient information on export markets, and the status of competing companies, *etc.*, have been the weakness of this industry. The support of the government and industrial policy makers causes these industries to face many problems when entering the global markets and competing with other players in the region. In the coming years, Iran should pay more attention to the development of laminated industries to enter the world markets. Therefore, it is very important to identify the factors affecting the competitiveness of different products in laminated flooring. This article intends to provide a suitable framework for examining the competitiveness at firm-level by studying the existing literature and interviewing experts in various aspects. The researchers believe that Iranian companies should pay serious attention to the effective factors raised in this research to export their products and achieve a competitive advantage compared to their competitors. For this purpose, structural equation modeling (SEM) was used to provide a strategic competition model for the laminated wood flooring industry using Smart PLS software.

Literature Review

Abbasi and Rahimi Kelor (2013) identified and classified the main indicators affecting competitiveness as environmental factors, intra-organizational factors, and perceived value creation. The modeling results show that in the modified research, the model ranks the factor of perceived value creation as the first category and the intra-organizational and environmental factors in the next order of priority. Rahman Seresht and Safaian (2011) examined the competitiveness model of manufacturing industries in Iran and reported that the role of industry size variable in the competitiveness is greater than

other factors, while the human force and its capabilities are very weak in the field of competitiveness and exports performance. Also, the government is one of the main influencers on the competitiveness of manufacturing industries in Iran. In research on the petrochemical and automotive industries, which are among the leading industries in Iran, it was found that by improving organizational performance, competitive advantage for the products increases, and as a result, the company's market share increases in the domestic and foreign markets (Valmohammadi 2013). Amirnejad and Alipour (2014), using comparative advantage indicators, showed that Iran has no comparative advantage in the export of forest products. In order to increase the export of these products and have a relative export advantage, these researchers suggested studying predetermined commercial prospects such as identifying export target markets. Also, in order to increase forest products exports by increasing production, it was suggested to hand over more forest resources to the private sector.

Han *et al.* (2009) studied the global competitiveness of China's wood furniture industry based on the Revealed Comparative Advantage (RCA) index and showed that China experienced a transition from no RCA to a high RCA over a certain period of time and has maintained its strong position in this industry. In addition, China is currently facing unfavorable economic conditions such as rising costs, declining international demand, technology gaps, and increasing trade barriers. Therefore, the government, industrial associations, and companies should take initiative measures to promote Chinese companies and transform them from the main equipment manufacturers to the main design and branding manufacturers. Wan (2014) investigated the sources of sustainable competitive advantage and the corresponding changes in competitive strategy in the wood products industry in China and Finland. The results show a growing trend in product-to-market transition and stakeholder orientation from cost leadership to differentiation strategy and from low-value-added products to high-value-added products in both countries. Along with this transition, the sources of sustainable competitive advantage have shifted from an exclusive focus on tangible resources to intangible resources.

In the Macedonian forest-based industry, the analyses have shown that the main strengths may be the existence of favorable factor conditions, including cheap labor, energy cost compared to the region, good geographic location, and relatively decent transport infrastructure. Weaknesses come from the absence of infrastructural investments (lack of capital), inappropriate management techniques, outdated machinery, low productivity, and low value-added products (Savic *et al.* 2011). In the Republic of Serbia during the period of 1995 to 2015, research on the competitiveness of wood processing industries using six partial competitiveness indices revealed that these industries have comparative precedence in domestic and international markets. Of course, the weakness of competitiveness of the wood processing industry in Serbia may be because of competitive advantage which is due to a favorable price and not in the production of the complex products with the high added value (Milicevic *et al.* 2017). A study in Germany showed that the Nordic suppliers (Nordic Wood Industry) do not have a strong competitive position concerning the dimensions of the intangible product quality (such as behavior and image, serviceability and environment, and reliability). Thus, Nordic suppliers could promote their competitive position by increasing their service, logistics, and other dimensions of the intangible product offering (Toivonen *et al.* 2005).

A study on the impact of market orientation and entrepreneurial orientation on innovation and competitiveness, as well as the relationship between innovation and competitiveness in small-scale furniture companies in Indonesia found that market

orientation and entrepreneurship contribute to innovation and competitiveness (Jusni *et al.* 2023). The highest structural relationship is between entrepreneurial orientation and innovation, while a minor effect was observed between entrepreneurial orientation and competitiveness. Regarding market orientation, there is a small effect between it and innovation and competitiveness. Arabi *et al.* (2022) found that sustainable supply chain management for wooden furniture companies leads to achieving more competitive advantage and as a result achieving a greater share of the sales market. In fact, the emergence of new technologies and changes in global markets has caused manufacturing companies to turn to sustainable supply chain management in order to maintain their competitive position. Li *et al.* (2006) showed that organizations with higher levels of supply chain management exhibit both better performance and higher competitive advantage. Also, competitive advantage has a direct positive effect on the organization's performance.

EXPERIMENTAL

Methods

A mixed-methods study (quantitative and qualitative) was conducted, and the research data were both quantitative and qualitative. This cross-sectional study was carried out, considering the time period of 2019 to 2020. The study location was an active enterprise in the laminated flooring industry. This case study is related to Mahsan Sanat Company (Aida Industrial Group) located in Mahdasht Industrial Zone, Karaj. This company started its activity in 2015, produces MDF profiles, kitchen cabinet desks, melamine paper laminated MDF boards, and all kinds of laminated flooring. The nominal annual production capacity in the melamine-faced MDF boards is 5 million square meters and 20,000 tons in laminated flooring capacity. Field-library methods were used for data collection. The main tool for data collection was a questionnaire. The researcher-made questionnaire was used to measure the research variables or provide a model to assess and measure the enterprise's competitiveness or competitive power, including two parts: 1) the demographic characteristics of the respondents and 2) questions related to research variables. The Likert-type scales were used to measure the constructs in the questionnaire on a scale of 1 to 5. Also, the library and the Internet were used for data collection related to theoretical foundations and extracting factors and primary indicators, including interviews, book databases, articles, and case studies.

The statistical population consisted of experts and informed people in the two fields of competitiveness and the structure of the laminate flooring industry, managers and informed experts in the companies that produce and import this product, experts in the field of industrial and commercial policy of the country, and finally the main customers in laminate flooring. Considering the limited size of the statistical population, the stratified random sampling method was used; the reasons are that for each class, a suitable sample size is considered; secondly, it provides a more accurate estimate of the population parameters than other sampling methods. The sample size was calculated based on Cochran's formula. Cronbach's alpha coefficient was used to measure reliability. The face and content validities of the scale were measured, and confirmatory factor analysis (CFA) was used to evaluate the internal consistency of the questionnaire and to identify latent constructs.

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Structural equation modeling was also used for data analysis using Smart PLS software. The partial least squares (PLS) performed by Smart PLS was selected, involving more strict assumptions for the distribution of variables and error terms and can work fast with both reflexive and formative measurement approaches (Boccia and Sarnacchiaro 2014). The most important advantage of PLS over other software applications is the ability to analyze small data (Goodhue *et al*. 2006). SEM is considered a multivariate method that can simultaneously combine aspects of multiple regression and factor analysis to evaluate a set of interdependent relationships (Siddiqui and Sharma 2010). It can be considered as a new and powerful multivariate analysis method. SEM, as a statistical technique, can be used to analyze the relationships between a latent variable and an observed variable (Lei and Wu 2007). The advantage of PLS method is that it does not need to normalize the sample distribution and its applicability with nominal, ordinal, and interval variables (Aftanurhan 2013).
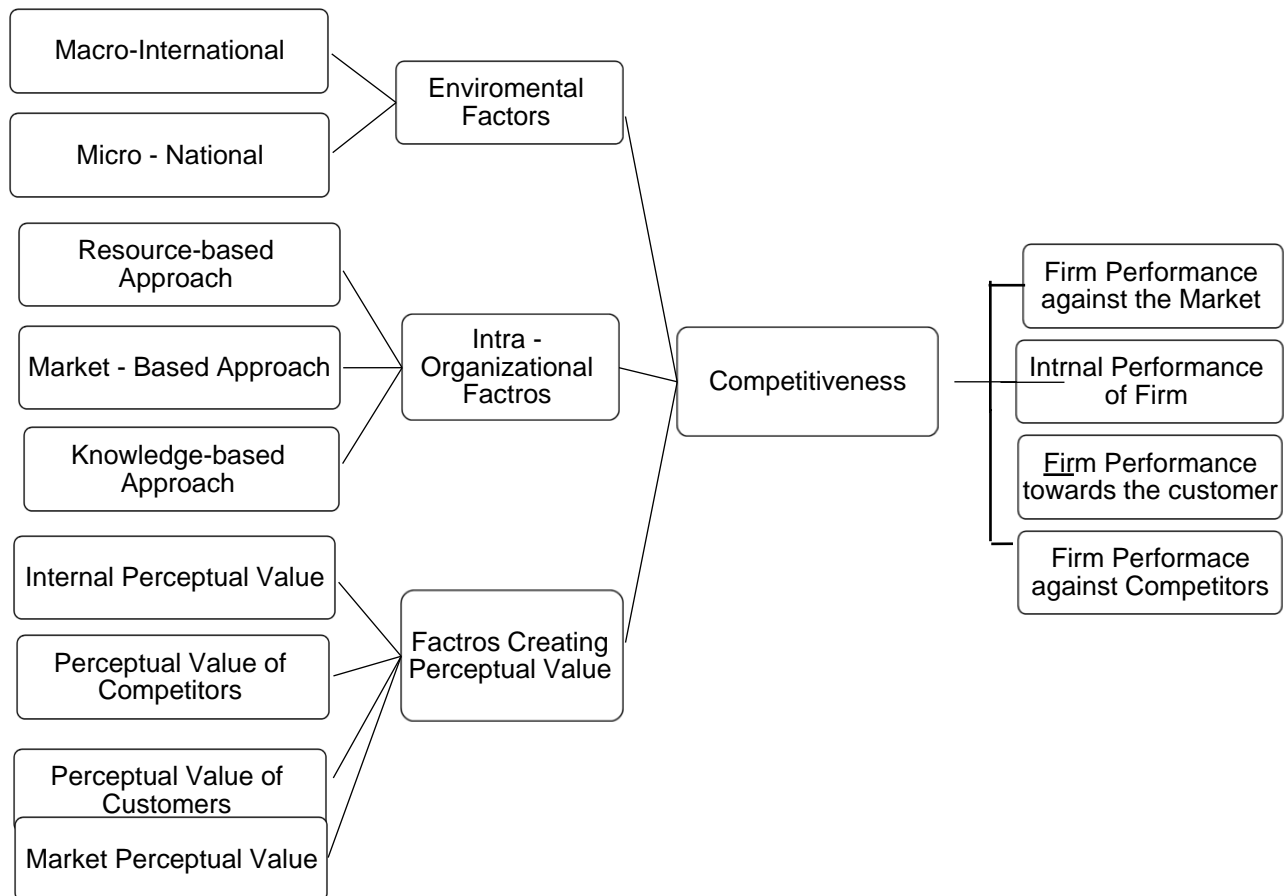

Fig. 1. Proposed Conceptual Model

Conceptual Model of Research

The conceptual model framework of the present study is drawn in Fig. 1 based on the structural equation modeling approach. In this model, each of the latent variables has several structures. For example, environmental factors are identified with micro, national, and macro environmental structures. Macro factors (international) refer to sub-factors that affect the company and are uncontrollable, such as political, social, economic sub- factors, *etc*. National factors examine the above goals in smaller dimensions and at the domestic level. Micro environmental sub-factors are closely related to the company and its activities, such as the market, technology, customers, *etc*. (Szerb and Ulbert 2009; Andzelic *et al.* 2011), for which a number of questions have been designed. Intra-organizational factors refer to the controllable factors within the company and are distinguished based on the three structures of resource-based factors (organization's resources include leadership, policy and strategy, human resources, processes, *etc*.), market-based factors. In this view, companies should be customer-oriented, market-oriented, innovative and entrepreneurial in order to gain a sustainable competitive advantage (Liu *et al.* 2003). Also included are knowledge-based factors (this view includes the infrastructure and processes of knowledge management and information technology). Perceptual value creation factors are based on the value-based marketing perspective, whereas perceived value refers to the difference between the customer's perceptions of the benefits of buying and using goods and services and the customer's perceptions of the cost resulting from this exchange (Sweeney and Souter 2001). This factor includes four structures: internal perceptual value, competitors' perceptual value, customers' perceptual value, and market perceptual value. Each of the latent variables related to competitiveness is evaluated in the structural equation model. To determine the factors affecting competitiveness for the laminated wood flooring industry at the firm level, the available sources and effective factors were studied, including interviews of the experts in the various aspects to examine competitiveness in Mahsan Sanat Company (Aida Industrial Group). The competitiveness factors defined for this study were: environmental factors (EF), intra-organizational factors (IOF), and factors creating perceptual value (FCPV), with nine sub-factors. The competitiveness as a whole consists of four basic components: firm performance against the market, firm performance against the competitors, firm performance towards the customer, and internal performance of a firm (Divandari *et al.* 2009).

RESULTS AND DISCUSSION

The questionnaire was distributed to 200 persons, and 132 feedbacks were received. Table 1 shows the demographic characteristics of the respondents.

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Table 1. Demographic Characteristics of Respondents

Demographic Features	Range/Classifications	Respondents	Percentage
Gender	Male	120	90.9%
	Female	12	9.1%
Education	High School Diploma	3	2.2%
	Associate's degree	14	10.6%
	Bachelor's degree	62	47%
	Master's degree or higher	53	40.2%
Age (years)	< 30	37	28%
	30-40	65	49.3%
	40-50	16	12.1%
	>50	14	10.6%

Table 2 shows that the appropriateness of applying factor analysis to the data and was assessed using Bartlett's test of sphericity and the Kaiser-Meier-Olkin (KMO) measure of sampling adequacy. Bartlett's test is used to test the hypothesis that the sample correlation matrix is an identity matrix in which the variables in the population are not correlated. KMO measures the proportion of variance between variables, which is the most common variance that may be caused by background factors. (Siddiqui and Sharma 2010). According to Table 2, the value of KMO is very high (0.936), and Bartlett's test was statistically significant (P-value = 0.000), indicating the appropriateness of using factor analysis on the data. They are correlated according to the theoretical foundations of factor analysis since the variables have one or more common components. Background factors are used to explain the correlation between variables.

Table 2. Results Obtained from KMO and Bartlett's Test of Sphericity

	Kaiser-Meyer-Olkin	Bartlett's Test of Sphericity	Sig
Environmental Factors	0.5	66.53	0.00
Intra-organizational Factors	0.727	188.36	0.00
Factors creating Perceptual Value	0.767	150.97	0.00
Total	0.936	849.78	0.00

Reliability and Validity

The reliability or internal consistency of the scale was evaluated using Cronbach's alpha, rho_A, combined reliability (CR), and average variance extracted AVE. According to Hair *et al*. (2014), *α* greater than 0.7 indicates an acceptable level of reliability (Table 3). The value of each construct was above the threshold; according to Table 3, the CR of each variable shows good, reliable, and statistically significant values. According to Wah-Yap *et al*. (2012), the average variance extracted can be considered a point that indicates the reality or presence of convergent validity. According to Hair *et al*. (2014), an AVE value of 0.5 is acceptable. Minimum standard and higher values indicate that the constructs have good validity. All constructs with AVE values higher than 0.5 had good convergent validity.

Table 3. Cronbach's Alpha (α) t and Reliability

Constructs	α	rho_A	CR	AVE
Environmental factors	0.776	0.776	0.899	0.817
Intra-organizational factors (f2)	0.864	0.866	0.917	0.787
Factors creating perceptual value (f3)	0.793	0.795	0.866	0.617
Competitiveness (f4)	1.000	1.000	1.000	1.000

In the methodology of the SEM, first, it is necessary to examine the validity of the structure to determine whether the selected indicators are used to measure the desired structures. To validate the content value of each indicator in measuring the proposed concepts, in this section, the validity of the designed model is analyzed using the SEM method. A complete SEM is a combination of path diagram and CFA. This method is used in studies where the goal is to test a specific model of the relationship between variables. The SEM is divided into two phases: CFA and path analysis. In the measurement part, the relationship between the indicators or the questions of the questionnaire and the constructs is studied, and in the structural part, the relationship of the studied factors with each other for testing the hypotheses is important. There are various methods for implementing the SEM; one of the newest approaches in the SEM is the PLS method.

First, reliability and convergent and divergent validity were examined. Afterward, the structural model was assessed. Table 4 shows that the reliability conditions of the questionnaire were evaluated (Table 4), and it was determined in which category of reflective or composite variables each research variable is placed. Afterward, tests were applied according to the type of variables.

Table 4. Questionnaire Type for Each Variable

Variable	Questions	Questionnaire Type	Cronbach's Alpha	CR	AVE	Compare CR>AVE
Environmental Factors	1-2	Reflective	0.77	0.89	0.81	Being larger
Intra-organizational Factors	3-4-5	Reflective	0.86	0.91	0.78	Being larger
Factors creating Perceptual Value	6-7-8-9	Reflective	0.79	0.86	0.61	Being larger
Competitiveness	10	Reflective	1	1	1	Being larger

Table 4 evaluates the values of Cronbach's alpha and CR to assess the reliability. This criterion is used to evaluate the suitability of the model and to ensure the stability of different parts of the SEM. According to Cronbach's alpha values for each variable and CR, the questions inside the model for each variable are internally correlated because the values of alpha and CR are greater than 0.7.

The shared index for all variables must be above 0.5, which is established according to the values listed in the table. Therefore, the reliability of the questionnaire is confirmed. To assess the convergent validity, one of the criteria is that the AVE index is greater than 0.5, which was established in the research, and the other is that the factor loadings are significant and greater than 0.7; this condition is established. This study showed that the factor loading was smaller than 0.7 in only two cases, which was negligible. Therefore,

convergent validity was observed. The AVE value of the research variables was more significant than 0.5, and the convergent validity was also confirmed with this method. Cross-loading test, Fornell, and Larcker tests and comparison of AVE with CR must be greater than AVE. The condition of being larger was met for all the research variables, and also the status of divergent validity was evaluated.

According to the cross-tables or cross-sectional loadings, the factor loadings assigned to most of the items of the latent variables were at least 0.1 higher than other non-corresponding variables, so this condition has been met for divergent validity. It was assessed for divergent validity with the Fornell and Larcker (1981) test (Table 5). In this test, the discriminant validity was evaluated by comparing the square root of each AVE in diameter and the correlation coefficients (off-diagonal) for all constructs in the related rows and columns, which indicates the discriminant validity of all constructs. Therefore, the measurement model has good construct validity.

Table 5. Fornell and Larcker Test

	Environmental Factors	Internal Factors	Factors Creating Perceptual Value	Competitiveness
Environmental Factors	0.90	-	-	-
Internal Factors	0.72	0.88	-	-
Factors Creating Perceptual Value	0.71	0.77	0.84	-
Competitiveness	0.76	0.80	0.78	1

Table 5 shows that the discriminant validity was confirmed for this measurement model, indicating the discriminant validity between the constructs. CFA was used to determine the quality of the measurement model (Teo 2011). According to Hair *et al.* (2009), CFA enables us to assess how well measured variables represent constructs or to test our measurement theory. The researcher used a measurement model that describes latent constructs based on indicator variables to develop cause and affect hypotheses (Gerpott *et al.* 2001).
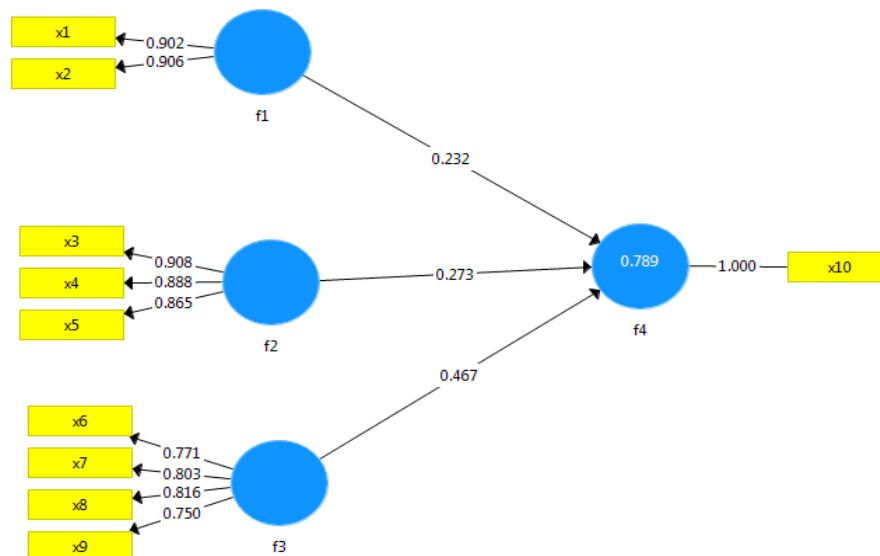

Fig. 2. Measurement model in standard estimation mode (PS-A)

The effects of all variables of external factors, environmental factors, intra-organizational factors, and factors affecting perceived value on the competitiveness of the laminate flooring industry are shown in Fig. 2. Factor loadings of all variables were homogeneous. Also, the items used to measure latent traits were consistent with the factor structure and theoretical foundations because the values of the factor loadings were 0.5 or more. According to Teo (2011), the adequacy of the measurement model showed that the items are reliable indicators of the hypothesized constructs that allow us to evaluate the structural relationships in the model. The hypotheses that show the determinants of competitiveness are formulated as follows:

H_1: There is a statistically significant relationship between environmental factors and competition in the laminate flooring industry.

H_2: There is a statistically significant relationship between intra-organizational factors and competition in the laminate flooring industry.

H_3: There is a statistically significant relationship between factors affecting perceived value and competition in the laminate flooring industry.

Table 6. Results Obtained from Hypotheses Testing

Hypotheses	Hypothesized Path	Pc	T-value	P-value	Results
H1:	EF→C	0.232[a]	3.61	0.004	Accepted
H2:	IOF→C	0.273	3.53	0.009	Accepted
H3:	CPVF→C	0.467	5.5	0.001	Accepted
Notes: Pc = Path Coefficient; a =Indicates the significant level at -1.96< t < 1.96					

According to the results, research hypotheses were evaluated. The results are shown in Table 6.

H1: There is a significant relationship between environmental factors and competitiveness in laminate flooring

The path coefficient in this study shows that environmental factors can affect the competitiveness of laminate flooring by 0.232, and the significance level of the test (p-value) is equal to 0.004 and has less than 5% error, and the value of T is equal to 3.61, which is outside the range of (1.96, 1.96). Therefore, with a confidence coefficient of 95%, the effect is significant and the hypothesis is confirmed; *i.e.* there is a significant relationship between environmental factors and competitiveness in laminate flooring.

H2: There is a significant relationship between intra-organizational factors and competitiveness in laminate flooring.

The path coefficient in this study shows that intra-organizational factors can affect the reliability of laminate flooring by 0.273, and the significance level of the test (p-value) is equal to 0.009 and has a value less than 5% error. The value of T is equal to 3.53, which is outside the range of (1.96, 1.96); therefore, with a confidence factor of 95%, the effect is significant, and the hypothesis is confirmed; *i.e.* there is a significant relationship between the creation of perceived value and competitiveness in laminate flooring.

H3: There is a significant relationship between the creation of perceived value and competitiveness in laminate flooring.

The path coefficient shows that creating a perceived value of 0.467 can affect the competitiveness of laminate flooring, and the significance level of the test (p-value) is equal to 0.001 and has a value less than 5% error, and the value of T is equal to 5.5, which is out of the range (1.96, -1.96); therefore, with a confidence coefficient of 95%, the effect

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is significant and the hypothesis is confirmed. In other words, there is a significant relationship between intra-organizational factors and competitiveness in laminate flooring.

Structural Model Quality Test:
R^2

R-Square expresses how well PLS can predict a data set and indicates the goodness-of-fit of the model. The value should be 0.3 or higher (Ahmad *et al*. 2019). In the present study, the R-squared value of the independent variables of environmental factors, intra-organizational factors, and factors affecting the perceived value was 91.6%. This value was higher than the standard data set, indicating the goodness-of-fit of the model (Table 7).

Table 7. The Determination Coefficient Table of the Structural Model

	R Square	R Square Adjusted
Competitiveness	0.789	0.784

Effect size or f^2

Effect size is a statistical concept that calculates the strength of association between two variables using a numerical scale. Cohen's f^2 measures the effect size when we use methods such as ANOVA, multiple regression, etc. Based on this index, factors effective in perceived value (strong effect = 0.368), intra-organizational factors, and environmental factors (moderate effect = 0.121 and 0.107, respectively) can have the best effect on competitiveness in laminate parquet industry in Iran (Table 8).

Table 8. Effect Size Table of F Square Structural Model

	Competitiveness
Environmental factors	0.107
Intra-organizational factors	0.121
Factors creating perceived value	0.368

DISCUSSION

The analyses show that environmental factors can affect the competitiveness of the laminated flooring industry, consistent with the results of Wagner and Schaltegger (2004). According to the results, environmental factors affect the competitiveness of companies, *i.e*. the enterprise's environmental strategy affects its economic performance. The scale used to measure financial performance is competitiveness. Therefore, environmental management activities can affect competitiveness (Wagner and Schaltegger 2004). An industry can be competitive when it creates more value than competing industries in competitive markets and is well aligned with the interests of national environmental factors and an appropriate equilibrium between its internal structure forces (Dess and Lumpkin 2003). Countries that are present in the global market will flourish if they can strengthen the competitiveness of their domestic markets. Companies that enter international markets through a solid domestic competitive system have a high chance of success in international markets due to offering low-priced and good-quality products that are the result of competition (Beheshti *et al.* 2009). The resource-based approach emphasizes the

importance of technological capabilities. Technological capabilities and resources can be considered a long-term competitive advantage for companies, especially in foreign markets. These capabilities allow the firm's tangible and intangible resources to be transformed into innovative new products, thereby increasing the firm's competitiveness and creativity, which can positively affect exports performance (Maurel 2009). To gain competitive advantage, several factors should be considered by small and medium-sized enterprises, one of which is the ability to innovate in technology. Technological innovation is a set of capabilities, skills, and knowledge of an organization to select, install, launch, maintain, adapt, upgrade, and develop intra-organizational technologies (Zand Hesami and Ashtianipour 2013). Based on the market-based approach, companies must be customer-oriented, market-oriented, and innovative, as well as willing to learn. According to this approach, market orientation is an important source of increasing competitiveness (Liu *et al.* 2003), which shows a direct correlation with research results. Kothari and Lackner (2006), in their study to achieve profitability and competitiveness of companies, concluded that companies should:

1) Define and explain the value of customers

2) Systematically allocate their resources to provide more value than competitors

3) Obtain a significant share of customer value

The results indicate a direct and significant correlation between factors creating perceived value and competition. Managers of companies that intend to enter foreign markets must look at a market based on different criteria to decide how to enter that country's market. The key parameters are international experience, marketing skills, and technical knowledge of the company and the selection of appropriate strategies (direct exports or direct investment). Choosing the type of strategy depends on the managers' focus. If managers focus on domestic production, direct export is a good strategy, and if they pay attention to foreign countries, direct investment strategies such as purchase or establishment are appropriate strategies. Investment in research and development and the economic conditions of the country can be considered one of the most important factors in developing laminate parquet exports and advanced technological innovation. Paying attention to these factors to improve exports in this sector requires a long-term approach, but in the short term, there are many obstacles to exploiting the existing production capacity. Eliminating these obstacles, which are often at the end of the supply chain of these products abroad, will create more demand for production and increase the manufacturing of these products.

The current economic conditions of the country have made the cost of exporting products and services more expensive for exporters than other countries due to various reasons. Financing due to the high bank interest rates in Iran compared to other countries makes the competitive conditions difficult. Moreover, not being a member of the World Trade Organization also leads to higher tariffs than other member countries for importing goods to the destination countries. Furthermore, failure to establish banking relationships due to sanctions can also increase the cost of returning money to the country. The results of this research point out that to have a competitive advantage in the production of laminate flooring and to reach export markets, it is necessary to pay attention to several factors inside and outside a company. Also, the results show that the perceptual value creation and intra-organization factors play a much more important role compared to external (environmental) factors such as international sanctions and exchange rate fluctuations in

the competitiveness of companies active in this industry. Laminate flooring companies in Iran should pay attention to the experience of successful companies in this industry in the international arena, taking into account the domestic conditions of the country, and in this way, review several concepts such as innovation, marketing, sales, customer value, *etc.*

CONCLUSIONS

To investigate the competition at the level of laminated flooring companies, with a case study on one of the successful companies in this industry in Iran, the authors have paid attention to several factors at the external and internal levels, and for this purpose, they have used an SEM technique.

1. The values of the factor loadings were 0.5 or more, so, the items used to measure latent traits were consistent with the factor structure and theoretical foundations.

2. The effective factors (the explanatory variables) had a significant relationship with competitiveness in the laminate flooring (the explained variable).

3. The results of effect size test showed that the perceived value factor (strong effect = 0.368), intra-organizational factor, and environmental factor (moderate effect = 0.121 and 0.107, respectively) can have the best effect on competitiveness in the laminate flooring industry in Iran.

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