

Program; Accounting & Finance
Master Thesis No 2002:58

Valuation of Intangible Assets

- Goodwill & Patent Right, the Case of
ABB Group

Winfred Agbeko Torgby

Emmanual Kofi Penney

Graduate Business School
School of Economic and Commercial Law
Göteborg University
ISSN 1403-851X
Printed by Elanders Novum

Abstract

While intangible assets play an increasingly important role in today's business world, it remains difficult to quantify its economic and monetary value.

The "fair" value of an intangible asset is the amount that such asset can be bought, sold, or settled in a transaction between willing parties, not involving forced or liquidation sale. The method most often used in the valuation of intangible property determines the present value of the cash flows derived from using such property.

The research problem is based on an attempt to investigate if there is an acceptable procedure to value and report intangible assets. Comprising the above problem, are the subquestions which we focused our resources on:

- (1) What are ABB's methods of and valuation of the intangible assets – particularly goodwill and patent?
- (2) What are their reasons for the choice of these methods used in their valuation?

In this study we have attempted to research the various methods in valuing Goodwill and Patent rights in ABB group .

From our findings and analysis we realised that ABB at the group level values basically all intangible assets according to the FASB 141 &142 requirements- Goodwill and Patent inclusive.

We realised that ABB at the group level values basically all intangible assets according to the FASB 141&142 requirements - Goodwill and patent inclusive

Acknowledgement

A lot of people have contributed in one way or the other towards our study into the Valuation of Intangible Assets, but just to mention a few, we acknowledge the personalities listed below.

First and foremost we want to thank God almighty for his guidance and protection which has brought us this far. We are also sincerely grateful to the Swedish government for footing the bill of our master program.

Thanks to our advisor Dr. Stefan Schiller. Under his guidance, we successfully overcame many difficulties and learnt a lot about intangible assets.

It must be mentioned that, Mr John. P. Grier, Manager Corporate Accounting Principles and Development of the ABB company currently based in Switzerland, deserves every form of appreciation from us for giving us the much needed information about the ABB Group.

Finally, we want to thank our families, especially our parents. Without their endless support and love for us, we would never have come this far.

We wish our parents live happily always.

Table of Content

Chapter 1.....	7
1.0 Introduction	7
1.1 Background	7
1.2 Problem Discussion	8
1.3 Problem Definition	9
1.4 Purpose	9
1.5 Scope and Limitations	10
Chapter 2.....	11
2.1 Research Approach	11
2.2 Research method and Data collection	12
2.3 Research Evaluation	12
2.3.1 Validity.....	13
2.3.2 Reliability.....	13
2.4 Time schedule	14
2.5 Problems of references	14
Chapter 3.....	17
3.1 Intangible Assets	17
3.2 The Nature of Goodwill	17
3.4 Types of Goodwill	18
3.4.1 Externally Generated Goodwill.....	18
3.6 Valuation Methods for Goodwill	19
3.6.1 Purchase of 'x' Year's Profits.....	19
3.6.2 Purchase of 'x' Number of Best Year's profit.....	19
3.6.3 Purchase of 'x' Number of Average Profits.....	19
3.6.4 Value Based on the Crown Jewel.....	20
3.6.5 Value Based on Future Cash Flows.....	20
3.7 Goodwill Treatment over the Years	20
Chapter 4.....	21
Various Accounting Bodies and Goodwill Treatment	21
4.1 U.K. GAAP	21
4.1.1 Amortization and Impairment.....	21
4.1.2 Is Goodwill Recognized as an Asset in the U.K GAAP ?.....	22
4.2 International GAAP	22
4.2.1 Is Goodwill an Asset ?.....	23
4.3 US FASB (Financial Accounting Standard Board)	24
4.3.1 Statement No. 141 of the FASB.....	24
4.3.2 FASB No. 142.....	25
4.4 Goodwill amortization	26
4.5 Goodwill Impairment	27
4.5.1 The Impairment Process.....	27
4.6 Goodwill no Longer Amortized – the Effect on Reported Profit	28

4.7 The Search for High-Quality Accounting on Goodwill	29
4.8 Current Effect of Harmonization Efforts on the Treatment of Goodwill	29
4.9 Goodwill Convergence	29
Chapter 5	31
5.1 What Is a Patent?	31
5.2 Why Obtain a Patent?	31
5.3 The Significance of Patent Valuation	32
5.4 The Patent Process	32
5.5 Valuation Methods; Theoretical Framework	33
5.6 Cost Based method	33
5.7 Market Based Methods	34
5.8 Income Based Methods - Accounting for Future Value	35
5.9 DCF Based Methods - Accounting for Time & Uncertainty	36
Chapter 6	41
6. 0 Empirical Findings in ABB	41
6.1 Company Profile	41
6.2 Company Mission and Strategy	41
6.3 Intangibles Assets	42
6.4 Goodwill Findings	42
6.5 Research Findings on Patent	43
6.6 Externally and Internally Generated Patent	43
6.6.1 Increase in Technology and Knowledge-Based Activities	44
6.6.2 Research Collaboration with Universities	44
6.6.3 The ABB Patent Group	46
Chapter 7	47
7 .0 Analysis of Empirical Findings.	47
7.1 How Can Goodwill be Valued?	47
7.2 Analysis of Companies Method of Initial Recognition and Valuation of Goodwill	47
7.3 Analysis of Company Procedure of Subsequent Treatment of Goodwill	48
7.4 Analysis of the Reasons for the Choice of These Methods Used in Their Valuation of Goodwill	49
7.5 Analysis of Patent Valuation in ABB Corporation	50
7.6 How ABB Reports Patent Right	51
Chapter 8	53
8.0 Conclusions and Recommendations	53
8.1 Conclusion and Recommendation on Goodwill	53
8.2 Conclusion and Recommendation on Patent Right	54
Graduate Business School	58

Chapter 1

1.0 Introduction

In this chapter, introduce the background to our research study; the research problem is discussed thoroughly. Subsequently we define this problem and the purpose for which we are doing research. The scope and limitation to the study will be enumerated as well as the problem of references.

1.1 Background

Traditional management accounting system have increasingly been criticised in recent years for failing to reflect the true value creators of a firm, on grounds that they tend to ignore intangible non-financial resources (see e.g., Olve et al ., 1999, Bromwich&Bhimani, 1994; Fitzgerald et al., 1991)

As Bontis et al. (1999, p. 400) argue that, ‘a good part of value generated by company comes from intangible resources, and therefore these resources need to be monitored like the physical ones are.’ Since the value of intangible resources does not necessarily bring benefit to the person who developed it, managing this asset is easily neglected. (Oltley, 1999, p. 364)

Although your balance-sheet is a model of what a balance-sheet should be, typed and ruled with great precision in a type that all can see; though the grouping of the assets is commendable and clear, and the details which are given more than usually appear; though investments have been valued at the sale price of the day, and the auditor’s certificate shows everything O.K.; one asset is omitted - and its worth I want to know, the asset is the value of the men who run the show (Bowman, Archibald May 1938 p. 399.)

The intangible assets of most business organizations have often not been given the needed reflection when management is valuing its company. These value creating assets are mostly ignored by most companies and those that consider these assets fall short in the valuation of them.

Resources are what financial officers, merger-and-acquisition strategists, bankers, and fund managers are paid to keep track of: tangible assets that determined a company's value. These resources are, quite literally, physical resources: plant and equipment, factories and machinery, buildings and inventory. They are assets that determined a company's value, assets that could be measured and used to calculate return on investment. These assets are solid, and so are the financial decisions based on their value.

But in the world of business today, things are not what they used to be. In the new economy, the most valuable assets have gone from tangible to intangible. Instead of plant and equipment, companies today compete on ideas and relationships. These assets could come in the form of trademark, licenses, patent rights, company location or reputation.

Difficult questions about intangibles assets are driving finance professionals and Accounting Standard Setters to develop new measurements, new reporting forms, new tools and techniques for an economy based on intangibles.

1.2 Problem Discussion

An intangible asset is defined by the international accounting standard board (IAS 38) as an identifiable no monetary asset without physical substance. This asset is a resource that is controlled by an enterprise as a result of past events for example purchase or self-creation and from which future economic benefits, inflows of cash or other assets are expected. Thus, the three critical attributes of an intangible asset are:

- Identifiably
- Control
- Future economic benefits

Intangible assets come in many forms and are major value drivers. These intangibles are goodwill, patents and trademarks, copyrights, mailing lists, exclusive contracts, royalty agreements, work-in-progress, proprietary designs and many others.

One of the more troublesome problems in business valuation is the issue of valuing intangible assets. Intangible assets are significantly more difficult to value than their tangible counterparts. Obviously, it is more difficult to determine the value of a trade secret than the value of office space. When it is time to sell assets, intangible assets, such as goodwill and patent, can cause real problem in the form of financial and legal obstacles if improperly valued.

Accounting standards and theories on treatment of goodwill and patent appear to be similar to what is being practiced. It is therefore worth researching how similar this theory on goodwill and patent valuation is to the practice.

1.3 Problem Definition

The research problem is;

Can we investigate if there is an acceptable procedure to value and report a company's intangible assets so that company's management and stakeholders can get enhanced information on the company's intangible asset on grounds that the management falls short in revealing the real monetary value of their intangible assets?.

However, this question is by far too big to answer in a single master thesis and therefore we will limit our research to two very important intangible assets; Goodwill and patent right valuation. Comprising the above big question are these sub questions which are the main areas of our research focus:

- (1) What are ABB methods of and valuation of the intangible assets particularly Goodwill and Patent?
- (2) What are their reasons for the choice of these methods used in their valuation?

1.4 Purpose

The main purpose of this thesis is to explore and analyse how the ABB Group values and treats Goodwill and Patent. We explored policies used and the extent to which these policies reflect the values of Goodwill and Patent. The ABB Group and many other organizations will benefit from this thesis. It will be a source of guidance to them, should there be the need to sell or buy a business, the value to be placed on Goodwill and Patent rights, and establishing

fair market values. Information from this thesis when used in a constructive way will aid ABB Group and other companies to make the necessary changes in their way of valuing and reporting their intangible resources , particularly Goodwill and Patent since it establishes the degree of importance of these assets to organization.

1.5 Scope and Limitations

This thesis was initially supposed to cover certain a number of selected industries but due to unwillingness of the other companies to cooperate, we decided at the tail end to rather study just the ABB group. Hence our research is limited to ABB Group based in Switzaland.

There was also a limitation as a result of time and the unwillingness on the part of personnel and management to release vital information for proper analysis especially as our study dwells so much on value drivers or elements that give competitive edge.

We were also limited regarding finances as this thesis was not funded to the extent to which we could have carried out the research. We wanted to study intangible assets in totality but for financial support we decided to research only Goodwill and Patent

Chapter 2

Several approaches are used in an attempt to delve into an existing problem. Below is the procedure we adopted to research our problem question. In this chapter a brief up of the approach we used is included. These are the research approach, data collection procedure as well as the research evaluation criteria discussed. We also discuss our time budget in this chapter.

2. Methodology

Research methodology refers to the procedural framework within which the research is conducted. It describes an approach to a problem that can be put into practice in a research program or process, which could be formally defined as an operational framework within which the facts are placed so that their meaning may be seen clearly (Ryan et al 1992).

In brief research methodology is a tool for the acquisition of new sets of knowledge. Its appropriateness is determined by the extent to which it can solve the research problem at hand.

The methodology for this study was based on an extensive approach in assessing the value of goodwill and patent of ABB Group. Methodology includes the research approach, the data collection, and the time schedule

2.1 Research Approach

In every research study, a research approach must be chosen. The choice dwells very much on certain parameters, namely, the problem formation, the rationale of the research and the researchers previous knowledge of the study area .

The four main research approaches are the exploratory, explanatory, descriptive and the predictive approach

This thesis dwells on describing the nature of the problem at hand as well as trying to establish the link between theory and practise. We used the descriptive approach when describing the problem of Goodwill and Patent valuation in

ABB Group whilst in our analysis we tried to analyse and explain the differences between practice and the theory in the valuation of Goodwill and Patent right - the usefulness of Goodwill and Patent and the monetary value placed on it at a particular point in time.

2.2 Research method and Data collection

There is a range of method as regards gathering data needed in the examination of a research problem. A key distinction is made between two different types of data, primary data which consists of information collected through direct examination; and secondary data, which includes earlier examination, existing statistics, literature and articles (Patel & Davidson, 1994)

The main sources of data came primarily through conducting an empirical study as we intended to explore how management values Goodwill and Patent right. We dealt with ABB at the group level in Europe.

We collected data basically from two main sources namely, the primary source and secondary sources. The primary sources included administering a questionnaire, we also used the questionnaire to solicit important information. The form of the questionnaire was both structured and unstructured. See appendix 1

Also we conducted a telephone interview with the Manager, Corporate Accounting Principles and Development in Switzerland for almost 30 minutes. This allowed us to ask follow- up and probing questions

The secondary data was collected from books, company financial reports, the ABB group Homepage and similar research and theses already written by others. It must be mentioned that the secondary data enhanced our understanding of the subject matter as we commenced the research into this discipline of study for better future analysis.

2.3 Research Evaluation

Credibility is important to all types of research. The issue of credibility refers to being able to demonstrate that the research was designed in a manner that

accurately identifies and describes the phenomenon to be investigated (Ryan et al 1992)

In order to achieve credibility and trustworthiness in qualitative study, issues regarding validity and reliability must be described. It is tricky in this type of study to arrive at a generally agreed piece of information, but the main concern is to present research that it will be perceived as credible to the readers.

Since there is no single fact to any research, it is likewise with this thesis into valuation of Goodwill and Patent but we tried to reach credibility as much as possible by showing how we carried out this research. We have accounted for our opinion of this study's validity and reliability beneath.

2.3.1 Validity

Validity is an expression of how fit the adopted measurement tool quantifies the issues to be studied. However, it should be noted that there is no objective way to establish to what extent this tool is valid or not, implying that the level of validity has to be determined on an individual basis.

A way to ensure validity was for us to present useful and adequate conclusions that could improve companies knowledge in this area. Besides it was vital for us to disclose information about the research process so that the reader could come out with his or her own opinion about how the evidence was collected and interpreted. For this reason we have provided the reader with the ability to question the quality of the interpretations and conclusions of our study.

2.3.2 Reliability

The objective is to be sure that, if a later investigator followed exactly the same procedures as described by an earlier investigator and conducted the same case study all over again, the later investigator should arrive at the same finding and conclusion. (Yin 1994.)

This study has a low incidence of errors because of the research procedure used and its results may be reproduced in a similar future study. Besides the study was carried out involving a particular company and with a very good research procedure hence this research report holds unique findings. Even, if the study is repeated with some circumstances changed, for instance if the original respondent is no more, subsequent interviewees' response if properly guided and analysed, will show that result will not be significantly different, if any.

2.4 Time schedule

This thesis was done in stages. The beginning four weeks were for literature analysis and written information on the topic. It basically consisted of reading of relevant articles and already-written essays and theses in line with the problem at stake. These helped us to get more ideas and knowledge out of which we were able to arrive at our own suggestions and opinions about Goodwill and Patent right.

The next stage was five weeks, where we tried to search out how ABB group measures or put value on Goodwill and Patent. We did this by administering a questionnaire and conducting a telephone interview and analysing the information gotten from the company. The interview was held with the management body of the company. It was a phase of primary data gathering and analysis of raw data.

The last two phases were more critical and extensive work. These were very vital points for us to implicate our findings from the analysis done, draw conclusions, and make recommendations and suggestions about the value measurement of Goodwill and Patent.

2.5 Problems of references

The main difficulty we faced was that the gathered information we got from ABB Group in most cases were information they chose to give us. Confidential and sensitive information as very hard to come by, as they felt reluctant to supply us with it. In the absence of reliable primary data, secondary information from the Internet and other sources were very useful, even though

we encountered some problems. We are of the view that most of the published company information consists of legally audited financial statements and is as such reliable to some extent.

Chapter 3

In this chapter we mention the major components of intangible assets and extensively elaborated on the meaning of Goodwill. The theoretical methods of valuing Goodwill is discussed as well as the types of Goodwill and their different natures.

3.1 Intangible Assets

The valuation of intangible assets or intellectual property must always be guided by the consideration as to whether that property achieves its highest and best use in combination with an aggregation with other assets or as an individual unit (Gordon & Russell, 1994, p 55)

Every business entity consists of three basic components: monetary assets, tangible assets and intangible assets. Their aggregate value equals the value of the entity. Monetary assets are defined as current assets less current liabilities. Tangible assets are plants, property and equipments, together with monetary assets they appear on the financial balance sheet of a business (Gordon & Russell, 1994, pp 55, 56)

The valuation of tangible assets is not the subject of this research, nor does it lend itself to a brief explanation .

Intangible assets as we all know are usually or in most cases not on a company's balance sheet but they are present in an organization in any case. This asset category might include trademarks, contracts, and notably Goodwill and Patent. It must be emphasised that this thesis is exclusive research into Goodwill and Patent.

3.2 The Nature of Goodwill

Goodwill represents the difference between the total value of an enterprise, measured at a particular point in time, and the value of the enterprise's readily identifiable net assets. Put another way, goodwill represents the difference between the value of the assumed future cash flows of an enterprise and the value of its readily identifiable net assets. At its core, goodwill represents the ability of the enterprise's collective assets to earn cash flows in the future. Accountants writing on accounting, economists, engineers, and the courts, have all tried their hands at defining goodwill, at discussing its nature, and at proposing means of evaluating it. The most striking characteristic of this immense amount of writing is the number and variety of disagreement reached (Canning, 1929, p.38) Enterprises earn future cash flows by utilizing their collective assets productively in the marketplace.

3.4 Types of Goodwill

Goodwill as an asset may arise as a result of a company's external transactions or can be internally generated.

3.4.1 Externally Generated Goodwill

This is purchased Goodwill that is recognized in the books of the acquirer. It arises from acquiring any net assets of a different entity or upon consolidation of group accounts, i.e. determining premium or discount on acquisition of subsidiary (Harvey Gill, 2002).

Purchased goodwill can be positive or negative.

It is positive if it arises from any of the following events: there is a premium on acquisition, arises when an acquirer is eager to pay more in the expectation of future profit arising from the acquired interest. Negative goodwill comes about as a result of discount on acquisition, or arises because there is a bargain during purchase or expectation of short-term losses have been built into the acquisition price. (Harvey Gill, 2002)

3.4.2. Non-Purchased or Internally Generated Goodwill

This internally generated Goodwill is not recognised in the books because for one or more the following reasons it is not easy to prove its existence, the

amount cannot be determined with certainty, value is fluctuating hence its recognition would be to anticipate gains (Harvey Gill, 2002).

3.6 Valuation Methods for Goodwill

A value can be established for most assets by determining the price a willing buyer would pay or a willing seller would take for the asset (Catlett & Oslon,1968, p 13).In practice, there are several methods companies adopt to estimate the value of goodwill when a business or shares are purchased. Below are a number of them.

3.6.1 Purchase of 'x' Year's Profits

Profits for the current year or coming year are taken. These are multiplied by a number of years, which can range usually, for profitable business from 1 to 10 years

1 - 3 years	Where profits are expected to be stable
4 - 5 years	Where some growth is expected in profits
> 5 years	Where strong growth is expected in profits

3.6.2 Purchase of 'x' Number of Best Year's profit

Possible for established business. Take the highest profit for the last five year's period. Multiply by a number of years that depends on:

Nature of business, expected changes in the economy, expected changes in an industry and market share

3.6.3 Purchase of 'x' Number of Average Profits

Used for on-going business, which has been in existence for at least five years the Last five years' (sometimes seven years') profits are averaged out and multiplied by a number of years using the same guide as above.

It is considered to be a fair method and appropriate where both parties have equal bargaining power.

3.6.4 Value Based on the Crown Jewel

Sometimes, goodwill may almost entirely be attributable to a particular licence, business position, brand name or such asset, such that valuation of goodwill is the valuation of the crown jewel.

3.6.5 Value Based on Future Cash Flows

This is the discounted value of future cash flows that the acquirer hopes to generate from the business acquired. It represents the maximum price to be paid if the acquisition is to be feasible (Harvey Gill, 2002).

3.7 Goodwill Treatment over the Years

Goodwill as an asset appearing on a company's balance sheet has been treated differently over the years. Basically at the end of each accounting year it is either amortized or impaired depending on the period and the standard setting bodies in question. (The UK GAAP, the international accounting standard boards the US Financial Accounting Standard Board etc). In the next chapter we will elaborate on how three international bodies, the UK GAAP, the international accounting standard board and the US Financial Accounting Standard Board treat or value goodwill when a business is acquired.

In brief tangible assets of an entity are assets that have no physical existence or tangibility, goodwill is simply that part of intangible asset that enable organizations to make abnormal profit. The value of this asset can be determined or measured from various methods, few of these methods are mentioned above.

Chapter 4

In this chapter a thorough discussion is carried out on how the international accounting bodies mentioned in chapter 3-value goodwill. In the concluding part of the chapter an attempt is made to see the current development on the effect of accounting standard harmonization on the goodwill measurement.

Various Accounting Bodies and Goodwill Treatment

4.1 U.K. GAAP

Before 1998, under SSAP (Statement of Standard Accounting Practice) 22, goodwill in the United Kingdom was either written off against reserves (retained earnings) or it was capitalized and amortized over an appropriate period. U.K. GAAP also required that, upon a later disposal of previously acquired assets or a later closure of a previously acquired business, any goodwill previously charged directly to shareholders' equity should be charged in the income statement against the income or loss on the disposal or closure.

Effective January 1, 1998, Financial Reporting Standard (FRS) 10, on Goodwill and Intangible Assets, changed goodwill treatment. Goodwill must now be capitalized, and, as in the United States, internally generated goodwill cannot be recorded as an asset.

4.1.1 Amortization and Impairment.

Goodwill is amortized under a rebuttable presumption that it has a useful economic life of 20 years or less. This presumption may be overcome, however, if its estimated useful life is more than 20 years, or even indefinite, and the goodwill is capable of continuous measurement in the future such that an annual impairment review can be performed. If goodwill is not amortized, or is amortized over a period of more than 20 years, then an impairment review must be performed each year. In addition, an indication of impairment requires an impairment review without regard to the amortization period.

Where goodwill is amortized over 20 (or fewer) years, impairment reviews must be performed only at the end of the first full year after initial recognition and at other times if circumstances indicate that its carrying value may not be fully recoverable.

With regard to an indefinite life for goodwill, FRS 10 states,

non-amortisation of goodwill constitutes a departure from the specific requirement of companies legislation to depreciate the value attributed to goodwill over a limited period that does not exceed its useful life. The Board has limited the circumstances in which goodwill is not amortised to those circumstances where systematic amortisation would not provide a true and fair view.

4.1.2 Is Goodwill Recognized as an Asset in the U.K GAAP ?

The U.K. GAAP under FRS 10 considers goodwill to be a link, and not an asset like other assets. Rather, it forms a bridge between the cost of an investment shown as an asset in the acquirer's own financial statements and the value attributed to the acquired assets and liabilities in the consolidated financial statements of the resulting group.

4.2 International GAAP

Current international GAAP regarding goodwill was established by the IASB in IAS 22 on Business Combinations. The original standard, issued in 1983 and revised in 1998, requires that goodwill be capitalized and completely amortized. IAS 22 says: The amortisation period should reflect the best estimate of the period during which future economic benefits are expected to flow to the enterprise. There is a rebuttable presumption that the useful life of goodwill will not exceed twenty years from initial recognition. Furthermore, internally generated goodwill cannot be recorded and the standard does not permit an entity to assign an infinite useful life to goodwill.

Nevertheless, goodwill can be subject to an annual impairment test under IAS 36, on Impairment of Assets, if its useful life is demonstrated to be more than 20 years and the reasoning behind this determination is disclosed. IAS 36 explains how an entity reviews the carrying amount of its assets, how it determines the recoverable amount of an asset, and when it recognizes or reverses an impairment loss.

In addition, IAS 22 requires annual calculations of the recoverable amount of goodwill if its useful life exceeds 20 years from the initial date of recording. Also, if the useful life was initially less than 20 years but is later extended to exceed 20 years, the entity must perform an annual impairment test.

Paragraph 47 of IAS 22 provides the justification for amortization: With the passage of time, goodwill diminishes, reflecting the fact that its service potential is decreasing. In some cases, the value of goodwill may appear not to decrease over time. This is because the potential for economic benefits that was purchased initially is being progressively replaced by the potential for economic benefits resulting from subsequent enhancements of goodwill.

In other words, the goodwill that was purchased is being replaced by internally generated goodwill. IAS 38, on intangible assets, prohibits the acknowledgment of internally generated goodwill as an asset. Therefore, it is proper that goodwill is amortised on a systematic basis over the best estimate of its practical life. Paragraph 49 of IAS 22 continues, as because goodwill represents, among other things, future economic benefits from synergy or assets that cannot be recognized separately, it is difficult to estimate its useful life. Estimates of its useful life become less reliable as the length of the useful life increases. The assumption in this Standard is that goodwill does not usually have a useful life in excess of twenty years from first recognition.

4.2.1 Is Goodwill an Asset ?

Goodwill of the absorbed company in a business combination has been paid for; accountants must presume that the continuing company received value for the consideration given and therefore the value of goodwill should be recorded as an asset (Catlet & Oslon, 1968, p 79).

Any excess of the cost of the acquisition over the acquirer's interest in the fair value of the identifiable assets and liabilities acquired as at the date of the exchange transaction should be described as goodwill and recognized as an asset. Goodwill arising on acquisition represents a payment made by the acquirer in anticipation of future economic benefits. The future economic benefits may result from synergy between the identifiable assets acquired or from assets that, individually, do not qualify for recognition in the financial statements but for which the acquirer is prepared to make a payment in the acquisition (IAS 22).

4.3 US FASB (Financial Accounting Standard Board)

In July 2001, the Financial Accounting Standards Board completed its 5-year project on business combinations and intangible assets with the issuance of two separate statements, FASB Statement No. 141, Business Combinations, and FASB Statement No. 142, Goodwill and Other Intangible Assets (Stephanie Harper,2001).

These two new Statements significantly affect how companies account for business combinations and for the purchased goodwill. The affect of these Statements will be far reaching as they impact not only those companies that will complete business combinations in the future, but also any company that has unamortized balances of acquired goodwill or intangible assets from past acquisitions.

4.3.1 Statement No. 141 of the FASB

This addresses the financial accounting and reporting for business combinations. It requires the exclusive use of the purchase method for all business combinations initiated after June 30, Statement 141 supersedes Accounting Principles Board Opinion No. 16, Business Combinations (APB 16) and amends, or supersedes, a number of interpretations of APB 16. The most significant changes from APB 16 to Statement 141 are the elimination of the pooling-of-interests method and the criteria for identifying and initially recognizing intangible assets acquired in a business combination.

4.3.2 FASB No. 142

FASB No. 142 addresses financial accounting and reporting for acquired goodwill and other intangible assets and supersedes APB Opinion No. 17. APB No 17 addresses how intangible assets that are acquired individually or with a group of other assets should be accounted for in financial statements upon their acquisition. Opinion 17 presumed that goodwill and all other intangible assets were wasting assets (that is, finite lived), and thus the amounts assigned to them should be amortized in determining net income; Opinion 17 also mandated an arbitrary ceiling of 40 years for that amortization. Contrary, FASB Statement 142 does not presume that those assets are wasting assets. Instead, goodwill and intangible assets that have indefinite useful lives will not be amortized but rather will be tested at least annually for impairment. Intangible assets that have finite useful lives will continue to be amortized over their useful lives, but without the constraint of an arbitrary ceiling.

FASB No. 142 goes further to address how goodwill and other intangible assets should be accounted for after they have been initially recognized in the financial statements. Statement No 142 changes the unit of account for goodwill and takes a very different approach to how goodwill and other intangible assets are accounted for subsequent to their initial recognition. Since goodwill and some intangible assets will no longer be amortized, the reported amounts of goodwill and intangible assets (as well as total assets) will not decrease at the same time and in the same manner as under previous standards. There may be more volatility in reported income than under previous standards

because impairment losses are likely to occur irregularly and in varying amounts.

Previous standards provided little guidance about how to determine and measure goodwill impairment; as a result, the accounting for goodwill impairments was not consistent and not comparable and yielded information of questionable usefulness. This Statement provides specific guidance for testing goodwill for impairment. Goodwill will be tested for impairment at least annually using a two-step process that begins with an estimation of the fair value of a reporting unit. The first step is a screen for potential impairment, and the second step measures the amount of impairment, if any. However, if certain criteria are met, the requirement to test goodwill for impairment annually can be satisfied without a remeasurement of the fair value of a reporting unit.

In addition, this Statement provides specific guidance on testing intangible assets that will not be amortized for impairment and thus removes those intangible assets from the scope of other impairment guidance. Comparing the fair values of those assets with their recorded amounts will test intangible assets that are not amortized for impairment at least annually.

This Statement requires disclosure of information about goodwill and other intangible assets in the years subsequent to their acquisition that was not previously required. Required disclosures include information about the changes in the carrying amount of goodwill from period to period.(in the aggregate and by reportable segment).

4.4 Goodwill amortization

Date back time immemorial Goodwill was seen as a fixed asset that must depreciate over the years. Its value is written down on a regular basis and at a uniform rate to zero over its life's span. This treatment was for goodwill arising from business combination completed before June 30, 2001. Goodwill acquired in a business combination represents a value deriving from a specific set of circumstances and the cost should be amortized in a manner consistent with the nature of the circumstances (Catlet & Oslon ,1968, p 80)

4.5 Goodwill Impairment

Goodwill and indefinite lived intangible assets arising from business combinations completed after June 30, 2001 will not be amortized even though a company may not have otherwise adopted Statement 142. Additionally, the new impairment model in Statement 142 is applicable to all goodwill upon adoption of Statement 142, but not before. Thus, a calendar year-end company should continue to apply the current impairment approach for all goodwill as at December 31, 2001. Acquired goodwill is no longer amortized over a set time period. Rather, it is tested for impairment and adjusted as needed. Goodwill, other intangible assets, and total assets reported on financial statements will not decrease systematically as before. Instead, the fair value of goodwill will be tested and adjusted if impaired (Matthew S. Maudlin, 2002).

Transition to the new impairment rules requires completion of a transitional impairment test (it is discussed below) of all goodwill within the first year of adoption. Reporting units must be identified and all goodwill must be allocated to these reporting units. Companies will have six months to complete Step 1 of the impairment test. If Step 1 is flunked, impairment losses must be calculated under Step 2 as soon as possible but no later than by year-end. The amounts used in the transitional impairment test (both Step 1 and Step 2, if necessary) should be measured as of the first day of the company's fiscal year. Impairment losses recognized from this initial review would be reported as a cumulative effect of an accounting change in the company's first interim financial period regardless of the period in which measuring the loss is completed. Thus, the first quarter would have to be restated if the process is completed later in the year. An impairment loss that does not result from the transitional impairment test should not be recorded as a cumulative effect adjustment. Rather, it should be reflected within operations.

4.5.1 The Impairment Process

Goodwill if not amortized must be tested to have lost value hence the impairment process to estimate the loss. The process is of two steps as shown below

Defining Reporting Units (RU) starts it. Then assigning assets & liabilities including goodwill to RU. The first step is then begun as:

Perform Step 1:

Determine if the fair value of the reporting unit is less than book value of the reporting unit (to understand if goodwill may be impaired). If it is bigger than the book value the test is ended and there is no further action taken.

Otherwise (fair value greater than book value) step two is performed as:

Perform Step 2:

Determine the fair value of the reporting unit's assets and liabilities as if the reporting unit was just acquired (to quantify Goodwill impairment, if any).

Finish - Write off goodwill if Carrying amount of goodwill exceeds implied Fair Value (Goodwill Valuation, 2002).

4.6 Goodwill no Longer Amortized – the Effect on Reported Profit

If goodwill amortization is abolished, when a company reports earnings in the future, they may be much higher. After June of 2001 and under FASB 142 companies no longer have to amortize goodwill unless it is determined to be impaired (worth less then currently on the account books).

Companies will be required to have an independent auditor review their goodwill and evaluate if it should be written down or expensed. What's the difference? For some companies, it will change GAAP earnings dramatically. For example, on a GAAP basis a company lost \$2.1 billion in a particular year, but \$1.9 billion was from the amortization of goodwill. Now the company will show a GAAP lost far lower than expected with the abolition of goodwill amortization. Many analysts believe that there really won't be a difference because they say that investors were already valuing the companies, knowing the effects of the amortization of goodwill.

4.7 The Search for High-Quality Accounting on Goodwill

Accounting for goodwill has been a difficult problem; all prior theories are provisional and subject to change. There should be a level playing field. For many years, goodwill was charged to equity in the United Kingdom and elsewhere, and many U.S. businesses (especially those involved in mergers and acquisitions) complained that the playing field was not level. Now, with the ASB and IASB generally requiring goodwill to be amortized over 20 years, and FASB adopting an impairment method, the tilt is in the opposite direction

4.8 Current Effect of Harmonization Efforts on the Treatment of Goodwill

Currently, the IASB has on its agenda a project on business combinations (business combination results in goodwill), whose objective is to develop a single standard in order to converge the alternative methods permitted by other standard-setting bodies. This project would either amend IAS 22 or result in a new International Financial Reporting Standard (IFRS) with guidance to supplement IAS 22. In addition to all of the issues involved with business combinations, this project will re-examine the measurement and recognition of acquired intangible assets and goodwill, and the amortization and impairment approaches.

4.9 Goodwill Convergence

In summary accounting for goodwill in the U.S. took a significant step in a new direction with the adoption of SFAS 142 in July 2001. FASB has decided to treat goodwill as a no wasting asset that would periodically be tested for impairment. Goodwill has generated debate for decades, and standards setters in other nations and at the IASB have addressed how to account for purchased goodwill in diverse ways. The research compares and contrasts the new U.S. standard with standards from the United Kingdom and the IASB and speculates about the potential for convergence of these standards in the near future.

International harmonization of accounting standards began as an initiative to promote a common financial reporting framework and facilitate cross-border financings. Now, the convergence of national accounting standards within a global framework, coupled with their consistent application, is the goal. Convergence the act of moving towards union or conformity has become an important part of the agendas of accounting standard setters in the United States and abroad.

The U.K.'s Accounting Standards Board (ASB) sponsored a publication (*The Convergence Handbook*) in response to the European Commission's proposal that consolidated accounts of listed companies should comply with International Accounting Standards (IAS) by 2005. The Handbook details the differences between ASB and IAS requirements as a point of departure for the ASB to either adopt the IAS standards or to persuade the IASB to conform to ASB standards.

Although FASB is committed to global convergence, its treatment of goodwill accounting could pose hurdles: U.S., U.K., and international principles for goodwill accounting currently differ in significant ways that affect the reporting of goodwill arising from business combinations.

Chapter 5

5.0 This chapter deals with the literature review patterning to the Patent right. It provides an overview of what Patent right is all about as well as the significance of the intellectual property right. A general summary of process of acquiring the right is given and literature on the valuation models of Patent right is also examined.

5.1 What Is a Patent?

A patent is the legal process whereby technology is turned into controllable property with defined rights associated with its ownership. The right conferred by the patent grant is the right to exclude others from making, using or selling the the invention (Parr and Smith, 1994, p 35)

A patent can be described as an exclusive right of limited duration over a new, non-obvious invention capable of industrial application where the right to sue others for infringement, is granted in return for publication of the invention. There is a distinction between the underlying invention that might be called the underlying intellectual asset and the intellectual property right (IPR) that confers exclusive rights over that invention as defined in the claims of the relevant patent.

5.2 Why Obtain a Patent?

The protection of new inventions by a patent or utility model is profitable only if these foster the establishment of new businesses or the boosting or securing of existing activities. A major part of the industrial companies all around the world have been founded and will continue to be founded as a result of new inventions. Also their future success and growth will be based on new patentable innovations. The patent stock of the world continues to grow, as a

result of increased innovative activities of companies and also because more countries are joining the patent system all the time. (Parr and Smith, 1994, p 32).

There are a number of reasons why the developer of proprietary technology may wish to obtain specific protection by obtaining a patent. The most compelling reasons include: considerable money spent on R&D, a strong market for the technology and competitors pursuing similar research. (Parr and Smith, 1994, p 34)

5.3 The Significance of Patent Valuation

Valuing patents is important for many purposes including determining business values, capital allocations, taxes, licensing rates, and patent infringement damages. There is a growing interest in valuing patents because the world economy is shifting from a tangible assets based economy to an intangible assets based economy. The business world has recognized that the intangible assets of many companies exceed the value of their tangible assets, and that patents are part of these intangible assets.

5.4 The Patent Process

The process of obtaining a patent can be very complex and time consuming. It involves attorneys and other specialists. (This discussion is intended to describe the process in summary. Obtaining a patent right involves the following seven general activities

- a) An application, including a description of the patent and the claims sought, a drawing (when appropriate), a declaration that the applicant is the original inventor, and a filing fee, is made to the Commissioner of Patent and Trademarks.
- b) When the application is accepted as being complete, it is assigned to an examiner who is knowledgeable about the specific technology. Applications are normally processed in turn.

- c) The examiner analyzes the application for compliance with legal requirement and makes thorough prior the US and foreign patents on file, as well as through literature, to see if the invention is both novel and no obvious The examiner reaches a decision as to the patentability of the claimed invention
- d) The applicant is notified in writing of this decision in an office action. It is not uncommon for some or all of the claims to be initially rejected
- e) The applicant must request a reconsideration in writing, and clearly and completely explain the basis for his or her belief that the examiner has erred in the examination
- f) The application is then reconsidered and a second Office Action is issued
- g) If the patent is not granted, the process may go through a third round, after which the action usually is considered final (Parr and Smith 1994, pp 36 - 37).

5.5 Valuation Methods; Theoretical Framework

Russell & Parr divide all possible types of valuation of individual patents into Cost, market and Income based methods, the latter of which includes simple DCF methods (Parr and Smith, 1994. pp 155 - 164).

Arthur Andersen in a report on valuing intangible assets divides valuation methods into Cost, Market Value and Economic Value methods (Arthur Andersen & Co. 1992).

In this thesis we have examined the Cost and Market based method as well as the Income based method only because of the limitation of time .

5.6 Cost Based method

The cost method of valuing patent include either the use of the historical cost of the underlying intellectual property and or the estimation of the future cost of creating the underlying property.

Knowledge of at least the future costs of creating IPRs is needed as part of almost all valuation methods. However, valuation methods based on the historic costs of acquisition perhaps less any allowances for depreciation or obsolescence is worth only the very briefest of comment. Their most serious failing is that they make no allowance for the future benefits which might accrue from the patent. They are of no help other than in historical cost based accounting systems or where taxation methods dictate their use and useless for making rational decisions (Arthur Andersen & Co. 1992).

5.7 Market Based Methods

The aim of market-based methods is to value assets by studying the prices of like assets, which have been traded between parties at arm's length in an active sell. Perhaps the clearest case where the method might be said to work and the only case where the cost of an IPR is a possibly useful guide to its value is when the cost concerned is the price paid for the same IPR in a very recent comparable commercial transaction (Arthur Andersen & Co. 1992).

A crucial point made by Parr and Smith (1994) is that the transaction used may relate to a Patent whose use may not represent the best use of the patent in question.

One other market based valuation methods is described by Parr (1988). This involves the valuation of the "Patented Product" of a one product firm by calculating the Residual value after deducting all the value of all other known assets from the market value of the company. This is similar to the "Premium P/E" method, which ascribes the additional price and thus P/E ratio paid for a business with significant IPRs to the value of those IPRs (Arthur Andersen & Co. 1992).

Taking the residual value analysis a step extra, Parr determines the return to the Patent by calculating the proportion of the actual total return which can be accounted for by standard rates of return to tangible and other known intangible assets thus leaving the return to the patent right as the residual.

In other words Parr's valuations give a value for the Invention plus the Patent and a measure of the return to the Patent but not a value for the Patent per se unless one takes the notional return and uses this to calculate a supposed NPV over the remaining life of the Patent.

In addition it is subject to question that the use of a residual valuation method is not possible since one cannot be sure that the residual is really ascribable to the patent alone and not other intangible assets. Finally there are few companies with just a single product. A more fundamental quandary is that one is using a stock market valuation of the company as a basis for estimating the value of its IPRs. One is thus making an assumption that the market is totally well versed about the IPRs of the company and can compute their value.

If that is the situation, there is no rationale why those who wish to compute the value of the patent rights should not do the same calculations or have the same insights. If it is not the case, there is no reason why anyone should support their valuations on what is no more than a guess work. This is especially so in the case of an internal valuation where the internal valuers should have more information than the external market.

In brief, even as cost and market based methods of valuation may be rather easy to use they may not be providing answers which are as exact as one might desire. As a particular objective ways of calculating the value of patents such methods still leave much to be desired.

5.8 Income Based Methods - Accounting for Future Value

Enhancement on cost-based methods of valuation include at least some estimation of possible income from a patent and thus some appreciation of the value of the patent as opposed to just its estimated market price or its cost. This

will definitely also involve some aspect of forecasting the potential cash flows. However it is only with the addition of trying to account for the elements of time and uncertainty in future cash flows as is the case with traditional discounted cash flow that can one in reality get to a near valuation of patent with this method.

It may be possible to identify and or estimate particular cash flows, which are associated with a particular IPR through licensing or through direct exploitation. On the other hand it may be possible to use ideas similar to those used in brand contribution methods to calculate the contribution to a business of a given Patent (Arthur Andersen & Co. 1992)

An additional and very common method based on industry average royalty rates assumes that the income due to a patent is the royalty which would have to be paid by a licensee. Needless to say the same cautions pertain as when setting royalty rates directly based on such average rates as described above.

5.9 DCF Based Methods - Accounting for Time & Uncertainty

Discounted Cash flow (DCF) methods of valuation are now used for every type of applications. The two important factors they account for are the time value of money and the riskiness of the projected cash flows. These two problems may be solved in the two possible ways below. Either by using a risk adjusted discount rate to discount the cash flows, thus accounting for both factors at the same time.

Or using certainty equivalent cash flows, in which estimated cash flows are adjusted to account for their riskiness and the changing risk. These are then discounted at the risk free rate to account for the time value of money. The latter method separates the two issues of risk and time and can help avoid problems when the risk adjustment varies over time, as it will with patents.

But, it is not the aim of this thesis to describe DCF methods in detail. What is worth discussing are some of the peculiarities involved in valuing a patent using discounted cash flow method and some of the shortfalls this method is

prone to. One benefit of valuing patents with these methods is that since Patents have restricted lifetimes one is not faced with the trouble of estimating residual values for the cash flows beyond the forecasting horizon.

For a given project though the cash flow could be one of a broad variety of possible cash flows. Assuming that the probabilities of the various outcomes are known, the simplest method of analysis would be to simply work out all the probable cash flows and their probabilities, obtain the total expected cash flow and discount it with the company's allowed discount rate.

However, such an approach ignores quite a lot of factors. To begin with the discount rate used should always be one that reflects the risk of the cash flow in question. For example if the project is not an average project for the company this will not be the same as the company's cost of capital. Put into practice, using the assumptions of the capital asset pricing model and by finding quoted companies with cash flows of equal riskiness suitable discount rates can be obtained. Secondly, with a multi-stage cash flow such as with a patent or patent application, the risk associated with the cash flow will vary very much over the lifetime concerned. That for a newly approved patent which is about to be litigated for the first time will be much riskier than for a 25 year old expert which has survived countless attempts to quash it.

Use of a single regular discount rate actually makes the opposite assumption that the risk adjustment increases as the patent ages. The general idea of a discount rate's risk premium constituent varying over time is dealt with by Hodder and Riggs who advocate the use of sequences of distinct risk phases in evaluating high risk projects whose risk varies from phase to phase (Hodder and Riggs, 1985.).

Neil for example in writing on the valuation of "Intellectual Property" only uses a single discount rate and whilst not mentioning the variation of risk over a project's life takes the pragmatic view that small variations in the discount rate used will have a smaller effect than any possible errors in the forecast cash flow

Parr also proposes the use of the DCF method of valuation of but also does not mention the possible variation in risk during the life of a particular piece of intellectual property .

A further approach to uncertainty, which uses DCF, involves simulation methods. The simplest type involves sensitivity analysis where elements are each adjusted to see the effect they have on final DCF values. Another example is that put forward by Stacey who advocates a probabilistic DCF approach (Stacey, 1989, p .51).

In Stacey's case of simulations all the elements are adjusted at once according to the entity probability distributions to produce an overall distribution of possible valuations. But such methods, as Stacey says, involve a lot of time, and are very costly.

A further issue not raised by Stacey is as to what the NPV frequency distributions mean. If the probability distributions of NPVs are produced using a risk free discount rate the opportunity cost of capital the NPV distributions cannot represent actual NPVs since only time has been accounted for. If they do use an opportunity cost of capital the risk is so to speak double counted first in the discount rate and secondly in the NPV frequency distribution (Brealey and Myers, 1984.).

In addition to the troubles of selecting discount rates suitable to the risk connected with the various stages in a patent's life and those of calculating the possible cash flows which might occur there is a third problem with simple DCF methods. This is that no account is taken of the various possibilities open to a patent. For example at various stages in the life of a Patent or application it could be allowed to lapse or be abandoned.

Following the early application there is also the opportunity to enlarge the class of the patent family, by making comparable overseas applications. To a certain extent simulations such as those described above can be used to try and account for the possible outcomes of management decisions though the same caveats outlined above apply. Where the number of such possibilities is limited and the

possibilities for management choice only occur at defined times they may be accounted for by the use of some form of Decision Tree Analysis.

This ought to be based on an underlying DCF analysis of each branch; starting with the final ones and working backwards give a present value. The big advantage of the DTA method over simple DCF analysis is that it builds in the value of flexibility encountered in a project or patent. This allows at least some account to be taken of the ability to abandon the patent though it does not solve the discount rate problem. The rates used ought to be appropriate to the risk involved at each stage and following each type of decision, whilst in practice a constant rate is usually used.

In summary, we have reviewed literature on the valuation of patent. The method includes, the cost approach, and market value approach and a critical analysis of the cashflow method of patent valuation was also done.

Chapter 6

6.0 Empirical Findings in ABB

This chapter is a brief presentation of the findings obtained upon administering the research questionnaire, a telephone interview with a member of the ABB management team and a visit to the company's website. Issues discussed here are company profile, mission and strategy, Intangibles Assets and research findings on goodwill and patent right.

6.1 Company Profile

ABB is one of the world leaders in power and automation technologies these technologies enable utility and industry customers to improve their performance and at the same time lower environmental effects. The ABB Group of companies operates in more than 100 countries and employs around 146,000 people.

The company is into various activities namely; Power technology, petrochemical, automation technology and financial service

6.2 Company Mission and Strategy

ABB's vision and mission is to create value for its customers, stakeholders' communities and the whole society in which it operates. To achieve this, it has drawn up a charter of values and a set of guidelines that its members strive to achieve at all times. Important to the company's mission and values are its sustainability and business ethics programs. These enable the company to expand to a high level of environmental awareness and to bring social and economic performance into balance throughout the group.

ABB's strategy is to offer more value for customers while building a leaner organization. The entity's business strategy works together to present one face of ABB, one offering, one simple and seamless set of values to customers.

6.3 Intangibles Assets

The ABB Group defines intangible assets as assets not including financial assets that lack physical substance. The company has several intangible assets mainly Goodwill and other intangible assets which includes intangibles created through acquisition as well as capitalised software to be sold and for internal use, patents and trademarks.

The company attaches much importance to its intangible assets as it spends billions of dollars on intangible assets per financial year. For instance as at the end of 31st March 2001 capitalised Goodwill and other intangible assets amounted to 83 million US dollars. Yet the importance of Goodwill and other intangible assets are not nearly as important as working capital assets such as cash, account receivables and stock to ABB. A study of the organization's working capital as at 31st March 2001 stood at a total of 11,028 Million US dollars a figure far above that of intangibles mentioned above.

6.4 Goodwill Findings

The organization defines Goodwill as the excess of the cost of an acquired entity over the net of the amount assigned to assets acquired and liabilities assumed.

Also it sees Goodwill as the cause of abnormal profit earned in recent years. The Officer interviewed on the phone said Goodwill marks the potential of ABB's collective assets to earn cash flows in the future. The respondent gave several explanations to what goodwill is meant to the company, in the end these explanations pointed to one thing reaping of excess profit.

The company recognises and values Goodwill upon the acquisition of a new business or shares of external companies

But subsequently, when the asset is deemed to be impaired, impairment test is carried out in order to write down its value. The company compares book value with the fair value of the net assets, if book value is greater than fair value, the difference is written against Goodwill, otherwise the impairment test is ended. In each year that an impairment test is carried out Goodwill loses value

Goodwill reported in the financial statement of ABB is basically externally generated. No figure was capitalised for Goodwill generated within the company. The respondent is of the view that internally generated Goodwill is very difficult to prove its existence. Besides the amount cannot be determined and also to recognise it is to anticipate gains in the future (against prudence concept of accounting).

The management of ABB has not been affected by harmonisation of accounting standard efforts, since it has not given any thought to the procedure where Goodwill is recognised and valued. To the best of corporate management, the impairment process reflects accounting concept and principles

6.5 Research Findings on Patent

6.6 Externally and Internally Generated Patent

ABB Corporation has patent standing on the account but the company in answering the research questions provided no specific definition of it.

Patents externally acquired are capitalised whereas the cost associated with internally developed patent rights are written off against income statements in the financial year in which the expense is incurred.

All acquired and capitalised patents are amortized over their useful life by the ABB Corporation. However, the respondent could not tell us the average life of all patents ABB is holding. It is very important to document that the respondent was extremely reluctant to answer questions on patent right. This we assumed was an attempt to hide trade secrets. At a point in the telephone interview he made us aware that patent was a no-go zone area about from the information he provided on the US GAAP

ABB applies US GAAP in valuing and reporting patent right.

ABB Corporation believes that the US FASB statement 141 used in patent valuation provides a fair value of it.

During the telephone interview the respondent made us aware that the company does not centrally collect information on the total number of its patent rights and the its classification, hence he could not provide us with the total number of ABB group Patent right.

6.6.1 Increase in Technology and Knowledge-Based Activities

A close study of the ABB homepage shows that presently, ABB is undergoing fundamental restructuring, changing from an orthodox machine and plant building company into a provider of technology and knowledge. The ABB Group is in the process of becoming a knowledge-based group, and now provides a new range of products and services. Intelligent integrated solutions, consulting and information technology play a central role .

Today, IT also plays an increasingly important part in the sale of capital goods. For example, ABB now offers part of its extensive range of automation products via the Internet. The development of e-commerce of the Company has opened up an additional sales channel. All these efforts lead to innovation and invention resulting in the application and aquisition of subsitantial amount of patent right.

6.6.2 Research Collaboration with Universities

From the company homepage one can say currently ABB is involved with about 70 of the world's leading technology institutes in the U.S., U.K., Sweden, Norway, Finland, Germany, Switzerland, Italy, Poland, and other countries. These include such highly respected universities as the Massachusetts Institute of Technology, Carnegie Mellon University, Stanford University, Cambridge University and Imperial College London. This blend of core research expertise and support with other institutes is helping the company achieve a number of advancementS in key areas of corporate research that ABB is rewarded with a substantial number of patent rights.

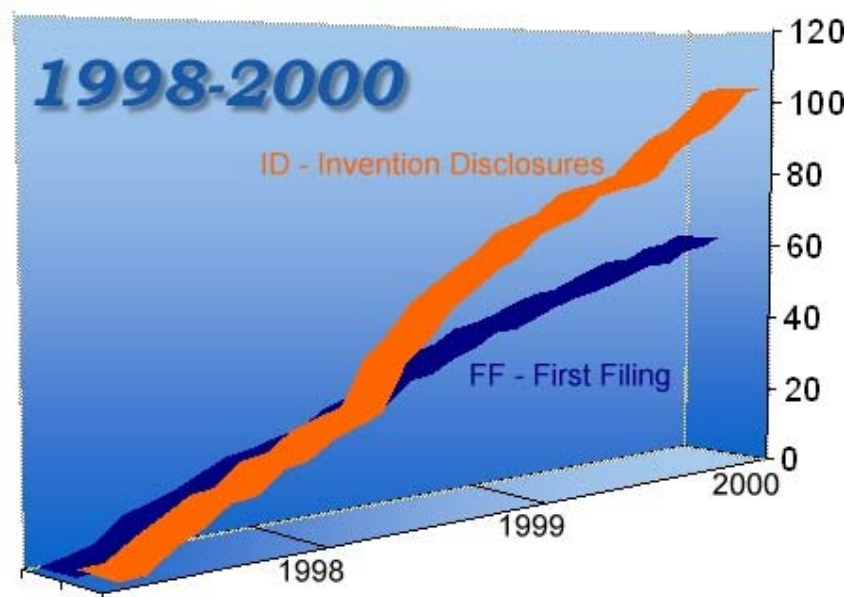
For instance since 1998 Researchers working in ABB Corporate Research in Poland submitted over 100 invention disclosures (ID). 62 of them were sent to the Polish Patent Office (see the chart below). The new solutions apply to various fields of technology. The ground breaking area where patent applications were prepared most was software inventions.

As part of the research finding, the respondent informed us that the company does have a centralised control over its patent right and the classification. He however, made us aware that; the respected branches keep track of patent rights awarded in their respective countries.

Subsequently, Beat Weibel, the Group IP Counsel of ABB mailed to inform us that the total number of patent rights is 17,283, and in 2002 about 450 patent applications have been filed.

Below is a diagrammatic presentation of patent development in ABB

Poland (This was culled from the Company homepage on 7-12-2002)



A steadily growing interest is being shown by ABB Group in Patents and intellectual property, not least due to the increased resources allocated to research and development and the growing competition on the world market.

6.6.3 The ABB Patent Group

This group makes sure that innovations made by ABB are protected by appropriate rights (patents, trademarks, design registration and copyright). The company protects and manages the group rights and defend them against all kinds of infringements and misleading domain names.

Chapter 7

7.0 Analysis of Empirical Findings.

This chapter intends to critically analyse the empirical findings on the valuation of intangibles – goodwill and Patent right. Two problem areas are investigated keeping in mind the accounting theories and standards.

The problems areas are:

- (1) What are the company's methods of, and valuation of, the intangible assets –Goodwill and Patent?
- (2) What are their reasons for the choice of these methods used in their valuation?

7.1 How Can Goodwill be Valued?

In chapter three and four, literature on goodwill was reviewed. It was demonstrated in those chapters some of the possible methods (not exclusive) used when assessing the value of goodwill for the very first time. That is at the date of purchase of business or shares; procedures one can use to estimate how much goodwill is worth.

7.2 Analysis of Companies Method of Initial Recognition and Valuation of Goodwill

The ABB Company has in-depth knowledge about what goodwill is all about. The respondent in the company when interviewed on the phone approached goodwill from different perspective. In the end it was pointed out that the company is able to make profit in excess of what should have been the case. But for the presence of an asset that has no tangibility the company could not reap such abnormal profits. This driving force was named by the company as an intangible asset called goodwill.

In another development the company in acquiring a business or shares from the outside pays an amount higher than what the net assets of the company if fairly valued as per balance sheet date. The difference is accounted for as goodwill. It can therefore be deduced that the company applies FAS I41 and 142.

The company determines the value of goodwill when a business is acquired or shares are bought from an external source. Interestingly, many companies look for externally generated goodwill from many sources. ABB may not be an exception. The entity generates goodwill from only two main sources namely; from the purchase of a business and secondly from the acquisition of shares from an external party. Thus one can confidently say that only externally generated goodwill is capitalized in the financial statement of the company. Consequently any internally generated goodwill becomes an expense written off in the profit and loss account in the period in which it is incurred. It is prudent that ABB matches expenses internally incurred against profit earned during the same financial year.

In a thorough investigation into the books of the company the figure standing on the company's account on goodwill was recognized and valued date back several financial years ago. The actual method used in arriving at that figure could not be traced neither was the officer interviewed, in a position to disclose this method. This may be simply due to lack of knowledge by management on how this value was initially calculated. ABB's asset goodwill in the account is an inherited amount.

7.3 Analysis of Company Procedure of Subsequent Treatment of Goodwill

In the years following the initial year in which the asset (goodwill) was first valued the amount standing on the goodwill is not amortized regularly. Neither is the goodwill amortized over a specific life-span of the asset. Instead it is impaired periodically.

Impairment is carried out if and only if the asset is deemed to have lost value. In brief goodwill is impaired when the amount standing on the account is more than how much it is actually worth. The amount impaired does not remain the same in various years; rather it depends on the extent to which the asset has lost its profit-generating capability. The question that comes to mind is – what about the situation where ABB has gained additional potential in generating income in a particular financial year? Will the company revalue it as goodwill? .

From the data collected it is only reducing the value of goodwill the entity is interested in, because management did not answer the above question in the positive. This is an indication of how the company tries to be prudent not to overstate the values of its assets.

7.4 Analysis of the Reasons for the Choice of These Methods Used in Their Valuation of Goodwill

Goodwill like many other assets may be falling in value with time. According to ABB it may not be necessary that the assets will lose certain value every year. It is therefore uncalled for to reduce the value of goodwill on a regular basis. Rather there should be proof that the value has fallen before making an attempt to write its value down.

Profit at the end of the financial year will look very high since in some of the years when nothing will be written off against the profit and loss account as expenses on depreciation. Profit according to the management remains very high leading to stakeholders having increasingly higher confidence in the performance of the company. This attracts more investment from the public into the company making it easy for the company to raise stock capital.

If management has such thoughts as stated above then it is also profitable to consider the following;

ABB is a multinational organization with so many branches around the globe. Various branches in different geographical locations are deemed to exist within the jurisdiction of independent accounting standard setting bodies. For instance the branch in the United Kingdom operates within the confinement of the U.K GAAP, the Branch in Sweden needs to be governed by the Swedish

professional accounting body and so on and so forth. But surprisingly enough the global group members adhere to only one method of treating and valuing goodwill.

The use of the U.S. FASB statements 141 and 142. This has led to uniformity and consistency in the group over the years. That is to say the use of the impairment test on an irregular basis to reduce the value of the asset. The question then is should ABB not have any thought of the use of amortization method in writing down the value of goodwill.

What about if the prevailing economic conditions existing for a long time period and even into the forcible future show that the asset will be reducing in value by the same amount and on a regular basis? In that case it will be worth shifting attention to amortization instead of the then outmoded impairment method.

Goodwill is the cause of abnormal profit in ABB since time immemorial. This means that goodwill is used to generate income every year. In generating this income the asset must be worn out in the process. Why will management fail to match the income so generated in the course of the year against the waste in that same time period ? Refusing to amortize goodwill on regular basis leads to overstatement of profit. This is in contradiction with the accounting concept of not overstating earnings and the accrual concept in accounting. It is therefore prudent to understate the values of fixed assets like goodwill by regularly writing down its value (amortize) and also understating profit.

7.5 Analysis of Patent Valuation in ABB Corporation

Patent right as a legal exclusive right to have a limited monopoly by an organisation is recognised by ABB Group. In the financial statement of ABB one sees some patent right capitalised as part of other intangible assets.

This reported patent in the financial statement is based on the disclosure requirement of the FASB 141 & 142 Financial reporting for Goodwill and other intangible assets.

Response from the ABB Group indicates that internally generated patent rights are not capitalised as required by the Financial Accounting standard board but rather the external acquired Patents are capitalised.

The capitalised patent is amortised on a straight-line basis over its useful life. This yearly depreciation helps to determine the value of the reported patent in its subsequent years.

7.6 How ABB Reports Patent Right

ABB records the value of Patent at cost if it was acquired for cash or on credit and the fair market consideration if the patent was acquired for stock. Patent right of ABB is however included in other class of intangible assets when reported. This includes primarily intangibles created through acquisitions as well as capitalized software to be sold and for internal use, trademarks and patents.

As contended in the literature review, the cost and market based method of Patent Valuation is rather very easy to use, however they may not provide answers or values that may be exact and correct or in other words provides a tentative true and fair of the class of patent. This method of valuation actually makes no allowance for the future benefit or future value driving ability of the patent right that will accrue to the generated intellectual property. Also FASB 142 does not take into consideration the possible variation in risk during assumed useful life of a particular piece of intellectual property (this is because no account is taken of the various possibilities open to an intellectual property), though it makes the valuation and reporting process of a patent right very much simplified.

The depreciation of Patent rights on a straight line method is based on its useful life by ABB Corporation as required by FASB 142 is not necessary the right valuation method because the useful life of a Patent is not easily determinable

The use of a straight line based of amortization without consideration of the respective yearly cash flow of the Patent right may not be a very good amortization of the value of the patent.

The Financial Accounting standard 142 also requires the companies not to capitalize internally generated intellectual property but rather expense it off. This naturally results in a situation where the true value of patent standing in the financial report is undervalued. It is very relevant to question the rationale for excluding the internally generated patent right, because, whatever the circumstances, ABB will continue to benefit from the internally developed intellectual property, either through licensing fees or direct exploitation of the patent of the intellectual property.

Proceeding from the subsequent question, the respondent of the ABB Corporation informed us that he believes that the US GAAP statement 141 provides a fair view of the value of the intellectual property. This response however is based on the fact that ABB is highly limited because of the regulatory environment it has to produce financial reports.

One crucial problem which ABB has to live with is the inability to specify the value of the internally generated intellectual capital. This is one of the limitations of FASB 141& 142. On the other hand the company uses a substantial cash flow in conducting research and development in all its laboratory. A case in point is the about 450 patent applications that the ABB Group filed this year and also the progressive increament of patent application in Poland all of which were internally generated

These research activities require a lot of cash, hence the requirement of the standard for such expenditure to be treated as revenue expenditure and not a capital expenditure leads to gross understatement of the value of the ABB's assets.

Chapter 8

8.0 Conclusions and Recommendations

Conclusions are drawn and recommendations are presented in this final part of the thesis to ABB and the public at large on proper treatment and valuation of Goodwill and Patent

8.1 Conclusion and Recommendation on Goodwill

In conclusion ABB has a very good understanding of what goodwill is about, yet on the contrary the figure standing on the company's balance sheet for goodwill, shows that value arrived at could not be traced. The interviewee could not and did not answer how the initial amount was determined in the positive. In subsequent years the entity uses the FASB statements to write down the value of the goodwill without any consideration to other methods . Profits are therefore overstated leading to improper adherence to accounting concepts and principles. Accounting harmonization efforts have not yielded any impact on the company's procedure of valuing goodwill.

It is recommended that for proper valuation of goodwill management, companies should always be abreast with how goodwill standing in the account was initially estimated so that if prevailing economic issues demand that goodwill is re-estimated the company does so to reflect current economic situations.

Also it is not enough that management applies only one method to write down goodwill as in the case of ABB (the use of U.S GAAP). Rather the knowledge of other standards (the U.K and the International accounting standards etc) should be obtained through effective response to the accounting harmonization efforts currently going on around the globe. It is only through these that a proper valuation framework on goodwill can be developed.

8.2 Conclusion and Recommendation on Patent Right

It is important to state that, finding the value of a Patent is an important part of determining the value of a business. But because patent right can be very difficult to value, finding their value requires skill and experience hence choosing the right method of valuation is very essential.

In conclusion, it is worth stating that, there is no right rule of the thumb in determining the value of a company's patent right. There are presently great strides being made in the valuation of company intellectual properties.

However, the initial choice of method is very important. Even with the little accomplishment so, for all the methods enumerated in our literature review in chapter 5 on the valuation methods offer reassuring fallback positions.

Undoubtedly, the ABB Corporation and a host of other interested parties, would do well to become acquainted with this field. As mentioned in the earlier part of the thesis, there is a lot of uncertainty regarding the outcome of a patent right hence care needs to be taken in handling this.

For ABB we think, it has been an easy way out of this troublesome problem to put a value on its numerous volume of patents as it reports its group financial activities in compliance with the FASB standard.

LIST OF REFERENCES

Books

Arthur Andersen,(1992), The Valuation of Intangible Assets. Special Report No P254. London, England.

Bromwich, M. & Bhimani, A.1994, Management Accounting: Pathways to progress.London:Chartered Institute of Management Accountants (CIMA)

Canning, John B.,1929, The Economics of Accountancy.The Ronald Press Company, pp. 38-44

Catlet G. R.,Oslon O. N., 1968, Accounting for Goodwill. New York, American Institute of Certified Public Accountants, Inc.

Damodaran A., 2002,Investment Valuation: Tools and Techniques for Determining the Value of Any Asset, 2nd Edition, John Wiley & Sons

Edvinson, L. & Malone, M.S., 1997 , Intellectual Capital- Realising Your Company's True Value By Finding Its Hidden Brainpower. New York: Harper Business

Fitzgerald, L., Johnson, R., Brignall, T.J.,Silvestro, R. & Voss, C. 1991, Performaqnnces Measurement in Services Business. London: CIMA

Gordon,V.S. & Russell,L.P., 1994, Valuation of intellectual property and intangible asset., 3rd edition John Wiley & son

Myers,S.C & Brealey A.R., 1984,Principles of Corporate Finance. 6 Edition Irwin McGraw- Hill

Olve, N-G, Roy, J. and Wetter,M. 1999, Performance Drivers; A Practical Guide to Using the Balanced Scorecard. Chichester: John Wiley & sons.

Otley,D. 1999, Performance Managemet; A Framework For Management Control Systems Research, Management Accounting Research. 10,363-382

Parr, R. L. and Smith,G. V.,1994, Quantitative Methods of Valuing Intellectual Property. In The New Role of Intellectual Property in Commercial Transactions. New York, John Wiley: pp39-68.

Ryan Bob, 1992, Research Method and Methodology in Finance and Accounting. London

Yin R.K.,1994 Case Study Research, Design and Method, 2nd edition, Sage Pulications,

Journals

Bontis, N., Dragonetti N. C.,Jacobsen K. & Roos. G. 1999, The knowledge Toolbox: A Review of the Tool Available to measure and Manage Intangibles Resources. European Management Journal,August, 17,(4) 391-402

Bourne,J. H.,1888, “Goodwill”, The Accountant,Sept. 22, 1888, pp 604-605

Bowman, Archibald 1938. “Reporting on the Corporate Investment”
Journal of Accountancy, May 1938 p. 399.

Hodder J. E., and Riggs,H. E . “Pitfalls in Evaluating Risky Projects,” The Harvard Business Review, January-February 1985

Ishii, Y. & Fujiono, J., 1994, Analysis of Licensing in Japan. les Nouvelles XXIX (3) : 130-134.

Levitt, B.&March.J.G.,’Organizational Learning ‘
Annual Reviewof Sociology,14,319-340

Mouritsen, J.,1998).’Driving Growth: Economic Value Added versus Intellectual Capital ‘Management Accounting Research 9,461-482

Neil, D. J.,1988,’The valuation of intellectual property’ International Journal of Technology Management 3 (1/2) : 31-42.

Stacey, S. G.,1989. ‘Valuing Intellectual Property’
Technology Strategies : 22-25.

Sullivan, R. J.,1994b,’Estimates of the Value of Patent Rights in Great Britain and Ireland’ 1852-1876. Economica 61 : 37-58.

Internet Sources

Goodwill Valuation “ < <http://leimberg.com/faqs/goodwill.html>> downloaded 2002-11-28

Harvey,G.,“GoodwillValuation“
<http://www4.jaring.my/harveyg/articles/goodwill/> > downloaded 2002-06-30.

Matthew S. Maudlin, “Goodwill impairment testing” <
<http://www.willamette.com/pubs/insights/02/goodwill.html>> downloaded 2002-10-12.

Stephne Harper, ”Impairment test offers clearer picture of goodwill” <
<http://www.calcpa.org/californiacpa/articles/2001/08.01.html> > downloaded 2002-11-28

“ Goodwill valuations “ < <http://web4.edgar-online.com/goodwill/> > downloaded 2002-11-28

“Goodwillvaluation“<http://web4.edgaronline.com/goodwill/content/final_rule.asp> downloaded 2002-11-28

APPENDIX 1



School of Economics
and Commercial Law
GÖTEBORG UNIVERSITY

Graduate Business School

Accounting and Finance program

QUESTIONNAIRE

THESIS TOPIC

**VALUATION OF INTANGIBLE
ASSETS WITH EMPHASIS ON
GOODWILL AND PATENT RIGHT**

BY

**WINFRED AGBEKO TORGBY
EMMANUAL KOFI PENNY**

Questionnaire

We are master students of the Graduate Business School, Goteborg University. As part of our master thesis, we are conducting a research into the valuation of intangible assets with particular reference to Goodwill and Patent. We will be very grateful if you could kindly take time off your busy schedule to answer the underlisted questionnaire.

We wish to inform ABB Corporation that, this Research is purely for academic purposes and information it provides will be treated very confidential.

1. What idea do you have about intangible assets and how does your organization define it.?

We define intangible assets in accordance with FAS 141 and FAS 142.

2. How do you assess the importance of intangible asset relative to other corporate asset.?

Not nearly as important as a working capital asset.

3. What classes of intangible assets do you have in your organization.?

Software, patents, etc..

4. What knowledge does your organization have about Goodwill and how will you define Goodwill ?

We define goodwill in accordance with FAS 141 and FAS 142.

5. How is Goodwill standing in the accounts valued at the end of a financial year?

The value of the goodwill is determined upon the acquisition of a business. Under the new rules it will stay at that value unless it is deemed to be impaired under the FAS 142 impairment test.

6. What kind of accounting regulations to you use in in treating Goodwill and how does this regulations work.?

US GAAP FAS 142. See above.

- 9 Is Goodwill internally or externally generated and what are the important sources of Goodwill to your organization?

Always generated on the purchase of a business or shares from an external party.

- 10 Do you have knowledge of other methods of treating Goodwill and how why choice of your organization's method.

We report in accordance with US GAAP, therefore we have only one way of externally reporting on goodwill.

- 11 To the best of your knowledge do you think the chosen method reflect the accounting concepts and principles.

Yes.

- 12 Do you any idea about have about patent right and how will you define it?

Internally developed patents are not capitalized. Only patents acquired will be shown as intangible assets.

13 Does your company have Patent right capitalised ?If yes how did you acquire this right.?

See 12.

14 How is patent accounted for or valued over the years?

All patents are amortized over their useful life.

15 Do you apply any accounting regulations in valuing and reporting Patent right? If so, which regulations are these and how do these regulations work.?

US GAAP FAS 141. Define the fair value at the date of acquisition and then amortize the patent over its useful life.

16 Is the intellectual property \ Patent internally or externally generated ?

17 To the best of your knowledge do you think the chosen method reflect the accounting concepts and principles.?

Yes.

18 .Has International Accounting Harmonization efforts affected your treatment of intangible assets particularly Goodwill and Patent? If yes what has been its effects and implications.?

No. I do not believe US GAAP's new rules come from an International Harmonization effort.

Thank you very much for taking time off your busy Schedule to answer this questionnaire.