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Relationships Between Miles and Snow Strategic Types and Organizational Performance in Polish Production Companies

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Abstract

Purpose: Miles and Snow's conception of strategic types is the most popular and extensively studied typology of strategic choices. Consequently, in recent years it has been related to organizational performance measures. Despite numerous studies conducted in different environmental and organizational settings, the research results of relationships between strategic types and organizational performance are ambiguous. In this paper, we seek to advance the knowledge regarding how a chosen strategic type affects organizational performance measures in the transition economy of Poland.

Methodology: Using quantitative research results, on the basis of data from 96 organizations we statistically test four research hypotheses.

Findings: Research results reveal the existence of "clear" strategic types in majority of companies but highlight moderately strong relationships between declared strategic type and organizational performance. In turn, they suggest that Prospector and Analyzer strategic types promise slightly higher performance than Reactor and Defender types.

Originality: This research project on strategic types in SMEs in a transition economy is one of few dealing with this topic that have been conducted in Eastern European countries to date.

Keywords: Miles and Snow Strategic Types, organizational performance, quantitative research results

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Introduction

In the last 50 years, researchers have published numerous studies on strategic issues in general (Mantere, Schildt and Sillince, 2012; Ozcan and Eisenhardt, 2009) and strategic types in particular. Among the most studied typologies of strategic types, one can identify Porter's strategies (Kotha and Vadlamani, 1995), Mintzberg's typology (Doty, Glick and Huber, 1993), Walker and Ruekert's (1987) strategic types, Ansoff's (1987) typology, and Miles and Snow's (1978) typology. Among these, the typology created by Miles and Snow (1978) has acquired significant attention and has been studied extensively all over the world (Laugen, Boer and Acur, 2006; Tang and Zang, 2012; Hu and Hafsi, 2010; Pittino and Visintin, 2009; Oosthuizen, 1997; Rodriguez and Ventura, 2003; Fiss, 2001). Although Miles and Snow's typology of strategic choices, understood by the authors as the decisions by which a company adjusts to the nature of and changes in the environment (Desarbo, Di Benedetto, Song and Sinha, 2005), has been the subject of extensive studies in different parts of the world, we were able to locate only a few studies employing this typology in transition economies in post-Communist countries (Csepeti, 2010).

The management approach in transition economies, due to these economies' historically shaped specificity, strongly differs from that of other countries in the same region (i.e., Western European countries), as well as in the rest of the world (Shinkle and Kriauciunas, 2012). These differences will most likely disappear over time, but now, 20 years after the transition, they continue to influence the way organizations operate. The exogenous shock that significantly changed the external business environment in the late 1980s and early 1990s influenced not only individual behaviors (Tonoyan, Strohmeyer, Habib and Perlitz, 2010) but also the way organizations act (Kriauciunas and Kale, 2006) and make their strategic choices. This is specifically because of so-called imprinted modes of operation that are entrenched in both individuals' minds and organizations. These imprinted, socialistic values and approaches to management problems imply that, despite more than 20 years of transformation, Polish organizations tend to act differently in comparison to other organizations located in Western Europe (see Kriauciunas and Kale, 2006). The above arguments allow us to reason that it would be not only interesting but also beneficial for theory and practice to examine one of the prevailing strategic perspectives – specifically, Miles and Snow's typology of strategic choices in transition economies, especially since such attempts are scarce in the literature and may differ from the ones used by companies located in well-developed economies. Moreover, researchers suggest the need for enriching future research with different business or cultural contexts of other countries, such as those of the European Union or Eastern European countries (Desarbo, di Benedetto,

Song and Sinha, 2005). Therefore, the main objective of this paper is to test Miles and Snow's strategic types in transition economy conditions, as well as to assess relationships between firms' strategic choices and organizational effectiveness.

In order to fulfill the aim of the paper, we first review the previous literature, on the basis of which we formulate hypotheses. In the next part, we present the methodology of an empirical study carried out in 96 production enterprises located in southern Poland in September–November 2012. In the next part research results are presented. The paper finishes with discussion and implications for theory and practice.

Theoretical background

Miles and Snow typology: 40 years of research

In recent years, Miles and Snow's strategic choices typology has been one of the most important and intensively studied typologies on this subject throughout the world (Aragon-Sanchez and Sanchez-Marin, 2005; Csepeti, 2010; Fiss, 2001; Hu and Hafsi, 2010; Laugen, Boer, and Acur, 2006; Oosthuizen, 1997; Rodriguez and Ventura, 2003; Slater and Olson, 2000; Tang and Zang, 2012). The popularity of Miles and Snow's typology can be attributed to different reasons; however, its comprehensiveness (Zahra and Pearce, 1990), organizational level of analysis, and simplicity are key factors that draw researchers' attention. To show the extent to which the typology has been used, we conducted a literature review employing three basic assumptions (since the papers were too numerous to present an exhaustive list): (1) we reviewed all papers containing empirical research results that were published after year 2000; (2) we reviewed older studies if published in highly influential journals (i.e., *Academy of Management Journal*, *Academy of Management Review*, *Journal of Management*, *Administrative Science Quarterly*, *Strategic Management Journal*, *Journal of Business Venturing*, *Entrepreneurship Theory and Practice*, *Journal of Management Studies*); and (3) we reviewed papers only if they are available in the EBSCO or ProQuest database. Results of our research are presented in Table 1.

Several conclusions can be drawn from the literature review. First, Miles and Snow's conception is widely used all over the world; however, studies in transition countries are scarce and do not appear in well-recognized journals. Second, the typology is mostly studied in relation to organizational performance and competitiveness measures, as the conceptualization of strategies tends to be perceived as a variable directly affecting financial and non-financial performance of organizations. Third, studies are usually carried out in for-profit companies, though there is also some evidence of the concept being used in not-for-profit organizations. Fourth, in most cases, the conceptualization

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Table 1. Research papers employing Miles and Snow strategic types conceptualization

Author	Year	Country	Industry	Sample	Independent variables (including moderating and mediating)	Dependent variables	Cronbach's alpha
Akingbola K.	2006	Canada	79 nonprofit organizations, 7 case studies	N=79	Strategic orientations – Miles and Snow from Zajac and Shortell (1989) 1-7 point scale, 1 and 2 – defenders, 3,4,5 – analyzers, 6,7 prospectors	HRM – level of development and importance of HRM (recruitment, compensation, training, labour relations), change in HRM, control variable (size – number of employees)	–
Andrews R., Boyne G.A., Law J., Walker R.M.	2009	Great Britain, Wales	Heads of service and middle managers from Wales local authorities	N=90 services, 237 informants	Miles and Snow archetypes (prospector, defender, reactor)	Strategy formulation (rational planning, logical incrementalism), organizational structure, implementation	0.586-0.928
Aragon-Sanchez A., Sanchez-Marin G.	2005	Spain	Small and medium sized enterprises	N=1351	Strategic orientation (Miles and Snow typology) – the paragraph method, only defender, prospector, analyzer	Technological position and innovation, flexibility and organizational design, cooperation, human resources, firm performance (ROI, knowledge and experience in the business, ability to provide quality products, capacity to develop new products and processes, ability to manage and work in a group, workforce productivity, firms responsibility concerning the environment, control variables: firm size, education level, family business (yes/no)	0.69-0.84
Buchko A.A.	1994	The United States	Automotive sourcing industry	1st test: N=137, Retest: N=56	Miles and Snow typology,	Information on amplitude: percentage of sales attributable to innovation, perceived extent of change in their firms productions' processes in the last five years	–

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Desarbo W.S., Di Benedetto C.A., Song M., Sinha I.	2005	China, Japan, The United States	Strategic Business Units of companies listed in Ward's Business Directory, Directory of Corporate Affiliations, World Marketing Directory	N=549	Market-linking capabilities, technological capabilities, marketing capabilities, information technology capabilities, management capabilities, environmental uncertainty, Strategic orientation (Miles and Snow typology)	Performance: total revenue-total variable cost/total revenue; average percentage of ROI over past 3 years, ROI, ROA, relative market shares, overall customer retention, retention of major customers, sales growth rate, overall profit margin relative to objective of BU, overall sales relative to objective of BU, overall ROI related to objective of BU	–
Doty D.H., Glick W.H., Huber G.P	1993	The United States	Healthcare, manufacturing, education, financial, retail industries	Two step study design: 128 and 104 organizations	Mintzberg ideal types, age and size, environmental complexity, environmental turbulence, analyzability, number of exceptions to routine operations in the technology, coordinating mechanisms, vertical and selective decentralization, contextual constructs: environmental turbulence, environmental predictability, technology; structural constructs: decentralization, formalization, specialization, environmental scanning; strategic construct: Miles and Snow, product market development, focus on efficiency, scope, strategic clarity, futurity	Organizational effectiveness: resource acquisition, efficiency, human relations, quality, costs	0.77–0.80
Dvir D., Segev E., Shenhar A.	1993	Israel	High-tech industries (electronics and computer firms having > 20 employees)	N=180	Monitoring technological innovations, Adopting technological innovations	Organizational performance/success dimensions (Profitability level, Generating orders, Generating new opportunities, Preparing the infrastructure for the future)	0.68 0.76

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Table 1. (Continued)

Author	Year	Country	Industry	Sample	Independent variables (including moderating and mediating)	Dependent variables	Cronbach's alpha
Fiss P.C.	2011	The United States	High technology, manufacturing firms	N=205	Fuzzy set qualitative comparative analysis on Miles and Snow typology; organizational structure (formalization – 9 survey questions, centralization – 5 survey questions, administrative complexity, size – number of employees), Porters Strategic Types, environment – rate of change, uncertainty, dynamism	Organizational performance: ROA and pretax profits (losses) before deduction of interest and directors emoluments divided by total assets.	0.8 – 0.86
Forte M., Hoffman J., Lamont B.T., Brockmann E.	2000	The United States	Health care organizations (all short-term, acute-care hospitals)	N=235	Organizational form (prior/ after the environmental shift), costs, service offerings (SO) and operating slack (OS).	Organizational performance [total margin (TM), operating margin (OM), total revenue relative to adjusted patient days (TR), the ratio of net operating revenue to the total number of beds for each hospital (NOR), and percentage of occupancy (OCC)].	–
Hambrick D.C.	1983	The United States	Individual business units	N=1230	Strategic orientation (Miles and Snow typology), Environment (product life cycle stage and industry new product innovation), Market Share (Share leader, share follower), Entrepreneurial Task, Engineering Task, Competitive Devices, ROI, CFOI	Organizational performance (measured by profitability, cash flow, and market share change).	–

Hu H., Hafsi T.	2010	China	Executive alumni network of Sichuan University Business School	N=259	strategic capabilities, area (west China, east China) – ownership (state-private)	Strategic choice	0.652-0.893
James W.L., Hatten K.J.	1995	The United States	Service industry (banking)	N=408	Strategic archetype, Strategic orientation (Miles and Snow typology)	Secondary variables: size, average return on assets, average return on equity, average leverage, average net interest spread, average proportion of nonperforming loans, variance in return on assets, variance in leverage, variance in proportion of nonperforming loans.	–
Kabanoff B., Brown S.	2008	Australia	Listed Australian firms, analysis of reports/ statements	N=1038	Miles and Snow strategies identified in reports/ statements, managerial cognitions	Financial performance: ROE, ROA, share price by pre-abnormals earnings per share.	–
Laugen B.T., Boer H., Acur N.	2006	Australia, Denmark, Norway	Manufacturing companies	N=55	Strategic orientation; market, cost/price, time, design/ technology, organization	New product development	–
McDaniel S.W., Kolari J.W.	1985	The United States	Banks	N=279	Bank demographic characteristics (bank size, bank type)	Organization Strategic Marketing Response (product, place, pricing, promotion, marketing research, integration/diversification strategies, new business strategy)	–
Peng, Tan, Tong	2004	China	Home appliance electronics industry (TVs, VCRs, DVDs, microwaves	N=201	Environment (hostility, dynamism, complexity), strategic orientations (risk-taking, proactiveness, aggressiveness)	Performance (after-tax ROS, sales growth, competitive position)	0.82-0.92

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Table 1. (Continued)

Author	Year	Country	Industry	Sample	Independent variables (including moderating and mediating)	Dependent variables	Cronbach's alpha
Pittino D., Visitin F.	2009	Italy	Small and medium sized companies from Friuli Venezia Giulia	N=141	Miles and Snow strategy: product innovation, process innovation, business model innovation, innovation inputs	Profile and dynamics of entrepreneurial leadership, profile of owners (family/non family), profile of specialization	0.544-0.789
Rodríguez J.M., Ventura J.	2003	Spain	Manufacturing industry	N=120	Human resource management practices (practices relating to Staffing, Performance appraisal, Compensation, Training and development), employee turnover, productivity, the firm's size (estimated by the total number of full-time employees), the activity sector (distinguishing between high- and low-technology sectors), the life-cycle stage (differentiated between growth and maturity), the level of market and technological turbulence of the sector in which the firm operates.	Organizational performance (firm return on assets, firm total sales growth and overall firm performance/success).	–
Ruekert R., Walker O.	1987	The United States	95 respondents employed by three business units pursuing different strategies within	N=95	Strategic orientation (Miles and Snow typology), Environment (complexity, stability), Business Unit Structure (frequency	Conflict and organizational performance	–

						of conflicts, formalization of the relationship, reported use of conflict resolution mechanisms, perceived effectiveness of conflict resolution, perceived effectiveness of marketing's relationship with R&D, level of conflict between marketing and R&D, formalization)		
	the same Fortune 500 manufacturing firm.							
Shortell S.M., Zajac E.J.	1990	The United States	Health care organizations (hospitals CEOs)	N=574	Entrepreneurial component, Overall emphasis on new services and markets, Diversified services, Diversified services added in past two years, Ratio of outpatient to inpatient services, High-technology services, Planned diversified services, Percentage of high-growth services, Emphasis on new services and new markets for core services, Diversified services two years in future, New services offered in most recent two years, High-technology services offered by intended strategic orientation, Diversified services planned by intended strategic orientation, Administrative component, Planning formality, Planning innovativeness, Market research.	–	–	

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Table 1. (Continued)

Author	Year	Country	Industry	Sample	Independent variables (including moderating and mediating)	Dependent variables	Cronbach's alpha
Slater S.F., Olson E.M.	2000	The United States	Sales executives in manufacturing firms	N=278	Strategic orientation (Miles and Snow typology), Multiple sales force management practices (selling strategy, internalization of selling activities, extent of managerial supervision/autonomy, focus on salesperson control, salesperson compensation). Firm size, product complexity, market turbulence.	Organizational performance (profitability and market performance).	0.874
Slater S.F., Olson E.M.	2001	The United States	Manufacturing and service firms: 132 (63 percent) manufacturers 76 (37 percent) service providers	N=208	Marketing strategy type – Aggressive Marketers, Mass Marketers, Marketing Minimizers and Value Marketers (Market research, Segmentation/targeting, Product line breadth, Product innovation, Product quality, Customer service, Premium pricing, Selective distribution, Advertising, Internal sales force, Support to promotion process)	Organizational performance (profitability and market performance – sales and market share effectiveness)	0.7
Tang Z., Tang J.	2012	China	Small and medium-sized enterprises (SME) - manufacturing and service industries.	N=155	Organizational variables (firm size, organizational routine, firm age), Environment (complexity dynamism munificence), Entrepreneurial Orientation (EO)	Organizational performance (profitability, sales, sales growth rate, market share, net profit, gross profit, cash flow, return on investment, product innovation, and process innovation)	0.66- 0.75

Source: prepared on the basis of literature review

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is characterized by a high level of internal consistency; however, Cronbach's alpha was not calculated in all cases. All of this evidence leads to the conclusion that the typology is widely known and well-studied; however, it has mainly been used in well-developed economies, and research results on Miles and Snow's strategic types in transition economies have not appeared in recognized sources.

Several premises underlie the typology. The first of these is that there are four generic strategic orientations that are observable in business, and the variable that helps to distinguish them is the ability and willingness to accept change in the organizational field of operation. Miles and Snow (1978), in developing their framework, examined interrelationships of various attributes—product/market entry behavior, technology, structure, managerial processes, and power distribution—within each strategic type (Miles and Snow 1978; Snow, Miles and Miles 2005). The four orientations are outlined below.

Prospectors endeavor to pioneer in product/market development by offering a frequently changing product line, and they compete primarily by stimulating and meeting new market opportunities. They generally devote more resources to entrepreneurial tasks, monitor evolving trends in the marketplace and new product development, and are led by a dominant coalition that possesses expertise in marketing and R&D (DeSarbo, Di Benedetto, Song and Sinha, 2005; Kabanoff and Brown, 2008). They largely avoid commitment to a single type of technological process and facilitate flexibility in organizational operations. As Miles and Snow conclude, they rely on participative and decentralized decision making and tend to have complex coordination and communication mechanisms (Miles and Snow, 2003).

In contrast, **Defenders** engage in little or no new product/market development, place a high priority on improvements in efficiency, focus on engineering tasks, and are led by a dominant coalition composed of finance and production personnel (Andrews, Boyne, Law, and Walker, 2009; Pittino and Vistin, 2009; Tang and Tang, 2012). They typically prefer to create a stable set of products and customers, and they make substantial efforts toward rationalizing production and delivery of their goods and services (Laugen, Boer, and Acur 2006; Tandon, Sharma and Uma, 2010). Unlike prospectors, Defenders prefer to control relatively secure niches within their industries, competing primarily on the basis of price, quality, delivery, or service. As Miles and Snow conclude, they rely on centralized decision making and tend to have relatively simple coordination mechanisms (Saba and Sharma, 2012; Snow, Miles and Miles, 2005).

Analyzers are an intermediate type, blending attributes of both Defenders and Prospectors. Given their hybrid nature, they make fewer and slower product/market changes

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than Prospectors, and they are less committed to stability and efficiency than Defenders (Pleshko and Nickerson, 2008; Wang, 2008). Depending on the environment, they may emphasize production and strive for improved efficiency when product-market domains are stable, or, in more turbulent product markets, they may closely monitor key competitors and adopt only those innovations that appear to have strong market potential (Hassan, 2010).

Reactors usually do not follow any conscious or consistent strategy and will not change their courses unless forced to do so by the environment (Mantere, Schildt and Sillince, 2012). Doty, Glick, and Huber (1993) describe Reactors as those organizations that fail to achieve a coherent configuration among strategic variables, while Miles and Snow conclude that they tend to be short-term oriented and environmentally dependent (Miles and Snow, 1978). Some argue that, due to its short-term orientation and environmental dependency as well as the lack of a clearly defined strategy, the category of reactor is not a generic strategy type but rather represents, in essence, an absence of strategy (Aragon-Sanchez and Sanchez-Martin, 2005), and therefore it does not necessarily have to be studied.

Miles and Snow's typology has been studies extensively in different parts of the world, and most studies conclude that these four (or three, if not counting reactors) generic strategies exist all over the world. As studies on Miles and Snow's typology have also been carried out in transition economies (e.g., in China; Hu and Hafsi 2010), as well as in other European countries (e.g., Laugen, Boer and Acur, 2006; Pittino and Visitin, 2009; Rodriguez and Ventura, 2003), similar results should also be obtained in other European transition economies (Poland in particular).

The second premise suggests that, over time, organizations create and reveal an observable tactic of dealing with environmental pressures and changes (Fiss, 2011). It describes the manner in which organizations adapt and react to major problems arising from interactions with the environment. These problems are related to market-product choices, as well as to technical and administrative aspects (Andrews, Boyne, Law and Walker, 2009). Therefore, there are multiple discernable strategies functioning in organizations in practice.

Miles and Snow's strategic types and organizational performance

The third premise of this typology is that only three out of four strategies, if adequately introduced, lead to increased organizational performance. These strategies are Defenders, Prospectors and Analyzers. According to Miles and Snow (1978), these types

outperform Reactors, who lack a coherent strategy. Although there is an ongoing discussion on the effectiveness of the strategic types developed by Miles and Snow (Andrews, Boyne, Law, and Walker 2009), researchers generally agree with Miles and Snow's assumptions (Conant, Mokwa, and Varadarajan, 1990; Wright, Kroll, Chan, and Hamel, 1991). The discussion of empirically proven financial effectiveness of Reactors in the air industry was also raised (Snow and Hrebiniak, 1980). Despite inconsistencies in the research results, the performance of Defenders, Prospectors and Analyzers is continuously perceived to be similar and to be strongly dependent upon adaptation and alignment with environmental conditions (Tang and Tang 2012). This leads to the following hypothesis:

H1: The strategies of Defenders, Analyzers and Prospectors lead to significantly higher organizational performance than the strategy of Reactors.

While there is agreement regarding the performance of three of the four Miles and Snow strategic types, there is also a question regarding performance differences among these three archetypes. While some argue they are equally effective, some studies argue that Prospectors should outperform Defenders and that Defenders should perform better than analyzers (Aragon-Sanchez and Sanchez-Martin, 2005). Therefore, the subsequent hypotheses can be posed:

H2: Prospectors outperform Defenders and analyzers in Polish manufacturing enterprises.

H3: Defenders outperform analyzers in Polish manufacturing enterprises.

Miles and Snow's strategic types have usually been related to organizational performance measures, and such relationships have been confirmed in multiple studies (e.g., Fiss, 2011). Despite numerous studies on the aforementioned relationships, there are also studies describing the relationships between strategic archetypes and competitiveness, especially competitive position (Peng, Tan and Tong, 2004) and market share (Tang and Tang, 2012). We assume that marketplace performance constitutes an important component of organizational performance (O'Cass and Weerawardena, 2009). Company position on the market is understood in terms of what the enterprise offers to the marketplace (Wickham 2006, p. 493–494) in comparison to its competitors. Therefore, the following research hypothesis can be posed:

H4: There is a relationship between Miles and Snow's strategic types and organizational competitiveness level, such that companies employing Prospector, analyzer and

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Defender strategies lead to a higher level of organizational competitiveness than the reactor strategy does.

Methodology

Sample selection and data gathering

The research was carried out between September and November 2012 in manufacturing enterprises from the largest cities located in southern Poland (Silesia region; criteria: number of inhabitants greater than or equal to 100,000 citizens). The cities were (from largest to smallest): Katowice, Częstochowa, Sosnowiec, Gliwice, Zabrze, Bytom, Bielsko-Biała, Ruda Śląska, Rybnik, Tychy, Dąbrowa Górnicza, and Chorzów. The number of companies from each city included in the sample was calculated in relation to the number of its inhabitants (data from Polish Central Statistical Office). We decided there would be 101 companies interviewed in the sample. Companies were located in the Teleadreson database. We employed a semi-random sample selection procedure, in which every third manufacturing company from the sample (in a given city) was phoned and asked to agree to participate in the research project until the limit of companies for the given city was achieved. If respondents agreed to participate, the interviewer was sent and data were gathered. If the respondent did not agree, the next third company from the database was chosen.

Table 2. Sample characteristics

Number of employees	Number of companies	Company Age	Number of companies	Legal form	Number of companies
10–49	58	0–5 years	8	Individual activity	11
50–100	16	6–10 years	19	Civil law partnership	20
101–249	8	11 and more years	69	Limited corporation	44
>250	14			Joint stock company	7
				Other	14
Total	**96**		**96**		**96**

Source: own calculations using SPSS for Mac.

Data were gathered using face-to-face interviews with top managers or owners of these companies (the presented research results are only a part of a larger project, and the questionnaire size necessitated using the aforementioned data gathering method). In total, 101 interviews were conducted, of which 5 were dropped due to missing answers. Therefore, data from 96 companies were included in the final sample and further quantitative analysis. Table 2 presents characteristics of companies in three layers: size of the company measured by the number of employees, age of the company (numbers of years on the market), and the company's legal form.

Variables

We adapted Miles and Snow's typology of strategic choices following DeSarbo, Di Bendetto, Song, and Sinha's (2005) questionnaire instead of the paragraph method used by several other researchers. The questionnaire was forward-back translated.

Performance measures

Miles and Snow's strategic types have usually been related to organizational performance measures (Dvir, Segev and Shenhar, 1993; Forte, Hoffman, Lamont and Brockman, 2000; James and Hatten, 1989; Rodriguez and Ventura 1999; Slater and Olson 2001; Tang and Tang 2012), organizational effectiveness (Govindarajan, 1986), and organizational strategic marketing response (McDaniel and Kolari, 1985). When measuring organizational performance, both objective and subjective scales are used (Liu and Fu, 2011), because using only objective measures (e.g., financial) has numerous limitations (Dess and Robinson, 1984). Usual measures of performance/effectiveness were: ROI, ROA, ROE, ROS, sales growth, profitability, and costs, among others (see Table 1 column 8). In regard to performance measures, we have chosen the popular Antoncic and Hisrich (2003) performance scale, which, to our knowledge, is not linked to the Miles and Snow strategies. The scale combines both financial and non-financial measures of organizational performance in relation to competitors. It was assessed on a five-point Likert scale ranging from 1 (significantly lower than in competing organizations) to 5 (significantly higher than in competing organizations). In addition, we also employed a subjective measure of organizational competitiveness. To measure it, we decided to use a single, subjective item as follows: Please rate the competitiveness of your company in relation to other companies in the branch: (1) We are much more competitive than other companies; (2) we are more competitive than other companies; (3) we are equally competitive to other companies; (4) we are less competitive than other companies; (5) we are far less competitive than other companies. Cronbach's alpha for the combined scale equaled 0.797, proving that the scale is reliable and consistent in measuring organizational performance.

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Contextual variables

We have chosen 2 contextual variables for the research project. The first was organizational size, measured by the number of employees in the company (10–49 employees, 50 to 250 employees, or more than 250 employees). Additionally, we also included organizational age (number of years on the market) as a contextual variable. The second variable was standardized using alogarithmic scale, following Doty, Gluck, and Huber (1993) and Tang and Tang (2012).

Research results

In our sample, we identified four strategic types: Prospector (P), Analyzer (A), Defender (D) and Reactor (R). In the event of equal numbers of indications made by respondents, we identified adequate mixed strategic types. Defender (more than 35 percent of companies) was the dominant strategic type. Nearly 21 percent of companies characterized themselves as Analyzers. The Reactor strategy was characteristic of 15 percent of companies, and the Prospector strategic type was identified in 12.5 percent of companies. Apart from clear strategic types, we identified mixed types, and 15 percent of companies fit into this group.

In the next step, we carried out correlation analysis. We decided to use Kendal's Tau, as it is not strongly affected by the normality of the distribution. Results are presented in Table 3.

Correlation table analysis leads to the following conclusions. First, strategic types correlate with organizational performance and increase according to the number of employees; strategic types are also related to subjective measures of competitiveness of an organization. Most organizational performance measures are related, and there is also the evidence for a relationship between measures of organizational performance and the competitiveness of a company. Number of employees is related to return on equity and the computed overall level of organizational performance, and age of the company is related to increased number of employees and market share. These findings lead to the conclusion that the studied constructs are related and that further analyses are necessary to assess the nature of the relationship.

During the analysis of clear strategic types, we also considered control variables: company size and company age. Research results are presented in Tables 4 and 5, respectively.

Table 3. Tau-Kendal Correlations

		1	2	3	4	5	6	7	8	9	10	11	12
1. Strategic type	Coef.	1.000											
	Sig.	.											
	N	96											
2. Increase in number of employees	Coef.	**0.191***	1.000										
	Sig.	**0.025**	.										
	N	**96**	96										
3. Increase in sales	Coef.	0.080	**0.271****	1.000									
	Sig.	0.337	**0.001**	.									
	N	96	**96**	96									
4. Market share	Coef.	0.142	**0.326****	**0.644****	1.000								
	Sig.	0.098	**0.000**	**0.000**	.								
	N	96	**96**	**96**	96								
5. Return on Sales	Coef.	0.133	0.018	**0.345****	**0.277****	1.000							
	Sig.	0.159	0.847	**0.000**	**0.004**	.							
	N	80	80	**80**	**80**	80							
6. Return on Equity	Coef.	0.051	0.144	**0.435****	**0.376****	**0.506****	1.000						
	Sig.	0.605	0.148	**0.000**	**0.000**	**0.000**	.						
	N	74	74	**74**	**74**	**74**	74						

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Table 3. (Continued)

		1	2	3	4	5	6	7	8	9	10	11	12
7. Profitability	Coef.	0.070	0.093	**0.353****	**0.411****	0.195	**0.244***	1.000					
	Sig.	0.455	0.326	**0.000**	**0.000**	0.052	**0.019**	.					
	N	83	83	**83**	**83**	76	**71**	83					
8. Profitability in relation to competitors	Coef.	0.140	**0.440****	**0.691****	**0.676****	**0.510****	**0.592****	**0.418****	1.000				
	Sig.	0.126	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	.				
	N	71	**71**	**71**	**71**	**71**	**71**	**71**	71				
9. Organizational performance (total)	Coef.	**0.185***	**0.444****	**0.701****	**0.694****	**0.495****	**0.601****	**0.438****	**0.648****	1.000			
	Sig.	**0.018**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	.			
	N	**96**	**96**	**96**	**96**	**80**	**74**	**83**	**71**	96			
10. Competitivness	Coef.	**0.263****	**0.242****	**0.201***	0.332**	0.118	0.087	**0.323****	**0.275****	**0.262****	1.000		
	Sig.	**0.003**	**0.007**	**0.022**	0.000	0.239	0.405	**0.001**	**0.005**	**0.001**	.		
	N	**96**	**96**	**96**	96	80	74	**83**	**71**	**96**	96		
11. Number of Employess	Coef.	0.104	0.093	0.144	0.099	0.057	**0.267****	0.125	0.165	**0.165***	-0.128	1.000	
	Sig.	0.232	0.294	0.097	0.268	0.561	**0.009**	0.198	0.083	**0.042**	0.164	.	
	N	96	96	96	96	80	**74**	83	71	**96**	96	96	
12. Age of a company	Coef.	-0.136	**-0.204***	-0.059	**-0.194***	-0.165	-0.087	0.017	-0.192	-0.113	0.133	0.145	1.000
	Sig.	0.131	**0.026**	0.513	**0.035**	0.103	0.412	0.863	0.050	0.177	0.161	0.123	.
	N	96	**96**	96	**96**	80	74	83	71	96	96	96	96

* Correlation is significant at the 0.05 level (2-tailed). ** Correlation is significant at the 0.01 level (2-tailed).
Legend:
Coef. – Tau-Kendal correlation coefficient. Sig. – 2-tailed significance.

Source: own calculations using SPSS for Mac.

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Table 4. Relationships between strategic type and organization size

Size of a company	Strategic type (number of companies in the sample)				
	Prospector	**Defender**	**Analyzer**	**Reactor**	**Total**
10–49 employees	9	21	10	11	51
50–100 employees	1	5	5	2	13
101–249 employees	1	4	0	1	6
>250 employees	1	4	5	1	11
Total	**12**	**34**	**20**	**15**	**81**

Source: own calculations using SPSS for Mac.

On the basis of further analysis, we have not found a significant relation between clear strategic types and company size; however, some differences do exist. In particular, the Defender strategy was the most popular in small companies, as in the whole population; however, the second most popular strategic type among small companies is Reactor. Analyzers and Prospectors are less popular among small companies, while they are more characteristic of medium and large companies.

Table 5. Relationships between strategic type and organization age

Age of a company (in years)	Strategic type (number of companies in the sample)				
	Prospector	**Defender**	**Analyzer**	**Reactor**	**Total**
0–5 years	3	1	3	1	8
6–10 years	2	5	3	3	13
11 and more years	7	28	14	11	60
Total	**12**	**34**	**20**	**15**	**81**

Source: own calculations using SPSS for Mac.

Analysis of clear strategic types in different groups of organizations distinguished by age allows us to state that company age is related to the number of occurrences of different strategic types (Table 5). In the first group (organizations existing for less than 5 years), the most prevailing strategic types are Prospector and Analyzer. Mixed

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strategic types are characteristic of small companies; nearly half of the 15 companies with mixed strategic types were small (employing fewer than 49 people).

The second aim of the research was to address the relationship between identified strategic type and organizational performance. In order to analyze the relationship between the type of strategic choice, aggregated organizational performance and reported levels of competitiveness in relation to competitors, we used a one-way ANOVA with post-hoc tests (NIR) for competitiveness in relation to main competitors. Research results are presented in Table 6 and Table 7, indicating that the strategic type and organizational performance measures are not significantly related. In turn, the level of competitiveness was significantly affected by the type of strategic choice. Therefore, NIR tests were performed to identify which strategic type is significantly more related to the competitiveness of an organization in the sample. Results are presented in Tables 6 (one-way ANOVA) and 7 (NIR Tests).

Table 6. Relationship between strategic types, combined organizational performance and competitiveness – one-way ANOVA analysis

		Sum of Squares	df	Mean Square	F	Sig.
Combined organizational performance	Between Groups	3.971	4	0.993	1.840	0.128
	Within Groups	49.097	91	0.540		
	Total	53.068	95			
Competitive--ness	Between Groups	8.582	4	2.145	4.986	0.001
	Within Groups	39.158	91	0.430		
	Total	47.740	95			

Source: own calculations using SPSS for Mac.

Analysis of Table 7 reveals that companies adopting the Prospector strategic type report significantly higher level of competitiveness in relation to main competitors. Actually, from the point of view of increasing competitiveness, the Prospector strategic type is significantly preferable to any other strategic approach.

In the next step, we analyzed relationships between the strategic type and detailed measures of organizational performance. Research results are presented in a contingency matrix with χ^2 statistics and its empirical level of significance, as well as Yule's φ correlation, Pearson's C, and Cramer's V.

Table 7. Relationship between strategic types and competitiveness – NIR Test results

Dependent Variable	(I) Strategy	(J) Strategy	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Competitiveness in relation to competitors	Reactor	Defender	0.00980	0.20333	0.962	-0.3941	0.4137
		Analyzer	-0.26667	0.22406	0.237	-0.7117	0.1784
		Prospector	-0.91667*	0.25406	0.001	-1.4213	-0.4120
		Mixed	-0.33333	0.23953	0.167	-0.8091	0.1425
	Defender	Reactor	-0.00980	0.20333	0.962	-0.4137	0.3941
		Analyzer	-0.27647	0.18485	0.138	-0.6437	0.0907
		Prospector	-0.92647*	0.22026	0.000	-1.3640	-0.4889
		Mixed	-0.34314	0.20333	0.095	-0.7470	0.0608
	Analyzer	Reactor	0.26667	0.22406	0.237	-0.1784	0.7117
		Defender	0.27647	0.18485	0.138	-0.0907	0.6437
		Prospector	-0.65000*	0.23953	0.008	-1.1258	-0.1742
		Mixed	-0.06667	0.22406	0.767	-0.5117	0.3784
	Prospector	Reactor	0.91667*	0.25406	0.001	0.4120	1.4213
		Defender	0.92647*	0.22026	0.000	0.4889	1.3640
		Analyzer	0.65000*	0.23953	0.008	0.1742	1.1258
		Mixed	0.58333*	0.25406	0.024	0.0787	1.0880
	Mixed strategic type	Reactor	0.33333	0.23953	0.167	-0.1425	0.8091
		Defender	0.34314	0.20333	0.095	-0.0608	0.7470
		Analyzer	0.06667	0.22406	0.767	-0.3784	0.5117
		Prospector	-0.58333*	0.25406	0.024	-1.0880	-0.0787

* The mean difference is significant at the 0.05 level

Source: own calculations using SPSS for Mac.

A statistically significant relationship was identified between strategic type and increased employment (Table 8) as well as for strategic orientation and increase of

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sales (Table 9). Regarding the increase of employment, it can be noted that Prospectors are more willing to employ more people than other strategic types. On the other hand, Analyzers reported higher sales growth than companies with other strategic types.

Table 8. Relationship between strategic type and increase of employment

Increase of employment	Strategic type				
	P	D	A	R	Total
Less then 5 percent	5	29	14	10	58
5–9 percent	1	2	3	2	8
9 percent and more	6	3	3	3	15
Total	**12**	**34**	**20**	**15**	**81**

$\chi^2 = 12{,}04$ (0,06), $\varphi = 0{,}39$, $C = 0{,}36$, $V = 0{,}27$

Source: own calculations using SPSS for Mac.

Table 9. Relationship between strategic type and sales growth

Sales growth	Strategic type				
	P	D	A	R	Total
Less then 5 percent	5	20	7	8	40
5–9 percent	4	7	4	3	18
9 percent and more	3	7	9	4	23
Total	**12**	**34**	**20**	**15**	**81**

$\chi^2 = 5{,}17$ (0,52), $\varphi = 0{,}25$, $C = 0{,}24$, $V = 0{,}18$

Source: own calculations using SPSS for Mac.

On the other hand, Prospectors (mean 2.85) obtain better results than Analyzers (mean 2.82) and Defenders (mean 2.41), which results in support for Hypothesis 2. In regard to Hypothesis 3, it can be noted that Reactors are characterized by the weakest organizational performance. Hence, there is no reason to reject Hypothesis 2, while Hypothesis 3 does not receive support from the empirical evidence. Comparing research results obtained from Defenders and Analyzers, we can state that Analyzers are characterized by higher organizational performance measures (mean 2.82) than Defenders (mean 2.41). This also provides partial support for Hypothesis 3. Analyzed relations between strategic type and subjective assessment of the competitiveness of a company in relation to its main competitors offer partial support for Hypothesis 4. The Prospector

strategy is significantly more related to measure of organizational competitiveness than other strategies; however, the Reactor strategy is not significantly less important for competitiveness than the Analyzer and Defender strategies are.

Discussion and implications

Research results prove that, within Polish manufacturing enterprises (with a majority of SMEs), all strategic types proposed by Miles and Snow (1978) can be identified. In 84 percent of companies, clear strategic types appeared, while in 16 percent we identified mixed strategies. Defender was the most common strategic type, accounting for more than 35 percent of the companies, which suggests that organizations primarily tend to be located in a market niche and concentrate their efforts on maintaining their position on the market. Prospectors – innovative companies that introduce new products and focus on market opportunities – accounted for the smallest percentage of the sample. Analyzers accounted for a significant number; more than 20 percent of companies declared that they employ a mix of the strategic behaviors characteristic of Prospectors and Defenders. Relatively few companies characterize themselves as Reactors (16 percent), or companies without a concise strategy. Research results reveal that the Prospector type is similarly uncommon. Research results also disclose that the number of companies characterized by each strategic type differs from the findings of other studies conducted in Europe (O`Regan and Ghobadian 2006). For example, results of research conducted in Great Britain in electric and engineering trade demonstrate that Prospectors and Defenders comprise the most significant percentage of companies, while Reactors accounted for only 2.6 percent of the sample. On this basis, O'Regan and Ghobadian suggest that these two strategic types are characteristic of the SME sector (2006, p. 615). Thus, imprinted values and modes of behavior are still existent in Polish companies, while, to some extent, they tend to focus on adopting an ad-hoc strategy (Reactor) instead of a more profitable Analyzer or Prospector strategy.

It should also be noted that O'Regan and Ghobadian's (2006) study, as well as other research projects, confirmed the existence of all strategic types (Pittino and Visitin, 2009). Confirmation of the validity of Miles and Snow's strategic typology is also given by results of research carried out in Spain (Aragon-Sanchez and Sanchez-Marin, 2005). Therefore, we assume that the majority of research projects on this subject carried out in the world, regardless of the size of companies, trade or geographic location, offer support for the existence of all strategic types suggested by Miles and Snow (Desarbo, di Benedetto, Song and Sinha, 2005).

 DOI: 10.7206/jmba.ce.2450-7814.162

Results of research carried out in Poland reveal significant differences in the distribution of diverse strategic types; therefore, hypothetical reasons for this differentiation constitutes an interesting topic. There are several factors potentially explaining strategic behaviors of Polish enterprises. Among the most obvious are sector, type of environment, economic context, economic crisis and slow rate of economic growth in recent years. The last two of these factors may justify employing the Defender and Analyzer strategic types. The relatively small percentage of Prospectors may be related to the low level of innovativeness in comparison with other EU countries. This low level of innovativeness of Polish enterprises is reported by numerous research results published yearly by different institutions. On the other hand, the relatively large number of Reactors in small companies may be perceived as a result of difficulty in adapting to rapidly changing external environmental conditions. Therefore, research results confirm the inability to prepare a concise strategic response to environmental changes, which may be caused by low competencies in management and the limited potential of human capital within SMEs.

A second important aspect of the research results is related to the relationship between strategic types and organizational performance. It should be emphasized that Miles and Snow have not focused on these relations, and their work suggests strenghts of every strategic type (Miles and Snow 1986, p. 66). However, numerous researchers argue that effective implementation of any strategic type may lead to acceptable results; thus, lack of effectiveness is related to the lack of fit among strategy and environmental conditions and organizational potential.

Research results on the relations between strategic types and organizational performance are ambiguous, which is consistent with other studies (Aragon-Sanchez and Sanchez-Marin, 2005). We were not able to identify statistically significant relationships between strategic types and organizational performance. Our research results reveal that Defenders are characterized by lower organizational performance than companies representing other strategic types; however, the difference is not statistically significant. This finding contradicts several other research results that confirmed the low effectiveness of Reactors; for example, Conant, Mokwa, and Varadarajan (1990) used subjective profitability evaluations of managers to prove that, while the profitability of Defenders, Prospectors and Analyzers were not significantly different, all of these strategies were more profitable than Reactors (1990, p. 377).

Studies carried out in Great Britain categorized organizations into two types: high- and low-performing firms. Prospector was the prevailing type in high-performing firms while Defenders, in most cases, were low-performing (O'Regan and Ghobadian, 2006, p. 615).

Our research reveals that Prospectors were more willing to employ more employees then companies representing other strategic types. Considering return on sales, Analyzers were significantly more effective than other strategic types. To summarize the abovementioned considerations, our research results provide vague answers to questions on relations between strategic types and organizational performance. In comparison to other research results, it should be noted that other studies were carried out in different countries, in different economical and political conditions, and in different trades. Studies were also carried out in companies of different size. Methodologies of organizational performance measurement were also diverse. In our research, we employed Antoncic and Hisrich's (2003) scale. In this regard, our study differs from other studies carried out on other countries.

Additionally, we included market performance measures in our research results evaluating the relationship between strategic type and subjective evaluation of firm competitiveness in relation to competitors. Research results reveal that Prospectors are definitely more competitive (according to the subjective evaluations of respondents), due to their potentially higher innovative potential.

Conclusions and limitations

Results of research on Miles and Snow's strategic types carried out in the growing, rapidly changing transformation economy of Poland provide support for the existence of all strategic types in manufacturing enterprises. Relationships between strategic types and organizational performance are ambiguous, but they confirm a positive, albeit weak relationship, as suggested in prior studies carried out in different parts of the world.

Despite the research results, the significance of the Prospector strategic type should be emphasized. As research results carried out in SMEs in Italy prove (Pittino and Visitin, 2009), the Prospector type is characterized by a strong orientation towards innovativeness (especially product innovativeness); therefore, this type of strategic behavior might help to increase the innovativeness that is currently at a low level in Polish companies. In the meantime, the effectiveness of strategic orientation is dependent upon the ability to adapt it to environmental conditions as well as on company competencies and potential. Therefore, the choice of the Prospector strategic orientation probably requires a focus on creating competencies and building company potential and is thus related to a long-term perspective. It seems that owners of numerous SMEs in Poland are oriented toward quick results, and their management style lacks strategic

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thinking, which in turn strongly affects (and explains) our research results (i.e., the relatively high number of Reactors in the sample).

A significant limitation of the project was the relatively small research sample as well as the study's regional character (Southern Poland). The sample itself was dominated by SMEs, which is generally relevant to the structure of the firm population, both in Poland and in other European countries. Our ability to compare research results with other studies is also limited, because both scales for measurement of strategic types and organizational performance measures used around the world are different.

Our research project on strategic types in SMEs in a transition economy is among the few dealing with this topic that have been carried out in Eastern European countries to date. Therefore, it is worthwhile to conduct this type of research with larger samples considering branches specificity as well as the size of companies. In our opinion, future research should also consider environmental conditions as well as organizational competencies.

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