Repositório ISCTE-IUL

UNIVERSITÀ
DEGLI STUDI
DI UDINE

Proceedings of the
16th European Conference on
Knowledge Management

University of Udine, Italy
3-4 September 2015

Edited by
Prof Andrea Garlatti
and
Dr Maurizio Massaro
Udine University, Italy

A conference managed by ACPI, UK

acpi

Jouni A. Laitinen is a PhD student at Tokyo Institute of Technology, Tokyo, Japan where he does research on incentives used to encourage knowledge sharing. His other research interests include knowledge management, behavioral economics, open innovation and national culture.

Dr. Gianluca Lanza is a PhD Student in Economic and Management of Innovation and Sustainability at University of Parma and University of Ferrara. His areas of investigation include efficiency and quality of service of public organizationsand performance measurement in public institutions, particularly healthcare organizations.

Prof. Dr. Franz Lehner has been assistant professor at the Institute for Organizational Research at the Universityof Linz, Austria, since 1986. In 2004 he accepted a call to the University of Passau where he holds now the Chair for Information Systems (Wirtschaftsinformatik) since April 2004. His research is focusing on E-Learning as well as Information and Knowledge Management

Lutz Lemmer has been practising as a Knowledge Management Consultant and Knowledge Manager for the past six years, first with Hewlett Packard's European GM account and currently at the BBC Technology Operations. He holds an MBA, is an accredited coach, has experience in travel, education and financial services industries and is passionate about dancing.

Ane Linden is a doctoral student in Management at the University of Vale dos Sinos (UNISINOS) in Brazil, and a sandwich PhD studentat Lisboa School of Economics and Management. Before, she completed two postgraduate programmes: Master in Business Administration and Health Care Management Specialist, atPUC- Rio de Janeiro.

Ilídio Tomás Lopes is a professor and researcher at *ISCTE Business School – University Institute of Lisbon*. Graduate in Business Administration, he obtained a Master Degree in Statistics and Information Management and a PhD in Management, Specialization in Accounting (University of Coimbra, Portugal). Researcher in the fields of: Knowledge Management, Management and Financial Accounting, Management Control Systems, and Research Methodologies.

Monique Lortie Ph.D., is a tenure professor at Université du Québec à Montréal. She graduated in Industrial Engineering from École Polytechnique de Montréal and completed her graduated studies in Ergonomics in France. Her main field of research is the occupational health and safety from which various issues on knowledge transfer and management are explored.

Paul Lumbantobing, M.Eng, currently serves as VP Business Performance in PT. Dayamitra Telecommunications, which is a subsidiary of PT. Telekomunikasi Indonesia, Tbk. He completed his doctoral program at the University Padjadjaran and has published two books: Knowledge Management: Konsep, Arsitektur dan Implementasi (2007) dan Manajemen Knowledge Sharing Berbasis Komunitas (2011). Articles and his opinions in the field of knowledge management were published in various media in Indonesia.

Dora Martins did her PhD thesis on expatriates' management on Portuguese companies and continues researching this topic. She has also attended several international conferences. She teaches in the degree and master course of Human Resources Management at Superior School of Industrial and Management Studies, Polytechnic of Porto, Portugal.

Maria Manuela Martins is a professor and researcher at *ISCTE Business School – University Institute of Lisbon*. Graduate in Management, she obtained a Master Degree in Business Administration specialization in Information Systems Management and a PhD in Management, specialization in Accounting (*University Institute of Lisbon - ISCTE-IUL*). Researcher in the fields of: Knowledge Management, Management and Financial Accounting.

Florinda Matos is PhD in Social Sciences, Organizational Behaviour Studies by University of Lisbon. She has a master's degree in Business Sciences by ISCTE - IUL Business School, an Engineer's degree, in Agricultural Engineering and a Licentiate degree in Management of Agricultural Business by Polytechnic Institute of Santarém.

Mahsa Mehrpoor is a PhD student at NTNU. Research work is about"Context-driven information access in the professional workplaces"; how to use recommender systems to improve knowledge access. Has a computer science background. Bachelor degree is in Software engineering and Masters degree is in information Technology (E-Commerce).

Serban Miclea is a PhD Student at the Faculty of Management in Production and Transportation, Politehnica University Timisoara. He is a Marketing Management enthusiast, has a bachelor degree in Marketing and a master in Advertising and Sales Promotion. His PhD research interests include Marketing Management in SMEs, IT&C, Knowledge Management and Legacy Management and Marketing.

Intellectual Capital and Profitability: A Firm Value Approach in the European Companies

Maria Manuela Martins[1] and Ilídio Tomás Lopes[2]
[1]Instituto Universitário de Lisboa (ISCTE-IUL), BRU-IUL, Lisbon, Portugal
[2]Instituto Universitário de Lisboa (ISCTE-IUL), Lisbon, Portugal
manuela.martins@iscte.pt
ilidio.tomas.lopes@iscte.pt

Abstract: Over the last decades, the world economy arose from an industrial economy into a knowledge-based economy. In the new era of knowledge, intangible assets are seen as the most important assets, driving companies towards unexpected returns. Intangible assets are capable to generate future benefits, which are drivers for differentiation. The companies are no longer seen as a pure production function, to be recognized in its structural complexity. The companies are seen as new age networks, structured around their resources and capabilities, most of them embodied by employees. The profitability of companies in the knowledge age is increasingly related to human factors and less based on tangible elements. Thus, it is strongly related to intellectual capital and less to physical capital. The concept of intellectual capital has been widely discussed over the recent years and there is no single definition of the concept. Sometimes we can observe some interdisciplinary around it. The purpose of this paper is to investigate the association between the degree of intangibility of European companies and their profitability, and the association between the degree of intangibility and the value of firms. The companies were ranked according their own capacity to develop and drive a knowledge intensive activity. Based on its intangibility, two groups of companies were extracted. The sample was based on the 500 largest European companies, rated by the Financial Times 2014 classification. Data relates to 2013 economic year. Profitability was measured by the following ratios: return on assets, return on equity, return on employed capital, and return on sales. The most relevant results of the empirical researchevidence a statistically significant association between intangibility and profitability. This assumption corroborates the principles stated in intangibles literature and in related accounting standards.

1. Introduction

An intangible asset is a differentiating factor of business (Stewart, 1997) and can becomea competitive advantage,allowing companies to continue theiractivities.Lev (2001) argues that the increasein competition and the emergence of information and communication technologies has definitely changed the process of business value creation. Thus, intangible assets play an increasingly important role in the scope of developed economies. Bontis *et al.* (1999) also argue that the most successful companies are those that use their intangible assets better and faster than competitors. To Ichijo (2002), only a company that generates knowledge is able to be successful in the market, and only wins if it innovatively driven. A significant part of the market value of a company is not embodied in the intangible assets recognized in the balance sheet.The difference between the market value and the book value of a companyrepresents the invisible value, embodied in non-capitalized intangibles.This paper aims to investigate the association between the degree of intangibility of European companies and their profitability level, and the association between the degree of intangibility and firms' value. This paper is structured as follows: the next section addressesthe prior literature insights and research hypotheses. Methodology describesthe data, the variables, and general descriptive measures. The next section analyzes the empirical results and discussion, complemented by final remarks and expected future outcomes.

2. Prior research and hypotheses

Some authors (Brooking, 1996; Edvinsson and Malone, 1997; Lev and Zarowin, 1999; Stewart, 1997; Sveiby, 1997) argue that intellectual capital explains the difference between the market value and the book value.Broadly**,** it can be defined as the wealth of knowledge-based companies. It has attracted over the last decades, a significant practical interest and impact (Petty and Guthrie, 2000). Stewart(1997) argues that the intellectual resourcesuch asknowledge, information andexperience, are the toolsfor creatingwealth anddefines intellectual capitalas the newwealthof organizations.Sullivan(2000) defines asintellectual capital the knowledge that can be convertedinto profits.Primarily, due to intellectual capital measurement issues and difficulties, companies are facing problems with their management (Andrikopoulos, 2005). For Kok(2007), a method for determiningtheintellectual capital, or the intangible side of a company,is comparingthe market value with itsbook value.Theseargumentsare based on theintellectual capital assumptions. Intellectual assetsof a company areintangible innatureand thereforedo not havea wayor a suitablefinancial value. Theyare characterized

ashidden assets, since it is difficult to identify their unique contribution to a company value creation(Fincham and Roslender, 2003).Intellectual capital is not reported in traditional financial statements since some of its elements do not meet the definition or recognition criteria. According to the International Accounting Standard (IAS) 38 (IFRF, 2004), the definition of an intangible asset is an identifiable non-monetary asset without physical substance. An asset is a resource that is controlled by the entity as a result of past events, for example, purchase or self-creation and from which future economic benefits(inflows of cash or other assets) are expected. Therefore the three critical attributes of an intangible asset are: identifiability; control or power to obtain benefits from the assets; and future economic benefits, such as revenues or reduced future costs.The list of items that should not be included in the balance sheet includes the brands, mastheads, publishing titles, customer lists and items similar in substance internally generated (IAS 38). If an item does not meet the definition of intangible assets and the criteria for recognition as an intangible asset, the expenditure on this item should be expensed when it is incurred.

Theresearches of Oliveira*et al.* (2010),focused on the companies listed in BM&FBovespa, conclude that companies with higher degree of intangibility perform better. Nascimento *et al.*(2012) has analyzed only companies in theTechnology, Informationand Telecommunications sector ,listed in BM&F Bovespa. That research investigates the correlation among the degree of intangibility and the performance indicators.The results shownthat no differences exist among the analysed segments.Vasconcelos *et al.* (2013) observed the behaviour of the degree of intangibility of the largest banks listed on the BM&FBovespa for the period 2007-2010 and found that (i) the explanatory notes were the accounting document most commonly used for the presentation or decomposition of intangibles, (ii) the most representative types of intangible assets were "expenditure on acquisition and software development", "software and systems" and "acquisition of payrolls" with regard to frequency, and "goodwill" and "acquisition of payrolls" with regard to average volume of investment; (iii) the predominant classification of intangible assets was "infrastructure assets", (iv) the degree of intangibility decreased over the study period, and (v) no symmetry was observed between variations in the index of investments in intangible assets and market value.

The research conducted by Chen *et al.* (2005) was applied to firms listed on the Taiwan stock exchange (TSE), andhas investigated the relationship between intellectual capital and a firm's market value and financial performance. The results support a significantly positive relationship among intellectual capital, market value and financial performance. To Liang and Yao (2005), net income is the most significant explanatory capability in market value of Taiwan information electronic company when examined on intangible assets, balanced scorecard and intellectual capital, respectively. The results from Mosavi*et al.* (2012) were emergedfrom Iranian companies and revealed no conclusive evidence to support a definitive association between intellectual capitals, measured by VAIC. Furthermore, there is just a statistically significant relationship between human capital efficiency and financial performance and the degree of intangibility. The research conducted by Riahi-Belkaoui (2003), focused on the relationship between intellectual capital and the performance of selected multinational companies of the USA, suggests that intellectual capital is positively associated with financial performance. In the same trend, the research of Alshubiri (2015) aims to demonstrate the impact of the intellectual capital from market capitalization on profitability in the financial sector, listed in Muscat Security Market of Oman. This research used the market capitalization methods (MCM) to measure intellectual capital as independent variables on profitability. The results indicated a statistically significant impact of Tobin's Q, on market to book value, and on profitability, based on ROE and EPS.

Tan *et al. (*2007) evidence that intellectual capital and company performance are positively related.Intellectual capital is correlated to future company performance, and the rate of growth of a company's IC is positively associated to the company's performance. Furthermore, the contribution of intellectual capital to company performance differs by industry. Salojärvi (2004) found that companies that implement active practices to manage their intangibles obtain better results in innovation and in the development of new products processes.

Based on prior researches, we formulate our hypothesis as follows:

 H₁: The European companies with major degree of intangibility have more profitability;

 H₂: The European companies with major degree of intangibility have more firm value.

3. Methodology

3.1 Data source

This research is based on 486 European companies. In the first step our sample was selected by considering all firms included in the *Financial Times* 2014 classification of the 500 largest European companies, with reference to 2013 market value. Fourteen companies were not included in the sample due to information unavailability. Largest companies were selected towards the analysis of a set of companies that are economically important and that operate in multiple environments such as legal, institutional and economic conditions.The information about companies was extracted from *Datastream* database.

3.2 Variables

The degree of intangibility is calculated by dividing the Market Value by Book Value. This ratio represents how many times the market value is above, or below, the book value,assuming that higher the intangibility degree more relevant will be the intangible assets in the company.Based on the degreeofintangibilityof each company, the medianwas calculatedallowingthe categorization ofcompaniesinto two different groups; 1. The intangible-intensive companies with a degree of intangibility equal or higher than themedian composed by 244 companies and2. The tangible-intensive companies with a degree of intangibility below the median composed by 242 companies. Profitabilitywas measured by the Return on Assets (ROA), Return on Equity (ROE), Return on Capital Employed(ROCE) and Return on Sales (ROS).These indicatorsare often used in financial and accounting literaturein evaluating the performanceof companies.ROA is calculated by dividing a company's annual earnings by its total assets providinginsights as to how efficient management is in using its assets to generate earnings.ROE is calculated by dividing a company's annual earnings by its Shareholder's Equityand evidences how well a company uses investments to generate earnings growth.ROCE is calculated by dividingthe Earnings Before Interest and Tax (EBIT) by the Capital Employed. This indicator is the differencebetween Total Assets and Current Liabilities. ROCE measures a company's profitability and the efficiency with which its capital is employed.ROS is calculated by dividing the Earnings Before Interest and Tax (EBIT) by the Sales and is used to evaluate a company's operational efficiency.

The company'svalue ismeasured byTobin's Q, defined as the sumof the market valueof sharesof thecompany and liabilities divided by the book value and liabilities.Thus, Tobin's Q are often used in financial and accounting literaturein evaluating the companies. Table 1 resumes the variables description.

Table 1: Variables description

Variable	Description
Intangibility degree	Market Value/Book Value
ROA	Return on Assets: Net Income/Assets
ROE	Return on Equity: Net Income/Equity
ROCE	Return on Capital Employed: EBIT/ Capital employed
ROS	Return on Sales; EBIT/Sales
Tobin's Q	(Market Value + Liabilities) / (Book Value + Liabilities)

4. Empirical results and discussion

4.1 Descriptive analysis

The 486 companies were integrated into ten activity sectors and the number of companies from each sector is shown in Table 2. The main representative (24.9%) is the sector "*Financials*" (including financial services, nonlife insurance, life insurance, banks, real estate investment and servicesand real estate investment trusts). The second most representative sector (17.9%) is the "*Industrials*" (including industrial transportation, industrial engineering, construction and materials, support services, aerospace and defense, electronic and electrical equipment and general industrials), followed by the sector "*Consumer goods*" (including personal goods, beverages, food producers, household goods and home construction, automobiles and parts and tobacco) which represents 12.6%.Table 3evidences that the most represented country is United Kingdom (22.2%), France (15%), and Germany (11.3%). Luxembourg and Romania evidences a very residual influence in this sample.

Table 2: Activity sectors

Activity sector	N	%
Basic materials	44	9.1
Consumer goods	61	12.6
Consumer services	56	11.5
Financials	121	24.9
Health care	23	4.7
Industrials	87	17.9
Oil &gas	33	6.8
Technology	14	2.9
Telecommunications	21	4.3
Utilities	26	5.3
Total	**486**	**100.0**

Table 3: Countries

Country	N	%		Country	N	%
Austria	7	1.4		Norway	10	2.1
Belgium	10	2.1		Poland	10	2.1
Czech Republic	2	0.4		Portugal	5	1.0
Denmark	13	2.7		Romania	1	0.2
Finland	10	2.1		Russia	21	4.3
France	73	15.0		Spain	23	4.7
Germany	55	11.3		Sweden	24	4.9
Greece	5	1.0		Switzerland	38	7.8
Hungary	2	0.4		The Netherlands	22	4.5
Ireland	4	0.8		Turkey	14	2.9
Italy	28	5.8		UK	108	22.2
Luxembourg	1	0.2		**Total**	**486**	**100.0**

Based on the classification according to its activity by Eurostat(2014), the486companiesin the sample were classified as *KNOWLEDGEINTENSIVE*or*NOT KNOWLEDGE INTENSIVE*. The first group is composed by282 companies and the second group integrates 204 companies(Table 4).

Table 4: Knowledge intensity

Company classification	N	%
Knowledge intensive	282	58.0
Not knowledge intensive	204	42.0
Total	**486**	**100**

Table 5 illustrates the main descriptive statistics measures, considering the sample and the classification accordingcompany's knowledge intensity. Table 6 evidences the main descriptive statistics measures, not considering the extremes values from the intangibility degree.

Table 5: Descriptive measure

Variable	N	Mean	Median	Standard deviation
Intangibility degree	486	3.0643	2.0700	3.4935
Knowledge intensive	282	2.8743	1.8900	3.4202
Not Knowledge intensive	204	3.3269	2.3750	3.5843
ROA	486	0.0527	0.4087	0.0061
Knowledge intensive	282	0.0490	0.0343	.0665
Not Knowledge intensive	204	0.0576	.04702	.0544
ROE	486	0.1403	0.1203	0.0182
Knowledge intensive	282	0.1332	0.1163	0.1600
Not Knowledge intensive	204	0.1501	0.1262	0.2086
ROCE	374	0.0746	0.0644	0.0541
Knowledge intensive	183	0.0745	0.0673	0.0575
Not Knowledge intensive	191	0.0748	0.0634	0.0508
ROS	486	0.1807	0.1218	0.3161
Knowledge intensive	282	0.1876	0.1293	0.3731

Not Knowledge intensive	204	0.1712	0.1129	0.2143
Tobin's Q	486	1.7738	1.3270	1.5072
Knowledge intensive	282	1.6686	1.1843	1.4418
Not Knowledge intensive	204	1.9193	1.4645	1.5851

Table 6: Descriptive measure not considering the extremes

Variable	N	Mean	Median	Standard deviation
Intangibilitydegree	438	2.5293	2.0700	1.6508
ROA	438	0.0496	0.0411	0.0539
ROE	438	0.1290	0.1213	0.1333
ROCE	344	0.0693	0.0633	0.0444
ROS	438	0.1838	0.1214	0.3280
Tobin's Q	438	1.5992	1.3292	0.8793

4.2 Hypothesis tests

We used the *t*-Student test to verify that the null hypothesis(H_0) would, or not, be rejected.The null hypothesis is rejectedin case of ROA, ROE ROCE and Tobin's Q,evidence thatthere is a differencebetween those indicators, observed forintangible-intensivecompanies andfor tangible-intensive companies.In case of ROS, the null hypothesis is not rejected, which supports the evidence that there is no statisticallydifferences between the mean of ROS obtainedforintangible-intensivecompanies andROS observed in tangible-intensive companies.Thesame test wasrun to the samplewith noextremevaluesofthe degree ofintangibilityand the results obtained corroborates the previous results.

4.2.1 Degree of intangibility and the profitability

Degree of intangibility andOA

Table 7 evidences the descriptive measuresof the degree of intangibility and ROA and the tests of the null hypothesis (H_0). This hypothesis states that the mean ofROAofintangibleintensiveEuropean companiesis equal tothemean ofROAofintensivetangibleEuropean companies. Empirical evidence supports that the largest mean in observed in the group of intangible intensive companies. Furthermore, the results from *t*-Studenttest also supports the rejection of the null hypothesis, evidencing thatthere is a differencebetween the indicator ROAobtainedinintangible-intensivecompanies andthe same indicator observed in tangible-intensive companies.

Table 7: The degree of intangibility and the ROA

Degree of intangibility	N	Mean	Median	Standard deviation	Max	Min
Intangibleintensive	244	0.0750	0.0607	0.0680	0.4519	-0.0959
Tangible intensive	242	0.0303	0.0173	0.0450	0.3932	-0.0584

t Test for equality of means: $t_{(484)}$ = 8.505; *p* =0.00

Degree of intangibility and RO

Table 8 includes the descriptive measures of the degree of intangibility and ROE, including the tests of the null hypothesis (H_0), which states that the mean ofROEofintangibleintensiveEuropean companiesis equal tothemean ofROEofintensivetangibleEuropean companies. The empirical evidence indicates that the largest mean is observed in the group of intangible intensive companies. Complimentarily, the statistical results from *t*-Student test indicates the rejection of the null hypothesis. Thus, there is a difference between the ROE obtained by intangible-intensive companies and the ROE obtained for tangible-intensive companies.

Table 8: The degree of intangibility and the ROE

Degree of intangibility	N	Mean	Median	Standard deviation	Max	Min
Intangibleintensive	244	0.1935	0.1600	0.2075	1.7805	-0.6227
Tangible intensive	242	0.0865	0.0847	0.1321	1.4123	0.3366

t Test for equality of means: $t_{(484)}$ = 6.773; *p* =0.00

Degree of intangibility and ROCE

Table 9 relates to the descriptive measures of the degree of intangibility and ROCE. In this scope, the null hypothesis is described as follows: the mean of ROCE of intangible intensive European companies is equal to the mean of ROCE of intensive tangible European companies. These results evidencethat the largest mean is observed in the group of intangible intensive companies. Furthermore, the results derived from *t*-Student test indicate the rejection of the null hypothesis which means thatthere is a statistically significant difference between the ROCE obtained by intangible-intensive companies and the ROCE obtained for tangible-intensive companies.

Table 9: The degree of intangibility and the ROCE

Degree of intangibility	N	Mean	Median	Standard deviation	Max	Min.
Intangibleintensive	229	0.8806	0.0757	0.0598	0.3608	-0.0338
Tangible intensive	145	0.5345	0.0847	0.0347	0.1687	0.0342

t Test for equality of means: $t_{(372)}$ = 6.334; *p* =0.00

Degree of intangibility and ROS

In the next table, we evidence the descriptive measures of the degree of intangibility and the indicator ROS, including the test related to the mean's differences. The null hypothesis states that the mean of ROS of intangible intensive European companies is equal to the mean of ROS of intensive tangible European companies. From the empirical evidence, we can conclude that the largest mean is observedin the group of tangible intensive companies. Thus, null hypothesis cannot be rejected, confirming that there is no differencebetween theROSobtainedbyintangible-intensivecompanies andROS observed in tangible-intensive companies.

Table 10: The degree of intangibility and the ROS

Degree of intangibility	N	Mean	Median	Standard deviation	Max	Min.
Intangibleintensive	244	0.1601	0.1392	0.1295	0.7415	-0.0684
Tangible intensive	242	0.2009	0.0995	0.4282	5.5302	-0.2449

t Test for equality of means: $t_{(484)}$ = -1.401; *p* = 0.16

4.2.2 Degree of intangibility and the firm value

Descriptive measures of the degree of intangibility and ROE, including the tests of the H_0, is evidenced in table 11.The null hypothesis illustrates that the mean of Tobin'sQ of intangible intensive European companies is equal to the mean o fTobin'sQ of intensive tangible European companies. However, the results evidences that the largest mean is observed in the group of intangible intensive companies. The results obtained from*t*-Student test indicates the rejection of the null hypothesis. Thus, there is a differencebetween theTobin's Qobtainedbyintangible-intensivecompanies andTobin's Q obtained for tangible-intensive companies.

Table 11: The degree of intangibility and the Tobin's Q

Degree of intangibility	N	Mean	Median	Standard deviation	Max	Min.
Intangibleintensive	244	2.4652	1.8823	1.8840	17.3419	0.2315
Tangible intensive	242	1.0859	1.0239	0.2145	1.9099	0.3963

t Test for equality of means: $t_{(484)}$ = 11.242; *p* =0.00

4.2.3 Knowledge intensity

Based on the classification of companies above (according the company's knowledge intensity), a similar statistics analysis was carried outseparatelyfor both groups (KnowledgeIntensive companiesand Not Knowledge Intensive companies, respectively).The resultsare summarized in the next table (Table12). Thus, we have a reasonable basis to conclude thatfor both groups the null hypothesis was rejected. The mean of ROA, ROE, ROCE, and Tobin's Q, are statistically different, evidencing higher values in the first group (Knowledge IntensiveCompanies).

Table 12: *t* Test for equality of means

Variable	Statistics
KNOWLEDGE INTENSIVE COMPANIES	
ROA	$t_{(280)}$ = 5.916; *p* =0.00
ROE	$t_{(280)}$ = 6.062; *p* =0.00
ROCE	$t_{(181)}$ = 3.232; *p* =0.00
ROS	$t_{(280)}$ = -0.605; *p* =0.51
Tobin's Q	$t_{(280)}$ = 8.775; *p* =0.00
NOT KNOWLEDGE INTENSIVE COMPANIES	
ROA	$t_{(202)}$ = 6.173; *p* =0.00
ROE	$t_{(202)}$ = 3.571; *p* =0.00
ROCE	$t_{(189)}$ = 5.967; *p* =0.00
ROS	$t_{(202)}$ = -1.826; *p* =0.07
Tobin's Q	$t_{(202)}$ = 6.824; *p* =0.00

5. Final remarks and expected future outcomes

This paper was focused on the association between the degree of "Intangibility" of European companies and the "Profitability", including the association between the "Degree of Intangibility" and the "Value of firms". Measuring the profitability through the key performance indicator ROA (return on assets), ROE (return on equity), and ROCE (return on capital employed),the most relevant findings of the empirical study evidence that there is a difference between the profitability and the firm value obtained by intangible-intensive companies and tangible-intensive companies. If profitability is measured using the indicator ROS (return on sales),we conclude that there is no difference between that indicator and the degree of company's intangibility.This assumption corroborates the principles stated on intangibles literature and related accounting standards, providingadditional empirical evidence towards a positive contribution to the intellectual capital literature and its impact on the performance obtained over the years to come.

References

ALShubiri, F.N (2015) "Impact of Intellectual Capital from Market Capitalization on Profitability in Financial Sector of Oman", *Mediterranean Journal of Social Sciences*, Vol. 6, No. 2, pp. 54.60.

Andrikopoulos, A. (2005) "The Real-Options Approach to Intellectual Capital Analysis: ACritique", *Knowledge & Process Management*, Vol. 12, No. 3, pp. 217-24.

Bontis, N., Dragonetti, N.C., Jacobsen, K. and Roos, G. (1999) "The Knowledge Toolbox: AReview of the Tools Available to Measure and Manage Intangible Resources", *European Management Journal,* Vol. 17, No. 4, pp 391-402.

Brooking, A. (1996), *Intellectual Capital, Core Assets for the Third Millennium Enterprises*, London, United Kingdom, International Thomson Business Press.

Chen, M. C.; Cheng, S. and Hwang, Y. (2005) "An Empirical Investigation of the Relationship Between Intellectual Capital and Firms' Market Value and Financial Performance", *Journal of Intellectual Capital,* Vol. 6, No. 2, pp 159-176.

Edvinsson, L. and Malone,M.S. (1997), *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*, New York, Harper Collins Publishers, Inc.

Eurostat (2014), High-tech Industry and Knowledge-Intensive Services (htec) Reference Metadata in Euro SDMX Metadata Structure (ESMS), Annex 8 – Knowledge Intensive Activities by NACE Rev. 2, available from http://ec.europa.eu/eurostat/cache/metadata3/Annexes/htec_esms_an8.pdf (accessed on February 2015).

Fincham, R. and Roslender, R. (2003), "Intellectual Capital Accounting as Management Fashion: AReview and Critique", *European Accounting Review*, Vol. 12, No. 4, pp. 781-95.

Ichijo, K. (2002), *Knowledge Exploitation and Knowledge Xxploration – Two Strategies for Knowledge Creation Companies*, in CHOO, C.W. The strategic Management of Intellectual Capital and Organizational Knowledge, New York: Oxford, pp. 477-483.

IFRF – International Financial Reporting Foundation (2004) *International Accounting Standard N.º38 – Intangible Assets,* available from http://www.ifrs.org/IFRSs/Pages/IFRS.aspx(accessed on January 2015).

Kok, A. (2007) "Intellectual Capital Management as Part of Knowledge Management Initiatives at Institutions of Higher Learning", *The Electronic Journal of Knowledge Management*, Vol. 5, No. 2, pp. 181-92.

Lev (2001)*Intangibles: Management, Measurement, and Reporting*, Washington, D.C., Brookings Institution Press.

Lev, B. and Zarowin,P. (1999)"The Boundaries of Financial Accounting and how to Extend them", *Journal of Accounting Research*Vol. 37, N. º 2, pp. 353-385.

Liang, C. J, and Yao, M. L. (2005) "The Value-Relevance of Financial and Nonfinancial Information: Evidence from Taiwan's Information Electronics Industry", *Review of Quantitative Finance and Accounting*, Vol. 24 N. º 2, pp. 135-157.

Mosavi, S.A., Nekoueizadeh,S. andGhaedi,M. (2012) "A Study of Relations Between Intellectual Capital Components, Market Value and Finance Performance", *African Journal of Business Management,* Vol. 6, N. º4, pp. 1396-1403.

Nascimento, E.M. Oliveira, M.C., Marques, V.A. and Cunha, J.V.A (2012)"Intangibles assets: Impacto Analysis of Intangibility Degree in Business Performance Indicators", Enfoque : ReflexoContábil, Vol. 31, N. º 1, PP. 37-52.

Oliveira, M.O., Schossler, D.P., Bandeira, P.B., Campos, R.E. andLuce, F.B (2010) Grau de Intangibilidade e o Desempenho Economico de Portfólios de Empresas Brasileiras, XXII ScientificInitiation Meeting - 2010, pp. 18-22.

Petty, R. and Guthrie, J. (2000) "Intellectual Capital Literature Review: Measurement, Reporting and Management", *Journal of Intellectual Capital*, Vol. 1 No. 2, pp. 155-176.

Riahi-Belkaoui, A. (2003) "Intellectual Capital and FrmPerformance of US Multinational Firms: a Study of the Resource-Based and Stakeholder Views", *Journal of Intellectual Capital*, Vol. 4, No. 2, pp. 215-226.

Stewart, T. A. (1997) *The Wealth of Knowledge – Intellectual Capital and the 21st Century Organization*, Currency, New York, NY.

Sullivan, P. (2000), *Value-Driven Intellectual Capital: How to Convert Intangible Corporate Assets Into Market Value*, Wiley.

Salojärvi, S. (2004) "The Role and Nature of Knowledge Management in Finnish SMEs", *International Journal of Learning and Intellectual Capital*, Vol. 1, No. 3, pp. 334–357.

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

Tan, H.P., Plowman, D., Hancock, P. (2007) "Intellectual capital and financial returns of companies", *Journal of Intellectual Capital*, Vol. 8, No. 1, pp. 76-95.

Vasconcelos, A.C.; Santos, R.F., Luca, M.M.M., Cunha, J.V.A. (2013) "Longitudinal Study of the Degree of Intangibility of the Largest Banks in Brazil"*, Journal of Accounting and Organizations,* Vol. 19, pp. 42-58.