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From five competitive forces to five collaborative forces: revised view on industry structure-firm interrelationship

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Abstract

We believe that the M.E. Porter's famous analytical "Five competitive forces" tool should be modified for assessing today's dynamic industry's structure. In this paper, we introduce the dimension of time dynamics should be brought into the "Five forces" tool, as to enable managers to get clear(er) insight in the existence and nature of past, present and future (anticipated) interaction between firm and its industry environment. We also address critical analysis of the original concept, stating that it does take into consideration a firm's potential collaborative relations with determinants of industry environment. The empirical analysis of the enhanced M.E. Porter's concept by using the psychometric tool INDUSTRUCT, refined by introducing the additional dimensions of time dynamics and type of competitive forces influence on firm's efficacy in order to reveal potential positive impacts of industry structure. Our results confirm the validity and the reliability of "Five forces" framework and demonstrate relative stability of industry structure over the time, as well as significant level of positive impact of industry's structure determinants on firm's efficacy.

Keywords: M. E. Porter, Five forces, Industry analysis, Competition, Cooperation

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1. Introduction

At the end of 1970's and early 1980's when M.E. Porter (1979, 1980) presented and established his famous analytical "Five competitive forces" tool, world's economy was characterized by continuous growth trend. In such global circumstances the development of majority national industries was generally stabile and predictable. Consequently, the main prerequisite for business goals accomplishment could have been optimization of firm's strategic behavior in relation to external competitive environment. "Grabbing" for profits as the main business goal in combination with constant character of industry structure's determinants led to great success of Porter's analytic tool in terms of its relevance and applicability.

Static analytic tool for assessing today's dynamic industry's structure is no longer optimal. The dimension of time dynamics should be brought into the "Five forces" tool. It should become more practical from the perspective of

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changing environment trends enabling managers to get a clear(er) insight in the existence and nature of past, present and future (anticipated) interaction between firm and its industry environment.

2. Literature Review: From Five Static Competitive Forces to Five Dynamic Collaborative Forces

2.1. Literature Review

Opportunities and threats for the firm that are coming from the actual industry environment could be interpreted as implications for the future influences of industry structure determinants. This relation is in-line with the view of “New industrial organization” theoreticians regarding mutual interrelationship between the elements of “S-C-P” paradigm (Structure-Conduct-Performance) but adding it a dynamic time dimension.

The character of determinants of industry structure could be the result of: (1) past answer of the firm to the past and/or actual opportunities and threats coming from industry environment, (2) present answer to the present opportunities and threats coming from industry environment, and (3) present answer to the anticipated opportunities and threats. Therefore, firm’s past, present and future strategic behavior in combination with past, present and anticipated character of industry’s structure determinants create the basis for different *competitive position* of the firm (i.e. its position among its direct competitors, being result of the influence of industry structure’s determinants on firm’s performance). Thus, it is not only relevant to define present firm’s competitive position, but also to analyze its relation to competitive position being result of past and/or anticipated influence of industry structure on firm’s performance. Not being able to analyze and explain dynamic industry changes is one of the most criticized aspects of Porter’s “Five forces” analytical tool (Grant, 2002, p. 89; Sheehan, 2005; Karagiannopoulos, Georgopoulos & Nikolopoulos, 2005; Stonehouse & Snowdon, 2007).

Additionally, M.E. Porter (1980) implied that industry determinants are exclusively “profit extortionists”, calling them “competitive” forces. From the standpoint of modern business relations resulting from global market turbulences, author obviously did not bring into the model enough flexibility making it potent to access possible positive interactions between firm and industry environment. Therefore, another criticized aspect of the analytic tool was not taking into consideration firm’s potential collaborative relations with determinants of industry structure (Dyer & Singh, 1998). Collaborative interrelationship between firm and industry determinants could result in lowering the level of uncertainty and by turning them into “partnership forces” (Yong-Kim & Oh, 2004). It doesn’t mean that the industry profit wouldn’t be allocated between different industry forces as Porter claimed, but that its allocation would be more predictable due to lowering of uncertainty level as a consequence of various collaborative compromises between “five forces”. Accordingly, Dyer and Singh (1998) claim that resources crucial for the firm can be created by linking up with other firms through strategic alliances, joint-ventures, etc. In that way the firm could create competitive advantage by being a part of a bigger network of relationships with buyers, suppliers and direct rivals creating mutually beneficial “exchange net”.

2.2. Research Model and Hypothesis Development

There is no doubt that Porter’s framework is helpful tool for managers to cope with external environment. But there is an obvious need to enable modern managers to better detect industry changes enabling them to become faster and more precise in selecting optimal strategic alternatives. By taking into respect actual dynamism of global economy as well as potential eligible impact coming from positive effects of industry factors, “Five competitive forces” framework should be empirically improved. Adding it dynamic dimension that would allow tracking past, present and anticipated interrelationship between firm and industry structure components, managers would be able to detect the level of industry change. At the same time, making the framework potent to measure both positive and negative influences of industry structure’s determinants on firm’s performance, it would be possible to capitalize on potential positive interrelationship. Thus, empirically improved “Five forces” framework could serve as even more helpful tool for today’s tough competitive landscape (Figure 1).

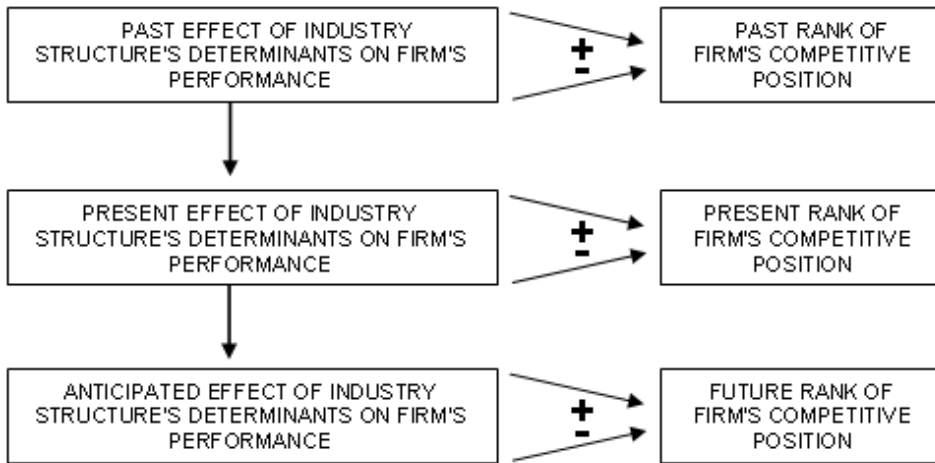


Fig. 1. Empirical framework for assessing dynamic industry structure-firm interrelationship

As to further explore the potential of the tool, as well as to address the critical issues raised by previous research, we test the following hypothesis:

H1: Industry structure has time-specific effect on firms, and these effects are not exclusively negative.

3. Research Methodology

3.1. Sample, Data Collection and the Analytical Procedure

“Five forces” tool was empirically verified by using the psychometric tool INDUSTRUCT (Pecotich et al, 1999). For the purpose of this paper, the INDUSTRUCT was expanded by additional dimensions, covering the dynamics and the influence of competitive forces on firm’s perceived efficacy in order to reveal potential positive impacts of industry structure.

In order to simultaneously measure the form and the intensity of impacts of industrial factors, Likert measurement scale was used, with seven levels of measurement. It consisted of three positive measures (from +1 to +3), three negative measures (from -3 to -1) and a neutral point (0), describing the impact of competitive forces on the perceived success of firms. This provides the insight into the level of the positive effect of competitive forces on a firm, i.e. into the cumulate level of the positive and negative impact of the competitive forces. Porter’s framework has been dynamized by the parallel measurement of the form and the intensity of impact of industrial factors in three different time periods: (a) the average effect of the last three years, (b) effect of the current year, and (c) the anticipated average effect for the next 3 years. With the simultaneous testing of the impact of competitive forces for three different time periods, the respondent relatively simply connects past developments with the current ones. By using this method, the respondent is enabled to anticipate the future impacts of the observed cases.

Framework was tested on Croatian medium and large firms within food and beverage industry. Respondents were top managers of medium and large firms, supposed to possess an insight into the relationship of their firms with the competitive environment.

The relevance of cumulative observations of medium and large firms in the industrial analysis has empirically been verified in several occasions (Kambhampati, 1996; Powell, 1996; Claver, Molina & Tari, 2002; Morgan, Strong & McGuinness, 2003). While their share in the total number of firms in Croatia was at the level of 5%, their share of the overall Croatian processing industry represents as much as 18% of registered enterprises, which contributes to the relevance of the empirical research.

After we collected the 41 returned questionnaires, we obtained an acceptable return rate of 43.4% (see, e.g. Powell, 1996). We cumulated the items for each of the five factors of the industrial structure, i.e. (1) industry competitors; (2) suppliers; (3) new entrants; (4) buyers; (5) substitutes. We allowed both for positive and negative assessment of the item's (and factor's) impact on the firm's perceived efficacy and, finally, computed (6) overall impact of all factors. Those were assessed for multiple points in time.

4. Research Results

Firstly, we have checked the normality of composite variables representing the industrial structure, as a basic precondition for further analysis. For this purpose, we have used the non-parametric Kolmogorov-Smirnov test (K-S test). According to K-S test, there were no statistically significant differences between the empirical and assumed function of the normal form distribution, for all three observed periods. We have further computed arithmetic means for the assessments provided by respondents for individual questionnaire items, measured on the previously described, 7-point Likert scales. Once they were summed up, as to obtain the cumulative variables, describing the impact of individual industrial forces to a firm, it was confirmed that the *pattern of respondents' evaluation was consistent with the Porter's Five forces framework*, across the three analyzed time periods, although the respondents were not aware of the manner in which individual items were grouped into the higher-level ('five forces') constructs. Allowing both for positive and negative respondents' assessments, the following values were obtained as aggregated evaluations of five forces' impact to an individual firm. Since the original items, measured on a Likert scale (with values ranging from -3 to +3), were transformed to a new scale (with values ranging from 1 to 7), the averages, presented by the following table, values of the overall construct of up to 3.5 can be considered as a *threat of the competitive force* to an individual enterprise, while the values higher than 3.5 can be considered as an *opportunity presented by the action of the competitive force* to an individual enterprise. This is in line with our previous supposition on the potential of competitive forces to represent both competitive and cooperative actions within an industry.

Table 1. Individual and cumulative impact of competitive forces to an individual firm within the industry

<i>Impact of competitive forces</i>	<i>Competitors</i>	<i>Suppliers</i>	<i>New entrants</i>	<i>Substitutes</i>	<i>Buyers</i>	<i>Overall impact</i>
<i>Last three years</i>	3.29	3.76	3.47	3.80	3.82	3.62
<i>Currently</i>	3.22	3.76	3.36	3.64	3.68	3.52
<i>Three years in the future (anticipated)</i>	3.22	3.80	3.27	3.55	3.73	3.53
<i>Cumulative</i>	3.29	3.78	3.36	3.66	3.74	3.55

The existing industrial competitors had the most negative impact to an individual firm in the past period (3.29). In respect to the total impact of competitive forces, only new competitors still had a below-average (more negative than the average) impact in the past. Above average (more positive than the average) impact in the observed period, i.e. collaborative nature of the 'competitive force' could be attributed to suppliers (3.76), substitutes (3.80) and, ultimately, to buyers (3.82). The positive/collaborative impact of buyers is interesting, as buyers' bargaining power is considered to be a serious obstacle to the realization of the profit-making potential. However, it seems that our respondents were able to find medium-term models of partnership. The same conclusion applies to suppliers, as well.

There is a relative consistency of perceptions for the impact of competitive forces to an individual firm throughout time. The strong negatively perceived impact of rivalry among the existing competitors continues in current, as well as in the future (anticipated) period, although in the past period, this is not the most negatively perceived competitive force. The competitive rivalry, thus, has the character of the most negative competitive force, from the dynamic aspect (3.29). If one considers the industry dynamics of food and beverage industry in Croatia, it is logical that jockeying for market position supposes taking over market share from competitors, weakening, and, eventually, vanishing of competition. It is interesting, however, that firms in the upcoming medium-term period do not perceive the existing industrial competitors as the most negative competitive force. They see the danger coming primarily from the threat of new competitor entries (3.27). They also notice a strong upcoming threat in substitute products (3.55). This can be interpreted with the perception of upcoming opening of Croatian market to the EU, as related to expectations of the increased inflow of foreign capital. Additionally, further technological development, as well as changes in the

behavior of buyers and/or consumers, are expected, which could contribute to the increased supply and demand for substitute products.

Dynamic (cumulative) average impact of factors of the industrial structure through different time periods on the firm is of dominantly negative character. From arithmetic mean value of 3.62 for the impact in the previous period, the impact of the structure of food and beverage industry in Croatia falls to the value of 3.52 (current period) and 3.53 (future period). However, after taking into consideration the intensity of change (the strengthening of the negative impact of 2.8 % from the period „past“ to the period „current“, or strengthening of positive effect of 0.28 % from the period „current“ to the period „anticipated“), it can be concluded that it is a dynamically consistent phenomenon.

Let us consider where the cumulative impact of the individual competitive forces, as presented by Figure 2. On this figure, we have, once again, reverted to the original measurement scale, with values ranging from -3 to +3 (including 0 as a neutral value), in order to visually demonstrate the competitive vs. the cooperative outcomes of actions performed within an industry. It should be noted that the high-level constructs, representing individual competitive forces, consist of a different number of items. While the total cumulated influence of all items, used to measure an individual competitive force, is represented by columns. While the columns positioned along the positive axis represent the sum of influences, exerted by the items representing cooperative industry actions, those positioned along the negative axis of the diagram represent the sum of influences, exerted by items representing competitive industry actions. The resulting influence of a competitive force is, at the end, computed as a sum of positive and negative influences and represented by a line plot in Figure 2.

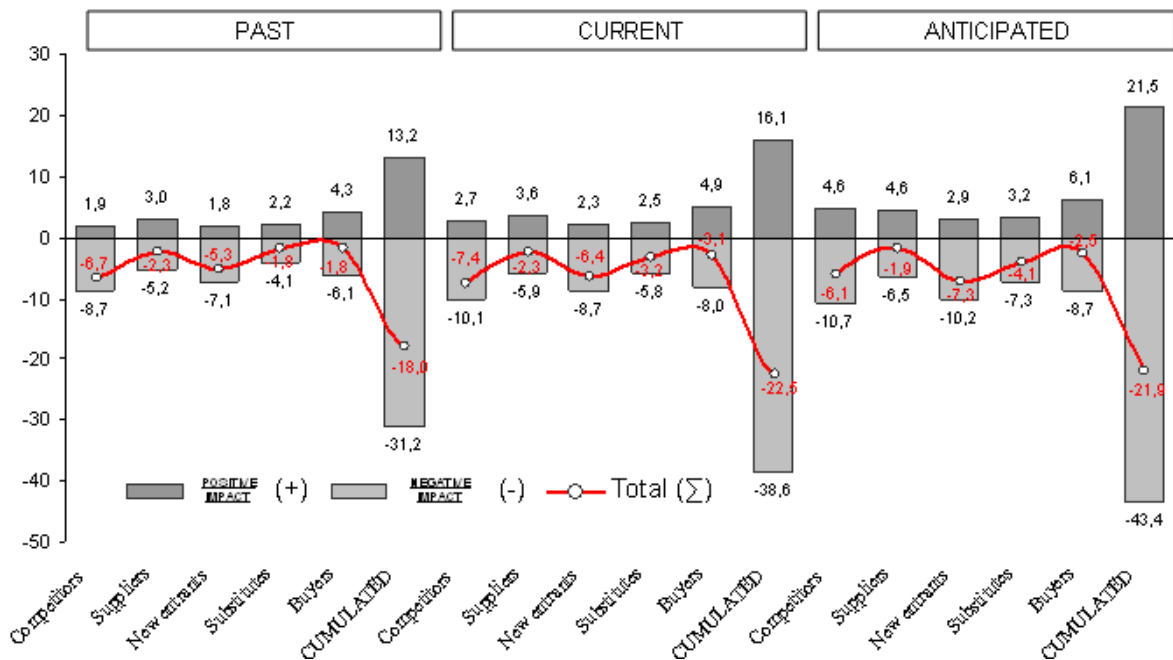


Fig. 2. Shape and intensity of dynamic impact of competitive forces to an individual firm

Once again, rivalry among the existing competitors proves to be the most significant competitive force, which negatively influences profitability of an individual firm. There are only a few positive outcomes of this competitive force (as a result of cooperative actions), which is perfectly logical. The same applies to the entry of new competitors and influence of substitutes, which is also logical, provided that they are in the arena, ‘chasing’ their own share of an industry’s total profit-making potential. However, the interviewed managers perceive that the positive outcomes of the competition among the existing rivals will be becoming higher in the future. That can be interpreted with the probability of intention of entering into partnerships, or alliances among the existing competitors, directed toward the industrial newcomers.

Additional visual inspection of Figure 2 demonstrates that the buyers' bargaining power has the highest positive impacts on the firm, while the strengthening of negative impacts of this competitive force over time is neutralized by the perceived effects of cooperation. If we consider positive and negative aspects of all competitive forces over time, it can be concluded that the *positive/cooperative aspects are perceived to be on the rise* (for practically all competitive forces), simultaneously with the *strengthening of negative/competitive influence of competitive forces on the firm* (which is, once again, the case with all competitive forces).

Therefore, the perceived cumulative impact, obtained by confronting the positive versus negative influences, depends on the dynamics of their development over time. Therefore, as to provide a better representation of such dynamics, firstly we visualize the overall impact of each competitive force in a relative way (see Figure 3). This figure can be interpreted in analogy to Figure 2, with the exception that the influence of each competitive force is represented as a whole of 100%, with the positive/cooperative influences represented by the part of the bar positioned along the positive axis of the diagram (and vice versa for negative/competitive influences).

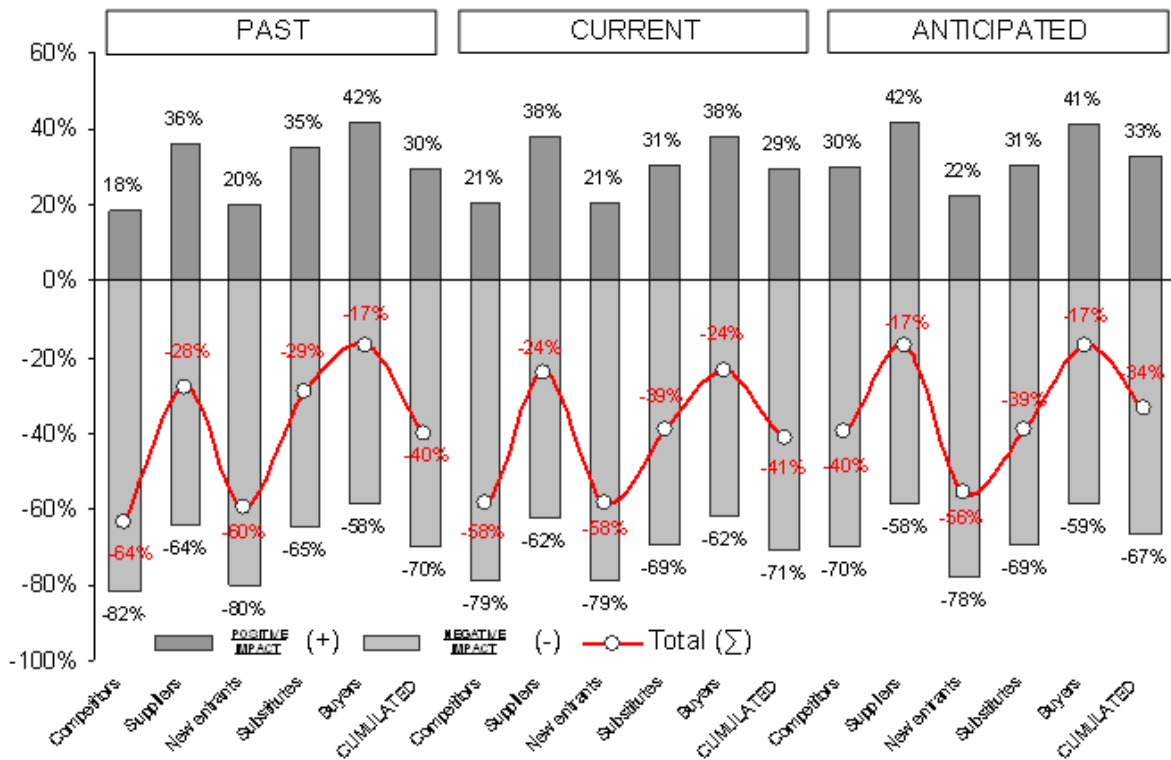


Fig. 3. Shares of the opposite impacts of competitive forces in different time periods

Beside the *consistency of the dynamic movement of competitive forces* (which results from similarities of their cumulated impact), what is most noticeable from our results, is the *empirical evaluation of the theoretical description of competitive forces as being 'automatically' opposed to a firm's profit-making potential*. Namely, by naming the defined factors of industrial structure 'competitive forces', Porter suggests the exclusively negative nature of their influence toward the profit potential. Although it is obvious from Figure 3 that Porter (1979) was right observing competitive forces as having the negative cumulative impacts (for the previous period, it amounts -40 %, for the current period -41%) and for the future/anticipated period -34%), his point of view **should be complemented with the term of competitive forces having the 'dominant' (but not exclusively) negative impact on individual industry participants**. That is, relatively high levels of the positive (within total impact) cumulative impacts of competitive forces in all observed time periods (30% for the previous/past, 29% for the current and 33% for the future/anticipated period) support the mentioned claim.

The dynamic influence of individual competitive forces over three time periods (past, present and anticipated future) is represented by Figure 4, which groups the influence of individual forces by the observed time period.

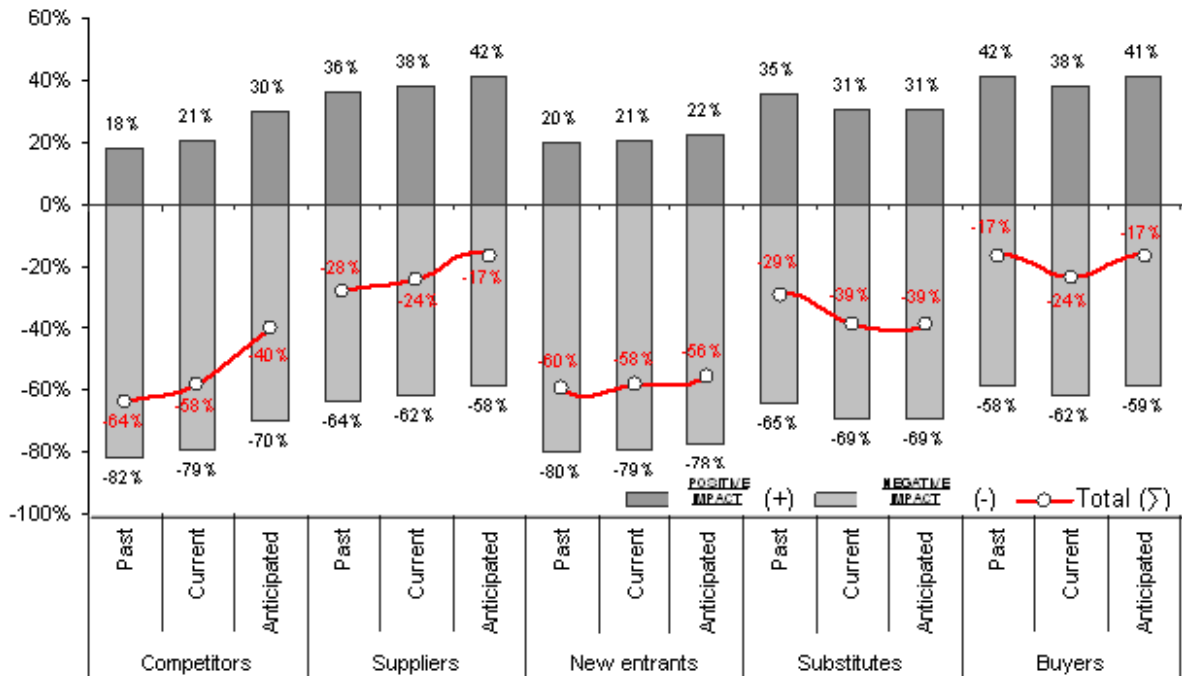


Fig. 4. Shares of the opposite impacts of competitive forces in different time periods

This confirms the presence of positive effects, exerted by all competitive forces, especially by the buyers’ bargaining power (42% for the previous period, 38% for the present and 41% for the future/anticipated period) and suppliers’ bargaining power (36% for the previous period, 38% for the present and 42% for the future/anticipated period). The positive/cooperative aspects of suppliers’ bargaining power almost even neutralizes the negative/competitive aspects of the influence, exerted by this competitive power on an individual firm.

According to the results of the study, the given research hypothesis can be confirmed. **Therefore, industry structure has time-specific effect on firms, and these effects are not exclusively negative.**

5. (Instead of a) Conclusion

In this study, we assessed both: (a) perceived consistency of five competitive forces through different time periods (past, present, anticipated/future) as well as (b) the perceived level of positive impact of competitive forces on firm’s profit earning potential. *Based on the results of the empirical research, it is possible to confirm the given research hypothesis. The industrial structure, therefore, forms time-specific influences on its participants, which are not exclusively negative.*

This study, has therefore, empirically verified the Porter’s ‘competitive forces’ construct, with an twist, already indicated by previous theorizing, related to the possible cooperation effects (i.e. positive influence of cooperative forces) and the analysis of their dynamic character. Porter’s ‘Five forces’ framework, enhanced in such a manner, can detect whether the industry structure is (relatively) constant, or a rather changing dimension, as well as which of its determinants positively (or negatively) influence performance of an individual industry participant (due to competitive, or cooperative firm behavior). The future research tasks include the need to confirm the results of this study in other industries, as to generalize the findings and provide a solid evidence for global change in perspective of

applicability of the competitive forces analytic tool. As such empirical analyses are conducted, one could even raise the issue of renaming the framework from 'Competitive forces' into 'Partnership forces' ? This could be an interesting hypothesis for future studies, which could offer deeper insight into positive relations between firms and determinants of industry structure which they interact with.

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