Technological and Organizational Capabilities for the Development of Competitive Advantages - The Case of Successful SME Exporters in Argentina

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Abstract:
This work analyzes a sample of Argentinean small and medium-sized enterprises (SMEs) which have greatly succeeded as exporters since the economy opening and structural changes occurred in the 90’s. The results of this study show that among successful exporters there are no significant differences between firms belonging to sectors where Argentina might have comparative advantages (commodities and goods intensive in natural resources) and others where, according to orthodox theories, Argentina shows trade disadvantages. In this sense, the findings of this study show that the type of skills characterizing these firms demands the construction of a path which is neither automatic nor instantaneous.

Key words: exports – SMEs – technology – skills – learning

JEL: L0, L1, L2
Introduction

The Argentinean industrial exports have a basic primary character reflected in an exportation mix where commodities and goods intensive in natural resources prevail. Five net export branches (oil, tanneries, fish, mill of cereals, meat and dairy products) represent more than two fifths of total Argentinean industrial exports. By adding the automotive complex (including a high content of regional intraindustrial and intrafirm trade) and three branches of commodities (petroleum refining, chemical products, and the iron and steel industry), two thirds of the Argentinean industrial exports are accounted for. By the mid-1990's, various indicators suggested the relative technological backwardness of net export activities related to the remaining industrial sectors. Thus, in these export activities, the engineers’ share in employment, the relative weight of people employed in R&D, expenses in quality assurance, the importance of innovation, and the weight of software purchases and production licenses were significantly lower (Yoguel and Rabetino 1999).

Similarly, a close analysis of the data provided by the 1997 Input-Output Matrix evidences the low differentiation of industrial Argentine exports and their dependence on direct foreign investment. Thus, the exporting ratio for different industrial activities is positively correlated with agent-size and the weight of direct foreign investment in the sector, and negatively correlated both with the sectorial added value coefficient and advertising expenses. Another interesting point is that activities having the highest exporting ratio are precisely those showing the highest imports in the corresponding sector. This evidences that certain exporting activities complement their domestic offerings with imported products (e.g., the automotive complex).

Within this global framework, the purpose of this work is to analyze a sample of Argentinean small and medium-sized enterprises (SMEs) which have greatly succeeded as exporters since the opening of the economy and structural changes occurred in the 90's selling high differentiated products. The central hypothesis of this
work is the following: “the endogenous capabilities of these firms and their strategic behaviors constitute the key factors for competitive advantages that allowed them to overcome, partially at least, the restrictions and the increased competitive pressures faced by Argentinean firms in the 90’s”. This hypothesis is especially important in the Argentinean case because it is opposed to the predominant orthodox idea that the country should mainly specialize in products intensive in the most abundant factors. So the interesting point about this sample is its potential contribution to explain a kind of foreign trade success which traditional theories do not account for.

In this regard, the results of this study show that the development of endogenous skills and offensive strategies are more important than sector specialization for the generation of competitive advantages, especially within a macroeconomic framework in which automatisms are privileged and the development of institutional skills is less important.

Among these successful exporters, no significant difference was noticed between firms belonging to sectors where Argentina might have comparative advantages (commodities and goods intensive in natural resources) and others where, according to orthodox theories, Argentina shows trade disadvantages. In this sense, the findings of this study show that differentiated competitive advantages based on the development of endogenous skills, which account for non-price factors, are more important than those associated with prices exchange rate, and activity sector. Thus, the type of skills characterizing these firms demands the construction of a path which is neither automatic nor instantaneous.

In the first section of this paper the analytical framework is described and a group of hypotheses are also discussed. The second section discusses the main findings of a field work carried out on a representative sample of 80 small and medium-sized successful exporters selected from a larger universe of approximately 800 exporters. After describing the method used to identify successful companies, some hypotheses
are preliminary assessed. In the third section, a group of indicators described in the methodological appendix is applied to test –through non-parametric statistics and econometric models– the main hypothesis and some aspects of the model detailed in the first section.

1. Theoretical framework

Important changes in the international scene have recently occurred as a consequence of market globalization and the more extended opening processes derived from the emergence of new information-intensive techno-organizational paradigms. The conception itself of competitiveness as a purely macroeconomic and sectorial phenomenon determined by static comparative advantages or factor endowment has therefore reached a crisis point.

These traditional factors that constituted the key elements of competitiveness in the previous scenario are further complemented by others which depend on agents' actions and the nature itself of the economic and social environment. Consequently, competitiveness arises from the scene as a systemic phenomenon, and both the agents' behavior and the local degree of development become significant for the emergence of competitive advantages.

New conceptualizations start from the idea that comparative advantages may be created and have, therefore, a dynamic nature. In passing from the orthodox view of static comparative advantages to this idea of dynamic comparative advantages, technology and the development of –formal and informal– learning processes play a key role. The economic success of enterprises, regions and countries is conditioned by the ability to learn –understood as a socially embedded interactive process– and also by the development of skills among the agents (Ernst y Lundvall 1997).
Knowledge thus acquired cannot be explicitly and thoroughly expressed and, therefore, cannot be converted into information in the sense of a traded asset (Dalbo y Kosacoff, 2000). The conception of technology is consequently highly specifical, involving a legacy, not only of machines and production techniques (Mansfield, 1961; Arrow, 1962; Stoneman, 1983) but also—and fundamentally—a sophisticated system for generating and disseminating the codified and implicit knowledge stored up in each company (Ernst y Lundvall 1997, Bell y Pavitt 1995).

The development of competitive advantages requires not only technology management in a static sense—i.e., the achievement of levels recommended in specialized manuals—but also learning processes (following unpredictable curves) that enable enterprises to improve products and processes, introduce organizational changes, and increase chain complexity at the local level (Lall 1995). Furthermore, in order to make codified knowledge operational (understanding of engineering and design manuals, introduction of scientific knowledge and generic management practices, quality assurance specifications, etc.), organizations also require the tacit or implicit knowledge embodied in organizational routines and in the collective experience of enterprise sectors specifically devoted to R&D, management, production, and marketing. Consequently, the development of implicit skills inside the company results in intangible assets difficult to transfer since knowledge itself is embedded in social networks and depends on the embodied capacity of individuals to recognize similarities (Nightingale 1996). The development of such implicit knowledge may have positive effects on performance and may thus eventually become a barrier to quasi-rent procurement or an actual obstacle for agents who do not possess it.

Within this framework, the degree of interrelationship between codified and implicit knowledge is decisive for the efficiency achieved through learning processes in each company. Moreover, the learning processes involved in sectors having uneven degrees of technological development, do not only include formal training, research
and development capabilities, but also a whole set of informal activities associated with the production process itself, of which agents are not always aware. Such learning is accumulated along the evolutive path of the agents and is embodied in tangible and intangible assets key for the competitive process. However, these assets should be contrasted with the competitive process itself. Thus, while some are degraded and "devaluated" because they do not achieve the minimum thresholds required in the market, others come up as winners and become evident either in the quasi-rents obtained by the agents or in their competitive possibilities in the market.

Agents are thus considered as making decisions within a framework of limited rationality, imperfect access to information, and non-modelable uncertainty. Uncertainty—which is a key element for the analysis—acts as a parameter the agents cannot express in probabilistic terms. Since the missing information cannot be provided, and since agents make decisions within such a framework, a higher degree of heterogeneity in evolutive paths should be expected in more uncertain scenarios (Nelson 1991).

Thus, within an analytical framework where information and rationality are imperfect, the enterprise is faced with an uncertain scenario it cannot anticipate, where technology is not limited to the purchase of machinery accompanied by codified information: therefore, cognitive factors and formal and informal learning processes play a key role for the competitiveness of the agents involved.

In this sense, responses aimed at devising, planning, implementing developments and improvements in products and processes, carrying out organizational changes, and developing new relations with the market become increasingly important for the emergence of competitive advantages. In other words, through the competitive process itself and through differentiation, agents tend to increase their “technological capabilities” (Lall 1992) in the sense of their potentialities to convert generic knowledge into specific knowledge based on the static and dynamic
skills derived from formal and informal learning (Yoguel and Boscherini 1996). The development of these skills also requires a whole set of routines the companies build up along their evolutive path. Such routines are a firm-specific tool that partially enables it to reduce and control the strategic uncertainty of the environment and the markets involved. In such a context, the intensity of the learning process inside companies depends not only on the development of internal skills but also on the flow of information and knowledge across the networks they belong to. It also depends on their interaction with the remaining agents and the level of development of the local and territorial system they belong to.

Within this framework, the internationalization of a firm may be thought as resulting from the development of technical and organizational skills which, in turn, are the consequence of the learning processes generated by the firm itself along its path.

From this point of view, the insertion of each firm in foreign markets may be examined. It may be considered as a part of a wider internationalization process requiring the development of learning processes and routines built in along their path.

This analytical approach is outlined in figure 1. On the one hand, export performance is seen as resulting from competitive advantages in prices and the non-price differentiation factors considered by the agents for defining product demand. On the other, competitive advantages derive from a whole set of interactions: i) the development of endogenous —techno-productive, managerial, and marketing skills—; ii) the degree of development achieved in competitive strategies; iii) structural elements; and iv) the development of the environment. First, the development of learning processes and endogenous skills should be highlighted. Endogenous techno-productive skills may be estimated through a proxy approach based on several elements: formal and informal networking, quality assurance, and whether formal and informal teams for R&D exist or not. Management and marketing skills may be estimated from the existence (or not) of a structure, market knowledge, and
promotional activities. Second, competitive advantages depend on strategy levels, which are in turn conditioned by previously acquired endogenous skills. Third, some structural variables such as the activity sector involved, agent size-thresholds, and their age, impose constraints on strategy design and endogenous skill development. Fourth, the degree of development of the environment further influences these three sets of conditions. Thus, for example, in more advanced territorial systems, the learning processes needed are facilitated by a larger flow of information and knowledge, greater resource availability, and a steadier interface between companies and institutions, and the importance of size-thresholds decreases correspondingly (Poma, 2000; Yoguel and Boscherini, 2000). On the contrary, in territorial systems of lesser relative development, differences in size between agents are more significant.

This approach shares some traits with models that conceive internationalization as a step-by-step process involving stages along which companies achieve higher degrees of sophistication and export commitment (Johanson and Wiedersheim-Paul, 1975; Johanson and Vahlne, 1977; Welch and Loustarinen, 1988), though some differences may be clearly noticed. Similarities result from an analogous approach to the process of insertion in foreign markets, mainly focused on its evolutive and firm-specific character and an overall view of the enterprise. However, unlike these models, this approach sees the enterprise evolutive path as a hybrid process. According to this, a clear sequence of stages cannot be identified, and development is mainly based on the emergence of technological and organizational capabilities fostered by learning processes where codified and implicit knowledge is variously transformed.
Based on the above analytical approach and several other background studies devoted to the insertion in foreign markets of Argentine SMEs (Gatto 1995, Moori Koenig and Yoguel 1996), the hypotheses about factors influencing export success are the following:

H1. The exporting success is developed along an evolutive path that requires time.

H2. Exporting success depends on significant techno-productive skills reflected in:
   - high-level quality assurance
   - formal/informal development area
   - predominant cell organization
   - relevant informal connections with other agents

H3. Exporting success is based on important business skills reflected in:
   - high level market knowledge (information on sales channels, product potentialities, main competitors, and customers' preferences)
   - formally established foreign trade area
   - complex promotional activities
   - complex sales channels

H4. As a consequence of H2 and H3, the same goods are produced for the domestic and the foreign markets.

H5. Successful exporters have intense interactions with public and private organizations promoting technological, productive, and business development.

H6. Successful exporters have carried out functional training activities tending to develop technological, productive, and business skills.

2. Methodological approach

These hypotheses are tested in the following sections by contrasting them with data from 80 exporting SMEs which proved successful in the framework of greater competitive pressure and structural reforms characteristic of Argentina in the 90's.
In order to identify successful exporters and to select the sample, an indicator was constructed qualifying the companies' performance during 1993-1999. It is a weighted combination of six quali-quantitative variables ranging from zero to ten:

- Continuity in exports: it measures enterprise stability in the exporting business.
- Exporting growth: it measures the rise in exports between the first year considered and the last one.
- Sustained exporting growth: it measures whether the rise in exports was sustained along time.
- Market diversification: it qualifies enterprises according to the number of export targets during 1999.
- Target market complexity: companies are classified according to the export percentage shipped in 1999 to relatively complex markets -other than the extended MERCOSUR.
- Evolution of complexity at the target markets: companies are classified according to the difference between the complexity indicator computed for the first exporting year and its value for 1999.

Over a total of 3,843 exporting SMEs, 786 companies were identified that achieved an average higher than 5. These companies represent 21% of exporting SMEs and account for 43% of the exported amount in the stratum. From this subset, a probabilistic sample of 80 companies was surveyed.

3. Main findings

This section describes the main features of the panel used for this study in terms of their dynamics in domestic and foreign markets, their structural characteristics —such as size, age, and industry sector— and the development of management, marketing, and techno-productive skills.
Main structural features and recent dynamics

The group of 80 surveyed export firms includes companies selling yearly an average of 4.2 million pesos and employing approximately 45 people\(^2\). The relationship between turnover and employment is, from the start, a differential trait not only with respect to other Argentinean SMEs—with a per person turnover approximately 40% below this sample— but also with respect to the industrial average.

Although various sectors are involved, companies producing and exporting goods that satisfy technical and design specifications are predominant\(^3\). Besides this prevalence of medium-sized firms of high productivity selling differentiated products, a second distinctive feature is the highly positive dynamics these companies have shown along the 90's, which is significantly higher than the average among SMEs (Moori Koenig and Yoguel, 1999). Most companies in the group reported increases in sales, both in the expansive phase of the first years of this decade and in the later period, characterized by the impact of consecutive crises in the Argentine economy (see table 1)\(^4\).

**TABLE 1**

Another distinctive feature is the high export ratio, reaching on an average 30% of the total sales in 1999. These figures are substantially higher than those of average SMEs and that of the industry as a whole. In fact, the average export ratio in industry for 1999 was approximately 16% of the total sales, whereas for big business it reached 18%. Moreover, in the case of SMEs, the average export ratio (4.4%) decreases to 2% of sales when successful exporters are excluded (see table 2).

**TABLE 2**
The high degree of insertion in foreign markets achieved by these companies is the outcome of a highly virtuous evolutive path involving a considerable period of time. Thus, whereas a high percentage of the agents did not export by the early 1980's, conditions were almost the opposite by the end of the 1990's (see table 3).

**TABLE 3**

It should be highlighted that the increasing insertion in foreign markets of most companies considered is included in a general framework of total sales growth for the same period. This might reflect an increase in operational scales and, besides, a high competitive positioning in the market. These data show that insertion in foreign markets should be considered a long-term process influenced by environmental conditions but based mainly on the development of microeconomic skills.

In this sense, although an important percentage of these companies (53%) started exports in the last ten years, the remaining ones started exports during the import-substitution period or during the crisis of this latter model, characterized by violent macroeconomic ups and downs (1976 – 1989). However, even in the case of companies that started exports during the last decade, none of them is utterly new in industry. Only 34% of the companies that started exports in the 90's are young, against 44% founded before 1976. That is to say, companies with a previous production background prevail among successful exporting SMEs. Their former 10-15-year experience enabled such virtuous insertion in foreign markets. This confirms the importance of the evolutive path and learning processes that require time to evolve and thus contribute to competitive advantages.
Most companies in the sample started to export acting on their own initiative and based on relatively simple merchadising mechanisms and channels.

In order to identify business opportunities, most companies resorted to journeys abroad, exhibitions and trade delegations, personal visits and requests from potential purchasers. Other potentially relevant means for identifying trading opportunities, such as public agencies, sectorial chambers or banks were less frequently used. In most cases, the period between the identification of some business opportunity and the first shipment did not exceed one year. Nevertheless, if we consider the time needed to consolidate their foreign positioning and attain regularity in exports, the period involved was on an average of approximately three years. In short, consolidating businesses abroad is significantly more difficult than merely starting such operations. And, again, learning plays a key role in the export business of SMEs.

Development of marketing skills

The companies under study have developed an important foreign trade structure including on an average 2-3 individuals (slightly more than 5% of their staff). Their exporting dynamics is apparently associated with a minimum threshold in human resources devoted to these activities. In 95% of the companies studied, the people directly involved in foreign trade activities belong to a stable team, and in half of the cases examined they constitute a department or have managerial status. The existence of such a structure enabled them to carry out promotional activities, achieve a significant market knowledge, and undertake the specific adaptive actions needed to export.

The intensity of promotional activities is evidenced by the importance these companies attach to attending trade fairs and exhibitions in the target markets, mostly out of their own effort.
All these companies have also acquired a substantial trade knowledge with respect to demand, the characteristics of competitors, and regulations on exports. Over 70% of the whole sample have knowledge of the following data at their main target market: i) market size and potential demand; ii) how to locate potential customers; iii) existence of similar domestic products; iv) necessary adaptive efforts to enter the market; v) different existing segments; and vi) whether tariff preferences exist or not. Most companies keep systematic records and quotations of the exported products. Sources for such skills are basically their current customers, journeys abroad, and visits to different markets. Argentine embassies and trade attachés abroad are very seldom contacted, as is to be expected within a general framework of institutional weakness with respect to exports.

In recent years, promotional activities and information retrieval have grown more complex through the use of Internet, e-mail, and digital databases. All the companies involved make good use of the new technical possibilities associated with ICTs in terms of information and communications. Nevertheless, electronic transactions are yet scarce.

Development of techno-productive skills

The significant insertion in foreign markets of these companies is further accompanied by the development of techno-productive skills higher than those of most Argentinean SMEs (Yoguel and Boscherini 2000, Yoguel and Rabetino 1999, Milesi 2000, Bisang and Lugones 2001). This is made evident in a high level of quality assurance, a cellular work organization, the importance of training, and the existence of certain groups which in some cases constitute genuine R&D laboratories, all of them necessary for success in exports.
Thus for example, over one half of these firms comply with national or international quality standards, and approximately 25% of them comply with ISO9000 or other relatively complex standards (those of the Food and Drug Administration, for example). Besides standard certification, most enterprises have set up check points where follow-up records are maintained in order to estimate various statistical data for product and process quality assessment.

The development of quality assurance is related to the prevalent cellular organization of work in 40% of the firms. However, despite the quantitative importance of cellular work, it is only an evidence of an incipient trend, since workers participation in programming or reprogramming automated machinery, as well as in the design, improvement, and development of products and processes is yet scarce. Another evidence of the incipient character of a post-fordist organization of work is provided by the fact that in two thirds of these companies the variable salary represents less than 10% of the total.

The development of training programs, the existence of formal or informal development teams, as well as formal and informal relations with other agents are key elements for techno-productive skills in all these companies.

First, two thirds of them carry out continuous training activities aimed at increasing their technical and commercial skills. Second, a slightly lesser number of firms include informal teams dedicated to developing products and processes, new organizational forms, and new relationships with the market. In 30% of these enterprises, such teams constitute a research and development lab. Third, nearly 80% of the companies have informal relations with other businessmen from Argentina or abroad that contribute to improve their commercial and productive performance (mainly relations with customers, colleagues, and —to a lesser degree— suppliers). In half of the cases studied, such informal relations are aimed at: i) the possibility of doing business
together; ii) quality assurance; iii) commercial management; iv) product and process technologies; v) access to information; and vi) product design.

Such informal relations often channel the implicit knowledge and thus contribute to the development of skills. However, their effectiveness is limited by the thematic poverty of interactions. The unevenness of discourse levels that cannot be successfully combined is the most likely explanation for this fact. The existence of such a strong connection in a private-private level greatly contrasts with the scarce importance of connections with public and intermediate institutions. Finally, unlike informal connections, formal cooperation agreements from the 90's have had less significance, though 25% of the companies did sign them.

**Competitive advantages and constraints**

In accordance with the actions undertaken by these firms in the productive and commercial sphere, their main advantages at foreign markets are focused on quality and the distinctive features of goods, as well as on services and delivery. Besides, new products introduced in the last four years provided 50% of their total 1999 exports, a fact which clearly evidences the significant innovative performance of these companies. In most cases, export products are the same offered in the domestic market. This confirms that exporting efforts —embodied in the development of differentiation factors— are included in the general strategy of these companies.

Despite such excellent productive and commercial features, these companies are faced with various difficulties that restrict their insertion in foreign markets. Main problems are associated with lacking or inadequate funding for production and exports, and with low real exchange rate. The high costs of privatized utilities and shipping —associated with customs clearance, handling of cargo at the port, and insurance— as well as quasi-tariff barriers and inefficient transport are also very important.
Almost all the companies considered operate through banks for their export business, but 70% of them neither finance nor prefinance exports through bank accommodations. Most of them emphasize that interest rates are inadequate, or that credit processing, credit ceilings, and credit guarantees are inappropriate. This is an important constraint because it defines a ceiling for export growth equal to the available working capital of the company and limits further development.

Policies and institutional connections

Within this framework, most of these companies make a limited use of existing policies. Some well-known instruments used by them are: value-added tax deductions, temporary admission, tax drawbacks, and MERCOSUR preferences. General and special export-promotion regimes are better known and more widely used than those specifically devised for SMEs. However, in the case of the general regimes they resort to, most of the companies surveyed complain about deficiencies in implementation which result in noncompliance and delays that conspire against their effectivity.

Connections with other institutions in order to improve production management are not very important. Exporting SMEs reproduce the behavior of most SMEs and mention in the interviews institutions where such skills are lacking, such as sectorial chambers and banks. Concerning institutions more directly associated with the development of technical skills, they mention the universities and other technical support agencies. The importance of private consultants is significantly lower. All this indicates the limitations of institutional systems as regards the development of skills.

4. Hypothesis testing and identification of key factors for exporting success

The above mentioned results evidence that successful exporting companies share microeconomic excellence features in production, management and sales. On the one
hand, they possess endogenous skills centered on quality assurance, development teams, and a prevailing post-fordist work organization. On the other hand, as regards organizational and commercial aspects, they have developed specific structures for foreign trade enabling them to acquire business skills such as intense promotional activities and a market knowledge.

Since they have carried out proactive strategic activities to generate endogenous capabilities, there is a high content of non-price factors in their competitive advantages.

Although such features are generally common to all these successful exporters, some degree of variance may be noticed with respect to behavior, strategy, capabilities, and performance in foreign markets. Even if all the companies included in the survey are successful exporters, there is a wide range of difference in the degree of success (between 5 and 10, see point 2). This section is focused on this variance and tends to determine additional elements to confirm the theoretical model and the hypothesis discussed in the first section and supported by the preliminary results reported above.

In order to reflect variance among the surveyed companies, a whole set of indicators was designed –see Table 4 and the methodological appendix– representing strategic activities, the degree of development of endogenous skills, and some structural characteristics. These indicators are intended to reflect the basic elements in the theoretical model described in the first section (see Figure 1). Thus, a set of indicators, such as quality assurance level, prevailing work organization, and relevance of formal and informal development activities, are estimated as proxy factors of technological skill development. As regards management and marketing, the following elements are considered: whether a specific exporting structure exists; the intensity of promotional activities, market knowledge, and awareness of existing public policies. Other two indicators reflect the importance of training activities and the number of years needed for consolidating foreign market positioning. They are further
complemented by indicators reflecting: i) the offensiveness of strategies; ii) the weight of inter-enterprise connections for strengthening agent skills; and iii) the development of competitive advantages centered on non-price factors, complex adaptive activities, and the relative weight of new products in total sales. Finally, other indicators representing company-size and years in the market have also been considered.

**TABLE 4**

From this set of indicators, connections between the analytical model posited in section 1 may be examined in order to confirm the hypotheses involved. The analysis is based on computing non-parametric relationships between all the indicators applying Kendall's correlation coefficient. It is also based on a set of econometric models proposed to further examine some partial relationships, mainly between strategy and endogenous capability indicators. Table 5 summarizes the results of the statistical tests performed. The probability of accepting the null hypothesis, i.e., of accepting that no relationship exists between the indicators involved is also indicated. The estimated econometric models are detailed in the statistical appendix.

First, it should be observed that companies showing the highest exporting performance are those that have the most offensive strategies. Among offensive activities, those focused on the techno-productive sphere and management and marketing were mainly considered. The exporting performance is directly associated with total sales performance. This confirms the importance of the global strategic component in successful exporting companies (see Table 1 statistical appendix).

The most offensive strategies are apparently associated with higher levels of endogenous skills, both in the technological sphere as well as in management and
marketing. In addition to the above-mentioned characteristics, this confirms the theoretical framework and working hypothesis.

Thus, from a technological point of view, the most offensive strategies are associated with inter-connected factors that determine the development of competences of these companies: i) level of quality assurance; ii) a high percentage of personnel involved in training activities; iii) a relatively high proportion of workers carrying out activities in cellular organization and taking part in productive decision-making. From the viewpoint of management and marketing, the most offensive strategies are also associated with positive attributes: i) a foreign trade structure with various degrees of formalization; ii) complex promotional activities; iii) high market knowledge; and iv) wide awareness of the available policies.

Concerning the role of learning, statistical and econometric evidence apparently confirms the assumptions made in section 1. There is a positive correlation between a better quality management and the learning period involved. Besides, the length of this period is also associated with overall strategical offensiveness. There is also evidence of a relationship between training activities and the level of techno-productive skills attained: QUAL, R&D, MKNOW, PKNOW, PROM. The strong relationship between training and strategical offensiveness should also be noticed. Finally, the other indicator related to learning processes (LINKS) is also associated with the ability to introduce a more modern organization of work and with the existence of a more offensive overall strategy.

Concerning competitive advantages (ADVAN), the first result of the analysis indicates that there is a strong influence of techno-productive and commercial skills. They are also associated with learning processes derived from specific training activities or formal and informal connections with customers, suppliers, and colleagues. However, since the competitive advantage indicator was defined according to the importance of non-price factors, the result is that the exporting success of the surveyed
SMEs is based on an overall offensive strategy and endogenous technical, productive, and business capabilities which constitute a positive feedback. This is characteristic of learning processes associated with competitive advantages based mainly on differentiation factors. The first econometric model (#1 Table 2 statistical appendix) fully confirms these results. The degree of strategic offensiveness is positively correlated with: technological factors (QUAL and WORK), with a factor that summarizes management and marketing skills (MKNOW), and with the existence of competitive advantages supported by differentiation factors (ADVAN). The second econometric model (#2 Table 2 statistical appendix) confirms the significance of factors that contribute to the learning process. Thus, the level of training and the importance of informal connections with other agents both contribute to increase skills and account for differences in the overall degree of strategic offensiveness.

It is evident from all this that the exporting success of the surveyed companies depends on a whole set of mainly microeconomic interrelated factors. It is also evident that technological or managerial excellence are not enough: they have a systemic character. Thus, for example, companies showing a higher market knowledge rank higher not only in management and marketing attributes (STRUCT, PKNOW, and PROM) but also in technological skills (QUAL).

Regarding the structural characteristics of these companies, relationships between indicators evidence that both size and the number of years in the market are weakly associated with endogenous skills indicators and more strongly related to learning indicators. The third econometric model (#3 Table 2 statistical appendix) confirms this view. The overall strategy neither depends on the size of the company (SIZE) nor on the number of years in the market (AGE). Endogenous factors are thus confirmed and the possibility is open for smaller-sized agents to perform very well in foreign trade.
5. CONCLUSIONS

One of the main results of this study is that the exporting success and the development of competitive advantages among the surveyed companies is supported by significant technological, managerial and marketing endogenous skills operating synergically.

The systemic character of such skills is evidenced by the fact that the high level of proxy factors for technological skills (such as quality assurance, formal and informal development teams, trend towards a post-fordist organization of work) is closely related to a high level of business and managerial skills indicated by a minimum structure threshold, market knowledge, and proactive promotion. Such skills do not result from instantaneous responses of the agents to changing incentive regimes. On the contrary, they result from a long evolutive path involving both learning and unlearning processes where human resource training plays a significant role. In other words, they are process that demand time, have uneven degrees of development, and are ex-post evidenced in synergy sources.

These skills are the consequence of actual actions the companies perform along their evolutive paths with various degrees of rationality. Thus, it is not surprising that the most successful companies in the sample are those which, from an ex-post view of their strategies, show the most offensive characteristics where exports are a key component. This is evidenced by the strong correlation between non-parametric and econometric models and market dynamics, the strategical offensiveness, and the development of endogenous skills.

The empirical evidence for the analytical model proposed in this study further shows that these companies have a high content of non-price components derived from highly specific activities. Such activities are possible within a framework of learning processes which involves codified and implicit knowledge and a minimum threshold of human resources devoted not only to market knowledge but also to
various productive developments. Besides the proactive individual activities of the surveyed companies, informal connections between them and colleagues, suppliers, and customers seem to increase their chance of developing endogenous capabilities apt for competitive advantages. All the surveyed firms have important interactions with other agents which constitute actual cooperation networks in the private-private sphere and are aimed at developing productive and commercial capabilities.

However, the non-automatic character of the whole process, the considerable time required for developing skills, and the need for a group dedicated to increase productive and commercial knowledge limits reproducibility. In this sense, consolidating this group of agents and extending their exporting performance to an increasing number of firms requires conditions different from the prevailing ones in the Argentine scenario: greater coordination with the public sector and other enterprises.

The above results confirm that, as regards competitive advantages, the development of endogenous skills and offensive strategic behaviors count more than sectorial specialization. No significant differences have been found in this sample between companies belonging to sectors where Argentina is traditionally considered as having comparative advantages (commodities and goods intensive in natural resources) and other firms for which, according to foreign trade theories focused on factor endowment, disadvantages for insertion in the foreign market should exist. Results indicate that differentiation elements based on endogenous skills are relatively more relevant than competitive advantages associated with prices, exchange rates (where all the companies from the sample face serious difficulties), and sector of the industry.

The processes carried out by all these companies enabled them to remove differences between goods intended for the domestic market and those targeted at foreign markets. Such differences were highly significant in Argentine exporting companies by the early 1990’s.
Another difference is a lower relative isolation evidenced in strong formal and informal interactions with other agents.

Therefore, an increase of exports from these type of agents may have a substantially higher direct and indirect impact on employment and production than the effect of the prevailing specialization profile, based on goods with scarce added value and products including a high content or imported parts. Of course, this does not mean that Argentina should reject its profile of exporting specialization from the sectorial point of view. This study shows that the insertion in foreign markets should be more complex and should strengthen productive chains and introduce differentiation factors based on a growing amount of specialized services, as well as productive and commercial knowledge.

In spite of the above-mentioned endogenous skills, the surveyed companies are faced with a whole set of constraints that may limit their future expansion. Such is the case, for example, of the exchange rate and the difficulties encountered to offset disadvantages through lower prices. However, most of these companies marked down their goods in the last decade in order to preserve their competitiveness in foreign markets.

It should be highlighted that the scarce use of policies –even in the case of companies which show the highest endogenous skills– evidences a dissociation between enterprises and institutions and indicates that better coordination mechanisms are urgently needed. Since these companies do not perceive that promotional instruments satisfy their requirements, a translation tool is needed to connect supply and demand. Thus, existing promotional instruments might become more effective.

There is another constraint of a more endogenous character: in most of the surveyed companies direct sales are the main sales channel. This may restrict export expansion to businesses the firm is able to manage directly. Nevertheless, this may be
useful when starting or deepening commercial relationships, especially when the goods involved have a high degree of specificity.

Several questions arise regarding how to revitalize Argentine exports and the role of SMEs. The first one is how to consolidate and intensify the insertion of successful SMEs in the foreign markets. These companies are faced with a set of constraints that require specific solutions, mainly their scarce access to funding that limits the expansion of their production and exports to the available own capital. The second question is whether more companies might become successful exporters. Evidences from this study show that successful results in foreign markets require a more virtuous microeconomic path than the prevailing one in most SMEs, a situation which has been discouraged by the Convertibility Plan and structural reforms of the nineties. Such process is neither instantaneous nor automatic. It requires a significant period of time, as well as complex and highly specific learning processes. And it also requires supplier network consolidation and a State policy that envisages agent internationalization among its most important long-term goals.
METHODOLOGICAL APPENDIX

Definition of the indicators

<table>
<thead>
<tr>
<th>A. Indicators of market performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Sales performance (SPERFORM). Agents are segmented into three categories: those showing an increase in sales during the 1990's; those that maintained their sales levels, and those showing a decrease in sales during the same period.</td>
</tr>
<tr>
<td>2. Exporting performance (XPERFORM). The above-mentioned indicator of exporting success is used.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>B. Endogenous skill indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>B1. Technological skills</td>
</tr>
<tr>
<td>3. Quality assurance (QUAL). This indicator reflects the level of quality assurance as evidenced by the existence of regulations and quality management in production.</td>
</tr>
<tr>
<td>4. Organization of work (WORK). It reflects how labor is organized for production and takes into account the percentage of people employed in operating areas who are organized in cells, and the percentage of those working individually, the participation of cells and qualified workers in decision-making, and the percentage of the variable salary.</td>
</tr>
<tr>
<td>5. Development teams (R&amp;D). It reflects the significance of development activities in the company (product, process, and organizational development, as well as connections with the market). The existence of people preferentially devoted to these activities and their relative weight with respect to total employed numbers are considered, as well as whether such groups are formal or not.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>B2. Management and marketing skills</th>
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</thead>
<tbody>
<tr>
<td>6. Foreign trade structure (STRUCT). This indicator is the weighted average of: a) the number of persons involved in foreign trade; b) the degree of stability and formalization of the structure; and c) whether there is people fluent in English among the staff. The</td>
</tr>
</tbody>
</table>
weighting coefficients are 0.2, 0.7 and 0.10, respectively.

7. Complexity of the promotional activity (PROM). This indicator reflects the intensity of promotional activities by considering special brochures for foreign markets, visits to customers abroad, visits from foreign customers, and attendance to international fairs and exhibitions of the sector involved.

8. Market knowledge (MKNOW). This indicator reflects the level of knowledge about competitors and demand at the target market, how the company uses qualified information sources, and the follow-up procedures employed to assess its own exporting performance.

9. Policy knowledge (PKNOW). It reflects the awareness of the company as regards various instruments and public programs that support exports in Argentina. Options examined include: general regimes, specific regimes, specific support programs for SMEs encouraging exports, and bilateral agreements. The total number of instruments, programs, and agreements involved is 22. The indicator is computed as the ratio between total positive answers and the total of alternatives in the list.

**C. Learning process indicators**

10. Training activities (TRAIN). This indicator reflects the effort undertaken by these companies during 1999 in general training activities and those devoted to foreign trade. The percentage of the staff involved in these activities is considered.

11. Exportation learning (XLEARN). This indicator is the average of two variables: a) the period between the first time a foreign business opportunity is identified and the first shipment, and b) the number of years gone by between the moment exports achieve a regular character (as a scheduled and continuous activity) and the moment exports started. Therefore, this indicator reflects the time needed to learn how to do exporting businesses.

12. Inter-enterprise connections (LINKS). This indicator reflects the existence of formal and informal connections (between the companies and their domestic and foreign customers, suppliers, and colleagues) tending to improve their productive and/or commercial performance. It takes into account the complex reality of connections.
D. Strategy and competitive advantages

13. Offensiveness of the global strategy (STRAT). This indicator reflects the degree of offensiveness evidenced in recent strategy by considering decisions relative to overall business and product management since 1997. Offensive actions include: introduction of machinery and equipment, as well as new information/software technologies for enterprise management; system implementation and quality certification; implementation of rewards according to performance; e-commerce; development of web pages; added value for old products; new services and products; and exclusion of low-profitability products. On the other hand, the following are considered defensive strategies: cutbacks in the workforce, control and reduction of operational expenses; sales of fixed assets, freezed wages, introduction of new imported products, and introduction of new third-party domestic products.

14. Competitive advantages (ADVAN). The aim of this indicator is to reflect the particular profile of competitive advantages within each company. It is a composite indicator including: a) the advantages reported by the company at the target market (FADVAN), b) at the domestic market (DADVAN), c) the complexity of the activities undertaken to export (ADAPT), and d) the relative weight of new products in the export mix (NEWPROD). A higher value of this indicator suggests the existence of competitive advantages less likely to be reproduced—that is to say, the existence of “firm-specific” advantages—whereas a lower value indicates exactly the opposite situation.

D. Structural characteristics

15. Years in the market (AGE). It is equal to 1 for companies established before 1976; 2 for companies established between 1976 and 1989, and 3 for companies created after 1989.

16. Company size (SIZE). Agents are segmented into different groups according to their total annual sales: i) less than 1 million; ii) between 1 and 3 millions; iii) between 3 and 8 millions; iv) between 8 and 18 millions.
Table 2

Econometrics models

<table>
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<tr>
<th>Equation</th>
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<th>2</th>
<th>3</th>
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<td></td>
<td>STRAT</td>
<td>STRAT</td>
<td>STRAT</td>
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<tr>
<td>C</td>
<td>0.07</td>
<td>0.41</td>
<td>0.40</td>
</tr>
<tr>
<td></td>
<td>(0.91)</td>
<td>(11.0)</td>
<td>(4.3)</td>
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<tr>
<td>QUAL</td>
<td>0.15</td>
<td>0.07</td>
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</tr>
<tr>
<td></td>
<td>(2.7)</td>
<td>(1.41)</td>
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</tr>
<tr>
<td>ADVAN</td>
<td>0.40</td>
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<td></td>
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<tr>
<td></td>
<td>(3.26)</td>
<td></td>
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</tr>
<tr>
<td>WORK</td>
<td>0.13</td>
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<td></td>
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<tr>
<td></td>
<td>(2.10)</td>
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<tr>
<td>MKNOW</td>
<td>0.26</td>
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<td></td>
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<td></td>
<td>(2.84)</td>
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<td>TRAIN</td>
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<td>0.19</td>
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<td></td>
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<td>(3.03)</td>
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<td>LINKS</td>
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<td></td>
<td></td>
<td>(2.02)</td>
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<tr>
<td>SIZE</td>
<td></td>
<td></td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(1.8)</td>
</tr>
<tr>
<td>AGE</td>
<td></td>
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<td>0.01</td>
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<td></td>
<td></td>
<td></td>
<td>(0.49)</td>
</tr>
<tr>
<td>R2</td>
<td>0.38</td>
<td>0.21</td>
<td>0.04</td>
</tr>
<tr>
<td>Number of firms</td>
<td>77</td>
<td>67</td>
<td>78</td>
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</tbody>
</table>
References


- Boscherini F, Lopez M y Yoguel G (1997), Sistemas locales de innovación y el desarrollo de la capacidad innovativa de las firmas: un instrumento de captación aplicado al caso de Rafaela, Universidad Nacional de General Sarmiento, Documento de Trabajo Nro. 10.


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Footnotes

1/ According to Poma (1998), the new international scenario is accompanied by a lesser control of uncertainty on the part of agents. Thus, for example, within the fordist framework, uncertainty could be controlled from the supply side (through the creation of on-line, automatic, and repetitive production phases) as well as from the demand side, by creating new needs among consumers. On the contrary, in this new scenario “uncertainty has increased because competitive sophistication has increased”.

2/ The size-range of the sample, however, is wide and includes companies with an annual turnover below 1 million pesos (9% of the total), and others which have a turnover above 8 millions. The prevalence of medium-sized companies among successful exporters has also been highlighted in previous studies indicating that minimum size thresholds are needed for a successful insertion in foreign markets. Moori Koenig and Yoguel (1996) estimated this threshold in approximately 0.5 million of annual turnover. However, data from the sample studied herein indicate a considerable increase in the minimum threshold needed for export success, which is now approximately one million dollars of annual turnover.

3/ The interviewed companies export a great variety of goods such as: steel cables, special electric drivers, filters for the industry, aluminum pigments, special tools for the industry, RX equipment, frozen bacteria, flavors and fragrances, office furniture, strings for musical instruments, linen, wines, foods for birds, medicine books, etc.

4/ Despite such a positive dynamics, the percentage of firms with decreasing sales during the second part of this decade outnumbers by three to one, or more, those with a similar performance during the first five years, a fact which clearly indicates greater difficulties in market operations even in the case of these successful companies.

5/ It should be noticed that such a result is not predetermined by the export-increase criterion considered to include companies in the sample of successful SMEs (see methodological
approach) since this criterion considers only the evolution of the absolute exported amount, not the ratio to sales.

6/ This period covers very different scenarios and macroeconomic policies, from the Balance of Payments monetary policy through market opening with overvalued exchange rate in 1981 and the external debt crisis of 1982, to the initial stages of the integration process with Brazil. The general framework was provided by various stabilization plans which failed to overcome inflation and ended up in the hyperinflationary process of 1989.

7/ Similar results are reported by Moori Koenig and Yoguel (1996) in their study of a panel of 250 exporting companies among which they identified a small group (5%) showing a more dynamic evolutive path.

8/ This is also confirmed by other studies focused on the insertion in foreign markets of Argentine SMEs. According to them, exporting efforts should be considered as maturing processes where results cannot be measured in short periods (Moore Koenig, et al, 1994).

9/ However, in 20% of the companies, workers grouped in cells or teams always carry out such sophisticated activities.

10/ Similar results are reported by Angelelli and Moori Koenig (1999), and also by Moori Koenig (1997).

11/ These variables range from 1 (maximum) to 0 (minimum). The elements considered to assign values to the different companies are discussed in the methodological appendix.
FIGURES

Figure 1: Outline of the elements involved in the export success of SMEs

TABLES

Table 1: Firm distribution according to sales (1991-1999)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Increase</td>
<td>73%</td>
<td>79%</td>
<td>62%</td>
</tr>
<tr>
<td>Without change</td>
<td>13%</td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Decrease</td>
<td>14%</td>
<td>7%</td>
<td>26%</td>
</tr>
<tr>
<td>Totals</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Successful Exporting SMEs Survey (UNGS-FUNDES)

Table 2: Argentine Industry Exports According to Agent Size

<table>
<thead>
<tr>
<th>Strata</th>
<th>Number of firms</th>
<th>Percentage of total industrial exports</th>
<th>Export amount per firm (millions of pesos)</th>
<th>Estimated export ratio e/</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Only exporting companies</td>
<td></td>
<td>Exporting and non-exporting companies</td>
</tr>
<tr>
<td>1. Large</td>
<td>668</td>
<td>86</td>
<td>20.8</td>
<td>18.2</td>
</tr>
<tr>
<td>2. SMEs</td>
<td>3834</td>
<td>14</td>
<td>0.6</td>
<td>4.4</td>
</tr>
<tr>
<td>2.1 Successful</td>
<td>786</td>
<td>6</td>
<td>1.3</td>
<td>29.9</td>
</tr>
<tr>
<td>2.2 Others</td>
<td>3048</td>
<td>8</td>
<td>0.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Total</td>
<td>4502</td>
<td>100</td>
<td>36</td>
<td>15.7</td>
</tr>
</tbody>
</table>

Source: Self based on foreign trade records, survey of successful exporters, preliminary data for the 1997 input-output matrix, and 1993 Economic Census

Note: 5634 companies exporting less than 50,000 dollars a year are excluded.
Table 3: Company distribution according to annual export ratio (1980-1999)

<table>
<thead>
<tr>
<th>Year</th>
<th>Did not export</th>
<th>Up to 10%</th>
<th>Between 11 and 20%</th>
<th>Between 21 and 30%</th>
<th>Between 31 and 50%</th>
<th>More than 50%</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>47%</td>
<td>24%</td>
<td>9%</td>
<td>3%</td>
<td>6%</td>
<td>12%</td>
<td>100%</td>
</tr>
<tr>
<td>1989</td>
<td>13%</td>
<td>26%</td>
<td>26%</td>
<td>11%</td>
<td>8%</td>
<td>15%</td>
<td>100%</td>
</tr>
<tr>
<td>1995</td>
<td>3%</td>
<td>24%</td>
<td>24%</td>
<td>15%</td>
<td>14%</td>
<td>21%</td>
<td>100%</td>
</tr>
<tr>
<td>1999</td>
<td>0%</td>
<td>14%</td>
<td>13%</td>
<td>17%</td>
<td>22%</td>
<td>33%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Source: Successful Exporting SMEs Survey (UNGS-FUNDES)

Table 4: Indicators

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Years in the market (AGE)</td>
<td>Offensiveness of the global strategy (STRAT)</td>
<td>Training activities (TRAIN)</td>
<td>Quality assurance (QUAL)</td>
<td>Foreign trade structure (STRUCT)</td>
<td>Competitive advantages (ADVAN)</td>
<td>Sales performance (SPERFORM)</td>
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<td>Company size (SIZE)</td>
<td>Export learning (XLEARN)</td>
<td>Export learning (XLEARN)</td>
<td>Work organization (WORK)</td>
<td>Complexity of promotional activities (PROMO)</td>
<td>Exporting performance (XPERFORM)</td>
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<td></td>
<td>Inter-enterprise connections (LINKS)</td>
<td>Development teams (R&amp;D)</td>
<td>Development teams (R&amp;D)</td>
<td>Market knowledge (MKNOW)</td>
<td>Awareness of policies (PKNOW)</td>
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*For an operational definition of these indicators, see the methodological appendix*
<table>
<thead>
<tr>
<th>INDICATORS</th>
<th>STRUCTURAL CHARACTERISTICS</th>
<th>STRATEGY</th>
<th>TECHNO-PRODUCTIVE CAPABILITIES</th>
<th>MANAGEMENT AND MARKETING CAPABILITIES</th>
<th>LEARNING PROCESS</th>
<th>COMPETITIVE ADVANTAGES</th>
<th>MARKET PERFORMANCE</th>
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<tbody>
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</table>

**Note:** The probability of exceeding the threshold is less than 1%.