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Environmental adaptation patterns in the Hungarian public retail drug supply – Testing the applicability of Miles and Snow's strategic typology in a regulated industrial setting

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Our study intended to explore the (in)consistent behavioural patterns observable in the adaptation process of domestic pharmacies experiencing turbulent environmental changes. Our research questions aimed to identify how many of the original strategic orientations of Miles and Snow and in what form are observable in a sector characterised by strong market and bureaucratic coordination mechanisms simultaneously. In our hypotheses we highlighted the business performance implications of strategic orientations and also tested the potential moderating effect of environmental uncertainty perceived by the pharmacist and the geographical location of the drugstore in the stochastic relationship between strategic orientation and business performance. Our theoretical findings provide clear guidelines for pharmacy managers pursuing various strategic orientations to enhance their sales and profitability.

Keywords: Miles and Snow (M&S), mix/hybrid strategic orientations, business performance, pharmacy management, Hungarian public retail drug supply.

JEL codes: M38, M30.

Introduction

The adaptation to changing environmental conditions plays a decisive role in the life of organisations. In the academic discipline of strategic management, it is generally accepted that in the period of economic turbulence and intensifying competition the toolkit of conventional managerial intuition and empirical wisdom becomes

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useless (Inkpen–Choudhury 1995). As a corollary, by lacking a theoretically well-grounded, then successfully implemented strategy, the prosperity of businesses is going to be hampered. To achieve their long term effectiveness and efficiency goals, firms increasingly need to develop consistent patterns of adaptive behaviour.

Our paper deals with one of the most prominent strategic taxonomies of business economics, the classification that has been developed by Miles and Snow (1978). Our empirical research considered explicitly testing the Miles and Snow (M&S) typology and revealing its business performance (BP) implications as a priority within a special industrial context – the Hungarian Public Retail Drug Supply (HPRDS) – restricted by state regulations and featured by the unique manifestation of microeconomic characteristics of public as well as private goods.

As far as the sector-specific and business policy relevance of our study is concerned, we have to note that during the liberalisation period (2006–2011) the number of pharmacies increased by 20% in Hungary (Hankó et al. 2014). The "2006 XCVIII Act on the secure and efficient supply of drugs and medical devices and on the general rules of drug distribution" has resulted in a growing need for managerial tasks such as the adjustment of product/service portfolio to changing patient needs and preferences, the rationalisation of inventory management, the execution of marketing activities and the maintenance of close ties to key stakeholders of the drug supply chain (Mihályi 2012). However, the majority of pharmacists – formerly got used to limited competitive intensity – were lacking business knowledge and managerial competences for the successful accomplishment of the abovementioned strategic level tasks that should have been originated from a consistent pattern of environmental adaptation (Hamilton 2009).

The "ethical restoration" process launched in 2011 partly eliminated the most harmful effects of liberalisation, but austerity measures introduced by the government to minimise the deficit of the healthcare budget resulted in significant losses of income for

pharmacies (Hankó et al. 2015). Within such conditions many practitioners and sectoral policy makers direct their attention to the emerging adaptation patterns of pharmacies and the BP outcomes of strategic orientations (SOs). Therefore, our study has proven its relevance and topicality by intending to fulfil the following objectives:

• To determine whether consistent SOs can be observed in the HPRDS, and if yes, how many we can distinguish, since by the identification of relevant SOs, we could get a clear picture of the differences in strategic level management characteristics between pharmacies that have developed various environmental adaptation patterns (Lindblom 1959; Mintzberg–McHugh 1985; Boyne–Walker 2004).

• To reveal to what extent pharmacies pursuing different SOs find (un)predictable changes in the conditions and in the behaviour of stakeholders to help decision makers seek to optimally modify key environmental factors.

• To shed light on the proportion of variance in the BP of pharmacies that can be explained by SOs, so to the amount of resources and competencies that should be allocated to their development and consistent realisation (Andrews et al. 2006).

• To offer guidelines concerning which behavioural characteristics of SOs contribute to an optimal BP.

• To discover the potential moderating effect that perceived environmental uncertainty (PEU) and geographical location (GL) play in the relationship between SO and BP. Through the integration of control variables concerning the pharmacies' socio-demographic and site characteristics, the effect of additional factors (beyond SOs) on the pharmacies' BP could also be proven or refuted.

As far as the academic relevance of our research is concerned, we tried to do our best to eliminate the theoretical and methodological shortcomings of past studies. We highlighted those aspects of M&S's typology that have not been given much attention in international research so far. In order to provide greater degrees of validity and

reliability we employed various extraction techniques to identify M&S's SOs, and then we used statistical tests to evaluate the match between the results obtained by the application of different methods. Despite the difficulties in the operationalization of their identification, we also integrated pharmacies pursuing the "failure" Reactor SO into our research and we attempted to push them into the direction of a consistent strategic behavioural pattern (Vorhies–Morgan 2003; Olson et al. 2005). As a part of the examination aiming at revealing the industry-specific emergence of M&S's SOs we performed several Exploratory Factor Analyses (EFA) and Confirmatory Factor Analyses (CFA) to highlight the blinding of strategic management characteristics, thereby to identify and make distinctions between simple "mix" and organic "hybrid" adaptation patterns (Ghobadian et al. 1998; DeSarbo et al. 2006, 2009).

We examined the emergence and tested the validity and reliability of M&S classification in a special sector – featured by bureaucratic coordination mechanisms – of a relatively small country where the operation of firms is less affected by the ideal-typical socio-economic characteristics of the Anglo-Saxon business culture that has been dominant in previous studies (Dyer–Song 1997; Jusoh–Parnell 2008; Kabanoff–Brown 2008; Parnell et al. 2012; Pinto–Curto 2007; Talpová 2012). Moreover, in contrast with the dominance of large corporations in the mainstream of researches on M&S typology, our paper sought to identify Prospector, Analyser, Defender and Reactor SOs in the context of micro and small enterprises – providing health care services – that were often neglected in strategic management (Ghobadian–O'Reagan 2005; Aragón-Sanchez–Sanchez-Marín 2006; Pittino–Visintin 2009).

Beyond examining the sector-specific manifestation of M&S's taxonomy we methodologically "confronted" the contingency theory (Hofer 1975) and managerial choice approach (Child 1972). We explored whether the observed changes in the external conditions and stakeholders' behaviour determine the SOs of pharmacies (Hrebiniak–Joyce 1985; Boyd et al. 2012) or rather the conscious strategic choice of

pharmacists determines how they perceive changes in the turbulent environment (Sharma–Vredenburg 1998; Sharma–Aragón-Correa 2003).

Concerning the BP of pharmacies, we used "managerial ratings for objective indicators": sales for market effectiveness and net profit for financial efficiency (Morgan et al. 2004; Hoque 2005). We have examined how the GL of pharmacies and the PEU by pharmacists – pertaining to the development of conditions and behaviour of key industrial stakeholders – have affected the relationship between the pharmacies' SO and BP in the HPRDS, which undergoes turbulent changes. Our research sought to contribute to the clarification of mixed results previously registered by studies evaluating the effects of potential moderating factors in the stochastic relationship between SO and BP, and to try to minimise knowledge gaps identified in those papers (Venkatraman–Prescott 1990; Nandakumar et al. 2010; Parnell et al. 2012). By using moderated moderation (SEM) it was our methodological priority to highlight the moderating role that the GL of pharmacies and the PEU by pharmacists simultaneously play in the relationship of SO and BP. By integrating control variables, we also tested the robustness of the influence that SOs and potential environmental moderating factors have on BP.

Literature review and conceptual framework

In the following sections of the paper we present the main scientific constructs that were included in our examination, then we briefly summarise the results – concerning the connections between our constructs – of past international studies. Based on theoretical implications and experiences of more than 30 in-depth interviews conducted with representatives of key stakeholders of the HPRDS we formulated our research questions and hypotheses which are arranged into a conceptual model and demonstrated in Figures 1 and 2.

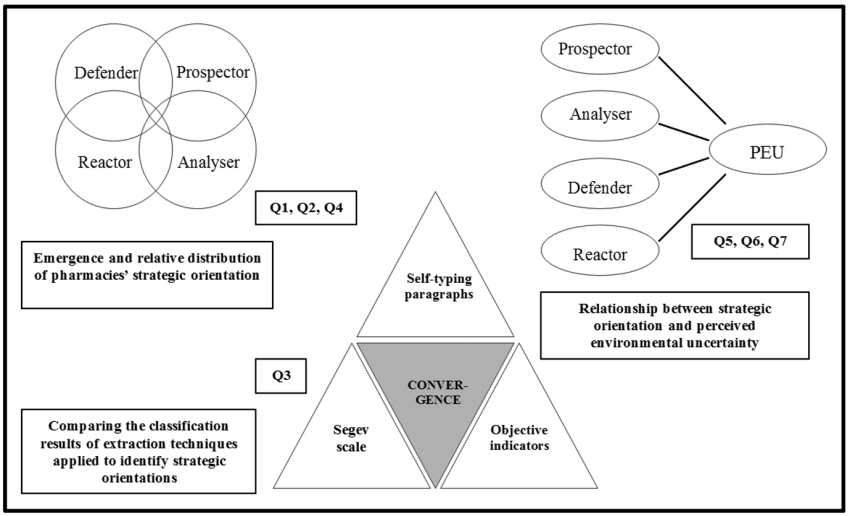

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Figure 1. A comprehensive scheme of the research questions

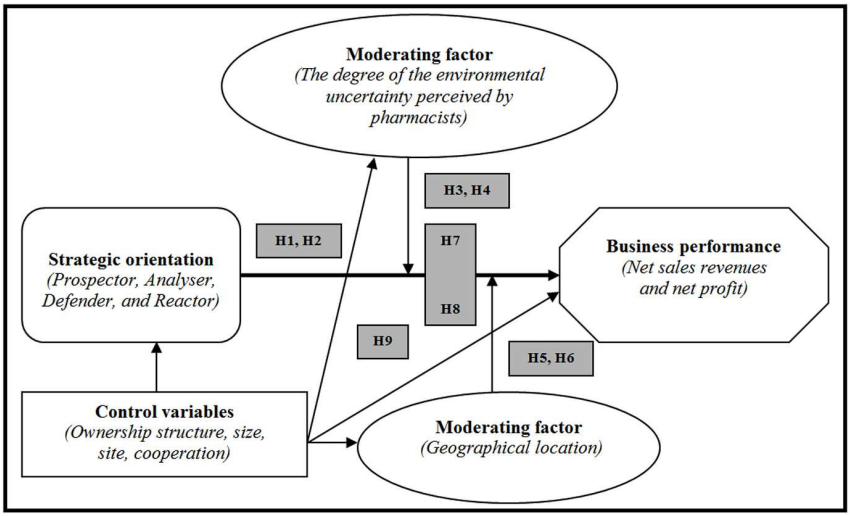

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Figure 2. Displaying research hypotheses in the conceptual model of the paper

The M&S strategic typology – the main theoretical framework of our study – focuses on the environmental adaptation process of organisations. The central construct of the classification is the adaptive cycle, according to which companies need to come up with adequate solutions for three main problems (Miles–Snow 1978). To resolve the entrepreneurial problem an organisation should define the products/services it would like to produce/sell and identify market segments to target. By addressing the engineering problem, firms should develop a feasible operating system for the production and sales of their products/services (Miles et al. 1978). The adaptive cycle's third element is the administrative problem, where businesses should form such mechanisms – e.g. (in)formalisation, (de)centralisation, specialisation, control, reward systems – which ensure the seamless running of systems created at the entrepreneurial and engineering stages (Hage–Aiken 1967).

Miles and Snow discovered four relatively easy to identify enduring patterns (strategic orientations) by observing the environmental adaptation behaviour of the companies (Csepeti 2010). The Prospectors continuously strive to identify new business opportunities and proactively locate and target new product/customer segments. Unlike Prospectors, the Defenders with conventional solutions, consider to exploit their narrow and stable product/market segments as a priority. Standing in the middle of the strategic adaptation continuum, the Analysers, by seeking to create an optimal combination of strengths of Prospectors and Defenders, both want to ensure cost-efficiency and to leverage the potential lying in product innovation. Contrary to the previous three SOs, the Reactors are not capable to consciously develop a consistent behavioural pattern, which would be crucial for a successful environmental adaptation.

Strategic management has always put great emphasis on the exploration of the stochastic relationship between SO and BP (Doty et al. 1993), thus after the classification and summary of M&S typology's past 30 years' research, our interest drifted to the thorough secondary analysis of the Prospectors', Analysers', Defenders' and Reactors' BP.

After the review of the effectiveness, efficiency, adaptability and innovativity dimensions of BP (Ambler–Clark 2001), we have discussed the empirical observations of the two original propositions of M&S concerning the BP of SOs: 1) Prospectors, Analysers and Defenders outperform Reactors in any industrial circumstances, 2) Prospectors, Analysers and Defenders can exhibit equally optimal BP if they implement the chosen SO in a consistent manner.

By systematically grouping the results of past empirical studies, we came to the conclusion that in most industries even with diverse environmental factors being present, Reactors are consistently outperformed by Prospectors, Analysers and Defenders, while the three viable SOs are able to exhibit optimal BP under any circumstances. However, certain SOs' resources and competencies are favoured, while others are not by different industrial settings (Bastian–Muchlisch 2012; Boyd et al. 2012). However, several environmental and industry-specific variables can affect the relationship between SO and BP (Porter 1979; Slater–Narver 1994; Csepeti 2010). Given the fact that we have been witnessing turbulent changes in the conditions and the behaviour of key industrial stakeholders of the HPRDS – which have fundamentally changed the system-level factors of the pharmacies' operation and their management processes – in this paper's literature review stage we put remarkable emphasis on the environment-strategy-performance interdependence in order to reveal possible moderating factors potentially influencing the relationship of the pharmacies' SO and BP.

To choose a consistent SO and to implement it, managers should adequately interpret the observable changes in the internal and external environments (Sharma 2000), which are generally classified in strategic literature according to the following five criteria:

1) simple vs. complex (Lukas et al. 2001; Tan 2002; Tan–Tan 2005; Gotteland–Boulé 2006; Kabadayi et al. 2007); 2) stable vs. instable (Venkatraman–Prescott 1990; Miller–Friesen 1993; Yeung et al. 2013; White et al. 2013); 3) the rate of changes (McArthur–Nystrom 1991; Zahra 1996; Pelham 1999; Menguc–Auh 2008; Bechor et al. 2010); 4) the

stakeholders' hostile or munificent behaviour (Goll–Rasheed 1997; Zahra–Bogner 1999; Davies–Walters 2004; Nandakumar et al. 2010) and 5) the quantity and quality of available information (Aguilar 1967; Hambrick 1982; Starbuck–Milliken 1988; Daft et al. 1988; Newkirk–Lederer 2006).

The researches examining the interaction of the environment and strategy emphasise that external factors influence the companies' SO not in their pure, objective form, but rather through managers' filter (Child 1972; Buchko 1994). The subjective perception of the conditions and stakeholders' behaviour can lead to the fact that managers interpret the same industrial contingencies differently and they respond with alternate strategic approaches (Hambrick 1981; Meyer 1982; Forte et al. 2000; DeSarbo et al. 2005). Thus, to shed light on the subtler aspects of the relationship among M&S's SOs, BP and the environment, we integrated the PEU into the conceptual model of our research (Namiki 1999). By involving the PEU – besides the exploration of its potential moderating effect on the relationship between M&S's SOs and BP – we could investigate the strategic management's conflicting "environmental determinism" (Lawrence–Lorsch 1967; Snow–Hrebiniak 1980) and "managerial choice" (Child 1972; Augier–Teece 2009) approaches and assess their prevalence in the HPRDS.

We also emphasised that different environmental contexts favour ideal-typical resources and capabilities of each SO, hence the fit or misalignment of the companies' SO and external contingencies might have significant consequences on BP that changes the strength, the direction and the nature of the relationship between SO and BP. Based on experiences, we identified those streams of studies, in which external environmental moderating variables did not have significant influence on the relationship between SO and BP (Venkatraman–Prescott 1990; Slater–Narver 1994; Srnivasan et al. 2011). However, the other group of researches shed light on the significant impact of these factors (Zahra 1996; Agbejule 2005; Bstelier 2005; Hoque 2005; Tan–Tan 2005; Wang et al. 2012; White et al. 2013). Researchers could not make robust conclusions on the moderating effect of environmental factors,

hence there are still many open questions and under-researched aspects in the literature, so our paper intended to contribute to the decrease of these knowledge gaps.

The fourth important theoretical construct of our study is the GL. In our research on the HPRDS the influential effect of GL on SO and BP is worth for interpreting only within industrial context, therefore we highlighted the meaning of GL on micro-level business strategy and management. Past researches laid special emphasis on the difference between urban and rural locations in various aspects such as the SO of companies, operation of functional fields, consumer behaviour and the willingness of managers on cooperation and risk taking etc. (Sun–Wu 2004; Velayudham 2007). The empirical results of retail management shed light on the fact that sales and profitability opportunities of enterprises are mostly determined by the choice of the GL and site (Huff 1964; Ghosh–McLafferty 1987; Levy–Weitz 2012). The liberalisation process in the HPRDS also valorised the role of GL through the significant relief of conditions of pharmacy establishment (Aguiar et al. 2014). The GL of pharmacies has partly become a factor that can be modified by managers, hence in our research we aimed to analyse the moderating effect of the GL in the relationship between the pharmacies' SO and BP.

Research questions and hypotheses

As it can be derived from the general objectives of our study, it is not surprising that our main research questions concern the sector-specific emergence of M&S's SOs. We intended to reveal whether there are any consistent environmental patterns in the HPRDS featured by risen, but still limited competitive intensity and the unique manifestation of microeconomic traits of both public and private goods (Andrews et al. 2009). Consequently, in Q1 we wanted to answer, whether all the original SOs of M&S could be observed in this regulated setting. Second, starting from the ongoing environmental changes in the HPDRS we presumed that market coordination mechanisms foster pharmacy managers to modify their behavioural patterns to adapt,

which in turn could lead to a possible "transformation" of formerly developed homogeneous SOs. Hence, Q2 examined to what extent we could observe markedly distinct, "pure" SOs or "hybrid/mix" environmental adaptation patterns can be identified?

Since we considered providing greater levels of reliability and validity when classifying firms into SOs, we applied several strategy extraction techniques. To corroborate the convergent validity of the results of diverse measurement tools in its classical scientific interpretation our Q3 sought to ascertain the extent to which distribution ratios of pharmacies – following Prospector, Defender, Analyser and Reactor SOs identified in the HPRDS – differed based on the classification results of various strategy extraction methods applied in our research?

According to some implications in the literature, managers of Defenders perceive environmental conditions stable, therefore, similar enterprises rather operate in more predictable industrial settings (Zahra–Pierce 1990). Dynamic and variable industrial and operational conditions favour the behavioural features of Prospectors since their managers consider some momentums of environmental turbulence as business opportunities to seize (Gray et al.1999; Namiki 1999). The executives of companies pursuing Analyser SO can perceive both stability and dynamism in the operational environment. They might occur in reliable and unpredictable sectors as well, but their effort aims at a more thorough analysis and prediction of changes in conditions (Zinn et al. 2008). Reactor enterprises can be present both in stable and variable environments, nonetheless, their less consistent SO and management features might easily lead to suboptimal BP among predictable, but especially insecure circumstances (DeSarbo et al. 2005).

Given the fact that we have been witnessing turbulent market and legislative changes in the HPRDS, we assumed that the distribution ratio of pharmacies pursuing various industry-specific SOs of M&S would differ from each other (Q4). Due to competitive pressures we examined whether the distribution ratio of pharmacies following

Reactor SO is exceeded by Defender, Analyser and Prospector pharmacies in this order (Q4a, Q4b, Q4c, Q4d). Similarly, owing to the permanent environmental shifts we investigated the potential differences in the degree of environmental uncertainty that pharmacists – pursuing various M&S's SO – perceive (Q5). Based on theoretical suggestions we supposed that the degree of PEU by Analysers would be exceeded by the degree of PEU by pharmacists pursuing Defender, Prospector and Reactor SOs in this order (Q5a, Q5b, Q5c, Q5d).

To further scrutinize the effect of contingency theory in the HPRDS we tested, whether the prevalence of various M&S's SOs differs according to the groups of pharmacies characterised by high or low degrees of PEU (Q6). We thought that the emergence of Prospectors and Reactors was greater in the group of pharmacies characterised by higher levels of PEU (Q6a, Q6d), while the number of pharmacies pursuing Analyser and Defender SOs would be higher in the group featured by lower levels of PEU (Q6b, Q6c). Finally, in Q7 we intended to compare the influential power of SOs followed by pharmacies on PEU by pharmacists and vice versa via running SEMs with second order latent constructs.

Following the elaboration of our research questions concerning the sector-specific manifestation of M&S's strategic typology, in the next sections we formulate our hypotheses pertaining to the BP implications of pharmacies pursuing different adaptation patterns. Contrary to the theoretical recommendations of M&S – which suggested that consistent and viable SOs perform equally well – we assumed that the strength of the relationship between Prospector, Analyser, Defender, Reactor SOs as well as the sales and net profit of pharmacies would be different (H1). By experiencing that broadening the product/market domains and addressing new patient segments became a key success factor in the changed HPRDS, we hypothesised that the strength of the positive relationship between Defender SO and sales would be exceeded by the one measured between Analysers, Prospectors and sales in this order (H1a, H1b, H1c). Taking into account their inconsistent strategic stance we presumed a negative relationship between the prevalence of Reactor SO and the sales of pharmacies (H1d).

We assumed diverging performance outcomes of pharmacies as measured in terms of net profit as well. Considering the precautious nature of managerial steps Defenders used to take, while witnessing strong pressures on Prospectors and Analysers coming from the competitive context to make huge investments into product/service or market innovations, we believed that the relationship between SOs and the profitability of pharmacies would differ (H2) in the following manner. We hypothesised that the positive relationship between Defender SO – stressing operational efficiency and protecting its existing domains – and net profit exceeds the ones between Analysers, Prospectors – making financial commitments to locate new business opportunities – and net profit in this order (H2a, H2b, H2c). Based on theoretical implications and in-depth interviews we assumed a negative relationship between Reactor SO – inconsistently directing resources to realise their less unfounded business decisions – and the pharmacies' net profit (H2d).

In line with recommendations of strategic management we supposed the degree of environmental uncertainty perceived by pharmacists would refine the strength of the relationship between various SOs and BP (H3, H4). We thought the higher degrees of PEU emanating from competitive pressures and austerity measures would spur pharmacy managers to tackle the shrinking level of demand by introducing new products/services and cater unconventional market segments. Hence, we hypothesised that in parallel to the increased degree of PEU the positive relationship of Prospector, Analyser, Defender SOs and the pharmacies' sales became stronger (H3a, H3b, H3c). Assuming that higher degrees of PEU would just reinforce their strategic acts originally described as "in haste" we hypothesised that higher the degree of PEU by their pharmacists, the stronger the negative relationship of Reactors and sales (H3d).

However, according to the consequences of preliminary in-depth interviews we made with key stakeholders of the HPRDS, the higher degrees of PEU can easily stimulate pharmacists to take on unusual and risky initiatives. Given that these need sophisticated business

knowledge and managerial competences which they often lack we hypothesised the excessive amount of financial resources directed to carry out these actions would lower the profitability of pharmacies. Thus, in parallel to the increased degree of PEU the positive relationship of Prospector, Analyser, Defender SO and the pharmacies' net profit weakens (H4a, H4b, H4c), while the negative relationship between Reactor SO and net profit strengthens (H4d).

As the GL is of key importance in determining the BP of firms in any retail setting, it was plausible that the urban/rural location would moderate the strength of the relationship between M&S's SOs and BP (H5). Pharmacies operating in cities face more diverse patient needs and higher purchasing power, thus, we assumed the positive relationship between Prospector, Analyser, Defender SO and sales strengthens in case of urban pharmacies compared to rural ones (H5a, H5b, H5c). However, Reactor pharmacies – due to high competitive intensity and inconsistencies in their resource and capability set – are not even able to take advantage of the otherwise favourable urban conditions. Hence, we supposed urban location would further strengthen the negative influence of Reactor SO exerted on sales (H5d).

However, based on the results of the interviews the nature of the potential moderating effect of the GL tends to be much more complicated in case of profitability. In urban setting favourable demand conditions and heterogeneous patient needs foster Prospector and Analyser pharmacies to make costly investments to expand their product and service portfolio which in turn weakens the positive relationship (H6a, H6c). At the same time, we assumed rural environment favours the Defenders' strategic intents to exploit the potential lying in conventional products and loyal patient segments, thereby increasing their net profit (H6b). Finally, Reactors' inconsistent steps toward launching innovative solutions and serve new patient markets can easily entail costly but non-recoverable investments which further strengthen the negative relationship between this SO and the net profit of pharmacies (H6d).

We also assumed that the impact of PEU, playing a potentially moderating role in the relationship between SO pursued by pharmacies and BP, can occur differently in urban and rural environments, thus we analysed the combined moderating effects of PEU and GL in H7 and H8. The turbulent changes in the sector encourage pharmacies pursuing various SOs to expand their product/service portfolio, address new patient segments and introduce innovative business applications. However, the success rate of these business policy measures depends not only on the idiosyncratic characteristics of SOs, but also on whether the pharmacy is operated in urban or rural environment.

In line with the abovementioned paragraphs we hypothesised that in the urban context the increasing degree of PEU makes the positive relationship between Prospector, Analyser and Defender SOs and the sales of pharmacies stronger than that experienced in rural environment (H7a, H7b, H7c). In case of profitability, we expected that urban pharmacies – following viable SOs and acting definitely in product/market expansions – could generate more demand and newly introduced value propositions can be sold at a higher margin. Hence, we hypothesised that in rural context the increasing degree of PEU makes the positive relationship between Prospector, Analyser, Defender SOs and the pharmacies' net profit weaker than that experienced in urban environment (H8a, H8b, H8c).

However, we presumed that the increasing degree of PEU by pharmacists degraded the sales and net profit of Reactors in a more considerable way in the countryside than in cities, because favourable urban environments can partly compensate for the negative impact on performance caused by inconsistent and hasty strategic measures taken in response to increased PEU (H7d, H8d). Finally, in H9 we examined whether we filter the effect of industry-specific control variables – pertaining to socio-demographic and site characteristics of pharmacies – most probably determining BP, the connections formulated in H1-H8 still maintained or not regarding the complex relationships between SO, PEU, GL as well as sales and net profit (H9a, H9b). The research questions and hypotheses are displayed concisely in Annexes 1 and 2.

Methodology and data collection

In our study we used primary and secondary research methodologies to identify strategic behavioural patterns in the HPRDS and to discover the BP implications of M&S's SOs. In the qualitative section of our primary research, we organised expert interviews with representatives of key stakeholder groups in the HPRDS. After more than 30 consultations, besides the sector-specific objectives, the finalisation of the conceptual model emerged, and we also pre-tested the validity, reliability, dimensionality of measurement instruments intended to use in the quantitative survey. During the quantitative section, data collection has been delivered by survey inquiry with the support of the Hungarian Chamber of Pharmacists (HCP) and its regional leaders. The sampling frame consisted of all pharmacies operating in the capital and in other four counties of Hungary. The census-like data collection was conducted in Budapest, and also in Baranya, Borsod-Abaúj-Zemplén, Pest and Vas counties. Surveys were distributed by post to approximately 1000 pharmacy managers. After reminder mails and telephone calls, all in all 207 completed questionnaires – featured by high quality data, thus applicable in multivariate analyses – have been returned, which means a 22% response rate.

Regarding the operationalization of our key theoretical constructs, we intended to identify environmental adaptation patterns in the HPRDS by applying three different strategy extraction techniques. The self-typing paragraph method summarises briefly the strategic behaviour of Prospectors, Analysers, Defenders, Reactors, and pharmacists were asked to choose the one which best describes their firms' adaptive stance. Second we adopted the multi-item scale of Segev (1987) to reveal strategic behavioural patterns of pharmacies, which several times were included in international examinations and proved its validity and reliability. We also tried to use objective indicators of pharmacy management [e.g. the distribution Prescription (Rx), Over The Counter (OTC) and other products in sales (%)] to categorise the firms' SO.

We measured the BP of pharmacies via using the widely accepted effectiveness (net sales revenues in million HUF) and efficiency (net profit after tax in million HUF) indicators. The PEU by pharmacist was operationalised by a metric scale adopted from Miles and Snow (1978) and tailored to the specific features of the HPRDS. Pharmacist rated the degree of environmental uncertainty in seven dimensions (the behaviour of wholesalers, producers, patients, competitor pharmacies, regulatory authorities, HCP and changes in financial conditions) and 45 items belonging to them altogether. Evaluations were ranging from 1 (completely unpredictable) to 5 (entirely predictable). The GL of pharmacies was indicated by respondents, who – according to the official guidelines of settlement registers of the Hungarian Central Statistical Office and HCP – were faced five categories to choose from: 1) Budapest, 2) city with more than 50 thousand inhabitants, 3) city where 10-50 thousand people live, 4) township with 5-10 thousand people and 5) settlement with less than 5 thousand people. In order to answer our research questions pertaining to the sector-specific manifestation of M&S's behavioural patterns and to test our hypotheses concerning the BP implications of SOs we ran several uni-, and multivariate mathematical and statistical methods that are highlighted in Table 1.

Table 1. Multivariate techniques applied to test our research questions and hypotheses

Question/ Hypothesis	Applied mathematical-statistical methodologies
Q1	Self-typing paragraphs and objective indicators method, exploratory (EFA) and confirmatory factor analyses (CFA) of the multi-item Segev scale
Q2	Exploratory factor analysis (EFA), confirmatory factor analysis (CFA), ANOVA, post-hoc paired comparisons by Tukey-, Scheffe- and Bonferroni-tests
Q3	Crosstabs, McNemar-tests
Q4	Paired sampled t-tests

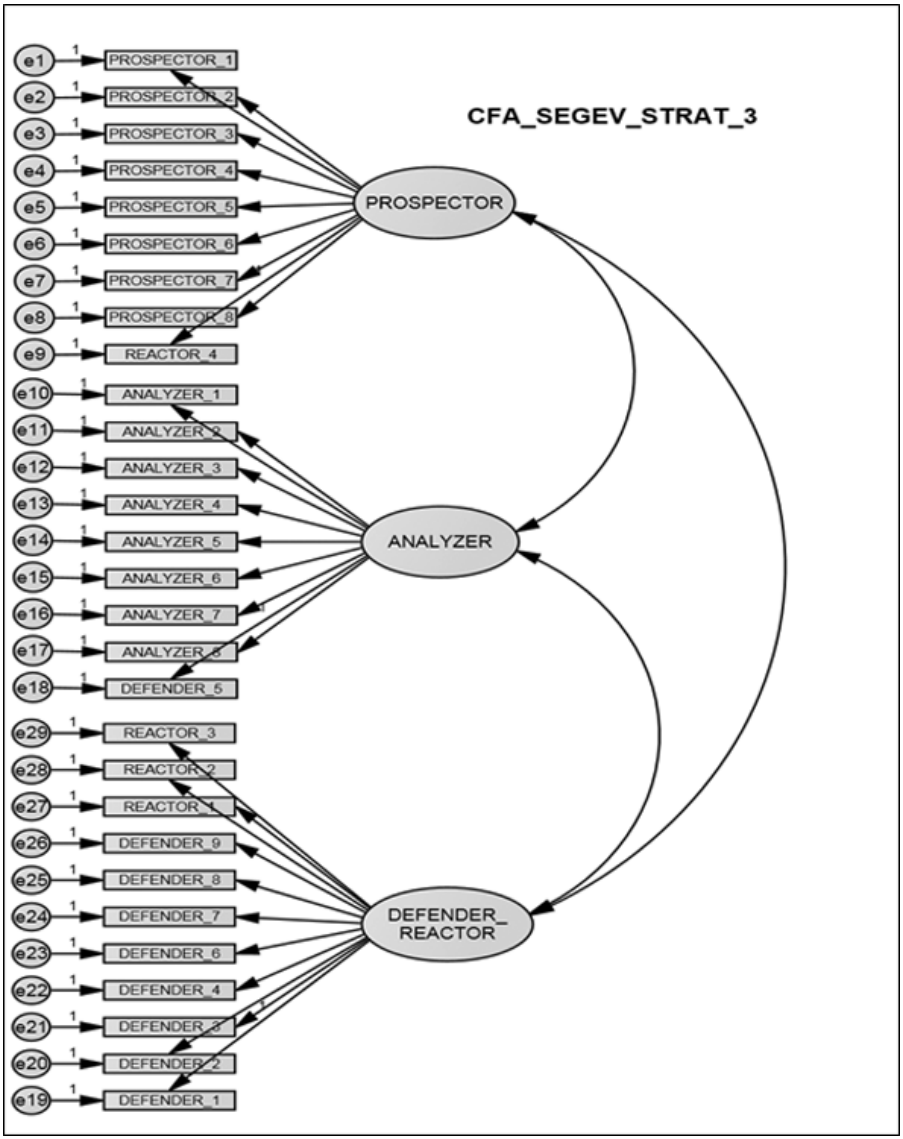
Q5	Crosstabs, correlations, ANOVA, structural equation modelling (SEM)
Q6	Crosstabs, correlations, ANOVA
Q7	Crosstabs, correlations, ANOVA, SEM
H1	ANOVA, hierarchical interaction and multi-group moderated regression, SEM
H2	ANOVA, hierarchical interaction and multi-group moderated regression, SEM
H3	Hierarchical interaction and multi-group moderated regression, multi-group and interaction moderation (SEM)
H4	Hierarchical interaction and multi-group moderated regressions, multi-group and interaction moderations (SEM)
H5	Hierarchical interaction and multi-group moderated regressions, multi-group and interaction moderations (SEM)
H6	Hierarchical interaction and multi-group moderated regressions, multi-group and interaction moderations (SEM)
H7	Moderated moderation (SEM)
H8	Moderated moderation (SEM)
H9	Moderated moderation (SEM) by integrating control variables pertaining to socio-demographic factors and characteristics of the site of pharmacies

Source: author's own design

Data processing and results

Before presenting the experiences we gained by running several mathematical and statistical methods, we have to note that due to the size limits of the paper we did not have the opportunity to go into a detailed analysis of our results. The answers for our research questions are grounded only by the results of the main statistical probes described below, while quantitative experiences of hypotheses testing are summarised in Tables 2, 3, 4 and 5.

We revealed that the four original strategic patterns of M&S cannot be observed in the HPRDS. According to the EFA and CFA analyses of Segev scale, the behavioural characteristics of Defender and Reactor SOs were loaded into the same factor (Figure 3).



Source: author's own design based on Segev (1987)

Figure 3. The confirmatory factor analysis (CFA) of Segev scale operationalising the industry specific SOs of M&S relevant in Hungary

Thus, by the identification of the Defender/Reactor "mix" – beside Prospectors and Analysers – three SOs have been observed in the environmental adaptation of pharmacies (Q1). The fit indices (CMIN/d.f. =1.968, RMSEA=0.059, CFI=0.903) of this sector-specific factor structure gained via CFA by and large met the criteria of methodological literature (Hu-Bentler 1999). Cronbach's alpha coefficients (Prospector=0.887, Analyser=0.865, Defender/Reactor=0.875) were above the threshold value of 0.7 while the CR indicators (Prospector=0.935, Analyser=0.919, Defender/Reactor=0.923) corroborate the reliability of the scale with latent constructs and the belonging items. In case of the realistic 3-factor solution AVE indicators – commonly applied to test convergent and discriminant validity by Fornell-Larcker criterion – surpassed the "thumb rule" of the literature (Prospector=0.622, Analyser=0.564, Defender/Reactor=0.527).

The multi-item PEU scale developed by M&S and tailored to the specific features of the HPRDS similarly performed well after the CFA as the main fit indices (CMIN/d.f.=1.495, RMSEA=0.05, CFI=0.925) all surpassed their threshold values, so we can state that the theoretical factor solution was reproduced by the data structure in a quite decent way. Concerning reliability based on internal consistency we can note that Cronbach's alpha coefficients of all factors (Wholesalers=0.720, Producers=0.788, Patients=0.773, Competitor pharmacies=0.910, Regulatory authorities=0.875, HCP=0.885, Financial conditions= 0.854) satisfied the criteria of 0.7. According to the CR values (Wholesalers=0.787, Producers=0.802, Patients=0.824, Competitor pharmacies=0.917, Regulatory authorities=0.884, HCP=0.890, Financial conditions=0.861) the reliability of this measurement instrument was also confirmed. The AVE indicators of each dimension were above the threshold value of 0.5 confirming convergent and discriminant validity (Wholesalers=0.569, Producers=0.593, Patients =0.585, Competitor pharmacies=0.780, Regulatory authorities=0.608, HCP=0.748, Financial conditions=0.581).

We can also conclude that standardised regression weight of neither indicator variable was less than the 0.4 value specified by

Churchill (1979), thus, none of them had to be removed from any individual constructs of both the PEU and Segev's "strategy identification" scales. Construct validity of the abovementioned scales were assessed by nomological, convergent, and discriminant validity tests where checks for the latter contained EFA, CFA, reliability of indicators, covariance between latent constructs, comparison of the CFA models (original vs. latents' cov=1) and Fornell-Larcker criterion. The common method variance was examined by Harman's single factor test, adding a single latent factor and "marker" variable techniques, indicating that CMV all in all was not an issue at any of the scales. We also performed non-response bias analyses for the Segev scale operationalising M&S's SOs, for the PEU scale and for the BP indicators reported by pharmacists. Based on the results of ANOVA we could not observe any significant difference between early and late respondents, so non-response bias did not distort the validity and generalizability of our study in any county.

Returning to the question of industry-specific emergence of M&S's strategic typology, based on EFA and CFA structures the Defender/Reactor SO cannot be considered as a distinct, organic behavioural pattern, but more as a simple "mix" of the Defenders and the Reactors (Q2). After a thorough analysis of the factorial structure of this SO and comparing the prevalence of Defender and Reactor characteristics respectively based on weighted averages of the pharmacists' evaluations, we could establish that the inconsistent behavioural aspects of Reactors dominate this adaptation pattern. The identified two "pure" and one "mix" SOs markedly dissevered from each other, as to post-hoc Tukey, Scheffe and Bonferroni tests, the behavioural aspects of Prospectors, Analysers, Defender/Reactors significantly differ.

There was a minimal gap between the results of the two successfully applied strategy extraction techniques – the multi-item Segev scale and the self-typing paragraph method, thus the convergent validity of the measurement tools was confirmed in its classical interpretation (Q3). The insignificance of pairwise McNemar's χ^2 tests denoted that the classification results of various measurement

instruments aiming to identify Prospector, Analyser, Defender/Reactor pharmacies did not differ from each other (Defender/Reactor: $\chi^2=0.22$, sig=0.883, Prospector: $\chi^2=1.641$, sig=0.200, Analyser: $\chi^2=0.522$, sig=0.470). In spite of the intensified competition, the relative majority of pharmacies were identified as Defender/Reactors, they are followed by the Analysers, whilst Prospectors – who proactively seek business opportunities in turbulent legislative changes and expand their product/service portfolio – were in a relative minority (Q4). This was proven by pairwise two-sampled t-tests, where we coded the distribution of Prospector, Analyser and Defender/Reactor pharmacies by dummy variables.

Pharmacists pursuing different SOs, have perceived different levels of uncertainty in environmental circumstances and in the behaviour industrial stakeholders (Q5). Analysers perceived the alteration of environmental conditions and the behaviour of stakeholders of the drug supply chain significantly more predictable, than Prospectors and Defender/Reactors. We identified no difference between the groups with low and high PEU in regard of the emergence of Prospector, Analyser and Defender/Reactor SOs. Similarly, we did not observe any significant difference in the distribution of the SOs either among groups of pharmacists perceived low and high PEU even after running several tests (Q6). Operationalised as second order latent constructs in SEM, the pharmacists' conscious choice of SO imposed a stronger influence on the degree of PEU ($\beta=0.174$, sig=0.042, CMIN/d.f.=1.967, CFI=0.889, RMSEA=0.057 and SRMR=0.0987), than the extent of strictly regulated industrial factors determined the possibilities of pharmacies in selecting and following SOs ($\beta=0.043$, sig=0.650, CMIN/d.f.=1.970, CFI=0.882, RMSEA=0.058 and SRMR=0.1007) (Q7). With the exception of the SRMR indicator the obtained fit indices are tolerable (Hu–Bentler 1999).

Concerning the BP implications of M&S's SOs and the potential role of moderating and control variables in the next lines we only report fit indices of structural models. Assessing the "pure" effects of SOs on sales and net profit we obtained CMIN/d.f.=544/357=1.524,

CFI=0.936, RMSEA=0.05 and SRMR=0.0906, as well as CMIN/d.f. =586/359=1.633, CFI=0.922, RMSEA=0.055 and SRMR=0.093. With the exception of SRMR these values comply with the criteria of methodological literature (Chen et al. 2009).

The examination of the moderating effect of PEU on the relationship between Prospector, Analyser, Defender/Reactor SOs and BP by multi-group moderation has resulted in the following values of fit indices: CMIN/d.f.=1086/692=1.57, CFI=0.874, RMSEA=0.053 (sales) and SRMR=0.1034, CMIN/d.f.=1175/720=1.632, CFI=0.854, RMSEA=0.056 and SRMR=0.1066 (net profit). Similarly, uncovering the moderating influence of GL on BP by multi-group technique CMIN/d.f.=1104/728=1.517, CFI=0.864, RMSEA=0.051 and SRMR=0.0971 in case of sales, while CMIN/d.f.=1109/722=1.537, CFI=0.869, RMSEA=0.052 and SRMR=0.0992, when estimating net profit. It can be stated that except for the SRMR indicator the values comply with the threshold criteria of mathematical-statistical literature (Baumgartner–Homburg 1996).

By running multi-group moderations, we also analysed the general discrepancies of the "unconstrained" and "constrained" models of high/low PEU and urban/rural group of pharmacies as well as the "path by path" differences discovered in the standardised regression weights. Since in the case of interaction moderation techniques we operationalised the main effects and product terms as imputed variables from SPSS, thereby we could not compute fit indices at AMOS. In the next two paragraphs we briefly summarised the findings – concerning the BP implications of the pharmacies – derived from Tables 2, 3, 4 and 5.

The sales of pharmacies following the observed Prospector, Analyser and Defender/Reactor SOs in the HPRDS are significantly different (H1). The profitability of pharmacies pursuing Prospector, Analyser and Defender/Reactor SOs did not differ significantly (H2). The PEU by pharmacists – apart from one or two exceptional cases (e.g. profitability of Prospectors in rural and sales of Defenders in urban context) – did not moderate the relationship between the SO of

Table 2. The moderating effect of perceived environmental uncertainty in the relationship of strategic orientation and business performance

Moderating variable: **Perceived environmental uncertainty**		**Applied mathematical-statistical methods**											
Strategic orientation	Business performance	Hierarchical (interaction) moderated regression		Multi-group moderated regression				Interaction moderation (SEM)		Multi-group moderation (SEM)			
				High		Low				High		Low	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Prospector	Sales	-0.074	0.392	0.375	0.000	0.265	0.007	-0.057	0.448	0.401	0.000	0.248	0.033
Analyser	Sales	0.059	0.498	-0.171	0.074	-0.001	0.994	0.095	0.167	-0.174	0.088	0.021	0.850
Defender/ Reactor	Sales	-0.099	0.172	-0.165	0.102	-0.304	0.002	-0.162	0.027	-0.147	0.199	-0.334	0.009
Prospector	Net profit	-0.075	0.424	0.158	0.145	0.036	0.734	-0.034	0.684	0.153	0.201	0.056	0.630
Analyser	Net profit	0.071	0.452	-0.123	0.207	0.086	0.420	0.060	0.442	-0.114	0.282	0.085	0.482
Defender/ Reactor	Net profit	0.066	0.399	-0.207	0.066	0.009	0.935	0.045	0.589	-0.241	0.059	0.0012	0.918

Source: author's own design

Table 3. The moderating effect of geographical location in the relationship of strategic orientation and business performance

Moderating variable: **Geographical location**		**Applied mathematical-statistical methods**											
Strategic orientation	Business performance	Hierarchical (interaction) moderated regression		Multi-group moderated regression				Interaction moderation (SEM)		Multi-group moderation (SEM)			
				Urban		Rural				Urban		Rural	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.	β	Sig.	?	Sig.
Prospector	Sales	-0.039	0.615	0.276	0.004	0.396	0.000	-0.024	0.727	0.279	0.015	0.384	0.002
Analyser	Sales	-0.050	0.515	-0.028	0.773	-0.332	0.001	-0.077	0.244	-0.023	0.845	-0.302	0.013
Defender/ Reactor	Sales	-0.016	0.814	-0.160	0.120	-0.290	0.002	-0.053	0.456	-0.134	0.280	-0.325	0.030
Prospector	Net profit	0.010	0.910	0.056	0.574	0.199	0.051	0.026	0.742	0.037	0.741	0.244	0.039
Analyser	Net profit	-0.019	0.822	0.028	0.793	-0.190	0.081	-0.091	0.233	0.079	0.524	-0.271	0.029
Defender/ Reactor	Net profit	-0.093	0.237	0.028	0.800	-0.308	0.004	-0.104	0.203	0.006	0.961	-0.342	0.028

Source: author's own design

Table 4. Evaluation of the combined moderating effect of perceived environmental uncertainty and geographical location (Sales)

Moderating variable: **Perceived environmental uncertainty**	Moderating variable: **Geographical location**								
	Applied mathematical-statistical methods								
Strategic orientation	Business performance	Moderated moderation (SEM)				Moderated moderation (SEM) by integrating relevant, industry-specific control variables			
		Urban		Rural		Urban		Rural	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.
Prospector	Sales	0.311	0.002	0.342	0.000	0.262	0.010	0.204	0.049
Prospector*PEU	Sales	-0.023	0.814	-0.214	0.055	-0.030	0.761	-0.205	0.052
Defender/Reactor	Sales	-0.158	0.143	-0.304	0.002	-0.219	0.043	-0.232	0.017
Defender/Reactor*PEU	Sales	-0.188	0.085	-0.153	0.222	-0.196	0.073	-0.101	0.391
Analyser	Sales	-0.082	0.439	-0.180	0.081	-0.089	0.389	-0.130	0.089
Analyser*PEU	Sales	0.124	0.253	0.125	0.241	0.080	0.450	0.162	0.080

Source: author's own design

Table 5. Evaluation of the combined moderating effect of perceived environmental uncertainty and geographical location (Net profit)

Moderating variable: **Perceived environmental uncertainty**	Moderating variable: **Geographical location**								
	Applied mathematical-statistical methods								
Strategic orientation	Business performance	Moderated moderation (SEM)				Moderated moderation (SEM) by integrating relevant, industry-specific control variables			
		Urban		Rural		Urban		Rural	
		β	Sig.	β	Sig.	β	Sig.	β	Sig.
Prospector	Net profit	0.020	0.857	0.174	0.100	-0.066	0.561	0.051	0.631
Prospector*PEU	Net profit	0.017	0.876	-0.260	0.024	-0.023	0.826	-0.274	0.009
Defender/Reactor	Net profit	0.004	0.974	-0.298	0.003	-0.045	0.696	-0.276	0.005
Defender/Reactor*PEU	Net profit	0.131	0.277	0.069	0.592	0.156	0.182	0.074	0.532
Analyser	Net profit	0.007	0.955	-0.166	0.120	0.037	0.743	-0.157	0.121
Analyser*PEU	Net profit	-0.017	0.884	0.193	0.078	-0.006	0.959	0.230	0.022

Source: author's own design

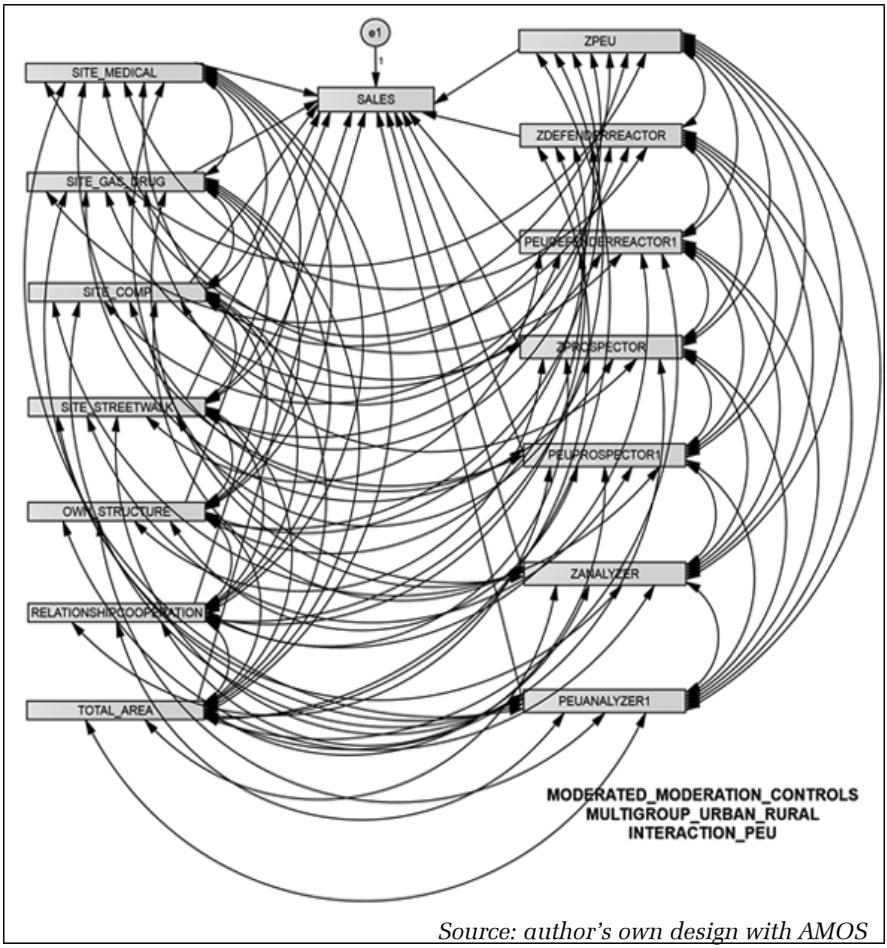
pharmacies and their BP (H3, H4). We experienced mixed results in connection with the potential moderating influence of GL on the relationship between the M&S SOs and BP of pharmacies (H5, H6). According to the interaction techniques the GL does not have a moderating effect in the relationship between the pharmacies' SO and their BP, while according to multi-group methods it does so. It is discernible, that the effect of the prevalence of Prospector, Analyser and Defender/Reactor SOs on BP strengthens in rural context characterised by less favourable demand conditions (H5, H6, H7, H8).

The majority of the revealed interrelations remained robust after controlling for variables originally having a significant effect on the effectiveness and profitability of pharmacies (H9). The influence of the pharmacies' SOs on BP has not been "suppressed" by such sector-specific and socio-demographic features (e.g. space of total area, number of colleagues) and variables pertaining to pharmacies' sites (e.g. number of passers-by in front of the pharmacy, proximity of medical service institutes and retail stores), which otherwise had a substantial, additional effect on BP. The prevalence of M&S's SOs – depending on the specialties of different methodological techniques as well as moderating and control variables involved – explained the variance of the pharmacies' sales to 16.5%-48%. As an illustration, in Figure 4 we present a structural model estimating the influence of M&S's SOs on sales by filtering the effect of relevant control variables.

Thus, SOs of M&S can be considered as useful proxy variables in the explanation of the pharmacies' sales. However, M&S's SOs– depending on the employed methods as well as integrated moderating and control variables – explained only 3.0%-40.7% of the variance experienced in the net profit of pharmacies, thus the SOs of M&S did not prove to be adequate proxy variables of the pharmacies' profitability.

Discussion

In the following paragraphs we intend to find potential explanations for our most equivocal or intriguing findings. Due to



Source: author's own design with AMOS

Figure 4. Revealing the combined moderating effect of PEU and GL in the relationship between SOs and sales by integrating the relevant, sector-specific control variables

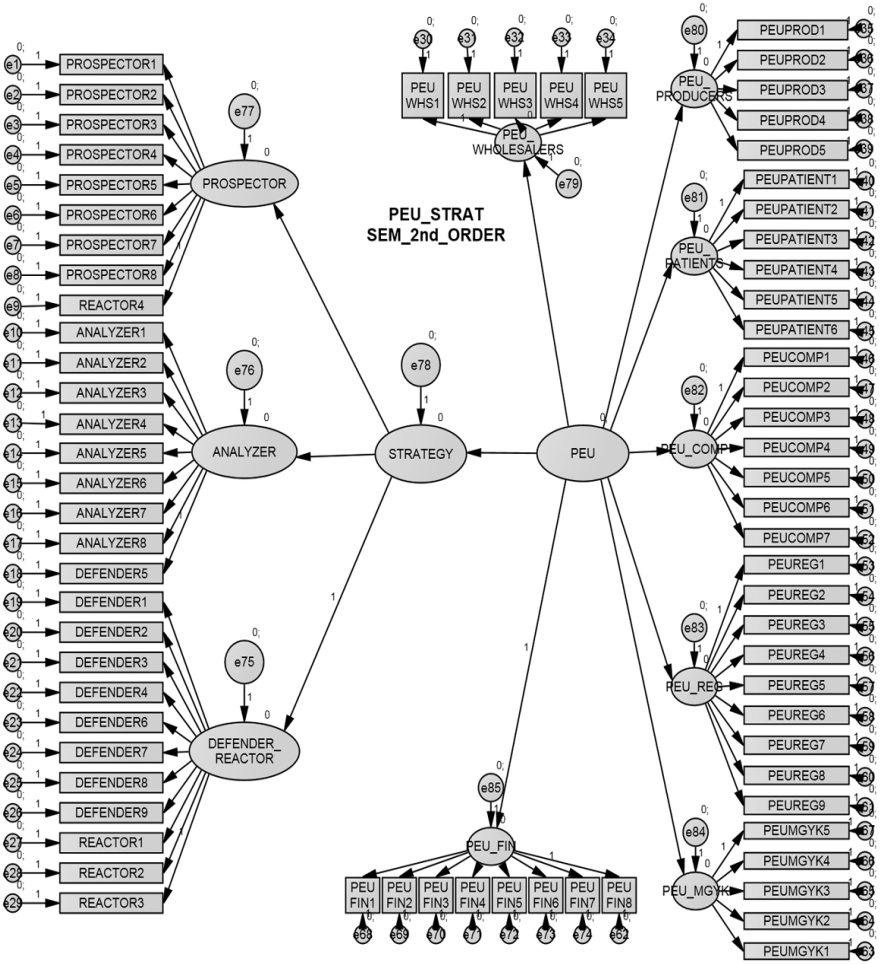
length limitations, however, we could only briefly sum-up the possible theoretical, methodological and practical causes behind the results. Researchers started to focus on the "blending" of behavioural characteristics of M&S's SOs over the last few years (DeSarbo et al.

2006, 2009; Helmig et al. 2014). The development of multivariate methods made it possible to avoid classifying pharmacies into ideal-typical SOs artificially created by academics, but to reveal more realistic environmental adaptation patterns (Hambrick 2003). This led to our consequence that micro and small enterprises operating in the HPRDS – which is characterised by bureaucratic coordination mechanisms and increased, but limited competitive intensity – still develop conscious adaptation patterns, though only three SOs instead of four and not pure, but mixed ones.

As previous researches have not truly gone beyond the identification of mixed adaptation patterns (Pinto–Curto 2007; Kabanoff–Brown 2008), we examined both the content elements, the causes of their mixing and its consequences on BP. We made a distinction between the simple "mixture" of behavioural aspects and their "organic" connections. We have shown that 1) in the factor structure of Defender/Reactor SO the Reactor characteristics are dominant and 2) their mixture does not form an organic hybrid adaptation pattern. We assume that earlier Reactor pharmacies initiated a strategic change process due to intensified competition, but these actions are still in an early stage (Hofer 1980). Since Defenders are closest to Reactors, it makes logical sense that the latter have taken steps to develop a "Defender-like" SO. However, the BP of Prospectors and Analysers exceeded that of Defender/Reactors, thus it is predicted the latter would also pay more attention to evolve less "retractive" SOs.

One of our paper's experiences most worthy for consideration is that the pharmacists' conscious choice of strategy had a stronger impact on the degree of PEU, than the degree to which the pharmacists' margin in selecting, following SOs was determined by contingency conditions regulated by bureaucratic coordination mechanisms (as an illustration in Figure 5 we attached a structural model estimating the influence of the PEU on the SO, both constructs were operationalised as second-order latent factors).

According to the contingency theory (Lawrence–Lorsch 1967; Hofer 1975) and the results of the qualitative research we predicted the



Source: author's own design

Figure 5. The influence of the PEU on the SO of pharmacies

opposite of this (Child 1972; Sharma 2000; Boyd et al. 2012). There are several possible explanations, the most idealistic being that pharmacists recognised the necessity of evolving a consistent SO compliant with the pharmacy's local attributes, resources and

competences (Augier–Teece 2009). In turn, pharmacists pursuing different SOs probably perceive changes of external conditions and stakeholders' behaviour differently – in a manner fitting their SO and confirming their own choice (DeSarbo et al. 2005; Song et al. 2007).

It might also come to mind, that the various adaptation patterns of M&S are no direct "products" of pharmacists, but rather indeed the results of turbulent environmental changes. Although not apparent from our cross-sectional study, it appears possible that today's distinctly different SOs evolved due to the environmental determination from a few years ago (Hrebiniak–Joyce 1985). The "defeat" of the contingency theory may have also been partly brought forth by methodological causes (Podsakoff et al. 2003): in regard of the pharmacists' PEU the significant difference between SOs was primarily caused by the prevalence of the Analysers' behavioural aspects. The Analyser is a quite "likeable and preferred" strategic option amongst respondents characterised by lower degrees of PEU, as it emphasises balance, i.e. conventional pharmaceutical and innovative business practice to an equal degree, thus dominance of the "managerial choice" theory's implications may have been partly caused by the respondents' "tendency toward the middle option" (Albaum 1997).

As far as the BP implications of M&S's SOs are concerned, based on our experiences gained after preliminary in-depth interviews it was not at all surprising that pharmacies following Prospector SO realised the highest levels of sales. According to our results continuously locating new product/market opportunities is of strategic importance if a pharmacy intends to operate in a successful way, especially when it faces increased competitive intensity and shrinking demand conditions. However, it was striking that Prospectors outperformed Analysers and Defender/Reactors even in terms of net profit, which was contrary to the theoretical approach as cost management is not one of their main strengths. A possible explanation to this could be that expansions of pharmacies' range of products and services are mainly realised within categories of OTC drugs and other products that can be marketed at a higher margin (Hawes–Crittenden 1984; DeSarbo et al.

2005). It is plausible, that changes in net profit could be better explained by integrating additional management characteristics of tactical and operative levels, but this fell outside of our research.

The majority of our empirical tests suggest that the prevalence of Analyser SO worsened BP to an almost significant degree for pharmacies. It is possible that in their case the "over-analysis" of turbulent and complex environmental conditions received too much attention, which could have impaired reactivity, obstructed explicit managerial decision-making and hampered committed allocation of resources toward introducing innovative pharmaceutical solutions (Zahra–Pierce 1990; Forte et al. 2000; Ghobadian–O'Reagan 2005).

The realisation of Defender/Reactor SO mostly exerted a significant negative effect on the pharmacies' BP. Seeing as manifestations of the content elements of this SO are dominated by the Reactors' behavioural characteristics, our result complies with the findings of most M&S research (DeSarbo et al. 2005). At the same time, being aware of the HPRDS' contingencial attributes, we would not have been surprised, if the Defender/Reactors' BP had turned out to be optimal. Some publications brought to attention that within industries characterised by bureaucratic coordination mechanisms and limited competitive intensity even firms with inconsistent SOs might be successful (Snow–Hrebiniak 1980). It is noteworthy, that the Defender/Reactor pharmacy managers in cities with more favourable perspective of BP perceive the turbulently changing environment as less uncertain. In their case the decrease in BP caused by "becoming too comfortable" is not significant only because the more favourable conditions of demand provide them with some protection for a shorter or longer time, while the lack of explicit strategic responses leads to an immediate decrease of their BP in smaller settlements (McKee et al. 1989; Aguiar et al. 2014; Helmig et al. 2014).

Concerning the PEU, we could not observe its significant moderating effect on the relationship between M&S's SOs and BP. According to the pharmacists' qualitative feedbacks the environmental changes can easily be interpreted as radical shifts which necessitated a

business oriented transformation of pharmacy operation. It means that pharmacy managers willing to locate potential ways out from the negative effects of restrictive measures find quite axiomatic that opening up new markets, launching innovative products and services are of most promising, if any strategic solution. Thus, more venturesome SOs (e.g. Prospectors) are rewarded by BP irrespectively the degree of PEU. Apart from the PEU's by and large insignificant moderating effect, it still exerted some influence on changes of the pharmacies' BP in some cases. We again point towards the potential worsening of BP caused by "becoming too comfortable" in parallel to a decreased degree of PEU, as there indeed were some situations, when a decrease of PEU and the pharmacies' BP exhibited correlation.

The difference in results shown by multi-group and interaction techniques aimed at uncovering the GL's moderating effect can be viewed upon as the biggest methodological "mystery" of our study. Based on in-depth interviews with representatives of key sectoral stakeholders conducted beforehand and after obtaining our results, we accepted the experiences gathered from multi-group mathematical-statistical techniques. It seems logical, that SO really exerts a more substantial impact on BP in case of rural pharmacies characterised by less favourable demand conditions, than in case of urban pharmacies "protected" by larger population, higher purchasing power and a diversity of patients' needs and preferences. Hence, our paper revealed that the widespread sectoral "cliché" as rural pharmacies are doomed to failure is not true, since if they explicitly take on challenges coming from increased competitive intensity imposed by competitor pharmacies or retail stores and consistently expand their product/service portfolio, they are indeed capable to realise optimal BP.

We expected the pharmacies' BP to be largely determined by socio-demographic characteristics, yet when integrating these variables into the more complex regression and SEM analyses with SO, PEU, GL and site attributes, only the variables "total area of space" and "number of employees" exerted a significant influence on changes of sales and net profit. The number of employees is more of a consequence than a cause

of BP, as probably the basic relationship of "the higher the BP, the more employees are needed" prevailed (Helmig et al. 2014). It is unrealistic to assume pharmacies would hire more employees just in order to increase BP by directing more human resources on expanding their portfolio, on stock management and marketing activities. The significance of the total area of space as compared to the officina's (sales area) size is surprising, as based on conventional marketing logic it is the larger sales area that leads to higher sales, not the larger storage room, back office or laboratory (Desselle–Zgarrick 2004). The area of the officina and the pharmacies' total space however, correlate with each other, which confirms the sectoral experience according to which a sizeable back office capacity is also needed to successfully run pharmacies offering a wide range of products (Clark–White 2009).

We predicted a notable contribution of site characteristics to BP (Pillittere et al. 2009), but it was only the number of passers-by the pharmacy that imposed a significant positive effect on both sales and net profit. Curiously, even the effect of the hospitals', healthcare institutions' and retail units' vicinity only approached significance. The pharmacies' BP hence was determined rather by socio-demographic characteristics and SO, collectively "suppressing" partial effects of site attributes. On the one hand our results contradict the majority of retail economics' empirical experiences (Huff 1964; Levy–Weitz 2012), while on the other they prove that a conscious choice of viable SO and its consistent implementation could contribute to the increase of BP in a more substantial way. This indicates the supervision of financial resources spent on the development of location and site parameters as well as physical evidences of pharmacies.

Conclusions

Following the detailed presentation of our results, as a conclusion of the paper we provided a clear arrangement and summary of the key findings derived from answering and testing our research questions and hypotheses pertaining to the sector-specific emergence and the BP implications of M&S's SOs.

In our study we made an attempt to approach the transformation process of the HPRDS in a scientific way without any political preconceptions or professional interests. We have proven that due to turbulent changes experienced in the market, legislative and pharmaceutical environments we could witness a clear divergence in the pharmacies' adaptive behaviour and BP. Our findings pointed out that in spite of the restrictive austerity measures and bureaucratic/ethical coordination mechanisms, consciously chosen and consistently implemented SOs have sporadically appeared and became of crucial importance in successfully running pharmacies. Our results suggest that market oriented and proactive strategic stances pursued by pharmacies could substantially contribute to the enhancement of BP irrespectively to any socio-demographic, location or site characteristics. However, as managerial skills of pharmacists are rudimentary, many of them still struggle with the development of such entrepreneurial behaviour and the execution of proper strategic tasks.

As far as the main limitations of our research are concerned we have to admit that we only managed to apply two of the originally planned three extraction techniques aiming to identify M&S's SOs (Snow–Hambrick 1980). Besides the Segev scale and self-typing paragraphs method, the method of objective indicators did not contribute to the assignment of pharmacies to SOs, thus the classical convergent validity of measurement instruments can be further improved in later studies. The prevalence of Prospector, Analyser and Defender/Reactor SOs identified in the HPRDS did not contribute substantially to the explanation of the pharmacies' profitability. In the vast majority of our examinations conducted by SEM-based techniques, we obtained quite decent values for fit indices (CMIN/d.f., RMSEA, CFI) with the exception of the SRMR indicator that did not comply with the cut-off criteria determined by the methodological literature in any case.

In the future we would promote to shift from cross-sectional data collection designs, since the development of strategic awareness and trends in changes of SOs observed within the sector can only be quantified via longitudinal studies. Moreover, studies conducted on the

development of necessary management skills and competencies of pharmacists represent a promising research area and a sector-specific challenge to both academics and practitioners.

One of the main deficiencies of our paper lies in the fact that – knowing the structure of the Hungarian public pharmacies – the criteria of representativeness were not completely met in our research. This was already determined by the sampling frame, but the chosen counties according to their socio-demographic and sector-specific characteristics, demonstrate quite well the structural peculiarities of the total pharmacy population. Our sample was representative in terms of settlement structure, BP, and corporate legal form, whereas it was not according to ownership structure and the participation in horizontal and vertical cooperation forms. Nevertheless, despite our expectations, the participation of pharmacies in horizontal cooperation and/or vertical integrations did not influence their BP. The examination of strategic behavioural patterns in similar cooperation forms could be a promising and gap-filling research area, especially around the degree of con(di)vergence in SOs pursued by the "headquarter" and participating pharmacies, and its BP implications as well.

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Annexes

Annex 1. The summary of the answers given to the research questions of our study

	RESEARCH QUESTION	ANSWER
Q1	According to the environmental adaptation behaviour of pharmacies, can we observe all the original SOs of M&S in the HPRDS?	No
Q2	In the HPRDS whether markedly distinguished, pure SOs or hybrid/mix environmental adaptation patterns can be identified?	2 pure and 1 hybrid, rather "mix"
Q3	To what extent the distribution ratios of pharmacies - following Prospector, Defender, Analyser and Reactor SOs identified in the HPRDS - differ based on the classification results of diverse strategy extraction techniques applied in our research?	4 factor: significantly 3 factor: minimally
Q4	To what extent the distribution ratios of pharmacies - pursuing different industry-specific SOs of M&S - differs from each other?	According to both method: D/R(%) >A(%) >P(%)

Q4a	Is the distribution ratio of pharmacies following Defender SO exceeded by that of pharmacies pursuing Prospector SO?	Deleted
Q4b	Is the distribution ratio of pharmacies following Analyser SO exceeded by that of pharmacies pursuing Prospector SO?	Paragraphs: No Segev: No
Q4c	Is the distribution ratio of pharmacies following Defender SO exceeded by that of pharmacies pursuing Analyser SO?	Deleted
Q4d	Is the distribution ratio of pharmacies following Analyser and Prospector SOs exceeded by pharmacies pursuing Defender/Reactor SO?	Paragraphs: Prospector Yes, Analyser No Segev: Yes, both
Q5	Does the degree of PEU by pharmacy managers - following different SOs of M&S - differ from each other?	Yes
Q5a	Is the degree of PEU by pharmacists following Analyser SO exceeded by the degree of PEU by pharmacists pursuing Prospector SO?	Yes
Q5b	Is the degree of PEU by pharmacists following Defender SO exceeded by the degree of PEU by pharmacists pursuing Analyser SO?	Deleted
Q5c	Is the degree of PEU by pharmacists following Defender SO exceeded by the degree of PEU by pharmacists pursuing Prospector SO?	Deleted
Q5d	Is the degree of PEU by pharmacists following Prospector and Analyser SOs exceeded by the degree of PEU by pharmacists pursuing Defender/ Reactor SO?	No (Analyser: Yes Prospector: No)
Q6	Does the prevalence of different SOs of M&S differ according to groups of pharmacies characterised by high/low levels of PEU?	No
Q6a	In the group of pharmacies characterised by high levels of PEU is the prevalence of Prospector SO greater than in the group featured by low levels of PEU?	No

Q6b	In the group of pharmacies characterised by high levels of PEU is the prevalence of Defender SO lesser than in the group featured by low levels of PEU	Deleted
Q6c	In the group of pharmacies characterised by high levels of PEU is the prevalence of Analyser SO lesser than in the group featured by low levels of PEU?	No
Q6d	In the group of pharmacies characterised by high levels of PEU is the prevalence of Defender/ Reactor SO greater than in the group featured by low levels of PEU?	No
Q7	Is the degree of influence of SOs followed by pharmacies on PEU exceeded by the effect of PEU by pharmacists exerted on the SOs?	No

Source: author's own design

Annex 2. Summarised evaluation of the results of the hypotheses formulated and tested

	HYPOTHESES	RESULTS
H1	The strength of the relationship between Prospector, Analyser, Defender SOs and the sales of pharmacies differ from each other	Accepted
H1a	The strength of positive the relationship between Prospector SO and sales of pharmacies exceeds the degree of the positive relationship between Analyser SO and sales of pharmacies	Accepted
H1b	The strength of the positive relationship between Prospector SO and sales of pharmacies exceeds the degree of the positive relationship between Defender SO and sales of pharmacies	Cancelled
H1c	The strength of the positive relationship between Analyser SO and sales of pharmacies exceeds the degree of the positive relationship between Defender SO and sales of pharmacies	Cancelled

H1d	Following Defender/Reactor SO makes a negative influence on the sales of pharmacies	Accepted
H2	The strength of the relationship between Prospector, Analyser, Defender SOs and the net profit of pharmacies differ from each other	Rejected
H2a	The strength of the positive relationship between Defender SO and the net profit of pharmacies exceeds the degree of the positive relationship between Analyser SO and the net profit of pharmacies	Cancelled
H2b	The strength of the positive relationship between Defender SO and the net profit of pharmacies exceeds the degree of the positive relationship between Prospector SO and the net profit of pharmacies	Cancelled
H2c	The strength of the positive relationship between Analyser SO and the net profit of pharmacies exceeds the degree of the positive relationship between	Rejected
H2d	Prospector SO and the net profit of pharmacies Following Defender/Reactor SO has a negative effect on the net profit of the pharmacies	Rejected
H3	The PEU moderates the relationship between M&S's SOs and sales of the pharmacies	Rejected
H3a	In parallel to increased degree of PEU the positive relationship between Prospector SO and the sales of the pharmacies becomes stronger	Rejected
H3b	In parallel to increased degree of PEU the positive relationship between Analyser SO and the sales of the pharmacies becomes stronger	Rejected
H3c	In parallel to increased degree of PEU the positive relationship between Defender SO and the sales of the pharmacies becomes stronger	Cancelled
H3d	In parallel to increased degree of PEU the negative relationship between Defender/Reactor SO and the sales of the pharmacies strengthens	Rejected
H4	The PEU moderates the relationships between M&S's SOs and net income of the pharmacies	Rejected

H4a	In parallel to increased degree of PEU the positive relationship between Prospector SO and the net profit of pharmacies weakens	Rejected
H4b	In parallel to increased degree of PEU the positive relationship between Analyser SO and the net profit of pharmacies weakens	Rejected
H4c	In parallel to increased degree of PEU the positive relationship between Defender SO and the net profit of pharmacies weakens	Cancelled
H4d	In parallel to increased degree of PEU the negative relationship between Defender/Reactor SO and the net profit of pharmacies strengthens	Rejected
H5	The GL of the pharmacies moderates the relationship between the SOs and sales of the pharmacies	Partially accepted
H5a	In urban context the positive relationship between Prospector SO and sales of pharmacies becomes stronger compared to rural areas	Rejected
H5b	In urban context the positive relationship between Defender SO and sales of pharmacies becomes stronger compared to rural areas	Cancelled
H5c	In urban context the positive relationship between Analyser SO and sales of pharmacies becomes stronger compared to rural areas	Rejected
H5d	In urban context the negative relationship between Defender/Reactor SO and sales of pharmacies becomes stronger compared to rural areas	Rejected
H6	The GL of pharmacies moderates the relationship between the SOs and net profit of pharmacies	Partially accepted
H6a	In urban context the positive relationship between Prospector SO and the net profit of pharmacies is weaker than in rural areas	Accepted
H6b	In rural context the positive relationship between Defender SO and the net profit of pharmacies is stronger than in urban areas	Cancelled

H6c	In urban context the positive relationship between Analyser SO and the net profit of pharmacies is weaker than in rural areas	Accepted
H6d	In urban context the negative relationship between Defender/Reactor SO and the net profit of pharmacies is stronger than in rural areas	Rejected
H7	PEU in combination with GL moderates the relationships between M&S's SOs and the sales of pharmacies	Rejected
H7a	In urban context the increasing degree of PEU makes the positive relationship between Prospector SO and the sales of pharmacies stronger than that experienced in rural environment	Rejected
H7b	In urban context the increasing degree of PEU makes the positive relationship between Analyser SO and the sales of pharmacies stronger than that experienced in rural environment	Rejected
H7c	In urban context the increasing degree of PEU makes the positive relationship between Defender SO and the sales of the pharmacies stronger than that experienced in rural environment	Cancelled
H7d	In rural context the increasing degree of PEU makes the negative relationship between Defender/Reactor SO and the sales of the pharmacies stronger than that experienced in urban environment	Rejected
H8	PEU in combination with GL moderates the relationships between M&S's SOs and the net profit of pharmacies	Rejected
H8a	In rural context the increasing degree of PEU makes the positive relationship between Prospector SO and the net profit of pharmacies weaker than that experienced in urban environment	Rejected

H8b	In rural context the increasing degree of PEU makes the positive relationship between Analyser SO and the net profit of pharmacies weaker than that experienced in urban environment	Rejected
H8c	In rural context the increasing degree of PEU makes the positive relationship between Defender SO and the net profit of pharmacies weaker than that experienced in urban environment	Cancelled
H8d	In rural context the increasing degree of PEU makes the negative relationship between Defender/Reactor SO and the net profit of pharmacies stronger than that experienced in urban environment	Rejected
H9	The interrelations established as a result of the potential moderating influence of the PEU and GL - on the relationship between the SO and BP are robust after controlling for the effect of relevant industry-specific variables	Partially accepted
H9a	The observed relationships between the SOs of Miles and Snow and sales of pharmacies are robust	Partially accepted
H9b	The observed relationships between the SOs of Miles and Snow and net profit of pharmacies are robust	Partially accepted