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Welcome to issue number 45 of the *International Journal of Management and Economics*. This issue is special, as all the papers included in it were written by our young colleagues, faculty members, doctoral program alumni and doctoral students, participating in programs offered by the World Economy Collegium at Warsaw School of Economics in Polish and in English. The authors represent various stages of an academic career. The issue begins with two articles of our faculty members. Later, the works of our doctoral programs alumni, who were recently granted (or will hopefully soon be granted) doctoral degrees, are presented. An article written by three authors were included in this group. In this case, the doctoral candidate was supported by an accomplished researcher and a doctoral student. The issue ends with the results of research conducted by a doctoral program student.

The first article “Inter-firm Relationship Quality vs. Perceived Cultural Differences” was written by Lidia Danik. This paper focuses on Polish company managers’ perceptions of cultural differences impact on the quality of relationships between international partners. The employed empirical data concerned Polish exporters and importers and their German and Chinese partners.

The second study, by Małgorzata Stefania Lewandowska, is entitled “Capturing Absorptive Capacity: Concepts, Determinants, Measurement Modes and Role in Open Innovation”. There is no doubt that innovativeness determines firm competitiveness on the majority of markets. Innovativeness requires the multi-sourcing of ideas, but also the ability to assimilate the good ones and transform them into business projects. A comprehensive literature review on the subject enables the author to compare absorptive capacity and open innovation concepts and suggest further research paths.

The primary interest of the third author, Marta Czarnecka-Gallas, is Brazilian economic policy shifts. She was recently granted a doctoral degree and now she takes care of her little baby daughter. The paper, entitled “The Institutional and External Factors Behind the Switch of a Country’s Economic Growth Strategy. The Case of the Brazilian Economic Policy”, is aimed at analyzing the evolution of Brazil’s economic growth strategy in an economic and institutional context.

The fourth article, by Piotr Wójcik, is – similarly to the article on absorptive capacity – an in-depth literature review, as suggested by the title “Exploring links between dynamic capabilities perspective and resource-based view: A literature overview”. The scarcity of literature on the relationship between dynamic capabilities and other theoretical concepts...
within the strategic management inspired the author to synthesize the available literature in order to confront the notions of dynamic capabilities with such categories as resources, assets, competencies and static capabilities.

The fifth article by Anna Mazur, Zaur Phutkaradze, and Jaba Phutkaradze concerns application of the Environmental Kuznets Curve. This empirical work, entitled “Economic Growth and Environmental Quality in the European Union Countries – Is there Evidence for the Environmental Kuznets Curve?” explores the relation between carbon dioxide emission and economic growth during the period 1992–2010 in EU countries. The analysis was conducted for all 28 current member states, as well as for a group of 16 high-income states within EU.

Natalia Szomko presents the paper “Investor Reaction to Information on Final Dividend Payouts on the Warsaw Stock Exchange – an Event Study Analysis”. This research contributes to the body of knowledge on dividend policy. As indicated in the title, investor reaction to information on the final value of dividend payouts was studied by using the event study methodology. The results showed that the magnitude of investor reactions was significantly lower than described in the studies based on data from highly developed countries.

I hope that the readers will find interesting the works of this new generation of researchers.
Lidia Danik
Institute of International Management and Marketing,
Warsaw School of Economics, Poland

Inter-firm Relationship Quality vs. Perceived Cultural Differences

Abstract

The objective of this exploratory study is to determine whether and (if so) how perceived cultural differences influence relationship quality.

To make this determination this study analyzed the cooperation of 278 Polish exporters and importers with their German and Chinese partners. Indicators of perceived cultural differences by cooperating companies were created, and then linear regression models were derived, showing the dependence of relationship quality dimensions on the perceived cultural differences. The findings confirmed the impact of the cultural differences perceived by Polish partners on all dimensions of inter-firm relationship quality. However, not all the perceived differences influenced the relationships. The perception of the differences did not depend strongly on the partner’s country of origin.

This study identifies new antecedents of relationship quality, which not only contribute to the international business theory but also suggests practical managerial implications. On the whole, managers can improve relationship quality if they behave similarly to their partners.

Keywords: cross-cultural management, relationship marketing, cultural differences, international cooperation, relationship quality

JEL: F23, L14
Introduction

Growing competition on the global market makes cooperation with the right partners an important condition for success. Inter-firm relations have gained therefore in importance. Good relations with a business partner also lower transaction costs, help building customer commitment and allow access to knowledge and technology of the partner – thus increasing the length and intensiveness of the cooperation. Lasting and good relations can serve as bridges to other firms that may be instrumental in mobilizing partners against threat from competitors [Johanson, Mattsson, 1987]. Research provides empirical evidence of the dependence between relationship outcomes and perceived relationship quality, or satisfaction with the relationship. The positive influence of satisfaction with a relationship on customer loyalty on the B2B market was empirically tested by Chumpitaz, Caceres, and Paparoidamis [2007]. Their findings confirmed the high efficiency of investments in building trust and commitment. The research by Henning-Thurau et al. [2002] suggests that relationship quality influences marketing outcomes. Also Kose et al. [2013], in their study on relationship quality in sports organizations, shown that relationship quality positively affects satisfaction and recommendation behavior.

Cooperation with foreign partners has been practiced by a growing number of firms, even small ones. Cooperation with international partners can be influenced by factors usually absent on the domestic market, such as cultural, economic, political, legal and technological differences. This impact has been a research topic of many studies, most of which were devoted to cultural differences.

Cultural differences influence cooperation between independent enterprises [Conway, Swift, 2000; Gianetti, 2012], the performance of partnerships [Meirovich, 2010] or trade between countries in general [Tadesse, White, 2010]. Cultural similarity and a partner’s national culture awareness are considered conditions of effective cooperation [Pabian, 2008; Stępień, 2011, p. 229], while cultural differences are treated as cooperation barriers [Leick, 2011]. According to de Burca et al. [2004], perceived relationship quality in a business-to-business context is influenced by two factors: culture and prior experiences, with prior experiences having an impact on the relationship assessment by customers while culture impacts both suppliers and customers.

The above mentioned studies hardly explain how cultural differences influence business relationship quality, which has mostly been studied rather in the business-to-business context. A study on cultural determinants of international relationship quality requires an exploratory than explanatory approach, as the existing literature offers only general explanations. Accordingly, the objective of this study is to determine whether and, if so, how perceived cultural differences influence the quality of relationships between companies.
Inter-firm Relationship Quality

Inter-firm cooperation and relations constitute an important element of such theories, as:
• the agency theory, pertaining to the relationship between principals and agents [Dowrick, 1954];
• the transaction costs theory, that pays particular attention to the possibility of opportunistic behavior of partners and to the costs of protection against such behavior [Williamson, 1991, pp. 75–94; Williamson 1998];
• network theories, focusing on cooperating subjects, activities they undertake and assets at their disposal [Håkansson, Johanson, 1992], and analyzing the relations between a supplier and customer (among the elements of the relation there are the exchange of goods, technologies, financial exchange and informal contact – see: Fonfara [2012, p. 15]);
• resource-based theories, according to which close, collaborative relationships with key customers and suppliers can be perceived as valuable firm assets [Hogan and Armstrong 2001]; and
• the social capital theory, pertaining to the role of trust in the cooperation [Putnam, 1995; Carlos, Pinho, 2013].

Relationship management is a subject of research and theoretical considerations in relationship marketing [Gummesson, 1987; Storbacka et al., 1994], institutional marketing [Szmigin, 1993], and – recently – international marketing [Lages et al., 2005].

Relationship quality is defined as “the overall depth and climate of the inter-firm relationship” [Johnson, 1999, p. 6], as an “overall assessment of the strength of a relationship and the extent to which it meets the needs and expectations of the parties” [Smith, 1998, p. 78]. It is frequently conceptualized as a high order construct, encompassing factors such as “trust, satisfaction, commitment, minimal opportunism, customer orientation, and ethical profile” [e.g., Dorsch et al., 1998, p. 130]. The latter approach is particularly helpful in measuring the relationship quality, although one could consider the proposed list of factors comprising the relationship quality as not complete. Moreover, it reflects the customer perspective, as it includes customer orientation. There are many studies concerning relationship components, factors influencing relationships or relationship aspects of inter-firm cooperation. None of the approaches reported so far predominates in the literature. The concepts of inter-firm relationship components (for a review of relationship quality definitions and studies, see Holmlund [2008]) differ in the degree of specificity and meaning ascribed to the individual properties of relationships, but one can still find certain similarities like ascribing crucial importance to trust or communication.

In line with the current research on the topic, this paper examines the ten dimensions of relationship quality described in Table 1.
<table>
<thead>
<tr>
<th>Relationship quality dimension</th>
<th>Terms used in other studies</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trust</td>
<td>trust</td>
<td>Morgan and Hunt, 1994; Naudé and Buttle, 2000; de Burca et al., 2004; Świątowiec, 2006, Ulaga and Eggert, 2006; Holmlund, 2008; Provan and Sydow, 2008; Ashnai et al., 2008; Kim et al., 2010; Kang et al., 2013; Kose et al., 2013</td>
</tr>
<tr>
<td>Atmosphere/commitment</td>
<td>relationship commitment</td>
<td>Morgan and Hunt, 1994; Roslin and Melewar, 2004</td>
</tr>
<tr>
<td></td>
<td>building a personal relationship</td>
<td>de Burca et al., 2004</td>
</tr>
<tr>
<td></td>
<td>atmosphere</td>
<td>Woo and Ennew, 2004</td>
</tr>
<tr>
<td></td>
<td>commitment</td>
<td>Ulaga and Eggert, 2006</td>
</tr>
<tr>
<td></td>
<td>acquaintance, respect, congeniality, pleasure</td>
<td>Holmlund, 2008</td>
</tr>
<tr>
<td></td>
<td>relational commitment, intimacy</td>
<td>Kose et al., 2013</td>
</tr>
<tr>
<td>Information flow</td>
<td>information exchange</td>
<td>Johanson and Mattson, 1987</td>
</tr>
<tr>
<td></td>
<td>communication</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>provision of timely and relevant information</td>
<td>de Burca et al., 2004</td>
</tr>
<tr>
<td></td>
<td>amount of information sharing, communication quality of the relationship</td>
<td>Lages et al., 2005</td>
</tr>
<tr>
<td></td>
<td>information exchange</td>
<td>Światowiec, 2006</td>
</tr>
<tr>
<td></td>
<td>communication</td>
<td>Kang et al., 2013</td>
</tr>
<tr>
<td>Forced cooperation/dependence</td>
<td>asset specificity</td>
<td>Williamson, 1998</td>
</tr>
<tr>
<td></td>
<td>dependence</td>
<td>Johanson and Mattson, 1987</td>
</tr>
<tr>
<td></td>
<td>relations termination costs</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>power</td>
<td>Naudé and Buttle, 2000; Ashnai et al., 2008; Provan and Sydow, 2008</td>
</tr>
<tr>
<td></td>
<td>specific assets in relationship, dependence</td>
<td>Światowiec, 2006</td>
</tr>
<tr>
<td></td>
<td>switching costs</td>
<td>Kim et al., 2010</td>
</tr>
<tr>
<td></td>
<td>dependence, transaction-specific investment, termination cost</td>
<td>Kang et al., 2013</td>
</tr>
<tr>
<td>Flexibility</td>
<td>adaptation processes</td>
<td>Johanson and Mattson, 1987</td>
</tr>
<tr>
<td></td>
<td>acquiescence</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>adaptation</td>
<td>Woo and Ennew, 2004</td>
</tr>
<tr>
<td></td>
<td>flexibility</td>
<td>Światowiec, 2006; Holmlund 2008; Hammervoll, 2009</td>
</tr>
<tr>
<td>Relationship quality dimension</td>
<td>Terms used in other studies</td>
<td>Authors</td>
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<tr>
<td>-------------------------------</td>
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<td>---------</td>
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<tr>
<td>Fulfillment of obligations</td>
<td>opportunistic behavior</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>fulfilling the promises made during negotiation or before the close of the deal</td>
<td>de Burca et al., 2004</td>
</tr>
<tr>
<td></td>
<td>opportunism</td>
<td>Światowiec, 2006</td>
</tr>
<tr>
<td>Conflicts</td>
<td>functional conflict</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>conflict resolution</td>
<td>Hammervoll, 2009</td>
</tr>
<tr>
<td></td>
<td>conflict</td>
<td>Kang et al., 2013</td>
</tr>
<tr>
<td>Similarity</td>
<td>shared values</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>decision-making uncertainty</td>
<td>Morgan and Hunt, 1994</td>
</tr>
<tr>
<td></td>
<td>risk and uncertainty</td>
<td>Światowiec, 2006</td>
</tr>
<tr>
<td></td>
<td>technological uncertainty</td>
<td>Kim et al., 2010</td>
</tr>
<tr>
<td>Competencies</td>
<td>use of competence</td>
<td>Holmlund, 2008</td>
</tr>
</tbody>
</table>

Source: own elaboration.

All the relationship dimensions mentioned above refer to intangible aspects of business cooperation. Therefore, it is hard to measure relationship quality objectively. What can be measured and studied is subjective relationship quality. As Holmlund stated: “The content of perceptions is a key element, and perceptions of a relationship are based on the interactions taking place in the relationships” [2008, p. 44].

Moreover, one cannot expect symmetry in relation quality perceptions between partners. The relationship quality perceived by one partner can be different than the quality perceived by the other one.

### Poland, Germany and China in Selected Studies on Culture

Culture was defined by Linton as “a configuration of learned behaviors and results of behavior whose component elements are shared and transmitted by the members of a particular society” [1945, p. 32]. Although culture was earlier a matter of interest on the part of representatives of many sciences, became imbedded in economic studies in the 1960s, when the interdependence between organizational and national culture was first investigated by Hofstede. The issues of cultural differences between individual nations are touched upon in the literature in the context of – among other topics – their influence on social development and economic progress [Harrison, Huntington, 2000], entry mode choice [Kogut, Singh, 1988], international organization management [Trompenaars, Hampden-Turner, 2002], consumer behavior [Briley, Aaker, 2006] and, finally, intercompany cooperation [Gesteland, 1999].
National cultures are described and compared by characterizing (most frequently through indicators) their individual dimensions. The methodology of some research (especially the research conducted by Hofstede) has been criticized by many authors (e.g., Fang [2003; 2005; 2012], Yaprak [2008], McSweeney [2009; 2013], Sasaki [2012], Filippaios, Avlaniti [2012] Taras et al. [2014]). These critiques mentioned above do not undermine the existence of cultural differences between countries and among individuals.

In order to establish the influence of cultural differences on relationship quality the cooperation of Polish companies with their Chinese and German partners was studied. Native countries of partners of the surveyed firms were selected according to their positions as Poland’s trade partners (in 2011 Germany was Poland's most important trade partner both in imports and exports, while China was Poland’s third biggest imports supplier [Rocznik Statystyczny, 2012]). The second reason for choosing these countries was the cultural distance between them and Poland, as indicated in the literature.

Some results of pertinent, previous research are presented below. However, the focus here will be on outcomes rather than applied methodology, which is studied in other publications [e.g., Minkov, 2013].

Each of the three countries under study belongs to a different culture cluster [House et al., 2004, p. 191; Gesteland, 1999]. According to Hofstede et al. [2011], Poland’s culture is close to the culture of Germany and China on certain dimensions (femininity-masculinity dimension), and in the case of others it differs in varying degrees.

Table 2 presents the results of selected studies on the national cultures of Poland, Germany and China (including observations by Gesteland [1999]). They are not consistent (e.g., indices for power distance in the case of GLOBE research, mainly in practices, are quite alike for the three countries while in the studies by Hofstede et al. they decidedly differ) as they were conducted at different times, using different methodology and with different cultural dimensions taken into account. However, the general conclusion is that according to these studies the national cultures or Poland, China and Germany are different.

<table>
<thead>
<tr>
<th>Culture dimension/index</th>
<th>Poland</th>
<th>China</th>
<th>West Germany</th>
<th>East Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Schwartz [1994]</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Conservatism</td>
<td>431</td>
<td>397*</td>
<td>342</td>
<td>350</td>
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<tr>
<td>Affective autonomy</td>
<td>313</td>
<td>332*</td>
<td>403</td>
<td>416</td>
</tr>
<tr>
<td>Intellectual autonomy</td>
<td>409</td>
<td>427*</td>
<td>475</td>
<td>447</td>
</tr>
<tr>
<td>Hierarchy</td>
<td>253</td>
<td>370*</td>
<td>227</td>
<td>269</td>
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<tr>
<td>Mastery</td>
<td>400</td>
<td>473*</td>
<td>407</td>
<td>416</td>
</tr>
<tr>
<td>Egalitarian commitment</td>
<td>482</td>
<td>449*</td>
<td>537</td>
<td>529</td>
</tr>
<tr>
<td>Harmony</td>
<td>410</td>
<td>371*</td>
<td>442</td>
<td>408</td>
</tr>
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Inter-firm Relationship Quality vs. Perceived Cultural Differences

<table>
<thead>
<tr>
<th>Culture dimension/index</th>
<th>Poland</th>
<th>China</th>
<th>West Germany</th>
<th>East Germany</th>
</tr>
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<tbody>
<tr>
<td>G - Gesteland [1999]</td>
<td></td>
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<tr>
<td>Deal-focus vs.</td>
<td>Moderate</td>
<td>Relationship-focused</td>
<td>Deal-focused</td>
<td></td>
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<tr>
<td>relationship-focus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Informal vs. formal</td>
<td>Formal</td>
<td>Formal</td>
<td>Moderately formal</td>
<td></td>
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<tr>
<td>Monochronic vs.</td>
<td>Polychronic</td>
<td>Polychronic</td>
<td>Monochronic</td>
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<tr>
<td>polychronic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive vs. reserved</td>
<td>Variably expressive</td>
<td>Reserved</td>
<td>Reserved</td>
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</table>

<table>
<thead>
<tr>
<th>GLOBE [House et al., 2004]</th>
<th>P</th>
<th>V</th>
<th>P</th>
<th>V</th>
<th>P</th>
<th>V</th>
<th>P</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance orientation</td>
<td>3.89</td>
<td>6.12</td>
<td>4.45</td>
<td>5.67</td>
<td>4.25</td>
<td>6.01</td>
<td>4.09</td>
<td>6.09</td>
</tr>
<tr>
<td>Future orientation</td>
<td>3.11</td>
<td>5.20</td>
<td>3.75</td>
<td>4.73</td>
<td>4.27</td>
<td>4.85</td>
<td>3.95</td>
<td>5.23</td>
</tr>
<tr>
<td>Gender egalitarianism</td>
<td>4.01</td>
<td>4.52</td>
<td>3.05</td>
<td>3.68</td>
<td>3.10</td>
<td>4.89</td>
<td>3.06</td>
<td>4.90</td>
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<td>Assertiveness</td>
<td>4.06</td>
<td>3.90</td>
<td>3.76</td>
<td>5.44</td>
<td>4.55</td>
<td>3.09</td>
<td>4.73</td>
<td>3.23</td>
</tr>
<tr>
<td>Institutional collectivism</td>
<td>4.53</td>
<td>4.22</td>
<td>4.77</td>
<td>4.56</td>
<td>3.79</td>
<td>4.82</td>
<td>3.56</td>
<td>4.68</td>
</tr>
<tr>
<td>In-group collectivism</td>
<td>5.52</td>
<td>5.74</td>
<td>5.80</td>
<td>5.09</td>
<td>4.02</td>
<td>5.22</td>
<td>4.52</td>
<td>5.18</td>
</tr>
<tr>
<td>Power distance</td>
<td>5.10</td>
<td>3.12</td>
<td>5.04</td>
<td>3.10</td>
<td>5.25</td>
<td>2.54</td>
<td>5.54</td>
<td>2.69</td>
</tr>
<tr>
<td>Human orientation</td>
<td>3.61</td>
<td>5.30</td>
<td>4.36</td>
<td>5.32</td>
<td>3.18</td>
<td>5.46</td>
<td>3.40</td>
<td>5.44</td>
</tr>
<tr>
<td>Uncertainty avoidance</td>
<td>3.62</td>
<td>4.71</td>
<td>4.94</td>
<td>5.28</td>
<td>5.22</td>
<td>3.32</td>
<td>5.16</td>
<td>3.94</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>McCrae and Terracciano [2005]</th>
<th>Neuroticism</th>
<th>Extraversion</th>
<th>Openness</th>
<th>Agreeableness</th>
<th>Conscientiousness</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>507</td>
<td>492</td>
<td>486</td>
<td>485</td>
<td>494</td>
</tr>
<tr>
<td>V</td>
<td>465</td>
<td>466</td>
<td>501</td>
<td>486</td>
<td>480</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hofstede et al. [2011]</th>
<th>Power distance</th>
<th>Individualism</th>
<th>Masculinity</th>
<th>Uncertainty avoidance</th>
<th>Long Term Orientation***</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>68</td>
<td>60</td>
<td>64</td>
<td>93</td>
<td>38</td>
</tr>
<tr>
<td>V</td>
<td>80</td>
<td>20</td>
<td>66</td>
<td>30</td>
<td>87</td>
</tr>
<tr>
<td>**</td>
<td></td>
<td></td>
<td>**</td>
<td></td>
<td>83/78**</td>
</tr>
</tbody>
</table>

P – Practices.
V – Values.
* China combined.
** Germany and Eastern Germany, respectively.
*** According to data by World Values Survey.
Source: own elaboration.
Two concepts are used as general measures of cultural differences: cultural distance and psychic distance. Cultural distance is defined as “the degree to which cultural values in one country are different from those in another country” [Sousa and Bradley, 2008, p. 471]. This notion is more suitable applied at the national level rather than the individual one. A previous study on Polish firms’ cooperation and cultural differences [Danik, Duliniec, 2014] finds that Polish firms’ relations with foreign partners are rarely influenced by the partners’ national culture (cooperation with partners from China and Germany did not differ significantly in information flow, similarity, competencies, atmosphere/commitment, conflicts, fulfillment of obligations and forced cooperation/dependence), so cultural distance seems to have a relatively small influence on relationship quality.

Individual perception of differences between the home and foreign country is associated with the notion of psychic distance [Sousa, Bradley, 2005; 2006; 2008]. Psychic distance is positively correlated with the existence of cultural distance [Sousa and Bradley, 2006], but it can manifest through different phenomena like language differences, differences in literacy and education, climatic conditions, lifestyles or geographical distance (see Sousa, Bradley, 2006; Zanger et al., 2008]. The further analysis here will focus on dissimilarities in the culture conditioned behavior of business partners (as perceived by Polish managers) and I will employ the concept of perceived cultural differences in partners’ behavior.

To find antecedents of relationship quality this paper concentrates on perceptions of cultural differences. As asserted by Dijksterhuis and van Knippenberg, the perception of a given group “leads to behavior corresponding with specific attributes of the stereotype” [1998, p. 873]. Hence, one can assume that the perception of differences between cooperating partners will influence their behavior and thereby the relationship quality. However there is a need to explain which perceived cultural differences influence relationship quality and which relational dimensions are influenced by perceived cultural differences.

The objective of this analysis is to demonstrate the ties of quality of relationships between companies and perceived cultural differences in their behavior. The research questions are as follows:

1) Do the perceived cultural differences in the behavior of Polish firms and their Chinese and German partners influence cooperation quality? (in case of “yes” to Question 1):
2) Which perceived cultural differences in the behavior of Polish firms and their Chinese/German partners influence relationship quality?
3) Which relationship dimensions are influenced by perceived cultural differences in the behavior of Polish firms and their Chinese/German partners?
Research Methods and Sample

Data was collected through the CATI method (Computer Assisted Telephone Interviewing) in January and February 2013. Standardized questionnaires were used.

The selected sample consisted of small and medium-sized companies because in firms of this size managers usually decide about the international cooperation, whereas in bigger companies such cooperation could be influenced by more people (the object of the research being decision makers’ perceptions). The Hoppenstedt & Bonnier (HBI) database updated at the end of 2010 and containing information about companies operating in Poland served as a sampling frame.

A random-stratified sampling was applied. The sample included three groups of firms, arranged according to the number of employees (1 to 9, 10 to 49 and 50 to 249). The entry frame (gross sampling) was N = 41 520 records (enterprises employing 1 to 249 employees and belonging to the C section of the Polish Classification of Activities – PKD, i.e., firms dealing in industrial processing). The randomized algorithm in the software for telephone surveys offered an equal chance of entering the sample to each record in the database. The interviews began with the screening questions eliminating companies not cooperating with Chinese or German partners. For the sake of the research, cooperation was defined as the relationships of more than one year in length, involving performing regular (and not one-off), joint business tasks by partners when the partners were independent, i.e., with no capital ties, or, if capital ties existed, neither of the firms could have supervisory powers over their partner (see Stępień [2011, pp. 15–33]). Of 1791 respondents who refused to take part in the research 334 proposed to give the interview after the deadline. Fully 6418 companies did not cooperate with German or Chinese partners. Interviews covered 280 SMEs operating in Poland and cooperating with partners in China or Germany. Two of the surveyed firms were further excluded from the analysis due to not meeting the criterion of employment size.

The target respondents were persons responsible in a company for cooperation with foreign partners. Accordingly, interviews involved sales, export and marketing directors, company owners, sales, export and marketing managers. In most cases (89%) the scope of the cooperation with foreign partners was limited to export-import transactions and services connected with manufacturing.

To demonstrate the influence of cultural differences on cooperation between Polish enterprisers and their Chinese/German partner’s respondents were asked about their and their partner’s behavior and their cooperation. Respondents were assured of the anonymity and confidentiality, and the questions regarding relationship quality and partners’ behavior were separated in the questionnaire to avoid a common method bias. Before the data analysis a post hoc Harman’s single factor test was conducted. The common method bias seems not to be a pervasive issue in this study, as less than 20% of the variance was explained by the single factor.
### TABLE 3. Sample characteristics

<table>
<thead>
<tr>
<th>Cooperation type*</th>
<th>Category</th>
<th>Frequencies</th>
<th>% valid</th>
<th></th>
<th>Category</th>
<th>Frequencies</th>
<th>% valid</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cooperation type</td>
<td>Exporters to China</td>
<td>64</td>
<td>23.0</td>
<td>1–9</td>
<td>24</td>
<td>8.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Importers of goods from China</td>
<td>84</td>
<td>30.2</td>
<td>10–49</td>
<td>107</td>
<td>38.5%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Exporters to Germany</td>
<td>83</td>
<td>29.9</td>
<td>50–249</td>
<td>147</td>
<td>52.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Importers of goods from China</td>
<td>76</td>
<td>27.3</td>
<td>Total</td>
<td>278</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>Staff size</td>
<td>Under 30%</td>
<td>84</td>
<td>32.4</td>
<td>Under 30%</td>
<td>120</td>
<td>54.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>30–49%</td>
<td>65</td>
<td>25.1</td>
<td>30–49%</td>
<td>45</td>
<td>20.3</td>
<td></td>
</tr>
<tr>
<td></td>
<td>50–79%</td>
<td>74</td>
<td>28.6</td>
<td>50–79%</td>
<td>42</td>
<td>18.9</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80–100%</td>
<td>36</td>
<td>13.9</td>
<td>80–100%</td>
<td>15</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>259**</td>
<td>100.0</td>
<td>Total</td>
<td>222**</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>Up to PLN 2 mln (inclusive)</td>
<td>43</td>
<td>18.8%</td>
<td>Polish</td>
<td>239</td>
<td>86%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above PLN 2–10 mln (inclusive)</td>
<td>81</td>
<td>35.4%</td>
<td>Mixed</td>
<td>26</td>
<td>9.4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above PLN 10–50 mln (inclusive)</td>
<td>84</td>
<td>36.7%</td>
<td>Foreign</td>
<td>13</td>
<td>4.7%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Above PLN 50 mln (inclusive)</td>
<td>21</td>
<td>9.2%</td>
<td>Total</td>
<td>278</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>229**</td>
<td>100.0%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* % do not add up to 100 as some surveyed companies were simultaneously exporters and importers or cooperated both with Chinese and German partners.
** Some respondents refused or were unable to provide answers, hence n < 278.

Source: own elaboration.

Questions referring to enterprise behavior addressed the following aspects of national culture:

- individualism/collectivism [Hofstede, 1983; Trompenaars, Hampden-Turner, 2002; House et al., 2004],
- approach to time, monochronism/polychronism, long- and short-term orientation [Hall, 1959; Hofstede, Bond, 1988; Gesteland, 1999; Trompenaars, Hampden-Turner, 2002; House et al., 2004],
- gender egalitarianism [House et al., 2004],
- ceremoniousness [Gesteland, 1999],
- contextuality [Hall, 1976],
- uncertainty avoidance [Hofstede, 1983; House et al., 2004],
- deal-focus / relationship-focus [Gesteland, 1999],
• femininity/masculinity (assertiveness) [Hofstede, 1983; House et al., 2004], and
• power distance [Hofstede, 1983; House et al., 2004].

Respondents were asked 22 questions about the degree to which a set of statements (e.g., “we attach great importance to procedures”) applied to their enterprise in the course of its cooperation with major partners from China/Germany. Next, they were given a set of 22 identical questions about the degree to which these statements applied to the conduct of the partners in during the cooperation (e.g., “my partner attaches great importance to procedures”). The results were measured on a Likert type scale from 1 (absolutely not practiced) to 5 (practiced very frequently). Respondents could also classify statements as inapplicable to the described cooperation (encoded as 6) or choose an “I don't know” option when answering questions about partners (encoded as 7). In the further processing such replies were classified as missing values and were not taken into account.

Next, the respondents were asked 52 questions concerning their cooperation, especially its relational aspects. Results were again measured by a Likert type scale from 1 (absolutely disagree) to 5 (absolutely agree). The questions were compiled based on the relationship quality literature studies described above. As only one part of the cooperation (Polish companies) was interviewed, the questions reflected its perspective (e.g., questions about competencies were limited only to the respondent’s perception of the competencies of their partner’s employees), but some questions were also related to the respondents perception of the partner’s perspective (e.g., the statement of “cooperation involves a high risk for our partner”). Moreover, questions about flexibility concerned supplier’s flexibility, hence questions put to importers differed from those to exporters (see Table 4).

To reduce the number of pertinent predictors in the multiple regression analysis, attempts were made to create composite indicators for the cultural aspects of behavior and relations during cooperation. However, the effort was not entirely successful since cultural differences indicators proved to have too low internal reliability (Cronbach’s alpha < 0.6), therefore the individual items were later analyzed separately, and not as part of composite variables. On the whole, nine indicators measuring relationship quality were developed and used later in the regression analysis. All nine represented the mean values of replies addressing a given feature. Three items (“my partner’s behavior is predictable”, “we achieve our aims by fighting our partner rather than by cooperating with him”, and “if we only could, we would cease cooperating with this partner”) were not included in any of the indicators owing to their low correlation to the remaining items. Due to excessively low reliability values (< 0.5) the results of the trust scale were also excluded. Table 3 lists the items and the Cronbach's alpha values for individual scales.

Because of the significance of trust in the relationship quality underlined in the literature, trust was included in the analysis. Mutual trust became a part of the dimension atmosphere/commitment and a partner’s trustworthiness was treated as a separate dimension of relationship quality.
<table>
<thead>
<tr>
<th>Cooperation assessment indicator</th>
<th>Items</th>
<th>Exporters to China</th>
<th>Importers from China</th>
<th>Exporters to Germany</th>
<th>Importers from Germany</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Information flow</strong></td>
<td>We never conceal information from our partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our partner never conceals information from us</td>
<td>0.630</td>
<td>0.714</td>
<td>0.675</td>
<td>0.583</td>
</tr>
<tr>
<td></td>
<td>Information flow between our partner and ourselves is efficient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Together with our partner we have developed information relaying procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Information is relayed in a previously-agreed way</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Misunderstandings occur in our dealings with our partner (reverse scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our partner understands our enterprise's needs</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Similarity</strong></td>
<td>The way in which our enterprise conducts business definitely differs from the way our partner conducts business</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The way business is conducted in our partner's country definitely differs from the way business is conducted in Poland</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.593</td>
<td>0.879</td>
<td>0.754</td>
<td>0.676</td>
<td></td>
</tr>
<tr>
<td><strong>Perceived risk</strong></td>
<td>Cooperation involves a high risk for our enterprise</td>
<td>0.517</td>
<td>0.542</td>
<td>0.888</td>
<td>0.748</td>
</tr>
<tr>
<td></td>
<td>Cooperation involves a high risk for our partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Competencies</strong></td>
<td>Our partner's employees are competent</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td><strong>Atmosphere/commitment</strong></td>
<td>We are satisfied with our cooperation with our partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our partner does not want to let us down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>We do not want to let our partner down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>The cooperation conditions are negotiable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Unexpectedly and without explanation our partner has demanded a renegotiation of the cooperation conditions (reverse scale)</td>
<td>0.823</td>
<td>0.848</td>
<td>0.815</td>
<td>0.845</td>
</tr>
<tr>
<td></td>
<td>Our cooperation with our partner is efficient</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our partner is very committed to cooperating with us</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>We are very committed to cooperating with our partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>We strive to maintain good relations with our partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Our partner strives to maintain good relations with us</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relations with our partner are based on mutual trust</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relations with our partner are based on mutual control (reverse scale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Relations with our partner are based on the fulfilment of contractual obligations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source: own elaboration.</td>
<td>Conflicts</td>
<td>Fulfillment of obligations</td>
<td>Forced cooperation/dependence</td>
<td>Trust</td>
<td>Flexibility</td>
</tr>
<tr>
<td>--------------------------</td>
<td>-----------</td>
<td>---------------------------</td>
<td>-------------------------------</td>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td></td>
<td>Conflicts occur frequently during cooperation with the partner</td>
<td>Our partner fulfills his obligations well</td>
<td>Cooperation with this partner would be hard to replace by cooperation with another enterprise</td>
<td>Our partner is trustworthy</td>
<td>Exporters: We continuously upgrade our technology to keep abreast of the latest achievements in hi-tech</td>
</tr>
<tr>
<td></td>
<td>Together with our partner we have developed procedures for resolving conflicts</td>
<td>Our partner keeps deadlines</td>
<td>Our partner would have trouble finding an enterprise to replace ours</td>
<td>We trusted our partner from the outset of our cooperation</td>
<td>In changed conditions we would offer new technological solutions to our partner</td>
</tr>
<tr>
<td></td>
<td>When conflicts occur we use specified procedures</td>
<td>Our enterprise keeps deadlines</td>
<td>Our partner makes use of his leverage in dealings with us</td>
<td>We developed trust in our partner in the course of our cooperation, when we realized that he could be trusted</td>
<td>We are always open to our partner's suggestions regarding technological improvement</td>
</tr>
<tr>
<td></td>
<td>Conflicts with our partner are resolved by compromise and negotiation</td>
<td>Our partner keeps deadlines</td>
<td>We make use of our leverage in dealings with our partner</td>
<td></td>
<td>We introduce organizational changes when required to by our partner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Our partner keeps deadlines</td>
<td>The termination of cooperation with this partner would incur serious costs for us</td>
<td></td>
<td>We are able to combine a broad variety of technologies if required by our partner</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Most of our exports/ imports are connected with our cooperation with this partner</td>
<td></td>
<td>Importers: Our partner continuously upgrades technology to keep abreast of the latest achievements in hi-tech</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cooperation with this partner is of key importance to our enterprise</td>
<td></td>
<td>In changed conditions our partner would offer new technological solutions to us</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If we were seeking a cooperation partner, we would choose this enterprise</td>
<td></td>
<td>Our partner is open to our suggestions regarding technological improvement</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>We incurred high costs to launch cooperation with this partner</td>
<td></td>
<td>Our partner introduces organizational changes when required by us</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Our partner is able to combine a broad variety of technologies if required by us</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.679 0.716 0.739 0.520</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.667 0.580 0.755 0.619</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.819 0.503 0.455 0.469</td>
</tr>
<tr>
<td>0.639 0.607 0.665 0.682</td>
<td>0.807 0.684 0.813 0.752</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The next step was to determine indexes measuring differences in culture-conditioned behavior in the surveyed companies and their partners. These indicators were obtained from studying differences in the behavior ratings of the surveyed enterprises and their partners \( (X_{\text{resp. company}} - X_{\text{partner}}) \).

### Research Results

To compare cooperation with Chinese and German partners, a t-test for two independent samples was applied. In four instances the perceived differences between Polish firms and their foreign partners turned out to be significant: long-term planning \((p < 0.05)\), importance of punctuality \((p < 0.05)\), importance of etiquette \((p < 0.05)\) and direct communication \((p < 0.01)\). In all these cases the perceived distance to China was bigger than to Germany – it seemed that enterprises cooperating with Chinese partners were more likely to attribute said behavioral patterns to themselves (the indicators of perceived differences were positive). On the other hand, companies cooperating with German firms were apt to show a reverse pattern by more often reporting such practices in their partners than themselves. In the case of the indicator “looking for compromise in negotiations” the difference was significant at a less stringent level of 0.1. Here too, the distance to China was bigger than to Germany. Poland had in this case the highest score, which suggested that Polish enterprises made more concessions during negotiations than either their German or Chinese counterparts (Table 5).

### Table 5. Indexes of cultural differences perceived by cooperating companies

<table>
<thead>
<tr>
<th>Index</th>
<th>China</th>
<th>Germany</th>
<th>Averages difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SE</td>
<td>M</td>
</tr>
<tr>
<td>Participation of the top management in negotiations</td>
<td>-0.282</td>
<td>0.199</td>
<td>-0.366</td>
</tr>
<tr>
<td>Taking decisions about cooperation solely at the top management level</td>
<td>-0.205</td>
<td>0.186</td>
<td>-0.098</td>
</tr>
<tr>
<td>One decision maker</td>
<td>-0.667</td>
<td>0.228</td>
<td>-0.171</td>
</tr>
<tr>
<td>Good relations as a pre-condition for doing business</td>
<td>0.256</td>
<td>0.142</td>
<td>0.220</td>
</tr>
<tr>
<td>Business result more important than good relations with the partner</td>
<td>0.667</td>
<td>0.193</td>
<td>0.439</td>
</tr>
<tr>
<td>Looking for compromise in negotiations</td>
<td>0.641</td>
<td>0.197</td>
<td>0.110</td>
</tr>
<tr>
<td>Attempts to dominate the partner</td>
<td>-0.359</td>
<td>0.171</td>
<td>-0.488</td>
</tr>
<tr>
<td>Cooperation rather than struggle with the partner</td>
<td>-0.154</td>
<td>0.181</td>
<td>-0.573</td>
</tr>
</tbody>
</table>
In the next step, a series of linear regressions were estimated with indicators of various aspects of cooperation practices used as predictors and indices of cooperation quality as outcome variables. This part of the analysis helped identify statistically significant relations between partner’s cultural differences and perceived cooperation quality (see Figure 1). The parameters of statistically significant regression models are presented in Table 6.

<table>
<thead>
<tr>
<th>Preference for inclusion of all cooperation conditions in the contract</th>
<th>0.179</th>
<th>0.176</th>
<th>0.000</th>
<th>0.172</th>
<th>0.179</th>
</tr>
</thead>
<tbody>
<tr>
<td>Considering oral commitments as binding</td>
<td>–0.333</td>
<td>0.213</td>
<td>–0.378</td>
<td>0.207</td>
<td>0.045</td>
</tr>
<tr>
<td>Importance attached to procedures</td>
<td>0.000</td>
<td>0.175</td>
<td>0.061</td>
<td>0.171</td>
<td>–0.061</td>
</tr>
<tr>
<td>Preference for stability versus innovativeness</td>
<td>–0.282</td>
<td>0.156</td>
<td>–0.085</td>
<td>0.152</td>
<td>–0.197</td>
</tr>
<tr>
<td>Long-term planning</td>
<td>0.333</td>
<td>0.115</td>
<td>–0.024</td>
<td>0.112</td>
<td>0.358*</td>
</tr>
<tr>
<td>Current problems’ focus</td>
<td>0.385</td>
<td>0.220</td>
<td>–0.098</td>
<td>0.215</td>
<td>0.482</td>
</tr>
<tr>
<td>Importance of punctuality</td>
<td>0.436</td>
<td>0.150</td>
<td>–0.098</td>
<td>0.147</td>
<td>0.533*</td>
</tr>
<tr>
<td>Importance of etiquette</td>
<td>0.308</td>
<td>0.154</td>
<td>–0.220</td>
<td>0.150</td>
<td>0.527*</td>
</tr>
<tr>
<td>Reli­ence on direct communication</td>
<td>0.590</td>
<td>0.134</td>
<td>–0.085</td>
<td>0.130</td>
<td>0.675**</td>
</tr>
<tr>
<td>Withholding emotions in contacts with the partner</td>
<td>–1.795</td>
<td>0.166</td>
<td>–1.585</td>
<td>0.162</td>
<td>–0.210</td>
</tr>
<tr>
<td>Importance of being friendly to others</td>
<td>0.256</td>
<td>0.107</td>
<td>0.256</td>
<td>0.105</td>
<td>0.000</td>
</tr>
<tr>
<td>Tolerance for errors</td>
<td>0.026</td>
<td>0.177</td>
<td>0.317</td>
<td>0.172</td>
<td>–0.291</td>
</tr>
<tr>
<td>Participation of women in management</td>
<td>0.462</td>
<td>0.254</td>
<td>0.183</td>
<td>0.248</td>
<td>0.279</td>
</tr>
<tr>
<td>Participation of own female employees in negotiations</td>
<td>0.026</td>
<td>0.269</td>
<td>0.146</td>
<td>0.263</td>
<td>–0.121</td>
</tr>
</tbody>
</table>

^ – result on a less rigorous significance level of p< 0.10.  
* p < 0.05.  
** p < 0.01.  
*** p < 0.001.  
Source: own elaboration.
FIGURE 1. Statistically significant associations between partners’ cultural differences and perceived relationship quality

Source: own elaboration.
**TABLE 6. Characteristics of models obtained in linear regression analysis**  
*(the significance of the model and standardized/non-standardized estimates)*

<table>
<thead>
<tr>
<th>Variables explained</th>
<th>Explanatory variables</th>
<th>Model</th>
<th>R2</th>
<th>Model estimate</th>
<th>Collinearity stats</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Information flow</td>
<td>Importance of etiquette</td>
<td>8.785**</td>
<td>0.094</td>
<td>-0.171</td>
<td>0.058</td>
</tr>
<tr>
<td>Similarity</td>
<td>Importance of etiquette</td>
<td>10.064***</td>
<td>0.176</td>
<td>0.482</td>
<td>0.116</td>
</tr>
<tr>
<td></td>
<td>Current problems’ focus</td>
<td></td>
<td></td>
<td>-0.195</td>
<td>0.075</td>
</tr>
<tr>
<td>Perceived risk</td>
<td>Cooperation rather than struggle with the partner</td>
<td>12.193***</td>
<td>0.207</td>
<td>0.260</td>
<td>0.061</td>
</tr>
<tr>
<td></td>
<td>Reliance on direct communication</td>
<td></td>
<td></td>
<td>0.238</td>
<td>0.083</td>
</tr>
<tr>
<td>Competencies</td>
<td>Cooperation rather than struggle with the partner</td>
<td></td>
<td></td>
<td>-0.269</td>
<td>0.060</td>
</tr>
<tr>
<td></td>
<td>Reliance on direct communication</td>
<td></td>
<td></td>
<td>-0.189</td>
<td>0.081</td>
</tr>
<tr>
<td></td>
<td>Attempts to dominate the partner</td>
<td></td>
<td>8.127***</td>
<td>0.249</td>
<td>0.145</td>
</tr>
<tr>
<td></td>
<td>Taking decisions about cooperation solely at the top management level</td>
<td></td>
<td></td>
<td>0.118</td>
<td>0.059</td>
</tr>
<tr>
<td>Atmosphere / commitment</td>
<td>Cooperation rather than struggle with the partner</td>
<td></td>
<td></td>
<td>-0.149</td>
<td>0.026</td>
</tr>
<tr>
<td></td>
<td>Reliance on direct communication</td>
<td></td>
<td></td>
<td>-0.117</td>
<td>0.039</td>
</tr>
<tr>
<td></td>
<td>Current problems’ focus</td>
<td></td>
<td></td>
<td>-0.054</td>
<td>0.023</td>
</tr>
<tr>
<td></td>
<td>Importance of etiquette</td>
<td></td>
<td></td>
<td>-0.082</td>
<td>0.034</td>
</tr>
<tr>
<td></td>
<td>Withholding emotions in contacts with the partner</td>
<td></td>
<td></td>
<td>0.059</td>
<td>0.029</td>
</tr>
<tr>
<td>Variables explained</td>
<td>Explanatory variables</td>
<td>Model</td>
<td>R2</td>
<td>Model estimate</td>
<td>Collinearity stats</td>
</tr>
<tr>
<td>--------------------------</td>
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<td>----------------</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td>B</td>
<td>SE</td>
</tr>
<tr>
<td>Conflicts</td>
<td>Attempts to dominate the partner</td>
<td>5.48**</td>
<td>0.094</td>
<td>-0.212</td>
<td>0.075</td>
</tr>
<tr>
<td></td>
<td>Looking for compromise in negotiations</td>
<td></td>
<td></td>
<td>-0.134</td>
<td>0.062</td>
</tr>
<tr>
<td>Fulfilment of obligations</td>
<td>Considering oral commitments as binding</td>
<td>14.25***</td>
<td>0.316</td>
<td>-0.164</td>
<td>0.042</td>
</tr>
<tr>
<td></td>
<td>Current problems’ focus</td>
<td></td>
<td></td>
<td>-0.119</td>
<td>0.038</td>
</tr>
<tr>
<td></td>
<td>Long-term planning</td>
<td></td>
<td></td>
<td>-0.155</td>
<td>0.072</td>
</tr>
<tr>
<td>Forced cooperation/</td>
<td>Attempts to dominate the partner</td>
<td>5.461**</td>
<td>0.094</td>
<td>-0.171</td>
<td>0.059</td>
</tr>
<tr>
<td>dependence</td>
<td>Importance attached to procedures</td>
<td></td>
<td></td>
<td>-0.117</td>
<td>0.057</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Cooperation rather than struggle with the partner</td>
<td>10.379**</td>
<td>0.109</td>
<td>-0.186</td>
<td>0.058</td>
</tr>
<tr>
<td>Partner’s trustworthiness</td>
<td>Considering oral commitments as binding</td>
<td></td>
<td></td>
<td>-0.196</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>Importance of etiquette</td>
<td></td>
<td></td>
<td>-0.264</td>
<td>.066</td>
</tr>
<tr>
<td></td>
<td>Reliance on direct communication</td>
<td></td>
<td></td>
<td>-0.142</td>
<td>.077</td>
</tr>
<tr>
<td></td>
<td>Participation of women in management</td>
<td>15.03***</td>
<td>0.536</td>
<td>-0.116</td>
<td>.036</td>
</tr>
<tr>
<td></td>
<td>Withholding emotions in contacts with the partner</td>
<td></td>
<td></td>
<td>0.141</td>
<td>.053</td>
</tr>
<tr>
<td></td>
<td>Importance attached to procedures</td>
<td></td>
<td></td>
<td>-0.145</td>
<td>.055</td>
</tr>
<tr>
<td></td>
<td>Cooperation rather than struggle with the partner</td>
<td></td>
<td></td>
<td>-0.133</td>
<td>.056</td>
</tr>
</tbody>
</table>

* p < 0.05.  
** p < 0.01.  
*** p < 0.001.

Source: own elaboration.
In 12 out of 22 analyzed cases, perceived differences in conduct/attitudes between Polish enterprises and their foreign partners had a statistically significant influence on their cooperation, whereas partner's trustworthiness and atmosphere/commitment category depended on perceived differences to the biggest extend. In particular:

- information flow was negatively influenced by perceived differences in importance of etiquette;
- similarity was positively influenced by perceived differences in the importance of etiquette – and negatively by differences in current problems' focus;
- perceived risk was positively influenced by perceived differences in cooperation rather than struggle with the partner and reliance on direct communication;
- competencies were negatively influenced by perceived differences in cooperation rather than struggle with the partner and reliance on direct communication and positively – by differences in attempts to dominate the partner and taking decisions about cooperation solely at a top management level; atmosphere / commitment were negatively influenced by perceived differences in cooperation rather than struggle with the partner, reliance on direct communication, current problem’ focus, importance of etiquette and positively by withholding emotions in contacts with the partner;
- conflicts were negatively influenced by attempts to dominate the partner and looking for compromise in negotiations;
- fulfillment of obligations was negatively influenced by perceived differences in considering oral commitments as binding, current problems focus and long-term-planning;
- forced cooperation / dependence was negatively influenced by perceived differences in attempts to dominate the partner and importance attached to procedures;
- flexibility was negatively influenced by perceived differences in cooperation rather than struggle with the partner;
- partner’s trustworthiness was negatively influenced by perceived differences in considering oral commitments as binding, importance of etiquette, reliance on direct communication, participation of women in management, withholding emotions in contacts with the partner, and importance attached to procedures and cooperation rather than struggle with the partner.

In most of the cases the perceived differences negatively influenced the relationship quality indicators.

**Discussion and Conclusions**

Although cultural differences between individual countries have been the subject of numerous studies, only a few of them discuss inter-firm cooperation in the context of countries’ cultural differences.
The perceived differences described in this paper were bigger in the case of cooperation with Chinese partners, which conforms to the intuitive understanding of the research problem but cannot be directly compared to the results of previous studies on culture because of different research methodology and different study scope.

A survey of Polish exporting and importing SMEs cooperating with partners from China and Germany revealed that the differences between Polish companies and their German and Chinese partners, as observed by Polish managers, were distinct in the case of the following indexes: long-term planning, importance of punctuality, importance of etiquette, reliance on direct communication and looking for compromise in negotiations (the significance of this distinction was only on a $p<0.10$ level). Companies cooperating with Chinese partners ascribed these five characteristics to themselves, rather than to their partners. In the case of cooperation with German partners, it was just the opposite with the exception of looking for compromise in negotiations. However, most of indicators of perceived cultural differences between Polish companies and their partners were very low (with the exception of withholding emotions in contacts with the partner) and did not vary much, so the partner’s country of origin has little influence on the perceptions of dissimilarities. It is probably that a culture of a lower order than national culture (organizational, individual) influences the partner’s behavior. This comports with the McSweeney [2009] critique of using national culture to explain or predict behavior at levels lower than national.

The primary objective of the study was to examine whether and how perceived cultural differences of cooperating enterprises influenced the quality of their relationships. The study confirmed that all aspects of relations between the surveyed enterprises depend more or less on perceived cultural differences in partners’ behavior. Perceived partner’s trustworthiness and atmosphere/commitment depended on the perceived cultural differences to the highest extent.

It must be emphasized that not all perceived differences influence cooperation. Moreover, in most models that were developed the influence of perceived cultural differences on aspects of cooperation was negative, although the relation was positive in the case of:

• influence of perceived differences on perception of risk,
• influence of differences in importance of etiquette on perceived similarity,
• influence of differences in attempts to dominate the partner and taking decisions about cooperation solely at the top management level on perceived partner competencies,
• influence of differences in withholding emotions in contacts with the partner on cooperation atmosphere/involvement and partner’s trustworthiness.

While this positive relation is self-evident in the perceived risk category (the bigger the differences, the stronger the perception of risk accompanying the transaction) other positive relations require a more detailed follow-up research.

The result of the study should be also discussed in light of the similarity-attraction theory [Byrne, 1971], according to which people like and are attracted to, others who are
similar to them. As Smith [1998, p. 17] has shown, similarities in work attitudes, sex and life stage “play some role in facilitating relationship management behaviors and thus, indirectly, the quality of buyer-seller relationships”. Although this study investigated different aspects of inter-firm cooperation than Smith [1998], it also revealed that many dimensions of relationship quality depend on perceived similarities/dissimilarities between partners.

The study draws attention to, and partially addresses an important gap in theory regarding cooperative ties between enterprises. A new factor (perceived differences in behavior) influencing relationship quality is identified with a strong managerial implications: relationship quality is better if decision makers perceive their business partners as similar to themselves in how they behave in their mutual business interactions (with the exceptions discussed above). Consequently, managers who are interested in establishing good relations with partners, have to get to know their partners better and modify their behavior accordingly. The results do, however, provoke a question: if similarity should be treated as one of the dimensions of relationship quality or rather as a factor influencing it?

By offering new insights into how to explain the relationship quality, this study also suggests new directions of research. As is often the case with exploratory studies, the current research seems to have generated several interesting and salient questions that call for further investigation. In author’s view, those that are particularly pertinent are: Will observed dependencies also occur in domestic cooperation (maybe it is not a question of cultural differences but differences as such)? How to explain them? Will the results remain the same if both parties are questioned? What are other determinants of relationship quality? Should further studies of the subject be undertaken, a longitudinal study of the influence of cultural differences on relations in diverse cooperation phases is recommended.

The study has some limitations. Most notably, only three of countries were studied, which limits the possibility of applying the survey results to enterprises from other countries. The fact that the survey was carried out only on Polish companies also affects the validity of the results. It would be interesting to study the mutual perception of both partners, analyze differences and investigate their relations from two points of view applying the dyadic approach proposed by Holmlund [2008]. Literature sources (e.g. Morgan and, Hunt [1994], de Burca et al., [2004], Holmlund [2008], Ulaga and Eggert [2006], Ashnai et al., [2009], Kim et al., [2010], Stępień [2011, pp. 83–94, 229], and Danik and Lewandowska [2013]) indicate the importance of trust for the course of the transaction; hence trust should be an essential part of further research. Moreover, the internal reliability of the perceived risk scale is acceptable but poor, which calls for an overhauled set of measurement items. Finally, one could argue that the study is devoted only to relations between exporters and importers. Other types of relationships should also be studied in the future. On the other hand, the study shows that this type of cooperation constitutes the majority of international cooperation and therefore is important for international trade. Consequently, studies on the subject should be continued (even if limited in the depth of relationship, comparing to other cooperation types).
It seems that both the proposed methodology and the obtained results are a starting-point for further, broader and deeper research. Although it was stated that perceived cultural differences are the determinants of relationship quality, the search for other determinants should be continued.

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Capturing Absorptive Capacity: Concepts, Determinants, Measurement Modes and Role in Open Innovation

Abstract

Absorptive capacity (ACAP) enables a firm to adjust to a rapidly changing environment and achieve sustained competitive advantage. This study contributes to the existing body of knowledge on ACAP by providing a comprehensive literature review of the various conceptual attributes of the construct, its determinants, outcomes, and positive and negative consequences of using its input-oriented, output-oriented, and perceptive measurement modes. Proposals for constructing ACAP based on the Community Innovation Survey (CIS) empirically illustrate for the conceptual part of the paper. Additionally, combining concepts of absorptive capacity and open innovation (which is still rare in the literature) provides a new perspective on the role of absorptive capacity in opening up the innovation process. This advances the understanding of both inter-related proposals. The article also identifies key problems and formulates future research directions to improve the multi-level characteristics of absorptive capacity.

Keywords: knowledge absorption, capability, open innovation.
JEL: M10, O31, O32.

Introduction

In this theoretical paper, the notion of absorptive capacity (ACAP), its determinants, outcomes, measurement modes, and role in open innovation are presented.
To increase their competitive potential in the current environment, firms have to open up their processes and apply knowledge from outside sources. An important factor that influences the ability to acquire this knowledge is *absorptive capacity*, defined as “the ability of a firm to recognize the value of new external information, assimilate it and apply it to commercial ends” [Cohen, Levinthal, 1990, p. 128].

Literature concerning what *absorptive capacity* is, and its basic characteristics (e.g., components, determinants, measurement modes, and outcomes) is extremely varied. Moreover, many empirical researchers use R&D intensity as an indicator for *absorptive capacity*, assuming that higher levels of R&D investments directly improves a firm’s ability to exploit external knowledge, which is not always the case, especially in low technology industries or among small and medium-sized enterprises.

The importance of a firm’s competence to acquire and assimilate knowledge is critical, as many enterprises shift their innovation models from closed towards the open ones, where the importance of combining internal and external knowledge as part of firms’ innovation strategy [Chesbrough, 2003]. Although both *absorptive capacity* and open innovation (OI) are two concepts based on the idea that companies can leverage the knowledge generated externally to improve their innovation performance, and are obviously connected, they have only recently been discussed jointly in the literature [Flor et al., 2013].

This paper is organized as follows. Part one summarizes the most influential conceptualizations of *absorptive capacity*. In part two, determinants, as well as outcomes of *absorptive capacity* are discussed. Part three of the paper provides insight into different quantitative methods of *absorptive capacity* measurement. In part four, a discussion about connections between *absorptive capacity* and open innovation is presented. Conclusions and directions for further research appear in the final section.

**The Idea of Absorptive Capacity**

The term *absorptive capacity* (ACAP) is associated mainly with Cohen and Levinthal’s works [Cohen, Levinthal, 1989, 1990, 1994], but it is rooted in earlier publications in development economics. It has much in common with the notion of *social capability* used in the developing countries context, to improve capabilities (such as: technical competences, financial institutions and markets, stability of government, honesty and trust) that allow them to catch-up with more developed economies [Abramovitz, 1986]. *Absorptive capacity* was also widely understood as the ability of the developing country to absorb new investments [Adler, 1965]. Later, as the role of knowledge has become more important for economic growth and development, *absorptive capacity* has also been understood as the “ability to absorb knowledge,” explained by Rostow, who states, that “middle income countries have to build up the stock of trained man-power (including entrepreneurs) to a position where they can accelerate the rate of absorption of the existing
stock of knowledge” [1980, p. 267–277]. Both, the concept of social capacity and absorptive capacity were first associated with the national economy level. Many researchers subsequently applied it to understand as firm’s ability to acquire knowledge from its external environment [Tilton, 1971; Allen, 1984].

Cohen and Levinthal explained (based on industrial organization economics) the main determinants of a firm’s motivation to invest in absorptive capacity, such as the scope of technological opportunities available to the firm, the nature of technological opportunity, and the degree of improvement in technological performance through using external knowledge. These authors also empirically tested this reasoning, and defined absorptive capacity as “the ability of a firm to recognise the value of new, external information, assimilate it and apply it to commercial ends” [Cohen, Levinthal, 1990, p. 128].

ACAP has two essential features: first – absorptive capacity is “cumulative” [Cohen, Levinthal, 1990, p. 130]: firms with a given level of technological, market and organisational knowledge may be more successful in those areas than in others. Second – prior knowledge affects anticipation: firms can forecast future events with greater accuracy in fields where they have previous experience.

Tracking the work of Cohen and Levinthal, Zahra and George [2002] argued that “firms can acquire and assimilate knowledge, but might not have the capability to transform and exploit the knowledge for profit generation” [Zahra, George 2002, p. 191] and thus deconstructed absorptive capacity into potential absorptive capacity (PACAP) and realized absorptive capacity (RACAP). PACAP consists of knowledge acquisition, which “refers to a firm’s capability to identify and acquire externally generated knowledge that is critical to its operations” [Zahra, George, 2002, p. 189] and knowledge assimilation which “refers to the firm’s routines and processes that allow it to analyse, process, interpret and understand the information obtained from external sources” [Zahra, George, 2002, p. 189]. RACAP is made up of transformation capability, defined as “a firm’s capability to develop and refine the routines that facilitate combining existing knowledge and the newly acquired and assimilated knowledge” [Zahra, George, 2002, p. 190], and exploitation capability, which is “organizational capability based on the routines that allow firms to refine, extend, and leverage existing competencies or to create new ones by incorporating acquired and transformed knowledge into its operations”. [Zahra, George, 2002, p. 190]. Potential ACAP is more outside-oriented [Fosfuri, Tribo, 2008], whereas realized ACAP refers to the internal processes of external knowledge assimilation. By the combination of potential ACAP and realized ACAP, a firm increases the uniqueness of its innovation [Yli-Renko et al., 2001] and builds competitive advantage.

Drawing on management and organisation studies, in the analysis of ACAP antecedents (external sources of knowledge coming from acquisition and inter-organisational relations and internal sources, stemming from past experience and learning by doing) and outcomes, authors have considered the “moderating” role of specific internal processes (such as “activation triggers,” “social integration mechanisms” and “regimes of appropriability”),
which help knowledge flow within the firm. “Activation triggers“incorporate not only a firm's internal crises, but also external market fluctuations; “social integration mechanisms” cover social arrangements encouraging employee interactions, whereas “regimes of appropriability” provide effective protection against imitation and facilitate returns on innovation investments.

**FIGURE 1. Firm's absorptive capacity- conceptual model**

<table>
<thead>
<tr>
<th>Antecedents:</th>
<th>Absorptive capacity</th>
<th>Outcomes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>External and internal sources</td>
<td>Potential → Realized</td>
<td></td>
</tr>
<tr>
<td>Acquisition → Transformation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assimilation → Exploitation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Competitive advantage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic flexibility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Innovation performance</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: adapted from Zahra and George [2002].

Todorova and Durisin [2007], in their later publications, demanded a return to the classical definition of Cohen and Levinthal, but extended ACAP from its original three dimensions: identification, assimilation, and exploitation – to five separate concepts: recognition, acquisition, assimilation, transformation, and exploitation. According to authors, these steps can influence each other but do not necessary occur linearly from one to the other [Todorova, Durisin, 2007]. Therefore they argued, that the new concepts of potential and realized absorptive capacity should be removed from the theory [Todorova, Durisin, 2007, p. 775].

A concept that is used in the same sense as absorptive capacity (although narrowed to the technological knowledge), is technological capability, defined as “the ability to make effective use of technological knowledge in efforts to assimilate, use, adapt, and change existing technologies. It also enables one to create new technologies and to develop new products and processes” [Kim, 1997, p. 4]. Tsai uses the term technological capability instead of absorptive capacity in one paper [Tsai, Hsieh, 2009], while in other, in a very similar context, exchanges it for absorptive capacity [Tsai, 2009].

Schmidt [2005], distinguishes between science-based knowledge and knowledge from the private sector, proposing three types of absorptive capacity namely: absorptive capacity for intra-industry knowledge, absorptive capacity for inter-industry knowledge and absorptive capacity for scientific knowledge. He argues (based on Nelson and Wolff [1997]), that organisational absorptive capacity hangs on the characteristic of acquired external knowledge and that science-based technological knowledge requires a higher level of absorptive capacity than knowledge from business sources, such as customers, suppliers.
or competitors. The proposed distinction between different types of knowledge and, thus, different types of *absorptive capacity* was confirmed by Mangematin and Nesta [1999], who found that higher *absorptive capacity* increases the proficiency to use fundamental (as opposed to applied) external knowledge, and that firms with highly developed *absorptive capacity* have more interactions with research institutes than firms with lower *absorptive capacity*. This supposition is derived from Cohen and Levinthal's conclusions [1990, p. 152], that a “firm is better capable to acquire and use external knowledge from areas it has some prior experience or related knowledge in” (path-dependency of *absorptive capacity*).

Building on Schmidt findings, Murovec and Prodan [2009] dropped the first type of ACAP in favour of *demand-pull absorptive capacity* and *science-push absorptive capacity*. At this point it should be mentioned, that both Schmidt [2005] and Morovec and Prodan's [2009] of ACAP operationalization can be also used to operationalize the non-pecuniary inbound open innovation – that is, acquisition of external sources of knowledge not done in exchange for any pecuniary gratification, which may result in misleading outcomes.

*Absorptive capacity* has many characteristics of dynamic capabilities, firm’s assets that are scarce and difficult to be replicated. Zahra and George [2002] were the first to explicitly conceptualize ACAP as a dynamic capability. They argued that four capabilities, namely: knowledge *acquisition, assimilation, transformation* and *exploitation* – build upon each other to produce a dynamic organisational capability.

*First order dynamic capabilities* are defined as capabilities that permit firm’s to change fundamental capabilities and resources [Teece, et al., 1997; Eisenhardt, Martin, 2000]. By contrast, ordinary, or *zero order capabilities* [Collis, 1994, Winter, 2003; Zahra et al., 2006], refer to routines that empower firms to deploy their resources to earn a living in the present. Collis [1994] identified *second-order dynamic capabilities* (“learning-to-learn capabilities”) as those that can be used to develop *first-order dynamic capabilities* [Schilke, 2014].

Summing up this brief literature review, it should be underlined that despite different names and conceptualizations, all of the above-mentioned works define *absorptive capacity* (ACAP) as a firm’s capability to address a rapidly changing environment. It is supposed to be a competence comprising individual capabilities building on each other and potentially give the firm a basis for obtaining competitive advantage.

The term *absorptive capacity*, used in different contexts and at different levels of analysis, has also attracted the interest of Polish scholars. Truskolaski [2014], in his book on the importance of knowledge transfer in enterprises’ innovative activities, speaks of the “social capabilities” of countries, defined, similarly to Abramowitz as “potential that reflects these countries’ greater opportunity to advance by borrowing and adapting the best practice technology and organization of more productive economies” [Abramowitz, 1994b, p. 87]. Runiewicz-Wardyn [2013, p. 51] defines *absorptive capacity* as the “ability to imitate foreign advanced technologies” and argues that, together with innovative capability, ACAP determines a region’s ability to narrow technological gaps and improves productivity growth.
The importance of *absorptive capacity* in the context of inter-organisational linkages is raised by Czakon and Lenart [2011], whereas Lenart [2011] describes the relation between firms’ knowledge base and its *absorptive capacity*.

Pietrewicz [2012] raises an important issue of the link between *absorptive capacity* and cooperation, as well as potential benefits for a firm’s *absorptive capacity*, resulting from EU financial support. Based on empirical results for Polish enterprises, he found that firms’ low *absorptive capacity* results in low openness for cooperation with institutional partners, and that in many cases financial support from EU funds is not used properly by supported enterprises and does not result in firms’ higher *absorptive capacity*.

Światowiec-Szczepańska [2012], using Cohen and Levinthal's classical definition, argues that *absorptive capacity* is inevitable in the process of knowledge sharing and exchange among enterprises in networks, and thus positively impacts relational rent potential, defined as “supernormal profit jointly generated in an exchange relationship, that cannot be generated by either firm in isolation and can only be created through the joint idiosyncratic contributions of the specific alliance partners” [Dyer, Singh 1998, p. 662].

Lastly, Ryszko [2015], following the proposal of Gluch et al. [2009], constructs an *absorptive capacity* model for green innovation, arguing that it is the inevitable base for the eco-innovation business model of an enterprise, and compliments firm’s basic activities.

**Determinants and Outcomes of Absorptive Capacity**

Determinants of *absorptive capacity* can be widely divided into those from intra-firm level and those related to inter-firm level of analysis. *Absorptive capacity* can only be fully explained when both the internal structures and processes of a company as well as its interaction with other entities are taken into account.

The intra-firm level of ACAP largely depends on the amount of prior, related knowledge within organisations and internal mechanisms of formalization and social integration within a firm; that is, the organization’s ability to organize knowledge flow across the firm’s departments, as well as to individual employees. At the inter-firm level, inter-firm mechanisms – that is, external communications structures and the character and distribution of expertise and knowledge – form the antecedents of *absorptive capacity* (see table 1 for details).

The influence and outcomes of *absorptive capacity* can be investigated in the context of different aspects of innovative performance / innovation output. Innovative performance can be understood narrowly and broadly [Hagedoorn, Cloodt, 2003]. Innovative performance in the narrow sense refers to results to a firm’s introduction of inventions into the market, measured by the rate of sales resulting from introduction of new products in total sales [Freeman, Soete, 1997]. A broader definition of innovative performance
encompasses the whole path from conception to launching of the invention on the market [Ernst, 2001], which covers all stages from R&D investment (technological performance) to patenting (inventive performance) and new product introduction [Ahuja, Katila, 2001].

**TABLE 1. Antecedents of absorptive capacity**

<table>
<thead>
<tr>
<th>Antecedents of absorptive capacity</th>
<th>Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-firm level of analysis</td>
<td></td>
</tr>
<tr>
<td>• Prior related knowledge within organisation</td>
<td>Van den Bosch et al. [1999]; Gupta, Govindarajan [2000]</td>
</tr>
<tr>
<td>General knowledge of related domains; skills and problem solving means; prior learning experience; shared language similarity of certain attributes</td>
<td></td>
</tr>
<tr>
<td>A unit’s R&amp;D intensity</td>
<td>Tsai [2001]</td>
</tr>
<tr>
<td>Organizational form, combinative capabilities</td>
<td>Van den Bosch et al. [1999]</td>
</tr>
<tr>
<td>Internalized experience</td>
<td>Trispas, Gavetti [2000]</td>
</tr>
<tr>
<td>• Internal mechanisms of formalization and social integration within firms</td>
<td></td>
</tr>
<tr>
<td>Structure of internal communication (shared internal language)</td>
<td>Van den Bosch et al. [1999]</td>
</tr>
<tr>
<td>Knowledge flow formation (horizontal versus vertical)</td>
<td>Van Wijk et al. [2001]</td>
</tr>
<tr>
<td>Inter-firm level of analysis</td>
<td></td>
</tr>
<tr>
<td>• Inter-firm mechanisms</td>
<td></td>
</tr>
<tr>
<td>Structure of external communication</td>
<td>Van den Bosch et al. [1999]</td>
</tr>
<tr>
<td>• Character and distribution of expertise and knowledge</td>
<td>Lane, Lubatkin [1998]</td>
</tr>
<tr>
<td>Type of new knowledge; similarity of compensation practices and organizational structures; awareness of organizational problems</td>
<td></td>
</tr>
</tbody>
</table>

Source: own elaboration based on Van den Bosch et al. [1999, p. 553]; Van den Bosch et al. [2003].

Absorptive capacity should be investigated not only as related to innovative performance, but also in the context of firms’ competitive advantage. From a resource-based view (RBV), knowledge appears to be the most strategic resource a firm can possess. Peteraf [1993] points out, that the main parts of long term competitive advantages are based on information, on tacit and complex understandings, that are not easily available for individuals external to the organization. The important role of tacit knowledge is especially underlined, as it allows to maintain a competitive advantage [Grant, 1996], and is also connected with organizational learning and innovation [Nonaka, Takeuchi, 1995]. What’s more, firms gain competitive advantage not only by utilizing key resources, but also by using capabilities that facilitate the firm’s reconfiguration of its resource base and adjustment to fluctuating market conditions [Kleinschmidt et al., 2007]. Therefore, the ability to obtain, share, and use knowledge, which constitutes the core of a firm’s absorptive capacity, can be considered critical to acquiring and maintaining a competitive advantage [Barney, 1986; Cohen, Levinthal, 1990].
Modes to Measure Absorptive Capacity

Even though a significant number of empirical studies have used ACAP, an applicable, standardised measure integrating its diverse aspects has not yet been established. Lane, Koka, and Pathak [2006] observe that most researchers measure ACAP with simple R&D proxies, as was proposed by Cohen and Levinthal [Cohen, Levinthal, 1989], disregarding the variety of its dimensions. Table 2 provides an overview of the various proposals for measuring ACAP.

Those measurements can be broadly divided into three groups: input-oriented indicators, output-oriented indicators and perceptive instruments – specific constructs that are compilations of different indicators. In this section, the possible indicators of ACAP that can be derived from Community Innovation Survey are also presented.

Input-Oriented Indicators

Input-oriented indicators are those related to R&D effort, professionalism of R&D and R&D human capital.

R&D effort (R&D expenditures divided by annual sales) as a proxy of ACAP, was introduced by Cohen and Levinthal [1989], and is widely used by other researchers (see table 2 for details). Those researchers underline the role of expenditures on R&D in both building absorptive capacity (ACAP) and generating new knowledge.

Professionalism of R&D as a proxy of ACAP goes beyond the simple financial view of R&D and uses such indicators as the existence of a formalized, or fully staffed R&D department.

R&D human capital is another input-based measure of ACAP that captures the path-dependency nature of absorptive capacity, underlined in later work by Cohen and Levinthal [1990]. It assumes that better educated and trained employees possess the higher ability to assimilate and use new knowledge, and that a firm’s absorptive capacity level depends on the general level of education, experience and training of its employees, reflecting the cumulative nature of knowledge.

Unfortunately, these proxies may lead to contradictory and confusing findings about the role of ACAP. R&D spending, for example, is only one source of ACAP. Employee skills, new machinery and equipment, prior organizational experience, and knowledge can also significantly contribute to a firm’s overall ACAP, so taking only R&D spending into account simplifies the notion of ACAP. Also, the absorptive capacity of a firm is not only the sum of its employees absorptive capacities, but is also based on “transfers of knowledge across and within subunits within enterprises” [Cohen, Levinthal, 1990, p. 129].

Furthermore, many firms that routinely innovate do not undertake R&D. An analysis of Innobarometer 2007, Survey No. 215 showed, that over half of 4,395 analysed innovative firms did not undertake in-house R&D or sponsor contract R&D [Arundel et al., 2008].
Output – Oriented Indicators

The most frequently used measure of absorptive capacity (ACAP) in the group of output-oriented indicators is raw patent count. It should be noted, however, that in much of the economic literature, raw patent count is still generally accepted as one of the most appropriate indicators of inventive or innovative performance of firm in terms of new technologies, new processes and new products [Freeman, Soete, 1997; Kowalski, Michorowska, 2013]. Although use of patents as a absorptive capacity or performance indicator seems appropriate in high-tech sectors, in other cases it may produce conflicting results, since firms differ in their propensity to patent innovations, and patents significantly differ in terms of their knowledge content.

Perceptive Instruments

Because ACAP is potentially a multi-dimensional construct, many researchers try to build their own measurements of ACAP based on scales. This allows different dimensions of ACAP to be captured, as most constructed dimensions are derived from the most prominent ACAP definitions. Unfortunately, these measurements are too complex, and have too many data constraints, to permit international comparability.

The summary of different measurements modes of ACAP is presented in table 2, whereas the evaluation of different measurement proposals of absorptive capacity is presented in table 3.

<table>
<thead>
<tr>
<th>TABLE 2. Absorptive capacity – measurement proposals divided into input based, output based and perceptive instruments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Proxy for measuring absorptive capacity</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>R&amp;D intensity (R&amp;D expenditure divided by annual sales)</td>
</tr>
<tr>
<td>Existence of the firm’s own R&amp;D departments with full-time personnel; postgraduates in R&amp;D; proportion of R&amp;D in basic research</td>
</tr>
<tr>
<td>Percentage of technical and professional personnel divided by the total number of employees in the organization analysed</td>
</tr>
<tr>
<td>R&amp;D expenditure; number of researchers; duration of R&amp;D activities; number of R&amp;D laboratories; links with public research institutes; number of publications</td>
</tr>
<tr>
<td>R&amp;D effort (expenditure on R&amp;D/annual sales) and the effort in training personnel (expenditure on training personnel/annual sales)</td>
</tr>
<tr>
<td>Degree of employees assigned to R&amp;D activities or in-house education</td>
</tr>
</tbody>
</table>
Capturing Absorptive Capacity: Concepts, Determinants, Measurement Modes...

<table>
<thead>
<tr>
<th>Proxy for measuring absorptive capacity</th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>Output-based measurements of ACAP</td>
<td></td>
</tr>
<tr>
<td>Level of technological overlap between the future members of an alliance</td>
<td>Mowery et al. [1996]</td>
</tr>
<tr>
<td>before the agreement takes place (measured as the number of patents of firm</td>
<td></td>
</tr>
<tr>
<td>“j” cited in the patents of firm “i” divided by total number of citations</td>
<td></td>
</tr>
<tr>
<td>present in the patents of firm “i” before the agreement takes place between</td>
<td></td>
</tr>
<tr>
<td>firms “j” and “i”)</td>
<td></td>
</tr>
<tr>
<td>The total number of publications based on dollars spent on research annually</td>
<td>Cockburn, Henderson [1998]</td>
</tr>
<tr>
<td>Number of patents</td>
<td>Ahuja, Katila [2001]; George et al. [2001]</td>
</tr>
<tr>
<td>Perceptive instruments – individual proposals to measure ACAP</td>
<td></td>
</tr>
<tr>
<td>Knowledge management of information technology (IT) in business processes</td>
<td>Boynton et al. [1994]</td>
</tr>
<tr>
<td>Scale of 9 items to measure global absorptive capacity</td>
<td>Szulanski [1996]</td>
</tr>
<tr>
<td>Set of binary variables used to measure organizations’ propensity to</td>
<td>Shenkar, Li [1999]</td>
</tr>
<tr>
<td>transfer knowledge from their allied partners relative to their own knowledge bases</td>
<td></td>
</tr>
<tr>
<td>Incentive system for the employees</td>
<td>Van den Bosch et al. [1999]</td>
</tr>
<tr>
<td>Adaptation of scales from other related studies and creation of a new scale of 24 items to measure the comprehension, assimilation and application of knowledge</td>
<td>Lane et al. [2001]</td>
</tr>
<tr>
<td>Scale of 15 items to measure capacity for adaptation, production and</td>
<td>Lin et al. [2002]</td>
</tr>
<tr>
<td>application of knowledge</td>
<td></td>
</tr>
<tr>
<td>Scale of 5 items to measure the firm’s ability to assimilate and reproduce new knowledge obtained from external sources</td>
<td>Chen [2004]</td>
</tr>
<tr>
<td>Knowledge management (flow of information) developed on the management level</td>
<td>Lenox, King [2004]</td>
</tr>
<tr>
<td>Scale of 21 items to measure potential absorptive capacity and realized</td>
<td>Jansen et al. [2005]</td>
</tr>
<tr>
<td>absorptive capacity</td>
<td></td>
</tr>
<tr>
<td>Scale of 32 items to measure communication with the environment, the</td>
<td>Nieto, Quevedo [2005]</td>
</tr>
<tr>
<td>organization’s level of knowledge and experience, the diversity and</td>
<td></td>
</tr>
<tr>
<td>coincidence of structures of knowledge and strategic position</td>
<td></td>
</tr>
<tr>
<td>Multidimensional construct that incorporates organizational issues as well</td>
<td>Thuc Anh et al. [2006]</td>
</tr>
<tr>
<td>as human capital</td>
<td></td>
</tr>
<tr>
<td>Wage-level of foreign companies compared to the level of domestic companies</td>
<td>Nielsen, Pawlik [2007]</td>
</tr>
<tr>
<td>Use and importance of different sources of information needed for</td>
<td>Murovec, Prodan, [2009]</td>
</tr>
<tr>
<td>suggesting new innovation projects or contributing to the implementation</td>
<td></td>
</tr>
<tr>
<td>of existing projects (demand-pull and science-push absorptive capacity)</td>
<td></td>
</tr>
<tr>
<td>Scale of 36 items to measure acquisition, assimilation, transformation and</td>
<td>Flatten et al. [2010]</td>
</tr>
<tr>
<td>exploitation of knowledge</td>
<td></td>
</tr>
</tbody>
</table>
### Proxy for measuring absorptive capacity

<table>
<thead>
<tr>
<th></th>
<th>Author</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;D activities aimed at developing new knowledge and other activities such as knowledge intelligence and knowledge dissemination activities</td>
<td>Spithoven et al. [2011]</td>
</tr>
<tr>
<td>Scale of 18 items to measure potential and realized absorptive capacity</td>
<td>Jimenez-Barrionuevo et al. [2011]</td>
</tr>
<tr>
<td>Scale of 10 items – such as prior investment, speed and intensity of knowledge acquisition, the learning and interpretation of new information, exploitation of synergies between old and new information, the recodification of information, and the utilization of new knowledge in existing routines</td>
<td>Hurmelinna-Laukkanen et al. [2012]</td>
</tr>
</tbody>
</table>

Source: own compilation and adaptation based on Murovec, Prodan [2009]; Jimenez-Barrionuevo et al. [2011], Flatten et al. [2011] and Duchek [2013].

### TABLE 3. Evaluation of different measurement proposals of ACAP

<table>
<thead>
<tr>
<th>Positive aspects of different measurements of ACAP</th>
<th>Drawbacks of different measurements of ACAP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Input-based measurements of ACAP</strong></td>
<td></td>
</tr>
<tr>
<td>Easily measurable, usually as a percent of incomes in the period under investigation. Indicates the innovative competences of the firm. Allows for international comparisons conducted at the firm, sector or country level.</td>
<td>Financial data are often confidential and not readily available, mostly based on firms’ declaration, and thus difficult to verify; evaluated in different currencies, which makes the comparison more complicated. Measures only actual research input, while ignoring other non-R&amp;D expenditures and future R&amp;D development.</td>
</tr>
<tr>
<td><strong>Output-based measurements of ACAP</strong></td>
<td></td>
</tr>
<tr>
<td>Generally accepted measure that can be used for international comparisons. Data on patents are easily and internationally available. Allows for international comparisons conducted at the firm, sector or country level.</td>
<td>Purely quantitative measure. Data are not readily available. There exist international and sectorial differences in patenting behaviours. There are differences in patenting between large companies and smaller firms. The identical weight is given to very important and less important patents.</td>
</tr>
<tr>
<td><strong>Specific constructs – individual proposals of measurements of ACAP</strong></td>
<td></td>
</tr>
<tr>
<td>Provides very accurate, individually constructed measurements of ACAP, based and strongly linked to the literature. Captures the path dependency nature of ACAP.</td>
<td>Suitable for specific firm or group of firms, thus a measurement that does not provide data that can be easily compared across countries. Due to the lack of one definition of ACAP, measurements are usually very complicated.</td>
</tr>
</tbody>
</table>

Source: own elaboration.
Measures of Absorptive Capacity Derived from the Community Innovation Survey (CIS)

The Community Innovation Survey (CIS), introduced in mid-90s, is a survey on enterprise innovation activity in the EU Member States, EU candidate countries, Iceland and Norway. A common survey questionnaire and methodology, with reference to the third Oslo Manual, ed. 2005, is used to obtain comparable, harmonized, and high quality statistical results [Oslo Manual, 2005]. The CIS is designed to extract information on innovation activities within enterprises, expenditures for process and product innovations, public financial support for innovation activities, and sources of information and cooperation in innovation activities, innovation objectives. The CIS also contains data on the introduction of organizational and marketing innovation and their objectives. Based on data from the CIS questionnaire, several ACAP proxies can be derived.

R&D effort can be estimated using two CIS questions [CIS 2 (for years 1995–1998); CIS 3 (for 1998–2000); CIS 4 (for years 2001–2004); CIS 2006 (period 2004–2006); CIS 2008 (period 2006–2008); CIS 2010 (period 2008–2010); CIS 2012 (period 2010–2012)], covering R&D expenditures and total annual sales. Question 5.2 refers to estimated in-house R&D expenditures (RRDINX) 1, including capital expenditures on buildings and equipment specifically for R&D (data are in the currency of the surveyed country). Question 12.1 refers to the amount of turnover defined as market sales of goods and services (TURN10) (including all taxes except VAT) in the last year of the surveyed period (data are in the currency of the surveyed country). By dividing one digit by another, R&D effort as a proxy for ACAP is obtained.

Professionalization of R&D as a proxy of ACAP is commonly measured based on part of question 5.1 (CIS 2; CIS 3; CIS 4; CIS 2006; CIS 2008; CIS 2010; CIS 2012). Enterprises have to specify if during the three years surveyed period they engaged in internal R&D (RRDIN), defined as creative work undertaken in-house to increase the stock of knowledge for developing new and improved products and processes (including software development in-house that meets this requirement). The enterprises also have to specify if they continuously performed R&D during the three year survey period (RDENG) (e.g., with permanent R&D staff in-house) or occasionally (as needed only). Commonly, only a “Yes” for carrying on R&D continuously is used as proxy for professionalization of R&D.

R&D human capital can be measured by recently introduced question 12.3 (EMPUD) (CIS 2010; CIS 2012), where the respondent approximates the percent of enterprise employees with a university degree (ranging between 1–4%; 5–9%; 10–24%; 25–49%; 5–74%; 75–100%). Effort to train personnel (CIS 2; CIS 3; CIS 4; CIS 2006; CIS 2008; CIS 2010; CIS 2012) can be measured by using question 5.1 (RTR) – training for innovative activities (internal or external training of personnel specifically to develop and/or introduce new or significantly improved products or processes). Unfortunately, it is not possible to estimate the expenditure on training personnel as a percentage of total annual sales, as those data are not available.
Output based measure based on patents could have been measured by using question 11 from earlier CIS versions (CIS 2; CIS 3; CIS 4; CIS 2006) on patent and patent protection. Question 11.1a asked whether the enterprise or enterprise group applied for at least one patent to protect inventions or innovations developed by the enterprise. Question 11.1b concerned information about valid patents at the end of the last year of survey to protect inventions or innovations developed by the enterprise. Question 11.1.c concerned the percent of turnover in 2000 covered by valid patent owned by the enterprise of enterprise group at the end of 2000. Unfortunately, in later CIS releases, this question has been abandoned.

Based on the CIS questionnaire, demand-pull absorptive capacity and science-push absorptive capacity can also be measured.

Demand-pull absorptive capacity measurement can be derived from question 6.1 concerning the importance of different sources of information for innovation activities, such as from suppliers of equipment, materials and software (SSUP); from clients and customers (SCLI); from competitors within the same industry (SCOM); and from fairs and exhibitions (SCON; SJOU; SPRO).

Science-push absorptive capacity measurement can also be derived from part of question 6.1 concerning the importance of information from universities or other higher education institutions (SUNI) and government or public research institutes (SGMT).

Unfortunately the distinction between absorptive capacity for intra-industry knowledge; and absorptive capacity for inter-industry knowledge cannot be properly done, as the CIS questionnaire does not distinguish different sources of knowledge coming from the same or other industries.

Despite its limitations, the CIS questionnaire remains the only source of representative and internationally comparable results for innovation activities of European countries, and the above-mentioned ACAP proxies are commonly introduced as measurements.

Absorptive Capacity in the Context of Open Innovation

Open innovation (OI) is defined as “the use of purposive inflows of knowledge to accelerate internal innovation, and expand the markets for external use of innovation, respectively” [Chesbrough, 2003, p. XXIV]. OI is a paradigm that assumes that firms can and should “use external ideas as well as internal ones, and internal and external paths to market, as they look to advance their technology” [Chesbrough et al., 2006, p. 2]. OI means not only sourcing and integrating external knowledge (inbound OI or “outside-in”), but also letting its own ideas be used by other companies (outbound OI or “inside-out”) [Litchenthaler, 2008, 2011] as well as the outside-in and inside-out processes combined (“coupled process”); that is, working in alliance with complementary knowledge [Gassmann, Enkel, 2004]. Outbound process (inside-out) can result in non-pecuniary benefits (revealing) as well as pecuniary ones (sales of knowledge). Inbound OI (outside-in process) also
has indirect benefits (sourcing, collaborating) as well as pecuniary benefits (acquiring) [Dahlander, Gann, 2010]. Open innovation has a significant impact on capabilities and resources, and requires internal dynamic capabilities (including *absorptive capacity*) – the ability to integrate, built and reconfigure internal and external competencies, especially in the environment irrespective of the appropriability regime [Teece et al., 1997].

In this part of the paper, the focus will be on selected influential proposals of new classifications of organisational capacity in the context of open innovation (OI). Works of U. Lichtenthaler and E. Lichtenthaler [2009], P.L. Robertson, G.L. Casai and D. Jacobson [2012], as well as the proposal of A. Spithoven, B. Clarysse and M. Knockaert [2011], which emphasises the role of “knowledge centres” in building *absorptive capacity* needed for inbound open innovation activities of firms from traditional sectors will be discussed.

At this point it should be noted, that the above-cited work of Lichtenthaler [2009], as well as his other thirteen papers, have been retracted due to doubtful statistical analysis. Nevertheless, the theoretical proposal of the paper is of interest, and is therefore described below.

**Proposal of U. Lichtenthaler and E. Lichtenthaler**

Lichtenthaler and Lichtenthaler [2009], building on Gassmann and Enkel's [2004] three open innovation processes, proposed three linked capabilities – absorptive for inflow, multiplicative for outflow, and relational for coupled processes. Jointly, these organizational capacities form the foundation for a dynamic capability to manage open innovation [Lichtenthaler, Lichtenthaler, 2009].

**TABLE 4. Organisational capacity and open innovation**

<table>
<thead>
<tr>
<th>Level</th>
<th>Knowledge exploration</th>
<th>Knowledge retention</th>
<th>Knowledge exploitation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intra-firm</td>
<td>Inventive capacity</td>
<td>Transformative capacity</td>
<td>Innovative capacity</td>
</tr>
<tr>
<td>Inter-firm</td>
<td>Absorptive capacity</td>
<td>Connective capacity</td>
<td>Desorptive capacity</td>
</tr>
</tbody>
</table>

Source: Lichtenthaler, U., Lichtenthaler, E. [2009].

The first criteria (the first horizontal line in table 4) characterizes the main goals of OI activities – identification (exploration), saving (retention), and commercialization (exploitation) of knowledge, while the second (the first column in table 4) refers to the level at which OI activity happens inside or outside a firm. When combined, they create six different types of OI capacity necessary for firms to implement related OI activities [Lichtenthaler, Lichtenthaler, 2009].

*Inventive capacity* enables firms to produce creative knowledge internally, symbolising how well a firm can handle internal R&D. This capacity determines a firm's basic capability, as it influences R&D collaboration and in-sourcing as well as the closed innovation.
In the case of knowledge retention, *transformative capacity* defines a firm’s capability to maintain knowledge internally as well as its active management, by conveying resources to keep knowledge “alive” and avoid pasting over time. After identifying an opportunity to use preserved knowledge, it should be revitalized, adopted, and blended with additional knowledge [Garud, Nayyar, 1994; Smith et al., 2005].

*Absorptive capacity* allows firms to integrate external knowledge. A firm with strong *absorptive capacity* should open up its boundaries to explore and assimilate external ideas and, eventually, compensate for its own low “inventive capacity”. OI modes, such as cooperation, in-sourcing or venture investment, are related to this capacity.

*Transformative capacity* (internal knowledge retention) describes “a firm’s ability to internally maintain knowledge over time” [Lichtenthaler, Lichtenthaler, 2009, p. 1320] and if needed, reactivate, internalize, and synthesize it with additional knowledge.

*Connective capacity* (external knowledge retention) “focuses on externally maintaining knowledge which does not assume immediate inward knowledge transfer. Instead, firms ensure privileged access to external knowledge without directly acquiring it” [Lichtenthaler, Lichtenthaler, 2011, p. 82].

*Innovative capacity*, first introduced by Suarez-Villa [1990], to measure “the level of invention and the potential for innovation in nation, geographical area or economic activity” [Suarez-Villa, 1990, p. 291], here refers to the ability of firms to commercialize their internal or external knowledge in order to design new products or provide new services. This capacity describes the extent to which firms can digest internal or external ideas towards making actual profit. *Innovative capacity* is crucial in closed innovation, but is also related to certain OI modes such as customer involvement or in-sourcing.

And lastly, *desorptive capacity* is the ability to make a profit outside the firm and certain OI modes such as licensing-out or spinning-off (venturing). Firms can make extra profit by selling or licensing their unused intellectual property (IP) or spinning off technologies that are believed to diverge from their main business areas [Kirschbaum, 2005]. To accumulate strong *descriptive capacity* in outbound open innovation, a firm can benefit from market knowledge developed in its other innovation undertakings, under the condition, that it maintain a large R&D portfolio connected to a wide variety of technology markets.

Consequently, internal technology development and outbound technology transfer are likely to complement each other [Hu et al., 2015].

In further research by Mo Ahn et al. [2013], the authors used the Korean Innovation Survey (KIS) 2008 data to empirically test the six OI capacities (*inventive*, *absorptive*, *transformative*, *connective*, *innovative* and *descriptive*) and their influence on financial performance. The results of structural equation modelling (SEM) showed that a firm’s OI capacities are significantly linked with a firm’s financial performance (both positively and negatively); are highly correlated with one another and are differently configured within diverse types of firms based on size, being a member of a capital group, the industry’s technological level, and the firm’s location.
Proposal of P.L. Robertson, G.L. Casai and D. Jacobson

Robertson, Casaiand, Jacobson [Robertson et al., 2012] discuss the above-mentioned Lichtenthalers’ proposal and present their own conceptualisation of absorptive capacity in the context of introducing incremental process innovation in an open innovation mode. The authors argue, that although the Lichtenthalers’ explanation of the role of ACAP in open innovation was a step forward, their model did not specify what capabilities a firm desires in order to achieve required outcomes. To remedy this, they propose three categories of innovative capacities that can help firms achieve open incremental innovation: accessive capacity, adaptive capacity and integrative capacity.

Accessive capacity, which is similar to ACAP, “comprises all knowledge generating and gathering activities, both internal and external that are relevant to the given problem (…). It concentrates not just on how internal knowledge can affect a firm’s ability to collect external knowledge, but on how the two classes of knowledge can be used together, in complementary or supplementary roles, to achieve incremental process innovation” [Robertson et al., 2012, p. 826].

Adaptive capacity involves “converting knowledge generated for one purpose to another”, as “new knowledge does not necessarily arrive in a ready-to-use form, when innovation is open” [Robertson et al., 2012, p. 827]. Integrative capacity, including human resource changes (like personnel training), is the “ability to apply knowledge to particular situations and may demand physical and organisational alterations to and existing setup” [Robertson et al., 2012, p. 827].

Knowledge may be created within the organisation (internally, by its managers and employees) or outside the organisation (and come from suppliers, customers, consultants or other sources). Although all actors may play a role in the entire range of innovative capacities, according to Robertson et. al., the relative strength of each of them may vary from case to case.

It should be underlined that, like the Lichtenthaler model, [2009], all three capacities do not function automatically. They have to be directed by innovative management capacity, which organises the knowledge that has been created and gathered. And Robertson, et. al., emphasize that this “master” capacity must include capabilities for operationalisation and “effective knowledge application” [Robertson et al., 2012, p. 829].

All three types of capabilities – accessive, adaptive and integrative – meet the criteria of first-order dynamic capabilities. Innovative management capacity qualifies as a higher-order capacity [Collins, 1994; Winter, 2003], as it coordinates all three remaining capabilities.

But aggregating ACAP by opening up the firm’s business model can also have some drawbacks, because to gain knowledge a firm has to simultaneously share knowledge [Kale et. al., 2000]. To justify this process and relate this notion to ACAP, the concept of protective capacity (PCAP), was introduced [Andersen, 2012]. PCAP is defined as a firm’s “capacity to sustain, or to decrease the speed of depreciation of knowledge-based resources” [Andersen, 2012, p. 440]. Openness of the firm is positively connected with
the level of ACAP [Jansen, et al., 2005] and, according to Anderson [2012], is negatively related to PCAP. Thus, as author argues, an increased level of ACAP is likely to reduce the level of PCAP and vice-versa.

**Proposal of A. Spithoven, B. Clarysse and M. Knockaert**

Although A. Spithoven, B. Clarysse and M. Knockaert [2010] did not in fact propose, new types of *absorptive capacity* in the open innovation (OI) context, they drew attention to the connection of OI and *absorptive capacity* in SMEs and firms in traditional industries. These authors argue that small- or medium-sized firms, despite the often limited in-house *absorptive capacity*, do actively engage in inbound open innovation activities, but the mode in which they execute these activities may differ from larger companies or firms in high-tech sectors. These researchers focused on the function of “collective research centres” in building *absorptive capacity* at the inter-organisational level. They hypothesised, that in the case of SME or firms from traditional sectors, the number and qualification of personnel may not be sufficient to properly engage in open innovation activities. This is especially dangerous for those firms which have to compete with companies with a higher level of *absorptive capacity* that coordinates external knowledge flows more efficiently, stimulating innovative performance that leads to competitive advantage. It is expected that SME or firms from traditional industries will look for third-parties – technology intermediaries – to facilitate their building *absorptive capacity*. However, these “knowledge centres” have to dispose of their own *absorptive capacity* to fulfil their purposes.

In order to investigate the way *absorptive capacity* impacts inbound open innovation activities within traditional sectors, the authors examined the activity of “collective research centres” in Belgium, which were founded after the Second World War to “encourage scientific and technological research in specific sectors of the economy to improve productivity, quality and production” [Spithoven et al., 2010, p. 13] and are grouped in the Union of Collective Research Centres. They operate in traditional industries characterised by a low technology content measured by their R&D investments [Spithoven et al., 2010]. Based on the research conducted within these centres, the authors define three inter-related activities that increase the innovative capacity of their clients and thus fall in the definition of *absorptive capacity*.

These are (1) performing as a “knowledge intelligence unit” by the (upstream) identification and monitoring of related technology and knowledge; (2) operating as a “knowledge agency” on the need of the member firm to challenge encountered problems and apply technologies, therefore executing assimilation and transformation capabilities; and (3) acting as a “knowledge repository” designed for information dissemination which boosts the assimilation capability of the member.

The main finding of the works of Spithoven et al., is that *absorptive capacity* embraces both R&D activities and R&D-linked activities. In around half of the centres, the R&D-related activities were more significant than the R&D activities. This highlights the limitations
of measuring *absorptive capacity* if only R&D activities are taken into account. Another important issue is the role of “collective research centres” as knowledge intelligence units, knowledge agents and knowledge repositories, thus drawing attention to *inter-organisational absorptive capacity* and suggesting *absorptive capacity* should be analysed at a network, rather than firm, level.

Of three proposals, the one demonstrated by the Lichtenthalers’ is the most complex, whereas the one by Robertson, et al., tries to narrow Lichtenthalers’ concept by applying a managerial perspective. The third proposal of Spithoven, et al., has particular relevance for SME’s (especially from traditional industries), as it promotes cooperation in general with an emphasis on building collective *absorptive capacity* at the inter-organisational level.

The analysis of three proposals for linking ACAP and OI concepts suggests that there is still much to be researched and understood. Table 5 is a step in this direction. It compares the concept of *absorptive capacity* and the “outside-in” process of open innovation from several criteria perspectives.

**TABLE 5. Similarities and differences between absorptive capacity and outside-in dimension of open innovation**

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Absorptive capacity</th>
<th>Outside-in dimension of open innovation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Similarities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic aim</td>
<td>Strengthening firms’ competitive advantage</td>
<td>Strengthening firms’ competitive advantage</td>
</tr>
<tr>
<td>Relation between internal and</td>
<td>Complementarity</td>
<td>Complementarity</td>
</tr>
<tr>
<td>external knowledge</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Differences</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role in the firm</td>
<td>Dynamic capability – process to create new resources</td>
<td>Knowledge sourcing strategy</td>
</tr>
<tr>
<td>Complexity of the concept</td>
<td>More complex</td>
<td>Less complex</td>
</tr>
<tr>
<td>Intra-firm level of analysis</td>
<td>Major focus of the concept</td>
<td>Covered by the concept</td>
</tr>
<tr>
<td>Inter-firm level of analysis</td>
<td>Covered by the concept</td>
<td>Major focus of the concept</td>
</tr>
<tr>
<td>Impact on innovation performance</td>
<td>Impact mostly depends on the firm’s scope and quality of knowledge base</td>
<td>Impact mostly depends on knowledge base of external provider</td>
</tr>
<tr>
<td>Measurability</td>
<td>Input, output oriented and perceptive instruments</td>
<td>Scope and depth of cooperation</td>
</tr>
</tbody>
</table>

*Source: own elaboration.*

The major similarity of both concepts is undoubtedly their positive impact on a firm’s competitive advantage. Both concepts also positively influence innovation performance.
But absorptive capacity’s impact depends more on the firm’s scope and quality of knowledge base, whereas in the case of outside-in open innovation it results from the knowledge base of external partners. In both of the concepts complementarity between internal and external knowledge is important, but absorptive capacity is more focused on the intra-firm context, whereas outside-in open innovation is concentrated on inter-firm relations. It is worth underlining that absorptive capacity has features of dynamic capability and, as such, enables new knowledge resources to be created, whereas outside – in open innovation is focused on exiting knowledge sourcing. As for measurability, in the case of absorptive capacity input, output and perceptive measurements are used, whereas in outside-in open innovation the breadth and depth of innovation cooperation is usually investigated. Definitely, both concepts need more empirical research to validate their practical relevance.

**Conclusions**

The purpose of this paper was to analyse the theoretical concepts related to the notion of absorptive capacity, its determinants, outcomes, measurement modes, and role in open innovation activities. The results highlight the importance of the capabilities of external knowledge absorption for innovation performance and competitive advantage. In contrast to the traditional view, which relates absorptive capacity to R&D activities, the more recent works underline differences between potential and actual ACAP and suggest its numerous, more accurate measures. The study stresses the importance of combining external sources of knowledge identification with a firm’s internal efforts to absorb it by discussing the interrelations between absorptive capacity and open innovation. The attempt to highlight similarities and differences between both concepts therefore opens up new avenues of future research.

The article does not cover all aspects of absorptive capacity versus open innovation. For example, the complimentary effect of both concepts was not covered [Flor et al., 2013], as well as the relation with cognitive proximity [Boschma, 2005]. Some authors suggest that a firm’s absorptive capacity moderates the relationship between remote collaboration and the innovative performance of firms, as investment in absorptive capacity simplifies knowledge transfer with partners who are located far-away [Berchicci et al., 2013; Enkel, Heil, 2014; Lewandowska, 2014]. Thus, cognitive proximity, which is enhanced by investments in absorptive capacity, may balance the lack of geographical proximity between partners.

The review of empirical studies of absorptive capacity underscores the need to develop measurement methods suitable for addressing the construct’s complexity and allowing international comparisons to be made. Cooperation between academics and practitioners may support this process.

Future works should also consider the problem of determining the types of knowledge to be acquired (and consequently, the absorptive capacities required). One possible
direction would be to investigate the differences in absorptive capacity for domestic and foreign knowledge.

Summing up, this paper illustrates the complexity of problems related to firms’ absorptive capacity.

Notes

1 The abbreviations are used for each question in the CIS questionnaire in order to ease and unify the comparison of questions between different questionnaire versions.

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The Institutional and External Factors Behind the Switch of a Country’s Economic Growth Strategy. The Case of the Brazilian Economic Policy

Abstract

One of the most important tasks for Brazil after the Second World War was to change the structure of its economy. Due to a relatively low level of domestic industry, consecutive governments found industrialization the main priority and focused on industrial policy to foster that process. One can argue that industrial policy was the core element of Brazilian economic policy throughout the post-war period, until the liberalization reforms of the 1980s. Political and economic traditions, together with rapid changes in global economy over the last decades, have had a huge impact on more recent Brazilian economic policy. On one hand, the country has kept looking back to the protectionist practices that have shaped its economy since the emergence of the modern Brazilian state, on the other, Brazil’s ambition is to become a leading emerging economy and serious partner in the developed world. A dual development track, and continuous inner-conflict between protectionism and liberalism, is clearly visible in Brazilian economic policy and often leads to contradictory measures being taken by successive governments. The objectives of the article is to provide a contextualized analysis of the evolution of Brazil’s economic growth strategy, with a particular focus on the role of economic and political traditions, and institutions.

Keywords: Brazil, economic growth strategy, economic policy, industrial policy, strategic trade policy, international trade, industrialization, economic development

JEL: F13, F43, O14, O21, O24, O25, O54
**Introduction**

Brazil is the biggest country in Latin America and the fifth largest in the world in geographical area and population. As a former Portuguese colony, Brazil is the only Lusophone state in the Americas.

During the recent global economic crisis, the Brazilian economy experienced negative GDP growth in 2009 but resumed growing as early as 2010 (by 7.5 per cent) [UNCTAD], and achieved 2.49 in 2013 [IPEA, 2015] in part because its large internal market is less vulnerable to global recession and provides opportunities for expansion.

Apart from relatively stable economic growth, Brazil has increased its global trade, with exports accounting for 1.29 per cent and imports 1.33 percent, of total world merchandise exports and imports. A WTO member since 1995, Brazil has opened its economy and become an important voice in multilateral negotiations, defending its own interests and aspiring to represent developing states. Consequently, Brazil is the main architect of the G20 group, co-chair of the Free Trade Area of the Americas (FTAA) – together with the USA – and leader of the Southern Common Market MERCOSUR. Brazil has also undergone important domestic changes that established the foundations for sustainable development. In particular, the social reforms carried out under I. Lula da Silva's Presidency have generally improved the situation of Brazilian society, lowering poverty, extreme poverty and illiteracy. Rising incomes of the poorest, coupled with a slower rise of income for the richest, contributed to lowering income inequity (Gini index). Other crucial improvements in Brazilian economy include: relatively low inflation, well-focused social policy, and a program aimed at real increases of the minimum wage.

Brazil, as the largest Latin American economy, has always drawn the attention of the economists and policy-makers. First of all, its market size and proximity (geographically, institutionally, and culturally) to other economies in the region offer potential for investors and entrepreneurs. Secondly, Brazil has continued its tradition of political and economic independence as an active participant of multilateral negotiations and leader of developing states defending their economic interests. Thirdly, Brazil has implemented many economic policy experiments that – though often contradictory – contribute to the global discussion on economic growth strategies. Finally, Brazil I generally regarded as a rising star in the global economy, with further development encouraging potential investors to locate their capital and increase their overall trust in Brazil's economic future. Brazil's economic policy t has been characterized by strong Government involvement in the economy, including active policy-making aimed at shaping markets, relatively high protective measures (tariffs, subsidies, etc.) and strong involvement in international fora, especially when Brazilian commercial interests are concerned. This involvement has precipitated substantial changes in economic growth strategies, beginning with substitution industrialization (encouraged by the theoretical work of Prebisch and Singer), followed by export enhancement, and
market liberalization – consistent with the Washington Consensus recommendations. The laissez-faire approach adopted in the early 1980s intended to release market forces and force the government to withdraw from economic activity did not last long, however. Brazil has returned to stronger interventionism based, this time, on a pro-export growth strategy, of which strategic trade policy is an important element. As a result, within just three decades Brazil glorified, rejected, and reinstituted State intervention. Discussion of the State’s role in economic growth has not lost impetus. The measures promoted by the Washington Consensus, encompassing a wide range of economic activity (macroeconomic adjustment, financial sector rearrangement, privatization of state owned enterprises, trade liberalization, welfare and labor reforms, etc.), profoundly changed Brazil’s economy and its approach to development. New liberal reforms were carried out in tandem with political transformation from authoritarian regime to democracy, what was common for many Latin American countries. This may partially explain the initial failure of initial stages of liberalization in the region as newer democracies lacking strong institutions may offer more opportunities for special interest groups to pursue their own goals. Nevertheless, the structural reforms formed a new base for the modern Brazilian economy and strongly tied the country with global markets.

Since I. Lula da Silva’s Presidency, Brazil’s economic growth strategy has been based on State-led growth, which has traditionally been a crucial element of Brazilian economic policy. The Government’s shaping of economic life in Brazil and the strong role of industrial policy have prevailed despite much criticism from international financial institutions. However, past experiences shifted the debate from yes/no questions to government involvement in the market to those concerning its efficiency and long-term consequences.

This article provides a brief historic analysis of the evolution of Brazil’s economic growth strategy and the major internal and external factors that have generally influenced it, and Brazil’s industrial policy, since the Second World War. Economic growth strategy is economic policies and institutional arrangements designed to reach economic convergence with living standards prevailing in advanced countries. Brazil’s economic growth strategy has been based mainly on industrial and trade policy.

In this article we extract the crucial factors influencing Brazilian economic policy and show their impact and durability using a broad, multidisciplinary approach.

Certain factors were selected based on desk research (statistical data analysis; literature review; official documents and relevant institutions’ websites) and encompass a wide spectrum of issues, ranging from those rooted in the Brazilian mentality and political traditions to macroeconomic constraints and developments in the global economy.

The article is organized as follows: the first section contains a brief historical and institutional overview of the evolution of Brazil’s development strategy as a background for the analysis conducted in the further sections. The second section is devoted to institutional factors having the biggest impact on that evolution. Section three focuses on external factors...
influencing this evolution, and, in that connection, the fourth section highlights political factors of particular crucial importance. The last section presents that article's conclusions.

From Import Substitution to Export-Oriented Development Strategy – A Brief Historical and Institutional Overview

The development strategy of Brazil was long based on promoting industrialization and protecting the domestic market from the outside shocks. These two guiding principles reached their nadir in the import substitution industrialization strategy applied by consecutive Brazilian governments (to varying degrees) from the 1950 s to the 1980 s. A systematic concern with the promotion of Brazil's industrial development dates back to the 1940 s. Prior to the 1950 s, however, government measures lacked coherence and a broader focus [i.a., Versiani, 1987]. In the decade preceding World War II, particularly after the Great Depression, industrialization was a focus but modern industrial policy was not practiced in Brazil until the mid-1950 s. Simultaneously, attempts to coordinate institutions were initiated, and tools developed to fulfill the State's industrial programs.

The resulting import substitution industrialization was a development strategy subjected to many mutations and adjustments. Its evolutionary character can be detected in changes in principal institutions. This section provides an institutional overview of the main elements of ISI adopted in Brazil, which includes: (a) economic planning, strategy development and policy coordination; (b) legislative and organizational institutions; (c) sector, industrial and technological targeting; (d) auxiliary policies and instruments; (e) infrastructural investments (including educational policies) and describe the emergence of pro-export strategy.

Economic Planning, Strategy Development and Policy Coordination

Economic planning and development strategies elaborated as formal national plans were initiated in Brazil during the 1930 s and 1940 s but with dubious practical results. The planning organs launched at that time resembled discussion forums more than effective strategic bodies. The first economic plan – Plano Salte, launched by the President Eurico Gaspar Dutra (1946–1951) and aimed at stimulating the Health, Alimentation, Transport and Energy sectors – was not given sufficient tools and was not effectively implemented [Draibe, 1985, pp. 155, 156].

The institutional base for economic planning started to be formed in the early 1950 s, particularly during the second government of G. Vargas. Using various structural problems analyses (e.g., that of the CMBEU (Comissão Mista Brasil-Estados Unidos), and CEPAL/BNDE group) the Commission for Industrial Development (CDI) launched the General Program of Industrialization (PGI). The PGI was not formalized, though and
coordinative prerogatives remained with the Presidents [Suzigan, 1995, p. 8]. Initiatives started at that time served as the reference point for the later governmental efforts. The diagnostic and institutional elements of the General Program of Industrialization inspired the first effective industrial Brazilian development strategy, launched by the Kubitschek government under the name *Plano de Metas* (Goal's Plan). The plan, with the slogan: *Fifty years of progress in five*, was designed to coordinate domestic and foreign investment programs according to specified goals, with each type of investment under the supervision of a particular executive group coordinated by the Development Council (Conselho de Desenvolvimento). This system of economic planning and coordination introduced by the Plano de Metas was not effective, though.

In the 1960s, economic and political crises led to an authoritarian regime, and national planning of industrial development was abandoned [Suzigan, 1995, p. 8]. National economic plans were used to stabilize the economy, and economic coordination was passed to National Monetary Council (Conselho Monetario Nacional; CMN).

During the period sometimes referred to as the *Brazilian economic miracle* (1968-1973), economic planning and developmental strategies re-emerged as vital elements of governmental economic policy. The National Development Plans (Planos Nacionais de Desenvolvimento) were its most important tools, characterized by the strong position of the National Monetary Council as the coordinating body, which prioritized macroeconomic strategy over projects focused on industrial/technological development.

The First National Development Plan (I PND) was conducted under General E. Medici's government during the 1972–1974 period. It was established by the Act 5.727 in November 1971. At the same time the Goals and Framework of Government Actions Program for 1970–1974 was instituted. The major aim of the Plan was to build the infrastructure necessary to facilitate Brazil's rapid growth. Priority was given to the transport and telecommunication sectors, and particular interest paid to science and technology investments, and expanding the ship building, steel and petrochemical industries [See more in: Almeida, 2004] Implementation of the Second National Development Plan (II PND, 1975–1979) under General Geisel's government was the second effective planning initiative conducted in Brazil. The Plan was launched in response to the first oil shock at the end of Brazilian economic miracle that lasted six consecutive years. The major architects of the II PND were the ministers: J. Paulo dos Reis Velloso, Mario Henrique Simonsen and Severno Gomes who sought to stimulate basic inputs, capital goods, and food and energy production. Under the coordination of the Economic Development Council (Conselho de Desenvolvimento Economico) headed by the President of the Republic, new sets of joint investments in economic and social infrastructure, technology and science were articulated.

**Legislative and Organizational Institutions**

The formal definition of industrial policy objectives and instruments were introduced for the first time by the Goals Plan (Plano de Metas). However, it was based on the work
done by the first Brazilian institution responsible for industrial policy; namely, the Council for Industrial Development (CDI). In 1952, the CDI published the classification of industrial activities and preference product groups in Brazil in deploying the country’s General Program of Industrialization (PGI) [Draibe, 1985, p. 237]. The classification made use of the recommendations published by CMBEU and research carried out in cooperation with the President’s council [Suzigan, 1995, p. 9]. The initiative was unsuccessful, however, with the exception of two CDI sub-commissions created in 1952 to stimulate the automobile and electrical equipment industries [Suzigan after Leopoldi, 1994, pp. 8, 9].

The problem with the first legislative framework and organizational institutions that would shape Brazilian industrial policy was their lack of consistency and durability. For example, the initiatives stated in the Goals Plan ceased to exist with the end of that Plan. This fate was shared by executive groups tasked with coordinating certain industrial segments and the Commission for Industrial Development itself [Suzigan, 1995, p. 9]. These early efforts did, however, start the process of legislating and formulating Brazilian industrial policy, which was developed in later decades. The above-mentioned two sub-commissions of CDI that were successfully launched served as the pattern to follow. Moreover, the Goals Plan period witnessed the emergence of other important institutions that had under their jurisdiction important aspects of industrial policy, namely the Council of Customs Policy (CPA) and CACEX. CPA was created advise the Ministry of Finance on such issues as tax rates, minimum tariffs, and tariff nomenclature in general [de Godoy in: Receita Federal, Administracao Aduaneira, access: 05.11.2012]. CACEX replaced the earlier CEXIM (Carteira de Exportação e Importação do Banco do Brasil) and was the department of the Bank of Brazil aimed at financing Brazilian foreign trade, licensing imports and exports, and providing official foreign trade statistics.

In the 1960s the executive groups, after a period of neglect, were regrouped to form the new Council of Industrial Development, which until 1979 was the institution responsible for industrial policy shaping. Its most important responsibilities were: guidelines and IP objectives formulation; IP priorities setting; and the administration of fiscal incentives to industrial projects. At the same time, the institutional framework was expanded and encompassed various sector, regional, technological and other organizations that coordinated particular projects [Suzigan, 1995, p. 9].

**Sector, Industrial and Technological Targeting**

Since the 1930s sector industrial policy has been practiced in Brazil. At first, these were vertical policies aimed at promoting industries that produced basic inputs such as iron ore, paper and cellulose, steel, and alkalis. These sectors were believed to play a crucial role in the country’s industrial development, and on the labor market. Sector goals were introduced after the Second World War and may be attributed to the Goals Plan. The targeted sectors changed and, in 1950s, special projects were expanded over such industries as heavy chemical and electro-mechanic industries, transport equipment, and
naval construction [Suzigan, 1995, p. 9]. This extended list of preferred industrial activities belonged to the industrial strategy declared by the Goals Plan and was supervised by various sector-specific executive groups.

Nevertheless, particular industrial targeting and vertical policies promotion were characteristic for the 1970s, especially with the launching II PND. The priority sectors were reconsidered and special governmental help was given to such branches as petrochemical and non-ferrous metals as basic inputs producers, and telecommunication, aircraft, armaments, nuclear energy and informatics infrastructure as capital goods and technologically advanced industries.

**Auxiliary Policies and Instruments**

Auxiliary policies and instruments were divided into four categories: foreign trade policies; financing instruments and guidelines; promotional incentives; and competition and regulation policies. Until the mid-1950s there was no official articulation of the above-mentioned measures and no focus on the lack of national coordination. Industrial protection on the internal market was manifested in the increasing number of administrative controls on trade and non-tariff barriers imposed on imports which, similar to custom tariff, were eroded by inflation. Another significant feature of the industrial policy in the 1950s was a lack of any incentives to export and no production subsidies for manufactured goods. The general lack of capital negatively affected investments. Some institutions that were supposed to provide credits for investment activities and finance industrial projects in line with the government’s preference list limited their help to narrow sectors or certain companies. One body created to finance industrial initiatives was the Bank of Brazil, but agriculture was the sector that received the most financial help. Another institution, the National Bank for Economic Development (BNDE), primarily supported only infrastructural projects. Moreover, the government’s strategy in the 1953–1957 period aimed at regulating trade transactions, which led to the introduction of multiple exchange rates. Apart from a poor financing system to stimulate investments and introduce innovation, there was no incentive system within the industrial promotion policy. Notably, though, many elements of regulation and competition policies were introduced in Brazil in the 1950s. Launching the controls over foreign direct investments was one of the first initiatives of this type, followed by other measures such as price, tax and public services “tariff controls,” and regulation of the labor market [Suzigan, 1995, p.10].

The mid-1950s also witnessed the emergence of deliberate governmental interventions aimed at promoting industrialization and the consolidation of strong protective policies (tariff and non-tariff measures). Pro-export incentives were introduced in the mid-1960s. The system was gradually maturing and reached its apogee in the late 1970s. During this time trade protection, excepting the mid-1960s, was increasingly discriminatory via non-tariff barriers and custom tariffs (i.e., imposing elevated aliquots). Announced in 1957, Law 3,244 created a new tariff structure and instituted the administrative apparatus to adjust
tariffs to actual development goals and industrial policy objectives [U.S. Library of Congress, access: 06.11.2012]. At the same time, sources of financing investments got more diverse thanks to diversification of BNDE prerogatives, the rise of regional development banks and bank research departments, the establishment of various special funds, instruments for foreign capital acquisition, and export financing programs. Other important elements of Brazilian industrial policy were investment incentives, regional development policies, small and medium-size enterprise incentives, and the promotion of scientific and technological development that gave raise to national system of innovation. Use of the above-mentioned measures was characteristic of the 1970s, when the vision of industrial growth was clear and Brazil advocated state-led development. Until 1979, the country pursued strong, generally non-selective protectionism, offered a system of subsidies for capital creation and export promotion, and implemented regulatory policies.

**Infrastructure Investments (Including Educational Policies)**

The first investments in infrastructure in post-war Brazil were made in the areas of transport and energy, which was the result of a diagnostic study carried out at the beginnings of 1950s. The main financing for infrastructural projects came from BNDE, state companies, and various public institutions. The money was directed into urban infrastructure, basic sanitation, housing and telecommunication. Deficiencies were overcome and, by the end of the 1970s, Brazil’s economic infrastructure was compatible with the requirements proposed by II PND as the sign of more advanced industrial development. Less positive was the state of education and training. Despite advances in higher education, post-graduate studies and research, deficiencies in basic education were not mitigated.

The Emergence of a Pro-Export Industrial Policy in Brazil Industrial policy based on export promotion is commonly regarded as an element of a development strategy adopted in Brazil and other middle-income economies in Latin America in the last decade of 20th century. According to many scholars, it was the answer to macroeconomic imbalances and the international pressure and an attempt to follow the success of East Asian economies. External shocks (oil crises) and debt burdens deepened the economic stagnation in Latin America, requiring a new policy that would stabilize the economy and attract international capital. Multilateral financial institutions discouraged state interventionism and promoted openness to trade, FDI and international financial flows. As a result, a number of developing countries, including Brazil, followed the prescriptions of the Washington Consensus and concentrated governmental actions on promoting exports and acquiring new trade partners.

However, the Brazilian experience with export-promoting-measures dates back to the 1960s. The first attempts were based on exchange rate manipulation, but the unpredictable and accelerating inflation eliminated potential export gains from devaluation and the policy was quickly dropped [Cason, White, 1998, p. 49]. Moreover, the Government based trade policy on the principle of fully supplying the domestic market. Only after fulfilling
this condition could Brazilian firms could export their products. Brazilian exporters did not benefit from official tax incentives for exports, either. First of all, such measures were only occasional and, more importantly, they were characterized by very complex, almost insurmountable bureaucratic requirements. In the second half of the 1960s, after the modification of the country’s industrial policy, Brazil witnessed spectacular growth in the export of the manufactured goods. However, various studies of this phenomenon suggest that it is attributable to expanding global markets, and not pro-export policies [Bonelli, Malan, 1977]. Brazil’s export-promotion industrial policy also shows the importance of timing and market access [Cason, White, 1998], and that skillful bargaining does not guarantee successful market entry [Cason, White, 1998, p. 57], Brazilian steel exports also demonstrate that the choice of industrial sector to embark on an export-oriented development strategy matters.

Foreign firms were accorded an important role Brazil’s export-oriented industrial policy. The main reason for doing so was the high share of foreign capital in the Brazilian economy, on which the country significantly relied. Participation of foreign enterprises in direct exports depended on their bargaining with the state and on the global market trends [Cason, White, 1998, p. 60]. The first condition is illustrated by the automobile industry, where the government successfully used foreign companies that dominated the domestic market in its export strategy. Global market trends had even higher importance, especially after Brazil obtained access to the World Trade Organization in 1995. The specificity of the Brazilian economy illustrates the existence of “buyer-driven commodity chains”; a term Gereffi uses to describe industries “in which large retailers, brand named merchandisers, and trading companies play the pivotal role in setting up decentralized production networks in a variety of exporting countries, typically located in the Third World.” [Gereffi, 1994, p. 97]. State led export strategy in such circumstances is less secure because the foreign firms generally follow the global strategies of the parent companies. However, there are some successful examples of making use of buyer-driven commodity chains. In Brazil a beneficiary was the footwear industry, which thanks to international buyers’ participation continued (and even expanded) its exports. Emergence of a pro-export industrial policy and changes in the State led development strategy also impacted Brazil’s domestic institution-building. New policies favoring and promoting exports made public and private sectors stakeholders in a continuation of policy, and stimulated private enterprises to present and defend their interests in public debate and lobbying activities. The establishment of industrial/branch organizations strengthened their position in the bargaining process, facilitating enforcement of preferential treatment on the domestic market. Moreover, industrial lobbyists used their influences among Brazilian policy-makers to get better access to foreign markets and promote a pro-export business mentality. The public-private alliance in export promotion was drastically weakened during accelerating inflation and the debt crisis in Brazil in the 1980s. In response to the deteriorating financial situation, Brazil’s government adopted measures that were disastrous for exporters; for
example, exchange rate manipulation (using overrated currency rate to curb the inflation), which hurt exporters by making the products more expensive and uncompetitive on the global market. Insufficient foreign exchange led, in turn, to the inability to pay off foreign debt. Despite the economic and political importance of the exporters, their relations with policy-makers moved behind closed doors. Boschi describes this way of influence-seeking, blaming the “fragmentary nature of the State” for the promulgation of minor regulatory changes that benefitted particular industrialists [Boschi, 1979, p. 35]. This informal decision-making practice, even if worked for the selected industries, weakened the bargaining power of the public sector. making collective actions more difficult [Cason, White, 1998, p. 60]. Moreover, it undermined the general trust in public institutions and stimulated the conflict between the policy-makers and Brazilian exporters. The policies introduced in the 1980 s to overcome the crisis were generally unsuccessful. The common belief in the need for substantial structural change did not result in new policies to end inefficient practices and the already established pattern of public-private interactions. The cost was immense- on the one hand, in the 1980 s many import-substitution measures existed and many industrialists benefited from the state subsidies. On the other hand, emerging pro-export policies were chaotic, uncoordinated, and lacked a strategic vision [Cason, White, 1998, p. 61].

Current Brazilian economic growth strategy is illustrated by the so-called “Great Brazil Plan” (O Plano Brasil Maior), launched by President Lula da Silva and continued by President Dilma Rousseff, which attempted to reach certain aims for industrial policy, technology, services and foreign trade within the 2011–2014 period.

Focusing on innovation and national production as competitiveness-driving forces, the Plan was launched to facilitate private investments in the areas of Research and Development, technology and internalization. The key to the current industrial policy of Brazil is the Program’s subtitle: “Inovar para competir. Competir para crescer.” (Innovate to compete. Compete to grow.).

The idea behind “Plano Maior” is to integrate different institutions, both public and private to cooperate to achieve the plan’s initiatives and aims. This requires the participation of various Ministries and governmental organs, as well as scientific institutes, universities and industrial chambers. From an operational standpoint, O Plano Maior has a triple structure. The bodies are divided and operate on three levels: (i) coordination and formulation, (ii) management and resolution, and (iii) advisory activities.

The Plan continues the government’s policy of encouraging and strengthening the domestic industry, which was launched in 2003’s PITCE (Política Industrial, Tecnológica e de Comercio Exterior (Industrial, Technological and Foreign Trade Policy) and strengthened in 2008 by adopting PDP (Política de Desenvolvimento Produtivo, The Policy of Production Development). However, “O Plano Maior” is more institutionally comprehensive. Compared to its direct predecessor- PDP, O Plano Maior includes more actions and
measures to encourage foreign trade, commerce and services [Canedo-Pinehiro, 2008, 2011; Suzigan, Furtado, 2006; Hay, 1998].

FIGURE 1. Operational structure of “Plano Maior”


In line with the traditional approach to industrial policy, the Plan combines horizontal as well as vertical initiatives. The former aims to increase productivity of the Brazilian economy as the whole, while the latter is directed at specific economic sectors (for more on the newest industrial policy of Brazil see [Czarnecka-Gallas, 2013]).

Given this backdrop of recent changes in Brazil’s economic growth strategy that that bear some similarities to previous development-focused policies, it is important to identify the institutional and external factors that affect the country’s economic policy. Answering this question could help in understanding the evolution of Brazil’s economic growth strategy and the factors that have the largest impact on that country’s policy.
The Institutional Factors Influencing Brazilian Economic Growth Strategy

The analysis of internal factors that most impacted Brazilian economic growth strategy reveal that the most important ones include: a) the tradition of protectionism and State led development that is prevalent in Brazil (and, to varying extents, in other Latin American economies), which dates back to their colonial past and emergence as modern states; b) the so-called “Grandeza Brasileira” concept, which refers to Brazil’s aspiration to be a regional or even pan-regional leader; and c) the ongoing long running debate on the domestic economy debate among economists, politicians, and various industries’ representatives.

The Concept of State-Led Development and the Tradition of Protectionism

Brazil, and the Latin American region, have traditionally given an economic development role to their governments and can be characterized as highly protectionist states, especially concerning trade. These attributes are rooted in these countries’ history, late independence, social upheavals, and need to rapidly catch up to advanced economies. The time of attaining sovereignty by Latin American countries was also the time of rapid industrialization and technological progress in Western economies, which gave the latter a huge advantage in the development process and the ability to set global economic activity rules. Late-comers needed to first finance their newly independent nation-states, consolidate nation-state structures, develop universal institutions, and then build the economic potential in societies with a colonial heritage that contributed to patrimonial political-institutional systems in which political actors gained superiority over social ones and were able to craft social-economic policies according to their own goals.4

Brazil’s modern protectionism dates back to late 19th century, when the newly sovereign state needed financing that would support the national account. High tariffs, licenses and quantitative barriers brought revenues that were easy to collect as Brazilian trade passed through only a few ports, and taxing trade did not need a huge administrative apparatus. Domestic tariffs were set by the federal government, in contrast to administering national customs, which was the responsibility of state (sub-national) governments. Another explanation for Brazil’s high tariffs during this is the endogenous trade theory. In the line with that theory, because the main inputs for industrial production- capital and labor – were scarce, they were subject to state protection. High protectionism in the era of Pax Britannica in Brazil is also connected with its monetary policy that pegged Brazilian currency to the gold standard. Under the gold standard regime the only completely convertible currency was the British pound, which required governments to accumulate pounds. As a result, policymakers tried to fight prevailing disequilibrium in the balance of payments and international reserve loss by applying various protective measures and
direct interventions on the market. One such instrument was high tariffs that helped to manage aggregate demand and maintain the peg.

The group that benefited the most from the system of high tariffs and subsidization was the landowners. Protectionism and Brazil’s manipulation of primary commodities made it the price-maker on the global commodity market, which helped to sustain commodity prices. One beneficiary of this policy was Brazilian coffee producers. The “coffee example” had important consequences for industrial policy in Brazil. First, high tariffs imposed on trade did not dramatically decrease income from Brazilian exports. Instead, the price of protectionism was paid by the world’s coffee consumers, and by Brazilian consumers of imported manufactured goods. The net loss of welfare was smaller since distortions in consumption and production were compensated by relatively high world prices. Second, high tariffs encouraged coffee producers to expand their economic activity and enter the industrial sector to protect themselves against unstable exchange rates and benefit from the rents that were available for manufactures in Brazilian protected market. This situation helped justify the Import Substitution Industrialization strategy undertaken in Brazil, and explains the traditional reluctance of Brazilian policymakers to liberalize trade [Pinheiro, L. de Abreu, 2004].

The colonial past of Brazil led to the general hostility towards economic liberalism and strengthened the perceived need for a powerful state that would play a guiding role for the society and intervene in the market [Fausto, 2001; Maxwell, 1973]. The history of Brazilian plantations illustrates the problem. The plantation system was characterized by strong state intervention that started with helping initial investments and high sunk production costs that required economies of scale. The plantation system contributed to the emergence of large monopolies in Brazil’s, deteriorating market conditions and domestic institutions, and poor innovativeness over time [Eagerman, Sokollof, 1997]. Strong protectionism and State led development were consistent with a mercantilist ideology popular in Brazil when it was building the modern state. In addition, international trade was tied to security issues, and primarily viewed as a way protect the country against threats from abroad, and only secondarily as a way to accumulate capital and hard currency.

The institutional approach to economic phenomena tries to explain them in a broad country-individual context. According to Douglas North, the process of economic growth will differ among the societies due to their varied cultural heritage, geographic, physical, and economic characteristics, as well as the different experiences of each society over time. All of which are likely to result in different perceptions of the world, leading to reliance on different institutions providing the same incentives [North, 2003].

In the case of Brazil the institutional approach attributes an over-regulated economy and inefficient institutions to the colonial heritage and development of patrimonial social-political system. Industrial and, particularly, trade policies were the traditional sphere of interest-groups interactions made up of private actors with strong connections to the bureaucratic apparatus that were able to obtain favorable decisions at the expense of
others. Studies indicate that former Spanish and Portuguese colonies (like Brazil) generally perform worse as far as economic development is concerned, which may be attributed to the historic restrictions placed by the colonizers on market exchange, an inward orientation of economic institutions, and the huge role of state monopolies [Acemoglu, Johnson, Robison, 2001]. Other research analyzing Brazilian economic performance concludes that economic growth is hindered by government’s inability to build solid institutions and incentives, as illustrated by the failure of important infrastructural projects [Summerhill, 2000]. The insufficient level of investment is explained by weak property rights, unclear rules and guidelines for investors, poor law enforcement, a lack of financial stability, and an underdeveloped capital market.

The unsatisfactory pace of development did not change the general need for State intervention and protective policies. Consecutive governments were expected to change strategies and apply new, more effective measures but not to withdraw from the economy. The tradition of State-led development and protection prevailed through the years of low growth rates and were supported by the periods of economic revival. Discussion of the need for state led development and a political pact to support it has been vivid and actual up to now, in what may be associated with the heterogeneity of the Brazilian society. The argument has been broadly discussed by L.C. Bresser- Pereira, who noted that:

“While in more homogeneous societies, as the developed ones, a Hobbesanian social contract is enough, in dual and underdeveloped societies it is additionally required a development oriented political pact. Only some sort of cooperation among social classes and sectors of society, some sort of class coalition endowed of a development project will be able to assure the necessary governability to the regime. A political pact will enable price stabilization, the implementations of the required – market oriented – reforms of the state, the resumption of economic growth and the consolidation of democracy” [Bresser-Pereira, 1993, p. 2].

The Concept of a So-Called “Grandeza Brasileira”

Attempts to build a strong international position and be the unquestionable leader among Latin American countries is one of the most important elements of the modern foreign diplomacy of Brazil. The ideology of “greatness” was particularly propagated during the military regime period (1964-1985) when successive governments appealed to the patriotic and sentimental feelings of the citizens, made use of populism and nationalistic slogans and presented Brazil as a significant political force. One symbol of this approach was to relocate the capital from Rio de Janeiro to Brasilia, which was supposed to end the rivalry between Brazilian two most important cities- Rio and Sao Paulo – and fulfill the dream of having a modern capital in the heart of the country.

Along with democratization, ideological overtones were weakened but persisted exist. Brazil’s ambition of regional leadership, and being an important partner with e developed economies, have affected Brazilian industrial policy for decades. Previously, the motive for import substitution industrialization and economic nationalism, these aspirations
now inspire robust economic diplomacy and a pro-export industrial policy aimed at enhancing the position of Brazil in international trade.

Moreover, the emergence of new, important economic players, in tandem with overall changes in the global economy, facilitated government initiatives to make Brazil a significant participant of international economic and political structures.

While the United States remain the world's biggest economy, other developed countries have been losing to such rapidly industrializing nations as China, which is currently the second largest economy in the world.

Such a situation showed that much is possible in contemporary international relations and that the countries which were regarded as ‘lagging behind’ can use the new political and economic circumstances to their advantage. The so-called BRIC is another example of changing forces on a global economic sphere that may motivate other emerging economies eager to play a greater role in international economy.6

### TABLE 2. Total GDP of the selected economies in mln USD (1970–2013, selected years)

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<tbody>
<tr>
<td>Brazil</td>
<td>35,214</td>
<td>191,125</td>
<td>402,137</td>
<td>644,729</td>
<td>2,143,035</td>
<td>2,250,370</td>
<td>7</td>
</tr>
<tr>
<td>China</td>
<td>91,039</td>
<td>306,520</td>
<td>404,494</td>
<td>1,192,836</td>
<td>5,949,786</td>
<td>9,318,901</td>
<td>2</td>
</tr>
<tr>
<td>France</td>
<td>146,724</td>
<td>691,699</td>
<td>1,246,571</td>
<td>1,328,943</td>
<td>2,570,401</td>
<td>2,740,566</td>
<td>5</td>
</tr>
<tr>
<td>Germany</td>
<td>_</td>
<td>_</td>
<td>1,714,447</td>
<td>1,886,400</td>
<td>3,304,439</td>
<td>3,629,850</td>
<td>4</td>
</tr>
<tr>
<td>Japan</td>
<td>209,071</td>
<td>1,086,988</td>
<td>3,103,698</td>
<td>4,731,199</td>
<td>5,495,387</td>
<td>4,932,312</td>
<td>3</td>
</tr>
<tr>
<td>Russia</td>
<td>_</td>
<td>_</td>
<td>_</td>
<td>259,446</td>
<td>1,524,917</td>
<td>2,144,146</td>
<td>9</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>124,805</td>
<td>541,917</td>
<td>1,019,349</td>
<td>1,493,559</td>
<td>2,295,523</td>
<td>2,533,429</td>
<td>6</td>
</tr>
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The growing role of emerging states is also evident from their participation in global exports. In 1950s, the United States and the United Kingdom had the biggest export shares which, in combination, accounted for almost 30 per cent of total global exports. Since the 1990s, the situation is more dynamic, and reveals the strengthening position of developing countries. In 2012, China outperformed all other exporters, while, Russia, India and Brazil increased their share in global exports.

A similar trend holds for imports. Western economies no longer monopolize international trade – their shares are decreasing in favor of developing countries. The United States remains the largest importer, and the second position, formerly held by the United Kingdom, is currently occupied by China.

The appearance of new global players has had an impact on Brazilian policy-making. The rapid growth of some Brazil’s direct competitors (i.e., China, regarding the production
and exports of some manufactured products) poses challenges to Brazil’s traditional goal of being a regional leader and important player in global political-economic affairs.

The rhetoric has changed but the concept of the “Great Brazil” prevails. The diplomacy of Presidents’ Cardoso and Lula da Silva have moved Brazil from the status of a peripheral leader to being one of a privileged group of decision-making states. Brazilian foreign diplomacy achieved considerable success at the World Trade Organization’s Conference in Cancun, in 2003, when the first post-World War II “coalition of the South” was formed. Brazil’s diplomacy also played an important role in establishing the G-20, which is a group of countries formed to address trade issues from the perspective of developing states [Cervo, 2010, p. 9].

The Domestic Economic Debate

The economic debate on growth and state interventionism are ongoing among Brazilian policy-makers and the country’s academic circles. From the economic orthodoxy of finance minister Eugenio Gudin, to a popular development economists that favor state planning and government intervention to enhance sustainable growth, Brazil’s economic and political scene has historically been and remains, diverse. The lack of unanimity between the intellectual and governing elites, however, has also contributed to the discontinuity of government actions and existence of contradictory macroeconomic and sectoral policies [Almeida, 2004, p. 7].

The policy debate in newly democratic Latin American countries revealed a polarization between state versus market approaches; that is, between advocates of pure interventionism and free-market fundamentalism. In Brazil, this polarization is demonstrated by the Constitution debate in 1988, in which the two opposing sides defended extreme stances. The victory of the supporters of interventionism meant adopting industrial policy based on a heavy regulation and economic nationalism.

On the whole, an interesting observation was made by Bresser-Pereira on Brazil’s internal economic debate. According to this scholar, in Brazil neo-liberal ideology is effectively supported by none of relevant social groups, even if some of its important elements are popular among the businessmen. The researcher claims that:

„To be conservative in Brazil does not mean to be against state intervention except for rhetorical purposes. The capitalist-bureaucratic coalition that ruled the country between 1964 and 1984 was authoritarian, conservative and for state intervention. In the late 1980s the neo-liberal rhetoric gained room in the discourse of Brazilian conservative politicians and businessmen, but a corresponding political practice did not emerge. Even among the intellectuals it is hard to find true representatives of this perspective” [Bresser-Pereira, 1993, pp. 9–10].

This dichotomy has, by all appearances, endured in contemporary Brazil.
The External Factors Influencing the Brazilian Economic Growth Strategy and its Economic Policy’s Switches

Several political economy studies show the influence of international turning points on policy choices. As noted by Haggard and Webb, global macroeconomic and financial shocks may be crucial for both policy orientation and new development strategies. Empirical data need not be long searched for, as the twentieth century was marked by several global shocks and provoked significant shifts in economic paradigm and modern policy-making [Haggard, Webb, 1994]. In accordance with this theory, Brazilian economic growth strategy has been greatly influenced by external factors. Particularly important for the country’s economic policy design were: the international oil shocks; the global economic discussion of the economic growth’s determinants and conditions; and the real economic processes changing the global economy.

The International Oil Shocks of the Second Half of the Twentieth Century

From the perspective of Brazilian industrial policy, the first international shock that had a huge impact was the Great Depression of the 1930s. The economic crisis that was felt across the globe contributed to the need for an autonomous strategy of development for all of Latin America. The region was deeply affected by an abrupt drop of global prices for its major commodities, such as sugar, coffee, cocoa, copper, rubber, and guano. A severe decline in terms of trade disrupted the South American trade system, caused a foreign debt default, and precipitated a serious social-economic crisis. The intellectual response was to advocate for state intervention. This response came mainly emerging economic actors—industrialists and reforms-friendly politicians who saw the world order in a new light and had different social backgrounds than the governing elite. The Great Depression mobilized Brazilian workers, industrialists and militarists against export-oriented landowners, resulting in Brazilian autarky and an inward-looking development plan [Rogowski, 1989]. Social tensions during this period brought G. Vargas and the supporters of autonomous economic policies to power, who blamed the international system for the backwardness of Brazil and the whole region.

The new political and economic elite tried to formalize their beliefs about the negative impact of export-oriented model on Brazilian and Latin American economy through several studies and research papers published in 1940s and 1950s, and the emergence of the so-called the structuralism school. The most important findings of this research revealed that the outward model fostered large domestic income concentration and severe wealth disparities. The reasons for the situation were traced to the strong connection between landowners and global markets, with a characteristic over-reliance on foreign consumers and primary goods, coupled with the fact that few in Brazil/Latin America benefited from the high rents generated by international trade at the expense of the rest of society. The
influence of the structuralism school and the idea of struggling for economic autonomy that were popularized in this era have been visible ever since.

Just as the Great Depression shaped the state-oriented mentality of Brazilian society and gave strong arguments to supporters of import-substitution industrialization, other 20th-century external shocks significantly undermined the foundations of the Brazilian development model. In particular, the second oil shock in 1979 helped end Brazil’s import-substitution era.

The second oil crisis, sharp rise of US interest rates, and situation on the global commodity market caused a decrease of terms of trade for Brazil. The government tried to rescue the economy with a policy of gradual devaluation of the currency, which had dramatic results. First of all, Brazil then faced skyrocketing public and private debts. Secondly, the country could not deal with the fiscal profligacy fueled by increasing state debt, while spiraling inflation provoked by the exuberant use of seigniorage. And these problems, coupled with the recession, led to a stagflation that devastated the economy.

The search for a policy framework to stabilize the economy resulted in several unsuccessful stabilization programs and undermined the fiscal position of the public sector. The 1980s was characterized by a balance of payment problems that limited economic growth in Brazil, serious fiscal constraints that – together with the financial crisis – dramatically lowered public investment capacity.

Macroeconomic imbalances triggered by the second oil shock and reinforced by the internal structures of Brazilian economy (including traditional public-private alliances and historical political inertia) affected policy-making in the following decades and dramatically changed the country’s industrial policy. The measures practiced in import substitution industrialization (ISI) required heavy state support not only concerning regulatory and legislative frameworks, but also direct financing programs. However, the poor state of public finance raised serious concerns about the effectiveness of government spending, and the ISI strategy. Criticism about state transfers to chosen industries gained strength, but was unable to quickly change industrial policy which, despite the economic crisis, was not significantly altered until the second half of the 1980s. These external shocks revealed many weaknesses of Brazil’s economy and impacted a growing call for substantial changes in the country’s policy-making.

Other External Factors Influencing the Switch in the Country’s Economic Policy

Brazilian economic policy has been subject to many external pressures. Its responses to them were based on intellectual concepts developed to address the changing economic paradigm, emerging schools of thought, and real economic processes that were changing the global market.

One type of pressures resulted from different philosophical approach to economic growth. The Brazilian concept of a state led development contrasted with the West’s laissez-faire attitude that dominated global economic thought after the oil crisis. The multilateral
institutions, such as the World Bank and the International Monetary Fund, also promoted trade liberalization and minimal state interventionism. Pressure from the West increased after many Latin American economies collapsed in the 1980s. Several general outcomes followed. First, the financial help and the expertise were conditioned on market-oriented reforms. Second, the emerging system of free trade agreements and economic integration forced weaker partners to accept top-down decisions. To be the part of the GATT and, later, WTO systems, Brazil had to drop some of its protective policies and comply with the provisions of Intellectual Property Rights policies. This process did not go smoothly. Even in the face of poor economic results, the Brazilian government continued applied most ISI measures and stiffened its position in multilateral negotiations, especially at GATT summits and with reference to IPR protection. Internally, the gradualist approach to the market reforms was demonstrated by a partial commitment to reform, and the focus on short-term fiscal issues [Pinheiro et al, 2004].

FIGURE 3. Global trade flows* 1950–2013, USD million


Moreover, other pressures connected with real economic processes existed. Relevant global changes included the huge growth of world trade and intensification of international financial flows in the form of direct investments and commercial loans. Global trade flows started growing rapidly in the late 1980s, and soared at the outbreak of the new millennium. Until 1986, international trade flow levels were relatively low, and did not exceed 5,000,000 USD. The situation changed with the liberalization reforms of the 1980s, and adopted by many countries that had previously opted for limited participation in global trade. Between the mid-1980s and mid-1990s flows doubled, exceeding the level
of 10,000,000 USD. However, the most rapid growth took place in the first decade of 21st century. In 2013, total trade flows amounted to almost 46,000,000 USD.

A similar, though less stable trend is observed in global FDI flows. Until the 1990s they did not exceed 500,000 USD. The situation changed in mid-nineties and, in the 2000s, reached the level of more than 2,500,000 USD. Afterward, global FDI flows declined, only to soar again in the second half of the first decade of 21st century -reaching its highest value in 2007.


![Graph of Global FDI flows 1970-2013](https://www.unctad.org/wds/TableViewer/tableView.aspx)


In combination, these changes pressured Brazil to modify its economic strategy and liberalize its market. It can also be argued that to maintain its stake in economy, the government had to finally distance itself from import substitution industrialization, which completely discredited it as a market-regulator. Therefore, advocates of state interventionism turned to the ideology of pro-export growth, which allowed the government to play some role in shaping the domestic economy while bringing more freedom to the market.

**The Influence of the Political Factor on the Change of Economic Strategy of Brazil**

Although the political aspects of Brazilian policy-making are not at the core of the research presented in this article, some of the most significant changes in this sphere undoubtedly influenced Brazil’s current development strategy.
The institutional theory broadly posits that democracy as a political regime imposes strains on public finance, which affects the development of a country. The Brazilian case confirms this claim. The democratization that started in 1985 did impose a toll on a state budget. The idea of building a welfare state and enforcing the “nationalistic developmentalism” is clearly demonstrated in the Constitution enacted in 1988.

First of all, the Constitution emphasized the redistributive role of public finance to support a large segment of Brazilian society. Some of the important decisions included: increasing labor benefits; establishing minimal levels of expense on public education, health and social security; and transferring federal funds to states and municipalities.

Secondly, the Brazilian Supreme Act called for the State-led development and economic nationalism. The discussion between market-oriented reform supporters and the advocates for strong state intervention ended with the latter’s victory. As a result, industrial policy and heavy regulation played an important role in the Brazilian economic regime. Furthermore, the legislative and regulatory framework ensured that the main executors of the economic development of Brazil were domestic firms and public agents (institutions, enterprises, funds, etc.), as foreign (direct) investments were restricted or prohibited in selected branches. The rationale for these regulations was in the strategic nature of affected industries (energy, mining) and the belief that public goods should be provided by the state (health, social insurance). In fact, the Constitution reaffirmed high entry barriers to the Brazilian market that inhibited investment capacity and contributed to the emergence of monopolies. The disregard for the fiscal issues (treating them as monetary setbacks rather than structural problems) and for the dynamics of the globalization deepened Brazil’s outdated economic structures and limited Brazilian growth. Democratization and the Constitution debate did, however, enhance political and social participation after two decades of the military regime. Even if the “national developmentalists” won in the first phase of the process, the voices of their opponents were clearly heard. Moreover, the nature of democracy enforces compromise and flexibility that with time may have affected policy-making. This process also reveals the strength of certain lobbies that defended state intervention and economic nationalism, blocking market-oriented reforms. These groups had a huge impact on domestic industrial policy (by, for example, influencing sector policies) and on Brazil’s stance in international trade negotiations on market regulations and IPR issues.

Within the literature on Brazilian post-Constitution policy-making, Alston, et al., 2006, provides an interesting interpretation of the stages of that process. According to those authors, Brazilian policies can be separated into: “stable but adaptable” which concerns fiscal and macroeconomic issues; “pork,” used with reference to localized interests of the congressmen; “hardwired” – meaning mandatory constitutional transfers (i.a., health, education policies); and “residual,” which encompasses ideology-driven policies (i.a. wealth distribution, land reform). Alston, et al., claim that the political equilibrium reached after enacting the Constitution allowed “residual” and “pork” policies to be traded for
macroeconomic and fiscal ones to stabilize the economy and enforce fiscal adjustments. The only stable policies were the “hardwired” ones. This gave autonomy to the Federal Executive in economic policy-making and began a public debate on sector policies in the Congress, which might have improved societal leverage. However, the strong presence of interests groups embedded in Brazilian politics led to widespread corruption, particularism and market inefficiencies.

Another perspective is provided by the integrative initiatives that encompassed Brazil. Regional integration arrangements (RIA) became a global focus after the Second World War. The developing countries in Latin America followed that trend to enhance local trade, capital flows and the economic growth of member states. Moreover, Latin American integration in the post-war era was regarded as a tool to propagate Import Substitution Industrialization in the region [Starzyk, 2013].

The characteristic elements of early RIAs in Latin America were the elimination of trade and investment barriers within the integrated region while maintaining protection against the outside partners, combined with state planning, government interventionism and heavy regulation. However, early integrative initiatives, such as the Andean Community, the Central American Common Market (CACM), the Caribbean Community (CARICOM) and the Latin American Integration Association (ALADI), were not successful. The nationalistic, individualistic approach of the member states and ideological considerations behind the integration undermined its economic efficiency. In fact, the “old regionalism” did not contribute to larger economies of scale, better infrastructure, fiercer competition or the increase of private domestic or foreign investments that were expected as potential outcomes so, from an economic perspective, it was a complete failure.

The Brazilian attitude to the early initiatives of the regional integration was not enthusiastic either, even though the country was a leader of Import-substitution industrialization and the strategy’s biggest supporter. The size of its domestic market coupled with the abundance of natural resources and ample labor force, positioned Brazil to be a more autonomous player. On the whole, the integration process that took place in Latin America until the 1990s did not visibly influence Brazilian industrial policy and development strategy.

On the contrary, modern integrative attempts started in the 1990s have had a huge impact on the industrial policy of their participants. The most important RIA launched in Latin America was MERCOSUR, which initially a customs union between Argentina, Brazil, Paraguay and Uruguay. The novelty of the arrangement was the establishment of CET- a Common External Tariff – which encompassed almost 90 per cent of goods traded on the internal market. MERCOSUR signaled an important change in the development strategy of Latin American countries, which wanted to abandon high tariffs, overvalued real exchange rates, and heavy state intervention [Edwards, 1994]. Moreover, it became a symbol of the new approach to national trade policy as member states decided to liberalize in order to achieve macroeconomic stability and, in the long run, increase the international competitiveness of the region. The establishment of MERCOSUR strengthened
other integration initiatives in the region. It revamped earlier trade arrangements in the Central American and Andean blocs and implemented in 1994- the North American Free Trade Agreement. The new approach to the RIA in Latin America was based on trade liberalization and openness to (foreign) investments, which was most apparent in the North American Free Trade Agreement (NAFTA) and to a lesser extent- in MERCOSUR. The welcoming policy towards FDI, which regarded it as a growth-driving factor, led to the adoption of less interventionist and less regulatory measures. Furthermore, the surge to attract multinational corporations (MNCs) resulted in various tax breaks’ and or tariffs-exemption policies. “Specially-treated” multinationals, in turn, were expected to modernize manufacturing processes, transfer technology and develop final products.

The initial phase of MERCOSUR was marked by an internal trade boom, both in terms of volume and prices. However, in the late 1990s the union faced serious difficulties. The problems were both of internal (exchange rate and fiscal policies) and external (the Asian and the Russian crises). Currently, MERCOSUR continues to search for a formula that best suits its member states. Its enlargement and negotiations with Venezuela and Bolivia added to the political and technical challenges of the Latin American RIA. The heterogeneity within the member states can be observed not only on the internal scene, but also with reference to the foreign partners. Polarized trade policies may be traced to the region’s relations with the United States- from confrontational discourse represented by Bolivia and Venezuela, to the bilateral trade agreements strategy adapted by Central America, Chile, Colombia, or Peru, to the friendly but autonomous attitude of Brazil. Moreover, even though MERCOSUR popularized liberalization and marked the end of the ISI era, it allowed for many trade exceptions which are the remnants of past practices.

The above-mentioned changes in Brazil’s political sphere have certainly eased the process of opening its economy and adopting a different development strategy by recent governments. In combination with other internal and external factors described in this article, they transformed traditional perception of the role of the state and its prerogatives in regulating the market. Nowadays, despite the fact that the government plays an important part in shaping Brazil’s economy, it is more focused on outward-oriented issues, and its major initiatives revolve around successful internationalization of domestic enterprises, attracting FDI, and increasing Brazil’s competitiveness and position in international trade. In this context, industrial policy (especially as practiced during ISI) seems to be a secondary priority, with primary attention devoted to trade and, most recently, strategic trade policy.

Conclusions

The article describes the important institutional and external factors affecting Brazil’s economic growth strategy. As can be noticed, institutional embeddedness is the key
to understand Brazil’s macroeconomic choices and the strategies it has adopted to foster the economic growth. State intervention is deeply rooted in the country’s policy-making. Even if economic strategy changes, the government is tasked with the role of shaping, and to some degree, regulating the market. Since the late 1980s, special attention has been directed on opening the economy. Recently, there has been a withdrawal from the prior focus on industrial policy, traditionally regarded as the country’s primary economic growth strategy. Now, even if the government treats industrial issues as vital for the country’s development, the priority is on the benefits from international trade, investment and internationalization. Abandoning an active industrial policy and lessening state intervention resulted in the adoption of many measures aimed at freeing market forces and withdrawing from many market regulations. The analysis of Brazil’s economic growth strategy suggests that the country adopted a new form of strategic trade policy that takes into account the needs and economic possibilities of a developing, but not yet highly-developed, economy.

On the other hand, one can argue that the role of the government in shaping the Brazilian economy is not diminishing, even though it adopts a more open economic growth strategy. Such phenomenon can be explained by the range of institutional factors.

Notes


3 More on the factors undermining the contemporary industrial policy of Brazil see: M. Czarneczka-Gallas, What undermines the efficiency of industrial policy in XXI century. The case of Brazil, Gospodarka Narodowa, No. 7–8 2013.

4 To find out more on colonial institutions in Brazil see Furtado, 1963.

5 One of the best-described examples is sugar industry, where the commercialization was done through few traders directly related to Companhia das Indias Ocidentais, Portuguese monopolistic company.


7 China’s position has also grown as far as its foreign investments are concerned, which have been located in i.a. Latin America. More on this phenomenon and their impact on the relations with Brazil see: Czarnecka-Gallas, M. [2012].

8 On Brazilian position at GATT see more in: Odell, 1987.
9. Import and export value flows, USD, at current prices and current exchange rates.

10. The Brazilian exports in the steel industry could not resist protective measures imposed in Europe and the United States where the steel industry was politically strong. As a consequence pro-export strategy in the steel sector did not work for Brazil (Cason and White, 1998, p. 57).

11. More on the economic effects, the stages and the consequences of the integration in Latin America see: Starzyk, K., [2013].

12. Although the MERCOSUR introduced one single tariff for all its members that in 1995 accounted for app. 12 per cent, CET (Common External Tariff) granted temporary exceptions for selected industries, such as automotive, electronics, information technology, etc. The tariff exceptions were introduced to allow the industries to catch up international competition and to restructure. The best example of this type of the managed trade policy is the automotive industry, which was the subject of the sector agreement between Brazil and Argentina established in 1996 and prolonged in 2006.

References


Exploring Links Between Dynamic Capabilities Perspective and Resource-Based View: A Literature Overview

Abstract

The dynamic capabilities view posits that a firm’s success is largely driven by its ability to adapt to a changing environment to secure value creating potential and, thus achieve a competitive advantage. The dynamic capabilities perspective has attracted much scholarly attention in the last two decades, as reflected in the proliferation of conceptual and research articles in the strategic management literature. Knowledge about the relationship between dynamic capabilities and other theoretical concepts within the strategic management field remains limited. This paper therefore synthesizes the literature and uses it to develop a more clear relationship between notions of dynamic capabilities, resources, assets, competencies and static capabilities. Potential areas of future research are also outlined.

Keywords: dynamic capabilities, strategic renewal, resource-based view
JEL: M10, M19

Introduction

Competitive dynamics and processes force companies to seek new, unique competitive strategies. The design and execution of these strategies brings to the forefront the creation and novel use of resources and capabilities. In the face of discontinuity, which implicates the combining, division, evolution and atrophy of markets, a significant determinant of a firm’s success is strategic agility [Doz and Kosonen, 2010; Weber and Tarba, 2014] that
is, the capability to remain flexible, to adapt to new conditions, and implement innovative ideas that create value in single firms and within business ecosystems [Davenport et al., 2006]. The essence of strategic agility is to create new business models and product categories, instead of improving existing products and elements of the current business model [Teece, 2012].

Until recently, relatively little attention has been paid to the mechanisms that facilitate organizational change within a dynamic business environment. Moreover, the classic resource-based view (and its variations) is too outdated to reveal these mechanisms due to the pace and complexity of changes in our current knowledge-based, network economy [Kraaijenbrink et al., 2010].

The existing literature indicates that competitive advantages are hard to sustain in today’s unstable markets, which feature fierce competition and disruptive technologies. This business reality has caused scholars to seek out new assumptions to more appropriately describe the processes that shape the relationship between business strategy and competition. That process has led to the idea that competitive advantage is transient, not sustainable, as McGrath [2013] states. From this perspective, competitive advantage is temporary – gained, lost and regained cyclically. Losing it over time is thus a natural phenomenon that can only be arrested by continuously seeking new ways of improving a company’s potential to create value.

Traditional strategy frameworks focused on either finding a favorable position in an industry and exploiting market conditions [Porter, 1980, 1985], or accessing and securing rare, inimitable resources and developing core competencies [Barney, 1991; Lado et al., 2006], are giving way to approaches dealing with breaking inertia, collaboration, and creativity. Companies face a competitive reality in which developing new capabilities enables them to manage disruptive value innovation, survive, and prosper in a dynamically changing environment [see also Markides, 2006; Schumpeter, 1947, 1950; Wiggins and Ruelfi, 2005]. This is especially important when a given set of organizational capabilities becomes obsolete over time.

Competitive strategies of the future, some authors indicate, are focused on continuous organizational renewal that redefines ways of functioning, sensing and creating new market space shaped by non-linear, discontinuous and open-innovation processes that take changed forms of differentiation and focus strategies [Davenport et al., 2006, Grudzewski et al., 2010, Hejduk, 2013, Stańczyk-Hugiet, 2013].

The emergence of the dynamic capability notion [Teece et al., 1997] within the resource-based view allows scholars to analyze organizational change alignment with environmental dynamism through a novel theoretical prism. Nevertheless, this concept still remains in statunascendi, with certain issues undeveloped. Specifically, it is unclear how organizational resources, routines, assets, capabilities and competencies relate conceptually to dynamic capabilities. This study provides readers with an overview of international
research on dynamic capabilities, investigate key aspects of the relationship between notions present in the existing literature, and explores the essence of dynamic capability.

This paper is organized as follows. First, a brief overview of how new competitive conditions have affected the evolution of the strategic management field is provided. Second, the notion of organizational capabilities is defined and an overview of extant literature on the topic is presented. Next, the article discusses the similarities and differences between the notion of capabilities and its sister notions. The notion of dynamic capabilities is then introduced, and its essence is discussed. Finally, several conclusions and suggested directions of future research are presented.

Resource-Based View and Organizational Capabilities

The capabilities perspective has evolved within the resource-based view (RBV). This stream of thought focuses on endogenous factors – i.e., the interior of the company, its resources, competencies, and capabilities – that are treated as internal sources of competitive advantage. This perspective originates from Penrose’s [1959] interpretation of the firm as a bundle of resources which shape its competitive position. This approach explains that heterogeneity between business organizations stems from differing degrees and scope of control over valuable, rare, inimitable, and non-substitutable resources (VRIN criteria). If all these requirements are met, then it becomes possible to achieve and sustain competitive advantage [Barney, 1991; Barney et al., 2001]. RBV postulates that the possession of VRIN resources by a firm leads to the emergence of isolating mechanisms that hamper other firms from performing at the same level [Lippman and Rumelt, 1982]. Barney [1991] distinguishes three groups of VRIN resources: physical capital (physical technology, plant and equipment, geographic location, access to raw materials); human capital (training, experience, judgment, intelligence, relationships, and insights of the individual managers and workers in a firm); and organizational capital (a firm’s formal reporting structure, formal and informal planning, controlling, coordinating systems, informal relationships among groups within a firm and between a firm and those in its environment). Grant [1991], based on Hofer and Schendel [1978], distinguishes between technological, financial, and reputational resources. Other axes of division distinguish resources as tangible (labor, land/raw materials and stock of capital) and intangible which usually rely on knowledge and abilities. Among intangibles, property rights, organizational capital and experience [Prahalad and Bettis, 1986], managerial and employee abilities and knowledge [Day, 1994; Godfrey and Hill, 1995; Grant, 1996; Nelson and Winter, 1982], brand recognition, market position [Dierickx and Cool, 1989], and organizational (tacit) knowledge [Amit and Schoemaker, 1993], organizational culture [Barney, 1986a] are enumerated. Intangible resources play a role of isolation mechanisms (“imitation barriers”) to a greater degree than do tangible ones [Rumelt, 1984], being a difficult subject of
transaction due to uniqueness and causal ambiguity [Lippman and Rumelt, 1982]. For that reason, the classical resource-based view regards them as a main source of competitive advantage. RBV is, however, also criticized for a perceived inability to explain sources of value creation and achieving competitive advantage and superior performance. Among its weaknesses, the following limits are emphasized [De Toni and Tonchia, 2003]:

- the exclusive interest of a single firm, taken out of the industrial context;
- lack of a theoretical model that clearly defines links between resources and capabilities/competencies, on the one hand, and sustainable competitive advantage on the other;
- lack of distinction/relationship between deliberateness and ad-hoc opportunities;
- lack of consideration of the negative impact (a bad reputation, running into debt, etc.) that certain resources can cause;
- lack of consideration of that some resources may become devalued over the long-term.

It is difficult to draw inferences about the potential of existing resources to generate future competitive advantage in the face of environmental dynamism; inflexibility of the view that resources and competencies are created inside the firm.

It must be conceded that the above-mentioned concerns are well-aimed. It is not justified nor correct to analyze business activity separately from its environment. There exists interdependence between competitive conditions, managerial decisions and firm performance. The classical resource-based view does not consider the way of using resources. This constitutes an oversimplification, as the efficiency of how resources are managed influences the competitive position of a firm on the market. De Toni and Tonchia [2003] identify the problem of change that implies devaluation of resource value over time and narrow thinking about acquiring and creating resources within a single firm. This approach has become no less valid due to the increased significance of intangible resources and such phenomena as coopetition, network relations, and open source creation.

D’Aveni [1994] is even more critical, contending that success lies in unceasingly being destroyed and reconstructing competitive advantages in response to continuously emerging new competitive factors. All of which make it difficult to fully exploit and consolidate benefits from firm resources over the long run.

Over time, the dominate view that VRIN resources ensure superior firm profits is being discredited. Critics note that even when resources fulfill the VRIN criteria, they may bring few benefits, if used inefficiently [Katkalo et al., 2010]. Penrose [1959, p. 22] clearly distinguished resources from the services they may yield, arguing that these services are the source of each firm's uniqueness and, thus, of the heterogeneity between firm performance. Porter [1985], writing in the same tone, notes that a firm's capability to outperform its competitors stems from distinctive resource combinations defined by single activities in the value chain. That is, a firm's ability to perform similar activities differently than competitors [Porter, 1996, p. 62]. For that reason, numerous scholars began to devote greater attention to how resources are used and allocated, as well as to activities and processes, rather than to resources themselves. These two opposite
mechanisms of generating economic rent have been presented in the literature as resource picking (Ricardian perspective) and capabilities building (Schumpeterian perspective). According to the classical resource-based view (Ricardian logic), choosing resources is the main mechanism for creating economic value, which is performed by comparing the market value of a resource and its marginal productivity when used in a combination with resources already possessed by a given organization [Makadok, 2001]. It thus becomes possible to estimate expected profit *ex-ante* only under the conditions of perfect competition on the resource market, information asymmetry about the value of a given resource [Barney, 1986b], and heterogeneity between firms’ productivity. One shortcoming of this reasoning is that the presence of the latter condition means that there is already heterogeneity between organizations, i.e., before firms set about acquiring resources. Competitive advantage, according to the Ricardian perspective, therefore appears regardless of the variation in access to VRIN resources. This shortcoming underscores the need to formulate new mechanisms to explain differences between firm profitability.

One new approach is a mechanism compatible with Schumpeterian logic. It assumes that managers design organizational systems to enhance a firm's resource productivity, i.e., they seek ways to create more economic value than rival firms [Makadok, 2001, p. 387]. This mechanism was referred to as creating organizational capabilities.

The relationship between resources, assets and capabilities has not yet been systematized, making it difficult to analyze strategic decisions. Existing approaches that try to organize terminology are mutually exclusive. Our literature review reveals three conceptually distinct classification types:

- resources as the sum of assets and capabilities [Barney, 1991; Day, 1994, Hooley et al., 1998],
- assets as the sum of resources and capabilities [Amit and Schoemaker, 1993; Peteraf, 1993; Foss, 1996; Helfat and Peteraf, 2003],
- resources as the sum of assets and competencies, with capabilities (as a distinct notion) created on the basis of these resources [Hall, 1993].

These classifications are a starting point for further investigation, and Hall’s [1993] view is adopted in this paper. Hall treats resources as the building blocks of an organization’s capabilities, which are combined and merged into a final product [Itami, 1987]. The mode of their allocation and combination constitutes a unique proficiency – that is, a firm’s capability.

Notably, the notion of capability is not uniformly understood in the literature. However, all conceptualizations originate from Penrose work [1959], who observed that these are not resources that should be regarded as input (basic unit of analysis) in business activity but rather should be assessed in terms of their utility and services that these resources can yield [p. 22]. Hooley et al. [1998, p. 101] as well as Hooley et al. [2004, p. 147] regard resources as a result of the combination of assets through mechanisms of organizational capabilities. Perhaps Besanko et al. [2004], best summarize the essence of organizational
capabilities in arguing that resources should be understood in terms of a noun – a firm "possesses" resources (resources are at its disposal), while capabilities in terms of a verb (activity) – a firm "performs" them [p. 377].

Teece et al. [1997, p. 518], argue that there are differences between firms that stem from non-market issues, i.e. they result from organizational capabilities developed by individual organizations. This heterogeneity is conditioned by the occurrence of three types of factors:

- organizational and managerial processes (including organizational culture):
- location of resources: and
- adopted evolutionary path.

In turn, Makadok [2001, p. 189] argues that the following elements distinguish organizational capabilities from resources:

- objective (enhancement of efficiency usage of possessed resources):
- lower degree of transferability; and
- embeddedness in the organization.

It bears emphasis that a firm's resources are transformed in order to develop a final product, but the mode of this transformation determines their value, which is reflected by different degrees of efficiency and effectiveness and perceived consumer value. Heterogeneity between firm capabilities therefore affects differences in firm performance. Notably, resource transformation (i.e., capabilities) leads, *inter alia*, to the creation of new resources. In this context, capabilities also become organizational resources over time, being subject to subsequent transformation.

Transferability is characterized by a higher degree of tangible than intangible resources and organizational capabilities. Some resources are easily subject to market exchange, for instance physical equipment and (to a lesser degree) patents or copyrights. Some intangible resources, such as knowledge ("embedded" in employees) can be transferred to other organizations. However, if an employee is transferred into different work environment, (s) he may become less productive and creative. This reflects the difference between resources and capabilities. An organization's capabilities are built on routines, processes and organizational culture, which create good relations with clients, reputation, employee skills, efficiency, and effectiveness in a given context, and are difficult to transfer. They cannot be simply removed from one set of conditions and put into another set of conditions and be expected to yield the same results.

A third criterion – embeddedness – constitutes a major obstacle in market exchange. Employee skills gain r value if bound with human interactions, and result from past organizational events (as part of an evolution path). Therefore, capabilities should be understood as a unique set of resources that are being constantly transformed.

In this paper, capability has a conceptually different meaning than resources and assets. Assets is a broader term that encompasses tangible and intangible resources. Capabilities
are built upon resources using routines/ processes and are source of heterogeneity between firm performances, which affects their respective market position.

Some scholars treat capabilities as a special type of resource, i.e., “systemic” or “higher-order” [Black and Boal, 1994; Miller and Shamsie, 1996; Grewal and Slotegraaf, 2007], used to bind other resources, enabling their allocation in a profitable way for a company [Day, 1994]. Monetary value cannot, however, be ascribed to capabilities as easily as it can be done in the case of other assets because they are rooted in organizations and created by distinctive individual and team skills, processes, organizational structures, decision rules, and discipline [Teece, 2007]. They are also intertwined with these routines, processes and structures and are path dependent [Grant, 1991, p. 120]. So they are not subject to a market transaction, they must be built [Grant, 2005, p. 519].

The essence of an organization’s capabilities is a combination of the resource base in the way that assures the criteria of value, rareness, inimitability and non-substitutability or, in other words – a competitive barrier. Hooley et al. [1998] aptly note that there are three levels by which a firm may introduce the isolating mechanisms (barriers to imitation) [p. 141]:
- causal ambiguity – by so-called tacit configuration and coordination of resources; stemming from the phenomenon of learning by doing and managerial experience; complexity (usage of bundle of resources in order to realize a certain process or activity); and uniqueness (devoting specific resources to specific activities);
- path dependency – the more unique the resource base development, the higher its level of resistance to imitation, which in turn affects its rareness;
- vulnerability of a resource to depreciation – tangible resources, acquired or developed in an organization, such as machinery and intangibles like employee knowledge in a given area may be more vulnerable to losing value over time than other resources, such as reputation.

Besanko et al. [2004, p. 438], referring to J. Barney [1991], additionally distinguish social complexity among barriers to imitation. This stems from interpersonal relationships between managers, and between managers and employees, suppliers and clients.

Hall [1993, pp. 610–611], in expanding the work of Coyne [1986], offers the following division of an organization’s capabilities, depending on the type of resource upon which they are built:
• based on possessed assets (independent of human activity);
  – stemming from regulation (e.g., patents, intellectual rights, contracts);
  – positional (stemming from prior events, e.g., reputation, market relations);
• based on developed competencies (depending on human activity):
  – functional (abilities to realize certain activities stemming from stakeholders’ knowledge and experience, e.g., know-how);
  – cultural (customs, attitudes, beliefs, values, learning mechanism);
According to Hall’s division, capability is defined as developing a way of resource combination – for instance, research and development schemes or design and implementation of the production process worked out by a firm. It is worth noting that coherence exists between Hall’s proposition and the works of other authors, in the sense that it recalls two opposite mechanisms of generating economic rent mentioned previously: those capabilities that rely on allocation and the coordination of possessed assets remind resource-picking (Ricardian perspective), while functional and cultural relate to building mechanisms relying on human activity (Schumpeterian perspective).

Based on the aforementioned, it can be asserted that an organizational resource base can be transformed (renewed) by ambiguous events that may blur Hall’s distinction. Capabilities independent of human activity, intertwined with those developed on the basis of competencies, generate a new type of capabilities that is harder to copy by competitors.

Although the notion of organizational capabilities can be traced back to Penrose [1959], no major definition has been adopted in the field of strategic management. Existing definitions of capabilities differ, depending on the author’s theoretical background, i.e., representatives of evolutionary economics define capabilities as a set of routines [Winter, 2000, p. 983], while scholars in the field of strategic management tend to understand an organization’s capability in terms of organizational processes [Easterby-Smith et al., 2009, p. S2]. The collation of the most recognizable definitions of an organization’s capabilities in the literature is presented in table 1.

The aforementioned definitions underline several different aspects, but a common characteristic can be derived – capability is a way of using resources by using routines, processes and skills to effectuate a desired end result efficiently, more efficiently, or differently than competitors.

It is worth noting, at this point, that defining an organization’s capabilities through routines may generate an inaccuracy. The question arises of what the difference is between routines and capabilities? Routines, according to Winter [2003], are repeated patterns of interactions that are a collective behavior undertaken on the basis of tacit knowledge [p. 991]. They relate either to individual abilities and competencies or to the collective behavior of the organization – through aggregation of the employees’ individual behavior. As Strużyna [2013, p. 35] and Dosi et al., [2000, p. 2] note, the relationship between capabilities and routines are neither simple nor unidirectional. To be capable of doing something means to have a capacity to make intentions a reality, i.e., to effectively execute intentions. What follows is that capabilities are shaped by conscious decisions. The act of decisions differentiates therefore organizational routines and capabilities. Routines are in turn shaped unconsciously. It is possible also to regard some routines as organizational capabilities. However, routines cannot be considered on a high-level unit of analysis, while capabilities can be [Winter, 2000].

The increase of interest in the matter of organizational capabilities in the academic literature since the 1990s has been accompanied by a plethora of definitions and inaccuracy,
if it comes to positioning the capabilities notion among other, close-related notions such as resources and competencies, and by the lack of a strategic hierarchy of notions. This fact hinders precise analysis on a theoretical and empirical level. What is more, existing conceptualizations seem to be tautological in nature, as capabilities are often defined by terms such as "capacities" or "abilities".

### TABLE 1. The most influential definitions of capabilities in the literature

<table>
<thead>
<tr>
<th>Author(s)</th>
<th>Definition</th>
</tr>
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<tbody>
<tr>
<td>Mahoney and Pandian [1992], p. 365</td>
<td>Closely interrelated mix of routines, tacit knowledge and organizational memory that enables organizations to focus and coordinate human effort and the ability to effectively evaluate the resource position of the firm in terms of strengths and weaknesses.</td>
</tr>
<tr>
<td>Amit and Schoemaker [1993], p. 35</td>
<td>Capacity to deploy resources, usually in combination, using organizational processes to affect a desired end.</td>
</tr>
<tr>
<td>Hooley et al. [1998], p. 99</td>
<td>Complex bundles of skills and collective learning exercised through organizational processes that ensure superior coordination of functional activities.</td>
</tr>
<tr>
<td>Winter [2000], p. 983</td>
<td>High-level routine (or collection of routines) that, together with its implementing input flows, confers upon an organization's management a set of decision options for producing significant outputs of a particular type.</td>
</tr>
<tr>
<td>Helfat and Peteraf [2003], p. 999</td>
<td>Ability of an organization to perform a coordinated set of tasks, utilizing organizational resources for the purpose of achieving a particular end result.</td>
</tr>
<tr>
<td>Besanko et al. [2004], p. 377</td>
<td>Activities which a firm does especially well as compared to its competitors.</td>
</tr>
<tr>
<td>Helfat et al. [2007], p. 1</td>
<td>The ability to perform a particular task or activity.</td>
</tr>
<tr>
<td>Helfat and Winter [2011], p. 1244</td>
<td>Capacity to perform a particular activity in a reliable and at least minimally satisfactory manner.</td>
</tr>
<tr>
<td>Teece [2012], p. 1396</td>
<td>Firm abilities that enable it to efficiently perform current activities.</td>
</tr>
</tbody>
</table>

*Source: own elaboration based on the literature indicated in the table.*

Penrose’s view that a capability is reflected by a utility (usefulness) that a given bundle of resources may yield, which enhances the efficiency of the firm’s processes and, therefore, is a source of value creation [1959, pp. 22–23], is adopted for the purpose of this paper.

### Strategic Hierarchy of Organizational Capabilities

According to Hooley, et al. [1998], a firm striving for superior performance should focus on developing three categories of capabilities and their coordination on three levels of aggregation (individual, group, and organizational) [pp. 101–103]:
• **strategic** – referring to top level managers and involving managing lower-order capabilities, learning mechanisms and elaborating dominant logic of business activity,
• **functional** – relating to functions and processes within a company [Day, 1994, pp. 40–43]:
  – *inside-out* allowing a firm to realize its core business (e.g., finance management, research and development, human resources management),
  – *outside-in* enabling a firm to compete and create sustainable relationships with customers, suppliers, and distribution channels participants (e.g., market sensing, establishing customer relations, deepening cooperation with market partners),
  – *spanning capability* that integrates capabilities belonging to the two prior categories (e.g., value chain management, product development, strategy development),
• **operational** – embracing mainly task skills.

The above analysis indicates the strong similarities between capabilities and core competencies – as each refer to the same mechanism of combination, allocation and coordination of resources through processes, allowing to enhance productivity of organizational resources (capabilities) or proficiency in performing a given set of activities / tasks (competencies) to be enhanced. Moreover, structure of both core competencies and capabilities are based on hierarchy [see Prahalad and Hamel, 1990]. These conclusions permit the assumption that higher-order capability (spanning) may be interpreted as a core competence, distinctive competence, core capability, or distinctive capability. Based on the aforementioned arguments, the reasoning of Bratnicki [2000] about the strategic hierarchy of capabilities/competencies may also be applied at this point.

Based on the aforementioned, core and distinctive competencies can be regarded as essentially synonymous to an organization’s capabilities, with a reservation on the level of strategic hierarchy. Owing to that fact, the conclusion is made that core competencies are regarded as strategic capabilities and are situated on the highest level of strategic hierarchy, while an organization’s capabilities are lower-order (distinctive, core, functional, operational). Lower-order capabilities in turn are categorized at a higher level than resources, processes and routines that describe organizational behavior. When a change of this behavior occurs, it leads to organizational change [Nelson and Winter, 1982]. However, it must be emphasized that this happens not directly but rather indirectly – through processes and capabilities. Routines are thereby building elements of capabilities but not their only component [Strużyna, 2013, p. 36]. The summary of the above discussion is depicted in figure 1.

According to Grewal and Sloteegraf [2007], the hierarchy of capabilities is related to the embeddedness phenomenon. Consistent with assumptions of evolutionary economics, as elaborated by Nelson and Winter [1982], firm’s development depends on prior events. It follows that each procedure and process stems from an evolution from prior procedures and processes [Nelson and Winter, 1982]. They are thus rooted in the firm’s historical path of development, its organizational culture, and technology. Based on that, it has to be claimed that the hierarchy of organizational capabilities presented implies embeddedness.
of resources and processes in the lower-order capabilities, as well as lower-order capabilities in the higher-order capabilities. For instance, organizational resources – such as specialized knowledge and tangible resources (machinery, raw materials) necessary in the production process – constitute building blocks of an engineering operational capability. Its combination with other lower-order capabilities (e.g., work organization, supply chain management), creates functional value chain management capability. Product development, in association with a capability of the same order (e.g., marketing, market sensing) creates a strategic capability allowing a firm to manage product portfolio. As a strength of a company, it may affect economic performance, and thus competitive position. What follows is that embeddedness of resources, processes and capabilities that are linked cross-functionally increase complexity and thus, hinders imitation and transferability by creating isolating mechanisms [Grewal and Slotegraaf, 2007, p. 455] – the greater degree of embeddedness, the higher the difficulty to imitate by competitors and thus, the higher the probability of sustaining competitive position or advantage.

FIGURE 1. **Strategic hierarchy and relation between resources, processes, routines, capabilities and core competencies**

![Diagram](资源路径)

*Source:* own elaboration based on Bratnicki [2000, p. 112].

Purposefulness of the organization's capabilities indicates their strategic character [Prahalad and Hamel, 1989] and consequently – their strong relationship with competitive advantage. The literature provides numerous examples of an organization's capabilities as being crucial for achieving competitive advantage. To name just few: market sensing, flexibility of organizational structure [Jiao, et al., 2010], organizational culture [e.g., Barney, 1986], the capability to acquire and exploit knowledge about market and development of good customer relationships [Day, 1994], the capability to communicate with customers
[Jayachandran et al., 2004], merchandising and store management capability [Grewal, Slotegraaf, 2007], the capability to share knowledge within an organization [Foss, 1996], employees’ knowledge integration capability, generating new applications from existing knowledge (combinative capabilities) [Kogut and Zander, 1992, p. 391], the capability to develop disruptive technology [Prahalad and Hamel, 1990], cross-docking logistic technique, and personnel’s responsiveness to customers, inventory replenishment capability [Stalk et al., 1992].

When discussing the role of resources and capabilities (competencies) in value creation, it is worth referring to newer theories of the enterprise – the network-based theory and relational view of the firm [Dyer and Singh, 1998; Hakansson and Johanson, 1992]. Since companies do not have to possess resources, but may instead use their business partners’ resources and capabilities, partnership improves a company’s capabilities, making them more complex and thus harder to imitate. However, when it comes to the sustainability of previously discussed sources of competitive position and advantage – whether, and how, do current capabilities evolve in the face of changes?

Dynamic Capabilities Perspective as a Result of Evolution of the Resource-Based View

The perspective of dynamic capabilities is a response to critiques of the classic resource-based view and capabilities-based competition. The main controversy that has arisen around these concepts concerns the static approach and insufficient basis for explaining the problem of strategic adaptation in the face of changes appearing in the business environment [Priem and Butler, 2001a, 2001b; Winter, 2003]. Danneels [2010] notes the that dynamic capabilities perspective, as an intensively developing theoretical stream within the resource-based view, seems to be one of the most influential concepts dealing with reasons underlying ability and failure to renew organizations in the environmental dynamism.

The concept of dynamic capabilities has generated much attention among scholars, and is a relatively new area of academic research. It has experienced rapid development and been the central theme of publications in leading scholarly journals, as well as a topic of numerous scientific conferences around the globe. The special issues of journals, beginning in 2000, have been a place of conceptual papers and empirical studies regarding the evolution of capabilities and the nature of organizational changes described by “dynamic capabilities,” which are regarded as playing a central role in organizational strategic renewal and achieving competitive advantage.¹

Until now, no common definition of dynamic capability has been adopted, and inconsistencies have emerged regarding methodological issues related to the concept, its nature and operationalization [see Katkalo et al., 2010, p. 1178; Zahra et al., 2006, p. 921].
These inaccuracies refer to blurred conceptualizations of dynamic capabilities, which stem from its focus on abstract phenomena deriving from different areas within management, and the fact that this concept is still in the stage of emergence. Barr [2004] summarizes the conceptual focus of dynamic capabilities as being on strategic renewal, adaptation, life cycles and evolutionary paths [pp. 181–183]. Development of the concept has thus been interdisciplinary in character and approached from a variety of perspectives. It originates from strategic management but is also located at the intersection of such management approaches as marketing, the theory of change, innovation, organizational learning, knowledge management [Easterby-Smith et al., 2009, p. S2], corporate entrepreneurship (intrapreneurship) [e.g. Teece, 2012], internationalization theories [see Pitelis and Teece, 2010] and cooperation literature [Zahra et al., 2006, p. 919].

The relative ambiguities regarding the definition are rooted in a diverse understanding of what dynamic capability is, what it is not, and whether and how it affects an organization’s performance. This debate reflects the emergence of the new approach to strategic adaptation analysis that has the potential to become an established theory and subdiscipline within strategic management. The current state of progress does not allow most of the assumptions to be empirically verified using deductive reasoning and quantitative methods [Barr, 2004]. To overcome these difficulties, several scholars used proxy measures such as dynamics of research and development expenditures or managerial perception about a given area of organizational change and its influence on a firm’s competitiveness [e.g., Jiao et al., 2010]. However, there is still more conceptual work to be done before such empirical studies can be regarded as grounded in a well-established theory. Since the dynamic capabilities perspective can primarily be considered an *ex post facto* construct measured by sampling on the dependent variable – i.e., if the firm successfully adapts, then it had dynamic capability – opponents often argue that it is not doing much intellectual work. Their arguments are partially justified as, in fact, having *ex post* examples of successful firms that have adapted “in this way” (according to the assumed ability of organizational change) and examples of less-successful firms that have not, is logically flawed. It can thus be supposed there are still deep conceptual problems, because the dynamic capabilities perspective is equivocal when it comes to measurement. It is hard to specify what the “amount” of dynamic capability a firm has or to compare the “amounts” that any two firms have. As Wang and Ahmed [2007] note, the current understanding of what dynamic capabilities are is limited to case studies that illustrate the concept [p. 33]. Similarly, Teece [2007] claims that the concept is currently a type of framework rather than a coherent model [p. 1320]. On the one hand, this early stage of development poses problems to verification but, on the other, it offers promising avenues for future research.

The first definition was provided by Teece et al., in 1997. According to it, dynamic capability is the “firm’s ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environment” [p. 516]. In the context of prior
assumptions about a discrepancy between capabilities and competences, this definition suggests that dynamic capabilities are built upon higher-order capabilities/core competencies.

Eisenhardt and Martin [2000] define this notion as “the firm’s processes that use resources – specifically the processes to integrate, reconfigure, gain and release resources – to match and even create the market change” [p. 1107]. Dynamic capabilities are thus, according to them, “strategic routines by which firms achieve new resource configurations as markets emerge, collide, split, evolve and die” [p. 1107]. This definition de facto equates dynamic capabilities with processes and routines, without distinguishing the differences between these two terms. Helfat, et al's [2007] definition makes further progress in conceptualization, providing the view that dynamic capability is “the capacity of an organization to purposefully create, extend, or modify its resource base” [p. 1]. This interpretation is consistent with Eisenhardt and Martin’s view in that it claims competitive advantage stems from change in resource configuration, which is a reflection of dynamic capability, rather than from exploiting capabilities that shape the current status quo. Wang and Ahmed [2007] provide a similar definition – dynamic capabilities are the “firm’s behavioral orientation constantly to integrate, reconfigure, renew and recreate its resources and capabilities and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage” [p. 35]. What is worth noting here is that dynamic capabilities are described as a result of the organization’s constant orientation toward change. It does not mean that the way of change remains the same over time, but instead refers to the orientation itself. This distinction is important in the light of prior ambiguities in the literature [Rindova and Kotha, 2001; Zollo and Winter, 2002]. Wang and Ahmed’s [2007] definition speak to the strategic character of dynamic capabilities, as a firm’s orientation must be conscious (it has strategic intent). The authors clearly distinguish notions of processes from dynamic capabilities:

- dynamic capabilities are not processes but are embedded in them; and
- processes are explicit and clearly codified, being a combination of resources, making them more easily to transfer than capabilities within a single firm or between firms.

These conclusions represent a step towards more precisely explaining the nature of the concept. The author of this paper agrees with Wang and Ahmed and adopts the view that dynamic capabilities differ from processes in that they rely on a change of the way of the process (set of processes) combination and coordination.²

While static capabilities allow a firm to sustain the status-quo (also referred to in the literature as "ordinary", operational or zero-order [Helfat and Winter, 2011]), dynamic capabilities alter the way of functioning, i.e., they extend, modify and create new “ordinary” capabilities of the organization [Winter, 2003]. Of the top place on the organization’s agenda (its strategic character) may serve the fact that dynamic capabilities are partially repetitious and patterned, structured, consciously developed and “involve long-term commitments to specialized resources” [Winter, 2003, p. 993]. These phenomena are not therefore pertinent to ad-hoc problem solving or organizational improvisation. As
results of empirical studies suggest, the dynamic capabilities of an organization co-evolve with environmental changes [Ambrosini et al., 2009; Bruniand Verona, 2009; Newey and Zahra, 2009]. This finding remains in line with Eisenhardt and Martin’s [2000] view, which distinguishes two paths defining dynamic capability depending on market dynamism:

- linear in the case of moderately dynamic markets where change occurs frequently and relies on existing knowledge;
- non-linear/iterative in case of high-velocity/dynamic markets where change is non-predictable and relies on new knowledge that is created specifically for the purpose of the situation.

What is worth noting here is that organizational transformation is a reaction to environmental changes (actual or forecasted/perceived) but can also be a result of organizational experience about exploiting its own resources/capabilities, learning and striving for their more effective usage.

These arguments constitute a shift in the understanding of the nature of dynamic capabilities as compared to the view of Teece et al.’s [1997], according to which dynamic capabilities emerge only in the face of rapid changes. What follows from the quoted definitions is that dynamic capabilities are about changes in resource base alteration, i.e., a change in resources and capabilities via routines, processes and capabilities. Wang and Ahmed accurately conceptualize the hierarchy of resources and capabilities in the organization [2007, pp. 35–36] which is presented in figure 2:

- resources are zero-order – they are fundamental for a firm’s existence and lasting, a base upon which organizational routines, processes and capabilities can be developed; they can be a source of temporary competitive advantage if they meet the VRIN criteria;
- operational and functional capabilities constitute a first-order in the organizational hierarchy – they are necessary to renew a firm’s competitiveness or to sustain existing income streams; they convey the ability to allocate resources in order to achieve an objective;
- strategic capabilities (core competencies) being a second-order in the organizational hierarchy – integrate resources and lower-order capabilities with reference to the adopted strategy. They are crucial for a firm’s competitiveness in a given moment in time;
- dynamic capabilities are third-order – depending on the degree of environmental dynamism, and are built on cyclical strategic renewal of the resource base as well as of strategic capabilities, i.e., they influence the pace of their alteration.
FIGURE 2. Hierarchy and relationship between resources, an organization’s capabilities, and dynamic capabilities

![Hierarchy and relationship between resources, an organization’s capabilities, and dynamic capabilities](image)


What stems from the aforementioned reasoning is that dynamic capability is the organization’s ability to transform resource base in an indirect way through strategic, functional and operational capabilities as a response to environmental changes. A given way of allocating and coordinating resources is subject to incremental or revolutionary changes on each strategic level. What is important to note is that the emergence of dynamic capabilities relies on change of single, few, or all of resources and capabilities, depending on needs. Alteration of lower-order capabilities does not mean change of higher-order capabilities. In turn, alteration of higher-order capabilities requires change of lower-order capabilities. These findings are illustrated in figure 3.

The aforementioned understanding of dynamic capabilities is of fundamental significance. What follows is that the essence of dynamic capabilities lies in changing how resources, routines, processes and capabilities are organized. This may be compared to combining puzzles. Transformation that changes the ways of combination affect the usefulness of those puzzles for a business. The emergence of a dynamic capability may be identified by comparing the state of organizing activities, resources, routines, processes and capabilities in the period $t_2$ with reference to the state in the period $t_1$. The unveiled difference means dynamic capability operation.

Co-citation analysis made by Di Stefano et al. [2010] sheds some light on the research domain being discussed and puts in order work on dynamic capabilities. It helps to organize the multiplicity of studies that often deal with different issues. On the basis of 225 articles published in the period 1995 to 2007 on dynamic capabilities, it was possible to identify four factors around which studies were focused, and thus to construct a multidimensional, two axis space. These two continuums are anchored by an internal-external perspective
and individual-organizational skills and capabilities. The findings show that more intense work by scholars has been done with reference to internal analysis of the organization than to external perspective, and more interest has been centered around organizational issues than individual ones such as role of managers. The research found the key areas of application and potential avenues of expansion and enrichment. As can be seen, the findings show that the dynamic capabilities domain is still in its early stages of development and remains tightly focused on foundational issues. Namely, the intensity of the research effort has concentrated mostly around internal perspectives with a balanced interest in individual (micro) and organizational issues related to organizational transformation. This study also revealed that the topic of cooperation with stakeholders and external resources acquisition still remains relatively limited. Cooperation theory and resource dependence theory (RET) therefore constitute a conceptual reference point that offers valuable insight into the dynamic capabilities view, as cooperation enables firms to share rare resources and capabilities and to overcome limitations associated with them [Stępień, 2011, p. 21].

**FIGURE 3. The essence of an organization’s dynamic capabilities**

![Diagram showing the essence of an organization's dynamic capabilities](image)

S, F, O – strategic, functional, operational capabilities
R – resources
Source: own elaboration.

The concept of dynamic capabilities looks beyond the classic resource-based view, it explains the process of the change of resource and capabilities usefulness over time. Therefore, it allows business strategy and organizational development to be assessed with reference to environmental changes. By explaining the mechanism of arising heterogeneity between firms, it unifies internal and external perspective of the firm [Macharzina and Wolf, 2008, pp. 68–69].

The dynamic capabilities perspective – which is treated in the current paper as the next phase in development of the resource-based view – posits that achieving and sustaining
competitive advantage is built upon a cyclical transformation of resources, processes and capabilities as a response to environmental changes. Accordingly, transformation is possible, *inter alia*, due to cooperation and agreements with market and non-market participants (stakeholders, non-governmental organizations, consultants) [Collins and Hitt, 2006; Lei et al., 1996]. In this sense, the dynamic capabilities perspective links the *inside-out approach* of the resource-based view and elements of the *outside-in approach* of the strategy, organizational economics and industrial organization fields that concentrate on organizations’ exogenous factors such as industrial conditions [see Teece et al., 1997]. This transformation results in the creation of distinctive resource base and set of capabilities. Day and Wensley [1988] name this phenomenon as the SPP paradigm (Sources – Positional advantage – Performance), according to which firm’s distinctive resources and capabilities determine its positional advantage (distinction, cost advantage or concentration).

Dynamic capabilities depend on an adopted evolutionary path and may differ not only between industries but also between firms within an industry resulting in the creation of isolating mechanisms [Wernerfelt, 1984]. Competing between companies in the long-term may thus be compared to dynamic capabilities competing, i.e., competing on the basis of the ability to adapt to environmental changes.

Despite the fact that dynamic capabilities often lead to the improvement of an organization’s competitive level, they cannot be identified solely with operational efficiency. From the literature review, it can be derived that operational efficiency is achieved when organizational change is based on incremental improvements of everyday activities and resources. However, organizational changes are also of greater scope – relying on qualitative changes, not limited to operational/functional activities – thus, adoption of a holistic view about the future of organization and its potential evolutionary paths. The aforementioned discussion permits the conclusion that dynamic capabilities differ between themselves with reference to their dynamism. Ambrosini et al. [2009] distinguish incremental, renewing and regenerative dynamic capabilities which resemble prevailing assumptions about a difference between operational effectiveness and strategic positioning [Porter, 1996]. Changes in the long-term performance of the organization derive therefore not from incremental operational improvements, but rather from transforming resources and capabilities in a way that enables combining and performing similar activities in a different way than rivals or performing different activities [Porter, 1996]. Accordingly, incremental dynamic capability leads to increased operational efficiency, while renewing and regenerating – through implementing major organizational changes – lead to a change in how the organization performs activities or its business.

On the basis of the above discussion, the following definition of dynamic capability is here formulated by the author – it is a company’s ability to transform resources, processes and capabilities at its disposal to address a rapidly or moderately rapidly changing environment.
Although dynamic capabilities may constitute a unique way of value creation (and of an isolating mechanism), they may also result in creating core rigidities and competency trap [see Wang and Ahmed, 2007, p. 36]. Engaging in building distinguishing features that do not match customer needs or environmental changes may end up with transformed resources and capabilities that are of limited use in new competitive conditions. Similarly, engaging in the development of capabilities with divergent goals may negatively affect an organization’s performance and progress.³

As Eisenhardt and Martin [2000] argue, possessing VRIN resources and capabilities as well as dynamic capabilities development, is a necessary but not sufficient condition for achieving and sustaining competitive advantage. The positive impact of dynamic capabilities on a company’s performance may be disturbed, if partial competitive advantages generated by one dynamic capability are neutralized by competitive disadvantages generated by other dynamic capability [see Ray et al., 2004].

**Conclusion and Future Research Directions**

This paper provides an overview of the literature on, and explores, dynamic capabilities which can enable or impede adaptation to a rapidly changing environment. The findings were presented concisely by providing the essence of dynamic capabilities. It was noted that approaches to business strategy and sources of competitive advantage have been evolving in the literature together with changes in the business environment. As a result, two approaches to analyzing business strategy have appeared:

- external perspective represented by the strategy field (positioning school),
- internal perspective – represented by the resource-based view.

The positioning school relies on an environmental analysis which associates strategy with exogenous factors, i.e., decision-making is based on a process of identifying drivers of intra-industry competition and its corresponding barriers. As it turned out, this analysis had insufficiently explained the sources of difference in competitiveness and profitability between firms. The search for an answer has given rise to the resource-based view. However, RBV encounters conceptual problems in explaining business success and failure in a dynamically changing environment. It has been criticized for viewing single firms, taken out of the industrial context, and for inflexibility with respect to the topic of deterioration of the value of resources over time. As a response to this problem, the dynamic capabilities-based view has emerged. It has been attracting increased attention in the recent years by linking two perspectives of the firm – internal and external.

The topic of organizational changes, as a response to unstable environments, seems to gain importance in management theory and practice. Dynamic capabilities not only enable a firm to adapt to a changing environment but also, if repeated and improved
cyclically, may be a source of achieving and re-gaining competitive advantage. In summary, based on the quoted literature, the following conclusions emerge:

- resources are necessary for business activity and indispensable for an organization’s strategy execution but they rarely are a sufficient condition for achieving and sustaining competitive advantage; that is why resources, especially intangible ones, constitute a basis for creating static and dynamic organizational capabilities;
- strategic hierarchy of capabilities involves three types: operational, functional and strategic;
- (strategic) capabilities are created in the same way as (core) competencies;
- core competencies differ from strategic capabilities with respect to scope and purpose;
- the essence of dynamic capabilities lies in changing ways of allocating and combining resources, processes and capabilities that aim at increasing productivity and thus value creation potential;
- dynamic capabilities involve creation of new resources/capabilities or sets of resources/capabilities;
- dynamic capabilities distinguish features of each organization and enable firms to sustain or improve their competitive position by reacting to environmental dynamism; consequently, they may take linear or non-linear/iterative form, depending on the pace of market dynamism (incremental, renewing, regenerative);
- dynamic capabilities do not constitute a sufficient condition for competitive advantage, as they may also be a source of rigidity and may lead to a competency trap.

Based on the literature review, a number of themes for further research emerge. First and foremost, it is still unclear how dynamic capabilities are created, how they evolve, and how they change over time. Examining the key factors that precede the emergence, development and alteration of a firm’s dynamic capabilities seems to be attractive avenue for further research in this area and may bring important practical implications. From a theoretical point of view, investigating factors that determine dynamic capability’s emergence and its evolution constitutes a promising area of research. In this context, a common conceptual ground with the field of innovation and dynamics of inter-firm cooperation and cooperative networks [see Gnyawali and Madhavan, 2001] can be established. More specifically, referring to dynamic resources flows is an especially relevant and intriguing direction of potential research.

Dynamic capabilities open a new way for unified theoretical stabilization of the creative organization theory. Peteraf and Maritan [2007] note that tight links between dynamic capabilities and other research streams, combined with their separate discipline traditions, suggest the potential presence of unexploited complementarities and that dynamic capabilities tend to provide “a vehicle for bringing two sides together, with potential for synergy” [p. 34]. They may therefore address both content and process issues and, as such, may be helpful in breaking down the division between mainstream and evolutionary economics [p. 35]. What is more, as Graetz and Smith [2010] emphasize, existing change
philosophies provide the reader with metaphors and change management heuristics, full of ambiguity, contradiction and incoherence [p. 139], among which one could enumerate traditional approaches such as population ecology, institutional, rational, contingency, cultural and systems philosophies. Traditional approaches to strategic change, in turn, describe this phenomenon as highly structured and planned, relying on rational models and with clearly delineated steps [see more in Graetz and Smith, 2010]. In this sense, the dynamic capabilities perspective not only builds a common theoretical foundation for less structured approaches to organizational change but also for competing, but complementary, narratives of change (characterized by ambiguity and innovation) and continuity (characterized by stability and routines).

From the practical point of view, knowledge about the pattern of dynamic capabilities with respect to market dynamism and path dependence would enable companies to structure the process of strategic alteration intertwined with fuzzy and ambiguous events. In this sense, the dynamic capabilities framework aspires to be a theory that is able to explain the linkages between internal and external perspective within the strategic management field.

Notes


2 This view is consistent with previous conclusions pertinent to strategic hierarchy. Resource alteration is therefore done indirectly – through processes.

3 Grewal and Slotegraaf’s (2007) quantitative study showed that coordination of divergent objectives of two capabilities (store management and merchandising management), when one aims at maximizing productivity, customer satisfaction and sales, and the other strikes for minimization of inventory, purchasing and material costs, are not possible to realize in case of limited resources (time or number of employees).

References


Exploring Links Between Dynamic Capabilities Perspective and Resource-Based View...


Economic Growth and Environmental Quality in the European Union Countries – Is there Evidence for the Environmental Kuznets Curve?

Abstract

This research empirically explores the relation between carbon dioxide emission and economic growth during the period 1992–2010, using panel data on the European Union countries. Both fixed and random effect models are employed to test the Environmental Kuznets Curve (EKC) relationship between CO₂ emissions and GDP per capita. While no U-shaped EKC was confirmed empirically for all 28 current EU member states, the graphical analysis demonstrates a justified turning point for CO₂ emissions as GDP per capita reaches the level of 23,000 USD. Furthermore, there is a firm empirical ground for the EKC hypothesis based on data from 16 older, relatively high-income EU states. Thus, though not empirically confirmed, there is ample data verifying the existence of the EKC in EU economies.

Keywords: Environment Kuznets Curve (EKC), carbon dioxide emission, economic growth, GDP per capita, the European Union

JEL: O10; O52; Q50; Q53
Introduction

Technological progress and the industrial revolution have played a crucial role in the world’s evolution and economic growth, but are also associated with environmental destruction. Indeed, human activities have increased greenhouse gas emissions by 70% in the last 30 years of the 20th century [IPCC, 2007, p. 36], and the global concentration of atmospheric CO2 e by 35% between the pre-industrial period (1750) and the beginning of the 21st century [p. 37]. On the one hand, these statistics motivate policy makers to take protective measures. On the other hand, legislators should require scientific evidence to justify environmental curbs on economic activity. These two parallel tracks on the question of whether economic development correlates with environmental quality.

Concerning economic development, world “GDP trends have been very positive” [Carreras, 2006, p. 6], especially throughout the last century. However, an unresolved question is whether economic growth (measured, inter alia, by GDP growth) is positively correlated with environmental destruction (measured, inter alia, by CO2 emissions). In other words, will the proportion of CO2 in the atmosphere and GDP per capita continue to grow simultaneously?

When it comes to the environment, it may be argued that economic development may, over time, decrease CO2 emissions (however purposefully or indirectly) through technological progress by creating production chain and technologies that cause less damage to the environment generally, and the atmosphere in particular.

Many economists have explored the relationship between various indicators of environmental quality and economic progress during recent decades. Grossman and Krueger introduced the so-called Environmental Kuznets Curve (EKC) model [1991]. They considered in their work correlations between different environmental quality indicators (including CO2 emissions) and income per capita. The central thesis a of the EKC is that environmental degradation should stop at some point in a country or region’s economic growth. Using the EKC, the authors describe an inverted U-shape relationship between per capita income and environmental quality indicators.

European Union (EU) countries offer an opportunity to empirically analyze the EKC hypothesis, because the EU is one of the most regulated and developed regions in the world, characterized by relatively high-incomes and economic stability, as well as strengthened environmental protection rules. In 2007, all EU member states adopted a new law intended to reduce carbon dioxide emission by 20% (from 1990s levels¹) by 2020. These factors would appear to be particularly relevant when considering the premise that the “cost of environmental degradation does not necessarily increase in rich countries or households” because of higher consumption levels resulting from increased incomes [Giovanis, 2012, p. 603].
In this paper, we explore whether there is an inverse U-shaped relationship between economic growth and environmental quality indicators in the EU during the 1992–2010 period. To do so, we test the EKC hypothesis using a regression analysis that employs data for all 28 countries, and then test the model for the 16 countries which joined the EU prior to 2004. This second step is taken to account for the possibility that countries joining the EU from 2004 onwards were developing economies with lower incomes per capita. Both a fixed effect and a random effect model were applied to conduct a panel data analysis, as advocated by Park [2009] and some other authors.

**Literature Review**

Accelerating technological progress and improving economic mechanisms have long been targets for policy makers and regulatory authorities. This is especially true when progress relates to environmental quality. There is a strong drive to enhance economic growth and protect the environment. These two goals are strongly correlated, especially in developing countries where economic growth is closely tied, *inter alia*, with energy producing activities, which escalates pollution emission. A considerable number of studies link particular pollutants and various agents of economic growth. In this article the focus is on carbon dioxide emissions and GDP per capita in the European countries.

The theoretical foundations of the correlation between CO2 emissions and GDP per capita lie in the EKC concept. Simon Kuznets hypothesised that along the process of economic growth, various market agents initially increase and then decrease over time. The hypothesis originally referred to levels of economic inequality and the shift from industrially underdeveloped economies to industrialized ones. Kuznets advocated the notion that there is “a long swing in the inequality characterising the secular income structure: widening in the early phases of economic growth when the transition from the pre-industrial to the industrial civilisation was most rapid; becoming stabilised for a while; and then narrowing in the later phases” [Kuznets, 1955, p. 18]. Thus, the phenomenon might be depicted as a U-shaped curve. Up to some level the value of one variable in correlation to another rises until reaching a particular level, when it drops.

Although Kuznets’ curve was initially unsupported empirically, the U-shaped curve has been the subject of numerous analyses. Since Grossman and Krueger [1991] applied the U-shaped curve to access the level of environmental quality (and ecological degradation in particular) there have been many references to the Environmental Kuznets Curve. Grossman and Krueger studied the Environmental Kuznets Curve for a number of pollutants in the context of the North American Free Trade Agreement (NAFTA). They made a number of observations regarding differences in environmental damage in relation to territorial and governmental agents, such as that: “SO₂ pollution has been significantly greater in cities located in Communist-ruled countries;” [Grossman, 1993, p. 13] and that
the extent of environmental destruction may depend on whether “competitive advantage derives largely from differences in environmental regulation” [Grossman, 1993, p. 15]. A recent empirical analysis of the Malaysian economy indicates that “international trade is disastrous to the environment” [Lau, 2014, p. 496]. Such implications may become a foundation for particular public policy recommendations advocating greater emphasis on local export-oriented industries.

The EKC Support

Ample contributions to the issue in question come from research done in numerous countries, regions, or continents. However, in order to maintain the proper scope of the arguments presented here, the paramount non-European works both, corroborating and refuting the EKC hypothesis, are referred to here, and the main emphasis in the literature review will be on similar contributions on the European scene.

The analyses of the EKC against various indicators of environmental quality did not confirm a uniformly positive correlation across countries and regions as “different countries exhibit different patterns for their relationships between environmental quality and economic growth” [Onafowora, 2014, p. 48]. Nevertheless, some economists have demonstrated that after economic development reaches a predefined point, environmental degradation starts to decline.

Holtz-Eakin and Seldin [1992] integrated CO₂ into their research by using panel data analyses from 130 countries for the period of 1951–1986. Their work exposed a turning point of 35,000 USD GDP per capita, at which CO₂ emissions should stop escalating and begin decreasing.

The next path breaking research was done for the 1992 World Development Report by Shafik and Bandyopadhyay [1992]. They investigated the EKC for 10 different environmental quality indicators: carbon dioxide emissions, municipal waste, deforestation, sulfur oxides, etc., for 149 countries during the 1960–1990 period. These authors demonstrated a significant relationship between all the observed environmental degradation indicators and income per capita. They validated the EKC hypothesis with regards to local air pollutant concentrations, and argued that the reflection point is reached when income per capita lies between 3,000–4,000 USD. They also identified a strong positive link between CO₂ and income growth.

Two years after their first work, Grossman and Kruger [1993] investigated the linkage between environmental quality and GDP per capita in the NAFTA countries (Canada, Mexico and the USA). The authors estimated that the turning points for SO₂ and dark matter emissions are at approximately 4000–5000 USD income per capita (year 1985), at which point become more concerned about their surrounding atmosphere. If we assume
per capita income continues to growth and the general well-being of citizens continues to improve, people might start participating in various activities to protect/improve their environment, leading to a cleaner environment.

After the first attempts of Grossman & Krueger [1991] and Shafik & Bandyopadhyay [1992], the relationship between various pollutants and economic growth has gained prominence among researchers, including Beckerman [1992], Selden and Song [1993], Panayotou [1993], and Shafik [1994]. These authors reached differing results: some supported the EKC concept; others denied its existence or stipulated that the EKC did exist for only selected pollutants [Stern, 2005]. The perennial problem in most of these studies was a lack of empirical evidence for the more complex debates related to a steady-state economy or the link between technological progress and natural resources exploitation [Cialani, 2007, p. 568].

One of the first economists to defend the EKC and argue that the quickest way to become environmentally clean is through economic advancement was Wilfred Beckerman. He believed that higher income per capita should result in more awareness of the need for environmental protection. In other words, as people acquire wealth they become more concerned about their living conditions which are directly affected by the quality of the environment. Beckerman [1992, p. 491] asserted that “the strong correlation between incomes and the extent to which environmental protection measures are adopted demonstrates that in the longer run, the surest way to improve your environment is to become rich”. Beckerman also made the point that might be one of the controlling arguments in this discussion, namely that “developing countries are unlikely to replicate precisely the environmental histories of developed countries” [1992, p. 1].

Another economist who, early on, investigated the U-shaped relationship between environmental quality indicators and economic growth was Panayotou [1992, 1993, 1995]. Panayotou verified the existence of the EKC concept in the ECE countries (over 50 member states of the United Nations Economic Commission for Europe from Europe, Asia and North America), examining how successful given countries were in encouraging environment protection along with economic growth. The analysis was deepened by application of structural or technological changes and policy mechanisms in both economic environments: the developed market and markets in transition. European, in comparison to Asian, countries were generally defined as “the very wealthy countries” [2003, p. 30] with incomes thirty times greater than that of the poorest ECE member, such as Tajikistan. The author observed that when a particular variable's pollution prices (e.g., SO2 emissions) were closer to their marginal social costs, the turning point in the inverted U-shaped curve was visible at considerably low income levels. For carbon dioxide, the turning point of the Kuznets curve was either at a much higher income level or was not observed at all. This conclusion was supported by the argument that environmental damage from CO2 – being less immediate and evident – was undervalued to the point where its price is not estimated.
Critique and Alternatives

A major critique of the EKC is, as Stern declared, that “the EKC is an essentially empirical phenomenon, but most of the EKC literature is econometrically weak” [2003, p. 1]. Shafik [1994] did not find any confirmation of the EKC for CO₂ but did discover a positive dependence between income and CO₂ emission – an increase of income by 1% should result in 1.62% increase in CO₂ release.

Dijkgraaf and Vollebergh [2005] also questioned the general application of the EKC, arguing that economic growth and environmental exploitation are both correlated with the level of fossil fuel use and, especially, price. A reasonable concern arises upon acknowledging that “economic growth calls for increased use of energy for which, in the short to medium term, there are no credible sources other than fossil fuels” [Hannesson, 2009, p. 157], at least not yet.

M’Henni [2005] reported no evidence of the EKC with regard to pollutants in underdeveloped Tunisia, where “the environmental question is prioritized politically and economically” [M’Henni, 2005, p. 342–349]. One conclusion reached is that on a regional level “in the long-run energy consumption has a positive significant impact on CO₂ emissions”, at a broader level the EKC is not validated. Moreover, the relationship was unsatisfactorily supported as “EKC turning points are very low in some cases and very high in other cases, hence providing rather poor evidence in support of the EKC hypothesis” in general [Arouri, 2012, p. 347].

A slightly different approach, but still counter-argumentative approach to the EKC, was offered by Dietz [2012, p. 12], that is, “the EKC oversimplified complex relationships by focusing exclusively on economic development”. Other criticisms related to possible development of the curve’s shape. Some economists have suggested an N-shaped curve as an alternative to the EKC, meaning that atmospheric contamination would again increase after the second changing point. For example, De Bruyn, et al. [1998] suggested that an inverted U-shaped relationship between economic growth and environmental degradation indicators is not sustained over the long-run. Instead, this relationship exists only at the initial stage, after which a new tipping point would lead to the N-shaped curve. The environmental N-shaped relationship between per capita emission of SO₂ and per capita GDP was also confirmed by Fodha and Zaghdoud [2010] for Tunisia. Nevertheless, the concept of the N shape is marginal in this discussion and was only used here as an example of an alternative to the inverted U-shaped relationship.
The European Reference

The European aspect of the matter has also been extensively studied. Alvaro, Marrero and Puch [2005] are among those who have debated the promotion of green policies, defining determinants of CO$_2$ emissions and the consequences of the continuous economic growth. These authors analyzed the EU 15 countries, (all 15 members as of 2003, excepting Luxembourg) plus five subsequent members: Hungary, Poland, Czech Republic, Slovakia and Slovenia. Data selection was based on data availability, using each country’s annual report between 1990 and 2000 on pollution (NO$_2$, SO$_2$, CO$_2$), income, and population. These data revealed that air pollution decreased in the 1990s in most EU countries, and that states with greater initial level reduced it more rapidly than did countries with initially lower emissions.

The results concerning CO$_2$ revealed different trends for middle-income (the EU14, minus Greece, Ireland, Portugal and Spain) and low-income countries, based on the fact that low-income countries were at a lower level of development in the 90s, which affected the subsequent shape of the curve. For the former countries output growth is more intensely correlated with pollution growth in general. Nevertheless, “there is no evidence that income dynamics play a role in pollution dynamics” at the macroeconomic level [Alvarez, 2005, p. 13]. It actually does in case of CO$_2$ for the middle-income states, especially when their data is excluded from the analysis. The authors also conclude that there is considerable disparity between variables across countries, which may result from region-dependent levels of economic growth and output rates. Moreover, the influence of environmental policies and CO$_2$ emission targets proved to be “statistically significant and economically important” [Alvarez, 2005, p. 23], even though CO2 emissions are more difficult to control than other pollutants.

In European and non-European studies results there is a considerable heterogeneity between environmental destruction agents, territories (not only single states, but also regions and various groups of countries), and economic growth variables. The main source of the divergence may be linked to the rate of the production growth and territorial specificities. Therefore, it appears that the greater the research population, the weaker the EKC hypothesis.

Marrero, in a 2009 paper, examines a particular aspect of the EKC, that is, that most economic growth and environmental quality models focus on emissions and economic activity while omitting the role of energy production or use as a variable. The author fills this gap using data on 24 European states for 1990–2006 period, concluding that the EKC does not hold statistically, there is conditional convergence of air pollutants, and the curve of greenhouse gas emissions and energy (both, use and production) is inelastic, that is, insensitive to changes. Additionally, the author advocates turning to renewable sources of energy, which would reduce air pollution in per capita terms.
Among the numerous works on the EKC hypothesis in European countries there is a paper by Donfouet, et al. [2013] which presents aspects of a neglected, controversial issue concerning air pollution estimates within administrative boundaries. That aspect is spatial interdependence, and the source of controversy is that territorial interdependence is the primary cause of biased results. In other words, one country’s emission of CO₂ accounts for the other country’s pollution. The data scope (especially the time period) was extensive relative to other EKC studies, covering 15 European countries during the 1961–2009 period. Besides confirming that the level of CO₂ emissions in Europe has been constantly increasing, the authors also provide evidence that increased CO₂ emissions in a particular country affect CO₂ emissions estimates in neighbouring states. A crucial point here is that the authors “still found statistical evidence of an inverted U-curve between CO₂ emissions and per capita income after controlling for spatial interdependence” [Donfouet, 2013, p. 14]. Although this finding is unsurprising, the statistical proof underlying it is an important tool for European Union policy makers who support stricter mandatory CO₂ emission regulations.

As appears above, the relationship between economic growth and environmental quality indicators varies according to time period and country/region analyzed, which may explain why some economists have supported the existence of the EKC, while others questioned it. This longstanding dispute suggests the need for more direct empirical research concerning emission growth. At the same time, Donfouet’s findings are a strong reminder of EKC analysis limitations when applied to a particular country in the EU.

It is expected, that these results will support the EKC theory, as the majority of the EU countries have already reached their potential. Thus, further economic growth in the EU should decrease the emission of pollutants.

**Empirical Analysis**

**Methodology and Data**

The EKC is a hypothesised relationship between various indicators of environmental degradation and the level of economic development. Various indicators, such as pollution or energy consumption (not a measure of degradation) tend to worsen, along with economic progress, until a certain threshold level of income per capita is reached, after which the trend reverses. That is, at high-income levels economic development triggers improvements in the quality of environment. Thus, the primary claim relating to the EKC hypothesis is that pollution rises at the early stage of industrialization and then declines in an inverted U-shaped pattern in more developed and industrialized countries as incomes rise [Seldon and Song, 1994; Rosser et al., 2006].
The EKC hypothesis is explained by two key factors: wealthier individuals “demand superior environmental quality because their more pressing needs are already met” [Torras, 2005, p. 1354], and richer economies can afford to meet this demand through more environmentally friendly investments and apply more restrictive environmental standards. As Komen [1997, p. 509] argues, besides income per capita and environmental degradation a number of other specific components determine the EKC, such as technical development and scientific research. Investment in new technologies diagnoses, and helps solve, environmental problems. And over the course of economic development, rising levels of innovation increases environmental quality, as well. “Public spending on environmental research and development can also be a catalyst for private spending on developing cleaner technologies” [Komen, 1997, p. 506].

Usually, the EKC is depicted as a relation between GDP per capita and specific environmental indicators. A commonly accepted independent variable in most models is income per capita². Three functional specifications for carbon dioxide emission have been described in the literature for the EKC hypothesis: a linear, a quadratic (inverted U) and a cubic specification (N-shaped). A standard EKC regression model is quadratic (inverted U). According to Stern, et al. [1996] and Panayotou [1993], what leads to environmental quality growth are, inter alia: great economic growth, structural changes into IT-oriented industries and services, as well as expanded environmental awareness, enforcement of environmental regulations, better technology and higher environmental expenditures.

In this study the EKC is used to examine correlations between emissions per capita and GDP per capita in the European Union countries. We apply CO₂ as a measure of pollutant and GDP as an independent variable for 1992 to 2010 times series to test whether there has been an inverted U-curve relationship for CO₂ emission and GDP across that time period. Data for 28 EU countries is used. While, for some countries, data on our variables of interest is available from 1960, others did not publish any relevant data before 1992. We begin our analysis from 1992 because it was the first year after the dissolution of the Soviet Union (December 25, 1991), the end of Communism in many East European countries, and the beginning of their progression towards the EU. The core contribution to this empirical study is the fact that our analysis was based on a long time series, which allowed us to analyse cross-country data through several phases of development³.

The measure of the dependent variable is per capita carbon dioxide emissions (C02 emissions), which is known to be the most important anthropogenic greenhouse gas (GHG) in terms of global warming impact. According to the World Development Indicators dataset (WDI), which contains annual information for a large panel of countries, “carbon dioxide emissions are those stemming from the burning of fossil fuels and the manufacture of cement. They include carbon dioxide produced during consumption of solid, liquid, and gas fuels and gas flaring”. Income is measured by GDP per capita, PPP (constant 2005 international dollars).
Model Specification

Most of the studies seeking empirical evidence in support of the EKC hypothesis share some common characteristics with regards to the data and methods applied. A generally accepted functional model (which we also use in our research) for testing the EKC hypothesis is estimation of a standard polynomial relationship between carbon dioxide ($CO_2$) emission and GDP. We take logs on both sides of the equation for a more meaningful interpretation in terms of the rate of change. We model the relationship as follows:

$$\ln(E) = \alpha_i + \gamma t + \beta_1 \ln(GDP) it + \beta_2 \ln(GDP)^2 it + \epsilon it$$

where $E$ is the environmental indicator ($CO_2$ per capita) and GDP is income (GDP per capita), ln indicates natural logarithms, $\alpha$ and $\gamma$ are intercept parameters that vary across countries $i$ and years $t$, $\beta$ is the coefficient of the explanatory variables and $\epsilon$ it is an error term. There exists the hypothesis that income elasticity is common to all countries at a particular income level. At the same time, the volume of pollution per capita varies between countries at any individual income level. To analyze time varying omitted variables and stochastic shocks that are typical to all economies, time specific intercepts are used [Stern, 2014, p. 6].

The main purpose for including the squared GDP in the model is to support an assertion that there is an inverted U-shaped curve between income and $CO_2$ per capita. The theoretical expectation is that the coefficient that accompanies this variable is negative and significant. Since the estimation methodology applied in our analysis incorporates panel data, ordinary least squares (OLS) estimation could be inappropriate. OLS estimation would lead to biased results as it assumes a single set of slope coefficients and one intercept. It is common in the economic literature to use fixed effect and random effect models to conduct panel data analysis [Stern, 2003; Park, 2009]. The major difference between the fixed and random effect models is the function of dummy variables. In a fixed effect model, the dummies are considered as a part of the intercept, while in a random effect model, the dummies function as an error term. We employ the fixed effect estimation model, as it is more appropriate for accounting for country-specific effects. The fixed effect model distinguishes individual specifications of the countries by allowing different intercepts for each country in the estimation process. The fixed effect model treats the $\alpha_i$ and $\gamma t$ as regression parameters. The fixed effect model uses least squares dummy variable (LSDV) and within effect estimation methods. We also apply a random effect model analysis. The random effect model assumes the same intercept and slopes while testing the variance components for the countries (or times) and errors. In the random effect model differences between countries (or time periods) are reflected in the variance of the error term, not in the intercept. The random effect model is estimated by generalized least squares (GLS). The fixed effect model is examined by the F-test, while the random effect model is observed by the Wald test.
We also conducted the Hausman specification test [Hausman, 1978] to see which of the models was more appropriate. According to the Hausman test, if a null hypothesis that individual effects are uncorrelated with other regressors in the model is not rejected, a fixed effect model will not be a consistent estimator. In such circumstances, a random effect model is our preferable estimator.

Empirical Results

EKC Preliminary Results

Figures 1 and 2 demonstrate the graphic presentation of the relation between GDP per capita and carbon dioxide emission. Based on figures 1 and 2 it seems that, although there are some deviations, the typical inverted U-form of the EKC is confirmed with our data set. The upper part of figure 1 shows the relation between GDP and carbon dioxide emissions for Luxembourg, which has highest GDP per capita relative to other EU countries. Luxembourg demonstrates a decreasing relationship between our variables of interest, assuming that the emission of carbon dioxide per capita in this country has already reached its maximum level. It confirms the EKC hypothesis.

FIGURE 1. Carbon dioxide (CO₂) emissions (metric tons per capita) and GDP per capita (current USD) for the European Union countries, 1992–2010

Source: World Development Indicators.
Figure 2 depicts the closer view of the lower part of figure 1. Figure 2 graphs the correlation between GDP per capita and CO$_2$ emissions for the rest 27 EU countries, excluding Luxembourg. Figure 2 shows that the inverted U-shape of the EKC might be quite realistic for the European Union. Carbon dioxide emission volumes show a mostly upward trend when GDP per capita is low, until achieving a reflection point (which is approximately 23,000 USD), when it demonstrates a decreasing tendency. This supports the inverted U-curve of the EKC hypothesis in the EU for the period of 1992–2010. In order to confirm whether the EKC holds for the EU, we applied a series of econometric analyses and tests.

**FIGURE 2.** Carbon dioxide (CO$_2$) emissions (metric tons per capita) and GDP per capita (current USD) for the European Union countries excluding Luxembourg, 1992–2010

![Graph showing CO2 emissions vs. GDP per capita](image)

Source: World Development Indicators.

**The Econometric Model**

Tables 1 and 2 show the regression results of both the fixed effect and random effect models for the period 1992–2010 for 28 EU countries. First of all, the probability value for the F-test for the fixed-effect model and the Wald statistics for the random effect model is significant. It means that all the coefficients of our model do not equal zero. Thus, according to the F-test and the Waldtest, all model estimates fit the data well.
Both models (ignoring the size of coefficients) demonstrate similar outcomes. Based on tables 1 and 2 we can reject the existence of an inverted U relationship, since the estimated t-ratio of the GDP quadratic term is not significant at 95% significance level tested. Thus, according to our findings, it seems that the typical inverted U-curve of the EKC may not be fully verified with our data set for the European Union. According to the Hausman test \( \chi^2(2) = 2.10 \ [\text{Prob} > \chi^2 = 0.3493]\) we cannot reject the null hypothesis stating that a random effect model is better than its counterpart. Thus, the random effect model is our preferred model for the analysis.

**TABLE 1.** Fixed-effect (within) regression Carbon dioxide (CO\(_2\)) emissions and GDP in the European Union countries, dependent variable: logarithm of Carbon dioxide (CO\(_2\)) emissions

| Variable                      | Coef.    | Std.Err  | z      | P>|z|     | [95% Conf. Interval] |
|-------------------------------|----------|----------|--------|---------|---------------------|
| GDP per capita (logarithm)    | 0.6189628| 0.3007817| 2.06   | 0.040   | 0.0279324 1.209993  |
| Squared GDP per capita (logarithm) | -0.2233146| 0.139387 | -1.60  | 0.110   | -0.4972074 0.0505782|
| Interaction Term             | -0.0101791| 0.0035649| -2.86  | 0.004   | -0.0171841 -0.0031741|

*Notes:* Number of observations 504; Sample period 1992–2010; Number of time periods (T) =18; Number of countries (N) = 28; F-Test (2,474) =16.17 (Prob> F= 0.0000).

*Source:* own elaboration.

**TABLE 2.** Random-effect GLS regression Carbon dioxide (CO\(_2\)) emissions and GDP in the European Union countries, dependent variable: logarithm of Carbon dioxide (CO\(_2\)) emissions

| Variable                      | Coef.    | Std.Err  | z      | P>|z|     | [95% Conf. Interval] |
|-------------------------------|----------|----------|--------|---------|---------------------|
| GDP per capita (logarithm)    | 0.6647767| 0.2872051| 2.31   | 0.021   | 0.1018651 1.227688  |
| Squared GDP per capita (logarithm) | -0.2499388| 0.1324784| -1.89  | 0.059   | -0.5095918 0.0097141|
| Interaction Term             | -0.0091774| 0.0034413| -2.67  | 0.008   | -0.0159223 -0.0024325|

*Notes:* Number of observations 504; Sample period 1992–2010; Number of time periods (T) =18; Number of countries (N) = 28; Wald \( \chi^2(2) = 30.32 \ [\text{Prob} > \chi^2 = 0.0000]\)

*Source:* own elaboration.

Our empirical analysis confirms that CO\(_2\) emissions per capita have not yet reached an upper limit as most EU countries are still in a rapid economic growth conditions. Hence, based on the annual data over the period 1992–2010, the CO\(_2\) emission per capita have been rising linearly with regards to the growth in the level of GDP. According to our findings, the EKC hypothesis in CO\(_2\) emissions has not been supported for the EU so far. Consequently, there is no empirical evidence for untying carbon emission and economic growth in the EU zone.
On the other hand, it should be noted that, although not significant, the coefficient of the GDP quadratic term is negative for both the fixed effect and the random effect models. Furthermore, the random effect model (the preferred model according to the Hausman test), the probability value for the t-test is 0.59, which is very close to significant. If we combine the econometric results with the graphical representation, we see that non-significance of the GDP quadratic term is easily explainable. For the 12 countries in our sample GDP per capita is far below the level of 23,000 USD (which is the turning point according to the graphical analysis). The majority of these countries joined the EU in 2004 or later. In addition, our analyses cover the time period starting from 1992, while the level of 23,000 USD of per capita GDP by some countries was achieved in later periods. Furthermore, it should be mentioned that there have been very recent publications critical of panel data regression analyses. Some economists claim that such studies suffer from econometric weaknesses, biased estimations, and inconsistencies in the panel model results [Schmalensee, et al., 1998; Dijkgraaf and Vollebergh, 2005]. Any (or all) of these reasons may explain why the inverted U-shape of the EKC, which was presented in the graphs, has not been confirmed by our empirical analysis.

In order to check if our reasoning was correct with regards to the 12 relatively new EU member countries we conducted one more test. We performed an analysis of both a fixed effect and a random effect model for the same 1992–2010 period. However, this time we carried out a regression calculation only for the 16 countries which were the relatively older members of the EU and had higher GDP per capita. As before, both models had approximately similar outcomes, however according to the Hausman test (chi²(2) = 0.95 [Prob>chi² = 0.6215]) the random effect model was more appropriate. As we can see from the table, the coefficient of the GDP quadratic term is negative and significant, meaning that an inverted “U” relationship is verified in 16 older EU member countries over the examined period. Thus, these 16 EU countries confirm that at high-income levels economic growth leads to environmental improvement.

| Variable                      | Coef.  | Std.Err | z       | P>|z|  | [95% Conf. Interval] |
|-------------------------------|--------|---------|---------|------|---------------------|
| GDP per capita (logarithm)    | 1.49254| .5245125| 2.85    | 0.004| 4.645149 2.520566   |
| Squared GDP per capita (logarithm) | -.6686225| .2505376| -2.67   | 0.008| -1.159667 -.1775778 |
| Interaction Term              | -.000995| .0041449| -0.24   | 0.810| -.0091189 .007129   |

Notes: Number of observations 288; Sample period 1992–2010; Number of time periods (T) =18; Number of countries (N) = 16; Wald chi²(2) = 15.16 (Prob> chi² = 0.0005).

Source: own elaboration.
This leaves us with different data analyses that reach conflicting results about effects of growth on the carbon dioxide emissions. While the empirical analysis of all 28 EU countries did not support the EKC hypothesis, the graphic illustration, did not demonstrate a U-shaped income and CO₂ emissions relationship. But, as predicted by the EKC theory, macroeconomic examination of the 16 older and relatively higher income EU countries verified the inverted U-shaped relationship between a specific indicator of environmental quality and per capita income. Thus, our study suggests that the EKC does not hold for the whole EU area over time, but it is proved in a particular pool of individual EU member countries. Therefore, additional single country research over time is needed to verify the progression of environmental degradation relative to GDP, especially for the 12 relatively new EU members.

It should be mentioned that while all EU countries are subject to joint EU environmental policies (both under its own internal target in the Europe 2020 Strategy and under the Kyoto Protocol’s commitment), these policies have been translated into national emission reduction or limitation targets that are individual for each country. Each Member State’s progress towards meeting its national emission targets, as well as the renewable energy and energy efficiency targets are assessed by the Commission to make country-specific recommendations appropriate. According to the European Commission on climate action, although fifteen older Members States are already projected to reach their commitments to meet the 2020 targets for the non-ETS sectors, 13 Member States still need additional efforts. The 15 countries that were EU members when the Kyoto Protocol was agreed to in 1997 (’EU-15’) committed to reducing their collective emissions to 8% below 1990 levels by the years 2008–2012. The latest emissions monitoring and projections show that the EU 15 is on track to exceed this target EU-15 is on track to over-achieve this target. Of the 13 countries which have joined the EU since 2004, all except Cyprus and Malta have 6% to 8% individual emission reduction commitments (5% in Croatia’s case).

The individual emission reduction targets defined by the Kyoto Protocol and Europe 2020 Strategy are linked to many socio-economic and environmental indicators, such as GDP growth rate, energy consumption, environmental protection expenditures, the CO₂ per capita indicator, expenditures on air pollution abatement, etc., which may affect each country’s “turning point”.

Conclusion

In this paper we have analyzed the correlation between economic growth and air pollution for the EU area in a historical perspective. Using panel data properties and
econometrics analysis, we have studied the EKC Hypothesis for all 28 EU states. The empirical investigation for the 1992–2010 period, based on fixed and random effect estimations, does not provide strong evidence that a negative correlation of income is established with carbon dioxide emission levels. In particular, no EKC U-shape was confirmed for the whole EU area. However, examination of the graphical illustration proved the existence of a reasonable turning point for CO$_2$ emissions, which appears at a GDP per capita of approximately 23,000 USD. Furthermore, the EKC effect was consistently negative and statistically significant across the 16 older, relatively high-income EU member countries, providing strong support for the EKC hypothesis in those countries. Our results do not suffice to prove the EKC for the whole data pool and one of the possible reasons is that the level of economic development of the 12 newest EU members is not high enough.

Further individual country-specific research is required in order to confirm that pollution emissions will indeed decrease as predicted by the EKC hypothesis in all EU countries. In addition, to reduce the cumulative emission of carbon dioxide, the EU countries, especially those that joined the union in 2004 and later, should continue to reform their regulations of environmental pollution and concentrate more on structural changes that result in environmentally friendly GDP growth.

Notes

1 Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions – 20 20 by 2020 – Europe’s climate change opportunity.
2 Some studies use income data converted into PPP (Purchasing Power Parity) or incomes at market exchange rates.
3 10 countries joined the European Union on 1 May 2004 (Czech Republic, Cyprus, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia and Slovenia), the two second-wave accession countries joined on 1 January 2007 (Romania and Bulgaria). Thus, we can investigate at least two phases (before and after joining the European Union) of development of those countries.
4 GDP per capita is below the level of 23,000 USD for the following 12 countries: Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Romania, Slovak Republic, and Slovenia.
5 23,000 USD level of per capita GDP was achieved in: Cyprus (2004), Greece (2006), Ireland (1998), Italy (2003), Portugal (2008) and Spain (2004).
6 All of the 18 countries had reached 23,000 USD level of per capita GDP prior to 1992, or achieved it in a later period.
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Investor Reaction to Information on Final Dividend Payouts on the Warsaw Stock Exchange – an Event Study Analysis

Abstract

This article analyzes the investor reaction to information on the final value of dividend payouts for companies listed on the Warsaw Stock Exchange, using the event study methodology. Our research shows that investor reaction is positive for irregular payouts and both the initiation of and the increase in payouts, while negative for the resumption and of and decreases in payouts. The magnitude of the reaction is also higher for the initiation of payouts than either the increases in, or irregular payouts.

This study contributes to the literature on dividend policy by presenting results for the emerging economy of Poland. Moreover, it pays particular attention to statistical issues related to the event study methodology, i.e., the verification of assumptions behind the method of returns model estimation. It also compares investor reaction to dividend changes assessed on the basis of different measures, and underlines the dependence of the results on the choice of the parameters assumed (e.g., event window length).

Keywords: information and market efficiency, dividend, payout policy, investors’ reaction
JEL: G14, G35
Introduction

This paper analyzes investor reaction to dividend policy changes for companies listed on the Warsaw Stock Exchange (WSE), as an event study. We find that investor reaction to irregular payout, payout initiation and increases in payouts is positive. By contrast, they are negative when payouts are resumed or decreased. At the same time, the highest magnitude of positive reaction is observed for payout initiation.

The study adds to existing research by undertaking a detailed analysis of the statistical issues related to use of the market model in event studies, i.e., verification of ordinary least squares assumptions. Not only does the magnitude change depending on the assumed significance level, but also the direction of investor reaction. Moreover, the results differ if changes in dividend policy are analyzed with different metrics (change in nominal value, dividend yield, and dividend payout yield). The issues in question have not been commented on in previous studies.

There are five dominant views on the impact of dividend policy on the value of a company: “a bird in the hand” fallacy; the dividend irrelevance proposition; the signalling hypothesis; the agency cost hypothesis; and the clientele effect (cf. Kalay and Lemmon [2008]).

“A bird in the hand” fallacy claims that investors faced with uncertainty have a strict preference for capital gains combined with dividend income. According to Gordon [1959, 1963], uncertainty about future growth of share values and possible share issuance investors might cause investors to value 5 USD in dividends and 50 USD in capital gains more than 55 USD in capital gains alone. Therefore, the value of a company’s shares should equal the sum of discounted dividends from now to infinity.

The dividend irrelevance proposition was formulated by Miller and Modigliani [1961]. In a perfect economy, the rate of return obtained from every company’s share is equal in a specified time period. In the long run, the share price depends only on the profitability of the company. Lintner [1962] continues the analysis, including transaction costs and differences in taxation rates, to claim that investors always prefer financing investments with retained earnings. Therefore no dividends should be paid.

According to the signalling hypothesis, shareholders view increased dividend payouts as a positive change in managers’ opinions of the future prospects of the company [Levinsonsohn, 2005]. Due to the fact that earnings forecasts are not communicated because of high volatility [Woolridge, 1983], managers prefer to use dividends as a tool for conveying their opinion. Jagannathan et al. [2000] underline that this signal is credible as long as regular payouts are altered. The signalling hypothesis is described formally in Bhattacharya [1979], John and Wiliams [1985], Bernheim [1991] and Lucas and McDonald [1998].

The agency cost hypothesis stipulates that managers are imperfect agents of the principal, i.e., shareholders (Jensen [1986]). Apart from increasing the company’s value, agents
might pursue their personal goals by creating additional costs and forcing shareholders to undertake costly monitoring of managers. As Rozeff [1982] states, establishing a regular dividend payout is one measure to diminish free cash flow available to managers. The issue is further examined by Easterbrook [1984], Jensen [1986] and La Porta et al. [2000].


Empirical research concerning investors’ reaction to dividend payouts is ample. Litner [1956] and Brav et al. [2003] present managers’ view, concluding that they are reluctant to decrease payouts. Positive (negative) reaction to dividend increases (decreases) was observed by most of the studies, including Denis et al. [1994], Pettit [1972], Aharony and Swary [1980], Woolridge [1983], Capstaff et al. [2004], Amihud and Li [2006] Fracassi [2008], Litzenberger and Ramaswamy [1982], Michaely et al. [1995], Kane et al. [1984], Asquith and Mullins [1983], Ghosh and Woolridge [1989], DeAngelo et al. [1992], Jensen and Johnson [1995] and Robin [1998]. Furthermore, the reliability of the dividend signal was analyzed by Yoon and Starks [1995], Nissim and Ziv [2001], Miklahil et al. [1999], Gelb [2000], La Porta et al. [2000] and Chang et al. [2006]. However, several researchers noticed the lack of a signalling effect (Bernartzi et al. [1997], Grullon et al. [2003], Vieira and Raposo [2003], Goddard et al. [2006], Li and Zhao [2008], and Jo and Pan [2009]). This issue was considered by Gurgul and Majdosz [2005], Perepeczo [2013], Czerwonka [2010] and Słoński and Zawadzki [2012], using empirical research for the Polish market.

To conclude, the signalling hypothesis is examined by most studies on investor reaction to dividend payouts. Many studies confirm significant investor reaction to dividend changes, initiations and omissions. Ambiguity of the results, and their magnitude, can be partly explained by differences in study design.

**Hypotheses**

According to both the signalling and agency cost hypotheses, dividends are viewed as positive information by investors. Therefore, higher than expected payouts should elicit positive investor reaction, and lower payouts should cause a negative investor reaction.

In the research presented in this paper, the investor reaction to the event is assessed in relation to the following events:
• **irregular payouts**, i.e., payouts made by a company that did not pay dividends 2 years before and after the event,\(^1\)
• **payout initiation**, i.e., payouts made by a company that did not pay dividends 2 years before the event but, after initiation, continued dividend payments in the next or the following year (1 year of omission is accepted),
• **payout resumption**, i.e., payouts made by a company that paid dividends after 1 year of omission,
• **payout continuation**, i.e., payouts made by a company that are diminishing, unchanged, or increasing.

Based on the results of previous studies, as well as the signalling and agency cost hypotheses stipulations, the following hypotheses are formulated:

**Main hypothesis:** Investor reaction to information about irregular payouts, payout initiation, payout resumption, and increasing payouts is positive, while reaction to information about diminishing payouts is negative.

**Additional hypotheses:**
1) The magnitude of positive investor reaction is the highest in the case of payout initiation, and the lowest in the case of irregular payments.
2) Investor reaction to increased dividend payments is smaller, relative to payout initiation announcements.
3) Investor reaction to information that there is no change in dividend payments is small, relative to investor reaction to dividend change announcements.

The additional hypotheses listed above are in line with most empirical studies. As noted by Kane et al. [1994], the more positive the announcements, the higher the magnitude of investor reaction. Stronger reaction to payout initiation was also posited by Asquith and Mullins [1983], while significant investor reaction to increases and decreases in dividend payments was observed by Pettit [1972], Aharony and Swary [1980], Woolridge [1983], Denis et al. [1994], Capstaff et al. [2004], Amihud and Li [2006], and Fracassi [2008].

### Study Design and Data

The focus of the study is to assess investor reactions to changes in dividend payouts for companies listed on the WSE. Data on dividend payouts come from GPW Info Śtrefa [www.gpwinfostrefa.pl]. From 1997 to the end of 2010, 816 payments are identified. Data concerning General Shareholders’ Meeting dates and payout values are complemented by financial statement data obtained from the Notoria Database. Share prices are generated from Bloomberg.

The study is based on the event analysis methodology introduced by Fama et al. [1969], and described in detail by, e.g., Gurgul [2012] and Campbell et al. [1997]. The main steps of the event study are: event identification, selecting time parameters of the
study, establishing the relationship between rate of return for the company and market index return, and estimating the effect of the event using sample data.

For this research voting on the dividend payout at a General Shareholders’ Meeting (“GSM”) is defined as an event. Since events should not be anticipated by market players, these chosen dates have only partial credibility. However, earlier declarations of management are also often imprecise. Additionally, GSMs usually involve discussion of company results for the previous period, and the two effects might be impossible to separate. The GSM date is the first day when information concerning the final value of dividend payout is available.

On the basis of the empirical research presented above, the chosen time parameter is a 124-day estimation window is chosen, i.e., from the 125th day to the 1st day before the GSM. The event window is from the 1st day before to the 1st day after the GSM (days –1, 0, 1).

Because the assumption underlying the event analysis determines the validity of the model's description of the relationship between security and market rate of return, it is critically importance to select the best model. According to Campbell, Lo and MacKinlay [1997], the use of multifactor models – in comparison with the market model – results in only a small added value. Since the market model is also the prevailing method used in previous research [Gurgul, 2012, p. 43], it is used in this study, too.

The market model is estimated with ordinary least squares method (OLS). However, it has to be stressed that the model is appropriate for forecasting only if the OLS assumptions are fulfilled. To assure the model’s validity, the properties of the models for each event were examined by Shapiro-Wilk’s normality test (null hypothesis: normally distributed errors), Breusch-Godfrey’s autocorrelation test up to the fourth order (null hypothesis: no serial correlation of errors), and White’s heteroscedasticity test (null hypothesis: homoscedasticity of errors). Three distinctive significance levels were used: 0.1, 0.05 and 0.01.

Abnormal returns are calculated as residuals from the market model:

\[
AR_{it} = R_{it} - E(R_{it}) = R_{it} - \alpha - \beta \times R_{mt}
\]

where \(R_{it}\) stands for the logarithmic rate of return for company \(i\) in period \(t\), while \(E(R_{it})\) is the expected rate of return calculated on the basis of the market model. \(R_{mt}\) is the logarithmic rate of return for the market. To obtain cumulative abnormal returns (CAR), abnormal returns (AR) are averaged across the events and added across time in the event window:

\[
CAR = \frac{1}{N} \sum_{t=t_0}^{t_0+T-1} \sum_{i=1}^{N} AR_{it}
\]

where \(N\) is the number of events analyzed, \(T\) is the length of the event window, while \(t_0\) is the first day of the event window. In order to assess the significance of the results, standard deviation of average abnormal returns is calculated according to the formula:
\[ \hat{\sigma}_{AR_t} = \sqrt{\frac{1}{T-1} \sum_{t=t_0}^{T+t_0-1} (AR_t - \overline{AR})^2} \]

where \( \overline{AR} \) is mean abnormal return averaged by events, while \( \overline{AR} \) is the mean abnormal return averaged by events and days in the estimation window.

The significance of CARs is tested with t-statistics with \( N-1 \) degrees of freedom:

\[ t_{\text{stat}} = \frac{\text{CAR}}{\hat{\sigma}_{AR_t}} \sqrt{N} \]

Investor reaction to the event is assessed for irregular payouts, payout initiation, payout resumption, and payout continuation (for the definition of events, see p. 6).

The change in dividend payout may be assessed on the basis of different measures [Hawton, Hawton, 2006, p. 64]. The simplest is the absolute value of dividend per share. The second measure is dividend yield, i.e., the dividend per share divided by the share price, which can be measured at the end of the fiscal year, at the beginning of the fiscal year adjusted to the market index change, or on the day of the GSM. The last measure is the dividend payout yield, i.e., the fraction of company earnings distributed to shareholders. The choice among those five measures can be made only subjectively. Therefore, all of them are presented in the analysis.

To sum up, the significance of abnormal returns is verified against the full sample and against companies with OLS assumptions fulfilled at one of three significance levels (as the choice of significance level is subjective). Notably, previous research does not test market model validity. Four groups of events are defined, with three sub-groups distinguished among the continuing payout based on five criteria.

**Irregular Payouts**

This section describes investor reaction to irregular payouts, i.e., when the company did not pay dividends 2 years before and after the event. In table 2 CARs are presented for different length of event windows and significance levels used for the testing of OLS assumptions.

CARs for irregular payouts are positive in 9 out of 20 cases presented in the table above. When restricting the analysis to significant investor reaction, in 5 out of 6 cases the reaction is positive.

Taking into consideration the whole event window, i.e., days \(-1, 0 \) and \( 1 \), CARs are significantly different from zero only when the 0.1 significance level is applied. In that case, the abnormal return amounts to 1.73%. Also for a 2-day event window, excluding the day before the event, CARs when the OLS assumptions are fulfilled at a 0.1 significance level
are significantly different from zero, and equal 1.54%. For 0.05 significance level, 2-days CARs are also positive and significant, though smaller in magnitude.

**TABLE 2. CARs for irregular dividend payments vs. OLS assumptions**

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1</td>
</tr>
<tr>
<td>---</td>
</tr>
<tr>
<td>number of events</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
</tr>
<tr>
<td>CARs in days0, 1</td>
</tr>
<tr>
<td>CARs in day-1</td>
</tr>
<tr>
<td>CARs in day0</td>
</tr>
<tr>
<td>CARs in day1</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

Source: own elaboration on the basis of SAS System outcome.

Difference in the magnitudes and significance of CARs for different event windows can be explained by observing results for the three days separately. Not only are CARs for day −1 insignificant regardless of OLS assumption fulfilment, but also for day 0. As a consequence, the significance of investor reaction to irregular dividend payments results from positive CARs gained on the day following GSM, i.e., day 1. In 17 events, returns for which the market model is properly specified at the 0.05 significance level reveal abnormal returns on day 1 amount to 0.76%, while for the 11 events chosen at the 0.1 significance level the abnormal return stands at 1.32%.

It is also worth mentioning that if the OLS assumptions are unfulfilled or a 0.01 significance level is chosen, CARs for separate days are insignificant in these subgroups of events. Moreover, all but one are negative – positive CARs are observed only for day 1 and significance level 0.01.

Taking all of the above into account investor reaction to irregular payouts can be described as moderately positive.

**Payout Initiation**

From the time perspective, assessment of payout initiation as the event is simplified. However, because declarations of future payments are inherently uncertain, the initiation event is defined as a payout that is continued in the next, or following year (1 year of omission is accepted). The CARs are presented in the table 3.
To begin with, 12 CARs out of 20 defined in the above table are positive. When restricting the analysis to significant investor reaction, in 8 cases out of 11 the reaction is positive.

For 32 events where market model assumptions are fulfilled at the 0.1 significance level, not only are CARs for 3-day and 2-day event periods positive and significantly different from zero, but so are CARs for individual days. Therefore, it can be said that within days –1 to 1 around the GSM, CARs stand at 2.44%, while for days 0 to 1 the return in question amounts to 1.37%.

With OLS assumptions fulfilled at the 0.05 level, both 2-days and 3-days CARs are not significantly different from zero, mainly due to the negative CARs observed in day 1, i.e., after the announcement of a dividend payout. Moreover, as with irregular payouts, the reaction to payout initiation is assessed when OLS assumptions are unfulfilled or fulfilled at 0.01 level is insignificantly different from zero for all periods listed in the table 3.

To conclude, investor reaction to payout initiation can be viewed as positive.

### Payout Resumption

As the history of the WSE is short relative to American stock exchanges, the popularity of stable dividend policies in Poland is also much lower. Therefore, to extend the sample of continuing payouts, a fourth category of event is established, i.e., payout resumption. The results of the analysis for these events are presented in table 4.

CARs for payout resumption are positive in 2 out of 20 cases defined in the table above. When restricting the analysis to significant investor reaction, in only 1 out of 17 cases was the reaction positive.

For the event of payout resumption, regardless of the fulfilment of OLS assumptions CARs for 3-days and 2-days event window are significantly negative and vary between –1.82% for days –1, 0 and 1 and 0.05 significance level, to –0.51% for the whole sample
and 3-days event window. The only case when positive significant CARs are observed is on day –1 for the event when the OLS assumptions are fulfilled at a 0.1 level.

To sum up, investor reaction to resuming dividend payouts is negative.

**TABLE 4. CARs for payouts resumption vs. OLS assumptions**

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
<th>0.1</th>
<th>0.05</th>
<th>0.01</th>
<th>all events</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of events</td>
<td>12</td>
<td>15</td>
<td>19</td>
<td>52</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>–1.32% ***</td>
<td>–1.82% ***</td>
<td>–1.84% ***</td>
<td>–0.51% **</td>
</tr>
<tr>
<td>CARs in days0, 1</td>
<td>–1.63% ***</td>
<td>–1.75% ***</td>
<td>–1.15% ***</td>
<td>–0.61% **</td>
</tr>
<tr>
<td>CARs in day–1</td>
<td>0.31% *</td>
<td>–0.08%</td>
<td>–0.68% ***</td>
<td>0.10%</td>
</tr>
<tr>
<td>CARs in day0</td>
<td>–1.18% ***</td>
<td>–0.84% ***</td>
<td>–0.64% ***</td>
<td>–0.04%</td>
</tr>
<tr>
<td>CARs in day1</td>
<td>–0.44% **</td>
<td>–0.90% ***</td>
<td>–0.52% ***</td>
<td>–0.57% **</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

Source: own elaboration on the basis of SAS System outcome.

**Payout Continuation**

According to the design of the study described above, investor reaction to payout continuation is assessed on the basis of different criteria for distinguishing the direction of change in dividend payment. CARs for 2-days and 3-days event windows vs. OLS assumptions, taking into account the first criterion, i.e., the percentage change in dividend payout, are presented in table 5. The results tabulated in this section do not include CARs for single days of the event window to preserve transparency regarding analysis outcomes.

CARs for a decrease in dividend payouts are negative in 1 out of 8 cases defined in the table above. For this event, CARs were significantly different from zero only at the 0.05 significance level. However, the values in question are positive, amounting to 1.74% for days –1, 0, 1 and 1.08% for days 0 and 1. CARs for unchanged dividend payouts are negative in 8 out of 8 cases defined. In order for them to be significantly different from zero, the market model would have to be properly specified at the 0.01, 0.05 or 0.1 level. The magnitude of 3-days CARs varies from –1.79% to –1.05%, while for 2 days CARs it lies between –1.62% and –1.05%.

CARs for an increase in dividend payouts are positive in 1 out of 8 cases defined in the table above. Investors react mostly negatively to the information concerning increases in dividend payouts, and cumulative abnormal returns are significant when the 0.01 or...
0.05 significance level is chosen. For 3-days event windows, the reaction lies between –0.77% and –0.52%, while for 2-days event window it is between –0.79% and –0.49%.

**TABLE 5. CARs for payout continuation – decrease, no change and increase in percentage change in payout vs. OLS assumptions**

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
<th>0.1</th>
<th>0.05</th>
<th>0.01</th>
<th>all events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>decrease in dividend payout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>33</td>
<td>46</td>
<td>69</td>
<td>147</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>1.74%</td>
<td>0.35%</td>
<td>0.12%</td>
<td>0.05%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>1.08%</td>
<td>0.06%</td>
<td>0.13%</td>
<td>–0.02%</td>
</tr>
<tr>
<td><strong>no change in dividend payout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>15</td>
<td>26</td>
<td>34</td>
<td>85</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>–1.79%</td>
<td>–1.41%</td>
<td>–1.05%</td>
<td>–0.44%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>–1.62%</td>
<td>–1.33%</td>
<td>–1.05%</td>
<td>–0.54%</td>
</tr>
<tr>
<td><strong>increase in dividend payout</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>55</td>
<td>80</td>
<td>122</td>
<td>284</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>–0.10%</td>
<td>–0.77%</td>
<td>–0.52%</td>
<td>–0.57%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.10%</td>
<td>–0.79%</td>
<td>–0.49%</td>
<td>–0.42%</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

**Source:** own elaboration on the basis of SAS System outcome.

Taking all of the above into account, when the direction of dividend change is assessed as a percentage change in payment value, the observed reaction is positive for diminishing payouts and negative for no change or an increase in payouts.

Another criterion for grouping events of continuing dividend payouts is the change in dividend rate based on the share price on the day of GSM. The CARs for these events are presented in table 6.

CARs for decreased dividend rates are negative in 8 out of 8 cases presented in the table above, while in case of increases they are positive in 2 out of 8 cases.

In case of decreases in the dividend rate, if OLS assumptions are fulfilled at the 0.05 or 0.1 level, CARs are significantly different from zero, ranging from –0.77% to –0.56% for 3-days event window and from –0.58% to –0.48% for 2-days event window. Secondly, there are no events if the dividend rate does not change. Regarding increased dividend rates, CARs for 2-days and 3-days event window are positive and significant at the significance level of 0.1 (0.62% and 0.82%, respectively). Contrary to this finding, CARs for days 0, 1 are negative and significant when the level of significance for OLS assumptions is 0.05 or 0.01.
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TABLE 6. CARs for payout continuation – decrease and increase in change in the dividend rate based on the share price on the day of GSM vs. OLS assumptions

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
<th>0.1</th>
<th>0.05</th>
<th>0.01</th>
<th>all events</th>
</tr>
</thead>
<tbody>
<tr>
<td>decrease in dividend rate based on share price on the day of GSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>43</td>
<td>66</td>
<td>104</td>
<td>239</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>-0.56% ***</td>
<td>-0.77% ***</td>
<td>-0.49% **</td>
<td>-0.30%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>-0.48% **</td>
<td>-0.58% ***</td>
<td>-0.20%</td>
<td>-0.15%</td>
</tr>
<tr>
<td>increase in dividend rate based on share price on the day of GSM</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>60</td>
<td>86</td>
<td>121</td>
<td>277</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>0.82% ***</td>
<td>-0.37% *</td>
<td>-0.34% *</td>
<td>-0.43%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.62% ***</td>
<td>-0.66% ***</td>
<td>-0.54% ***</td>
<td>-0.47% *</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.
Source: own elaboration on the basis of SAS System outcome.

To sum up, classifying events of continuing dividend payouts on the basis of the dividend rate based on share price on the day of GSM results in significantly negative cumulative abnormal returns for dividend rate decreases, while for dividend rate increases CARs are positive only when the significance level is chosen as 0.01.

In the next step of the analysis, payout continuation is classified according to the dividend rate based on the share price at the beginning of the previous fiscal year, adjusted for WIG Index change, for which CARs are presented in table 7.

TABLE 7. CARs for payout continuation– decrease and increase in the dividend rate based on share price at the beginning of previous fiscal year adjusted for WIG Index change vs. OLS assumptions

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
<th>0.1</th>
<th>0.05</th>
<th>0.01</th>
<th>all events</th>
</tr>
</thead>
<tbody>
<tr>
<td>decrease in dividend rate based on share price at the beginning of previous fiscal year adjusted for WIG Index change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>51</td>
<td>80</td>
<td>121</td>
<td>269</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>0.01%</td>
<td>-0.58% ***</td>
<td>-0.35% *</td>
<td>-0.24%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>-0.03% **</td>
<td>-0.44% **</td>
<td>-0.12%</td>
<td>-0.11%</td>
</tr>
<tr>
<td>increase in dividend rate based on share price at the beginning of previous fiscal year adjusted for WIG Index change</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>52</td>
<td>72</td>
<td>104</td>
<td>247</td>
</tr>
<tr>
<td>CARs in days-1, 0, 1</td>
<td>0.47% **</td>
<td>-0.51% **</td>
<td>-0.47% **</td>
<td>-0.50% *</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.35% *</td>
<td>-0.84% ***</td>
<td>-0.69% ***</td>
<td>-0.56% **</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.
Source: own elaboration on the basis of SAS System outcome.
CARs for the decrease in the dividend rate are negative in 7 out of 8 cases presented in table 7, while for an increase they are positive in 2 out of 8 cases.

Cumulative abnormal returns are significantly different from zero for decreases in the dividend rate if OLS assumptions are fulfilled at the 0.05 level. In such a case, 3-days CARs equal –0.58%, while 2-days CARs amount to –0.44%. As with the dividend rate calculated with the methodology presented in table 6, in this case there are also no events of dividend rate equal to the one observed for the previous payout. When it comes to increases in the dividend rate, CARs are positive and significant if the 0.1 level is chosen. However, when the significance level is changed to 0.05, the CARs turn negative, which indicates a limited conclusiveness of the measure of dividend change used in table 7.

In the table 8 CARs for payout continuation classified by dividend rate based on share price at the end of fiscal year are presented.

### Table 8. CARs for payout continuation – decrease and increase in the dividend rate based on share price at the end of fiscal year vs. OLS assumptions

<table>
<thead>
<tr>
<th></th>
<th>OLS assumptions fulfilled at the significance level</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0.1</td>
</tr>
<tr>
<td>decrease in dividend rate based on share price at the end of fiscal year</td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>60</td>
</tr>
<tr>
<td>CARs in days -1, 0, 1</td>
<td>–0.08%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>–0.15%</td>
</tr>
<tr>
<td>increase in dividend rate based on share price at the end of fiscal year</td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>43</td>
</tr>
<tr>
<td>CARs in days -1, 0, 1</td>
<td>0.70%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.59%</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

Source: own elaboration on the basis of SAS System outcome.

CARs for a decrease in the dividend rate are negative in 8 out of 8 cases defined in the table above, while for an increase they are positive in 7 out of 8 cases.

Decreases in dividend rates calculated on the basis of share price at the end of the fiscal year were significant when OLS assumptions are fulfilled at significance levels of 0.05 or 0.01, as well as when assumptions are not controlled for. For increases in the analogous dividend rate, most CARs are positive, while they are significantly different from zero only when the market model specification is properly specified at a 0.1 significance level.

To conclude, when the direction of change in dividend payouts is assessed on the basis of the dividend rate with share price at the end of the fiscal year, a negative reaction by investors is observed for decreases in payments, and a positive reaction for increases.
Another way to group the events of continuing dividend payouts is by the use of a dividend payout rate. The results of such a division are presented in Table 9.

**Table 9. CARs for payout continuation – decrease and increase in the dividend payout rate vs. OLS assumptions**

<table>
<thead>
<tr>
<th>OLS assumptions fulfilled at the significance level</th>
<th>0.1</th>
<th>0.05</th>
<th>0.01</th>
<th>all events</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decrease in dividend payout rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>53</td>
<td>81</td>
<td>122</td>
<td>269</td>
</tr>
<tr>
<td>CARs in days -1, 0, 1</td>
<td>0.59% **</td>
<td>-0.33% *</td>
<td>-0.21%</td>
<td>-0.38%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.30%</td>
<td>-0.24%</td>
<td>-0.08%</td>
<td>-0.29%</td>
</tr>
<tr>
<td><strong>Increase in dividend payout rate</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>number of events</td>
<td>50</td>
<td>71</td>
<td>103</td>
<td>247</td>
</tr>
<tr>
<td>CARs in days -1, 0, 1</td>
<td>-0.13%</td>
<td>-0.79% ***</td>
<td>-0.64% **</td>
<td>-0.35%</td>
</tr>
<tr>
<td>CARs in days 0, 1</td>
<td>0.01%</td>
<td>-1.07% ***</td>
<td>-0.75% ***</td>
<td>-0.36%</td>
</tr>
</tbody>
</table>

* significant at the 0.1 level; ** significant at the 0.05 level; *** significant at the 0.01 level.

**Source:** own elaboration on the basis of SAS System outcome.

CARs for a decrease in the dividend payout rate are negative in 6 out of 8 cases defined in the table above. For an increase, they are positive in 1 out of 8 cases.

There is no consistent pattern across CARs for decreases and increases in the dividend payout rate. Significant CARs for decreases are observed only when OLS assumptions are fulfilled at a 0.1 level. However, these are also cases when CARs are positive, while other results are negative (though insignificantly different from zero). For increases in the dividend payout rate most CARs are negative, while those calculated on the basis of the 0.05 or 0.01 significance levels are significantly different from zero.

Taking the above into consideration, a positive reaction to decreases and a negative reaction to increases in dividend payout ratios is observed, which undermines the applicability of this measure as a criterion for assessing the direction of dividend payment changes.

**Discussion of the Results**

The results presented in the previous section can be assessed on the basis of the presented hypotheses, as well as the chosen significance level appropriate for OLS assumptions verification if the market model is estimated. Moreover, the most suitable measure of dividend change can be chosen.
Without verification of the OLS assumptions, CARs for 2-days and 3-days event windows are insignificant, with two exceptions. The first is payout resumption, which yields significant negative returns – against the Main Hypothesis. The second is a decrease in dividend yield calculated on the basis of share price at the end of the fiscal year, which was negative and therefore in line with the Main Hypothesis. Taking the above into account, it shall be stated that OLS assumptions verification plays an important role in assessing the magnitude and direction of CARs generated by the market model, which in turn significantly affects the results of the study.

Choosing the lowest significance level of 0.01 results in significant CARs for 5 out of 14 events defined in the study. However, only in the case of a decrease in dividend yield calculated on the basis of share price at the end of fiscal year were investor reactions to the event in accordance with the hypotheses. Therefore, choosing 0.01 as the significance level for the study of investor reaction to the dividend announcements on the Polish market is not appropriate.

When it comes to significance levels of 0.05 and 0.1, both point to the significance of CARs for most events. However, for irregular payouts and payout initiation, only 2-days CARs are significantly different from zero, with the former equal to 0.52% and the latter to −0.42%. As payout initiation should be viewed by investors as a positive signal about the prospects of the company, this incoherence with the Main Hypothesis could be seen as a reason for rejection of the 0.05 significance level.

The results of the analysis based on the most restrictive significance level are as follows. For irregular payouts, the 3-days and 2-days CARs amount to 1.73% and 1.54%, respectively. Both results are in line with the Main Hypothesis and empirical studies results cited in the previous sections [e.g., Aharony, Swary, 1980]. Investor reaction to payout initiation is 2.44% within 3 days and 1.37% within 2 days. The direction of the reaction is in line with the Main Hypothesis, though in the case of a wider event window (only) the reaction to payout initiation is higher in magnitude than for irregular payouts, as observed by Kane et al. [1984]. When it comes to payout resumption, both 3-days and 2-days CARs are negative and amount to −1.32% and −1.63%, respectively.

The event of payout resumption requires special attention. In the unrestricted sample of events, this group constitutes 52 of 444 analyzed events. It is defined as resuming payouts after one year of omission, and is incorporated into the study to widen the sample of regular dividend payouts. For this reason, this category is usually not distinguished in studies concerning American companies, which follow more stable dividend policies. It has to be underlined that in this study investor reaction to this event is significantly negative regardless of the significance level used for verification of the market model’s assumptions. Therefore, the fact that the direction and magnitude of CARs for the 0.01 significance level is contrary to the prediction of the Main Hypothesis should not be regarded as a reason to opt for a preponderance of result for a different significance level.
As previously stated, this study may also be used as a guideline for selecting a measure of future changes in dividend value from the point of view of investors. Five measures of dividend value are used: (1) the absolute value of dividend per share; (2) the dividend yield on the basis of share price measured at the end of the fiscal year; (3) the dividend yield on the basis of share price measured at the beginning of the fiscal year adjusted for the market index change; (4) the dividend yield on the basis of share price measured on the day of the GSM; and (5) the dividend payout yield.

Analysis of the CARs for changes in the absolute value of the dividend payout shows that a decrease in payouts results in a positive reaction, while no change and increase result in a negative reaction. These results contradict the Main Hypothesis, suggesting that other measures might be more appropriate for the research in question.

When it comes to changes in dividend yield based on share price measured at the end of the fiscal year, a decrease generates negative investor reaction of −0.56% and −0.48% for 3-days and 2-days event window, respectively. The direction of change is in line with the Main Hypothesis, and the magnitude of positive investor reaction to payout increase is lower than to payout initiation, which supports Hypothesis 2. These results also confirm findings of previous research, like Denis et al. [1994]. Therefore, the measure of dividend payout change in question is appropriate for assessing the investor reaction.

Moving on to the dividend yield calculated on the basis of share price measured at the beginning of the fiscal year and adjusted for the market index change – only increases in this measure cause significant investor reaction of 0.47% for 3-days event window and of 0.35% for the 2-days event window. Although the direction and magnitude of this reaction is in line with the Main Hypothesis and Hypothesis 2, the lack of significance for decreases in dividend payouts suggests that application of this measure by investors is limited.

Taking into consideration decreases in dividend yield calculated on the basis of share price at the end of fiscal year, investor reaction to the event is insignificantly different from zero. For increases, the reaction is positive and amounts to 0.70% and 0.59% for days −1, 0, 1 and days 0, 1, respectively. Application of this measure is therefore limited.

The last measure among those analysed is the dividend payout rate. Only 3-days investor reaction to decreases in the dividend payout rate is significantly different from zero and amounts to 0.59%. This not only contradicts the Main Hypothesis, but also suggests a limited significance of the results, which shall be interpreted as an argument against the applicability of this measure.

To conclude, the Main Hypothesis and Hypotheses 1 and 2 presented in this study are largely confirmed by the data. The 3-days (2-days) reaction to payout initiation and irregular payouts are positive, and amount to 2.44% (1.37%) and 1.73% (1.54%), respectively. Positive price changes to payout initiation are also noticed by Czerwonka [2010]. The results in case of payout initiation are lower than observed by studies for the American market, e.g., Asquith and Mullins [1983] (+3.7%). Both the direction of the reaction to payout initiation and the higher magnitude of that reaction as compared to irregular
payouts, are in line with Hypothesis 1. However, contrary to Hypothesis 1, investor reaction to resuming dividend payouts was negative.

As far as investor reactions to changes in dividends are concerned, dividend yield calculated on the basis of the share price on the day of the GSM was chosen as the most appropriate measure. Decrease dividend payout induced a negative reaction of –0.56% for 3-day and –0.38% for 2-day event windows. For payout increases, CARs for the same periods are, respectively, 0.82% and 0.62%. In comparison to the results of previous studies, the reaction for Polish market is much weaker. For example, Denis et al. [1994] report a 1.25% reaction for payout increases and a –5.27% reaction for payout decreases, while Aharony and Swary [1980] observe the average price changes of 0.93% and –3.29%, respectively, for payout increases and decreases. Gurgul and Majdosz [2005] and Perepeczo [2013] also confirm a positive reaction to dividend announcements for companies listed on WSE. Our findings are, however, against the view of Słoński and Zawadzki [2012] that the reaction to changes in dividend payout is not significantly different from zero. Those findings support the Main Hypothesis and Hypothesis 2 concerning both the direction and magnitude of positive investor reaction to dividend increase, which was weaker than in case of payout initiation. Since no instance of unchanged dividend yield are identified, Hypothesis 3 is not supported by the results.

**Conclusion**

This study analyzed investor reaction to the final value of dividend payouts for companies listed on the WSE. As the signalling hypothesis and agency cost hypothesis stipulate, initiations, irregular payouts, resuming and increasing dividend payouts should result in positive investor reaction, while a decrease in payout should lead to a negative reaction.

A significant positive investor reaction to irregular payouts and payout initiation is identified, while the reaction to irregular payouts was weaker than to payout initiation. Payout resumption resulted in negative investor reaction, which may stem from the definition of the event suggested. For payout continuation, the dividend yield calculated on the basis of share price on the day of GSM was the most appropriate measure of change in payout. The decrease in dividend payout caused a negative reaction, while an increase in dividend payout caused a positive reaction. There are no cases of unchanged dividend yield.

Moreover, due to comparison of the results with different significance levels (on the basis of which assumptions of OLS method for estimating market model are assessed), the 0.01 level was chosen as the most conclusive and most supportive for the hypotheses.

The magnitude of the reactions observed was significantly lower than in studies of American companies – 3-days positive reaction to payout initiation of 2.44% was observed
in this study, in comparison with 3.7% CARs in the study of Asquith and Mullins [1980].
The reaction to dividend changes is also weaker – in this study it is –0.56% to decreases
and 0.82% to increases, while Denis et al. [1994] report reaction of –5.71% and 1.25%,
respectively.

Taking into consideration practical implication of the research, the low economic sig-
nificance of the results, in comparison to previous research, suggests that the possibility of
taking advantage of dividend announcements by traders and investors is limited. Although
significant investor reaction to payout initiation and changes in payout was observed, there
is little possibility of building a successful investment strategy based on price changes
around the date of final dividend announcement made at General Shareholders’ Meeting.

From the traders and investors’ perspectives, it is desirable to examine the drivers of
investor reaction to changes in dividend policies for companies from various industries and
for companies at different life cycle stages. It is also possible to study factors concerning
the financial performance of companies, which influence the direction and magnitude
of investor reaction. On the basis of such results, it may be possible to determine which
companies are most influenced by price changes around dividend announcement dates.

Further research may also focus on comparing investor reaction in other stock
exchanges to changes in dividend payout. Groups of similar countries, like those of Central
and Eastern Europe, or between developed and developing stock exchanges, would seem
to offer particularly interesting targets. Another interesting study would be to replicate
this analysis for companies listed on stock exchanges operating in market-based and
bank-based economies.

Notes

1 Although the definition of irregular payouts is based on information unavailable at the moment
of dividend payout, it is assumed that managers’ intention to regularly pay dividends (or not) is commu-
nicating to both analysts and investors.

2 Formulas are presented as in Gurgul [2012, p. 51].

References

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