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**APPLICATION OF MCDA METHODS AND STOCHASTIC
DOMINANCE RULES IN THE ENTRY MODE SELECTION
PROCESS IN INTERNATIONAL EXPANSION**

Abstract

When a company decides to enter overseas markets, it must take a number of strategic decisions, such as, for instance, a decision on the appropriate entry mode. The company has a wide array of choices: various forms of exporting, contractual modes such as licensing, franchising and management contracts, turnkey projects and subcontracting or equity-based modes including wholly-owned subsidiary or joint venture. The various entry modes differ greatly in resource commitment, degree of risk, level of control or profit potential. The appropriate choice of entry mode is a key element of the success of foreign operations and the future of the company. Hence, it is essential for the company to conduct a deliberate and conscious analysis of advantages and disadvantages of each entry mode from the point of view of internal and external factors that influence the choice of entry mode, taking into account the opinion of different participants of the decision-making process.

The aim of this paper is to carry out the simulation of the entry mode selection, using MCDA methods and stochastic dominance (SD) rules, from the perspective of a dynamically developing company that manufactures and distributes hygiene, cosmetic and medical products for women, children and adults.

Keywords: entry mode selection, non-equity modes, equity modes, MCDA methods, EXPROM II with veto thresholds and SD rules.

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1. Introduction

A firm seeking to run its business operation outside its domestic market must make decisions about many related but distinct issues. They are complex and complicated and affect both the likelihood of success and the probability of survival not only of the undertaking abroad, but they may have an additional impact on the success and performance of the internationalizing firm.

The internationalization of the firm has many dimensions. The managers must give careful consideration to many aspects of the process. That is why companies going international should define their entry strategy for international markets in order to perform business functions abroad successfully. International market entry strategy is a comprehensive plan where the company makes decisions about objectives, resources and policies to guide its business operations abroad for a longer period of time to achieve and sustain competitive advantage in the global economy (Root, 1994).

When starting to plan its international market entry strategy, the company must define the reasons why it wants to go abroad. Setting objectives and goals of internationalization has a tremendous impact on the overall strategy determining directions and frames of international expansion. When objectives and goals are set the company must decide on the products or services it wants to deliver to a foreign market. The choice is made in relation to international environment and the company's potential. The next step is to select the target market or markets where the company will sell its products or provide services. It has been recognized widely in the literature as international market selection (Root, 1994; Koch, 2001; Kumar et al., 1994; Cavusgil, 1985; Russow and Okoroafo, 1996; Papadopoulos et al.; 2002; Sakarya et al., 2007; Górecka, Szalucka, 2013).

When the target market is identified, the company must find a way to enter it and launch its products or services. Consequently, it must decide on the entry mode it wants to use to explore the market. Companies have a wide array of entry modes to choose from. The decision about the appropriate arrangements for organizing business activities located outside the home country is a critical part of an entry strategy for international markets (Wind and Perlmutter, 1977; Hill et al., 1990, Kough and Singh, 1988; Agarwal and Ramaswami, 1992). It might have critical implications for the international project's performance (Root, 1994; Woodcock et al., 1994) and its survival (Li, 1995). Finally, when a company knows with what, when and how it intends to expand internationally, it must decide on the timing of the entry.

Since the decision about the internationalization is very complex, the opinion of different persons from different levels of the company's structure (board of directors, managers, experts) is usually taken into account. As regards entry modes, they differ greatly in resource commitment, degree of risk, level of con-

trol or profit potential. Hence, it is essential to conduct an analysis of their advantages and disadvantages from the point of view of a wide variety of internal and external factors and taking into account the opinion of various participants of the decision-making process.

The aim of this paper is to apply multi-criteria decision aiding (MCDA) methods and SD rules to the problem of entry mode selection. Their usefulness will be illustrated by a real-life example of a company that is a leading producer and deliverer of hygiene, cosmetic and medical products seeking new markets.

The paper is organized as follows. Section two focuses on an integrated framework for entry mode selection, presenting possible entry modes to explore international markets and factors that influence the company's choice of entry mode. Section three demonstrates the methodology used in the research including the description of the case study. In section four the research results obtained due to the application of the MCDA methods are presented.

2. A framework for entry mode selection

Among the most critical issues in international market entry strategy is the selection of an appropriate entry mode in order to penetrate the foreign target country. Entry mode has been defined as an institutional agreement that allows the company to enter a market with its products, technology, human skills, management, or other resources (Root, 1994).

A firm entering a foreign market has a variety of mode choices to organize its business activities abroad. Entry modes can be divided into three categories: export entry modes, contractual entry modes and investment entry modes (Root, 1994; Sitek, 2000; Rymarczyk, 2004; Gorynia, 2007; Johnson et al. 2008; Duliniec, 2009). The first category includes indirect and direct export activities. It refers to the manufacture of a product outside the target market and the subsequent shipping of the product to it. Direct exporting can be done via an agent or distributor in the target country or via a direct branch/subsidiary that requires equity investment. Exporting has been considered as the most common way to enter new international markets. Contractual entry modes are understood as non-equity cooperation agreements between a company that wants to enter the market and an entity located in a foreign target market. In contrast to export modes, contractual entry modes involve a transfer of technology or other skills and knowledge between partners. In the case of export modes, the transfer is limited to physical products. The cooperating companies are characterized by their legal autonomy and simultaneous economic interdependence. Firms have a wide array of contractual entry modes to choose from, including licensing, franchising, technical agreements, service contracts, management contracts, turnkey con-

tracts, manufacture contracts and co-production agreements (Root, 1994). The last category – investment entry modes – represents operation modes that are inevitably linked to ownership and equity investment. A firm decides to engage in international expansion by setting up a completely new firm or acquiring an existing local one. An investor may do this alone; maintaining full ownership and control over an affiliate (a branch or a subsidiary) or it may do this with the support of a partner or partners sharing ownership and control. In the literature, the former form of equity-based modes is described as a sole venture and the latter as a joint venture.

Entry modes differ considerably along several dimensions. The most common ones found in the literature are: degree of control (Anderson and Gatignon, 1986; Root, 1994; Kotler, 1994), level of risk (Root 1994; Kotler, 1994) and resource commitment (Hill et al., 1990; Meissner, 1990; Kotler, 1994). Moreover, entry modes have been also characterized by level of management involvement (Meissner, 1990), dissemination risk (Hill et al., 1990), skills requirement (Gronhaug and Kvitastein, 1993) or profit potential (Kotler, 1994). Degree of control, level of risk and resource commitment are highly correlated. Higher control requires higher resource commitment; increased resource commitment leads to higher risk.

The establishment of a wholly owned subsidiary results in the highest level of resource commitment, risk and a level of control, but it also provides the highest level of profit potential and the lowest level of dissemination risk. Joint ventures, where ownership of and responsibility for the management of the operation are shared, is considered as the entry mode with a lower level of resource commitment, control, profit potential and general risk compared to a wholly owned subsidiary, but with a higher level of dissemination risk. In licensing or franchising, the licensee assumes the investment risk – bears the development cost and risk associated with opening up a foreign market, thus the resource commitment and general level of risk is lower than in equity-based modes. At the same time, however, the level of control or economic gains are lower and there is a higher risk that firm-specific advantages in know-how will be expropriated by a licensee. Exporting is characterized by a low level of resource commitment, risk and a level of control.

From the theoretical point of view, entry mode choice is dependent on the analysis of objective information gathered systematically from the environment and the company. In practice, the companies often make their decisions how to enter the foreign market on the basis of non-systematic and ad hoc procedures (Whitelock and Jobber, 2003). This happens due to the highly complex entry mode decision that makes it difficult for the company to make a conscious and deliberate cost/benefit analysis of options.

Entry modes differ significantly in terms of their mix of advantages and drawbacks. The entry mode choice comes down to a trade-off between control and the cost of resource commitment under conditions of certain level of risk (Sarkar and Cavusgil, 1996) which leads to a choice that maximizes risk-adjusted return on investment (Anderson and Gatignon, 1986). However the tradeoffs are not easy to evaluate and not well understood. There is still not a comprehensive and easy to apply tool which will allow managers to assimilate a huge amount of information referring to internal and external factors in order to make the right decision about the choice of entry mode. Research in this field is still very fragmented and limited in scope. This paper attempts to provide a comprehensive method to fill in the blanks in this field. Assuming that managers make decisions based on a rational model using the proposed method, they may take into account a wide range of factors influencing entry mode choice and make tradeoffs between each mode in relation to the other relatively easily. However, managers should be conscious of the limitations of the rational decision-making model and of the difficulties with making “optimal decisions”. They operate under bounded rationality and make decisions based on incomplete information, under time pressure and under conditions where particularistic goals are contradictory. In reality, their aim is to find the more or less optimal mode at a given point in time. Benito and Welch (1993) emphasize the need for a dynamic approach to foreign entry mode choice. As mentioned above, the entry mode is selected at a given point of time, when specific internal and external conditions prevail. The environment, the company and its strategies evolve over time and the concept of “optimal decision” seems to be unclear from the perspective of the rational models describing the entry mode decision-making process.

A huge range of factors needs to be considered by the company when selecting the most appropriate entry mode for a target foreign market. Managers can be overwhelmed by the diversity and complexity of the required information. In the literature, researchers consider a number of variables to be significant in the decision about the choice of entry mode. Canabal and White (2008) identified around 200 different independent variables used in various entry mode studies. According to their review of empirical studies in international entry mode research, the most commonly used variables were MNE/international experience, cultural distance, risk, firm size, host restriction/host policies (host country variables), R&D intensity, host country experience, industry competition/concentration, size of operation/scale and advertising intensity.

In the context of such a large number of variables affecting the choice of entry mode, researchers suggest to synthesize and group them into sets of variables. There are several proposals for groups of variables that support the assessment process (Root, 1994; Hill et al., 1990; Gannon, 1993; Luo, 1999; Sitek,

2000; Rymarczyk, 2004; Johnson et al. 2008). In this paper we decided to adopt the framework proposed by Root (1994) and we identify four main sets of variables: target country environmental factors, target country industry factors, company factors and company product factors. We strongly believe that home country factors in the case of some countries may be also critical; however, in our case they do not play a significant role. For each group we decided to include the factors commonly referred to in the literature. Their importance in the entry mode decision process is determined mainly by the objectives and goals of company's international expansion and verified by a firm's capacity. When analysing factors, it must be remembered that each of them should be considered in terms of whether it encourages or discourages a particular entry mode.

Target country environmental factors

When making a decision about the right entry mode, managers should pay attention to several host country environmental factors. International entry mode studies confirm their considerable impact on the choice of entry mode. The factors within this group that are considered in the decision process include: market potential, production factors, cultural distance, geographical distance, government policies and regulations of the host country, property rights systems, external economic relations and political risk. All commonly examined factors relate to the macro environment, country attractiveness and market potential.

Market potential (size and growth) has a great impact on the entry mode. It has a direct impact on a firm's size of operation, defining the potential sales volumes. Where market potential is relatively low, we can assume (*ceteris paribus*) that the company will favour entry modes with low resource commitment and low breakeven sales volumes such as indirect exporting, direct exporting via an agent/distributor or contractual arrangements. Otherwise the company may follow an entry strategy with a high resource commitment, such as equity-based modes, finding its justification in high sales potential and in better satisfaction of customers' needs.

One of the reasons for companies going abroad is the presence of resources (production factors) that are not available at home or are of a higher quality and/or lower cost. These factors are considered very widely in the literature and practice. Companies are seeking resources such as natural resources, raw materials, labour, technological, innovatory and created assets (e.g. patents) or physical infrastructure (ports, roads, power, telecommunication). In the majority of cases, when the company wants to exploit these resources, it must be physically present in the host country using investment equity modes. For certain resources, equity-based modes are the only entry modes that can ensure access to them. However,

some of resources may be also exploited indirectly through contractual entry modes. Hence we can assume that the greater benefits from factor endowments in the host country, the more companies will favour solutions that include equity investment.

Cultural distance has been also recognized as a factor affecting market entry mode (Kim and Hwang, 1992; Agarwal, 1994; Brouthers and Brouthers, 2001; Anderson and Gatignon, 1986; Anderson and Coughlan, 1987; Gomes-Casseres, 1990; Erramilli and Rao, 1993). In general, it refers to the distance between the home country and the target country in terms of cultural values, language, social structure or ways of life (Root, 1994). Differences between the countries increase uncertainty and the level of risk as well as the cost of coordinating business operations. We can assume that the greater the cultural distance between the home country and the target country, the more the company will favour non-equity entry modes in order to limit the resource commitment and accompanying risk. Another way for a company to overcome cultural barriers and reduce risk is to involve a local partner or partners who are familiar with the culture of the target country in the economic activity abroad.

Geographical distance has a slightly contradictory impact on entry mode strategies. Greater geographical distances and high transportation costs may significantly deteriorate the company's position compared to its competitors in the target market. The geographical distance also reduces flexibility and the ability to respond quickly to changes in the local market. The greater the geographical distance, the greater the likelihood that firms will decide to make an investment entry. If the geographical distance is low, then export entry may be favoured over other modes (Root, 1994).

The government policies and regulations may also directly or indirectly affect the choice of entry mode. The countries are analysed in terms of how favourable their policies and regulations are to foreign companies willing to enter. High tariffs and tight quotas will hinder exporting activities and encourage companies to locate production in the target country, while a restrictive host country policy on foreign investment will reduce the number of equity investments in favour of other modes such as exporting or non-equity contractual arrangements. In some countries there are legal limits on foreign equity participation in domestic enterprises and companies are forced to operate in the host market using only joint ventures. The host country may offer foreign companies a wide array of incentives in terms of taxation, access to infrastructure, local financing as well as resource or material supply, depending on entry modes favoured by the host country (Luo, 1999).

In this context, external economic relations should also be taken into consideration while selecting the most appropriate entry mode. Exchange rate policy and exchange rate behaviour, the balance of payments, the level of foreign debt

and its service, restrictions on the transfer of capital, profits and salaries etc. should be carefully assessed by managers. Under restrictive exchange controls, companies are better off utilizing low control entry modes such as indirect or agent/distributor exporting or contractual agreements which allow them to reduce negative effects of transfer restrictions. When the exchange rate has depreciated, firms are motivated to produce locally using equity-based entry modes. On the other hand, when the exchange rate has appreciated, export modes are chosen above the other options.

Another aspect of the target country environment concerns property rights systems. This is an essential issue, especially for companies with high technological competences and tacit knowledge. If host countries are unable to ensure effective property rights protection, the company risks leakage or unwanted dissemination of proprietary technological and marketing assets to competitors, suppliers or customers. Faced with potential infringement and piracy by local firms, companies are often willing to select higher ownership modes to reduce the risk of unwanted dissemination. Keeping the transfer and use of intellectual property rights within the company provides the highest level of protection. When property rights protection is sufficient in the host country, companies may select modes offering lower levels of control as the risk of the expropriation of assets is lower. In these circumstances the company does not need to construct a costly governance structures to protect assets.

Finally, political risk is a factor that needs to be examined in order to make the right entry mode decision. In markets where political risk is high, companies try to minimize their resource commitment to ensure strategic flexibility (Anderson and Gatignon, 1986). Flexibility increases the company's ability to exit quickly from the target market without a significant loss when the environment deteriorates. Consequently in markets with high political risk, companies will favour low control and ownership modes. They will tend to use export modes or modes that enable them to share the risk with partners. The most valuable partners will be local, with knowledge about the host country as well as relations that can help to reduce external uncertainty and the impact of a volatile environment. In markets with lower levels of political risk, the companies are more inclined to pursue investment modes such as a wholly owned subsidiary.

Target country industry factors

Various target country industry factors also need to be considered by a firm when entering a new market. The factors within this group considered as part of the decision process include local supply and distribution infrastructure, relations with suppliers and buyers, competitive conditions, demand uncertainty and entry and exit barriers.

When companies enter international markets, knowledge about the availability and quality of local supply and distribution infrastructure in the industry may play a significant role in the process of selecting the appropriate entry mode. Good marketing infrastructure in the target market allows the company to reduce its resource involvement and use an existing network of local agents and distributors to launch products. There is no need to engage deeply in the market with more advanced modes. Indirect and agent/distributor exporting is recommended. Where marketing infrastructure is poor, a branch/subsidiary may be indispensable to reach the local market (Root, 1994). Moreover, when industrial linkages with suppliers and distributors are essential in the industry, it is recommended that the company utilizes high resource commitment modes such as a wholly owned subsidiary or joint venture. Entry modes with partners will be useful when the company does not have industrial linkages and has to build and develop relations with various actors in the industry.

Competitive conditions may lead companies to use high control or low commitment entry modes. One aspect of competitive conditions in an industry is its competitive structure (Root, 1994). When there are many non-dominant competitors in the target market (atomistic structure), the company may prefer to use export entry modes because there is no need for high commitment. In target countries where the competition is oligopolistic or monopolistic, the companies may favour equity investment in production, an option that should improve their ability to compete on the market. However, when competition is too strong for both exporting activities and equity-based modes, Root (1994) recommends licensing or other contractual agreements that allow the company to be present with its products without direct involvement in the market. The other dimension of competitive conditions in an industry is the volatility of competition (Hill et al., 1990). According to Hill et al. (1990), when competition is more volatile companies tend to use low control and ownership modes due to their increased flexibility. Intense competition and rapidly changing environmental factors require from the company the ability to adapt quickly, an ability which is linked with low rather than high resource commitment.

Demand uncertainty is one the most essential factors affecting the entry mode choice. It directly refers to the host country demand for the company's products. If demand is unknown or predicted to be low, there is no point in making a substantial resource commitment (higher resource commitment leads to less strategic flexibility and substantial sunk costs if a withdrawal from the market becomes necessary). Demand conditions vary depending on the stage of the industry life cycle. It has been widely recognized that uncertainty and unpredictability are greatest in the early/embryonic or late/declining stages of the industry life cycle (Vernon, 1966). Thus, when a target market is in its embryonic or de-

clining stage, managers are more inclined to favour low resource commitment and low control entry modes. More stable and predictable demand conditions encourage managers to increase their resource commitment; however, this does not necessarily imply a need for investment modes (Hill et al., 1990).

Entry and exit barriers in the target industry in the host country may also influence a company's choice of entry mode. High barriers reduce a company's freedom to choose from a wide array of available entry modes. It may happen that the company will be forced to accept host government-instituted modes of entry into certain industries (Luo, 1999).

Company factors

When selecting the right entry mode, managers also need to take into consideration some features of the firm they operate. There is a general agreement in the literature that factors such as size of the company, international experience, corporate strategy, generic marketing strategies and nature of the strategic assets are crucial in the entry mode decision-making process.

Firm size has been recognized as an important factor in the entry mode decision process. Sarkar and Cavusgil (1996) highlighted it as one of the key sub-themes alongside international experience within firms/foreign venture specific factors. A relationship between firm size and entry mode strategy is a direct reference to resource commitments. As noted above, entry modes differ in terms of resource commitment. Hill et al. (1990) define resource commitment as "(...) dedicated assets that cannot be redeployed to alternative uses without cost (lost value)". We have to remember that with greater resource commitment comes increased risk. Hence small-sized firms will have limited opportunities for international expansion as they must make use of those entry modes requiring resources that are adjusted to their capacity. It must be stressed that resources are understood widely, not only in terms of capital, which may be the first that springs to mind when discussing entry modes, but also in terms of technology, management, marketing and production skills. Small-sized companies often face financial and managerial constraints, forcing them to restrict themselves to the simpler entry modes with low international involvement and resource commitment. Conversely, large firms have lower resource constraints and can bear the higher risk of their international operations. Therefore they can often use more advanced entry modes that offer higher profit potential but also higher risk. An abundance of resources permits the company to limit the consequences of potential failure that could lead a small-sized company to bankruptcy.

International experience is the second key sub-theme within this group of factors. According to Canabal and White (2008), it is the most commonly used variable to explain entry mode choice in empirical studies. Knowledge about

foreign markets and international experience is crucial for increasing involvement in international operations (Johanson and Vahle, 1977). The greater international experience allows the company to reduce risk and uncertainty, which constrain the company's involvement in business functions outside the domestic market. Companies with more experience due to their accumulated market knowledge which have developed capabilities for managing foreign operations are more likely to make higher resource commitments and prefer high-control modes such as a wholly owned subsidiary or joint venture (Gomes-Casseres, 1990). Conversely, the companies with little knowledge and experience in foreign markets face higher levels of exposure to risk. Lack of knowledge or experience may cause errors and inefficiencies. In order to limit exposure to risk, such companies prefer modes offering low-control and low resource commitment, starting with exporting through subcontracting, licensing or franchising. When a company suffers strongly from a lack of local knowledge and experience in the host country, it may tend to prefer modes engaging local partners in business operations in order to gain knowledge and experience in the local market. Hennart (1991), Li (1995), and Delios and Beamish (1999) support a positive relationship between the level of international experience and the level of ownership and control.

Corporate strategy has been also recognized as a factor effecting entry mode choice (Hill et al., 1990; Gannon, 1993; Luo, 1999). The company may pursue one of two basic corporate strategies: a multi-domestic strategy or a global strategy. The assumption on which the multi-domestic strategy is based is that national markets differ widely along many dimensions such as customer tastes and preferences, the competitive and operating conditions, and political, legal, and social structures. In order to meet the different challenges of national markets, companies must confer a high degree of autonomy and responsibility for local activities on national subsidiaries, where the majority of business functions have to be located. A high degree of autonomy for national subsidiaries is a consequence of the need to adapt operations to differing local competitive conditions and products to the specific tastes and preferences of local customers. In general, we can assume that companies pursuing multi-domestic strategy will tend to use modes with a relatively low degree of control and resource commitment to maintain global flexibility and profitability by using entry modes with low breakeven sales volumes. They may also prefer modes involving local partners such as licensing or joint venture in order to limit the resource commitment and gain knowledge and experience in the local market. Conversely, the companies pursuing a global strategy will favour modes with a high degree of control to ensure the effective configuration and coordination of all the activities a company performs all over the world. The basic assumption underpinning a global strategy is

a convergence of tastes and preferences among consumers from different national markets. The company sees its sources of advantage over other competitors in the substantial scale economies it can achieve by centralizing production activities and marketing a standardized product to a global market. The national subsidiaries are usually highly specialized units that follow central decisions from headquarters. Under these circumstances, all modes involving partners are not recommended, due to the high level of subordination and low autonomy of national subsidiaries.

Besides corporate strategy, generic marketing strategies are also expected to affect the entry mode decision process (Gannon, 1993; Bradley and Gannon, 2000). One of the strategic decisions the company has to make when entering foreign markets is whether it will pursue a concentration or diversification strategy (Ayal and Zif, 1979). A market concentration strategy assumes a high level of marketing efforts and significant levels of resource commitment to each foreign market in which it operates. It is a consequence of the company's objective to achieve a strong market position in each of its foreign markets. Only when the company achieves a significant share in the foreign market it can enter other new markets. The strategy is based on concentrating resources in a limited number of markets and a slow, gradual increase in the number of markets, country by country. Following a concentration strategy may result in preferring high control entry modes such as wholly owned subsidiaries and joint ventures which are supposed to enable the company to have greater control over strategy and tactics. In contrast, a market diversification strategy assumes a high level of return from low resource commitment in many markets. The company following this strategy is trying to enter many foreign markets within a short period of time. Although this approach permits the immediate penetration of a larger number of foreign markets, it also involves resource dispersion. Hence, following a diversification strategy by the company may result in a preference for low control entry modes and non-equity modes such as indirect exporting, agent/distributor exporting or licensing.

The internationalization theory suggests that the nature of strategic assets also shapes the entry mode decision. High transaction costs associated with a market-based exchange of strategic assets, particularly in the case of firm-specific know-how, result in a positive relationship between the level of control and the specificity of assets (Anderson and Gatignon, 1986, Hill et al., 1990; Delios and Beamish, 1999). In an attempt to avoid the cost of drafting, negotiating, monitoring, and enforcing contracts with economic market actors (with bounded rationality and opportunistic tendencies), companies internalise the transactions within the company's structure. By establishing a wholly owned subsidiary they reduce dissemination risk (risk of losing control) and avoid the market failures related

to information (problems related to the evaluation of those assets by the market). In addition, the internal transfer of assets is considered to be more appropriate and efficient than the market mechanism, when assets, particularly know-how, are tacit and deeply embodied in the company, and it might be problematic to separate it out for a transfer to the partner. Hence we can assume that the more specific and tacit company's assets, the more likely it will choose high-control entry modes.

Company product factors

The last group of factors to which managers should pay attention are factors directly related to the company's product, such as product adaptation, life-cycle stage of the product, levels of customer service, and transaction specificity of the product.

When the company needs to adapt the product to local needs and preferences, it must have considerable knowledge about the local market. Root (1994) indicates that the selected entry mode should assure the company of the close proximity to the foreign market in order to be able to tailor the product to the local customer. An active approach and a deep involvement with the market are essential to fulfil customers' expectations. If so, we can expect that the more customized their products, the more companies are likely to enter a foreign market through high-control entry modes, which seem to be more efficient in this case (Anderson and Gatignon, 1986).

A similar approach to entry mode selection is used in relation to customer service levels. If a product requires pre- and post-purchase service, proximity to the foreign market and customers seems to be crucial. It is hard, sometimes even impossible for the company to fulfil the service requirements at a distance. Thus, we can assume that companies with high service requirements tend to prefer more high-control entry modes in order to achieve the necessary proximity to customers (Lee, 1986).

Life cycle stage of the product (PLC) is related directly to the proprietary content. Anderson and Gatignon (1986) indicate that immature products in the early stages of the PLC are characterized by high proprietary content which generates problems with its transmission and valuation. Moreover, there is a potential risk of loss of technology or property, leading to a need for control. Therefore, the more mature the company's product, the greater the propensity to choose a low-control entry mode.

Transaction specificity of the product (Gannon, 1993; Bradley and Gannon, 2000; Anderson and Gatignon, 1986) is related directly to the nature of the assets that the company possesses. Products of a company might be classified into "high tech" and "high touch" (Levitt, 1983). High tech products are defined as

products with highly intangible components for which objective valuation may be problematic: it is difficult for the buyer to estimate the value of the intangible asset component because it is poorly understood, unless it is disclosed. Those intangible components are related to technological know-how, marketing know-how or brand loyalty (Gannon, 1993) and stand behind the company's technical leadership, product image and reputation or its capacity for fast and flexible response. High touch products are based on tangible assets and are well understood. That's why the objective valuation of them is relatively easy. Thus, when the company possesses highly proprietary products (or processes) it may tend to use entry modes offering greater control due to the hazard of valuation.

3. Methodology

The present study shows the possibility of applying multi-criteria methods from the PROMETHEE family and SD rules to aid decision-makers in the entry mode selection process. It is based on the example of a dynamically developing company that manufactures and distributes hygienic, cosmetic and medical products for women, children and adults. This company is an enterprise with entirely Polish capital, which is organized in 17 countries. The capital group is composed of 54 companies including 17 manufacturing companies (in Poland, Russia, Ukraine and India), 27 trading companies (in 14 European countries, India and the USA) and 10 service (medical and information technology) companies (in Poland and Russia). It employs over 7.3 thousand people and markets its products in more than 65 countries worldwide (they are available on all inhabited continents). Thanks to the firm's own Research and Development Centre that cooperates closely with experienced scientific institutions, its products are based on the cutting edge technologies. This helps the company to compete successfully with international companies in the highly competitive markets in which it operates¹.

The concise history of the firm, emphasizing especially its foreign operations and R&D related activities, is presented in Table 1.

¹ Information about the company comes from its brochure and its website: http://www.tzmo-global.com/en_GLO (7 March 2014).

Table 1

Company's history in brief

Years	Event
1950s	<p><u>The company is established as a state-owned enterprise</u></p> <p>Dressing material is produced for the Ministry of National Defence and the Central Mining Office Supply. Production is set to shut down after completing the order but due to the high quality of work further orders appear</p> <p>The company begins conquering foreign markets: products are sold in European, African and Asian countries</p>
1990s	<p><u>The company is privatised</u> – a joint-stock company is created by individuals (Polish citizens): the employees of the company and representatives of the academic and medical environment</p> <p><u>In 1997 the company receives</u> – as the first firm in Poland – <u>a certificate confirming that it produces medical products in accordance with the requirements of GMP (Good Manufacturing Practice)</u> – the principles set by the WHO (World Health Organization)</p> <p>In addition, the company obtains certificates of conformity of quality management system ISO 9001 and ISO 13485</p> <p>Since the end of the 1990s the company is entitled to mark its products with the European CE safety mark</p>
2000s	<p><u>In the early 2000s the company opens a hospital</u> in Poland which – since 2007 – has been serving as a modern polyclinic. Since the beginning of 2000s <u>it has been also providing a sterilization service</u> for hospitals</p> <p><u>In 2003 R&D company joins the capital group</u>. Thanks to that the offer of the company is extended of biomaterials and other technologically advanced products</p> <p><u>Production of hygiene products in the newly built plants in the East market starts</u> – in 2003 in Russia and in the first quarter of 2004 in Ukraine</p> <p><u>In 2002 the company establishes a joint venture with its Indian partner</u>. A new factory in India begins manufacturing hygiene and medical products in 2005. At the end of 2000s it obtains the CE mark for medical production</p> <p>In 2004 the company <u>builds a modern logistic centre</u> in Poland (which serves as a central distribution warehouse). The following year a training, marketing and logistics centre is opened in Germany. Another logistics centre is founded in 2007 in Romania</p> <p>In 2008 <u>new business units are established</u> in Poland (e.g. a films and laminates production plant and a clean room for medical production)</p> <p>At the end of 2000s <u>the company starts business activity in North America</u> – it establishes its headquarters in the United States</p>
2010s	<p>In 2011 the company <u>finishes work on a modern machine for the production of absorbent pants</u>. This is one of the few high-tech machines in the world for the production of absorptive products</p> <p><u>The company consistently develops its business overseas</u>. In 2012 it takes part in the largest trade show in the United States for those who are interested in home medical equipment market – Medtrade</p> <p><u>The company receives many prestigious awards</u>, for instance: Business Eagles in Germany 2011, President's Economic Award – 'Polish Economic Nobel Prize' for 'the presence on the global market' 2012, 'Orzeł Rzeczypospolitej' for 'the best production company' 2013</p>

Source: http://www.tzmo-global.com/en_GLO/companyHistory (7 March 2014).

The present simulation of an entry mode selection refers to a project already carried out by the company, namely the investment made in India (see Table 1). Hence, it is assumed that the target market had been already selected by the firm.

After considering the various alternatives we have selected six entry modes, which seemed reasonable to apply in the case considered, namely: indirect export, agent/distributor export, licensing, branch/subsidiary export, joint venture and wholly owned subsidiary.

Factors affecting the company's choice of the entry mode have been identified through the literature review. We have selected 15 criteria that should be considered from the point of view of encouraging or discouraging a particular entry mode. They are presented in Table 2.

Table 2

Factors influencing the company's choice of the entry mode

Factors (criteria)	Measures (units)	Evaluation scale
<i>Target country environmental factors</i>		
Market potential	<u>Total population</u> (number of inhabitants)	▪ Very low
	<u>Urban population</u> (number of inhabitants)	▪ Low ▪ Medium
	<u>GDP growth rate</u> (annual %)	▪ High
	<u>GDP per capita</u> (GDP per capita constant 2000; USD)	▪ Very high
Production factors	<u>Cotton production</u> (thousand bales)	▪ Low (unattractive) ▪ Medium
	<u>Labour cost</u> (USD per hour)	▪ High (attractive)
Geographical distance	<u>Distance between capital cities</u> (kilometres)	▪ Low (up to 1500 km) ▪ Medium (from 1500 to 3000 km) ▪ High (over 3000 km)
Cultural distance	<u>Cultural distance</u> : power distance, individualism, masculinity, uncertainty avoidance, pragmatism, indulgence (index)	▪ Low ▪ Medium ▪ High
Political risk	<u>Political risk</u> : corruption, government non-payments/non-repatriation, government stability, information access/transparency, institutional risk, regulatory and policy environment (index)	▪ Very low ▪ Low ▪ Medium ▪ High ▪ Very high

Government policies and regulations	<u>Economic freedom</u> : property rights, freedom from corruption, fiscal freedom, government spending, business freedom, labour freedom, monetary freedom, trade freedom, investment freedom, financial freedom (index)	<ul style="list-style-type: none"> ▪ Repressed ▪ Mostly unfree ▪ Moderately free ▪ Mostly free ▪ Free
<i>Target country industry factors</i>		
Demand uncertainty	<u>Product-market development</u> : growth rate, number of competitors, competitive structure, technologies, sector access	<ul style="list-style-type: none"> ▪ Birth stage ▪ Growth stage ▪ Maturity stage ▪ Decline stage
Marketing infrastructure	<u>Outlet density</u> (number per 1,000 inhabitants)	<ul style="list-style-type: none"> ▪ Poor ▪ Moderate ▪ Good
	<u>Modern Trade density</u> (number of retail stores per million population)	
<i>Company factors</i>		
Size of the company	<u>Employment</u> (number of employees)	<ul style="list-style-type: none"> ▪ Small ▪ Medium ▪ Large
	<u>Sales turnover</u> (thousand PLN)	
International experience	<u>Sales on foreign markets</u> (revenue in thousand PLN)	<ul style="list-style-type: none"> ▪ Very low ▪ Low ▪ Medium ▪ High ▪ Very high
	<u>Number of markets served</u>	
	<u>Number of projects abroad</u>	
Corporate strategy	<u>Corporate strategy analysis</u> (based on cost pressure, local responsiveness and global integration)	<ul style="list-style-type: none"> ▪ Global ▪ Mostly global ▪ Mostly multi-domestic ▪ Multi-domestic
Generic marketing strategies	<u>Generic marketing strategy analysis</u> (based on number of markets and time horizon)	<ul style="list-style-type: none"> ▪ Concentration ▪ Mostly concentration ▪ Mostly diversification ▪ Diversification
Nature of the strategic assets	<u>R&D intensity</u>	<ul style="list-style-type: none"> ▪ Low ▪ Medium ▪ High
	<u>Product technical complexity</u>	
<i>Company product factors</i>		
Product adaptation	<u>Degree of product customization</u>	<ul style="list-style-type: none"> ▪ Very low ▪ Low ▪ Medium ▪ High ▪ Very high
Product lifecycle	<u>PLC analysis</u> (based on proprietary content)	<ul style="list-style-type: none"> ▪ Introduction stage ▪ Growth stage ▪ Maturity stage ▪ Decline stage

Finally, five experts – specialists in the field of foreign investments (two scientists, two practitioners from FMCG sector and one scientist with practical experience) – scored the selected entry modes individually and independently according to their knowledge and experience on scales established by a main expert and taking into account their own evaluation of 15 factors affecting the company's choice of the entry mode.

Table 3 provides the performance matrix for the six entry modes considered and the 15 criteria used to evaluate them.

Table 3

Input data

Factors (criteria), scale ²	Entry modes					
	Indirect Export	Agent/Distributor Export	Licensing	Branch/Subsidiary Export	Joint Venture	Wholly Owned Subsidiary
Market potential (1-5)	1	2	2	4	5	5
	3	5	1	1	2	1
	1	2	2	3	5	4
	1	2	1	5	2	5
	1	1	3	2	5	5
Production factors (0/1)	0	0	0	0	1	1
	0	0	0	0	0	1
	0	0	0	0	1	1
	0	0	0	0	0	1
	0	0	1	0	1	1
Geographical distance (1-3)	1	1	2	1	3	3
	3	3	1	3	1	1
	1	2	3	2	3	3
	2	3	2	2	2	1
	1	1	3	2	3	3
Cultural distance (1-4)	3	4	4	2	3	1
	1	2	2	3	4	4
	2	3	3	3	4	3
	1	3	4	1	3	1
	3	4	3	2	3	2
Political risk (1-4)	4	4	4	3	2	1
	1	1	3	3	4	4
	2	4	4	3	4	3
	4	3	4	2	4	2
	3	3	4	2	2	2
Government policies and regulations (1-4)	4	4	3	2	1	1
	3	3	4	4	4	4
	2	2	2	1	4	2
	3	3	4	2	4	2
	2	3	3	3	2	2
Demand uncertainty (1-3)	1	1	1	3	2	3
	2	2	1	3	3	3
	2	3	3	2	3	3
	2	3	2	1	3	1
	2	3	3	2	2	2

² Higher values indicate that the entry mode is better tailored to the specific situation.

Marketing infrastructure (0/1)	0	0	0	1	1	1
	0	0	0	1	1	1
	0	1	1	0	1	0
	0	0	0	0	1	0
	0	1	1	0	1	0
Size of the company (1-4)	1	2	2	3	3	4
	1	1	1	3	3	4
	1	1	1	3	4	3
	2	2	1	3	3	4
	1	1	2	3	4	4
International experience (1-4)	1	2	2	4	3	4
	1	1	1	2	2	4
	1	1	1	3	4	2
	1	1	2	3	3	4
	1	1	2	2	3	4
Corporate strategy (1-3)	1	2	1	3	2	3
	1	1	1	2	3	3
	1	1	1	3	2	3
	1	1	2	1	2	3
	1	1	2	3	2	3
Generic marketing strategies (1-3)	1	1	1	3	2	3
	1	1	1	2	2	3
	1	2	1	2	2	3
	1	1	1	2	1	3
	1	2	2	3	2	3
Nature of the strategic assets (1-3)	1	1	1	3	2	2
	1	1	1	2	2	3
	2	2	2	2	2	2
	1	1	2	2	1	3
	1	1	2	2	2	3
Product adaptation (1-3)	1	1	1	4	2	3
	1	1	1	2	3	3
	1	1	1	2	3	3
	1	2	2	1	3	1
	1	1	1	3	1	2
Product lifecycle (1-3)	1	1	1	3	2	3
	1	1	1	2	2	3
	1	2	2	3	3	3
	1	2	1	2	1	3
	1	1	2	2	1	3

To rank entry modes from the best to the worst from the point of view of the expansion of the considered company to the Indian market, the PROMETHEE II method (see Brans and Vincke, 1985; Brans, Vincke and Mareschal, 1986) with SD rules and veto thresholds (see Nowak, 2005; Górecka 2009) and the EX-PROM II method (see Diakoulaki and Koumoutsos, 1991) with SD rules and veto thresholds (see Górecka, 2010; Górecka 2011) have been applied.

Although expected utility models and outranking relation models used to be often treated as competitors, it is possible to benefit from both approaches in the situation when the performances of various alternatives are evaluated in a probabilistic way (as it is in this case because the number of experts participating in

evaluation is greater than one). Namely, stochastic dominance rules can be employed to establish preferences with respect to each criterion and the criteria aggregation method based on the outranking relation procedure can be used to obtain global preference (Martel, Zaráś, 1995). Moreover, the concept of pseudo-criteria can be employed to distinguish situations of strict preference, weak preference and indifference (Nowak, 2004). As a matter of fact, applying this combined approach seems to be an appropriate solution in the case of entry mode selection.

The following characteristics of the decision-making problem analysed and the following expectations of the decision-makers should be taken into consideration in the process of selecting the most appropriate multi-criteria decision aiding method for the problem of choosing the most proper entry mode:

- the decision-making problem should be formulated as a problem of ordering a finite number of alternatives;
- the problem is a group decision-making problem – experts engaged in the entry modes' appraisal evaluate them individually and independently and it is required to incorporate diverse individual views into a blended final decision;
- decision-makers are able to present the information about their preferences but they do not have much time for interaction and cooperation with the analyst;
- participants of the decision-making process have very diverse educational background and their knowledge about multi-criteria decision aiding methods is usually limited;
- the decision aiding technique should not be too complicated to enable decision-makers to understand how it works;
- it should be taken into account that experts appraising entry modes may not be consistent in their evaluations, especially in view of uncertainty and inaccuracy characteristic for the decision-making problem discussed;
- the possibility of the occurrence of complete compensation should be removed as in the case of some criteria it may be hazardous;
- it is desired that the final solution takes the form in which the points occur, otherwise it may be unconvincing for the decision-makers.

Taking into account all the above-mentioned information the most suitable methods to aid the decision-making process seem to be PROMETHEE II and EXPROM II with SD rules and veto thresholds. They are considered to be user-friendly, i.e. simple and easily understood – all steps can be quite effortlessly explained to the decision-makers as they are neither very complex nor mathematically challenging. Additionally, thanks to the introduction of the veto threshold the techniques are partially compensatory (a really bad score on one criterion cannot be compensated with a good score on another). Moreover, these techniques allow us to obtain a complete pre-order of the alternatives to which the points are assigned in the final solution. When comparing both methods, the

PROMETHEE II_v method with SD rules results in an ordinal scale of measurement, while the EXPROM II_v method with SD rules, which is based on the notion of ideal and anti-ideal solutions, enables the decision-maker to rank alternatives on a cardinal scale.

To check the influence of changes in the weights of evaluation criteria on the final rankings of entry modes examined the analyst in cooperation with the main expert have established four different vectors of weighting coefficients. The first vector was determined arbitrarily, the second one was created with the help of the AHP method (Saaty, 2006; Saaty and Vargas, 1991), and the third one used Hinkle's method, which is also called the 'resistance to change' grid (Hinkle, 1965; Rogers and Bruen, 1998). In the last approach all factors were presupposed to be equally important. The analyst and the main expert established also the values of indifference (q), preference (p) and veto (v) thresholds. The model of preferences for the decision-making problem is presented in Table 4.

Table 4

Model of preferences

Factors (criteria)	Max /min	Vectors of weighting coefficients				q	p	v
		I	II	III	IV			
Market potential	max	0.11	0.1379	0.140	0.067	0	1	3
Production factors	max	0.11	0.1379	0.140	0.067	0	0	1
Geographical distance	max	0.04	0.0305	0.013	0.067	0	1	5
Cultural distance	max	0.06	0.0520	0.070	0.067	0	1	5
Political risk	max	0.09	0.0861	0.100	0.067	0	1	3
Government policies and regulations	max	0.04	0.0305	0.013	0.067	0	1	5
Demand uncertainty	max	0.09	0.0861	0.100	0.067	0	1	2
Marketing infrastructure	max	0.06	0.0520	0.070	0.067	0	0	1
Size of the company	max	0.09	0.0861	0.100	0.067	0	1	3
International experience	max	0.11	0.1379	0.140	0.067	0	1	3
Corporate strategy	max	0.06	0.0520	0.070	0.067	0	1	5
Generic marketing strategies	max	0.02	0.0195	0.005	0.067	0	1	6
Nature of the strategic assets	max	0.04	0.0305	0.013	0.067	0	1	5
Product adaptation	max	0.04	0.0305	0.013	0.067	0	1	5
Product lifecycle	max	0.04	0.0305	0.013	0.067	0	1	5

4. Results

Tables 5 and 6 provide, respectively, a summary of the results obtained by applying the PROMETHEE II_v and EXPROM II_v techniques with SD rules using four different vectors of weighting coefficients.

Table 5

Rankings of the entry modes obtained using PROMETHEE II with veto thresholds and SD rules for four different vectors of weights

No.	PROMETHEE II with veto thresholds				No.
	Vector no. 1	Vector no. 2	Vector no. 3	Vector no. 4	
1	Joint Venture	Joint Venture	Joint Venture	Joint Venture	1
2	Wholly Owned Subsidiary	Wholly Owned Subsidiary	Wholly Owned Subsidiary	Wholly Owned Subsidiary	2
3	Branch/ Subsidiary Export	Branch/ Subsidiary Export	Branch/ Subsidiary Export	Branch/ Subsidiary Export	3
4	Licensing	Licensing	Licensing	Licensing	4
5	Agent/ Distributor Export	Agent/ Distributor Export	Agent/ Distributor Export	Agent/ Distributor Export	5
6	Indirect Export	Indirect Export	Indirect Export	Indirect Export	6

Table 6

Rankings of the entry modes obtained using EXPROM II with veto thresholds and SD rules for 4 different vectors of weights

No.	EXPROM II with veto thresholds				No.
	Vector no. 1	Vector no. 2	Vector no. 3	Vector no. 4	
1	Wholly Owned Subsidiary	Wholly Owned Subsidiary	Joint Venture	Wholly Owned Subsidiary	1
2	Joint Venture	Joint Venture	Wholly Owned Subsidiary	Joint Venture	2
3	Branch/ Subsidiary Export	Branch/ Subsidiary Export	Branch/ Subsidiary Export	Branch/ Subsidiary Export	3
4	Licensing	Licensing	Licensing	Licensing	4
5	Agent/Distributor Export	Agent/Distributor Export	Agent/Distributor Export	Agent/Distributor Export	5
6	Indirect Export	Indirect Export	Indirect Export	Indirect Export	6

The rankings presented in Tables 5 and 6 show the robustness of the solutions to the changes in the vectors of weights as the modifications of the parameters' values do not lead (with only one exception) to alterations in the rankings of entry modes.

The rankings of the entry modes we have obtained are not in complete agreement. The best entry mode, taking into account its appropriateness as the institutional agreement allowing the considered company to enter the Indian market, is joint venture or wholly owned subsidiary. Branch/subsidiary export also turned out to be quite a good solution – the values of net flows determined for it are in all cases positive. In turn, licensing and agent/distributor export do not seem appropriate arrangements for organizing business activities in India by the company examined as the values of net flows determined for them are in all cases negative. Finally, the worst mode to enter the Indian market is indirect export.

To sum up, taking into account all the results obtained, joint venture is recommended for the analysed company (top-ranked five times). Above and beyond, the firm may consider wholly owned subsidiary (top-ranked three times) or branch/subsidiary export as the entry modes to explore the Indian market.

5. Conclusions

In the paper we have proposed a universal tool, based on the outranking MCDA methods combined with stochastic dominances, namely PROMETHEE II with SD rules and veto thresholds, and EXPROM II with SD rules and veto thresholds, which can be used to solve the entry mode selection problem for international expansion. In fact, applying this approach can enhance the evaluation process and improve decision-making since the assumptions on which it is based are in line with reality. The usefulness of the presented tool is confirmed by the fact that in reality, the firm that formed the basis of our analysis of its international expansion chose joint venture as the entry mode to explore the Indian market and it has succeeded on it.

The approach discussed can be applied to any company searching for a way to enter the target market and launch its products or services. Nonetheless, the criteria and measures should certainly be tailored to each firm's specific circumstances and challenges. The example presented in the paper may serve as guidelines to other companies.

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