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An Era of Intangible Assets

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Abstract

This work intent to discuss the contributions, productivity and economic growth, and challenges of intellectual assets. Intellectual assets do not have a real physical presence. They are resources used or employed to add a value to the business entity. Likewise tangible assets and intangible assets are also provide future benefit and play a significant role for success of the business. Due to information asymmetry, the traditional growth accounting has given a remarkable attention to tangible asset to measure the performance and economic growth. However, following an impressive increase in investment of intellectual assets, interest over financial information is growing and remarkable attempts have been made to identify and measure the contribution of intellectual assets. This work summarizes the growth of investment in intellectual assets in service and manufacturing sectors in selected countries. Most of the techniques used to classify and measure intangible assets are controversial. Despite the inexistence of common framework to measure and report, they have notable impact on financial reporting and governance of the company. For example, Alves and Martins (2014) use a cross-sectional data to examine the impact of the level and the type of the intangible assets on six major financial and governance policies. Similarly, Lev (1996), Smith and Parr (2000), Sullivan (2000), Zambon (2003-2004) have also discussed issues like measuring, reporting, and importance of intangible assets.

JEL classification numbers: E23, O4, M41.
Keywords: Productivity, Growth, Intangible Assets.

1 Introduction

In the last two decades many advanced economies are shifting towards "knowledge economy" which evidenced by dramatically increase in the share of intellectual asset over the total firm's investment. Kaplan and Norton (2004) found that intellectual assets accounted for about 70 percent of firm's market value in 2002, up from about 40% in 1982

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(i.e. comparing the book value of total asset to market value of a firm). Similarly, Levine (2001) estimation result of publically traded of 500 top S&P firms revealed dramatically increased from about 1 in the early 1980s to about 6 in 2001 which means 2001 the capital market valued S&P 500 firms at six times the value reflected in their balance sheets.

Beside the above facts, intellectual assets have a significant contribution to productivity growth at macro and firm level which have not been taken into account for several years in measuring growth and productivity. Marrano et al. (2009) measured total factor productivity (TFP) including intellectual asset and found an increase TFP since 1990. Baldwin, Gu, & Macdonald (2012) study on USA and Canada showed that significant growth in labour productivity between 1976 and 2008. Therefore, the above facts support the crucial role of intellectual assets for future competitiveness of firms in era of knowledge economy in which investment on real estate, equipment and other tangible asset less important than intellectual asset. Usefulness.

2 What are Intangible Assets?

Intangible assets are resources used or employed to add a value to the business entity. They don't possess physical substance like tangible assets, equipment and plant. Intangible assets are classified or defined differently by international organizations, researcher, and regulatory body. The OECD (1992) classification of intangible assets includes R&D, patents and licenses, and enabling intangible investments, including worker training, information structure and organizational structure). According to European Union's MERITU project, a guidelines produced by researcher from different universities in Europe intellectual asset includes Human Capital, Structural Capital, and Relational Capital.

According to Financial Accounting Standards Board (FASB), intangibles assets includes:

Marketing-related intangible assets
Trademarks, trade names, service marks, collective marks, certification marks, trade dress (unique color, shape, or package design), newspaper mastheads ,internet domain names, and noncompetition agreements
Customer-related intangible assets
Customer lists, order or production backlog, customer contracts and related customer relationships, non-contractual customer relationships
Artistic-related intangible assets
Plays, operas ballets books, magazines, newspapers, other literary works, musical works such as compositions, song lyrics, advertising jingles, pictures, photographs, video and audiovisual material, including motion pictures, music videos, television programs
Contract-based intangible assets
Licensing, royalty, standstill agreements Advertising, construction, management, service, or supply contracts, lease agreements, construction permits, franchise agreements operating and broadcasting rights, use rights, such as drilling, water, air, mineral, timber cutting, and route authorities, servicing contracts, such as mortgage servicing contracts, employment contracts
Technology-based intangible assets
Patented technology, computer software and mask works, unpatented technology, database, including title plants ,trade secrets, such as secret formulas, processes and recipes

Despite the above classification of intangible assets, in this article we used the terms "intellectual asset", "intangible asset", "knowledge asset", and "intellectual capital" interchangeably. Moreover, generally all intangible assets feature can be summarized as:

- organizational resources with lack of physical existence;
- provide a future economic benefits;
- protected legally (i.e. ownership) and
- obtained from past activities (research and development, training, learning by doing, contractual agreement).

Alves and Martins (2014) use a cross-sectional sample to examine the impact of the level and the type of the intangible assets on six major financial and governance policies that directly depend on the interactions between managers, shareholders and debt holders, financial structure, dividend payouts, external ownership concentration, managerial share ownership, board of directors structure and auditing demand.

The existing accounting procedures would not able to measure and report intangible assets due historical cost valuation principles and source of assets, when they generated internally. Below we will analyze some of the problems associated with measurement of intangible assets. A disclosure on intangibles already exists in traditional budgets, as well as there is a wide area of research (content analysis), which is responsible for analyzing such disclosure in the financial statements. As evidenced by Veltri and Nardo (2008) the approach is the same as that of those who believe that the financial statements, because of its rules of construction, not to be able to highlight the complex intangible resources available to the firm and that this task should be acquitted of documents complementary to the financial statements, centered on business intangibles. However, Lev (1996), Smith and Parr (2000), Sullivan (2000), Zambon (2003-2004), have made a different conclusion than Veltri and Nardo (2008). The most appropriate response for an optimal disclosure of intangibles would be the preparation and communication of the so-called intangible budget, but the budget has reduced diffusion. There is thus a dual requirement, and conceptually, because of the overlapping areas existing between the two forms of reporting, and in practical terms, relative to the duplication of voluntary corporate reporting documents, to investigate the desirability of integrating in a single document the voluntary reporting company.

The FASB believes that the standard will better reflect the economics underlying goodwill and other intangibles and thus lead to more useful information for investors. However, given the inherent subjectivity in valuing intangibles and managers' incentives to exercise their discretion opportunistically, a wide variety of commentators on the exposure draft issued prior to the issuance of the standard expressed concerns about the reliability of intangible asset estimates under the standard.

Does SFAS 142 result improve or deteriorate the importance of company's intangible assets? The usefulness of intangible assets from an investor's perspective still there is a criticism because most research does not provide conclusive evidence on the standard's effects. Focusing on the goodwill impairments reported under SFAS 142, Jarva (2009) analyzes the goodwill write-offs are associated with future expected cash flows. This work doesn't compare the association with pre-SFAS 142 periods, one cannot infer changes in this association after SFAS 142 relative to the pre-SFAS 142 period based on them. Similarly, Chen, Kohlbeck, and Warfield (2008) examine the association between goodwill write-offs and stock returns.

The existing accounting procedures would not able to measure and report intangible assets

due historical cost valuation principles and source of assets, when they generated internally. Can the existing drawback be corrected by the International Accounting Standards Board (IASB) and the Financial Accounting Standards Board (FASB), respectively with IAS 38 - Intangible assets and IAS 36 - Impairment of Assets, and the FASB 141 - Business Combinations and SFAS 142 - goodwill and other intangible assets, to record intangible assets that meet clearly defined accounting rules at their fair value (the resource must be identifiable, separable, individually transferable on the market, under the control of the company and bearer of probable future benefits to the company).
The second limitation relates to the goal of the company that creates value only through the exchange with service sectors, while most of the intangibles helps to create value at the moment in which it is used within the processes of the production company, that is, well before the commercial transactions take place. In any case, there isn't space in the budget for the intangible assets that do not meet clearly defined accounting rules, nor activities (understood in the sense of actions performed on resources) intangible which, as we shall see, are an integral part of the intellectual capital.

3 Measuring Intangible Assets

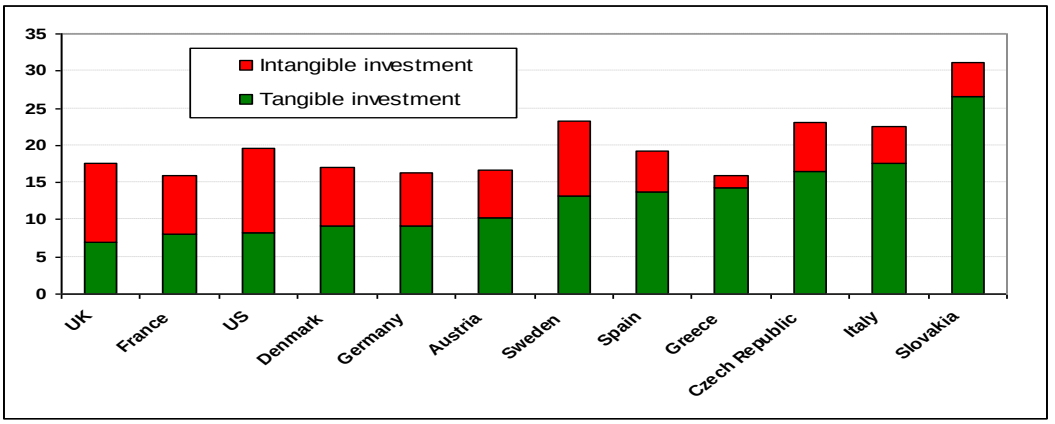
Different individuals and institutions have been suggesting different approaches to identify and measure intangible assets. Here below, we summarized some of the common valuation approaches used to measure intangible assets.

Approaches	**Descriptions**	**Remarks**
Direct intellectual Capital Method	Estimating the monetary value individually or as an aggregate	
Market Capitalization Method	Recoding the difference between market value and book value of company's total investment	
Return on Asset Method	First calculating average annual earnings from intangible by multiplying the ROA difference (between company's ROA and its industry) and average tangible assets. Then dividing company average earning by average cost of capital.	Return on asset is calculated by dividing the company`s average pre tax earning by average tangible assets
Scorecard Method	Identifying the various components and determining indicators and indices	

4 Investment in Intangible Assets and Productivity

Due to lack of consensus in measurement and evaluation, the traditional growth accounting remarkable attention has given to tangible asset to measure performance and economic growth.
However, investors, mangers, investment bankers and other decision makers certainly realized the contribution intangible assets in increasing the market value of the total

investment. Research finding on developed and developing countries tell us faster growing of investment in intangible assets than tangible one.
Figure 1 depicted the shifting of business sector investment paradigm specially in developed world. U.K, U.S, and Sweden take the leading position followed by France, Germany Denmark and Austria.

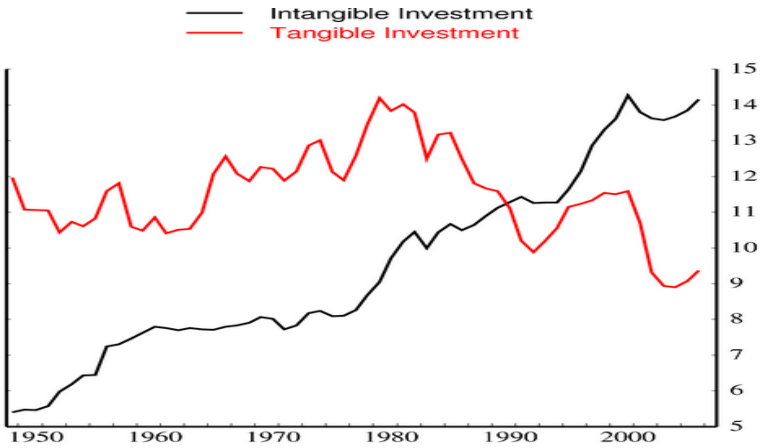


Sources: Hao et al. (2009), Corrado et al. (2009), Marrano et al. (2009).
Figure 1: tangible and intangible investment in the business sector in 12 different countries 2006;

The increase investment in intangible assets is not limited to developed countries. Some developing word, like South Africa, also revealed substantial development in investment in intangible assets. The recent innovation Survey 2008, during the period of 2005-2007, shows 13.40% growth of firms engaging in investment on intellectual asset. The international comparison also indicates that the South African rate of innovation is 39%. Some firms operating in the European Union engaged in innovation activities ranged from 16% in Latvia to 63% in Germany.

Countries	**Investment (% of GDP)**	**Year of Growth**
Germany	6.9 to 7.1	1991-2004
France	8.0 to 8.8	1991-2004
Italy	3.2 to 5.2	1991-2004
Spain	4.0 to 5.2	1991-2004
Japan	11.1	2000-2005
Sweden	10	2006 (highest in OECD)

As some researcher (for Japan (Fukao et al. 2008) and the United Kingdom (Gil and Haskel 2008, Clayton et al. 2009)) investigated, intangible assets are invested due to their importance in the sector. In Microsoft company 40% of output growth between 1988 and 2006 was due to the intangible assets (i.e. new knowledge and ideas). The contribution of tangible assets was only 6%. In 2008 alone, the Canadian business sector total investment in intangible assets was estimated $151 billion, which accounts 13.2% of GDP, Baldwin, Gu and Macdonald (2012). In the same year impressive growth, from 0.23 in 1976 to 0.66 in 2008, investment in intangible asset was observed. The graph below shows the investment trend of intangible and tangible assets in U.S.



Source: Corrado et al. (2005, 2006).

Figure 2: business investment in the US, tangible and intangible investment (Ratio to business output).

Edquist (2011) study on Swedish business sector has estimated that intangibles assets contribution to labor productivity growth is 35 percent in the period from 1995 and 2004. Similarly, Corrado et al. (2009) estimates the total intangible assets for U.S. using growth accounting frame work and finds equal contribution of intangible capital and tangible assets for labour productivity growth.

5 What are the Challenges to invest on Intangible Assets

5.1 Recognition, Recoding and Reporting

Likewise tangible assets, intangible assets are also provide future benefit and play a significant role for success of the business. The accounting principles treat most of the spending (i.e. investment) on intangible asset as a period expense despite their future benefit. Mangers also restraint from providing detail report regarding intangible assets due to competition and less interest of outsiders like banks. The study by Barnes and McClure (2009) found that from the total market sector investment in intangible assets, $57 billion in 2005-06, 80 percent not treated as an investment in national accounts. Ultimately, ignoring the intangible assets investment may lead underestimation of the total GDP and undermine the effort of business sector contribution to the overall economic growth.

Despite the contribution of intangible asset for productivity and economic growth at macro and firm level, measurement and reporting of intangible assets is accompanied by some obstacles which might be originated within or outside the business environment. The nontradability nature of intellectual assets and the unavailability other benchmark information in the market make it complex and unresolved long lasting accounting issues. Most of the accounting recording and reporting procedures, rules and principles are developed a 500 years ago (Robnson, 2000). Even some of the principles that practitioner apply to recognize, record and report accounting transactions and events are contributing for inconsistency and vagueness. For example the two generally accepted accounting

principles that create a big hole for debate and disagreement over intangible assets measurement are the going concern and the conservative principles. The former principle state that, the business will operate for indefinite time and as a result recognition of some expenses will be differed, not immediately expenses as a period expense. In contrary, the conservative principle allows accountants to recognize expenses as soon as possible when there is uncertainty about the future. This would make company to report less profit than what they actually earned due to inclusion of more expense in the income statements. Moreover, the recognition and reporting of more expense might bring tremendous difference between the market and book value of the company.

The accounting methods for capitalization intellectual assets depend on the source and the amount of transactions and events. If intellectual assets are generated externally, as a result of merging or acquisition firm(s), recoded as an asset, capitalization, regardless how big the amount and amortized over their estimated useful lives. When resources spend internally to build intangible assets, companies either capitalized or expensed immediately depending on the amount or cost. However, the accounting method for tangible assets is the same for internally and externally generated tangible assets. Therefore, the accounting method shows the inconsistency between tangible and intangible assets and also among intangible assets.

Economists are trying to develop a technique that enables mangers, accountants and owners to measure and report their intellectual assets. Apart the excited interest and growth of literature relating to intellectual assets long lasting are pretty different from what economist and other non accountants perceived. Therefore, absolutely reliable and long lasting solution should be emerged from those parties, accountants and accounting principles governing body (FASB), to the keep consistency of accounting principles.

5.2 Financing Problem

As the literature pointed out firms investment activities on intellectual asset are financially constrained because of the intangibility nature of the assets and the risk of information seep that affects the potential benefit of innovators' firms. In addition, investment in intellectual assets are accompanied by the presence of adverse selection and moral hazard, asymmetric information, specially in younger firms and riskier projects. Several studies find out investment in intellectual assets is more financially constrained than investment in tangible assets. Masayuki (2012) analyzes the relationship between financial constraint and investment on intangible asset for Japan using a firm level data and measures the sensitivity of investment to cash flow by the type of asset, industry, size and age. Masayuki concludes that investment in intangible assets are strongly sensitive (i.e. investment on intellectual asset are fianacially constrained) than investment on tangible asset. Fedderke (2005) identified that the sources of growth in South Africa during 1970s and 1980s mainly comes from higher capital investment and labour. However, during 1990s labor augmentation contributed almost negative and the capital investment contributed slight to economic growth but technical change has significantly contributed to economic growth through productivity improvements. To sum up, mangers restrain to convince and get funds from external source, instead mainly rely on internal sources to finance the investment on intellectual assets due to strategic reasons and uncollateralised nature of intangible assets.

Intangible or intellectual assets are not stand-alone assets like plant and equipment and neither create value nor generate growth by themselves. Companies combine all assets, both intellectual and tangible assets, to generate cash flows and increase the efficiency and

effectiveness. They also provide a comparative advantage for fast growing because of commoditisation. Several studies find that intellectual assets enhance labour productivity. However, the nature of intellectual assets and the accounting techniques hinder their tremendous contribution in interim and annual financial reports. Most of intangible assets possessed by business organization are neither identified nor valued properly by the companies itself. The existing accounting for intangible assets does not provide sufficient and complete guide lines, and also has a significant role for the existence of inconsistency in recognition, measuring and reporting. Most of expenditure on intellectuals assets are recognized as a period or current expense in the company's financial report, even in national accounts, than investment. Adverse selection and moral hazard have played impressive role in undermine the contribution of intellectual assets. Even though not yet reached consensus and have not developed standard principles and uniform methods to measure intellectual assets , the attempts made by different scholars are promising and paving a road to develop a framework.

5 Conclusion

Intangible or intellectual assets are not stand-alone assets like plant and equipment and neither create value nor generate growth by themselves. Companies combine all assets, both intellectual and tangible assets, to generate cash flows and increase the efficiency and effectiveness. They also provide a comparative advantage for fast growing because of commoditisation. Several studies find that intellectual assets enhance labour productivity. However, the nature of intellectual assets and the accounting techniques hinder their tremendous contribution in interim and annual financial reports. Most of intangible assets possessed by business organization are neither identified nor valued properly by the companies itself. The existing accounting for intangible assets does not provide sufficient and complete guide lines, and also has a significant role for the existence of inconsistency in recognition, measuring and reporting. Most of expenditure on intellectuals assets are recognized as a period or current expense in the company's financial report, even in national accounts, than investment. Adverse selection and moral hazard have played impressive role in undermine the contribution of intellectual assets. Even though not yet reached consensus and have not developed standard principles and uniform methods to measure intellectual assets, the attempts made by different scholars are promising and paving a road to develop a framework.

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