AN INTEGRATED FRAMEWORK FOR COMPETITIVE MARKET STRATEGY SELECTION BY USING FUZZY AHP

Mohamad H. Gholami, Mirmehdi Seyyed-Esfahani

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Firms realize that the selection of an appropriate competitive market strategy is essential to create value for customers and consequently to gain competitive advantage over their competitors. The review of relevant literature reveals that the competitive market strategy should be adopted with regard to both internal and external factors that impact on the firm's performance. Hence, according to the large number of factors and the complexity of decision making process, this study considers the selection of the best competitive market strategy as a multiple criteria decision making (MCDM) problem and proposes an integrated framework on the basis of the resource-based view (RBV) of the firm (firm-level analysis) and Porter's competitive forces (industry-level analysis). The proposed framework utilizes the fuzzy analytic hierarchy process (fuzzy AHP) in both firm-level and industry-level analyses. Also, the discussion on how to reconcile the two analyses is provided. Furthermore, to demonstrate the application of the developed framework, an empirical example from insurance industry is presented. The major advantage of applying this framework is that managers will systematically select the best competitive market strategy that not only fits with their firm's marketing resources, but also impedes the industry's competitive forces.

Keywords: competitive market strategy; resource-based view (RBV); Porter's competitive forces; Porter's generic strategies; fuzzy analytic hierarchy process (fuzzy AHP)

Integrirani sustav za odabir konkurentne tržišne strategije uporabom neizrazitog AHP

Izvorni znanstveni članak

Poduzeća shvaćaju da je izbor odgovarajuće konkurentne tržišne strategije bitan za stvaranje vrijednosti za kupce te stoga i za stjecanje prednosti nad konkurencijom. Pregled odgovarajuće literature otkriva da se konkurentna tržišna strategija treba primijeniti kako na unutarnje tako i na vanjske faktore koji utječu na poslovanje poduzeća. Stoga se, zbog velikog broja faktora i složenosti u postupku odlučivanja, ovaj rad bavi odabirom najkonkurentnije tržišne strategije kao problemom donošenja odluke uz mnoštvo kriterija i predlaže integrirani sustav zasnovan na stajalištu o firmi baziranoj na resursima (RBV) (analiza na nivou firme) i Porterovim silama konkurencije (analiza na nivou industrije). Predloženi sustav koristi postupak neizrazite analitičke hijerarhije (fuzzy AHP) i u analizi na nivou poduzeća i na nivou industrije. Raspravlja se i o tome kako uskladiti ove dvije analize. Nadalje, za demonstraciju primjene razvijenog sustava, daje se empirijski primjer iz industrije osiguranja. Glavna prednost primjene ovog sustava je u tome što će menadžeri sistematski birati najkonkurentniju tržišnu strategiju koja ne samo da odgovara marketinškim resursima njihovog poduzeća već i sprječava konkurentne sile industrije.

Ključne riječi: konkurentna tržišna strategija, stajalište bazirano na resursima, Porterove sile konkurencije, Porterove generičke strategije, postupak neizrazite analitičke hijerarhije (fuzzy AHP)

1 Introduction

Gaining competitive advantage through creating value for customers has become the major interest in the field of strategic marketing [1, 2, 3, 4]. A firm achieves competitive advantage when its offerings for its customers create more value than the competitors' offers [5, 6, 3]. Christensen [7] defines competitive advantage as any value a firm creates that motivates the customers to buy its products/services rather than those of its competitors and that cause obstacles to imitation by the competitors. Peteraf and Barney [8] present the precise definition of competitive advantage: a firm can achieve a competitive advantage when it has the ability of creating more economic value – the difference between the perceived benefits gained by the customers and the economic cost to the firm – than the competitors in its market. This definition is consistent with definitions provided by [9] and [10]. In line with this concept of competitive advantage, Porter suggests three generic competitive market strategies [11], namely cost leadership, differentiation, and focus strategies, which can be followed by firms to achieve competitive advantage [12, 13]. Porter's model of distinctive generic strategies has been known as a dominant paradigm in strategic management and marketing literature [14]. Ref. [11] also

asserts that firms should make a choice between the three strategies because of their inherent contradictions.

Selecting a competitive market strategy requires assessment of as many factors as possible including internal and external factors that impact on the firm's performance. Ref. [15] argues that the strategy of a firm is about matching the resources and capabilities of the firm to the opportunities that exist in the external environment. Internal factors can be explained by the resource-based view of the firm (RBV) [16, 9] that focuses on a firm's heterogeneous and imperfectly mobile resources, while external factors can be evaluated by Porter's competitive forces framework [11] that emphasizes industry analysis based on five structural forces. The RBV and competitive forces framework are two of the most influential perspectives in the field of strategy. Wernerfelt's [16] and Barney's [9] pioneering articles and Porter's book [11] are the most cited articles and book in the *Strategic Management Journal* in the period 1980-2000, respectively [17].

The RBV views the firm as a bundle of resources and capabilities [16, 9] and assumes that resources and capabilities are fundamental determinants of the strategy and performance of a firm. Resources include all assets, capabilities, processes, attributes, information, knowledge, etc. possessed by a firm that can be utilized to generate and implement strategies that enhance the firm's efficiency and effectiveness in the marketplace [9]. Ref.

[9] focuses on characteristics of the potential sources of competitive advantage and proposes that advantage creating resources be valuable, rare, inimitable and non-substitutable. Many scholars have attempted to recognize advantage creating marketing resources [18, 19, 20, 21]. Although no listing can be all inclusive [22, 23], ref. [22] identify some of the most consistent and important marketing resources emerged from theoretical and empirical literature. Market orientation, managerial capabilities, customer linking capabilities, market innovation capabilities, human resource assets, and reputational assets are the six marketing resources that impact on market performance and financial performance of the firms [22].

The other major perspective is Porter's framework for industry analysis [11, 24] which is rooted in the paradigm of Industrial Organization [25]. This framework emphasizes the industry analysis aspect of strategy rather than the firm-specific side [26] and asserts that the performance and market strategy choices of a firm are firmly affected by the industry structure in which it performs. According to [11], identifying five competitive forces and the parameters which determine them is the basis of analyzing the structure of industries. Five competitive forces include rivalry among existing competitors, threat of new entrants, threat of substitute products or services, bargaining power of customers, and bargaining power of suppliers. Hence, to achieve competitive advantage a firm has to develop a market strategy through sophisticated understanding of these competitive forces so as either to defend the firm against them or to influence them in favor of the firm [27].

While the RBV of the firm and Porter's framework share the same goal that is identifying factors which lead to competitive advantage, they offer different ways to gain above-normal performance [28]. The RBV encourages the firms to leverage strategic resources for achieving competitive advantage, while in Porter's framework, firms gain competitive advantage by analyzing and impeding the competitive forces that arise from an industry. In addition, they do not have an identical unit of analysis; the RBV emphasizes the role of a firm's specific resources as the relevant units of analysis for the creation of competitive advantage [29], while Porter [11] analyzes the structure of industry to identify determinants of competitive advantage [26]. However, [16] points out that the RBV and Porter's framework represent the two sides of the same coin. Furthermore, the complementary nature of the two perspectives has been highlighted by many researchers in explaining the sources of a firm's performance [30, 26, 31, 28, 32]. Ref. [33] acknowledges the importance of both firm-level and industry-level factors in shaping a firm's strategy and performance. Ref. [34] argues that the RBV of the firm is a complement to Porter's view and recognize the need for integrating these two theories. Ref. [35] integrates the Porter's five forces model and the resource-based view in measuring hotel performance. Ref. [36] states that resources represent what can be done, while competitive environment represents what must be done by the firm to compete effectively in satisfying customer needs, and both are essential in strategy-making process. In addition, ref. [28] argues that value creation arises from the fit of internal resources to strategy and of strategy to competitive environment.

Due to all aforementioned considerations, it would be difficult for managers to select the best competitive market strategy that not only fits with the firm's marketing resources, but also impedes the competitive forces, without any systematic decision support framework. According to the large number of criteria in both firm-level and industry-level analyses, the process of selecting the best competitive market strategy can be considered as a multiple criteria decision making (MCDM) problem. To do so, analytic hierarchy process (AHP) which is the most popular MCDM technique [37], can be used to structure and solve the decision making problem. In the MCDM approach to select the best competitive market strategy, the marketing resources (in the firm-level analysis) and Porter's five forces (in the industry-level analysis) are considered as criteria and the competitive market strategies constitute the alternatives.

The experts' evaluations are the basis of applying MCDM methods for selection of the best competitive market strategy. In particular, to utilize AHP, the degree of preferences in pairwise comparisons must be determined by the firm's experts based on their expertise and knowledge. But, due to problems such as the lack of knowledge/data and time constraint, intangible/non-monetary attributes, decision makers' limited attention and information processing capabilities, and decision makers' different expertise, it is relatively difficult for decision makers to express their opinions by exact crisp values [38]. However, fuzzy logic can be used to handle the vagueness and imprecision in the evaluations [39, 40]. Therefore, this study suggests the use of fuzzy AHP method to structure and solve the decision making problem. While fuzzy AHP method has been successfully applied by many researchers to a large variety of decision making problems, there is no evidence that this method has been applied to the firm-level and industry-level analyses in order to select the best competitive market strategy.

The aim of the current study is to propose a systematic decision support framework integrating the RBV of the firm and Porter's industry analysis for selecting the best competitive market strategy that can enhance competitive advantage of a firm. The rest of the paper is organized as follows: Section 2 briefly describes the essentials of fuzzy AHP method; in Section 3, the proposed framework for selection of the best competitive market strategy is explained; an application of the proposed framework to an insurance company is presented in Section 4; finally, this paper is concluded in Section 5.

2
Fuzzy AHP

This section provides the essentials of fuzzy AHP method. Because of being well known, the fuzzy logic will not be detailed in this paper; however, the basic definitions and fundamentals of fuzzy sets and arithmetic operations on fuzzy numbers can be found in [39, 41, 42].

AHP [37] decomposes a decision making problem into a hierarchy with several levels including the goal (top

level), criteria and subcriteria that contribute to the goal (middle levels), and possible alternatives to be evaluated regarding the criteria (bottom level). So, in order to construct the structure of the decision making problem, all levels and elements in each level must be clearly defined. Then, the influences of elements are subjectively judged through pairwise comparisons by asking "Which decision element should be emphasized more with respect to a particular control element, and how much more?" The pairwise comparison matrices are constructed by allocating the relative importance values determined on the basis of Saaty's 1-9 scale. A score of 1 indicates the equal importance between two elements and a score of 9 indicates the extreme importance of one element over the other one. In addition, the reciprocal values (1, 1/2,…, 1/9) are assigned to the reverse comparisons (Tab. 1). After conducting the pairwise comparisons, a local priority vector is calculated as an estimate of the relative importance of the elements being compared by solving the following equation:

$$A w = \lambda_{\max} w. \tag{1}$$

Where A is the pairwise comparison matrix, w is the eigenvector (local priority vector), and $\lambda_{\max}$ is the maximum eigenvalue of A. Finally, after synthesizing the relative weights, the overall priorities of alternatives are obtained. Obviously, the alternative with the highest overall priority should be selected.

AHP is based on pairwise comparisons subjectively judged by experts according to their own knowledge and experience. But, experts' judgments are often expressed by linguistic terms which are vague and imprecise and, hence, difficult to assess by crisp values. However, AHP can be utilized under fuzzy environment where the vagueness and imprecision of the pairwise comparison process are handled by using linguistic variables and their corresponding triangular fuzzy numbers. In fuzzy AHP method, the relative importance values are expressed by linguistic terms and pairwise comparison matrices are constructed with the help of triangular fuzzy numbers (TFNs) ranging from $\tilde{1}$ to $\tilde{9}$ (Table 1).

Table 1 Saaty's 1-9 scale and corresponding triangular fuzzy numbers (TFNs) for the relative importance

Linguistic variables	Crisp values	TFNs	Reciprocal TFNs
Equal importance	1	(1, 1, 2)	(1/2, 1, 1)
Moderate importance	3	(2, 3, 4)	(1/4, 1/3, 1/2)
Strong importance	5	(4, 5, 6)	(1/6, 1/5, 1/4)
Very strong importance	7	(6, 7, 8)	(1/8, 1/7, 1/6)
Extreme importance	9	(8, 9, 9)	(1/9, 1/9, 1/8)
Intermediate values	2	(1, 2, 3)	(1/3, 1/2, 1)
	4	(3, 4, 5)	(1/5, 1/4, 1/3)
	6	(5, 6, 7)	(1/7, 1/6, 1/5)
	8	(7, 8, 9)	(1/9, 1/8, 1/7)

Many methods have been proposed to derive priorities from fuzzy pairwise comparison judgments [43, 44, 45, 46]. However, this study utilizes Chang's extent analysis [45], because this method is easier than the other

methods and has been used in several cases [47, 48, 49, 50]. Following is the description of the extent analysis method:

Let $X = \{x_1, x_2, ..., x_n\}$ be an object set and $U = \{u_1, u_2, ..., u_m\}$ be a goal set. Then $M_{g_i}^1$, $M_{g_i}^2$,..., $M_{g_i}^m$, ($i = 1, 2, ..., n$) are extent analysis values of the ith object for the m goals, where all $M_{g_i}^j$ ($j = 1, 2, ..., m$) are triangular fuzzy numbers (l_j, m_j, u_j). The synthetic extent value S_i, with respect to the ith criteria is calculated by the following formula:

$$S_i = \sum_{j=1}^{m} M_{g_i}^j \otimes \left[\sum_{i=1}^{n} \sum_{j=1}^{m} M_{g_i}^j \right]^{-1}. \tag{2}$$

Where

$$\sum_{j=1}^{m} M_{g_i}^j = \left(\sum_{j=1}^{m} l_j, \sum_{j=1}^{m} m_j, \sum_{j=1}^{m} u_j \right)$$

and

$$\left[\sum_{i=1}^{n} \sum_{j=1}^{m} M_{g_i}^j \right]^{-1} = \left(\frac{1}{\sum_{i=1}^{n} u_i}, \frac{1}{\sum_{i=1}^{n} m_i}, \frac{1}{\sum_{i=1}^{n} l_i} \right).$$

Assume that $M_1 = (l_1, m_1, u_1)$ and $M_2 = (l_2, m_2, u_2)$, then $V(M_2 \geq M_1)$ denotes the degree of possibility of $M_2 \geq M_1$ and can be obtained as follows (proofs can be found in [51]):

$$V(M_2 \geq M_1) =$$

$$\begin{cases} 1, \text{if } m_2 \geq m_1 \\ 0, \text{if } l_1 \geq u_2 \\ \dfrac{l_1 - u_2}{(m_2 - u_2) - (m_1 - l_1)}, \text{otherwise} \end{cases}. \tag{3}$$

To compare M_2 and M_1, both values of $V(M_2 \geq M_1)$ and $V(M_1 \geq M_2)$ are needed. The degree of possibility for a convex fuzzy number M to be greater than n convex fuzzy numbers M_i ($i = 1, 2, ..., n$) is defined by the following formula:

$$V(M \geq M_1, M_2, ..., M_n) =$$
$$= V[(M \geq M_1) \text{ and } (M \geq M_2) \text{ and } ... \text{ and } (M \geq M_n)] =$$
$$= \min V(M \geq M_i). \tag{4}$$

Assume that $d'(A_i) = \min V(S_i \geq S_k)$ for $k = 1, 2, ..., n; k \neq i$. Then the non-fuzzy weight vector is given as the following:

$$W' = (d'(A_1), d'(A_2), ..., d'(A_n))^T. \tag{5}$$

Where A_i ($i = 1, 2, ..., n$) are n elements. Subsequently, the following non-fuzzy normalized weight vector can be obtained by normalization:

$$W = (d(A_1), d(A_2), ..., d(A_n))^{\mathrm{T}}. \qquad (6)$$

3
Proposed framework

The proposed framework comprises the three following phases:

Firm-level analysis evaluates the firm from the viewpoint of its marketing resources and recommends the best competitive market strategy alternative that fits with the marketing resources.

Industry-level analysis evaluates the industry from the viewpoint of its competitive forces and suggests the best competitive market strategy alternative that copes with the competitive forces.

Reconciliation attempts to provide a settlement between the results of the two above analyses and select the best competitive market strategy that can enhance the competitive advantage of the firm.

The framework employs Porter's three generic competitive market strategies [11] as alternatives in both firm-level and industry-level analyses. Porter asserts that by implementing one of the cost leadership, differentiation, and focus strategies, a firm will have a competitive advantage [52]. According to Porter, firms can seek competitive advantage in broad market segments either by offering low cost products/services that allow them to capture more market share (cost leadership strategy) or by providing unique products/services that allow them to charge a premium price (differentiation strategy). Firms may also attempt to gain competitive advantage in narrow market segments by emphasizing either low cost or uniqueness (focus strategy).

Fig. 1 illustrates the structure of the proposed framework. Fuzzy AHP method is applied to both firm-level and industry-level analyses to calculate the overall priorities of alternatives. Each phase will be discussed in the following sections.
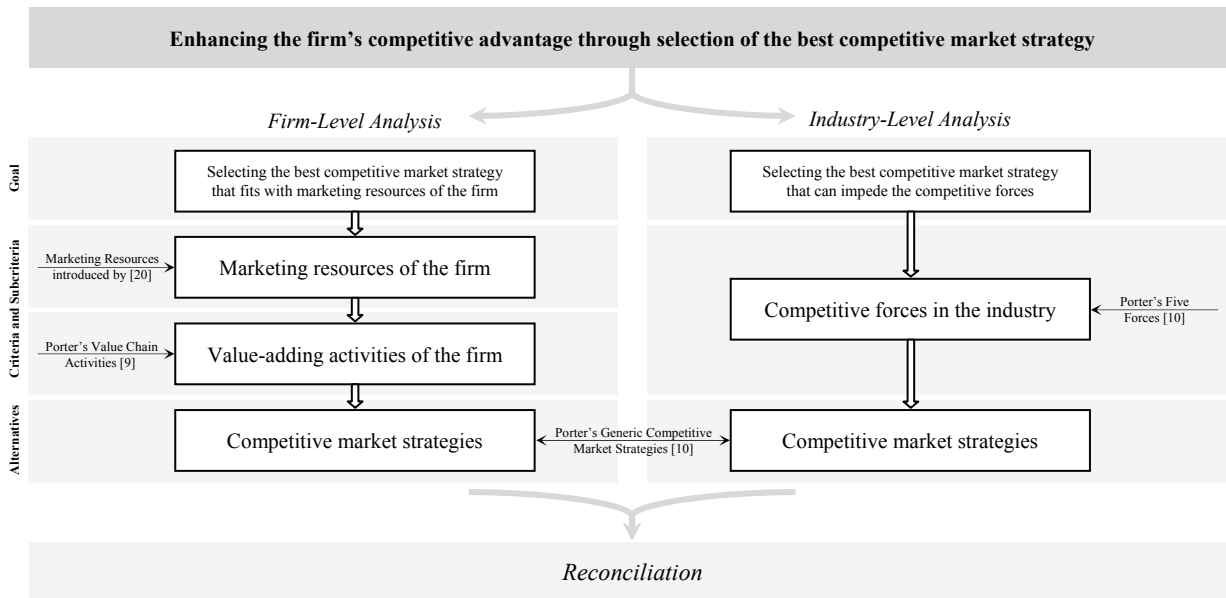

Figure 1 The structure of the proposed framework for selection of the best competitive market strategy

3.1
Firm-level analysis

The proposed firm-level analysis is based on resource-based view of the firm [16, 9]. The authors in [22] introduce six marketing resources including market orientation, managerial capabilities, customer linking capabilities, market innovation capabilities, human resource assets, and reputational assets which impact on the firm's market and financial performances. According to [22], *Market orientation* is explained by commitment to serving customer, integrating functions to meet market needs, employing strategies based on customer satisfaction and value creation and customer needs, and assessing customer satisfaction systematically. *Managerial capabilities* refer to financial, human resource and operations managements. *Customer linking capabilities* refer to creating, maintaining and enhancing

relationships with customers, customer service and support, and understanding customer needs. *Market innovation capabilities* are related to the ability to launch successful new products/services and effective new product/service development processes. *Human resource assets* can be evaluated by levels of employee retention and job satisfaction. Finally, *reputational assets* are related to brand name and reputation and credibility with customers.

The goal of the firm-level analysis is to select the best competitive market strategy that fits with marketing resources of the firm in the best way possible and consequently enhances the firm's competitive advantage. As it is discussed before, competitive advantage is obtained through customer value creation. However, the RBV is weak in the prescription regarding value creation and competitive advantage [53, 54]. In other words, while possession of the strategic resources enables the firm to

produce effective and efficient market offerings and to create value for customers [19], it is a "black box" in the RBV how resources contribute to value creation; therefore, the execution is difficult [53]. Ref. [54] recognizes the lack of transparency in how resources contribute to value creation; in which proportion, amount, etc. should resources be combined to create value? To address this shortcoming of the RBV, the role of activities has been acknowledged [55, 54]. Activities are the mechanisms which link resources to performance and competitive advantage. In addition, activity-based decomposition of the firm and formulation of strategies at the activity level reveal the way in which resources contribute to value creation [54]. Hence, this study considers a value-adding activity level in the firm-level analysis as a link between marketing resources and competitive market strategies. By doing so, it is clarified how marketing resources, in which amount and by means of which activities, contribute to strategy implementation and consequently value creation. This study proposes the use of generic value-adding activities of Porter's value chain [10], namely inbound logistics, operations, outbound logistics, marketing & sales, and service as a generic template to categorize activities of the firm.

The structure of the firm-level analysis can be found in Fig. 1. According to this structure, the relative importance of the marketing resources (criteria) with respect to the market performance and competitive advantage of the firm (goal), the relative importance of the value-adding activities (subcriteria) with respect to the marketing resources, and the relative importance of the competitive market strategies (alternatives) with respect to the value-adding activities must be obtained by means of pairwise comparisons containing the following questions, respectively:

Which marketing resource has a more dominant role in the firm's market performance and competitive advantage, and how much more?

Which value-adding activity is more important with respect to the marketing resources, and how much more?

Which competitive market strategy is more employable with respect to a particular value-adding activity, and how much more?

After performing all pairwise comparisons, the relative weights for each pairwise comparison matrix can be calculated by using extent analysis method. Finally the overall priorities of the competitive market strategies are obtained by synthesizing the relative weights.

3.2
Industry-level analysis

The proposed framework utilizes Porter's five competitive forces [11, 24] in the industry-level analysis. These forces are: rivalry among existing competitors, threat of new entrants, threat of substitute products or services, bargaining power of customers, and bargaining power of suppliers.

Rivalry among existing competitors can be in the forms of price discounting, service improvements and so on. This is intense if the number of competitors is high, industry growth is low, exit barriers are high, rivals are highly committed to the business, fixed costs are high and marginal costs are low, the product is perishable, and diversity of competitors is high.

New entrants desire to gain market share so it may limit profit potential of the existing firms. *Threat of new entrants* is powerful when barriers to entry such as economies of scale, capital requirements, and access to distribution channels are low, and when expected retaliation is weak.

A substitute performs the same function as the firm's product in a different way. *Threat of substitute products or services* is high if a substitute offers an attractive price-performance tradeoff to the existing product and also when the customers' switching cost is low.

Customers with high bargaining power can demand products with lower price, better quality and more service. *Bargaining power of customers* is high when there are few customers or each one purchases in large amounts, the firm's products are standardized or undifferentiated, customers' switching cost is low, there is the threat of backward integration, customer price sensitivity is high, customers earn low profits, the firm's products have little effect on the quality of customers' products, and there are existing substitute products.

Suppliers with high bargaining power can raise their selling price or lower their quality or services. *Bargaining power of suppliers* is high when suppliers are more concentrated than the industry's firms, suppliers do not depend heavily on the industry's firms for their revenues, supplier switching cost is high, supplier offers differentiated products, there is no substitute for supplier's product, and there is the threat of forward integration by suppliers.

The goal of the industry-level analysis is to select the best competitive market strategy that can defend the firm against industry's competitive forces in the best way and consequently will enhance the firm's competitive advantage. The structure of the industry-level analysis is depicted in Figure 1. According to this structure, the relative importance of the competitive forces (criteria) in terms of their influence on market performance and competitive advantage of the firm (goal), and the relative importance of the competitive market strategies (alternatives) with respect to the competitive forces must be acquired through performing pairwise comparisons by asking the following questions, respectively:

Which competitive force has more impact on the firm's market performance and competitive advantage, and how much more?

Which competitive market strategy is more dominant with respect to impeding a particular competitive force, and how much more?

The process of calculating the overall priorities of the competitive market strategy alternatives in the industry-level analysis is similar to that in the firm-level analysis.

3.3
Reconciliation

The purpose of this phase is to recognize the most appropriate competitive market strategy based on the results of the firm-level and industry-level analyses. After performing the two analyses, there are two possible scenarios to be considered.

In the first scenario, the results of the two analyses confirm each other, i.e., the rankings of the competitive market strategy alternatives are the same, or one particular strategy alternative is the most dominant in both analyses. In this case, obviously, the strategy with the highest priority in both analyses should be selected because this strategy not only fits with marketing resources of the firm, but also defends the firm against industry's competitive forces in the best way.

In the second scenario, the results of the two analyses do not confirm each other, i.e., the industry-level analysis recommends a competitive market strategy other than the one suggested by the firm-level analysis. In this circumstance, on one hand, by selecting the strategy recommended by the firm-level analysis on the basis of compatibility with marketing resources, the competitive forces may not be handled in the best way; on the other hand, by selecting the strategy proposed by the industry-level analysis based on coping with the competitive forces, there may be strategy execution problems regarding the lack of compatibility of marketing resources and the selected strategy. In such a context, managers of the firm should adopt one of the following prescriptions by considering the overall priorities of alternatives resulting from the two analyses and their own firm's conditions.

- The competitive market strategy proposed by the firm-level analysis is selected. Hence, the selected strategy has the best fitness regarding marketing resources of the firm and consequently has the most capability of implementation.
- The competitive market strategy suggested by the industry-level analysis is selected and it is attempted to enhance the compatibility of marketing resources with the selected strategy by nurturing and organizing essential marketing resources. In this case, the selected strategy best defends the firm against industry's competitive forces.
- The competitive market strategy ranked middle in both analyses is selected. Therefore, the selected strategy fairly satisfies the objectives of both firm-level and industry-level analyses.

This scenario will be discussed more in the section of case study.

4
Case study

To demonstrate the application of the proposed framework, this study presents an empirical example from insurance industry. The case company M is the largest private insurance company in Iran and engages in life, property and the other types of insurance. In recent years, with rapid growth of insurance penetration in Iran, competition between Iranian insurance companies has dramatically increased. So, managers of the company intended to select the best competitive market strategy so that they can capture a competitive advantage over their

competitors. In order to do so, the proposed framework of the current study was adopted by this company. The framework consists of the three phases, namely firm-level analysis, industry-level analysis, and reconciliation. All these phases were performed by a decision group of seven well experienced and erudite experts from different divisions including Marketing, Product development, Risk management, Underwriting, and Human resource. The survey was conducted through the distribution of questionnaire forms; however, before conducting the evaluation process, each phase of the proposed framework was meticulously explained to each expert. The next three sections describe the implementation of each phase in insurance company M.

4.1
Phase 1: Firm-level analysis

According to the proposed framework, the following four levels construct the structure of the firm-level analysis.

Level 1: First of all, the goal of the firm-level analysis must be defined. The goal is to select the best competitive market strategy that fits with marketing resources of insurance company M and consequently enhances its competitive advantage.

Level 2: The second level, which utilizes the resource-based view of the firm to determine the criteria that contribute to the goal, comprises marketing resources introduced by [22].

Level 3: In this level, value-adding activities of the company are considered as a link between marketing resources and competitive market strategies. For the purpose of this application, the generic value-adding activities of Porter's value chain were customized according to insurance company M and the following value-adding activities were identified after discussions with the experts:

- Operations: Includes treaty administration (determining relevant figures, defining conditions and parameters, underwriting and so on), reinsurance administration, management of incoming and outgoing payments, and portfolio management & accounting.
- Marketing & sales: Includes market research, management of agents and brokers, advertising, and compiling sales data.
- Service: Includes claim capturing, claim validation, claim evaluation, and settlement.

However, inbound and outbound logistics were not acknowledged as meaningful value-adding activities in the insurance company.

Level 4: The last level comprises the competitive market strategy alternatives that must be evaluated with respect to each of the three value-adding activities mentioned above.

The structure of the firm-level analysis for insurance company M is depicted in Fig. 2.
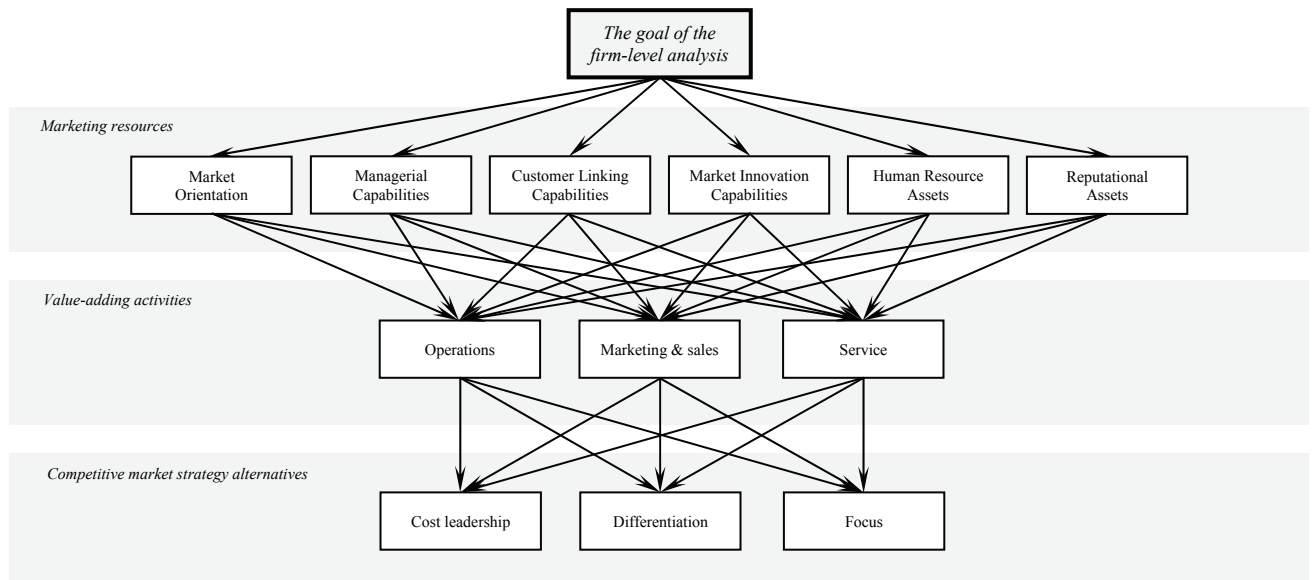
Figure 2 The structure of the firm-level analysis for insurance company M

Table 2 Pairwise comparison matrix for evaluation of the marketing resources with respect to the goal

	R_1	R_2	R_3	R_4	R_5	R_6	Relative weights
R_1	(1,000; 1,000; 1,000)	(0,820; 1,069; 1,626)	(1,104; 1,426; 1,982)	(1,320; 1,646; 2,479)	(0,820; 1,219; 1,795)	(1,199; 1,825; 2,737)	0,223
R_2	(0,615; 0,935; 1,219)	(1,000; 1,000; 1,000)	(1,140; 1,426; 2,237)	(1,104; 1,534; 2,380)	(0,820; 1,121; 1,678)	(1,270; 1,723; 2,737)	0,213
R_3	(0,505; 0,701; 0,906)	(0,447; 0,701; 0,877)	(1,000; 1,000; 1,000)	(0,701; 1,004; 1,426)	(0,543; 0,704; 1,017)	(0,926; 1,150; 1,902)	0,139
R_4	(0,403; 0,608; 0,757)	(0,420; 0,652; 0,906)	(0,701; 0,996; 1,426)	(1,000; 1,000; 1,000)	(0,662; 0,892; 1,223)	(0,807; 1,088; 1,739)	0,137
R_5	(0,557; 0,820; 1,219)	(0,596; 0,892; 1,219)	(0,983; 1,420; 1,842)	(0,818; 1,121; 1,511)	(1,000; 1,000; 1,000)	(0,974; 1,326; 1,883)	0,180
R_6	(0,365; 0,548; 0,834)	(0,365; 0,581; 0,787)	(0,526; 0,869; 1,080)	(0,575; 0,919; 1,240)	(0,531; 0,754; 1,026)	(1,000; 1,000; 1,000)	0,108

Note: R_1: market orientation, R_2: managerial capabilities, R_3: customer linking capabilities, R_4: market innovation capabilities, R_5: human resource assets, R_6: reputational assets.

Table 3 Pairwise comparison matrices for evaluation of the value-adding activities with respect to the marketing resources

With respect to market orientation			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(1,219; 1,464; 2,015)	(1,270; 1,489; 1,952)	0,539
A_2	(0,496; 0,683; 0,820)	(1,000; 1,000; 1,000)	(0,906; 1,279; 1,795)	0,316
A_3	(0,512; 0,672; 0,787)	(0,557; 0,782; 1,104)	(1,000; 1,000; 1,000)	0,145
With respect to managerial capabilities			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(0,422; 0,543; 0,720)	(0,456; 0,574; 0,834)	0,115
A_2	(1,389; 1,842; 2,370)	(1,000; 1,000; 1,000)	(0,610; 0,810; 1,140)	0,420
A_3	(1,199; 1,742; 2,192)	(0,877; 1,235; 1,641)	(1,000; 1,000; 1,000)	0,465
With respect to customer linking capabilities			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(0,395; 0,526; 0,720)	(0,614; 0,706; 0,939)	0,128
A_2	(1,389; 1,902; 2,535)	(1,000; 1,000; 1,000)	(0,820; 1,181; 1,723)	0,508
A_3	(1,065; 1,416; 1,629)	(0,581; 0,847; 1,219)	(1,000; 1,000; 1,000)	0,364
With respect to market innovation capabilities			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(1,017; 1,346; 1,788)	(1,346; 1,680; 2,246)	0,522
A_2	(0,559; 0,743; 0,983)	(1,000; 1,000; 1,000)	(1,104; 1,440; 2,065)	0,373
A_3	(0,445; 0,595; 0,743)	(0,484; 0,694; 0,906)	(1,000; 1,000; 1,000)	0,105
With respect to human resource assets			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(0,535; 0,738; 1,000)	(0,596; 0,807; 1,104)	0,255
A_2	(1,000; 1,355; 1,870)	(1,000; 1,000; 1,000)	(0,720; 0,974; 1,426)	0,377
A_3	(0,906; 1,240; 1,677)	(0,701; 1,026; 1,389)	(1,000; 1,000; 1,000)	0,369
With respect to reputational assets			
	A_1	A_2	A_3	Relative weights
A_1	(1,000; 1,000; 1,000)	(0,468; 0,600; 0,802)	(0,586; 0,774; 1,080)	0,148
A_2	(1,246; 1,666; 2,135)	(1,000; 1,000; 1,000)	(1,192; 1,650; 2,155)	0,563
A_3	(0,926; 1,292; 1,706)	(0,464; 0,606; 0,839)	(1,000; 1,000; 1,000)	0,289
Note: A_1: operations, A_2: marketing & sales, A_3: service.			

To determine the relative importance of marketing resources, the experts were asked to respond to a questionnaire containing questions based on the pairwise comparisons of each pair of marketing resources with respect to the goal. All pairwise comparisons were carried out using the linguistic variables introduced in Tab. 1.

Geometric mean method was used to integrate the experts' pairwise comparisons through the following formula [44]:

$$\tilde{a}_{ij} = \left(\prod_{k=1}^{p} \tilde{a}_{ij}^{k} \right)^{\frac{1}{p}}. \tag{7}$$

Where, $\tilde{a}_{ij}^{k}$ is the fuzzy pairwise comparison value of criterion/alternative i to criterion/alternative j given by the kth expert ($k = 1, 2,…, p$), and $\tilde{a}_{ij}$ is the geometric mean of p pairwise comparisons.

Tab. 2 represents the experts' evaluations for the relative importance of marketing resources. The relative importance of the value-adding activities with respect to each marketing resource was determined by conducting pairwise comparisons as shown in Tab. 3. Finally, the

relative importance of the competitive market strategy alternatives regarding the value-adding activities was evaluated as given in Tab. 4. The last column of each table denotes the relative weights which were calculated by using Eqs. (2) ÷ (6).

After performing all required pairwise comparisons, the relative weights were synthesized and the overall priorities of competitive market strategy alternatives were calculated. According to the results of the firm-level analysis, differentiation strategy is the best competitive market strategy with a score of 0,420 followed by cost leadership strategy with a score of 0,316 and focus strategy with a score of 0,264.

Table 4 Pairwise comparison matrices for evaluation of the competitive market strategy alternatives with respect to the value-adding activities

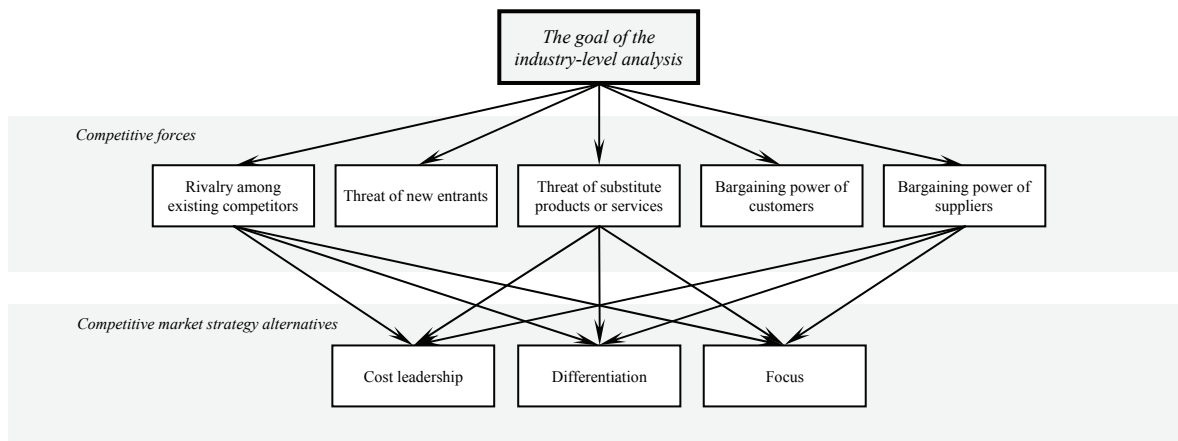| With respect to operations				
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(1,334; 1,870; 2,511)	(1,219; 1,795; 2,560)	0,594
S_2	(0,398; 0,535; 0,750)	(1,000; 1,000; 1,000)	(0,836; 1,060; 1,519)	0,225
S_3	(0,391; 0,557; 0,820)	(0,658; 0,944; 1,196)	(1,000; 1,000; 1,000)	0,181
With respect to marketing & sales				
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,476; 0,652; 1,000)	(0,767; 0,978; 1,376)	0,270
S_2	(1,000; 1,534; 2,100)	(1,000; 1,000; 1,000)	(0,952; 1,177; 1,669)	0,436
S_3	(0,727; 1,022; 1,304)	(0,599; 0,850; 1,050)	(1,000; 1,000; 1,000)	0,294
With respect to service				
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,351; 0,444; 0,662)	(0,614; 0,820; 1,037)	0,100
S_2	(1,511; 2,252; 2,852)	(1,000; 1,000; 1,000)	(0,960; 1,298; 1,723)	0,594
S_3	(0,965; 1,219; 1,629)	(0,581; 0,770; 1,042)	(1,000; 1,000; 1,000)	0,306
Note: S_1: cost leadership, S_2: differentiation, S_3: focus.				

4.2
Phase 2: Industry-level analysis

According to the developed framework, the structure of the industry-level analysis consists of the following three levels.

Level 1: The goal of this analysis is defined as the selection of the best competitive market strategy that defends the insurance company against industry's competitive forces and consequently enhances its competitive advantage.

Level 2: In this level, porter's competitive forces are utilized as criteria to select the best strategy alternative.

Figure 3 The structure of the industry-level analysis for insurance company M

Table 5 Pairwise comparison matrix for evaluation of the competitive forces with respect to the goal

	F_1	F_2	F_3	F_4	F_5		Relative weights
F_1	(1,000; 1,000; 1,000)	(1,133; 1,650; 2,225)	(0,950; 1,251; 1,626)	(0,774; 1,170; 1,601)	(1,320; 1,739; 2,627)		0,282
F_2	(0,449; 0,606; 0,882)	(1,000; 1,000; 1,000)	(0,500; 0,781; 0,991)	(0,555; 0,701; 0,978)	(0,842; 1,115; 1,448)		0,144
F_3	(0,615; 0,799; 1,052)	(1,009; 1,280; 2,000)	(1,000; 1,000; 1,000)	(0,686; 0,989; 1,272)	(0,919; 1,213; 1,610)		0,214
F_4	(0,624; 0,855; 1,292)	(1,022; 1,426; 1,802)	(0,786; 1,011; 1,458)	(1,000; 1,000; 1,000)	(1,065; 1,311; 1,873)		0,231
F_5	(0,381; 0,575; 0,757)	(0,691; 0,897; 1,188)	(0,621; 0,825; 1,088)	(0,534; 0,763; 0,939)	(1,000; 1,000; 1,000)		0,129
Note: F_1: rivalry among existing competitors, F_2: threat of new entrants, F_3: threat of substitute products or services, F_4: bargaining power of customers, F_5: bargaining power of suppliers.							

Table 6 Pairwise comparison matrices for evaluation of the competitive market strategy alternatives with respect to the competitive forces

With respect to rivalry among existing competitors			
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,734; 1,007; 1,304)	(1,228; 1,632; 2,065)	0,437
S_2	(0,767; 0,993; 1,363)	(1,000; 1,000; 1,000)	(1,107; 1,408; 1,842)	0,400
S_3	(0,484; 0,613; 0,815)	(0,543; 0,710; 0,903)	(1,000; 1,000; 1,000)	0,163
With respect to threat of new entrants			
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,662; 0,930; 1,231)	(1,000; 1,511; 2,079)	0,405
S_2	(0,812; 1,076; 1,511)	(1,000; 1,000; 1,000)	(1,298; 1,526; 1,910)	0,430
S_3	(0,481; 0,662; 1,000)	(0,524; 0,655; 0,770)	(1,000; 1,000; 1,000)	0,165
With respect to threat of substitute products or services			
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(1,395; 1,863; 2,380)	(1,340; 1,694; 2,241)	0,608
S_2	(0,420; 0,537; 0,717)	(1,000; 1,000; 1,000)	(0,635; 0,978; 1,426)	0,177
S_3	(0,446; 0,590; 0,746)	(0,701; 1,022; 1,575)	(1,000; 1,000; 1,000)	0,214
With respect to bargaining power of customers			
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,543; 0,727; 0,926)	(0,715; 0,926; 1,251)	0,243
S_2	(1,080; 1,376; 1,842)	(1,000; 1,000; 1,000)	(1,086; 1,378; 1,756)	0,480
S_3	(0,799; 1,080; 1,399)	(0,570; 0,726; 0,921)	(1,000; 1,000; 1,000)	0,277
With respect to bargaining power of suppliers			
	S_1	S_2	S_3	Relative weights
S_1	(1,000; 1,000; 1,000)	(0,575; 0,855; 1,060)	(0,919; 1,260; 1,706)	0,348
S_2	(0,944; 1,170; 1,739)	(1,000; 1,000; 1,000)	(1,022; 1,359; 1,842)	0,415
S_3	(0,586; 0,794; 1,088)	(0,543; 0,736; 0,978)	(1,000; 1,000; 1,000)	0,236
Note: S_1: cost leadership, S_2: differentiation, S_3: focus.			

Table 7 The priorities of strategy alternatives in the firm-level and industry-level analyses

Rank	Firm-level analysis				Industry-level analysis		
	Strategy alternatives		Priority weights		Strategy alternatives		Priority weights
1	Differentiation		0,420		Cost leadership		0,413
2	Cost leadership		0,316		Differentiation		0,377
3	Focus		0,264		Focus		0,210

Level 3: The last level consists of the competitive market strategy alternatives that must be evaluated regarding the five competitive forces.

The structure of the industry-level analysis is illustrated in Fig. 3.

Tabs. 5 and 6 represent the experts' evaluations for the relative importance of competitive forces with respect to the goal and the relative importance of strategy alternatives with respect to competitive forces, respectively.

According to the results of the industry-level analysis, cost leadership strategy is the best competitive market strategy with a score of 0,413 followed by differentiation strategy with a score of 0,377 and focus strategy with a score of 0,210.

4.3
Phase 3: Reconciliation

The priorities of competitive market strategy alternatives resulting from the firm-level and industry-level analyses are provided in Tab. 7.

According to the results of the firm-level analysis, differentiation is the best competitive market strategy that conforms to marketing resources and consequently can be properly executed regarding marketing resources and value-adding activities of the insurance company. On the other hand, according to the results of the industry-level analysis, cost leadership is the best competitive market strategy that can handle the industry's competitive forces. However, focus is not a suitable strategy at all because it is the least preferred strategy in both analyses. That is, focus neither can be properly executed by the insurance company nor can protect the company against industry's

competitive forces. If the results of the two analyses confirmed each other; i.e., the rankings were the same or one particular alternative was the most preferred in both analyses, the competitive market strategy with the highest priority in both analyses could be clearly selected as the best strategy. However, in this case, one of the differentiation or cost leadership strategies must be selected by the company's decision makers since the results of the analyses do not confirm each other. Therefore, there are two possible scenarios to be considered:

In the first scenario, the cost leadership strategy which is ranked first in the industry-level analysis with a score of 0,413 and second in the firm-level analysis with a score of 0,316 is selected. With this strategy, the industry's competitive forces can be impeded in the best way possible, but it is doubtful whether this strategy can be correctly executed because of the potential inconsistencies with marketing resources and value-adding activities of the company. However, the decision makers can select the cost leadership strategy provided that they identify and nurture the strategic resources and activities which can be utilized to base the cost leadership strategy on.

In the second scenario, the differentiation strategy which is ranked first in the firm-level analysis with a score of 0,420 and second in the industry-level analysis with a score of 0,377 is selected. This strategy has the best execution capability regarding the marketing resources and value-adding activities of the company. However, this cannot defend the company against the competitive forces as well as the cost leadership strategy.

Making the right choice between the two above scenarios is based on the careful assessment of the

priority weights resulting from the two analyses. Suppose that the superiority of one strategy alternative over another in a particular analysis is elucidated as the difference between their priority weights. Then, the superiority of differentiation over cost leadership in the firm-level analysis (0,420 – 0,316 = 0,104) is more than that of cost leadership over differentiation in the industry-level analysis (0,413 – 0,377 = 0,036). In other words, the differentiation strategy is absolutely dominant in compatibility with marketing resources and value adding activities of the company while its defensive power against competitive forces is just slightly less than the cost leadership strategy. Therefore, through a reasonable tradeoff, the decision makers selected the differentiation strategy as the best competitive market strategy.

5
Conclusion

Selection of an appropriate competitive market strategy is inevitable for firms to create value for customers and consequently to achieve competitive advantage over their competitors. However, selection of such a strategy is not straightforward at all because it requires considering numerous factors including internal and external factors that impact on the firm's performance. Hence, this study considered the selection of the best competitive market strategy as an MCDM problem and proposed an integrated framework which provides a systematic decision making process.

The current study contributed to the literature in several ways. First, the proposed framework employed the RBV and Porter's competitive forces for evaluation of internal (*Firm-level analysis*) and external (*Industry-level analysis*) factors, respectively. Also, it was attempted to provide a settlement between the results of the two analyses (*Reconciliation*). So, two of the most influential perspectives in the field of strategy were integrated to select the best competitive market strategy. Second, the prescription of the RBV regarding value creation was enhanced by considering the role of value-adding activities as a link between marketing resources and competitive market strategies. Moreover, AHP method was utilized under fuzzy environment to handle the ambiguity and imprecision in experts' opinions. Managerial implications and fruitful avenues for future researches will be discussed in the following sections.

5.1
Managerial implications

The developed framework can be employed by practitioners and managers to enhance their firm's competitive advantage through selection of the best competitive market strategy that not only fits with marketing resources but also defends their firms against industry's competitive forces. However, before applying this framework, managers and decision makers of the firm should gain insights into the components of the framework. In other words, the marketing resources and value-adding activities of the firm and the structure of industry in which the firm performs should be scrutinized

and the decision makers' evaluations should be on the basis of this understanding.

In addition, appropriate execution of a competitive market strategy is as much important as selecting the best one. Porter's generic strategies seem to be self explanatory. So, managers have basically been left to interpret Porter's view and then determine implementation on their own. In this regard, after applying the proposed framework and selecting the best competitive market strategy, managers should identify a set of specific tactics associated with the selected strategy. In order to achieve a *low cost* advantage, a firm must have efficient manufacturing system and distribution channels and employees committed to the low cost strategy. There are many ways to achieve cost leadership such as mass production, technology development, product design for efficient manufacturing, access to raw materials, construction of efficient-scale facilities, capacity utilization of resources, and tight overhead costs control. The *differentiation* advantage is achieved through creating high perceived benefits for customers and may be in innovative product design, pervasive customer services, unique product features, distinctive distribution channels, and state-of-the-art technology. Finally, the *focus* advantage can be attained by pursuing one of the cost leadership or differentiation strategies in the context of a narrow market segment. This narrow market segment can be in terms of certain kind of customers, limited geographic areas or special range of products. However, the specialized market segment must be large enough to have good growth potential but small enough to be insignificant to the competitors who are competing more broadly [52].

5.2
Limitations and future research directions

Although this study has presented aforementioned contributions, it has its own limitations.

First, this study assumes that criteria in the firm-level and industry-level analyses are independent, while, in reality, there are interactions and interdependencies between criteria in both analyses. In other words, each of the marketing resources may influence other resources [20, 56]; similarly, each of the five forces may impact on the other forces [57, 58]. Hence, to build a more realistic model in a future research, these interactions, interdependencies and feedbacks can be considered in the process of evaluation by using analytic network process (ANP) [59]. Also, the decision making trial and evaluation laboratory (DEMATEL) can be utilized to obtain the causal relationships between criteria [60, 61].

The second limitation concerns the firm and industry which were considered as case study. The proposed framework was successfully applied to the largest private insurance company in Iran. However, there is a need for more researches to be performed in diverse firms and industries for promoting the generalizability of the decision making framework.

6
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Authors' addresses

Mohamad H. Gholami (corresponding author)
Department of Industrial Engineering & Management Systems,
Amirkabir University of Technology, Tehran, Iran
Email: gholami.mohamad23@yahoo.com
Tel: +98 9126181745

Mirmehdi Seyyed-Esfahani
Department of Industrial Engineering & Management Systems,
Amirkabir University of Technology, Tehran, Iran
Email: msesfahani@aut.ac.ir