



**University
of Ferrara**

PRESENTATION

AN ACADEMIC LITERATURE REVIEW OF 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

General objective → to identify, analyse and summarise academic papers that research on both intangibles and their contribution to the entity's **financial performance** and its **market value**, and the **views and reactions by investors and financial analysts** dealing with information outside financial statements

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

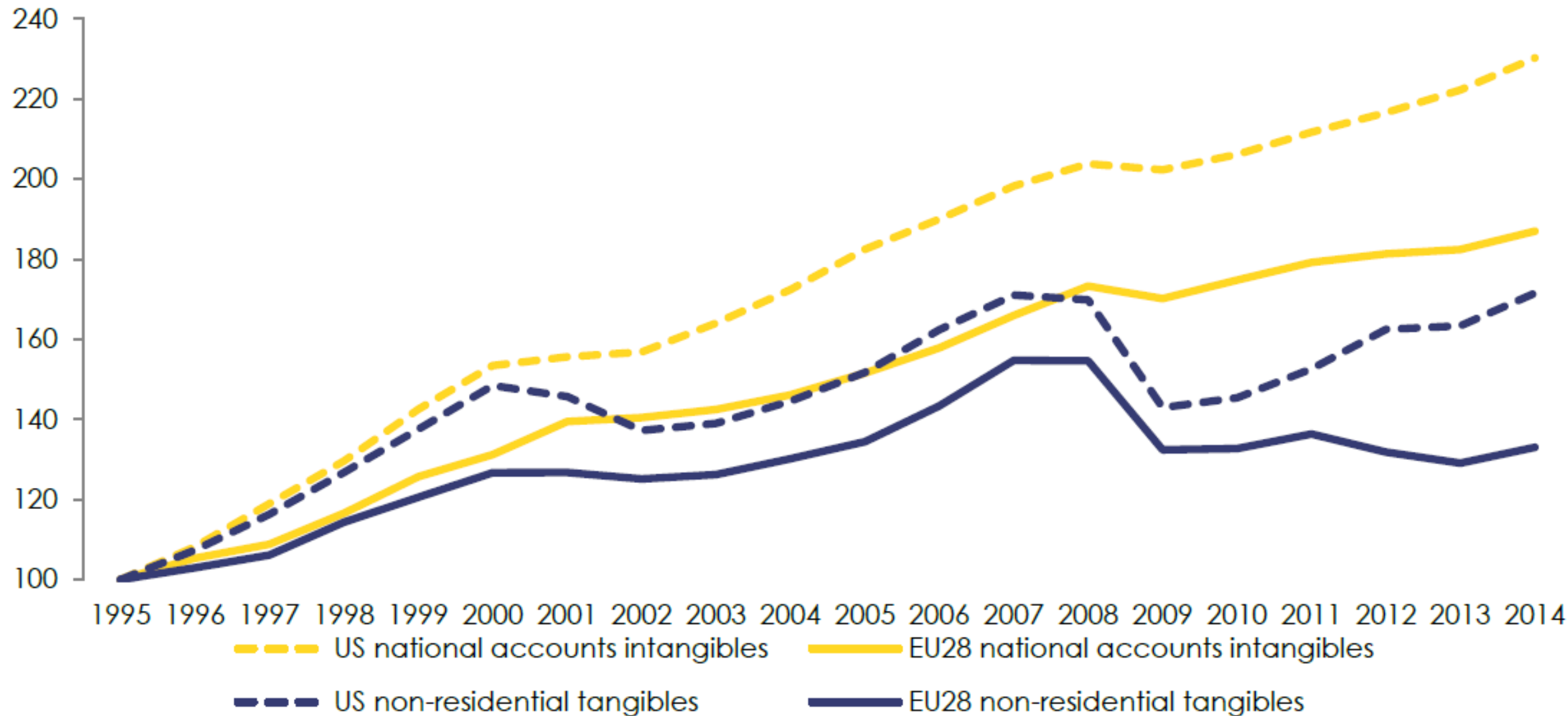
Focus of this review → **unaccounted internally generated intangibles** that are not purchased separately or in business combinations, including **not separable intangibles** (e.g. reputation, business model, and human capital)

Period under consideration: quantitative – but also relevant qualitative – papers published from **2007 onwards** (with a few exceptions).

A general limitation → not many companies voluntarily produce information and numbers on unaccounted intangibles and this lack of data entails some limit for the academic research in this area.

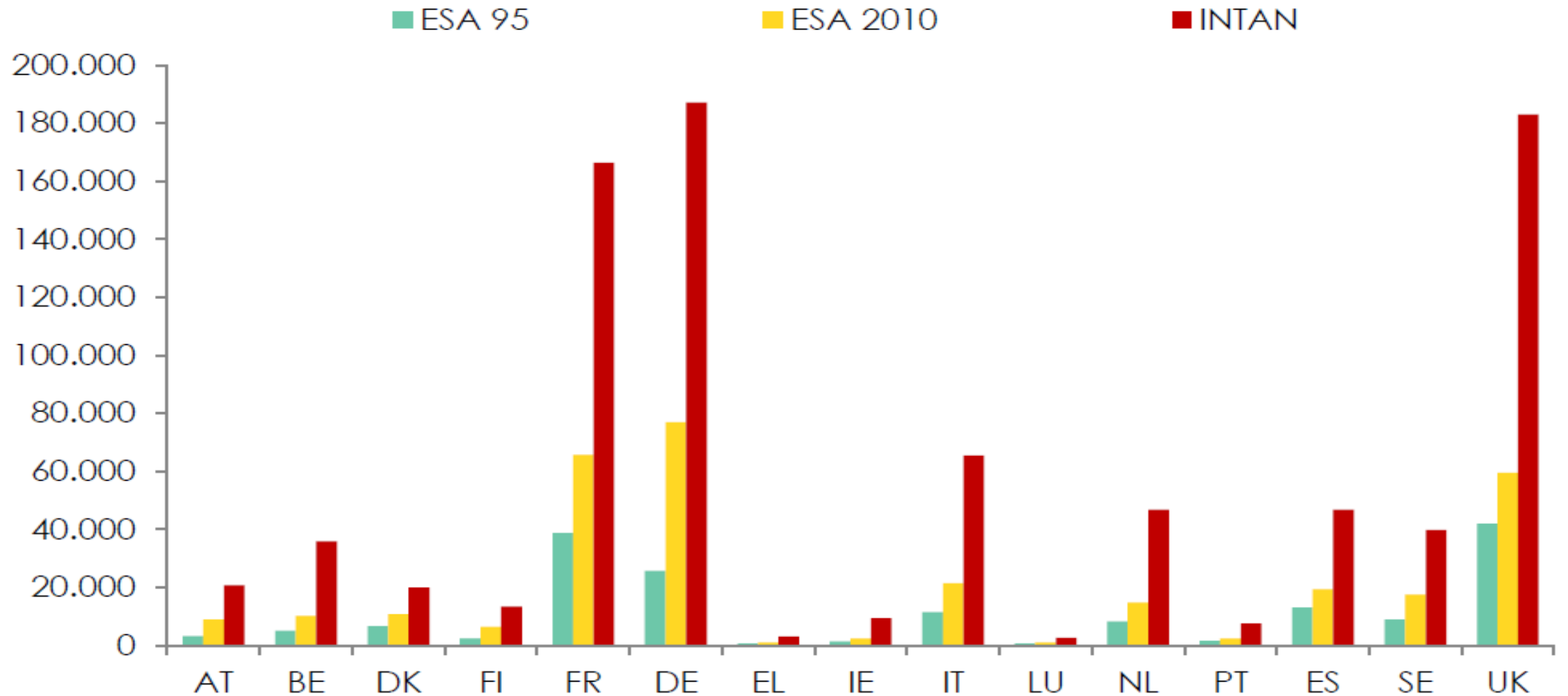
A) Intangibles in a macro perspective

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.

Calculation of intangible capital at macro-level

Computerized information

1. Computer software

Covers expenses of software developed for a firm's own use; based on NIPA data that include three components: own use, purchased, and custom software.

2. Computerized databases

Own use likely is captured in NIPA software measures; data from the Services Annual Survey (SAS) suggest that the purchased component is small.^b

Innovative property

3. Science and engineering R&D (costs of new products and new production processes, usually leading to a patent or license)

Mainly R&D in manufacturing, software publishing, and telecom industries. The census collects data on behalf of the National Science Foundation (NSF). Industrial R&D data are available from the early 1950s and cover work in the physical sciences, the biological sciences, and engineering and computer science (excl. geophysical, geological, artificial intelligence, and expert systems research).

4. Mineral exploration (spending for the acquisition of new reserves)

Mainly R&D in mining industries.

a. Mineral exploration, Census of Mineral Industries and NIPAs.

b. Other geophysical and geological exploration R&D in mining industries, estimated from census data.^c

5. Copyright and license costs (spending for the development of entertainment and artistic originals, usually leading to a copyright or license)

Mainly R&D in information-sector industries (excl. software publishing). No broad statistical information, proxied by:

a. Development costs in the motion picture industry^d

b. Development costs in the radio and television, sound recording, and book publishing industries are crudely estimated to be double the new product development costs for motion pictures. (No estimate for the arts is included.)

6. Other product development, design, and research expenses (not necessarily leading to a patent or copyright)

Mainly R&D in finance and other services industries. No broad statistical information, proxied by:

a. New product development costs in the financial services industries, crudely estimated as 20 percent of intermediate purchases.^e

b. New architectural and engineering designs, estimated as half of industry purchased services (revenues of the industry as reported in SAS).

c. R&D in social sciences and humanities, estimated as twice industry purchased services (revenues as reported in SAS).

Calculation of intangible capital at macro-level (2)

Economic competencies

- | | |
|---|---|
| 7. Brand equity (advertising expenditures and market research for the development of brands and trademarks) | a. Purchases of advertising services; advertising expenditures ^f
b. Outlays on market research, estimated as twice industry purchased services (revenues of the market and consumer research industry as reported in SAS). |
| 8. Firm-specific human capital (costs of developing workforce skills, i.e., on-the-job training and tuition payments for job-related education) | Broad surveys of employer-provided training were conducted by the Bureau of Labor Statistics (BLS) in 1994 and 1995. ^g
a. Direct firm expenses (in-house trainers, outside trainers, tuition reimbursement, and outside training funds)
b. Wage and salary costs of employee time in formal and informal training |
| 9. Organizational structure (costs of organizational change and development; company formation expenses) | No broad statistical information, and no clear consensus on scope.
a. Purchased “organizational” or “structural” capital, estimated using SAS data on the revenues of the management consulting industry.
b. Own-account component, estimated as value of executive time using BLS data on employment and wages in executive occupations. |

Grand total

Percent of GDP

Some outcomes from the macro-economic perspective

- Plenty of evidence that the macro-economic phenomenon of intangible investment has nowadays become quite extensive overtaking investment in tangibles → it characterises a new economic phase defined as “capitalism without capital” (Haskel and Westlake, 2017)
- In light of the macro, meso and micro economic importance of intangibles, Thum-Thysen et al. (2017) from the European Commission state:

“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)

B) Unaccounted intangibles and their impact on the 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

Major results

- The majority of studies have found a significant positive association between intangibles disclosure and company financial performance or market value.
- Studies reviewed show an association, and NOT a causation nexus, between financial performance and disclosure about intangibles.
- No authors claim that book value should correspond to market value. However, Prof. Lev claims to make balance sheet values more relevant as well as to apply the matching principle to the Profit & Loss account.
- Further, it is not clear to various authors what is the rationale of treating internally generated intangibles differently from externally acquired intangibles.

Major results (2)

Inclusion of intangibles in financial statements

- Different theoretical positions can be noticed
- From one perspective, some scholars address the fact that financial statements have lost their relevance, due also to the unaccounted intangibles, and thus they call for modifications in the accounting standards with the aim to make the gap between the book and the market value of the firm less wide (Lev and Gu, 2016)
- Others maintain that the value of intangibles that are unaccounted does impact on and can be detected in the income statement → no compelling argument for modifying accounting standards on intangibles (Penman, 2009; Skinner, 2008)

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) about 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.

General Outcomes

- In general terms, specific unaccounted intangibles have a positive effect on financial performance and market value of companies. For example, greater expenditure on intangibles corresponds to an increase in the value of the company (Ehie and Olibe, 2010).
- However, it has also been found that the effect of intangibles on financial performance or market value is positive, but not linear. Also, this effect may not take the configuration of a direct link, because it can be moderated or influenced by other factors (e.g., Sánchez & Sotorrío, 2007 → differentiation strategy adopted, competitive intensity between companies and power of stakeholders).
- Furthermore, this positive effect is not the same for all the firms and industries, and it does not necessarily happen in the short-medium term (Stam and Wennberg, 2009).
- If an intangible has impact on profitability of an entity, then this could indicate that information about that intangible could be useful for investors. Clearly, if that information is not shared with investors, they cannot take it into account.
- If an intangible has an impact on the market value, this indicates that the existence of a given intangible has an effect also on the expected future profitability of an entity, and therefore, that investors should already have some information on that intangible – either from financial statements or from other sources.

General Outcomes (2)

- As to the disclosure about specific intangibles, it has been shown that it is negatively associated with earnings (Merkley, 2014 for R&D), but it may have a positive effect on the share price (Chen et al., 2017 for R&D).
- This positive effect concerns more the quantity of forward-looking information than the backwards-looking disclosure (Bayer et al., 2017 for customer satisfaction/awareness → cf. later).
- We did not find in the studies reviewed too much evidence on how information about a given intangible is used by investors and information users. Only exceptions:
 - Amir et al. (2003) → financial analysts compensate for the intangibles-related information deficiencies of financial reports but definitely not for all the deficiencies
 - Barth et al. (2001) → “analysts expend greater effort to follow firms with more intangible assets, and intangible assets, most of which are not recognized in firms’ financial statements, are associated with greater incentives for analysts to cover such firms, and greater costs of coverage»
 - Hsu and Chang (2011) → voluntary disclosure of IC and information risk is negatively associated with analysts’ earnings forecast errors and dispersions in the high-tech industries

Brands and Customer Franchise

- The literature reviewed shows that brands have a positive effect on financial performance, cash flow variability and market value of an entity (Krasnikov, Mishra, & Orozco, 2009; Smith et al., 2010).
- The same is the case for customer franchise, i.e. customer equity¹ (Bonacchi, Kolev & Lev, 2015). Customer franchise is found to be positively associated with stock price, future earnings and the prediction of analysts' forecast errors

¹ Customer franchise → cumulative image of a product, held by the consumer, resulting from long exposure to the product or marketing of the product.

Patents

- The literature shows that the amount of R&D expenditures is related to the number of patents, the number of patents related to the number of new products and the number of new products is related to performance.
- Hence, no direct link between the number of patents and performance – only indirectly as patents result in new products which improve performance.
- Patent measures – reflecting the volume of companies' research activity, the impact of companies' research on subsequent innovations, and the closeness of R&D to science – are reliably associated with the future performance of R&D-intensive companies in capital markets
- In the US, in the pharmaceutical sector patent share and patent position has been examined. The results show that the more an entity has spread its patents outside its most important technological field – i.e. the less it is dependent on one technological field, the higher the market price. However, in a given technological field the entity with the most patents has generally a higher market value than its competitors.

Reputation

(Good) reputation is also something that affects – non linearly – both the financial performance of an entity (positively) and increases the market value of an entity. Information about this has been therefore, unsurprisingly, also found to be value relevant.

In particular, superior non financial reputations produce higher abnormal returns than superior financial reputations

R&D

- R&D investments contribute positively to market value and performance – but more in the manufacturing sector than in the service sector. However, high R&D expenditures also result in a risk premium.
- Information about R&D is value relevant. However, one study shows that in high intangible intensive entities in the US narrative disclosures (in this case by disclosing patents) might be more useful than that resulting from capitalising the expenses related to these. The opposite is found for low intangible intensive entities.
- Supplementary, voluntary disclosures about R&D are found to provide information in addition to the information resulting from the figures in the financial statements.
- A study also shows that relevant information about R&D comes from other sources than financial statements – particularly for intangibles intensive companies.
- Earnings performance is negatively related to the quantity of narrative R&D disclosure
- 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

Customer satisfaction and awareness

- Customer satisfaction measures are found to be linked to performance and it reduces systematic and idiosyncratic risk and lower the volatility in stock returns. However, financial results are relatively constant over broad ranges of customer satisfaction.
- Another study finds that customer satisfaction is not directly linked with financial performance. Indeed, customer satisfaction is linked with reputation, which is linked with financial performance.
- Positive changes in customer satisfaction not only improve analyst recommendations, but they also lower the dispersions in those recommendations for the firm
- Investigating customer satisfaction metrics in two industries telecommunications and airlines, a study finds that backward looking disclosures of customer metrics (e.g. customer acquisition costs) have little effect on users, whilst on the contrary forward looking disclosures of customer metrics (e.g. forward customer acquisition costs) have a negative impact on investor's uncertainty (i.e. the latter decreases) – but the effect is only significant for the airlines.

Business model

Some (generic) business models seem to be more profitable than others.

The results indicate that the specific business model typologies were closest to the analysts' understanding, incorporating elements of both a narrow (the internal functioning of the firm) and a broad comprehension (that also comprise external elements) of the business model.

Although, the term business model initially was found to be a misunderstood concept, and in fact rendering mainly negative associations amongst the analyst community, a study indicates that the particularities of strategy and competitive strengths mobilised by the analysts in fact comprise a very comprehensive description of the business model when pieced together

Organisational Capital

An ad hoc firm-specific measure of organizational capital is associated with five years of future operating and stock return performance. Thus, this organizational capital measure captures firms' fundamental ability to generate abnormal performance.

Sell-side analysts 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 perceive non-financial information as more important than the financial inputs

Human capital

- Human capital (particularly together with brand capital) reduces cash flow volatility.
- Contrary to R&D, it creates relatively more value in service companies than in manufacturing and retail firms.
- Human disclosure is associated with a firm's financial performance and market value.
- Companies can improve their valuation on the capital market in the long term by disclosing information on their human capital. Especially information on qualification and competence issues is positively associated with firm value.
- 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

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

We have already presented the work by Hsu and Chang (2011), who 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.

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 + 2 Frameworks
- The Intangibles Reporting Framework issued by the World Intellectual Capital/Assets Initiative (WICI) in September 2016 and the International Integrated Reporting Framework published by the International Integrated Reporting Council (IIRC) in December 2013
- 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**

b) The Intangible Asset Monitor by Sveiby (1997)

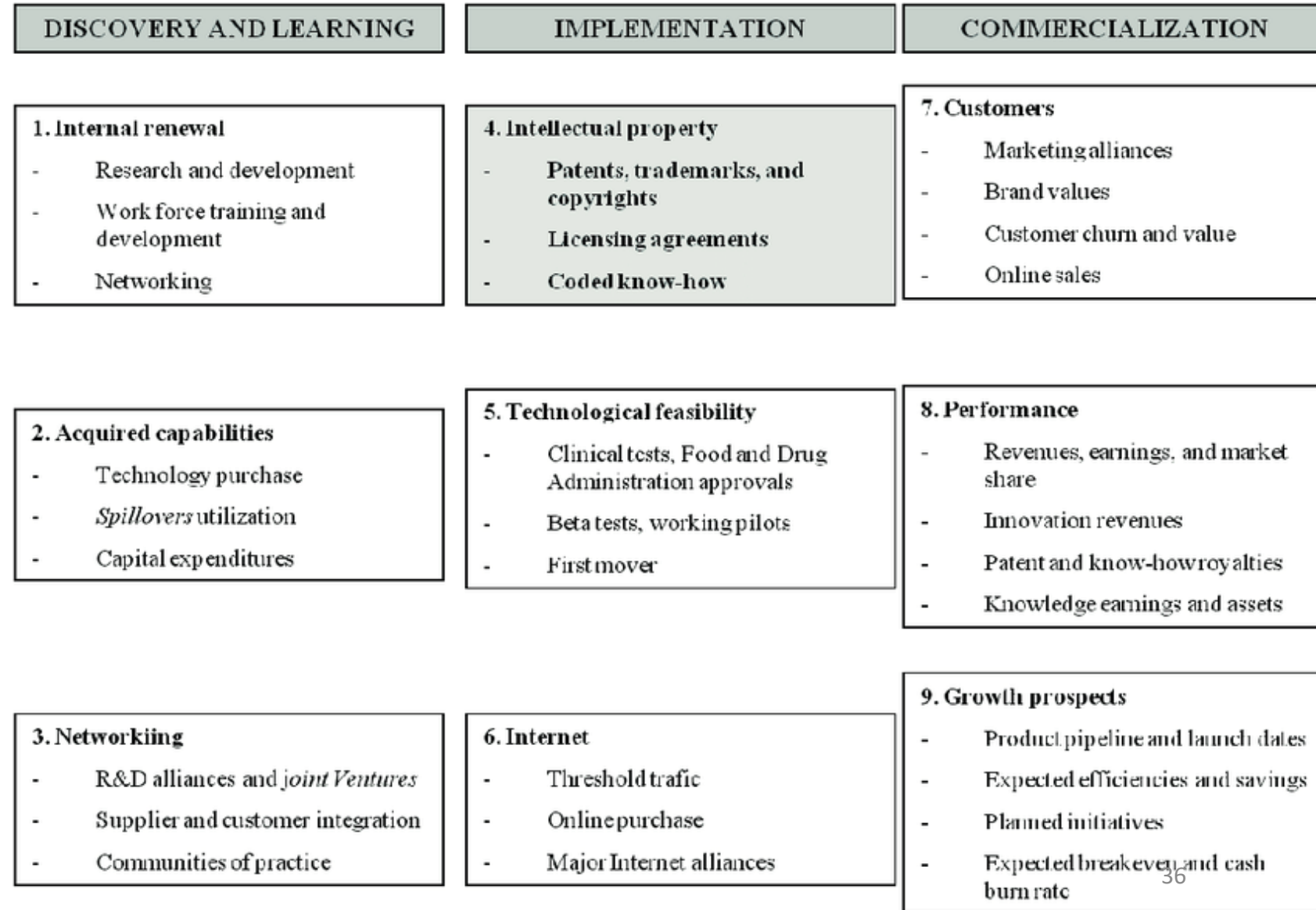
- It is a method for measuring and presenting information on intangible assets
- Rationale → individuals in organizations create external and internal structures to express themselves

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

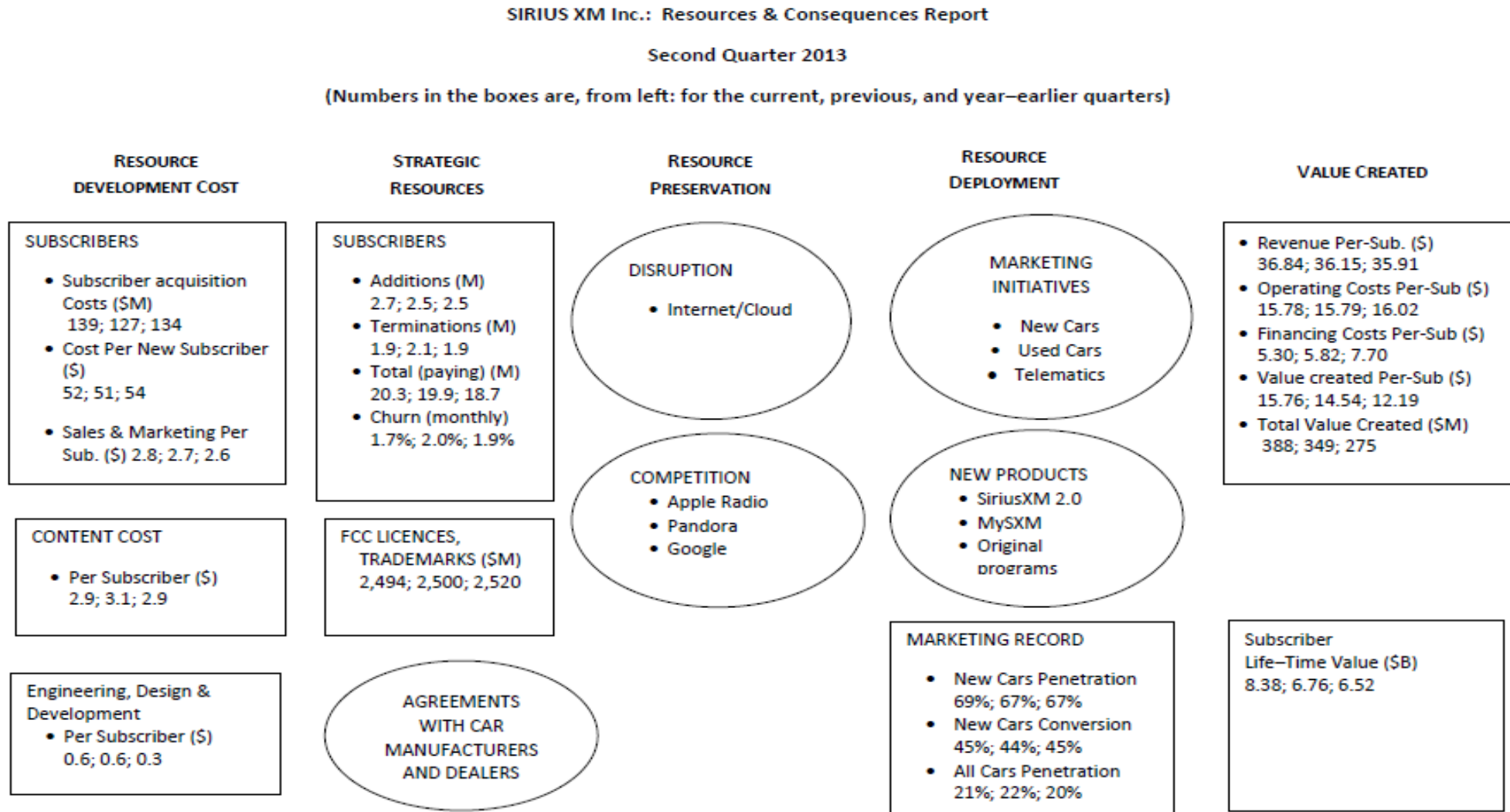
d) The Value Chain Scoreboard by Lev (2001, 2002)

- 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



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

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 ⁴⁰

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

Concluding Remarks

Concluding Remarks

Intangibles and general findings of the relevant 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 (2)

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

We face a major paradox: the more the economic and corporate system is based on intangible assets, which are its “glue” and “engine”, the stronger the system is, because intangibles are major determinants of growth and value creation. However, at the same time, the more the system is grounded on intangibles, the more vulnerable it becomes because intangibles are more uncertain, unstable and risky.

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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