INTANGIBLE CAPITAL, INNOVATION AND EXPORT-LED GROWTH: EMPIRICAL COMPARATIVE STUDY OF SLOVENIA AND THE WESTERN BALKANS

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ABSTRACT: *In the face of progressing globalisation and liberalisation of the markets, innovation is the minimum necessary requirement for companies and countries to be globally competitive, and knowledge is the key input. In a comparative study we investigate the intellectual capital of a sample of firms from the Western Balkans and Slovenia, and analyse the link between intellectual capital, innovation, and export volume. Using unique survey data sets for these countries, we propose a structural model to examine our hypotheses. The results suggest that possessing intellectual capital does not suffice for firms' global competitiveness and that higher presence on global markets may offer exposure to more advanced knowledge that firms cannot obtain in their domestic markets.*

Keywords: intangible capital, innovation, export-led growth, Slovenia, Western Balkans
JEL Classification: O32, M21

1. INTRODUCTION

There is a consensus among both, scholars and policymakers on the growing role played by intangible assets on firms' productivity and, consequently, on the performance of local economies. And while this is true in the industrialised countries where competition is predominately based on ideas and innovations, technologically less developed countries need to strategically nurture their intangibles and learning capabilities in order to be able to benefit from the existing knowledge and spur innovation.

From a firm's perspective, the intangibles are crucial for transitioning to and competing in the today's knowledge-based economy. The reason that they are so valuable in building and sustaining the firm's competitive advantage resides in their characteristics – they are valuable, rare, and extremely difficult to imitate and substitute for (such are, for example organizational history, culture, learning, and other human dimensions of organizations). There are multiple sources of knowledge creation within companies and their examination has shown that the knowledge base on which innovating firms found their activities has become broader and more complex (Canibano, Garcia-Ayuso & Sanchez, 2001). The

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conversion and utilisation of this knowledge is closely related to the different aspects of firms' intangible capital (human capital, structural capital, relational capital) and the investment in them.

In this study we model the impact of the firm's intangible capital (IC) on its innovative culture, which in turn is related to the export activity. Based on the dominant stream in the literature, we adopt the following three basic components of intangible capital: (1) human capital, which includes learning, know-how, and skills; (2) structural capital, which contains organizational (and at times, also technological) elements that pursue integration and coordination within the firm, and (3) relational capital, which gathers the value of the relationships that the firm maintains with external agents (business activity close by or with other more distant social agents) (de Castro & López Sáez, 2008, p. 26).

Drawing from the overarching literature on innovation, intangible capital, and trade literature, we examine the existing knowledge in firms (captured by the state of the intangible capital), the potential it has in driving their innovativeness (how human capital, structural capital, and relational capital relate to innovation) and, consequently, how innovation relates to firms' competitiveness on foreign markets (reflected in their export volume). We propose that the more the firm's intellectual assets are interconnected, the more its management values radical innovation, which then builds the firm's success in the export markets. On a basis of a larger survey on intangible capital conducted in Albania, Republika Srpska of Bosnia and Herzegovina, and Slovenia, we test these hypothesised relationships by using structural equation modeling. The study analyses the role of intangible capital in the manufacturing companies from a region that ranks relatively low in technological development, low in intangible investments and, with limited openness to foreign markets, and compares it to the state of the manufacturing sector from an economy that has already built a significant presence on the international market.

The paper is structured as follows. Section 2 offers a general overview of the economic and innovation development of the Western Balkan economies and of Slovenia. In section 3 we discuss the conceptual framework for our hypotheses, review the definitions and examples of the different aspects of the corporate intangible capital, and innovation as their function, and finally discuss the evidence in the trade literature about the relationship between innovation and exports. Section 4 discusses the methodological framework, and section 5 presents the results from the empirical analysis. The study concludes with a discussion in section 6.

The contribution of this paper is severalfold. First, this study represents the first empirical study of the linkage between intellectual capital, innovation, and exports at a corporate level in the Western Balkan economies. Expanding it to a comparative study with a more developed economy that has already completed its transition from a shared history it offers additional insights in the discussion on bridging the development gap through export-led growth strategy. The present study uses original firm-level survey data and proposes firm-level measures for human, structural, and relational capital, and reveals which indicators of firm's knowledge-based assets are significant in the studied countries. Finally, the stylised findings of this study suggest that possessing intellectual capital does

not suffice for firms' foreign market competitiveness, which is an insight that may inform future policy decisions.

2. OVERVIEW OF THE ECONOMIC AND INNOVATION DEVELOPMENT IN THE WESTERN BALKANS AND SLOVENIA

The present study examines the cases of two emerging economies from the Western Balkans (Albania and Republika Srpska of Bosnia and Herzegovina) on one hand, and Slovenia, on the other, which is a more developed country from the Balkan region and an EU member from 2004[3] (see table 1).

Table 1: *Selected macroeconomic indicators*

	Albania	**Bosnia and Herzegovina**	**Slovenia**
Economy & Growth Indicators			
GDP per capita (current US$)	4,256.0	**4,409.6**	**22,488.4**
GDP growth (annual %)	1.6	-1.2	-2.6
Exports of goods and services (% of GDP)	**33.3**	**30.9**	**73.2**
Innovation and S&T Indicators			
High-technology exports (% of manufactured exports)	0	2	6
Research and development expenditure (% of GDP)	n/a	n/a	2.80
Financial Sector Indicators			
Domestic credit to private sector (% of GDP)	**39.0**	**63.0**	**85.7**
Foreign direct investment, net inflows (BoP, current US$)	920,080,650	334,821,080	-227,373,077

Source: World Bank, 2012

All three countries are small, open economies that pursue the export led model of growth (IMF, 2012a; 2012b; 2012c). Slovenia has been successfully following the export-led strategy for growth throughout the entire transition period. It is a very open economy (exporting two thirds of its GDP) with a highly export-oriented manufacturing sector that places roughly 85% of its products abroad (Damijan & Kostevc, 2006). On the other hand, Bosnia and Herzegovina and Albania have embarked on a growth model that emphasizes exports only recently, predominately as a response of the global financial crisis of 2008 (World Bank, 2013a, 2013b). The export intensity of Albania is at a similar level as that of

[3] Slovenia and Albania are independent countries, while Republika Srpska of Bosnia and Herzegovina is part of the federation with Bosnia and Herzegovina. Given the lack of representative data for the entire country, we focus on the market of Republika Srpska of Bosnia and Herzegovina (Republika Srpska in continuing) for which a representative sample was obtained in a company level survey conducted in 2011.

Bosnia and Herzegovina (31% of GDP). Since 2003 the Albanian economy has witnessed an increase in the share of export in its GDP by 10 percentage points, while the export orientation of Bosnia and Herzegovina has remained almost unchanged (a rise of only 1 percentage point since 2003) (World Bank Database, 2014). According to IMF (2012a, 2012b) boosting the exports remains one of the main development challenges for Bosnia and Herzegovina as well as for Albania. IMF (2012a) warns that especially the export sector in Albania is relatively undiversified (comprised primarily of traditional industries, like textiles, with some reorientation to oil and minerals in the past period). Both countries have experienced a decline in the already limited exports due to the financial crisis, while the sharp increases in imports, particularly capital goods, have led to large and growing trade deficits (World Bank, 2013a; 2013b).

According to Schwab (2012), both Albania's and Bosnia and Herzegovina's economies are currently at the stage of efficiency-driven development. On the other hand, Slovenia at present is an economy that has already transitioned to the third stage, the stage of innovation-driven development. The innovation performance of the Western Balkans economies is overall low, by international standards. According to the Global Innovation Index[4] Rank of 2012, Bosnia and Herzegovina is 72 out of 125 countries, and Albania's is 90, which is well below the average of other countries of the Western Balkan region (60). Slovenia, for comparison, has an innovation rank of 49.9, which is still above the Europe's average ranking of 47.9 (INSEAD, WIPO, 2012).

The major problems facing the current innovation systems in the Western Balkan economies are the weak R&D capabilities in both, public and private sector, and the marginal government funding, (Silajdzic (2012) and Bartlett et al. (2012)). This context is emphasized by the lack of effective policy measures for innovation or cohesion between industrial and innovation policy. Nonetheless, improving innovation is to large extent in the hands of the companies and the way to achieve it is closely related to strengthening their intangible capital and the utilisation of knowledge. The present study offers an insight in the current state of these aspects and examine and the potential of an export-led model of growth by relating the estimates with the exporting activity of the manufacturing sectors.

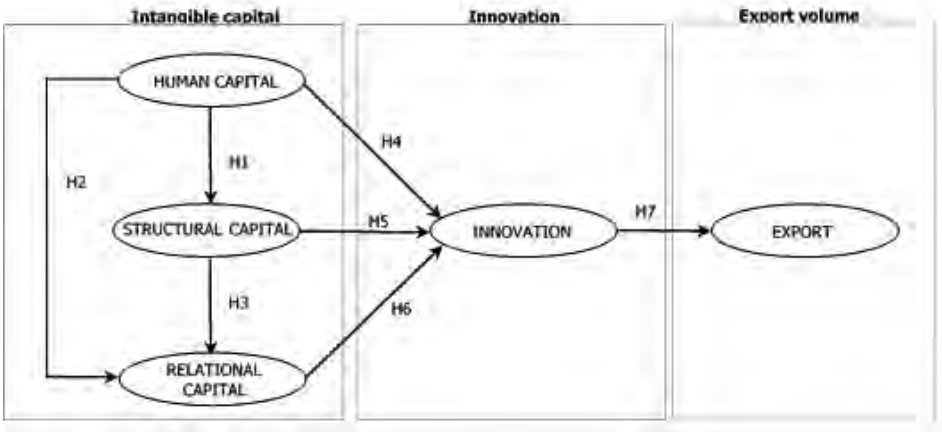
3. CONCEPTUAL FRAMEWORK AND HYPOTHESES

The present work proposes a model that relates the existing intangible capital in the companies (the human capital, structural capital, and relational capital and the dynamism among them), and their relation to innovation, and, consequently, the export volume. Integrating the literature on intellectual capital, we propose that the intangible capital com-

[4] The Global Innovation Index (GII) score is calculated as the simple average of the Input Sub-index (an average of elements of the included national economies that enable innovative activities, such as institutions, human capital and research, infrastructure, market sophistication, and business sophistication) and the Output Sub-Index (an average of innovation output measures including knowledge and technology outputs, and creative outputs). For more detailed clarification of the calculation of the GII and its objectives, refer to INSEAD, WIPO (2012).

ponents and their interrelatedness affect innovation positively (Lev, 2003; Chen, Zhu & Xie, 2004; González-Loureiro & Pita-Castelo, 2012). Following evidence in trade theory, and the international marketing literature that more innovative companies are more likely to be more export oriented (Wagner, 1996; Wakelin, 1997; Weifens et al., 2000; Griffith et al., 2006), we further propose that the link between innovation and the export volume is positive. In other words, the present study examines, in a comparative approach, how intangible elements in the studied economies are related to their innovation orientation and how that is reflected in the share of output that they export. In continuation we discuss the model and set the hypotheses. The hypothesised model is illustrated in figure 1.

Figure 1: *Proposed conceptual model*



3.1. Definition of intangibles and their interconnectedness

As there are different definitions for intangible capital, the literature provides different nomenclatures for its constituent elements as well. The variety of disciplines that are interested in studying intangibles (such as economics, organisation, strategy, management, finance, and accounting) as well as different participants (including academics, standard setters, professional bodies, government agencies, and consultants) has used a plethora of measurements and classification of intangible capital. But the most widely used classification (Roos, Pike & Fernström, 2005; Wall, Kirk & Martin, 2004; Sullivan, 1999; Tayles, Pike & Sofian, 2007; Marr, 2008), which we also employ in this study, is into these following three components: human capital (HC), structural capital (SC), and relational capital (RC). At a basic level, the conceptual separation of these three aspects of intellectual capital is evident from how each aspect accumulates and distributes knowledge differently: either through (1) individuals, (2) organizational structures, processes, and systems, or (3) relationships and market knowledge. In continuation we discuss these aspects separately. ***Human capital*** represents the individual tacit knowledge embedded in the mind of the employees. It has been identified as a foundational source of innovation, strategic renew-

al of a company, which can be used to realize and create value in the knowledge-based economy. According to the resource-based school of thought, human capital is recognised as an important source of competitive advantage and a firm's ability to adapt in volatile environments (Barney, 1991; Judge, Naoumova & Douglas, 2009).

We follow the definition used by Chen et al. (2004) who define human capital as a combination of employee's competence, attitude, and creativity. Examples of human capital elements are knowledge, expertise, skills, experience, competence, creativity, teamwork capacity, training and education, problem-solving capability, attitude, loyalty, and the motivation of people (Cohen & Kaimenakis, 2007; Hormiga, Batista-Canino & Sanchez-Medina, 2011; Hsu & Fang, 2009; Jacobsen, Hofman-Bang & Nordby, 2005; Johanson, 2005). The knowledge and know-how, which are created by and stored in its people, are central to creating the organizational capability to achieve the firm's strategic goals. Human resources and human resource management activities are strategically important because they are potentially valuable, rare, and difficult to imitate and substitute for. This, as Buller & McEvoy (2012) put forward, is particularly important when firms face competition based on possessing, communicating, and creating superior knowledge, human capital, and social capital versus having superior land, capital, or technology.

Intangible capital scholars have used different definitions and measures for the ***structural capital***. Many of them refer to it also as organisational capital, and others - as *process capital* or *processes*. In general, among the identified indices for structural capital there are "soft" aspects such are the corporate culture, management processes, routines, support and cooperation between employees; share of knowledge; power and responsibility structure; and those that represent the non-human aspects of the structural capital, such as the institutionalized knowledge utilized through databases, manuals, structures, systems, and processes. And from an evolutionary perspective (Nelson & Winter, 1982), the structural capital is created, preserved, and enhanced through structured, repetitive activities. These include the company's structures and processes, or clearly mandated procedures and rules for retrieving, sharing, and utilizing knowledge.

In our study we define ***structural capital*** as the aspect of the intangible capital that deals with the mechanisms and structures of the organization that can help to support employees in their quest for optimum intellectual performance and therefore overall business performance (Chen et al., 2004). In order for the intellectual capital to reach its fullest potential, a company needs to have favourable systems and procedures in place. According to Chen, Chen & Hwang (2005), a company with strong structural capital will create favourable conditions to utilize human capital and allow to realize its fullest potential, and subsequently also boost customer capital (Chen et al., 2005).

Relational capital has been mostly used in literature to define the knowledge about customers and the relationships with them, and has been long known under the term of *customer capital* or *market capital*. However, the developments in the field of intangible capital has widened its definitional scope and has been referring to it as relational capital since (for example see Lynn, 1998; Choo & Bontis, 2002; etc.). Besides the organisation's

relationships with its customers, relational capital incorporates also relationships with other parties, such as suppliers, other companies in the market/industry, competitors, and different stakeholders where applicable (see Jacobsen et al., 2005; Marr, Schiuma & Neely, 2004; Payne et al., 1995; Roos & Roos, 1997).

There is already a pool of evidence that confirms that firms' market knowledge competences facilitate the design and development of innovative and successful products and have a positive impact on the overall firm performance (Hurley & Hult, 1998; Li & Calantone, 1998). That being said, in our study, we adopt the examples of relational capital stated above and follow Chen et al. (2004) definition of relational capital that Chen et al. (2004) put forward. According to them, relational capital is essential part of intangible capital and presents "the value embedded in the marketing channels and relationships that a company develops by conducting business". Market intensity, the ultimate expression of customer capital, refers to the current state of market building and its potential (Chen et al, 2004).

Interconnectedness of intangibles. Managerial activities related to intellectual capital should complement each other. Edvinsson & Malone (1997) point out that human, structural, and customer capital reciprocally circulate and affect each other. According to Chen et al. (2004), structural capital is subject to human capital, since human capital is a determinative factor of the organizational form. Moreover, structural capital and human capital enable enterprises to form, develop, and use innovation capital and customer capital in a coordinated way.

Hsu & Fang (2009) concede this reasoning positing that the collaboration of the elements of intellectual capital in generating knowledge value creates synergy. It is when human capital, structural capital, and relational capital complement and support each other, that intellectual capital will be most effective (Stewart, 1997). The higher the interactions among the IC components, the greater the effect on the performance of the intangible stock of a company (Chen, Zhu & Xie, 2004). This interconnectedness of the knowledge stock is also mentioned by Teece (1987), which Arrighetti et al. (2014) consider is the reason for the inverse relationship between the level of intangible assets a company possesses and the marginal costs of further investments in them (higher level of intangible assets is associated with a lower marginal cost of investing in the further extension of the asset stock, as argued by Knott, Bryce & Posen (2003))

In our study we examine whether there is a dynamism between the different aspects of the intangible capital and weather they have the potential to create value for the company. In that respect our model tests the following hypotheses:

Hypothesis 1: HC proxy variables are directly and positively related to SC proxy variables.

Hypothesis 2: HC proxy variables are directly and positively related to RC proxy variables.

Hypothesis 3: SC proxy variables are directly and positively related to RC proxy variables.

3.2. Intangibles and innovation[5]

To build upon the previous hypotheses, we emphasise that intellectual capital is more than simply the sum of the human, structural, and relational resources of the firm. But it is rather an indicator of how the knowledge of a firm is put to work in creating value for the organisation (Roberts, 1998). The different aspects of intellectual capital, both individually and jointly utilise the corporate knowledge which is essential for innovation. This conversion of the knowledge and its utilisation for new products and processes is the link between intangible capital and innovation.

Each of the aspects of intangible capital (in our model) is associated with the different types of knowledge within the company. The *tacit knowledge* is embedded in the expertise, know-how, and the experience of individuals (human capital); the *explicit* or *rule-based knowledge* is embedded in the corporate's internal processes, rules, and routines (structural capital); and the *relational* (sometimes called *cultural*) knowledge is expressed through the assumptions and beliefs used by members to assign value and significance to new information or knowledge (relational capital). To create knowledge, companies convert tacit to explicit knowledge, integrate and combine knowledge, and acquire or transfer knowledge across boundaries (Choo & Bontis, 2002). Or, as Nonaka & Takeuchi (1995) put it, in the process of new knowledge creation, the organization continuously converts the personal, tacit knowledge of individuals who develop a creative insight to the shared, explicit knowledge by which the organization develops new products and innovations.

Innovation is a collective achievement (Van de Ven, 1986) as companies assimilate and integrate knowledge by facilitating its communication, sharing, and transferring among individuals and by encouraging interactions in groups and networks (Allen, 1977). The intangibles in a company collectively determine its ability to rapidly respond to environmental change and achieve new and innovative forms of competitive advantage and superior performance outcomes (Teece, Pisano & Shuen, 1997).

From a strategic point of view, it is important that the intangibles that a company nurtures are strongly related to the company's strategic objectives. When a company identifies its critical intangibles, they become the key drivers to the value creation process of the firm. They embrace the core competencies of the company as well as the present abilities that the company possesses, or needs to leverage in order to attain those objectives (Canibano et al, 2001).

There is substantial evidence that intangibles that facilitate innovation are key determinants of firm competitiveness, value added, and growth (Sveiby, 1997; Ramezan, 2011; Kramer et al., 2011; González-Loureiro & Pita-Castelo, 2012). And since innovations essentially draw upon the knowledge deployed by such intangibles, finding an association between their various aspects and the organisation's innovation orientation would hardly be surprising. In our study we use the perception that CEOs hold about the importance

[5] Some include innovation capital as part of the intangible aspects of a firm. However, as Chen et al. (2004) has pointed out, the origination and development of "innovation capital" are based on the conjoint effects of human, structural, and relational capital.

of innovation for the company as a proxy for innovation. Given that the proxy indicators consist of perceptional measures, the concept intrinsically reflects the strategic orientation of the management towards innovation. To examine the ability of the intangibles to contribute towards innovation, we examine the relation between each aspect of intangible capital and the innovation construct.

Hypothesis 4: HC proxy variables are directly and positively related to the innovation proxy variables.

Hypothesis 5: SC proxy variables are directly and positively related to the innovation proxy variables

Hypothesis 6: RC proxy variables are directly and positively related to the innovation proxy variables.

3.3. Intangible capital, innovation and export

Many poor countries has chosen to follow the export-led model of economic growth where external demand determines the dynamics of growth. Some countries - most of them in East and South-East Asia - have even achieved unprecedented rates of growth through exports. Others, on the other hand, have tried, but failed to follow the same route (The World Bank, 1993). The successful examples of export-led economic growth are the countries whose exporting sectors were national developmental priorities. These countries' competitive strengths were systematically developed (e.g. Japanese industrial policy) primarily by strengthening the manufacturing sectors (Grossman & Helpman, 1991; Boltho, 1996; Palley, 2011). An export–oriented manufacturing sector is crucial for building favourable internal environment and fuelling the external demand, which in turn have the potential to push the economic standards upwards.

The divergent success in building and maintaining an international competitiveness of countries, regions, and firms is directly related to their knowledge and intellectual capital (Edvinsson & Bounfour, 2004). In the context of the organisational learning idea, the intangible capital of a firm enables the knowledge acquisition, knowledge sharing, and knowledge utilisation within a firm. The knowledge acquisition and creation can be internal or external. Internal learning happens within the firm when through in-house research and development new knowledge is being generated and distributed. External knowledge generation (on which the industries of Albania and Republika Srpska predominately rely (World Bank, 2013a, 2013b)) involves the acquisition of new knowledge through observation and assimilation of external information (Bierly & Chakrabarti, 1996). In practice there may not be a clear distinction between internal and external learning, and some studies have suggested that for successful product innovation and attaining competitive advantage internal and external innovation need to be integrated (Iansiti & Clark, 1994). In that sense, for both technologically advanced and those less technologically advanced organisations, the key components that create and sustain competitiveness are (1) their intangible capital, and (2) the structure of the environment/market where they operate, which includes the pool of available knowledge, and the development level of the market (institutions, competitors, customers, etc.)

The innovation that is a product of the knowledge created and transformed by the intangible capital facilitates the development of competitive advantage of the company (Barney, 1991; Peppard & Rylander, 2001). International trade literature has found evidence that the more innovative companies are also more present in foreign markets (Wagner, 1996; Wakelin, 1997; Weifens et al., 2000; Griffith et al., 2006; Cassiman & Golovko, 2007) and they export more as they are better established on those markets. In the increasingly global world, innovation is the minimum necessary requirement for countries to be competitive. The examination of the link between innovation and export in our two models reveals insight weather innovation (created through knowledge transformation by the intangible capital) is sufficient for reaching competitiveness on the global market (hypothesis 7).

Hypothesis 7: Innovation proxy variables are directly and positively related to the export volume.

The above postulated hypotheses are represented with arrows in the conceptualised research model in figure 1.

4. METHODOLOGICAL FRAMEWORK[6]

The data used in our study was collected in a wider research project on intangibles in firms from the Western Balkans region. The psychometric questions that the survey consisted of are founded in theory. Additionally, the questionnaire was tested in each separate country in order to confirm its suitability.

The survey targeted the companies from the manufacturing and service sectors. The selection of the company was not random, but a stratified sample was composed based on size, industry and location. The surveys were conducted in the second half of 2010 in Slovenia and in the beginning of 2011 in Albania and Republika Srpska of Bosnia and Herzegovina. In total 198 (100 from Slovenia, 40 from Albania, and 58 from Republika Srpska) effective responses were collected, which amounts to an overall response rate of 22.4%.

4.1. Sample

The empirical analysis in this study focuses on the surveyed companies from the manufacturing sector in all three countries. The rationale behind this criterion is based on the idea that in our model examines radical innovation for which investments in R&D are key (Tether et al., 2002) and it is more likely that the manufacturing companies are engaged in more significant R&D. In that respect, the manufacturing subsample is deemed a more homogenous and relevant group of companies to include in our analysis. Table 2 provides the basic descriptive statistics of the samples, while the firms' characteristics according to the answered questions pertaining to intangible capital and innovation are shown in tables A2-A4 in appendix A.

[6] For a more detailed discussion about the survey and the measures used in the model, please refer to appendix A - Methodology, data collection and description

Table 2: *Structure of respondent companies*

Region	***Slovenia***	***Pooled****
Number of respondents	(N = 73)	(N =52)
Size (Number of employees)		
Small <50	7.4 %	50.9 %
Medium 50-100	16.7 %	32.1 %
Large >250	75.9 %	17.0 %
Export orientation		
More than 25%	77.8 %	37.7 %
More than 50%	72.2 %	17.0 %
Other characteristics		
Form: Ltd. vs. plc**	41 %	30.2 %
B2B (vs B2C)	56 %	37.7 %

* Pooled data set from the surveys in Albania and Republika Srpska of Bosnia and Herzegovina

** Limited liability company vs. Public limited company

4.2. Measures for the model variables

The primary data was acquired through a psychometric type of questionnaire distributed to senior managers and addressed the intangible investments and characteristics of firms. The proxy indicators for all of the intellectual capital elements in the model have been adapted from or developed on the foundations of innovation literature, strategic management, and literature on intangible capital and growth. The complete list of indicators is given in table A1 in appendix A.

The various aspects of intangible capital are not always found in companies in neat, separate "packages". Out of the survey data we identified the indicators that were comparable in each of the geographic models and that proved adequate to capture the explanatory potential of the complex variables of the firms' intangible capital. The proxies used in the models are shown in Table 3.

All of the latent variables in the model are first-order constructs. The latent variable *human capital (HC)* is constructed of four items i.e. proxies, which are evaluated on a dichotomous scale (yes = 1; no = 0). The managers were asked to state whether "the company provides regular on-the-job training", and whether "the knowledge transfer is systematically induced among employees". These two indicators refer to the investment in the relevant technical and professional knowledge of the employees. The other two proxies of human capital reflect the incentive practice that a company has in place for its employees. In that respect, the managers were asked to state whether "performance measure system can distinguish between different performing employees", and whether the higher performing employees are differently rewarded than the average performers.

Structural capital (SC) is a construct whose proxies are also assessed on a dichotomous scale and include aspects related to the: management's influence in decision making, workers' participation in the workplace, the worker's participation in the risk-sharing, and their involvement in the decision-making process. The first two aspects correspond to what Chen et al. (2004) refer to as the organizational structure pertaining to the formal power relationships and control system. In that respect the respondents were asked to answer "do top managers and owners make strategic decisions unanimously", and whether there is "an established open dialog with the workers about key decisions for the firm". The remaining two aspects refer more to the less formal relationships pertaining to the work culture in the company and existing identification of employees' goals with those of the company. In that sense, respondents gave answers to the questions that asked whether "cooperation in different teams in individual department is a common form of workers' operation", and whether "workers engage in additional training for the good of the firm (not considering training organized by the firm)". The company's culture under the guidance of a favourable managing philosophy is a valuable asset. Only under the strong culture can a company give full play to its employees' competences and motivate them to serve the company and customer heart and soul. (Chen et al, 2004).

The proxies with which we measure the latent variable *relational capital (RC)* examine the firm's market knowledge competences and are assessed on a 5-point Likert scale. The respondents evaluate the company's competences in comparison with competitors (with 1 being "considerably worse than the main competitors" and 5 – "considerably better than the main competitors"). The set of measures include questions about company's knowledge about "customers' preferences and needs", "obtaining real time information about competitors", and establishing and managing long-term relations with both customers and suppliers.

Innovation (INN) is an endogenous latent variable and a function of the three latent variables of intangible capital. The model examines the relations between the different aspects of intangible capital and the 'perceived importance of radical innovation' as a proxy for the innovation variable. The indicators for the construct of innovation incorporated in our model are conceptualised as the significance that the managers place in different types of radical innovation for the company. There are two aspects that these measures reflect – the focus on radical innovation, and the importance with which senior managers perceive the different types of radical innovation.

In the context of the first aspect, we decide to focus on radical innovation given that our study analyses manufacturing companies (i.e. companies where R&D investments are most likely to occur, which is of key importance for radical innovations). And although both incremental and radical innovation are important for building and maintaining competitiveness, there is a closer linkage between long-term growth and radical innovation (Morone, 1993). Prašnikar & Kotnik (2006) in their study of technological leaders and followers further posit that as soon as a company develops new technologies, it ceases to be a follower and moves closer to the technological frontier.

The perceived importance of the different types of radical innovation, on the other hand, reflects the official strategic goals of the company related to innovation; it is an indicator of the management's innovation culture and aspirations. And while companies may or may not succeed in achieving their innovation objectives (which may be related to products, markets, efficiency, quality, or the ability to learn and to implement changes), the innovative activities may nonetheless have other or additional effects than those that initially motivated their implementation (OECD/Eurostat, 2005). Methodologically, it could be argued that capturing the objectives may have its flaws since actual effects may differ substantially from expectations. On the other hand, the effects of the (recent) innovation (output) may not be felt within the time period of the survey because of the lagging effect of innovation. Provided that our study relies on cross-sectional data, we opt for examining the objectives for innovation by measuring the perceived importance of radical innovations by the company's management.

The rankings placed in the different types of radical innovation are used as indicators of the strategic orientation of the firm in terms of innovation. In general, such examination may reveal whether the firm is engaging its intangible capital towards its innovative activities.[7] The construct Innovation (INN) is built from three indicators of radical innovation, all measured on a three-point Likert scale. Respondents mark the relevance of the suggested types of new products (radical innovations) in the company from 1 = low to 3 = high.

The dependent variable *Export Volume (Export)* is measured by a dummy variable on the reported percentage of output that companies sell on foreign market. For the respondents in Albania and Republika Srpska of Bosnia and Herzegovina it has value 1 if company exported more than 25% of their products and 0 otherwise. For Slovenia, it has a value 1 if the company exported above 50% of its output and 0 otherwise[8]. The amount, or volume, that a company sells in foreign markets is an indicator of the success of the company's internationalisation through innovation and its external competitiveness, which are very important in any export-led economy.

[7] Ajzen (1985) has demonstrated that the intention for action depends on one's belief and motivation. Organizations valuing innovation put structures and incentives in place to cultivate an innovative climate. By focusing on innovation (and perceived high importance of producing novel products), firms boost their competitive advantage and reinforce their market leadership during an economic crisis (Guellec & Wunsch-Vincent, 2009).

[8] The different breakpoint level in the delineation between exporters and non-exporters used in the studied countries comes from the fact that Albania and Republika Srpska of Bosnia and Herzegovina are at the moment still much less export oriented than Slovenia. This reflects their considerably slower transition process due to political reasons, and hence, the slower firm restructuring and strategic reorientation. Consequently, the majority of firms in these countries are still operating primarily in domestic markets.

Table 3: *Validated measurement items*

Constructs	Item	Abbreviation
Structural capital	*Workers' participation in the workplace:* Is cooperation in different teams in individual department (not exclusively performing tasks in the same workplace) a common form of workers' operation?	CooperTeams
	Workers' participation in decision making: Is there an established open dialog with the workers about key decisions for the firm (workers have the right to information, giving suggestions, debate, protest)?	OpenDialogue
	Workers participation in risk sharing: Do workers engage in additional training for the good of the firm (not considering training organized by the firm)?	AddTraining
	Management influence in decision making: Did top managers and owners make strategic decisions unanimously in the last five years?	UnanDecMaking
Human capital	Does your company provide regular on the job training (e.g. apprenticeship, mentorship, job rotation)?	OTJTrain
	Do you systematically induce knowledge transfer among employees?	KnowTrans
	Do you measure performance in such a way that you can clearly distinguish between high and low performers?	MeasPerf
	Are better performers better rewarded for their work than average performers?	Rewards
Relational capital	Obtaining information about changes of customer preferences and needs.	InfoCust
	Acquiring real time information about competitors.	InfoComp
	Establishing and managing long-term customer relations.	LongtermCust
	Establishing and managing long-term relations with suppliers.	LongtermSupp

Constructs	Item	Abbreviation
Innovation	Extensions to existing product lines / services.	Extensions
	New product lines / services.	NewLines
	New products / services that are novelties also in global markets.	GlobalNovelties
Export volume	A dummy variable: 1 if the company exports above 50% (25% for the less developed economies) of its output, 0 if otherwise	Above50

5. RESULTS

5.1. Statistical technique

We analysed our theoretical model using structural equation modelling SEM, which identifies the simultaneous relationship between the variables in our model. Partial Least Square is a non-parametric SEM technique described as second generation multivariate analysis (Fornell, 1987). It is most suitable in studies with non-normal data, small sample size, and focus on prediction (Hair et al., 2012). It is also recognised as the most appropriate technique for relatively complex models, with low theoretical information, and when the measures are not well established. This method can also effectively manage the high number of variables in the model and the low possible causal relationships between the constructs (Longo & Mura, 2011). The basic PLS algorithm[9] for reflective models is given below.

The estimation of inner relationships in the measurement model (weights of indices in a block for a latent variable) is given by:

$$v_{ji} = \begin{cases} sign\ cov\ (Y_j; Y_i) & \text{if } Y_j \text{ and } Y_i \text{ are adjacent} \\ 0 & \text{otherwise} \end{cases}$$

$$\tilde{Y}_j \coloneqq \sum_i v_{ji} Y_i$$

while the structural equation for estimation of outer relationships of the structural model (path coefficients between latent variables) are the following:

$$y_{kjn} = \tilde{w}_{k_j} \tilde{Y}_{jn} + e_{k_{jn}}$$

$$Y_{jn} \coloneqq \sum_{k_j} \tilde{w}_{k_j} y_{k_{jn}}$$

[9] For further details and debate about the PLS SEM technique please see Lohmöller (1989)

The symbols used in the equations are explained below:

Variables:	Indices:
y = manifest variable (index)	i = 1,…,I for blocks of manifest variables
Y = latent variable (construct)	j = 1,…,J for latent variables
e = outer residuals	k_j = 1,…,K for manifest variables counted within block j
	n = 1,…,N for observational units

The analysis and interpretation of a PLS model is a two-stage process - first, the reliability and validity of the measurement model are evaluated, and then next the structural model is assessed and hypotheses are tested. This sequence ensures that the constructs' measures are valid and reliable before attempting to draw conclusions regarding relationships among constructs (Barclay, Higgins & Thompson, 1995). Thus, the measurement model in PLS is assessed in terms of individual item reliability, construct reliability, convergent validity, and discriminant validity. The complete model validation procedures are moved in appendix B.

5.2. Reliability and validity of the measurement model

We examine two similar models (for Slovenia and for the pooled data set of Albania and Republika Srpska of Bosnia and Herzegovina). We make a distinction between these two data sets because of two reasons. First, Slovenia is a more developed and more export oriented economy. The higher development level also impacts the behaviour and the structure of the companies and the importance of the intangibles for the organisation. On the other hand, Albania and Republika Srpska are similarly developed economies and share common issues at corporate level also with respect to the state and investments in intangible capital (see Prašnikar, Memaj & Redek (eds.), 2012; Prašnikar & Knežević Cvelbar (eds.), 2012). And second, by pooling the data for the two less developed economies, we increase the sample size which can lead to more reliable estimates. Taking into consideration their similarities, we feel that the increased sample and the estimation reliability outweighs the potential problems of country specific effects.

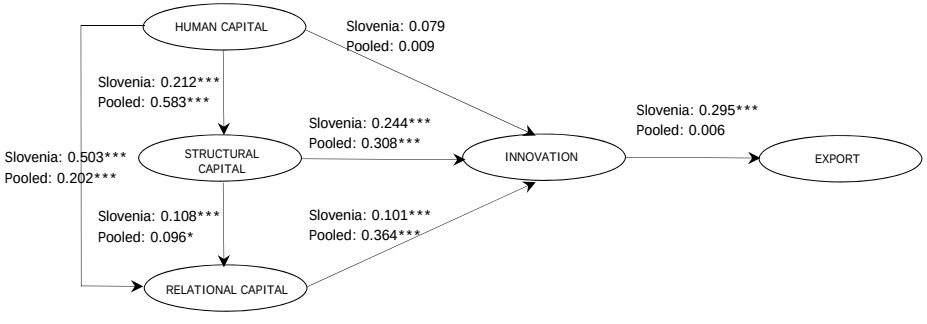
To establish factorial validity and reliability for the measurement model, we followed the PLS validation procedures outlined by Gefen & Straub (2005) (see tables B1 and B3 in appendix B). The complete procedure of model validation is moved to appendix B. Furthermore, given that the measures for the dependent and independent variables were taken from the same instrument, we perform four tests to overcome the concern of common method bias in the survey design. First, Harman's one-factor test was done to see whether one factor accounted for the majority of variance in the data (Podsakoff et al. 2003). Then the Pavlou, Liang & Xue (2007) test was used. Additionally, the latent variable correlations were examined (tables B7 and B8). Finally, a more rigorous test of common methods bias test suggested by Podsakoff et al. (2003) and adapted to PLS analysis by Liang et al. (2007) was performed. Common method bias is observed when a single factor emerges from

the analysis or when one general factor accounts for the majority of the covariance in the interdependent and dependent variables. As each of the principal constructs explained approximately equal variance, the data did not indicate common method bias. The results from the common method bias test are found in appendix C.

5.3. Hypotheses testing - results and discussion

Once unidimensionality, reliability, and construct validity for the measurement models were demonstrated, the structural model fits and proposed hypotheses concerning the main and mediating effects were tested. In particular, this study tests the relationships between the elements of intellectual capital in the samples of manufacturing firms and the relationship between each of them with the innovation attitudes of the managers, and consequently, the link between innovation and the volume of export of these firms. The results of our theoretical model testing are depicted in Figure 2.

Figure 2: *Results**



*'Slovenia' values provide the result obtained from the sample of manufacturing firms in Slovenia, while the 'Pooled' values provide result for the combined sample of manufacturing firms from Albania and Republika Srpska of Bosnia and Herzegovina.

The hypotheses pertaining to the interrelatedness of the IC dimensions were found to have significant positive effect in both of the models. Namely, we find that human capital positively affects both structural and relational capital, thus supporting the hypotheses **H1** and **H2**. Structural capital, innovation capital, and relational capital are affiliated to human capital. On one hand, human capital can convert knowledge into market value by converting the other three capitals. On the other hand, human capital can determine the operational forms of the other three capitals and by that convert immaterial knowledge and information into material output and benefit (Chen et al., 2004).

In the case of Slovenian manufacturing firms, the human capital was shown to have largest significant impact on the relational capital (β 0.503; $p < 0.001$). This may be suggesting that the processes in the Slovenian companies are more focused to translating human capital into market-related capital, as it is more important for maintaining the competi-

tiveness in their more developed and diversified markets. While in the case of the pooled dataset from Albania and Republika Srpska, the human capital is more heavily related to the structural capital (β 0.583; $p < 0.001$), which reveals the cultural and institutional significance of the nature of their structural capital that is important for companies from these two countries[10]. The results show that, as expected, the indicators for the construct human capital are closely related to the 'softer' aspects of the structural capital in the firm i.e. the culture and the processes. The human capital has a transient nature and organisations are encouraged to, wherever possible, convert it to structural and relational capital. By doing so, i.e. moving from human capital to structural and relational capital, the embedded knowledge will become more independent of people. It will consequently remain based in organizational systems, structures and technologies and, thus, become potentially easier to control. Our path analysis confirms that this process is more pronounced in the Slovenian companies, which in its own suggests that these are more innovative, better-learning, more competitive companies. With this type of knowledge creation (by converting it from one kind to another) they bridge the gaps in the organization's existing knowledge which can stand in the way of solving a problem, developing a new product, or taking advantage of an opportunity (see Choo & Bontis, 2002).

Additionally, the literature suggests that that human capital significantly affects customer i.e. relational capital in all industries (e.g. Bontis, Keow & Richardson, 2000). Higher quality employees were shown to be more skilled in acquiring, distributing, and utilising more information regarding customers and business partners towards building long-term relationships with them. In other words, human capital positively affects relational capital (Hsu & Fang, 2009). The relation between structural capital and relational capital (**H3**) is somewhat weaker, but nonetheless significant in both models (β 0.108; $p < 0.001$ and β 0.096; $p < 0.005$ respectively).

The hypotheses **H4**, **H5**, and **H6** are considering the effects of the three intellectual capital dimensions (SC, HC, RC) on the perceived importance of radical innovation in the company. In Slovenia, the structural capital has the most significant impact on innovation (β 0.244; $p < 0.001$), while in the pooled case (Albania and Republika Srpska of Bosnia and Herzegovina), the relational capital had strongest impact on the perceived importance of innovation (β 0.364; $p < 0.001$).

The different aspects of intellectual capital accumulate and process knowledge differently. Therefore it is possible that each of them and their interrelationships may influence the company's innovation in different ways. We tested the mediating effects of the constructs structural capital and relational capital on the influence of human capital on innovation. The estimated paths in the case of Slovenia indicate a mediation effect of human capital on innovation. The performed bootstrapping reveals a full mediation when the intervening construct is structural capital and a partial mediation when the intervening variable is relational capital in both models. The assumptions behind the tested mediation are in

[10] Companies where there is collaboration between owners and managers are more oriented towards value–enhancing activities (Aoki, 2010; Prašnikar et al., 2014).

the expectations that companies that are actively engaged in training their employees (and encouraging learning and knowledge sharing) also encourage learning and innovative cultures. Furthermore, employee abilities affect firm's relations to outside parties, and contribute to ideas and knowledge assimilation. The latter can be later enmeshed in the innovation processes.

Table 4: *Path estimates – path coefficients and t-values*

Hypothesis	Slovenia		Pooled	
H1: HC→ SC	0.212	(4.265)***	0.583	(20.773)***
H2: HC→ RC	0.503	(12.762)***	0.202	(3.979)***
H3: SC→ RC	0.108	(2.465)***	0.096	(1.725) **
H4: HC→ INN	0.079	(1.374) **	0.009	(0.182)
H5: SC→ INN	0.244	(1.697) **	0.308	(6.684)***
H6: RC→ INN	0.101	(3.972)***	0.364	(7.626)***
H7: INN →Exp	0.295	(6.875)***	0.006	(0.119)

***p<0.001

**p<0.05

Finally, we examine the relation of the innovation construct to firm's export orientation (**H7**). In the case of Slovenia, the link is positive and significant (β 0.295; $p < 0.001$)[11], while in the pooled case (Albania and Republika Srpska of Bosnia and Herzegovina), it is insignificant. These results are in line with the findings of Prašnikar et al. (eds.) (2012) and Prašnikar and Cvelbar Knežević (eds.) (2012) in the studies of intangible capital in Albania and Republika Srpska of Bosnia and Herzegovina, respectively. The study on the intangible capital in Albania revealed a predominant inward orientation of the companies and focus on the domestic market. Those Albanian companies that do compete in the global markets exploit their cost competitiveness. Similarly, the study in the Republika Srpska found that most of the (manufacturing) companies are very marginally present elsewhere but at home. This inward orientation, may be limiting the learning opportunities that the more developed and more competitive markets offer. On the other hand, Slovenian companies are very export oriented. A large proportion of Slovenian exports is destined for the highly competitive EU-15 markets (Damijan, Kostevc & Polanec, 2011), and this increases the scope for benefits from either positive spill-overs in the exporting markets or by raising the innovation of exporting firms (learning-by-exporting). Although the reverse relationship between exporting and innovation is beyond the scope of our empirical analysis, the results in the present study show a significant path-coefficient between the constructs innovation and export volume within the Slovenian sample.

The results of the study show that although there is an indication that there is some investment in intangible assets present in the manufacturing companies of Albania and Re-

[11] As confirmed by Domadenik, Prašnikar, & Svejnar (2008) for a study made on a Slovenian sample, companies whose management was more R&D oriented, were more likely to be more innovative in the longer term, more productive and, thus more competitive.

publika Srpska, it is only a part of the story behind the restructuring and the growth of these two developing economies. First, the Western Balkan countries lack the capacities to undertake scientific and applied industrial research, and to transfer, adapt and assimilate new technologies into economic structures and diffuse them into society (World Bank 2013a, 2013b). And second, the lack of exports is a serious threat to future development, alongside the low competitiveness, relatively high public debt, and the consequent current account deficit (EBRD, 2011). Therefore, the national efforts in these economies should be directed towards strengthening of their research and innovation capacity, which in turn will increase their competitiveness on the global market.

In conclusion, the estimated paths from our hypothesised models confirm not only the interconnectedness of IC elements, but also support the hypotheses about their contribution the innovation culture in the firm. This is important since the corporate strategy guides the entire organisation and identifies the path that all departments and functions need to pursue (Alcaniz, Gomez-Bezares & Roslender, 2011). The literature agrees that the intellectual capital resources are often performance drivers[12] and, hence, there must be a causal relationship between those resources and value creation. They must be interrelated to create more value (Marr, 2005). Our analysis confirms not only that there is a positive relationship between the elements of intellectual capital and innovation, but also that there is a positive relationship between innovation and the export volume of the firms. The latter linkage, however, holds only for the Slovenian manufacturing companies, which corroborates previous findings that the most innovative Slovenian firms are exhibiting global competitiveness, exporting to a number of global markets (not only the proximity markets of ex-Yugoslavia, but EU and outside of EU markets (Prašnikar et al., 2012)).

The insights from the intangible capital literature show that key factors in acquiring and utilising knowledge in a company are its investments in different types of intangibles. The sequential theory of internalisation, on the other hand, holds that the internationalisation process is a path dependent learning process in which the acquisition of knowledge and the commitment of resources are fed back mutually (Andersen, 1993). In that respect, firms go through a gradual process in acquiring knowledge through their own experience, and as they begin competing on foreign markets, they do so in a gradual way, first in countries culturally and geographically close to the country of origin (Johanson & Vahlne, 1977; Davidson, 1980; Benito & Gripsrud, 1992) and subsequently in other countries. This learning process will be, of course, additionally influenced by the development of the markets where the companies export. For a sample of Slovenian companies, De Loecker (2007) and Damijan & Kostevc (2006) find that, by exporting to advanced markets, firms can learn more due to the higher quality, technical, safety and other standard requirements of those markets, as well as due to the tougher competition. In that sense, the West-

[12] It is interesting to note that this is not the first time a direct link has not been observed between a construct of human capital and performance, and that the main relation that explains the dependent variable (innovation) is the relation human capital – structural capital. This was also found in a similar study by González-Loureiro & Pita-Castelo (2012) on 140 innovative SMEs from Galicia, Spain. In their case the dependant variable was the firm's marketing performance (a composite variable of turnover and value added). This occurrence speaks in favour of the higher impact of transformed knowledge (for which a well-established knowledge creation mechanism needs to be in place) on the company's success.

ern Balkan economies, have the potential to eventually, by following the Slovenian path of economic development, become more competitive in the global market.

6. CONCLUSION

6.1. Contributions and limitations

Our study contributes to the existing literature in several ways. First, it represents a contribution towards the IC valuation models (cf. Sveiby, 2001) in a way that we are able to calculate measures of the different aspects of intangible capital (human capital, structural capital, and relational capital) in the developing economies from the Western Balkans and Slovenia using an original data set, which represents a novelty. Furthermore, we relate the intangibles present in the manufacturing firms to their innovation and consequently to their export intensity, which is a first empirical study of its kind to explore these links on data from these countries. Additionally, exploring the linkage in a comparative study between the Western Balkans (Albania and Republika Srpska of Bosnia and Herzegovina) and the European Union (Slovenia), this study offers additional insights to policy-makers and practitioners as well.

Using a unique dataset of firm-level data, the paper is extending the knowledge on innovation, corporate behaviour, and competitiveness in foreign markets through the volume of export. The results support the idea that the relationship between the IC components affects innovativeness in technological-follower companies, but reveal a divergent effect of the innovation proxy measures to the volume of export in the different data sets. Clearly the capacity to innovate is closely related to the firm's intangible capital (the ability to transform and utilise knowledge for the purposes of innovation). But the international literature recognises that the export behaviour of firms is influenced by a mix of different factors. These factors range from structural ones (size, R&D intensity etc.), through management factors (attitudes towards risk, education of decision makers, etc.) to, finally, incentives and obstacles in the process of internationalisation (competitive pressure, negative domestic trends, availability of information, etc.). As the companies we analyse come from economies that differ with respect to endowments in terms of labour, capital, and the stock of knowledge, these aspects influence the level of their innovation, and consequently its contribution to the level of competitiveness on foreign markets.

The differences between countries in innovation levels also reflect the efficiency of their respective national innovation systems, i.e. the producers, users, suppliers, public authorities and scientific institutions that constitute them. It is the interaction between the actors on the market, and in general, of the innovation system, that results in new and commercially useful knowledge. Therefore, it is very important to make the distinction of the different institutional, economical, and technological settings where innovation can thrive and recognise that there are different innovation processes in technological followers and technological leaders. Only in that way we could hope to gain deeper understanding of the phenomenon and its potential to push the economy up.

Policy-makers around the globe have recognised investments in intangible capital as a major driving force behind the 'new economy' growth model. The successful stories of Asian and European economies have demonstrated that own product development, and global market penetration with innovative products and own brands are key to ensuring stable growth. The current low value-added exports that represent the majority of exports of the Western Balkan manufacturing companies is a strategy that lacks the potential to bring sustainable competitiveness in foreign markets. A previous study (Prašnikar & Knežević Cvelbar, (eds.) 2012) shows that companies that invest more in intangible assets are on one hand more export-oriented and on the other hand (seemingly paradoxically) less productive than companies oriented towards the domestic market. But the lower productivity of export-oriented firms is in fact an indicator of the superior competition in the global market. On the other hand, high productivity in domestic markets reveals the lack of competition at home and consequent higher economic rents. Therefore, the increasing openness of domestic markets will further increase competition and lower these, momentarily high, rents. Continuous investment in intellectual capital and innovation are the only long term solution to growth.

Furthermore, the present study generates a number of practical implications for the study of global competitiveness of the companies in the technology-follower countries. From practitioners' point of view, the study proposes measures for human, structural, and relational capital in the manufacturing companies. By measuring, reporting, and managing their intellectual capital effectively, companies can improve their competitive advantage. It is by identification of all the assets at their disposal (tangible and intangible), that companies will be able to operate at their full potential by making maximum use of their asset pool. Appropriate management activities in that direction can create new knowledge sources or, improve the value of existing ones.

The study faces some limitations, mainly pertaining to the sample size and thus generalisation of the results. First, given the non-random sample from the population of larger firms in Albania and Republika Srpska of Bosnia and Herzegovina, the results should be interpreted bearing this caveat in mind. Additionally, a larger sample size could improve the predictive accuracy of the models, and contribute to more robust estimates. Future studies can also benefit from an extension of the sample that would incorporate other industries and economies from the Western Balkans, which would provide broader generalization of the obtained results. Finally, the present study relies on cross-sectional data, which limits the examination of the causality between the variables. Therefore, a repeated (longitudinal) study is one of the more important future challenges.

Overall, given the good fitting of the models, we feel that this study offers some insights from environments with very poor and even deteriorating national support and policies for human development, as well as national innovation systems, and puts them vis-à-vis the perspective from a more developed "neighbour". With that, the present study paves the way for future studies that would examine the role played by the intangible factors in these economies and how their effectiveness is affected by the other productive inputs and by environmental factors.

6.2. Conclusion

The paper examines the relation between the intangible capital (human, structural, and relational capital), innovation, and export orientation in the manufacturing sector. Using a unique survey data set on Slovenia, Albania, and Republika Srpska of Bosnia and Herzegovina, we propose two theoretical models that reveal the relevance of the IC elements in two different settings: a pooled model of a sample of manufacturing companies from Albania, and Republika Srpska vis-à-vis a comparable Slovenian model.

The results seem to highlight that the human capital is the basic starting point in knowledge creation in the firms as the estimated paths show that it positively affects both, structural capital and relational capital, and that, consequently, structural capital positively affects relational capital. The main link for explaining the high importance of innovation, however, is the HC – SC relationship. This is in-line with the resource–based view of firms, where human capital is recognised as the primary important source of, both firm's competitive advantage as well as its ability to adapt to volatile environments (Barney, 1991; Judge et al., 2009). Subsequently, many researchers identified the firm-specific human and structural resources as the largest subcategory of businesses' intangible investments (Van Ark et al., 2009, for US and UK; Fukao et al. 2009, for Japan; Bloom & Van Reenen, 2010).

The results from the estimated models reveal that the manufacturing firms in Albania and Republika Srpska of Bosnia and Herzegovina possess intangible capital and that the elements that it is consisted of can be, in fact, measured. However, this is only the first step towards building competitiveness on foreign markets, as these companies have still very limited export orientation (which was confirmed by the insignificant link between the innovation (as a function of the intangible capital) and the export volume variable. Unlike the pooled model, Slovenian companies are exporting more heavily, which implies their higher competitiveness and success on the global markets.

REFERENCES

Ajzen, I. (1985). From intentions to actions: A theory of planned behavior. In Kuhl, J. & Beckmann, J. (Eds.) *Action control: From cognition to behavior*. Berlin, Heidelber, New York: Springer-Verlag.

Alcaniz, L., Gomez-Bezares, F. & Roslender, R. (2011). Theoretical perspectives on intellectual capital: a backward look and a proposal for going forward. *Accounting Forum, 35*, 104–117.

Allen. T. (1977). *Managing the flow of technology: Technology transfer and the dissemination of technological information within the R&D organization*. Cambridge, MA: MIT Press.

Andersen, O. (1993). On the Internationalization Process of Firms: A Critical Analysis, *Journal of International Business Studies*, *24*(2), 209-231Aoki, M. (2010). *Corporations in Evolving Diversity*. Oxford: Oxford University Press.

Aralica, Z., Domagoj, R. & Dubravko R. (2008). Innovation Propensity in Croatian Enterprises: Results of the Community Innovation Survey, *South East European Journal of Economics and Business*, *3*(1), 77-88

Arrighetti, A., Landini, F., & Lasagni, A. (2014). Intangible assets and firm heterogeneity: Evidence from Italy, *Research Policy*, *43*(1), 202-213

Barclay, D., Higgins, C. & Thompson, R. (1995). The partial least squares (PLS). Approach to causal modelling:

Personal computer adoption and use as an illustration, *Technology Studies, Special Issue on Research Methodology*, *2*(2), 285–309.

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management*, *17*(1), 99–120.

Benito, G. R. G., & Gripsrud, G. (1992). The expansion of foreign direct investments: Discrete rational location choices or a cultural learning process?, *Journal of International Business Studies*, *23*(3), 461–476.

Bernstein, P. (1982). *Necessary Elements for Effective Worker Participation in Decision-Making. Workplace Democracy and Social Change*. Boston: Porter Sargent Publishers.

Bierly, P. & Chakrabarti, A. (1996). Generic knowledge strategies in the U.S. pharmaceutical industry, *Strategic Management Journal*, *17*(1), 123-125.

Bloom, N. & Van Reenen, J. (2010). Why Do Management Practices Differ across Firms and Countries?, *Journal of Economic Perspectives*, *American Economic Association*, *24*(1), 203–24.

Boltho, A. (1996). *Was Japanese growth export led?* Oxford Economic Papers, *48*(3), 415–432.

Bontis, N. W., Keow, C. C. & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries, *Journal of Intellectual Capital*, *1*(1), 85–100.

Buller, P.F. & McEvoy, G. M. (2012). Strategy, HRM and Performance: Sharpening Line of Sight, *Human Resource Management Review*, *22*(1), 43–56.

Canibano, L., Garcia-Ayuso, M., & Sanchez, P. (2000). Accounting for intangible: a literature review, *Journal of Accounting Literature*, *19*, 103-130.

Cassiman B. & Golovko, E. (2007). *Innovation and the export-productivity link*. IESE Business School, mimeo.

Chen, M.C., Chen, S. J. & Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firm's market value and financial performance, *Journal of Intellectual Capital*, *6*(2), 159-176.

Choo, C. W., & Bontis, N. (2002). *The strategic management of intellectual capital and organizational knowledge*. New York, NY: Oxford University Press.

Chen, J., Zhu, Z. & Xie, H. Y. (2004). Measuring intellectual capital: a new model and empirical study, *Journal of Intellectual Capital*, *5*(1), 195–212.

Clarke, R. O., Roberts, B. C. & Fatchet, D.J. (1972). *Workers' Participation in Management in Britain.* London: Heinemann Education.

Damijan, P.J. & Kostevc, Č. (2006), Learning-by-Exporting: Continuous Productivity Improvements or Capacity Utilization Effects? Evidence from Slovenian Firms, *Review of World Economics*, *142*(3), 599-614.

Damijan, J., Kostevc, Č. & Polanec, S. (2011). Export Strategies of New Exporters: Why is Export Expansion Along the Extensive Margins so Sluggish?, *Licos Discussion paper No. 276/2011*, Leuven: Katholieke Universiteit Leuven.

Davidson, W. H. (1980). The location of foreign direct investment activity: Country characteristics and experience effects, *Journal of International Business Studies*, *11*(2), 9–22.

De Castro, M. & López Sáez, P. (2008). Intellectual capital in high-tech firms: The case of Spain, *Journal of Intellectual Capital*, *9*(1), 25-36.

De Loecker, J. (2007). Do exports generate higher productivity? Evidence from Slovenia, *Journal of International Economics, 73*(1), 69-98.

Domadenik, P., Prašnikar, J., & Svejnar, J. (2008), How to Increase R&D in Transition Economies?: evidence from Slovenia, *Review of development economics*, *12*(1), 193-208.

EBRD (2011). Albania Strategy. European Bank for Reconstruction and Development. Retrieved from: http://www.ebrd.co/pages/country/albania/strategy.shtml

Edvinsson, L. & Sullivan, P. (1996). Developing a model for managing intellectual capital, *European Management Journal*, *14*(4), 356–364.

Edvinsson, L. & Malone, M. S. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding its Hidden Roots*, Happer Collins, USA, 1997.

Edvinsson, L. & Bounfour, A. (2004). Assessing national and regional value creation, *Measuring Business Excellence*, *8*(1), 55-61.

Freeman, R. & E. Lazear. (1995). An Economic Analysis of Works Councils, NBER Chapters. Works Councils: Consultation, Representation, and Cooperation in Industrial Relations. *National Bureau of Economic Research, Inc.*, 27–52.

Furubotn, E. G. (1988). Codetermination and the modern theory of the firm: A property rights analysis, *Journal of Business*, *61*, 165–181.

Gefen, D. & Straub, D. W. (2005). A Practical Guide to Factorial Validity using PLS-Graph: Tutorial and Annotated Example. *Communications of the AIS 16*, 16 (1), 91–109.

González-Loureiro, M. & Pita-Castelo, J. (2012). A model for assessing the contribution of innovative SMEs to economic growth: The intangible approach, *Economics Letters*, *116*(3), 312–315.

Griffith, R., Huergo, E., Mairesse, J. & Peters, B. (2006). Innovation and productivity across four European Countries, *Oxford Review of Economic Policy*, *22*, 483–498.

Grossman, G.M. & Helpman, E. (1991). Trade, Knowledge Spillovers and Growth, *European Economic Review*, *35*(May), 517–526.

Guellec, D. & Wunsch-Vincent, S. (2009). Policy Responses to the Economic Crisis: Investing in Innovation for Long-Term Growth, *OECD Digital Economy Papers* 159, OECD Publishing.

Hair, J. F., Sarstedt, M., Ringle, C. M. & Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research, *Journal of the Academy of Marketing Science*, *40*(3), 414–433.

Hormiga, E., Batista-Canino, R. M. & Sanchez-Medina, A. (2011). The role of intellectual capital in the success of new ventures, *International Entrepreneurship Management Journal*, 7, 71–92.

Hsu, Y. & Fang, W. (2009). Intellectual capital and new product development performance: The mediating role of organizational learning capability, *Technological Forecasting & Social Change*, *76*(5), 664–677.

Hurley, R. F. & Hult, T. M. (1998). Innovation, market orientation, and organizational learning: An integration and empirical examination, *Journal of Marketing*, *62*(3), 42–54.

Iansiti, M. & Clark, K. (1994). Integration and dynamic capability: Evidence and product development in automobiles and mainframe computers, *Industrial and Corporate Change*, *3*, 557-606.

INSEAD, WIPO (2012), *The Global Innovation Index 2012: Stronger Innovation Linkages for Global Growth (GII 2012)*, Geneva and Fontainebleau.

International Monetary Fund (IMF) (2012a). *Albania: 2012 Article IV consultation.* IMF Country Report No. 13/7, January. Washington DC: IMF.

Retrieved from: http://www.imf.org/external/pubs/ft/scr/2013/cr1307.pdf

International Monetary Fund (IMF) (2012b). *Bosnia and Herzegovina: 2012 Article IV Consultation and Request for Stand-By Arrangement—Staff Report; Informational Annex; Public Information Notice; Press Release; and Statement by the Executive Director for Bosnia and Herzegovina.* IMF Country Report No. 12/282, October. Washington DC: IMF. Retrieved from http://www.imf.org/external/pubs/ft/scr/2012/cr12282.pdf

International Monetary Fund (2012c). *Republic of Slovenia: 2012 Article IV Consultation—Staff Report; Informational Annex; Public Information Notice on the Executive Board Discussion; and Statement by the Executive Director for the Republic of Slovenia*. IMF Country Report No. 12/319, November. Washington DC: IMF.

Retrieved from http://www.imf.org/external/pubs/ft/scr/2012/cr12319.pdf

Jacobsen, K., Hofman-Bang & Nordby, R. Jr., (2005). The IC rating model by intellectual capital Sweden, *Journal of Intellectual Capital*, *6*(4), 570–587.

Johanson, U. (2005). A human resources perspective on intellectual capital. In Marr, B. (Ed.) *Perspectives on intellectual capital: Multidisciplinary insights into management, measurement and reporting* (pp. 96–105). Oxford: Elsevier Butterworth Heinemann

Johanson, J. & Vahlne, J. E. (1977). The internationalization process of the firm—A model of knowledge develop-

ment and increasing foreign market commitment, *Journal of International Business Studies, 8*(1), 23–32.

Judge, W., Naoumova, I. & Douglas, T. (2009). Organisational capacity for change and firm performance in a transition economy, *International Journal of Human Resource Management*, *20*(8), 1737–1752.

Knott, A.M., Bryce, D.J. & Posen, H.E. (2003). On the strategic accumulation of intangible assets, *Organization Science*, *14*, 192–207.

Kraft, K., Stank, J. & Dewenter, R. (2011). Co-determination and innovation, *Cambridge Journal of Economics*, *35*(1), 145–172.

Kramer, J. P, Marinelli, E., Iammarino, S. & Diez, J. R. (2011). Intangible assets as drivers of innovation: empirical evidence on multinational enterprises in German and UK regional systems of innovation, *Technovation*, *31*(9), 447–458.

Lev, B. (2003). Remarks on the measurement, valuation, and reporting of intangible assets, *Economic Policy Review*, Federal Reserve Bank of New York, *9*, 17-22.

Li, T. & Calantone, R. J. (1998). The impact of market knowledge competence on new product advantage: Conceptualization and empirical examination, *Journal of Marketing*, *62*(4), 13–29.

Liang, H., Saraf, N., Hu, Q. & Xue, Y. (2007). Assimilation of Enterprise Systems: The Effect of Institutional Pressures and the Mediating Role of Top Management, *MIS Quarterly*, *31*(1), 59–87.

Longo, M. & Mura, M. (2011). The effect of intellectual capital on employees' satisfaction and retention, *Information and Management*, *48*(7), 278–287.

Lohmöller, J-B. (1989). *Latent Variable Path Modeling with Partial Least Squares*. Physica, Heidelberg, 1989.

Lynn, B. (1998). Intellectual Capital, *CMA Magazine*, *72*(1), 10–15.

Mairesse, J. & Mohnen, P. (2010). Using Innovations Surveys for Econometric Analysis, *NBER Working Paper No. 15857*, National Bureau of Economic Research.

Marr, B. (2005). The Evolution and Convergence of Intellectual Capital as a Theme. In Bernard, M. (Ed.), *Perspectives on Intellectual Capital* (pp. 213-226). Boston: Butterworth-Heinemann.

Marr, B. (2008). Intangible Asset Measurement, *Accountants Today*. Kuala Lumpur, Malaysia.

Miyagawa, T., Lee, K. Kabe, S., Lee, S., Kim, H., Kim, Y. & Edamura, K. (2010). Management practices and firm performance in Japanese and Korean firms – an empirical study using interview surveys. *RIETI Discussion Paper 10-E-013*.

Morone, J. (1993). *Winning in High-Tech Markets* (pp. 220). Harvard Business School Press, Boston, MA.

Mytelka, L., Goedhuys, M., Arundel, A. & Gachino, G. (2004). Designing a Policy-Relevant Innovation Survey for NEPAD. A study prepared for The Development Bank of Southern Africa Limited United Nations University for New Technologies (UNU-INTECH).

Nelson, R. R. & Winter, S. G. (1982). *An evolutionary theory of economic change*. Cambridge, MA: Harvard University Press

Nonaka, I. & Takeuchi, H. (1995). *Knowledge-creating company: How Japanese companies create the dynamics of innovation*. Oxford: Oxford University Press.

OECD/Eurostat (2005). *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*. OECD, Paris.

Palley, T. I. (2011). The rise and fall of export led growth, *Levy Economics Institute of Bard University Working paper No. 675*. Retrieved from http://www.levyinstitute.org/pubs/wp_675.pdf

Pavlou, P. A., Liang, H. & Xue, Y. (2007). Understanding and Mitigating Uncertainty in Online Buyer-Seller Relationships: A Principal Agent Perspective, *MIS Quarterly*, *31*(1), 105–136.

Payne, A., Christopher, M., Peck, H. & Clark, M. (1995). R*elationship marketing for competitive advantage: Winning and keeping customers.* Oxford: Butterworth-Heinemann.

Peppard, J. & Rylander, A. (2001). Using an intellectual capital perspective to design and implement a growth strategy: the case of APion, *European Management Journal*, *19*(5), 510-25.

Podsakoff P. M., MacKenzie S. B., Lee J. & Podsakoff N. P. (2003). Common Method Biases in Behavioral Research: A Critical Review of the Literature and Recommended Remedies, *Journal of Applied Psychology*, *88*(5), 879–903.

Prašnikar, J., Redek, T. & Drenkovska, M. (2014). Measuring innovation (in developing countries) using a modified CIS questionnaire: application to Slovenia. Faculty of Economics, Ljubljana. Mimeo.

Prašnikar, J., Redek, T. & Drenkovska, M. (2012). Survival of the fittest: an evolutionary approach to an export-led model of growth. Faculty of Economics, University of Ljubljana, mimeo.

Prašnikar, J. & Kotnik, P. (2006). Innovation and R&D in a technology follower country: the case of Slovenia in Prašnikar, J. (Ed.) *Competitiveness, social responsibility and economic growth* (pp. 77-94), New York: Nova Science.

Prašnikar, J. & Knežević Cvelbar, L. (2012). *Intangible assets as a potential for growth in Republika Srpska of Bosnia and Herzegovina.* Ljubljana: Ekonomska fakulteta.

Prašnikar, J., Memaj, F. & Redek, T. (2012). *Albania: the role of intangibles for the future growth*. Ljubljana: Ekonomska fakulteta.

Prašnikar, J., Mikerević, D. & Voje, D. (2014). Blockholding and Organisational Diversity: The Case of a Transition Economy, *Journal for East European Management Studies*, *19*(3), 277-304.

Rajkovič, T. (2011). *Innovation strategies in new product development: balancing technological, marketing and complementary competencies of a firm*, Frankfurt am Main, New York: Peter Lang.

Ramezan, M. (2011). Intellectual capital and organizational organic structure in knowledge society, *International Journal of Information Management*, *31*, 88–95.

Roos, G. & Roos, J. (1997). Measuring your company s intellectual performance, *Long Range Planning*, *30*(3), 413–426.

Roos, G., Pike, S. & Fernström, L. (2005). *Managing Intellectual Capital in Practice*, Oxford: Butterworth-Heinemann.

Roberts, H. (1998). Management Accounting and Control Systems in the Knowledge-intensive Firm. Paper presented to the 21st Annual Congress of the European Accounting Association, April 1998, Antwerp, Belgium.

Schwab, K. (ed.) (2012). *The Global Competitiveness Report 2011–2012,* World Economic Forum, Geneva

Stewart, T. A. (1997). *Intellectual Capital: the New Wealth of Organizations*. Doubleday Dell Publishing Group, New York.

Sveiby, K. E. (1997). *The New Organizational Wealth: Managing and Measuring Knowledge Based Assets*. Berrett Koehler, San Francisco.

Sveiby, K. (2001). Methods for measuring intangible assets. Retrieved from: http://www.sveiby.com/articles/IntangibleMethods.htm.

Sullivan, P. H. (1999). Profiting from Intellectual Capital, *Journal of Knowledge Management*. *3*(2), 132-142.

Tayles, M., Pike, R. H. & Sofian, S. (2007). Intellectual Capital, Management Accounting Practices and Corporate Performance: Perceptions of Managers, *Accounting, Auditing & Accountability Journal*, *20*(4), 522-548.

Teece, D.J. (1987). Profiting from technological innovation: Implications for integration, collaboration, licensing, and public policy. In: Teece, D. (Ed.), *The Competitive Challenge*. Harper & Row, New York.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management, *Strategic Management Journal*, *18*(7), 509–535.

Tether, B., Miles, I., Blind, K., Hipp, C., de Liso, N. & Cainelli, G. (2002). Innovation in the service sector: Analysis of data collected under the Community Innovation Survey (CIS-2), CRIS Working Paper No. 11, 1 8402 006X.

The World Bank (1993). *The East Asian Miracle: Economic Growth and Public Policy*. Oxford University Press, New York.

Van Ark, B., Hao, J. X., Corrado, C. & Hulten, C. (2009). Measuring intangible capital and its contribution to economic growth in Europe, *EIB Papers, European Investment Bank*, *14*(1), 62–99.

Van de Ven, A. H. (1986). Central problems in the management of innovation, *Management Science*, *32*, 590–607.

Wagner, J. (1996). Export Performance, Human Capital, and Product Innovation in Germany: A Micro View, *Jahrbuch fur Wirtschaftswissenschaften*, *47*, 40–45.

Wakelin, K. (1997). *Trade and innovation: Theory and evidence*. NH: Elgar.

Wall, A., Kirk, R. & Martin, G. (2004). *Intellectual Capital: Measuring the Immeasurable?*, CIMA Publishing: Elsevier.

Weifens, P., Addison, J., Audretsch, D., Gries, T. & Grupp, H. (2000). *Globalization, economic growth and innovation dynamics*. NY: Springer.

World Bank (2013a). *Western Balkans regional R&D strategy for innovation, Country series paper: Bosnia and Herzegovina*, World Bank Technical Assistance project (P123211), Washington, DC.

World Bank (2013b). *Western Balkans regional R&D strategy for innovation, Country series paper: Albania*, World Bank Technical Assistance project (P123211), Washington, DC.

World Bank Database (2014). World Bank On-line Statistical Database. Retrieved from: http://data.worldbank.org/country

APPENDIX A – METHODOLOGY, DATA COLLECTION AND DESCRIPTION

The data used in our study was collected in a wider research project on intangibles in firms from the Western Balkans region[13]. The main purpose was to address the conceptual and applicative issues that current empirical studies on intangible capital and innovation in developing economies face (Aralica et al., 2008; OECD/Eurostat, 2005; Mytelka et al., 2004; Mairesse & Mohnen, 2010). The conceptualisation of the questions, which indicators we deemed appropriate to for constructing the latent variables in our model(s) are founded in theory.

Human capital measures

The human capital and motivation indicators concern the internal corporate **training** practices and policies, as well as the on-the-job training. The questions aim to identify the company's intention to make collaborative efforts by asking about the provision of organised training based on identified needs of the company. Next, the questions establish the firm's dedication to measuring the effects of training. Firms that also measure training effectiveness with other methods, rather than solely by conducting a survey at the end of a training programme, are considered more dedicated. The questions examining the **on-the-job training** aim to identify whether the company actually provides regular on-the-job training (e.g. apprenticeship, mentorship, job rotation etc.) and if it actively promotes spreading knowledge among its employees. If a firm considers on-the-job training an important factor in the promotion of key employees, it will foster successors for most of its key employees, allowing for quick and efficient replacements. As put forward by Chen et al. (2004), human capital is the foundation of the companies' intangible capital, and refers to such factors as "employees' knowledge, skill, capability, and attitudes in relation to fostering performances which customers are willing to pay for and the company's profit comes from".

Structural capital measures

The proxies for measuring the latent variable structural capital include management's influence on decision-making, the workers' participation in risk sharing, workers' participation in decision-making, and their role in the workplace. These were measured through adapted psychometric questions, developed and tested by Bloom & Van Reenen (2007). They are organised in cascading set of closed questions, an approach first used by Miyagawa et al. (2010)[14].

[13] For more details on the comprehensive survey on intangible capital in the developing countries of the Western Balkan, please see Prašnikar et al. (eds.) (2012) and Prašnikar & Knežević Cvelbar (eds.) (2012).

[14] The cascading approach directs respondents to a systematic way of thinking about the actual situation in the organisation without being biased or thinking too broadly about it. It also increases the reliability of the data by using a set of three simple and clear consecutive 'Yes/No' statements. Each consecutive statement in a question set represents a greater degree of complexity of the selected phenomenon, building into a cascading structure, and also allowing empirical testing (more in Prašnikar et al., 2014).

The proxies for the **management's role in decision-making** examine the "power and responsibility in the managing process" (Cheng et al., 2004), or the use of existing resources belongs to managers. The separation of strategic functions (given usually to top management) and day-to-day decisions (which are usually in the hands of middle and lower management) reveals the level of cooperative behaviour of the corporate governance. The literature explains that employee involvement in decision–making may foster the elimination of post–contractual information asymmetry (Freeman and Lazear, 1995), increase investments in human capital (Furubotn, 1988; Furubotn and Wiggins, 1984) and enable the controlling owners to pursue **value–enhancing quality management and innovative strategies** (Kraft, Stank& Dewenter, 2011). This power and responsibility structure is according to Chen et al. (2004) one of the expressions of structural capital.

The questions on **workers' participation in risk sharing**, examine the willingness of employees to do "something more" for the firm, or whether they would voluntarily, outside their working hours, invest themselves in the benefit of the company. Further, questions from this section of the questionnaire examine the workers' long-term personal vision within the company; their "loyalty" towards the firm reflected through their willingness to stay with the firm even if they had been offered better (paid) employment elsewhere, and lastly their propensity to financially participate in the firm and take financial risks. The **workers' participation in the work place**, or the internal cooperation, is examined by questions on the nature of the corporate processes and weather they encourage work in groups; whether it is common for teams to cooperate within same departments, as well as interdepartmentally. These aspects reveal the on one side the softer properties of the structural capital, the organisational culture, reflected through the employees' attitude about themselves and the firm (Chen et al., 2004). "Company culture under the guidance of a favourable managing philosophy is a valuable asset. Only under the strong culture can a company give full play to its employees' competence and motivate them to serve the company and customer heart and soul."

In order to study the effect of **workers' participation in the decision–making** process on firm performance, the survey categorises this participation into levels or degrees. Clarke, Roberts, & Fatchet (1972) distinguishes between participation concentrated on work tasks (work–centred participation) and participation concentrated on the distribution of power (power–centred participation). This set of questions are modelled according to Bernstein (1982), who distinguishes between different degrees of workers' control, and namely: employee consultation, which represents the lowest degree of participation, where workers merely provide written or oral suggestions to management, which can choose to ignore or act on them; employee co–influence, which involves discussions between workers and management, where workers have the right to be informed, discuss their interests, protest, and offer suggestions, but management still makes the final decision; and joint management, or co–determination, where both parties have the right to veto decisions and form joint decision committees. The most advanced degree, self–management, which enables full participation of all members of the firm, with workers having total control over the decision–making process, was left out from the questionnaires, given that the Republika Srpska of Bosnia and Herzegovina and Albanian normative frameworks do not support

workers' participation. The first question, 'Are workers informed about key decisions for the firm?' reflects employee consultation. The second question, 'Is there an established open dialogue with the workers about key decisions for the firm?' expresses employee co–influence. The last question about workers being members of governing bodies includes joint management or codetermination.

The above described indicators are inline with Chen et al. (2004) definition of structural capital according to which this concept deals with the system and structure of a company. They postulate that a company "with strong structural capital will create favourable conditions to utilize human capital and allow human capital to realize its fullest potential, and then to boost its innovation capital and customer capital".

Relational capital measures

The innovation questionnaire of the survey on intangible capital in developing countries is heavily based on the Community Innovation Survey (CIS), but adapted to capture the specifics of the innovation activities in technology follower countries. The adaptations in the innovation questionnaire follow the recommendations from the literature on innovation surveys (OECD/Eurostat, 2005; Mytelka et al., 2004; Mairesse & Mohnen, 2010). The indicators we derive to build the latent construct of relation capital in their core examine the firm's market knowledge competences. The four proxies are measured on a 5-point Likert scale where CEOs evaluate their company's competences in comparison with competitors (from 1 - considerably worse than the main competitors to 5 - considerably better than the main competitors). The set of questions include information on company's knowledge about customers' preferences and needs, about competitors, and establishing and managing long-term relations with both customers and suppliers.

Innovation measures

Technical innovation (product and process innovation) is the most used measure for innovation in companies from the manufacturing sector, which is the type of companies our sample consists of. The proxies we looked into for measuring the construct of innovation in our structural models are conceptualised as opinion on the relevance on the different types of innovation for the company. This question was added in the CIS based questionnaire and was the measures were adapted from the survey used by Rajkovič (2011). Given that this survey was prepared to address the needs of measuring innovation in technological followers (see Prašnikar, Redek & Drenkovska, 2014), it acknowledges the importance to determine not only whether there have been new products introduced by the company, but also the significance that a particular type of innovation holds for the company in terms of competitiveness and it technological (and organizational complexity). CEOs were asked to rate the following types of innovations on a 3-point Likert scale where 1 means low relevance and 3 means high relevance: repositioning; improving existing products; extensions to existing product lines; new product lines. The first three types represent incremental innovations, while the last three – radical innovations.

Table A1 lists the items we selected and tested as measures for the intangible constructs in the hypothetical model.

The survey conducted in the three economic entities also collected data about individual characteristics of the surveyed firms, such as export orientation (share of revenues made abroad), ownership type (state or private, domestic or foreign, and dispersed or concentrated), industry (service or manufacturing), and legal form (limited liability company or joint stock company). In each country, we pilot-tested the questionnaire in order to confirm its suitability. During the process we asked managers to complete the questionnaire and indicate any ambiguity in the phrasing of questions.

Sampling and data collection

The questionnaires were mainly sent by post to the CEO's and/or senior managers in charge of corporate R&D, HR, and other relevant departments as they possess comprehensive operational and strategic knowledge on firms, which was required by the questionnaire. The initial correspondence included a covering letter that explained the purpose of the research and provided assurance of anonymity and confidentiality. Subsequently, the managers were contacted by phone and, referring to the covering letter were, were notified that a questionnaire will be sent on their email account. Once the postal questionnaires were sent, detailed follow-up where necessary was conducted, by phone, or email one week latest.

The questionnaires in Slovenia were administered to the 400 largest Slovenian firms, which constituted the country's entire population of firms with 100 or more employees from the manufacturing and the service sector.

The surveys in Albania and Republika Srpska of Bosnia and Herzegovina were conducted with the assistance of the research teams from the University of Tirana, and the University of Banja Luka, respectively. The surveys were conducted in two waves for both the companies from the manufacturing industries and the companies from the service industries. The start of the survey in Slovenia was the autumn of 2010, and for Albania and Republika Srpska of Bosnia and Herzegovina - the beginning of 2011. Each wave of the survey was separated by three to four weeks. After the completion of the survey, 198 (100 from Slovenia, 40 from Albania, and 58 from RSBiH) effective responses were collected, amounting to an overall response rate of 22.4%.

Sample descriptions

The Slovenian sample finally consisted of mainly companies from the manufacturing sector (77%), while the rest were service companies. Two thirds of them (66%) exported at least 20%, while 59% exported at least half of products in the observed period. In terms of employment, the sample consists of 40 medium-sized companies (50-249 employees) and 54 large companies (250 employees or more). Over the entire period, the average company had 603 employees. About half of companies (52%) reported the domestic and/or Western Balkan markets as their main market, while the rest sold the majority of their products to the EU and other foreign markets.

The Albanian sample consists of 12 joint stock companies and 28 companies with limited liability. Some 25% (10 companies) are from the construction industry, 37.5% (15 companies) are from the manufacturing sector, while 37.5% are from the tertiary sector: 15% (six companies) are from trade and 22.5% (nine companies) are from service activities other than trade. The sample also justly represents the size structure. The average company in the sample employed 148 people in 2010.

Among the respondents from the Republika Srpska of Bosnia and Herzegovina sample 61.4% were manufacturing firms the sample, 22.4% are state-owned firms, 15.5% are owned by foreigners, and 94.8% had concentrated ownership. In 2011, they generated 8.7% of total income and employed 5.4% of employees among all firms registered in Republika Srpska of Bosnia and Herzegovina.

Table A1: *Complete list of indicators for measuring each intellectual capital (IC) element in the theoretical model (as obtained from the questionnaire)*

Constructs	Item	Abbreviation
Structural capital Management's influence on decision-making	Is the decision making process about strategic questions of the firm separated from the operational decision making process at different levels of the firm?	DecMakingSep
	Did top managers and owners make strategic decisions unanimously in the last five years?	UnanDecMaking
	Are the basic strategic decisions in the firm coordinated among owners, managers and workers?	CoordDecMaking
	Are most of workers prepared to do "something more" for the firm?	SmtMore
Structural capital Workers participation in risk sharing	Do you believe most workers would stay with the firm even if they were offered better employment somewhere else (for example if they were offered a better paid employment)?	StayInFirm
	Are most workers willing to accept a part of business risk (for example financial investment in the firm or deferred payment in the case of profit sharing)?	AcceptRisk
	Do workers engage in additional training for the good of the firm (not considering training organized by the firm)?	AddTraining
Structural capital Workers' participation in the workplace	Is there a great need for workers to work in work groups because of the nature of the work processes?	WorkInGroups
	Is cooperation in different teams in individual department (not exclusively performing tasks in the same workplace) a common form of workers' operation?	CooperTeams
	Is there a strong presence of workers' cooperation between different departments and forming of interdepartmental teams?	CooperDepart

Constructs	Item	Abbreviation
Structural capital Workers' participation in decision making	Are workers informed about key decisions for the firm (workers have the option of giving comments that are then regarded or not.	InfoKeyDecis
	Is there an established open dialog with the workers about key decisions for the firm (workers have the right to information, giving suggestions, debate, protest)?	OpenDialogue
	Are the workers' representatives in your firm members of the governing bodies (for example the supervisory board and its comities) and are involved in the decision making process?	RepresGovern
Human capital and motivation Training and knowledge transfer	Does your company provide organized training of your employees based on identified needs of the company?	OrgTrain
	Do you involve more than half of your employees in your training programs annually?	MoraHalf
	Do you measure training effectiveness with other methods than conducting a survey at the end of a training program?	MeasTrain
	Does your company provide regular on the job training (e.g. apprenticeship, mentorship, job rotation)?	OTJTrain
	Do you systematically induce knowledge transfer among employees?	KnowTrans
	Do you have successors for most of your key employees, so that they could effectively take on their positions in a short period of time?	Successors
Human capital Motivation	Do you measure performance in such a way that you can clearly distinguish between high and low performers?	MeasPerf
	Are better performers better rewarded for their work than average performers?	Rewards
	Do you apply any other warning sign than oral reprimand for low performers to let them know of their substandard performance?	Warning
	Is goal-setting a part of you set of leadership practices?	GoalSetting
	Are individual goals set for more than half of your employees?	IndGoalSetting
	Do you systematically measure if goal-setting is contributing to improved performance for the majority of your employees?	MeasGoalSetting
	Do you provide regular performance feedback to your employees?	PerfFeedback
	Do you conduct annual performance-review meetings for at least key employees?	PerfMeetings
	Are annual performance-review meetings conduced effectively and thus significantly contribute to improved performance?	ImproPerf

Constructs	Item	Abbreviation
Relational capital	Obtaining information about changes of customer preferences and needs.	InfoCust
	Acquiring real time information about competitors.	InfoComp
	Establishing and managing long-term customer relations.	LongtermCust
	Establishing and managing long-term relations with suppliers.	LongtermSupp
Radical innovation	Mark the relevance of the following types of new products in your company: Extensions to existing product lines / services.	Extensions
	Mark the relevance of the following types of new products in your company: New product lines / services.	NewLines
	Mark the relevance of the following types of new products in your company: New products / services that are novelties also in global markets.	GlobalNovelties
Exporting volume	A dummy variable: 1 if the company exports above 50% (25% for the less developed economies) of its output, 0 if otherwise	Export

Table A2: *Intellectual Capital in firms (% that answered positively)*

	Slovenia	***Pooled***
Question	(N = 73)	(N =52)
Management's influence on decision-making		
The decision making process about strategic questions of the firm as a whole is separated from the operational decision making process at different levels.	81 %	70 %
Top managers and owners unanimously reach strategic decisions.	73 %	60 %
The basic strategic decisions are coordinated among owners, managers and workers.	63 %	45 %
Workers' participation in risk sharing		
Most workers are prepared to do "something more" for the firm	89 %	81 %
Workers engage in additional training (apart from training organized by the firm)	70 %	64 %
Most workers would stay with the firm even upon being offered better conditions elsewhere	59 %	45 %
Most workers are willing to accept a part of the business risk (e.g. financial investment in the firm or deferred payment)	26 %	25 %
Workers' participation in the workplace		
There an increased need for workers to work in work groups given the nature of the work processes	90 %	n/a
Cooperating in different teams within individual departments is common	77 %	n/a

	Slovenia	***Pooled***
Question	(N = 73)	(N =52)
There is a strong presence of workers' cooperation between different departments which results in interdepartmental teams	68 %	n/a
Workers' participation in decision making		
Workers are informed on key decisions	92%	60%
There is open dialog with the workers regarding key decisions for the firm	84%	51%
There are workers' representatives in governing bodies and are involvedin the decision making process	55%	25%
Human capital and motivation – learning		
The company provides regular on the job training	99%	68%
The company systematically induces knowledge transfer among employees	81%	75%
There are successors for most of the key employees	38%	66%
Human capital and motivation – performance		
Performance is measured in such a way that you it clearly distinguishes between high and low performers	90%	87%
Better performers are better rewarded than average performers	93%	94%
Low performers are given different warnings (other than oral reprimand)	64%	83%

Table A3: *Relational capital in firms (means and standard deviations)*

	Slovenia		***Pooled***	
Question	(N = 73)		(N =52)	
Relational capital *	mean	s.d.	mean	s.d.
Obtaining information about changes of customer preferences and needs	3.00	0.85	2.98	1.57
Acquiring real time information about competitors	3.14	0.82	2.98	1.42
Establishing and managing long-term customer relations	3.60	0.92	3.09	1.62
Establishing and managing long-term relations with suppliers	3.52	0.93	3.23	1.69

*Measured on a Likert scale between 1 and 5 (1 - considerably worse than the main competitors to 5 - considerably better than the main competitors)

Table A4: *Importance of radical innovation in firms (means and standard deviations)*

	Slovenia		***Pooled***	
Question	(N = 73)		(N =52)	
Relevance of types of new products *	mean	s.d.	mean	s.d.
Repositioning of existing products on the market	1.88	0.98	1.57	1.20
Improving existing products	2.53	0.70	1.94	1.21
Extensions to existing product lines	2.10	0.77	1.72	1.66
New product lines	2.08	0.99	1.57	1.20
New products that are novelties also in global markets	1.26	1.14	1.15	1.21

*Measured on a Likert scale between 1 and 3 (1-low relevance, 2-medium relevance, 3-high relevance)

APPENDIX B – MODEL VALIDATION

Table B1: *T-statistics for Convergent Validity: Slovenia*

Construct	Indicator	T-statistic
Human Capital	OTJTrain ←HC	8.185**
	KnowTrans ←HC	14.989***
	MeasPerf ←HC	7.150**
	Rewards ←HC	21.528***
Relational Capital	InfoCust ←RC	45.361***
	InfoComp ←RC	12.790***
	LongtermCust ←RC	67.705***
	LongtermSupp ←RC	76.731***
Structural Capital	CooperTeams ←SC	6.746**
	OpenDialogue ←SC	9.740**
Innovation	Extensions ←RI	18.469***
	NewLines ←RI	10.784***
	GlobalNovelties ←RI	12.481***

***p<0.001

**p<0.05

Table B2: *AVE Scores: Slovenia*

Construct	AVE
HC (Human Capital)	0.5094
RC (Relational Capital)	0.7317
SC (Structural Capital)	0.5713
INN (Innovation)	0.5700

Table B3: *T-statistics for Convergent Validity: Pooled Albania and Republika Srpska*

Construct	Indicator	T-statistic
Human Capital	OTJTrain ←HC	21.705***
	KnowTrans ←HC	24.681***
	MeasPerf ←HC	15.144***
	Rewards ←HC	15.449***
Relational Capital	InfoCust ←RC	109.076***
	InfoComp ←RC	35.420***
	LongtermCust ←RC	173.208***
	LongtermSupp ←RC	221.149***
Structural Capital	AddTraining ←SC	50.095***
	OpenDialogue ←SC	60.681***
Innovation	Extensions ←RI	89.772***
	NewLines ←RI	48.674**
	GlobalNovelties ←RI	37.851***

***p<0.001

**p<0.05

Table B4: *AVE Scores: Pooled*

Construct	AVE
HC (Human Capital)	0.5239
RC (Relational Capital)	0.8587
SC (Structural Capital)	0.7235
INN (Radical Innovation)	0.7534

Table B5: *Cross Loadings of Measurement Items to Latent Constructs for Slovenia*

Construct	Item	HC	SC	RC	RI
HC	OTJTrain	**0.6972**	0.1378	0.3189	0.0728
HC	KnowTrans	**0.7161**	0.4021	0.4171	0.1427
HC	MeasPerf	**0.5969**	-0.1492	0.3001	0.1105
HC	Rewards	**0.8262**	0.0235	0.4294	0.1833
SC	CooperTeams	0.0889	**0.6903**	0.1811	0.1994
SC	OpenDialogue	0.2193	**0.8162**	0.149	0.2277
RC	InfoCust	0.4441	0.135	**0.8458**	0.2338
RC	InfoComp	0.1795	0.115	**0.7279**	0.232
RC	LongtermCust	0.56	0.2277	**0.9181**	0.1223
RC	LongtermSupp	0.4977	0.2272	**0.9158**	0.1335
INN	Extensions	0.1396	0.3263	0.2391	**0.8253**
INN	NewLines	-0.0725	0.09	0.0266	**0.7236**
INN	GlobalNovelties	0.2132	0.1215	0.0784	**0.7107**

Table B6: *Cross Loadings of Measurement Items to Latent Constructs for polled Albania and Republika Srpska of Bosnia and Herzegovina*

Construct	Item	HC	SC	RC	RI
HC	OTJTrain	0.7336	0.5122	0.2843	0.107
HC	KnowTrans	0.7598	0.4181	0.2067	0.1583
HC	MeasPerf	0.7073	0.4041	0.017	0.2586
HC	Rewards	0.6928	0.3391	0.2059	0.3616
SC	AddTraining	0.4671	0.8492	0.1373	0.4248
SC	OpenDialogue	0.5239	0.852	0.2248	0.3155
RC	InfoCust	0.3027	0.2629	0.9176	0.364
RC	InfoComp	0.0749	0.0988	0.8818	0.3173
RC	LongtermCust	0.2816	0.2282	0.9458	0.3909
RC	LongtermSupp	0.2395	0.1633	0.9596	0.3555
INN	Extensions	0.2607	0.4375	0.4442	0.8998
INN	NewLines	0.3247	0.3914	0.2283	0.8884
INN	GlobalNovelties	0.1949	0.2781	0.3005	0.8133

Table B7: *Correlations of the Latent Scores with the Square Root of AVE Slovenia*

	HC	RI	RC	SC
HC	**0.5094**	0	0	0
INN	0.03404	**0.57**	0	0
RC	0.276571	0.038259	**0.7317**	0
SC	0.045071	0.080089	0.046096	**0.5713**

Table B8: *Correlations of the Latent Scores with the Square Root of AVE Pooled*

	HC	RI	RC	SC
HC	**0.5239**	0	0	0
INN	0.09018	**0.7534**	0	0
RC	0.066203	0.150777	**0.8587**	0
SC	0.339539	0.189138	0.045412	**0.7235**

Table B9: *Reliability Scores Slovenia*

Construct	**Composite Reliability**	**Cronbach's α**
HC	0.8039	0.6923
INN	0.7983	0.6621
RC	0.9154	0.8798
SC	0.7258	0.2539

Table B10: *Reliability Scores Pooled*

Construct	**Composite Reliability**	**Cronbach's α**
HC	0.8147	0.6978
INN	0.9014	0.8391
RC	0.9605	0.9454
SC	0.8396	0.6178

APPENDIX C - Tests for Common Methods Bias

Table C1: *Common Method Bias analysis – Slovenia*

Construct	Item	Substantive Factor Loading (λ_n)	Variance Explained (λ_n^2)	Method Factor Loading (λ_m)	Variance Explained (λ_m^2)
HC	OTJTrain	0.834***	0.696	-0.119	0.014
	KnowTrans	0.223***	0.050	0.410***	0.168
	MeasPerf	0.874***	0.764	-0.183***	0.033
	Rewards	0.880***	0.774	0.019	0.000
SC	CooperTeams	0.759***	0.576	0.023	0.001
	OpenDialogue	0.754***	0.569	-0.024	0.001
RC	InfoCust	0.854***	0.729	0.003	0.000
	InfoComp	1.368***	1.871	-0.643***	0.413
	LongtermCust	0.577***	0.333	0.345***	0.119
	LongtermSupp	0.729***	0.531	0.185***	0.034
INN	Extensions	0.737***	0.543	0.096	0.009
	NewLines	0.908***	0.824	-0.155***	0.024
	GlobalNovelties	0.663***	0.440	0.084	0.007
Average		0.782	**0.669**	0.003	**0.063**

Table C2: *Common Method Bias analysis – Pooled*

Construct	Item	Substantive Factor Loading (λ_n)	Variance Explained (λ_n^2)	Method Factor Loading (λ_m)	Variance Explained (λ_m^2)
HC	OTJTrain	0.652***	0.425	0.089	0.008
	KnowTrans	0.772***	0.596	-0.020	0.000
	MeasPerf	0.827***	0.684	-0.156***	0.024
	Rewards	0.644***	0.415	0.089	0.008
SC	AddTraining	0.864***	0.746	-0.024	0.001
	OpenDialogue	0.837***	0.701	0.024	0.001
RC	InfoCust	0.818***	0.669	0.118***	0.014
	InfoComp	1.060***	1.124	-0.199***	0.040
	LongtermCust	0.864***	0.746	0.095	0.009
	LongtermSupp	0.974***	0.949	-0.022	0.000
INN	Extensions	0.741***	0.549	0.178***	0.032
	NewLines	0.973***	0.947	-0.100	0.010
	GlobalNovelties	0.899***	0.808	-0.083	0.007
Average		0.840	**0.720**	-0.001	**0.012**

APPENDIX D - Testing For Mediation Effects

Figure D1: *Full mediating effect of Structural Capital in the relationship between Human Capital and Innovation - Slovenia*

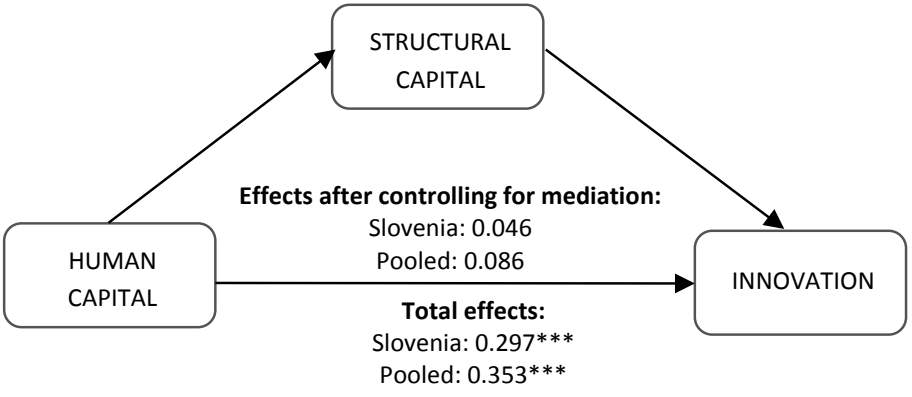


Figure D2: *Partial mediating effect of Relational Capital in the relationship between Human Capital and Innovation - Slovenia*