



**University
of Ferrara**

PRESENTATION

AN ACADEMIC LITERATURE REVIEW ON THE REPORTING ON INTANGIBLES

for the European Financial Reporting Advisory Group (EFRAG)

by the

Research Team of the University of Ferrara, Italy

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Introduction

“The substantial foundation of the industrial corporation is its immaterial assets” and “All capital ... is subjected to an interminable process of valuation and revaluation ... on the basis of its presumptive earning-capacity, whereby it all assumes more or less of a character of intangibility”

Prof. Thorstein Veblen, U. of Chicago, 1904

Aims, Focus and Limitations

The general objective of this academic literature review is to identify, analyse and summarise academic papers that research on both intangibles and their contribution to the entity's **financial performance** (current profit, future earnings and cash flows) and its **market value**, and the **views and reactions by investors and financial analysts** dealing with information outside financial statements

The review is primarily aimed to match the **knowledge interests and information needs of EFRAG** and, more in general, those of a non-academic audience.

The focus of this review is on **unaccounted internally generated intangibles** that are not purchased separately or in business combinations. Also, **not separable intangibles** (e.g. reputation, business model, and human capital) are considered owing to their relevance for companies and their value creation broadly conceived

The review concentrates to the extent possible on quantitative – but considering also relevant qualitative – papers published from **2007 onwards**.

A general limitation is that not many companies produce information and numbers on unaccounted intangibles and this lack of data entails some limitations for the academic research working in this area.

Section 2

Methodology

Methodology and characteristics of the literature review

- Five main/core areas of analysis
 - A. Intangibles in a macro-perspective
 - B. Unaccounted intangibles and their impact on the value relevance of financial reporting
 - C. Information on specific unaccounted intangibles and its impact on company performance, market value, and users
 - D. Information on intellectual capital and its effects on company performance, market value, and users
 - E. Frameworks and models for measuring and reporting on intangibles and their consequences on company performance, market value, and users

A two-step methodology

- The first step
 - Focus on papers published since 2007
 - Searching of papers based on keywords specific for each area through Scopus, ISIWeb and Google Scholar
 - Selection of the top cited papers (through the number of citations per year)
 - First analysis of the papers to check for the consistency with the investigated topics
 - Building of a database with the essential features of the papers (such as: aim of the paper, methodologies, sample, variables and findings of the analysis)

A two-step methodology (2)

- The second step
 - EFRAG's support as expert judgement
 - Focusing on the papers of each area to submit to an in-depth analysis
 - Exclusion of some of the selected papers lying outside the interest of EFRAG
 - Inclusion of some papers that were not collected/selected in the first step according to the requests from EFRAG and the signalling of some academics and specialists.

Section 3

Pre-2007 fundamental papers on accounting for intangibles, the European Commission studies 2000-2017, and the OECD works

Studies by the European Commission

The most relevant of these studies and reports are the following:

- *The Intangible Economy – Impact and Policy Issues*, Report of the European High Level Expert Group (HLEG) on the Intangible Economy, prepared for European Commission (Enterprise DG), **November 2000**
- *Study on the Measurement of Intangible Assets and the Associated Reporting Practices*, prepared by the University of Ferrara (lead partner), the Stern School of Business (NYU), and the University of Melbourne for the Commission of the European Communities, Enterprise Directorate General, **April 2003**
- *Report on the Feasibility of a Pan-European Enterprise Data Repository on Intangible Assets*, Study by Mantos Associates in association with IASCF and Athena Alliance, prepared for the Commission of the European Communities, Enterprise Directorate General, **2004**
- *Reporting Intellectual Capital to Augment Research, Development and Innovation in SMEs (RICARDIS)*, by the High Level Expert Group (HLEG) on RICARDIS, prepared for the Commission of the European Communities, Research Directorate General, **June 2006**
- *Creating a Financial Market for IPR*, Study by the University of St. Gallen and Fraunhofer Institute, prepared for the Commission of the European Communities, Enterprise Directorate General, **December 2011**
- *Intellectual Property Valuation*, Final Report from the Expert Group on Intellectual Property Valuation, prepared for the Directorate-General for Research and Innovation, **May 2014**
- *Unlocking Investment in Intangible Assets*, Discussion paper no. 47 by Anna Thum-Thyssen et al., European Commission, Directorate-General for Economic and Financial Affairs, **May 2017**

Studies by the OECD

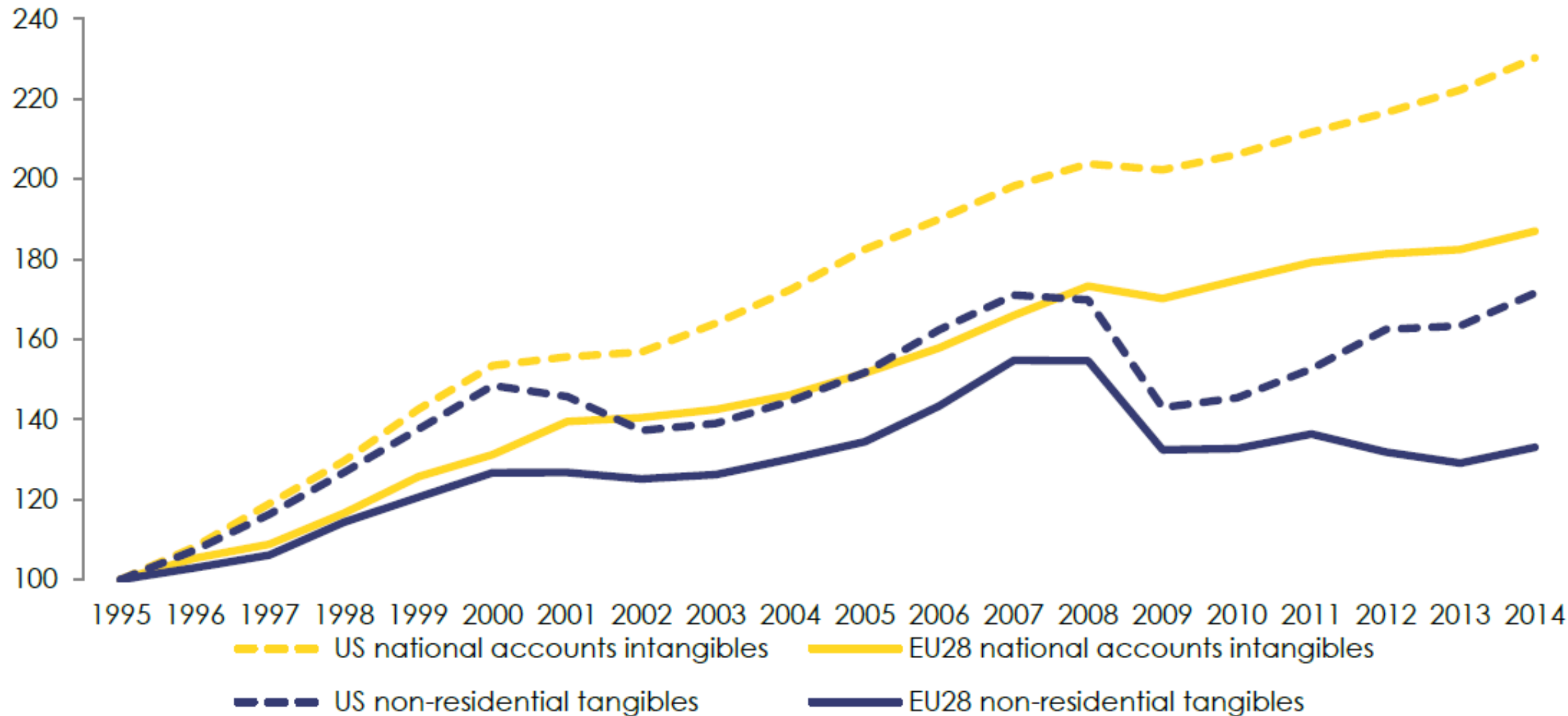
The most relevant OECD studies for the present review are:

- **Intellectual Assets and Value Creation: Implications for Corporate Reporting**, by Mrs. Annabel Bismuth in cooperation with Mr. Grant Kirkpatrick, **10 December 2006**
- **Intellectual Assets and Value Creation - Synthesis Report, 2008**
- **Corporate Reporting of Intangible Assets: A Progress Report, April 2012**
- **New Sources of Growth: Knowledge-Based Capital (KBC) – Key Analyses and Policy Conclusions – Synthesis Report, 2013**
- **Fostering the Use of Intangibles to Strengthen SME Access to Finance**, Centre for Entrepreneurship, SMEs and Local Development (CFE) and Working Party on SMESs and Entrepreneurship (WPSMEE) – Meeting of the WPSMEE Informal Steering Group on SME and Entrepreneurship Financing and Country Experts, **7-8 September 2017**

Section 4

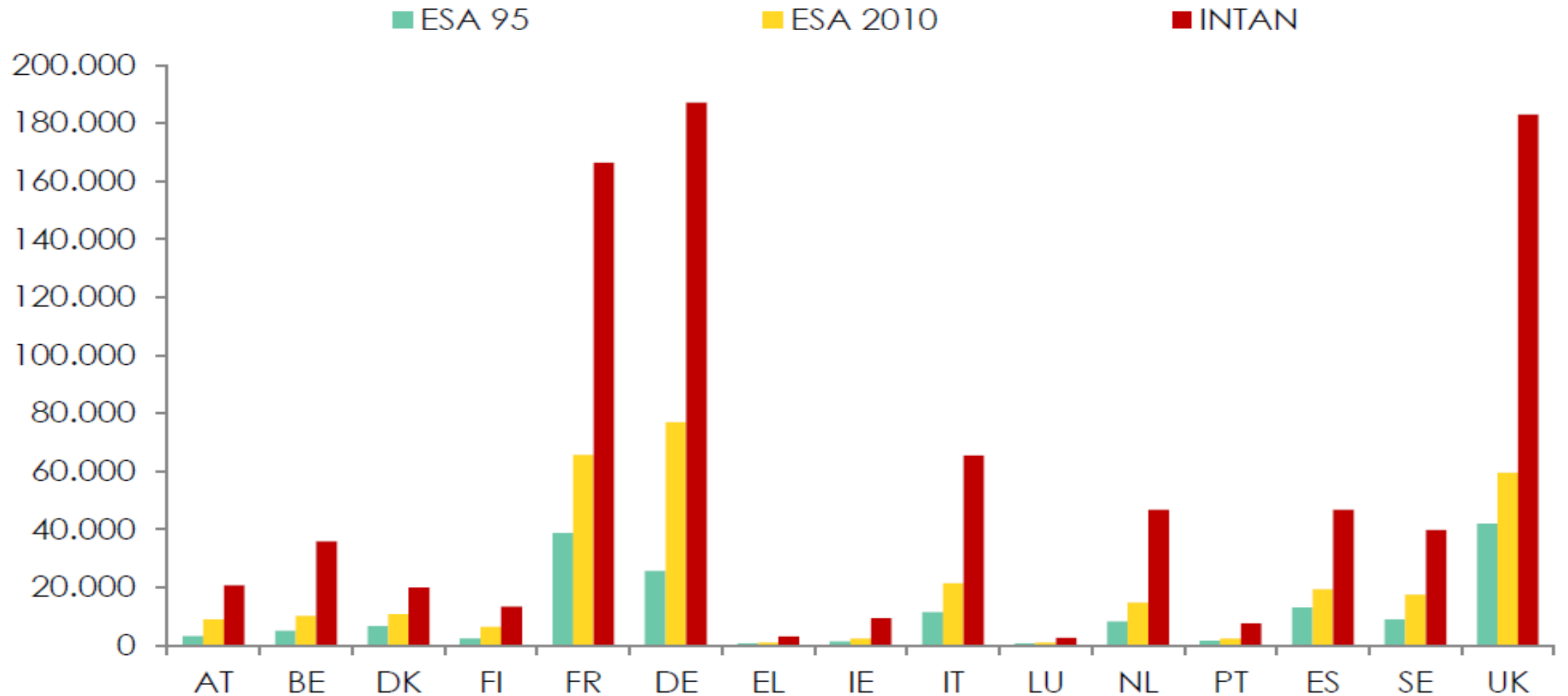
A) Intangibles in a macro perspective

Graph 1: Non-residential intangible and tangible investments in the EU-28 and the U.S., total economy;
Chain linked volumes, index 1995 = 100



Source: Thum-Thyssen et al., European Commission, 2017, p. 12.

Graph 2: Investment in business sector intangible assets in EU-15 [2013, million Euros], according to different accounting standards



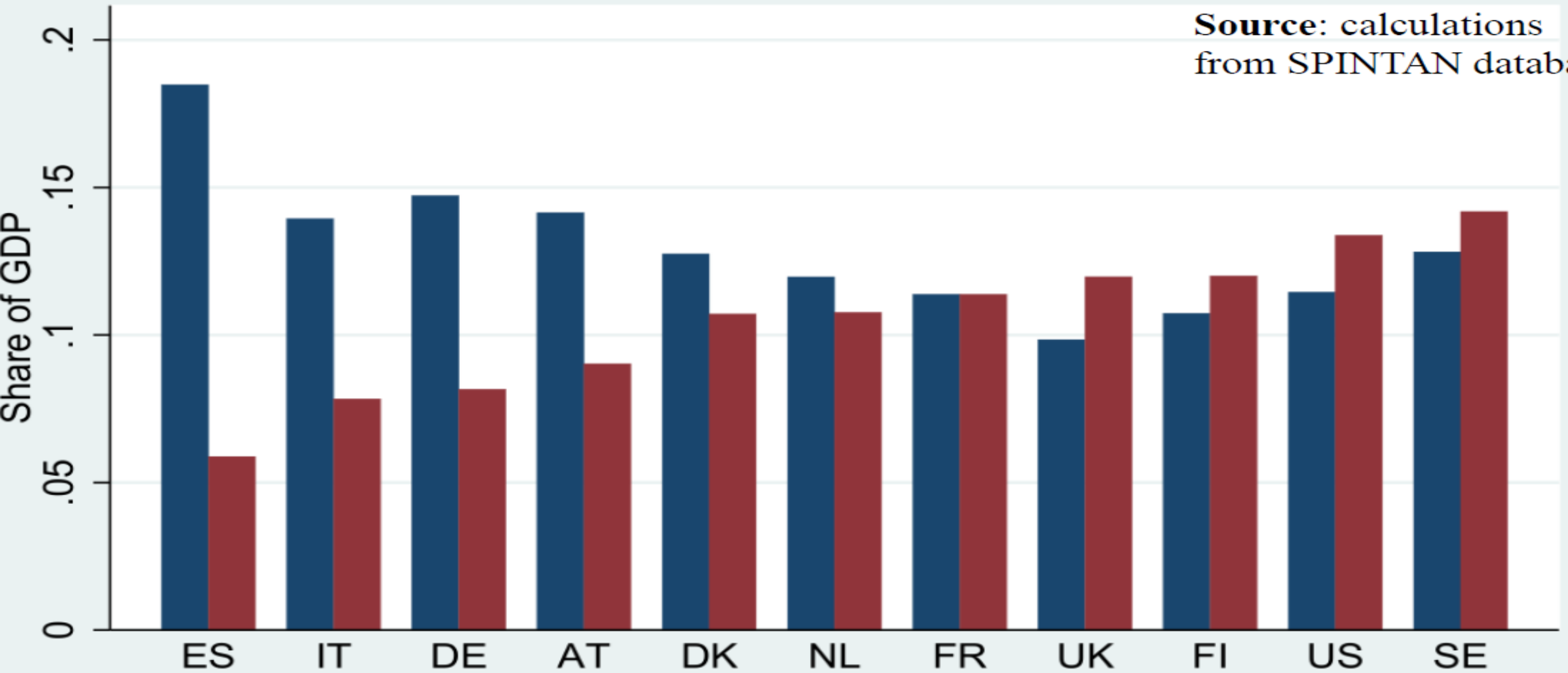
Note: Business sector defined as NACE Rev. 2 activities A to N (excluding L) plus R and S. Investments according to ESA 95 were obtained from ESA 2010 (NA-intangibles) diminished by investment in R&D.

Source: Thum-Thysen et al., European Commission, 2017, p. 13.

Tangible and intangible shares of GDP

(Averages, 1999-2013)

Source: calculations
from SPINTAN database



Source: Haskel et al., 2014

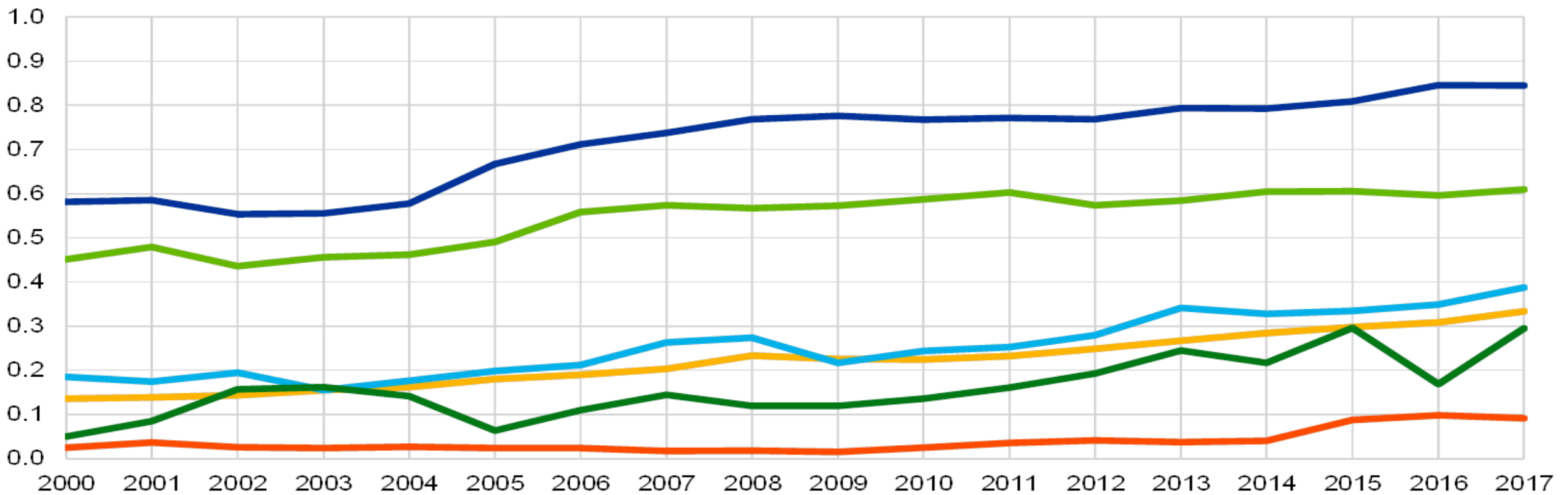


Note: Ranked by intangible share. GDP adjusted to include intangibles. Data for whole economy.

EUROPEAN CENTRAL BANK, 2018

Intensity of investments in intangibles per sector in the euro area (median values)

- Services
- Manufacturing
- Transport
- Communication
- Trade
- Construction



Source: Worldscope (listed euro area firms).

Note: This chart shows the ratio of intangible fixed assets to tangible and intangible fixed assets at book value.

Some outcomes from the macro-economic perspective

There is plenty of evidence that the macro-economic phenomenon of intangible investment has nowadays become quite extensive, and it appears to characterise a new economic phase that has been incisively defined as “capitalism without capital” (Haskel and Westlake, 2017): financial capital remains an important resource, but intangibles and intellectually derived resources mark a new form of capitalism, i.e. a new way to produce wealth and growth.

In light of the macro, meso and micro economic importance of intangibles, Thum-Thyssen et al. (2017) from the European Commission state that – amid other things – there is a need to enlarge the general understanding of knowledge creation and to further **improve the measurement of intangible assets** in order to allow sound and evidence-based policy support:

“Also important is an **improvement of systematic reporting of investments in all relevant intangibles and as a driver of value creation for individual firms**. This may also facilitate **getting access to finance** (capitalised intangibles might be used as collateral), **improve corporate governance and market transparency**. In fact, evidence suggests that the market value of a firm tends to be increasingly driven by its productive stock of intangibles than by the firm's tangible assets. **Policy can help by suggesting new standards for accounting and corporate disclosure**”

(p. 35, emphasis added)

Section 5

B) Unaccounted intangibles and their impact on the value relevance of financial reporting

The main topics

- The main topics addressed in the 17 papers which have been analysed in-depth:
 - The role of accounting principles in the recognition and reporting of intangibles
 - The factors influencing the disclosure about intangibles
 - The association of intangibles with the firm financial performance and/or value

The role of accounting principles in the recognition and reporting of intangibles

- Different positions among scholars
- Some scholars address the fact that financial statements have lost their relevance, due to the unaccounted intangibles and calls for modifications of accounting standards with the aim to close the gap between the book and the market value of the firm
- Others maintain that the value of intangibles that is unaccounted for in the balance sheet arises in the income statement. Consequently, there are no reasons for modifying accounting standard on intangibles

The role of accounting principles in the recognition and reporting of intangibles (*in detail*)

- Some scholars point to a progressive loss of relevance of financial statements due to the neglecting or mis-recognition of intangibles (for which managers and auditors are mainly to be “blamed”), and call for recognising them in the financial statement and in the balance sheet in particular (e.g. Lev, 2001; Lev & Gu, 2016; Lev, 2018 and 2019; Wyatt and Abernethy, 2008)
- Moreover, the little relevance that accounting standards attribute to intangibles also impacts on the (internal) rules that firms use to identify and classify their expenditure on intangibles (Hunter et al., 2012)
- However, results are not conclusive about the role of accounting standards in the recognition, measuring and reporting of intangibles. The adoption of IAS/IFRS has sometimes led to a loss of value relevance of earnings as some intangibles were no longer recognised as assets (Oliveira et al., 2010; Wyatt, 2002). However, the impairment approach to goodwill valuation required by IFRS conveys more useful information than does the former straight-line amortization approach (Oliveira et al., 2010; Chalmers et al., 2012).
- Penman (2009) points out instead that the omission of intangible assets from the balance sheet is not necessarily a deficiency, as the value of intangible (and other) assets can be ascertained from the income statement.
- Skinner (2008) and Skinner and Skinner (2011) detects that markets appear as being well functioning, and the case for a reform of accounting is still far from being necessary.

The factors influencing the disclosure about intangibles

- The volume and the quality of voluntary disclosure are linked to the needs of both financial investors and other stakeholders (Boesso and Kumar, 2007)
- The value relevance of these disclosures is also conditional upon the level of director ownership and the strength of the institutional features of a country (Ariff et al., 2013)

The association of intangibles with the firm financial performance and/or value

- Focus on environmental and social disclosure, intellectual capital, and human capital in particular, and their association with the firm performance or its market value
- Nearly all of the papers are based on the Resource-Based Theory of the firm
- In general, all the papers analysed find a positive association with intangibles, which is differently measured, and the financial performance or the stock value of companies

Section 6

C) Information on specific unaccounted intangibles and its impact on company performance, market value, and users

Objective of this section

This section will provide a review of the studies concerning the impact of the disclosure (including narrative) on specific internally generated intangibles (such as brands, patents, reputation, R&D, customer satisfaction/awareness, customer list/customer franchise, business model, organizational capital, human capital) on three fundamental elements:

- firm profitability and cash flows,
- market value and positioning, and
- investors and information users.

Inquiries into the specific risks connected to these intangibles will also be included.

Brands

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none"> The stock of brand-association* trademarks available to firms in time period t increases their cash flows, Tobin's q, return on assets, and stock returns, while reducing their cash-flow variability in period $t + 1$. Meanwhile, the stock of brand-identification** trademarks owned by firms in period $t-1$ influences the effects of brand-association trademarks on these financial indexes (<i>Krasnikov, Mishra, & Orozco, 2009</i>) 	<ul style="list-style-type: none"> Firms with a positive brand image are associated with a significant market-value premium, superior financial performance, and lower cost of capital (<i>Smith et al., 2010</i>) 	

* stock of all live brand-identification trademarks a firm owned in a given year;

** stock of all live brand-association trademarks a firm owned in a given year;

Patents

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">No direct relationship between patents and performance (<i>Artz, Norman, Hatfield, & Cardinal, 2010</i>)	<ul style="list-style-type: none">Patent share* has a significantly negative effect on corporate market value, however relative patents position has a significantly positive effect on corporate market value (<i>Chen & Chang, 2010</i>)Patent measures reflecting the volume of companies' research activity, the impact of companies' research on subsequent innovations, and the closeness of research and development to science are reliably associated with the future performance of R&D-intensive companies in capital markets (<i>Deng, Lev & Narin, 1999</i>)	

* The number patents a firm has in the technological field where it has most patents, divided by the total number of the patents owned by the firm

Reputation

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">The relationship between the firm's reputation and financial performance is non-linear but positive, and the process of the creation of value of companies by means of their reputation is moderated or influenced by a series of contingent factors (e.g. differentiation strategy, competitive intensity and power of stakeholders) (<i>Sánchez, J L F, Sotorrío, L L. 2007</i>)	<ul style="list-style-type: none">Superior reputations increase shareholder value in the long term. In addition, non financial reputation and financial reputation have a differential impact on shareholder value: superior non financial reputations produce higher abnormal returns than superior financial reputations (<i>Raithel S., Schwaiger M., 2015</i>)	<ul style="list-style-type: none">Both likeability and competence are value-relevant in regard to investors' expectations about future firm value, and the value-relevance of corporate reputation is stakeholder group-specific (<i>S. Raithel, Wilczynski, Schloderer, & Schwaiger, 2010</i>)

R&D

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">• The effect of initial R&D on high-tech firm growth is through increasing levels of interfirm alliances in the first post-entry years. Initial R&D also stimulates new product development later on in the life course of high-tech firms, but this does not seem to affect firm growth (<i>Stam & Wennberg, 2009</i>)• Earnings performance is negatively related to the quantity of narrative R&D disclosure (<i>Merkley, 2014</i>)• Firms capitalize larger amounts of R&D as a means of facilitating access to public debt markets, and capitalized R&D investments reduce the cost of private debt (<i>Kreß, Eierle, & Tsalavoutas, 2019</i>)	<ul style="list-style-type: none">• R&D investments in the manufacturing sector contribute more positively to firm market value than in the service sector (<i>Ehie & Olibe, 2010</i>)• The R&D-related voluntary disclosure is value relevant to investors beyond the recognized earnings, book values, and capitalized R&D, and it is associated with higher share price informativeness (<i>Chen, Gaviious & Lev, 2017</i>)	<ul style="list-style-type: none">• The incremental value-relevance of disclosing patent counts/citations is greater than that of capitalizing R&D expenses for the firms with high-patent level, and the value relevance of this patent disclosure is more pronounced for firms in industries with stronger protection of intellectual property (<i>Ciftci & Zhou, 2016</i>)• Analysts' incremental contribution to investors' decisions is larger in intangibles-intensive companies than in companies with low levels of intangibles, this meaning that financial report deficiencies are partially compensated for by other information sources available to them (<i>Amir et al., 2003</i>)

Customer satisfaction and awareness

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">• Firm-level customer satisfaction measures can be economically relevant to the stock market, but they are not completely reflected in contemporaneous accounting book values (<i>Ittner & Larcker, 1998</i>)• The CSR and firm performance relationship is a fully mediated relationship through contribution of CSR to firm performance via better reputation and competitive advantage followed by higher level of customer satisfaction. (<i>Parastoo, So & Saeidi, 2015</i>)	<ul style="list-style-type: none">• Customer satisfaction is a metric that provides valuable information to financial markets. The robust impact of customer satisfaction on stock return risk indicates that it would be useful for firms to disclose their customer satisfaction scores in their annual report to shareholders (<i>Tuli & Bharadwaj, 2009</i>)	<ul style="list-style-type: none">• Positive changes in customer satisfaction not only improve analyst recommendations, but they also lower dispersions in those recommendations for the firm (<i>Luo, Homburg, & Wieseke, 2010</i>)• The quantity of backward-looking disclosures of customer metrics is not associated with analysts' uncertainty, and it is weakly associated with investors' uncertainty. Meanwhile, the quantity of forward-looking disclosures of customer metrics has a significant negative, or an insignificant, effect on analysts' uncertainty, whilst it has a significant negative impact on investors' uncertainty (<i>Bayer et al., 2016</i>)

Customer list/customer franchise

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">The measure of customer franchise value, based on information voluntarily disclosed by some firms, is significantly positively associated with stock price and it is positively associated with future earnings and analysts' forecast errors (thus reducing their error rate). The value of the customer equity measure is positively and significantly associated with the market value of the firm, as well as with future earnings and analysts' forecast errors (thus reducing their error rate) <i>(Bonacchi, Kolev & Lev, 2015)</i>		

Business model

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">• The results suggests generic models emerging in an industry, indicating that there are multiple ways to succeed, such that firms gravitate toward standard models and certain of these perform better (<i>Morris, Shirokova & Shatalov, 2013</i>)• Regarding the business model design, it is expected that the more novelty centered (more efficiency centered) an entrepreneurial firm's business model design is, the higher the firm performance, especially in environments characterized by high resource (low resource) munificence (<i>Zott & Amit, 2015</i>)		<ul style="list-style-type: none">• The results indicate that the specific business model typologies were closest to the analysts' understanding, incorporating elements of both the narrow and broad comprehensions of the business model. For example, the analysts described the method of doing business; focussing on the whole enterprise system and the company's architecture for generating value. Although, the term business model initially was found to be a misunderstood concept, and in fact rendering mainly negative associations amongst the analyst community, the analysis indicates that the particularities of strategy and competitive strengths mobilised by the analysts in their understanding of the case company in fact comprised a very comprehensive description of the business model when pieced together (<i>Nielsen & Bukh, 2011</i>)

Organisational capital

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">The authors developed a firm-specific measure of organizational capital and document that it is associated with five years of future operating and stock return performance, after controlling for other factors. Thus, their organizational capital measure captures firms' fundamental ability to generate abnormal performance. They found that executive compensation is positively associated with the measure of organizational capital. Collectively the results show that organizational capital is an important intangible asset that is related to firm value and crucial corporate decisions (<i>Lev et al., 2009</i>)		<ul style="list-style-type: none">Sell-side analysts particularly use information on intangibles when covering companies with a relatively positive future outlook (positive recommendations). Analysts use more information on intangibles when covering less mature or smaller sized companies. The analysts generally perceived non-financial information as more important than the financial inputs (<i>S. Grüber, 2014</i>)

Human capital

Firm profitability and cash flows	Market value and positioning	Investors and information users
<ul style="list-style-type: none">Human capital disclosure is found to have a positive relation with firm's internal factors, such as workforce's capabilities, motivation and commitment, or with organizational performance and innovation ability. Human capital disclosure is found to have a positive relation also with firm's external factors, such as the firm attractiveness and reputation for the external stakeholders (<i>Gamerschlag, 2013</i>)	<ul style="list-style-type: none">Brand Equity and Human Capital are found to have a complementary relationship on firm value and, specifically, there is a significant and positive interaction term for Tobin's q and cash flows, and a negative interaction term for cash flow volatility (<i>Vomberg & Homburg, 2015</i>)	

Section 7

D) Information on intellectual capital and its effects on company performance, market value, and users

Main topics addressed

- 25 articles reviewed in-depth in this section
- The most investigated issues:
 - Intellectual Capital and its effects on company performance
 - Intellectual Capital and its effects on market value
 - Intellectual Capital and its effects on investor and financial analyst reactions
- Intellectual Capital (IC) is typically conceptualised as being composed of three main capitals → Organisational Capital, Human Capital and Relational Capital
- Interconnections amongst the above three categories are shown to exist

Intellectual Capital and its effects on company performance and market value

- Several studies have adopted the **Resource-based View** and its different formulations to investigate if IC can influence the competitive positioning of companies (e.g., dynamic capabilities impact on the relationship between IC and firm-level performance)
- **Corporate governance mechanisms** → Cerbioni and Parbonetti (2007) and Li et al. (2008) found that some of them can influence the disclosure in terms of quantity and/or quality of IC (e.g. proportion of independent directors & audit committee size)
- **IC and the financial sector (esp. banking)** → Cabrita and Bontis (2008) in Portugal and Mention and Bontis (2013) in Luxembourg and Belgium have investigated the relationship between IC disclosure and banks' performance → they found that the three IC components affect each other, and that human capital affects structural and relational capitals (the latter both directly and indirectly) and business performance
- **Innovation** → Kalkana et al. (2014) find that intellectual capital, innovation and organisation strategy positively affect company performance
- **Market value** → Orens et al. (2009) examine the impact that web-based intellectual capital reporting has on firms' value and its cost of finance → the more information on intellectual capital is disclosed, the less is the cost of capital, and this can be referred to all the three components of IC

Intellectual Capital and its effects on investor and financial analyst reactions

- Barth et al. (2001) have examined the relationship between analysts' coverage and intangible assets → i.e., whether the presence of intangibles assets in a firm can influence the willingness of analysts to follow it

Findings → firms and industries with higher research and development expenses and firms with higher advertising expense have greater analyst coverage

- Hsu and Chang (2011) have investigated intellectual capital disclosure and analysts' forecast

Findings → voluntary disclosure of intellectual capital can facilitate analysts forecasting process, especially if the value of the intellectual capital is not easily verifiable.

Section 8

E) Frameworks and models for measuring and reporting on intangibles and their consequences on company performance, market value, and users

The works of this section

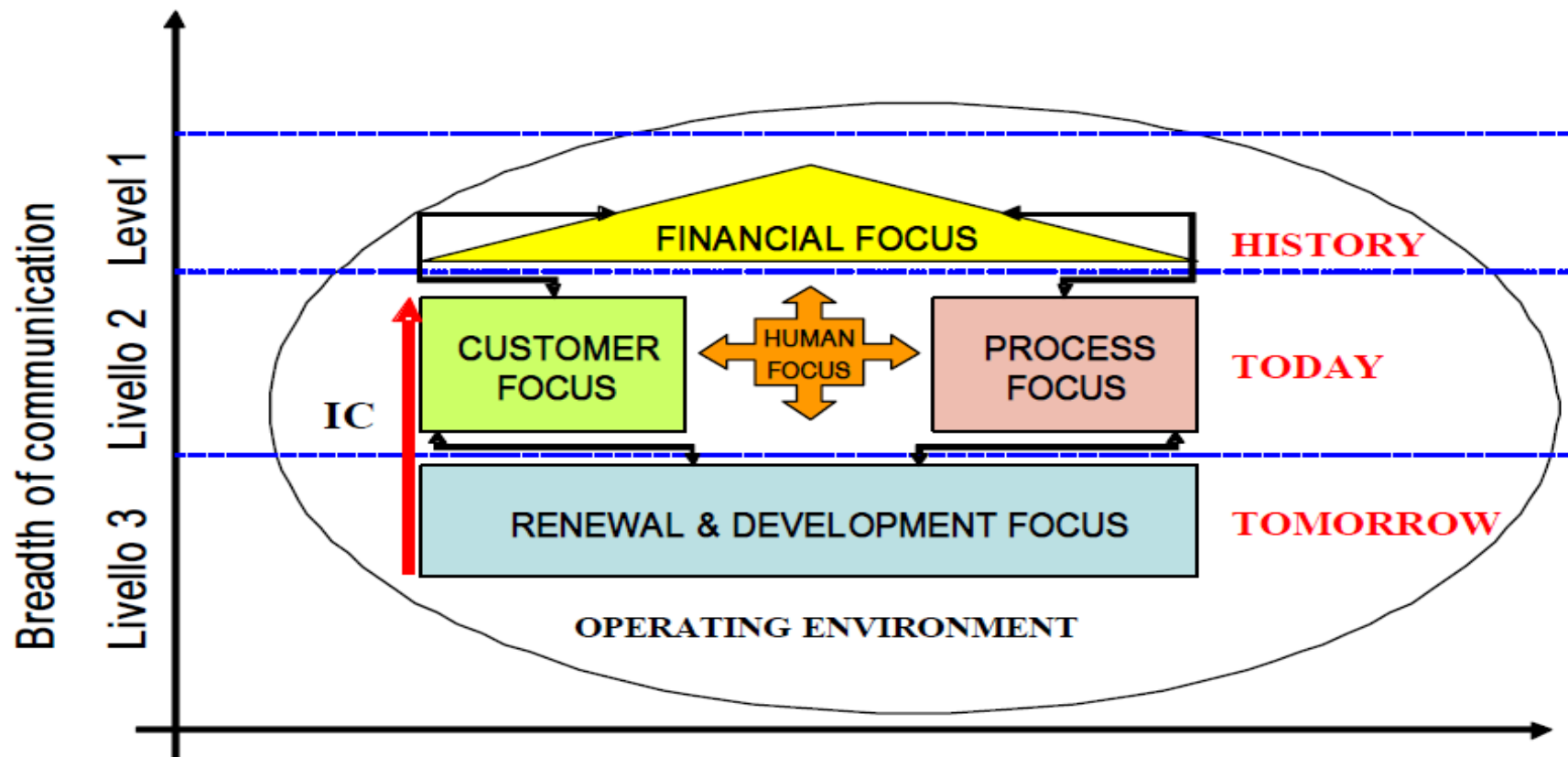
- There are in total 16 works reviewed in-depth:
- 14 academic articles +
- The International Integrated Reporting Framework by the International Integrated Reporting Council (IIRC) in December 2013, and The Intangibles Reporting Framework issued by the World Intellectual Capital/Assets Initiative (WICI) in September 2016
- The models and tools proposed for intangibles/intellectual capital disclosure, reporting and valuation are also briefly presented

The models and tools proposed for intangibles/intellectual capital disclosure, reporting and valuation

- a) The Skandia Navigator by Edvinsson (1997) and Edvinsson and Malone (1997)
- b) The Intangible Asset Monitor by Sveiby (1997)
- c) The Balance Scorecard by Kaplan and Norton (1996, 2000)
- d) The Knowledge Capital Earnings by Lev and Mintz (1999)
- e) The Value Chain Scoreboard by Lev (2001)
- f) The Strategic Resources & Consequences Report (Lev and Gu, 2016)
- g) The Value Added Intellectual Capital Coefficient (VAIC) (Pulic, 2000, 2003 and 2005)
- h) The WICI Framework
- i) The Integrated Reporting Framework

a) The Skandia Navigator by Edvinsson (1997) and Edvinsson and Malone (1997)

- The SN aims to enable a holistic understanding of how a company creates value
- IC as composed of five categories of assets



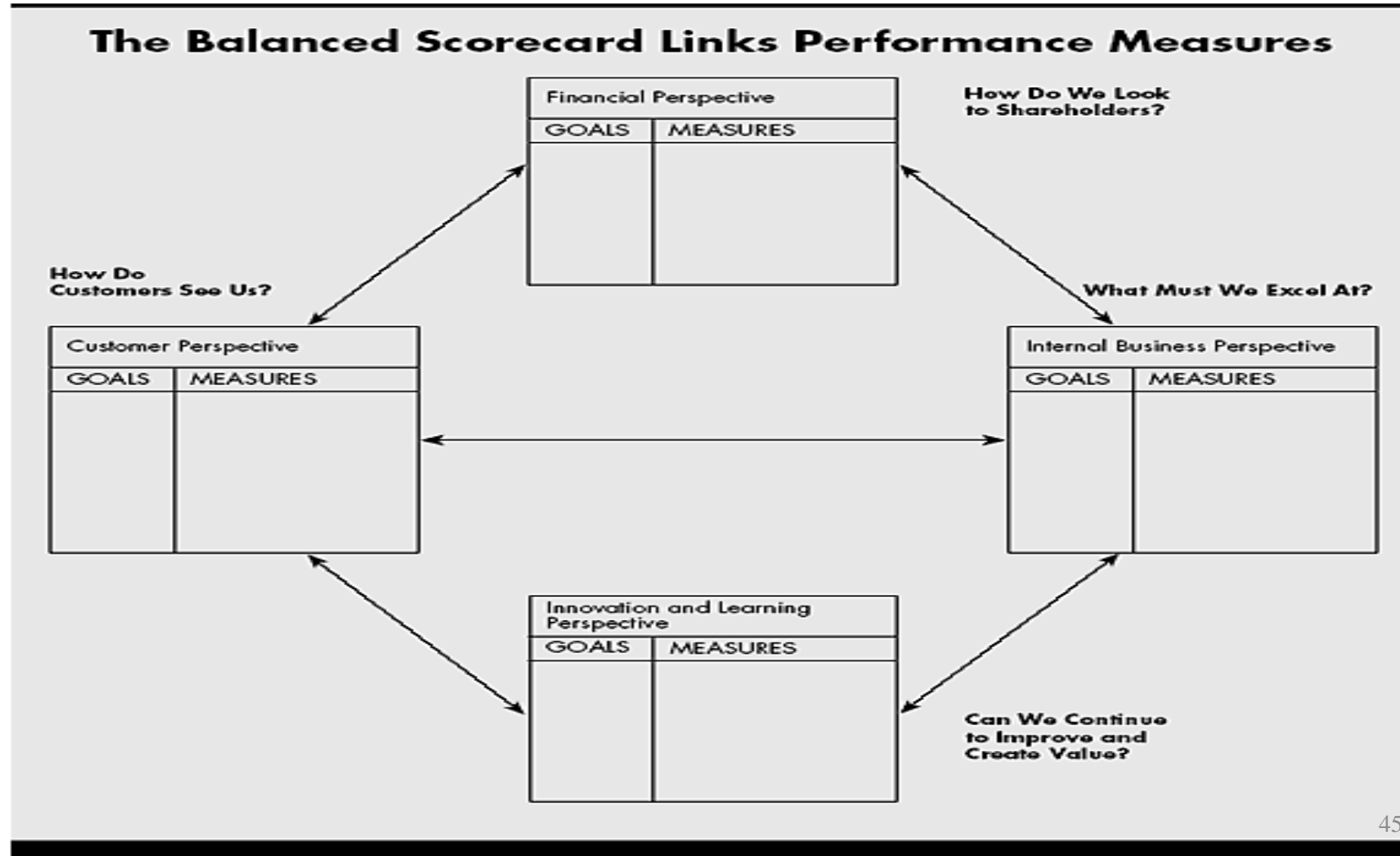
b) The Intangible Asset Monitor by Sveiby (1997)

- It is a method for measuring and presenting information on intangible assets
- Rationale → individuals in organizations create external and internal structures to express themselves

The Intangible Assets Monitor		
External Structure	Internal Structure	Competence
Indicators of Growth/Renewal	Indicators of Growth/Renewal	Indicators of Growth/Renewal
Indicators of Efficiency	Indicators of Efficiency	Indicators of Efficiency
Indicators of Stability	Indicators of Stability	Indicators of Stability

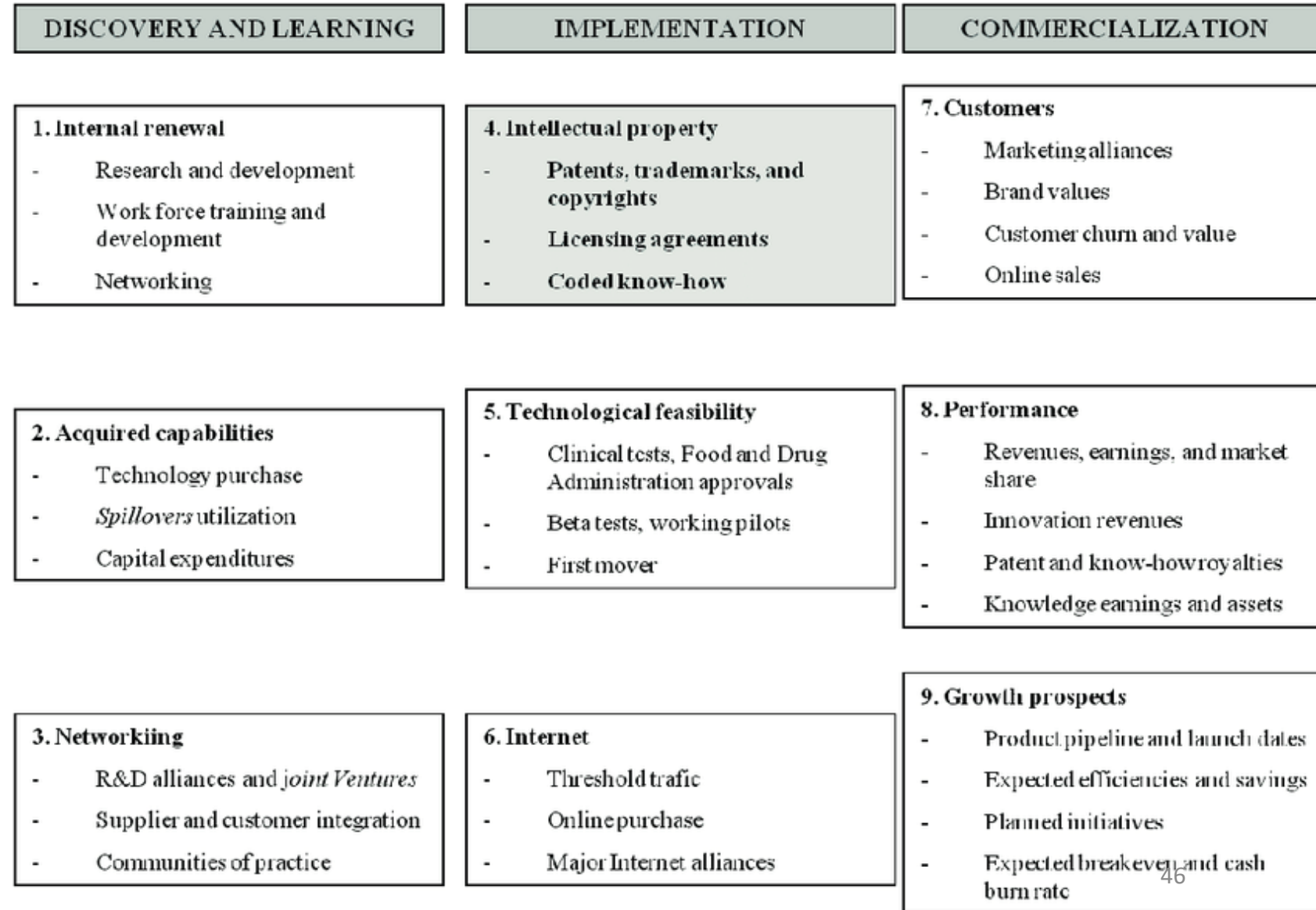
c) The Balance Scorecard by Kaplan and Norton (1996, 2000)

- The company's vision and strategy can be operationalised through four perspectives
- Proposed as an evolution of management/ internal control systems



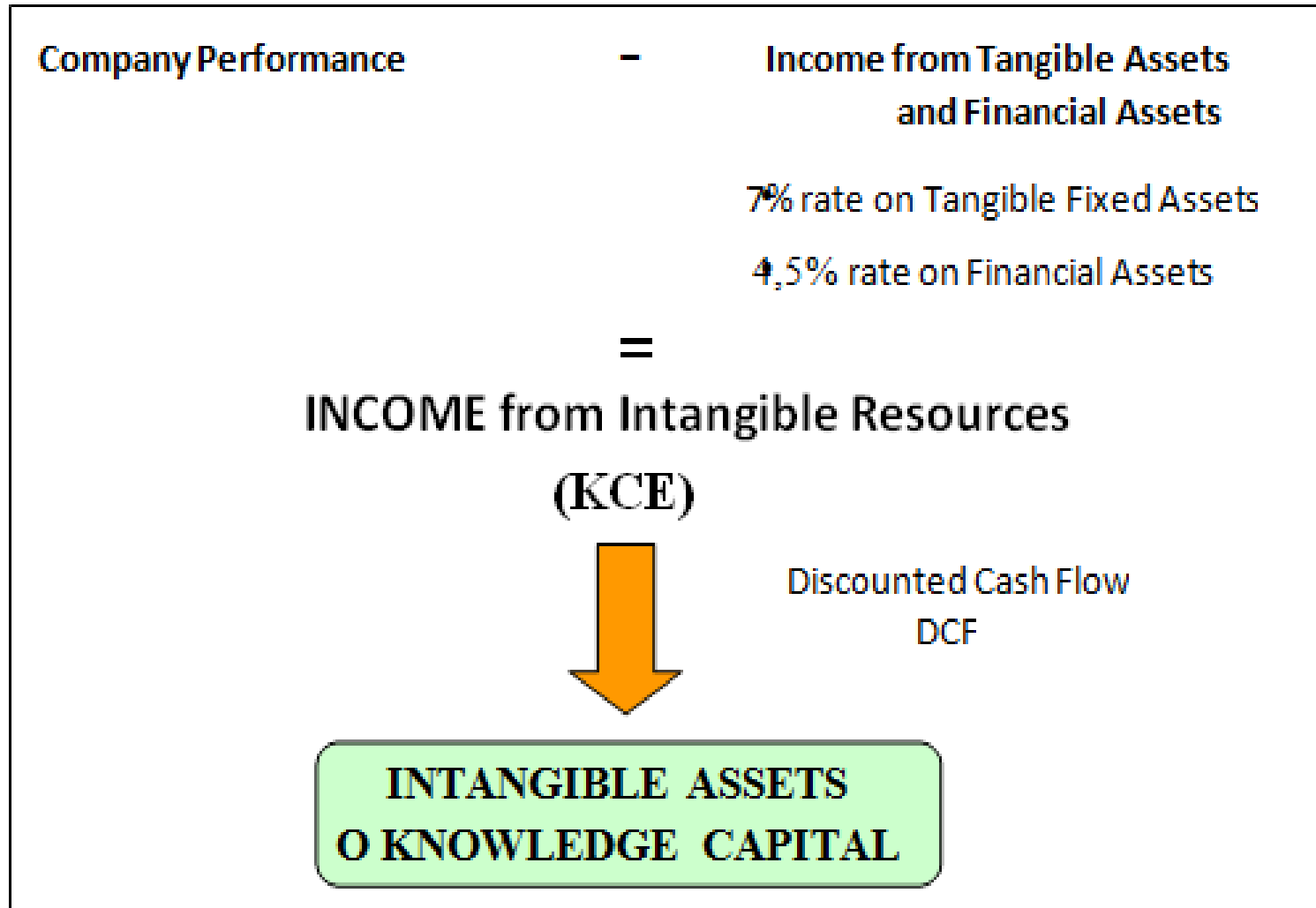
d) The Value Chain Scoreboard by Lev (2001, 2002)

- It is a tool to provide a holistic picture of the firm's capabilities to create economic value
- It articulates value creation in a cycle of development in terms of discovery/learning, implementation, and commercialization
- It is more easily applicable to R&D companies



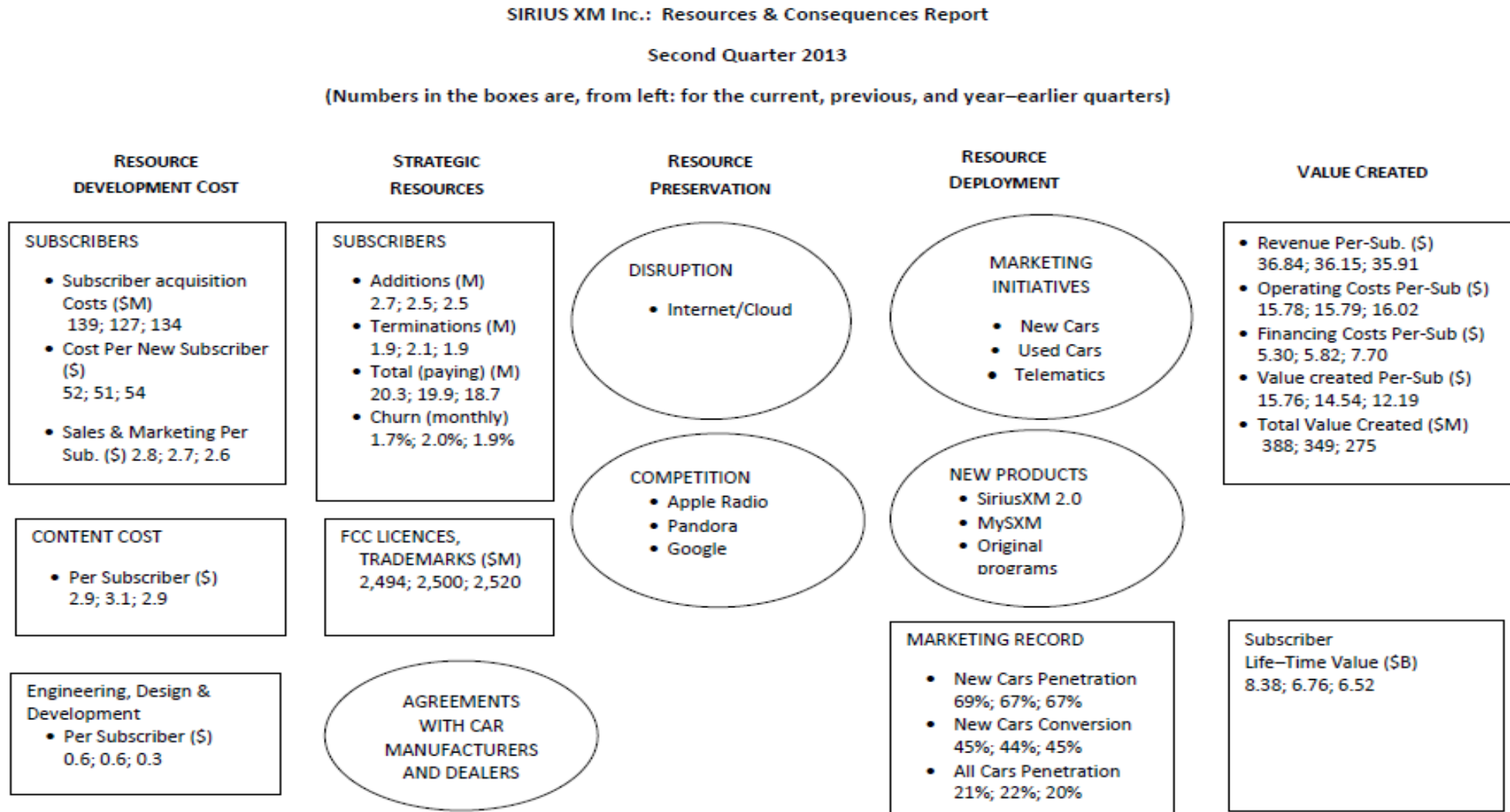
e) The Knowledge Capital Earnings by Lev & Mintz, 1999

- This methodology analyses the returns on physical and financial capital and determine the economic value of an enterprise's intellectual capital
- It measures the value of intangible assets based on the economic concept of "production function" → the firm's economic performance is stipulated to be generated by the three major classes of inputs - physical, financial, and knowledge assets



f) The Strategic Resources & Consequences Report by Lev and Gu (2016)

- An evolution of the Value Chain Scoreboard
- This is more generic and is applicable to a wide range of sectors



Note: boxes provide quantitative data, while circles provide qualitative information

g) The Value Added Intellectual Capital Coefficient (VAIC) by Pulic (2000, 2003 and 2005)

The VAIC model is intended to measure the extent to which a company produces added value based on intellectual capital/resources efficiency → it uses accounting numbers

VAIC calculations are based on:

- a. human capital (HC), which is basically interpreted as employee expenses,
- b. structural capital (SC), which is interpreted as the difference between produced value added (VA) and human capital (HC), i.e. $SC = VA - HC$; and
- c. capital employed (CE), which is interpreted as financial capital invested (asset value).

Based on these definitions and assumptions VAIC is calculated as the direct sum of key efficiency figures, which are expressed as ratios:

- a. capital employed efficiency (CEE) = VA/CE
- b. human capital efficiency (HCE) = VA/HC ; and
- c. structural capital efficiency (SCE) = SC/VA .

As an intermediate result, intellectual capital efficiency (ICE) is defined as

- $ICE = HCE + SCE$

and finally

- $VAIC = ICE + CEE$

g) The Value Added Intellectual Capital Coefficient (VAIC) by Pulic (2000, 2003 and 2005) (cont'd)

VAIC is thus a relational index, in which produced value added is compared to capital employed and both human capital (i.e. employee expenses) and structural capital.

The VAIC index normally ranges between 1 and 3, and it is calculated as the sum of the three ratios of value added to capital employed (CEE), value added to human capital (HCE) and structural capital (whose value is very close to the EBIT) to value added (SCE).

VAIC is a model very often employed and studied, but not always understood (measure of efficiency of IC, not of IC). Furthermore, its variables are unstable and do not seem to provide a rigorous model for measuring the contribution of Intellectual Capital resources to the financial and market performance of an organization

Academic papers analysing VAIC have many inconsistencies regarding dependent, independent and control variables → very ambiguous results on the robustness and efficacy of VAIC

h) The WICI Intangibles Reporting Framework by WICI (2016)

- Purpose → to establish the principles, the contents and the structure for the reporting of intangible resources that are material for an organization's value creation process and its communication to stakeholders
- Its primary target audience is all companies and other organizations of the private, public & non-profit sectors
- The Framework is principles-based and a companion framework to the International <IR> Framework
- It provides a definition and a classification of intangibles, offers interpretations of the main principles for intangibles reporting and communication, and outlines the possible structure and contents of reporting on intangibles

h) The WICI Intangibles Reporting Framework by WICI (2016) (cont'd)

- WIRF recognises that intangibles may impact two distinct but inter-connected forms of value:
 - *Strategic value* is that related to the enhancement of the competitive, market, product, reputation, and/or risk profile of the organization
 - *Financial value* is that linked to the generation of net cash flows over time
- Intangibles are considered as substantially equivalent to the notion of Intellectual Capital
- Five ‘guiding principles’ according to which information on intangible resources can be reported and communicated, namely materiality, connectivity, conciseness, comparability and future orientation
- It proposes KPIs and a structure for intangibles reporting

h) Corporate reporting landscape according to WICI

Corporate Reporting

Financial Reporting

Intangibles Reporting

Sustainability Reporting

Financial Capital

Manufactured Capital

Human Capital

Intellectual Capital*

Social and Relationship Capital

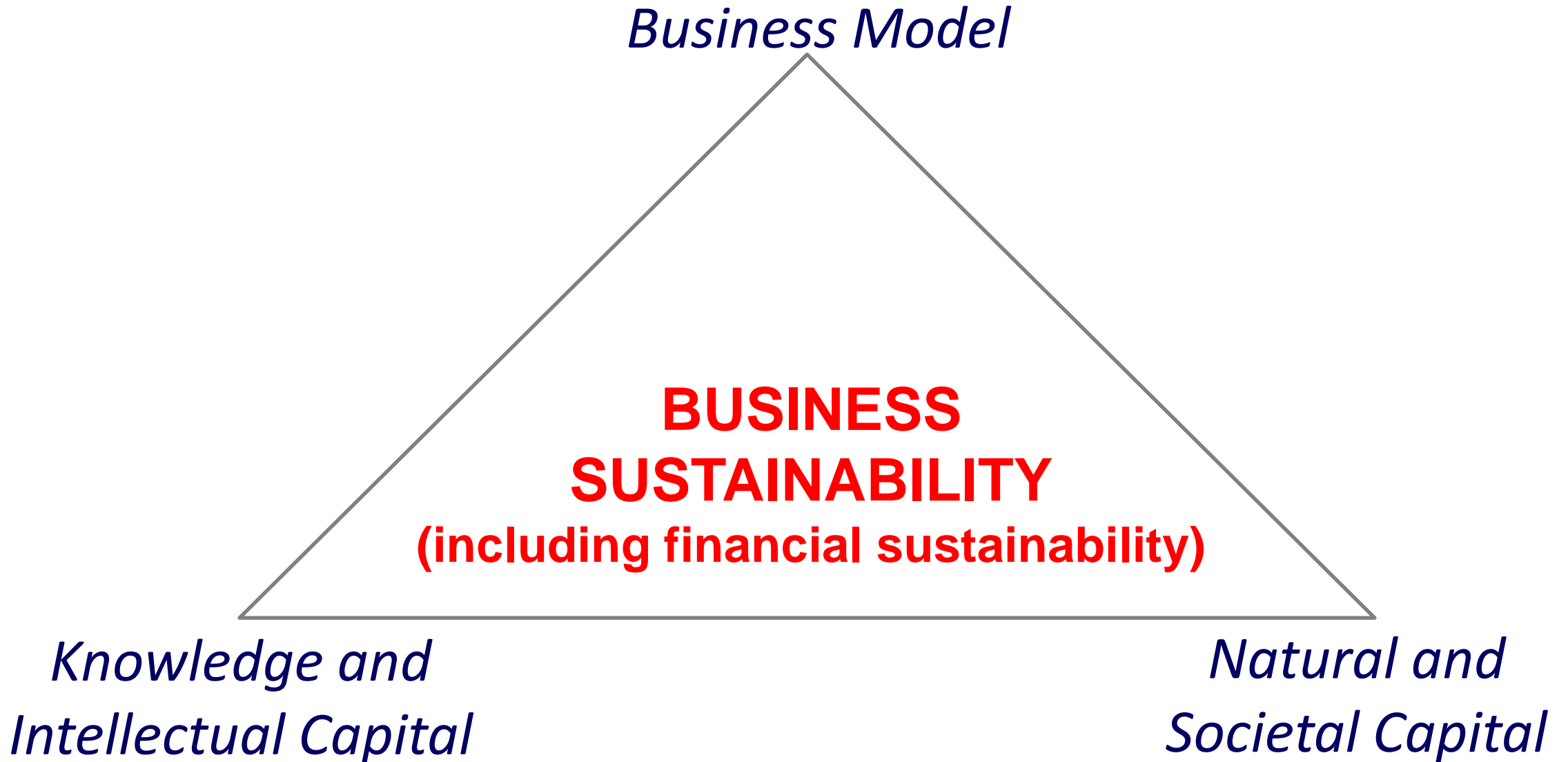
Natural Capital

Six capitals as defined by IIRC

Source: WICI Framework, 2016 * Organisational Capital according to WICI Framework ⁵³

h) Towards the Concept of «Business Sustainability»

(WICI Intangibles Reporting Framework, 2016)



WICI Industry-Based, Value Creation-Oriented KPIs

- Electronic components (WICI Japan)
- Pharmaceutical (WICI Japan)
- Automotive/automobile (WICI Japan)
- Telecommunications (WICI Europe + EFFAS CIC)
- High Technology (EBRC + Gartner) (in XBRL)
- Mining (EBRC + Gartner) (in XBRL)
- Fashion & Luxury (WICI Europe + EFFAS CIC)
- Electricity (WICI Europe + WICI Italy)
- Oil and Gas (WICI Europe)
- Food & Beverage (WICI Europe + WICI France)

i) The International <IR> Framework by the International Integrated Reporting Council (2013)

- Integrated Reporting is also a framework that recognises the relevance of intangibles and intellectual capital
- It aims to help companies communicate to the providers of financial capital and the other stakeholders how they are planning to continue creating value in the short, medium and long-term
- The concept of integrated reporting is based on a multi-capital thinking → organisations rely on a variety of capitals to create value
- These capitals represent in fact the inputs to the company business model and are then transformed into outputs (products/results) and outcomes (impacts)

i) The International <IR> Framework by the International Integrated Reporting Council (2013)

(cont'd)

Studies on the relationship between <IR> and intangibles disclosure & reporting:

- Stacchezzini et al. (2019) → integrated reporting is able to revitalise the function of IC and its understanding throughout the organisation
- Terblance and De Villiers (2019) → the adoption of integrated reporting ‘pushes’ companies to disclose more information on IC
- Girella et al. (2019) found a positive association between the presence of information on intangible resources and the willingness to adopt integrated reports

Section 9

Concluding Remarks

Concluding Remarks

Basic economic characteristics of intangibles

Intangibles do not represent a new issue per se, but today it has acquired a fundamental economic prominence at both macro and micro level. Companies have become more and more “conceptual”, as OECD (2012) has evidenced

In being “conceptual”, a company can grant significant rewards (scalability of operations, virtually zero marginal costs, network externalities, “locking-in” of customers), but also high risks, too (e.g., heavy, largely irreversible sunk-costs, the property rights that may be either non-existent as on human capital, or hard to enforce as for know-how, or the unlicensed use of technology)

Furthermore, it is difficult to estimate *ex ante* the precise use of intangible inputs, the potential products, and the timing and magnitude of the intangibles-derived benefits → high levels of uncertainty

Most of intangibles do not have an active market and then a reliable price/value. Hence, they are a challenge for traditional accounting → intangibles represent a sort of “stress test” to the conceptual foundations and objectives of accounting and, more in detail, to the meaning of “value” for accountants and its recognition and calculation

Concluding Remarks (2)

Intangibles and general findings of academic research

In general terms, from the academic literature review it can be synthetically concluded that:

- Information on unaccounted intangibles tends to be directly and positively correlated with company performance and cash flows
- Information on unaccounted intangibles tends to be associated with the market value of companies, and indeed these resources are (partially) explicative of this value over time (i.e. they are value relevant)
- Information on unaccounted intangibles tends to be well received and useful to users and, in particular, to financial analysts and investors, but not many studies in this perspective are present in the academic literature

Concluding Remarks (3)

Potential solutions from the academic literature and the international bodies

Already in 2000, in what probably is the 1st literature review on intangibles, Cañibano et al. note that in general terms guidelines for the identification, measurement, reporting and management of value relevant intangibles are missing

Section 8 has illustrated some potential solutions that have been elaborated by the academic literature and the international specialised organisations (WICI and IIRC).

However, it is fair to say that to date none of these potential solutions seems to have found a large rate of adoption by companies, investors and professionals.

Only integrated reporting appears to be quite widespread at an international level, even though the principles-based <IR> Framework does not indicate in a concrete way how to measure and disclose the intangible-type of capitals leaving this issue to its company adopters → integrated reporting as a sort of “trigger” for intangibles measurement and disclosure

Concluding Remarks (4)

Intangibles and traditional accounting (financial statements)

In this respect, the positions in the academic literature are much diversified. According to Lev (2001) and Lev and Gu (2016), there are serious economic consequences for the firm from the poor accounting treatment of intangibles → one of the main causes for the loss of relevance of accounting. Mismeasurement of intangibles has adverse economic consequences in terms of:

- External investment decisions;
- The level of information asymmetry on a firm (volatility of share prices & insider trading);
- The internal/management information systems and decision making;
- The accountability of management for actions/decisions in managing the firm's resources;
- The lack of data for analysis and rational external resource allocation.

Hence, still following Lev (2001) and Lev and Gu (2016), this situation has negative effects on

- value measures (e.g., market-to-book ratio) that are biased,
- performance measures (ROE, ROA, EVA) that are deceiving, and
- the prediction of future earnings and cash flows, that is largely flawed.

Also, and even more seriously, internal corporate resource allocation are seriously distorted.

Then, recognition of intangibles in FS should be broadened, but not in a mechanistic way (*cont'd*)

Concluding Remarks (5)

Lev and Zambon (2003) underline that most of the ‘problems’ identified in relation to intangibles are similar to some in traditional financial accounting, such as the lack of precision or exactness that can be found in Fair Value level 3 and the impairment test

Other authors point out instead that the effect of intangibles on corporate value creation can be seen in the Income Statement (Penman, 2009), that investors and financial analysts are happy already with the information they have (Skinner, 2008), that this possible accounting change would provide a further occasion for managerial manipulation of earnings and information, and that such a change is very difficult and nobody really wants it.

Intangibles and disclosure

Another possible solution refers to financial statement disclosure and/or narrative reporting (e.g., management commentary), possibly recurring to ad hoc KPIs for measuring intangibles in the different industries and contexts. In this respect, WICI KPIs are quite unique.

However, also in this case there are positive aspects (a more extended information on these resources), but also negative ones, such as the lack of a unified and uniform methodology for the KPI calculation and the provision of information, and the difficult comparability of the resulting data and disclosure.

Final Observation

The challenge we accountants face is to learn how to manage and report on these “invisible” resources for better understanding company financial performance, market value and its resilience.

After all, intangibles are an issue we have to take into account for many years ahead.

THANK YOU!

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INTANGIBLES: THE EUROPEAN STATE OF THE ART

3rd International Policy Conference

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