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THE IMPACT OF INTANGIBLE CAPITAL ON COUNTRIES' SUSTAINABILITY DURING THE ECONOMICAL RECESSION

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Abstract. Intangible capital is an important and a form of capital recently much discussed in scientific literature. Even though the concept of intangible capital is not strictly set yet and vague enough, many authors agree that intangible capital is composed of intellectual capital, human capital and social capital. The creation of value in modern society is based on human skills, health, knowledge, intellectual property, enrolment in social units, networks, expressed social trust, etc. All these components are changing the economic structure influencing sustainable development of countries. However, the research suggests that intangible capital creation implies favorable conditions only during economic growth cycle. Intangible capital has poor resilience to economic recessions at macro-economic level.

Keywords: intangible capital, intellectual capital, social capital, human capital, sustainability, economic resilience.

JEL classification: D24, B03, Q01, G01.

1. Introduction

Analysing country sustainability, both tangible (e.g. facilities, raw materials, and equipement) and intangible resources (e.g. knowledge, relations, and communication) have important role. Over the years and with outobjection, mainstream economists have incorporated three forms of capital-physical, financial, and human into their ways of thinking about economic affairs. The concept of intangible capital has been widely analysed in recent years in scientific literature. Intangible capital is considered to be one of the main engines in knowledge-based economy. In general intangible capital has no material form or physical appearance. Basically it is linked to information assets or intellectual capital and human capital. This new research direction has attracted attention not only from scientist around the world but various international institutions such as World Bank, International Monetary Fund, European Commission, Organization for Economic Cooperation and Development, etc. Economic development led towards a knowledge economy and service society which enhanced the importance of intangible resources as key drivers of organizational performance (Pike *et al.* 2005; Zigam *el. al.* 2009). Companies with high profitability pay special attention to the management of intangibles regarding relational factors, innovation activities, and employee productivity (Cabanelas Omil *et al*. 2011).

Sustainabity, meeting the needs of human beings, is an idea that is simple to state, but highly complex to understand and practice. Sustainable development is considered in terms of economic viewpoint, as an entity ensuring the elaboration of environment meeting human needs at present and not reducing human wealth opportunities in the future (Lankauskienė, Tvaronavičienė 2011). In essence sustainable development is about managing the relationship between the needs of humans and their environment (biophysical and social) in such a way that critical environmental limits are not exceeded and modern ideals of social equity and basic human rights (including the 'right to development') are not obstructed (Du Plessis 2007). By these point of views sustainablility of the countries is very much interlinked with intangible capital. The paper aims to analyse the impact of intangible capital on countires sustainability during the economical recession.

The paper attempts to fill the gap in scientific literature on intangible capital impacts on economic vulnerabilities and economic recession especially in period of recession. Intangible capital concept, as discussed above, is relatively new. However, in almost most of the cases intangible capital is understandable as creation of new capital by human economic and social activities. Also intangible capital is related to higher level of human development, higher level of job vacancies creation. The paper tries to suggest that there is a certain relationship among different intangible capital components and the level of economic development.

2. The concept of sustainable economic development

The sustainable economic development concept is widely spread and controversial concept in scientific literature. Classical understanding of economic development mainly related to economic growth and more or less equal involvement in economic activities of different social groups. Sustainable economic development concept is a relatively new concept in economic thought of history. In 1997, United Nations declared that development is a multidimensional undertaking to achieve a higher quality of life for all people economic development, social development and environmental protection are interdependent and mutually reinforcing components of sustainable development (United Nations, 1997). In 1992, World Bank reported that sustainable development is the "development that continues" (World Development Report, 1992). Brundtland commission (1987) stated that sustainable development is the kind of development which satisfies the current needs without endangering the future generations to satisfy their own. The limited social, human, financial, produced and natural capital have to be used in a way that the future generations could not face with development restrictions because of previous generations' activities. However, the essential point of market economy remains economic growth and assets or capital creation and distribution. The sustainability concept started to be discussed not only in economic but social, natural, human dimensions as well. Thus, sustainable development is not about a choice between environmental protection and social progress, but rather more about striving for economic and social development that would be compatible with environmental protection (Ciegis *et al.* 2009).

The sustainable economic development put emphasis on "needs" and "limitations". Needs are understandable as needs of combination of present and future generations and limitations are understandable as save consumption of present generation. Needs and limitations closely associated with production and consumption. Increased welfare in society demands new and better products that increase incentives for enterprises more to produce. In this place efficiency in society and economy is crucial (Rutkauskas 2012). However, the use of natural resources might be put in different consideration in different economic structure societies. More service produce societies have more intensive for human capital usage since these societies have already gained certain capital ratio in the market. In this case, such societies are more concerned about effective usage its educational systems, trainings and service sectors. Less developed or developing countries put emphasis more on usage of natural capital since market capital ratio might be relatively low.

Sustainable economic development provides with a few criteria – sustainable consumption (Repetto 1986), the level of utility of society cannot be diminishing in time (Pezzey 1992). This concept is a complex notion and treated by different authors differently. On one hand, sustainability provides various indicators and contributes to competitiveness on the given country (Balkyte *et al.* 2010). Also sustainability might be considered as sustained economic system and sustained governance (Rutkauskas *et al.* 2012).

However, the critics of sustainable economic development stress that the concept itself is vague, there are much of contradictions (Ruchi 2009). Some authors suggest that sufficiency should be a goal but not efficiency (Lankauskiene *et al*. 2012). An economic growth should be combined with development, quantitative change with qualitative change (Du Pisani *et al.* 2006).

The economic sustainability concept is based upon Solow's (1986, 1993) theoretical approach on capital convertibility and Hicks-Lindahl concept of maximum income which can be acquired by saving essential wealth (capital) resources for the benefit of future generations (implementing the principle of fair distribution among generations). Social sustainability seeks to reduce vulnerability and maintain the health of social and cultural systems, and their ability to withstand economic shocks (Chambers 1989; Bohle *et al.* 1994; Ribot *et al.* 1996). Nerveless estimation of social capital raises many challenges. Different studies suggest with strong evidence that social capital is crucial element for socio-economic system stability. Sustained social capital resists to economic recession, downturns and different economic financial crisis remaining the entire economic system stable.

Report by the Commission on the Measurement of Economic Performance and Social Progress (2009) lead by Nobel prize winner Joseph Stiglitz stated that traditional macroeconomic indicators do not reflect real economic and social progress in society. Commonly used indicators should gain more qualitative approach rather than only quantitative approach, for example, GDP. For measuring sustainable development Commission suggests pay more attention on following criteria: real per capita produced capital rate, savings and consumption or income ratio, human development index, life expectancy, quality of living, social exclusion and people at risk of poverty, employment, etc.

3. The concept of intangible capital

Intangible resources as an area of study is developing into a diverse and multidisciplinary field, which encompasses a variety of concepts, meanings and methods (Molbjerg Jorgensen 2006). Theorethically it is a combination of customer capital/relational capital, organizational/structural capital, and human capital (Zigam *et al.* 2009).

Intellectual capital as a theory is quite new and has not been deeply analysed. That is why a well-known definition of intellectual capital has not been found yet. Scientists, who investigated the theory of intellectual capital (Edvinsson *et al*. 1997; Stewart 1997; Bontis 2004, 1999; Campos 2000; Ulrich 1998; Calvo *et al.* 1999; Hughes 2010; Soler *et al.* 2007; Sanchez 2007; Zéghal *et al.* 2010; Diez *et al.* 2010), mainly emphasize knowledge, skills, motivation, experience, positivity of employees, education, routines, structures in a company as the main factors of intellectual capital. Usually intellectual capital is identified with human capital and human knowledge, but the definition should be broader.

Previous studies argued that intellectual capital has positive influence upon competitive advantages of firms (Edvinsson *et al.* 1997; Martín de Castro *et al*. 2004; Hormiga *et al*. 2011). Although previous scientists focused on the research of intellectual capital, none explored the impact of intellectual capital on the sustainability of the economic system and its vulnerability to economic crisis. (Chen 2008; Figge *et al.* 2005). Several authors declare that the current inclination for organizations is to focus more on intangible assets when seeking competitive advantages and less on material assets (Bontis 1996; Martín de Castro *et al.* 2004) and that firms with an adequate intellectual capital have a better chance of survival (Hormiga *et al.* 2011).

Other scholars make distinction between individual and state intellectual capital. State intellectual capital is composed of knowledge, education and wisdom and is crucial factor for countries' competitiveness (Lin *et al.* 2011). Malhotra (2000) expressed opinion that state intellectual capital is some sort of capital that is invisible and are lie down in value creation process. Novaro *et al.* (2011) contributed to the state intellectual capital concept by new criteria: human development, quality of living, technological progress.

Human capital is considered to be intangible capital and being integrated in all widely spread intellectual capital evaluating models. Human capital analyzed by many authors (Healy 2001; Giziene *et al.* 2012; Bagdaavicius 2009; Bontis 2004; Alexander 2006; Hamilton *et al.* 2010, Andreosso-O'Callaghan 2002; Schultz 1961; Spitzer 2006; Kagochi *et al.* 2010, Lange *et al.* 2006) and institutions (OECD, 2001, 2004, 2005, 2006, 2007, 2010; UN, 2013). The human capital is seen as crucial element in knowledge-based economy producing informational assets, intellectual property and is very primary source of producing all other forms of capitals. Zigam *et al.* (2009) argues that human capital influences other forms of capital such as social capital, i.e., the creation of intra-organizational relationships, and structural capital in the form of new job roles. Cabanelas Omil *et al*. (2011) shows, companies with high profitability pay special attention to the management of intangibles regarding relational factors, innovation activities, and employee productivity. Specially, the business relationships are valuable factors to obtain high profitability in companies.

Several scholars claim that human capital concept is the investment into human education and trainings future value (Mikuleniene 2000; Oxely 2003). Other claim that human capital concept is a bunch of human skills, competencies and knowledge that are gained through learning and training processes (Gibson *et al.* 2003; Jolly 2010). Lange *et al.* 2003) suggested that human capital is such a capital that lies foundation for all other possible forms of capitals.

Malhotra (2003) suggest that the level of development of human capital could be reflected in government expenditure on education, healthcare system, equal gender opportunities. Meanwhile other scholars put emphasis on the quality and efficiency of education system (Bontis 2004). Alexander (2006) paid attention more on qualitative development of the country as a reflection of human capital growth. Scholar emphasized the number of educated people, immigration rates, a number of scientists in a country. His view was supported by Porta (2007) contributing with a

number of qualified and trained labor force in the market and a number of students at universities. Hamilton *et al.* (2010) analyzed the importance of employment and lifelong learning issues. OECD has paid specific attention on the human capital. OECD field of research provide broad understanding of human capital concept and evaluation models including primary education, lifelong learning, training. United Nations estimating Human Development Index provides wide range of social indicators measuring human capital: gender inequality index, social integration, health, education, international capital flows and migration, population trends, etc. These criteria allow us to evaluate the progress of human capital in every nation and commit comparative analysis.

Social capital concept is another intangible asset analyzed in scientific literature. The concept its self firstly was analyzed by Putnam (2000) in his book *Bowling Alone: The Collapse and Revival of American Community.* Putnam described social capital as sociological concept is used in economics, sociology, business, political science. The fundamental idea of social capital is that networks and relations have a value. Invisible social contract can increase the productivity of the groups, save time and consume less other resources.

According to Bourdieu (2005), Social capital is the bunch of all necessary relations and communication within a company. Mačerinskienė *et al.* 2004) claimed that social capital is composed of various different intangible elements such as social networks, values, norms, sanctions, rules, regulations and trust. Trust is considered to be the main factor of social capital - this is the most important factor which creates motivation, abilities and capabilities for employees. Also social trust is extremely important factor in market economy. With no social trust any partnership or deals in the market is possible (Stiglitz 1999). Many scholars claimed that social capital is a capital which is integrated in human relationships (Bourdieu 1980; Brut 1992). The intensity of transition of values, norms, understandings are the reflection of communication in society and represents the social cohesion and mutual social interaction. Networking and interaction with friends, family members, business partners and local communities encourage the spread of information and social integrity in society.

However, intangible capital is very difficult issue in scientific literature because of the problems involved in identification, classification, measurement and evaluation of the intangible capital. Advanced economies experienced different level of markets capitalization. Assumingly advanced economies have better conditions for developing intangible capital. However, as discussed above intangible capital lies foundations for production for other forms of capital. This article aims to analyze the impact of intangible capital on economic vulnerability and resilience to economic shocks.

4. Social and economic development in Europe during economic recession in 2008–2012

Financial recession started in United States of America split over the world especially in Western countries or so called North pole countries: USA, Canada, Europe, Russia, Japan. Many articles and research papers during crisis period has been published attempting to analyse the reasons and consequences of the financial economic crisis. That is to say, various Western economies experienced different level of economic and social fluctuation in real sector economies. This is a scope of economists' interests to analyse why different countries did better during economic recession shock than others. Why some countries' real GDP and unemployment rates fell down dramatically, while others could resist much better, saving the tangible and intangible capitals created by decades. Different economic indicators suggest that some countries lost huge employment, financial and capital accumulations that they gained over the last decades.

Advanced economies have a higher level of intangible capital. However, the intangible capital impact on economic vulnerability was very little researched. Since intangible capital is newly developing concept and in recent years or even decades world did not experience such economic deep downturn, this is a great opportunity to research possible relations between intangible capital components and economic change during economic recession. It is assumed in the research that the higher ratio of real GDP change of GDP maximum in 2007 to the minimum in 2009 to the level of 2007, the economy is more vulnerable and sustainability is low.

Figure 1 shows the GDP change ratio in European Countries. The GDP ratio was estimated taking into account the maximum GDP level in 2007 and minimum GDP level of the same countries when European countries reached the bottom line of economic downturn in 2010. The highest GDP change ratio rate means that countries had relatively higher change during economic recession shock. In the framework of above discussed theory of sustainability, the high rate of change would mean that a country less resilience to economic recession. This GDP change ratio was correlated with some components of intangible capital.

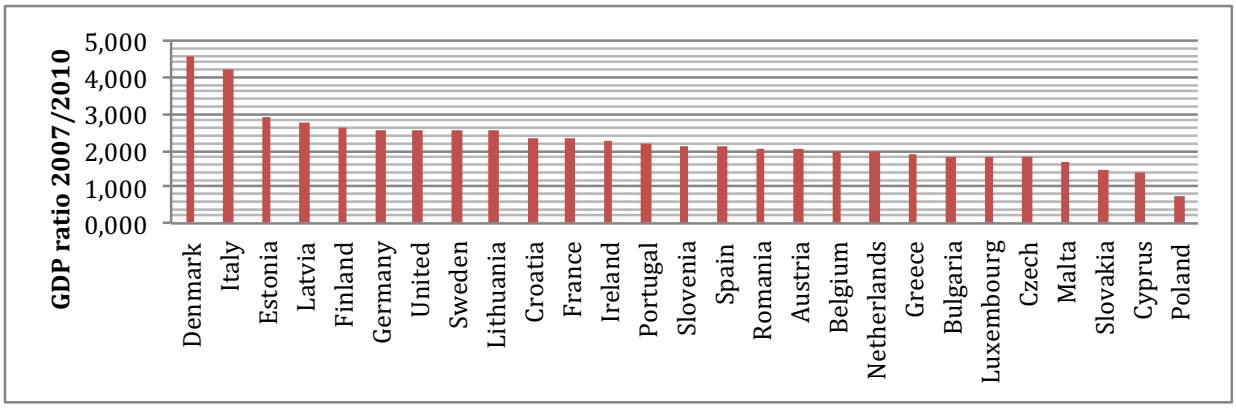

Fig. 1. GDP change ratio by country (source: Eurostat, compiled by authors)

Based on this estimation, Denmark and Italy scored the highest GDP change ratio rate, reaching 4,5 and 4,2. This high ratio is determined because of low GDP growth in 2007 and deep fell down in 2010 to more than 5%. Second group scored from 3.0 to 2.00 GDP change ratio is composed of following countries: Estonia, Latvia, Finland, Germany, United Kingdom, Sweden, Lithuania, Croatia, France, Ireland, Portugal, Slovenia, Spain, Romania, Austria, Belgium. Third group composed of countries which scored from 2.0 to 1.00: Netherlands, Greece, Bulgaria, Luxemburg, Czech Republic, Malta, Slovakia, Cyprus. In fourth group only one country is grouped – Poland which scored less than 1 GDP change ratio rate. It is interesting circumstance that these countries are not grouped buy their level of development but level of vulnerability to economic recession.

Figure 2 presents the relations between Human Development Index (HDI) and GDP change ratio. Four countries scored the highest rate of HDI Germany, Netherlands, Sweden, Ireland reached GDP change ratio rate 2.0-2.5. Compering these numbers with countries which scored the lowest rate of HDI Bulgaria and Romania, GDP change ratio was 2.0. That is to say, the level of human development, education, healthcare, skills is not the economic shock mitigating factor. However, there is slight correlation in European countries. A number of countries with lower HDI rate had GDP change to lesser extent, these countries are: Poland, Slovakia, Cyprus, Greece, Czech Republic, Slovenia, Luxemburg.

Figure 3 shows government spending on education as a percentage of GDP and GDP change ratio. Some countries with higher level of government spending on education did worse or the same during the economic recession shock as countries with lesser government spending on education. Denmark's government spends almost 8% of GDP on education, however, Denmark experienced the highest GDP change ratio. Sweden, Cyprus spend

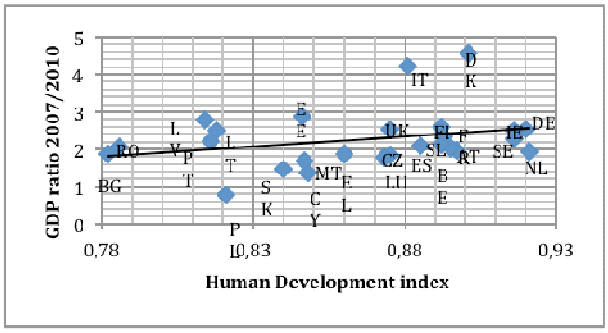

Fig. 2. GDP change ratio and Human Development Index (source: UN database, compiled by authors)

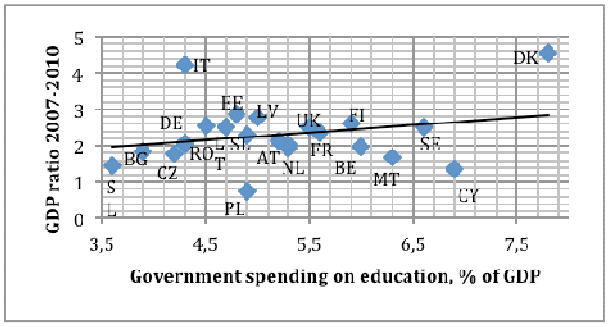

Fig. 3. GDP change ratio and government spending on education (source: UN database, compiled by authors)

more than 6.5% of GDP on education however, GDP change ratio was the same or similar to countries such as Italy, Slovenia, Czech Republic, Romania, Bulgaria which spend almost 50% less on education than previous countries.

Social exclusion is one of the components that presents the cohesion in society and might present the social capital while the more people get involve in labour market the more value is created. Exclusion should present less stable and more vulnerable society and economy.

Figure 4 slightly supports these thesis. Lithuania, Latvia, Romania and Bulgaria with the highest rate of social exclusion in European Union with 34%, 38%, 41% and 49% rate respectively did not do much worse than countries with relatively low social exclusion percentage in society. Mentioned

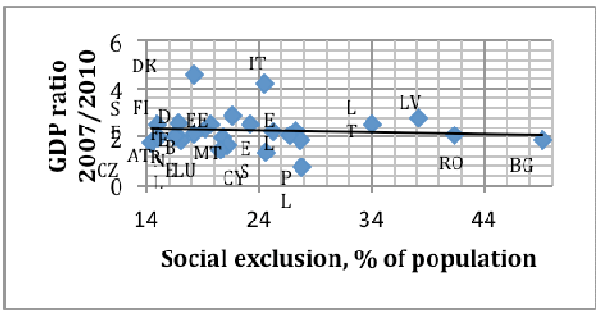

Fig. 4. GDP ratio change and social exclusion (source: EUROSTAT, compiled by authors)

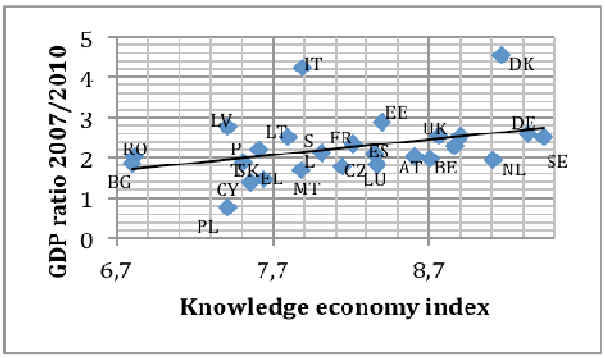

Fig. 5. GDP ratio change and Knowledge Economy Index (source: World Bank database, compiled by authors)

countries got better GDP change ratio than Denmark, Czech Republic, Italy, Austria and many other countries with low social exclusion percentage reaching 18%, 14%, 16%, 24% respectively.

Figure 5 shows the relationship between Knowledge Economy Index (KEI) and GDP change ratio. Chart shows that countries with higher index rate were less resilience to economic shock and had higher GDP change ratio. Such countries like Sweden, Germany, Denmark, Belgium, United Kingdom have high KEI rate, however, they experienced high rate of GDP change ratio. Meanwhile countries reached significantly lesser KEI did better: Poland, Cyprus, Slovakia, Malta, Czech Republic.

Figure 6 shows the unemployment change in Central and Eastern European countries and relationship with government spending on education as percentage of GDP. There is a relationship between these two variables. The more country is spending on education, the less country can sustain its workforce during economic recession period. Estonia, Latvia and Lithuania experienced high numbers of unemployment and the highest unemployment ratio change. Another Figure 7 presents unemployment ratio in Scandinavian countries. This chart supports thesis that the more country spends on education, the higher unemployment ratio faces with. Denmark scored 120% unemployment change spending the highest GDP ratio on education.

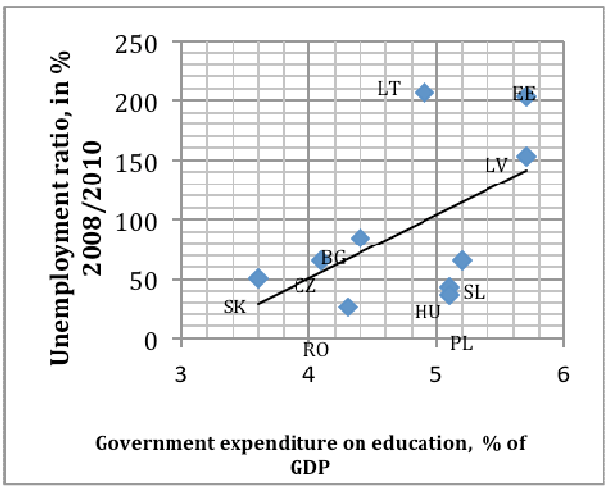

Fig. 6. Unemployment change ratio and government spending on education in Central and Eastern Europe (source: UN database, compiled by authors)

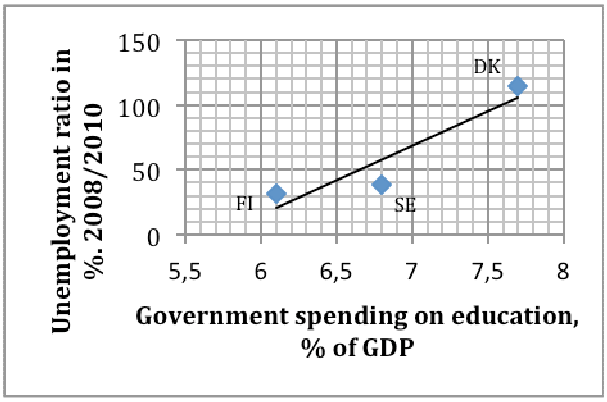

Fig. 7. Unemployment change ratio and government spending on education in Scandinavia (source: UN database, compiled by authors)

That is to say, the charts support thesis that social, human, intellectual capital are less resilience to economic recession.

5. Conclusions

Intangible capital becomes more and more discussible the form of capital in scientific literature. The concept of intangible capital is relatively new, so there is no single and clear definition of this form of capital. Basically intangible capital might be composed of three forms of capital: intellectual capital, human capital and social capital. According to many various researchers and scholars, there is relationship between intangible capital value in economy and GDP per capita rate. That is to say, that intangible capital creates more wealth and value in society and economy. However, there is a scientific gap in the research on what is impact of intangible capital during different economic cycles, especially in macro level.

Intangible capital has favorable circumstances for the creation during economic growth

circle. However, research has suggested that there is no strong evidence that intangible capital could strongly resist to economic recession shocks at macro-economic level. Moreover, in most of the cases, countries with higher development of intangible capital components had relatively worse performance during economic shock period in 2008-2012. Even if these countries are more developed and are considered as advanced economies, the GDP change ratio and unemployment ratio have been higher than those countries of worse absolute numbers.

However, the field of research is very interesting and relatively new and is challenging. The field of research is very challenging because of the problems of identification, measurement and evaluation of intangible capital. The authors' attempts to find relationship between intangible capital and its impacts on economic performance of various European countries during economic recession shocks suggest that the field of research should be extended in scope and depth in the nearest future.

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