

VALUATION OF INTELLECTUAL PROPERTY AND INTANGIBLE ASSETS

by

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ABSTRACT

Intangible assets are increasingly becoming the critical determinant of value creation and future profitability of most businesses. There is a clear distinction between the accounting treatment of physical assets and are reported on the firm's balance sheets, but intangible assets are by large written off in the income statement, along with regular expenses such as wages, rents and interest. This distorted treatment of intangibles in an accounting sense, has dire consequences for managers, investors and policymakers relying on financial information, thus giving an extremely limited view of a company's potential for value creation and are virtually worthless as a basis for assessing the value of intangible assets as a whole.

This paper is limited to the valuation of intellectual property and intangible assets not reflected on the balance sheet and is primarily aimed at researching, exploring and identifying various intangible asset valuation techniques used to make investment decisions; the advantages and disadvantages of each valuation method so identified; identifying which one or more of the valuation methods identified is the most appropriate measure to value intangible assets; identifying the accuracy of the most appropriate valuation method selected as compared with the other methods.

The problems posed by intangible assets appear to be based on two levels. The first is the difficulty to identify, collect and analyse data regarding intangible assets. The second overlapping level is the lack of external financial reporting on intangibles. The problem herein manifests itself in the lack of recognition of the current accounting principles, thus resulting in intangible assets not being systematically reported in financial statements leading to a lopsided view of the assets employed by a company to generate revenues.

A conclusive, more particularly descriptive research design has been applied.

In addition, it was the aim to identify the subject matter of the research first, describe the same in specific particularity and then to identify the various measuring methods used by companies and investors, and thereafter to determine the most appropriate valuation methodology between the various methods by comparing their application, advantages and disadvantages.

This paper is, however, limited to a general literature study based on the various popular valuation methodologies applied by businesses and investors in valuing

intangible assets which are not reflected on a business's balance sheet. This paper is not intended to deal with all industries within the areas of the management dilemma, but will be restricted to a general overview of the specific areas of management's dilemma in respect of valuing intangible assets. In particular, this paper is restricted to a literature overview of the most common valuation techniques applied in valuing intangible assets, as a general generic concept, without attaching a particular valuation method to any particular class of intangible assets.



DECLARATION OF ORIGINAL WORK

I, Deon van der Walt, declare that this dissertation is my own unaided work. Any assistance that I have received has been duly acknowledged in the dissertation. It is submitted in partial fulfillment of the requirements for the degree Master of Commerce at the University of Johannesburg. It has not been submitted before for any degree or examination at this or at any other University.

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Chapter ONE:

1.1 INTRODUCTION

According to Lev (2001: V) there is one important feature of modern economies, being that intangible factors are playing an increasingly dominant role in wealth creation. A growing share of economic activity today consists of exchange of ideas, information, expertise and services. According to the said author, corporate profitability is often driven more by organisational capabilities than control over physical resources, and even the value of physical goods is often due to such intangibles as technological innovations embodied in said products.

Intangible assets and intellectual property are the central resource for creating wealth in almost all industries. The foundation of commercial power has shifted from capital resources to intangible assets. Corporations once dominated industries by acquiring and managing extensive holdings of natural resources and manufacturing facilities. Today companies that once dominated those industries are finding themselves fighting for survival. Upstart companies are creating new products and services not based on extensive natural resource holdings or cash hordes but on intellectual property resources (Smith & Parr, 2000: 1).

According to Davis (2001: 1) physical assets are increasingly becoming less important in determining success and valuation of companies. Instead, intellectual capital, including the value of information and knowledge assets, is becoming the critical determinant of perceived worth of future profitability.

Intangible assets have become part of every aspect of life. Capital resources are now dominated by intellectual property such as technological know-how, patents, trademarks, copyright and trade secrets (Lev, 2001: V).

Wealth and growth in today's economy are driven primarily by intangible assets. Physical and financial assets are rapidly becoming commodities, yielding at best an average return on investment. However, abnormal profits, dominant competitive positions, and more than usually, even temporary monopolises are achieved by sound employment of intangible assets (Lev, 2001: 1). Koppius (1999:1) concurs that the world economy is shifting more and more away from tangible, physical goods and towards intangibles.

The relentless competitive pressure induced by the globalisation of trade, far-reaching deregulation, and technological advances forced companies in the last two decades, increasingly rely on continuous innovation of products, processes and organisational designs for survival and growth. Innovation in turn, is primarily achieved by investment in intangible assets such as, amongst others, research and development, information technology, employee training and customer acquisition. Hence, the steep rise in the role of these assets in the production functions of businesses (Lev, 2001: 2).

However, intangible assets, despite their importance, are poorly measured, if at all, and their implications for public policy are not understood (Lev, 2001: V).

This becomes apparent as the average value of companies traded on any given stock exchange is greater than the declared book value, and companies established in information related fields have a market value considerably higher than their book value (Andriessen, 2000: 1).

Sveiby (1997: 7) states that companies do not trade their intangible assets, so the value of intangible assets cannot be deduced like the value of tangible assets from routine market transactions. The value of intangible only emerges in this indirect way on the stock market or when a company changes hands, in the case when one company acquires another and pays a premium over its book value to which accounting theory terms this premium as goodwill. This goodwill is entered as a lump sum in the books of the acquiring company and depreciated over a given period.

The stock market price of a company is the market's valuation of the shares in the equity of such company. Accordingly, each share certificate represents a share in the company's equity or book value of such company. When the market price is higher than the book value, conventional stock market theory regards the premium as the market's assessments of future earning potential, a potential that is converted into goodwill if the company is acquired. It is accordingly clear that there must be something in the company's assets that will yield higher than bank interest in the future. This something else is invariably invisible because they are not accounted for. They are intangible because they are neither brick nor mortar nor money. (Sveiby: 1997: 8)

Lev (2001: 7) states that there is a deficiency of information in corporate financial reports primarily due to the growth of intangible assets and the inadequate treatment of these assets by the traditional accounting system. Intangible assets, it is argued, surpass physical assets in most business enterprises, both in value and contribution to growth, yet they are routinely expensed in the financial reports and hence remain absent from the corporate balance sheets. This asymmetric treatment of capitalising physical and certain financial assets while expensing intangibles leads to biased and deficient reporting of a company's performance and value.

Financial Directors face, on almost a daily basis, the broad financial question namely, what is the value of the company's intangible assets? What intangible investments should the organisation make? The aim is to advance the company's interests by creating additional value for the company and in so doing creating wealth and prosperity for the shareholders.

1.2 MANAGEMENT'S DILEMMA

As indicated above, intangible assets are increasingly being recognised as some of the most important and most valuable assets of a business enterprise. However, a rigorous economic analysis of the value of these intangible assets is rarely undertaken. Intangible assets often exist as part of an integrated assemblage of other business assets. Some are tangible and others are intangible, which are combined in order to provide economic income to the owners of the assets. Sometimes the owners of those businesses do not even recognise the individuality of their intangible assets.

The goal of financial directors is to identify the company's intangible assets and be in a position to ascribe a value to such assets. If it deemed necessary to invest in additional intangible assets, it is crucial for the company to be able to value such asset and to determine which intangible asset investment option creates the best value for the company, through analysing potential opportunities and to decide which are worth undertaking, in order to create value for the company and ultimately the shareholders.

This includes the examination of potential investments in light of its likely effect on the price of the company's shares. Generally, an investment is worth undertaking if it creates value for the company.

The dilemma that management face is how to recognise and value intangible assets, more specifically:

- ways to identify intangible assets;
- the basis on which intangible assets should be valued;
- the comparable outcome of various measurement technique;
- the most appropriate measurement technique for valuing intangible assets.

1.3 PROBLEM STATEMENT

Damodaran (2001: 7) states that dozens of valuation metrics exist, some of which are inherently inappropriate to value intangible assets.

According to Damodaran (2001: 11) the value of a company is based on its capacity to generate cash flows and the uncertainty associated with these cash flows. Generally, more profitable companies have been valued more highly than less profitable ones. However, when intangible assets are taken into account, generally, it is normally associated with negative earnings, the presence of which is used by analysts as a rationale for abandoning traditional valuation models and developing new ways that can be used to value such items. All too often, these new ways are neither made explicit nor tested, leading to unrealistic valuations.

According to Sveiby (1997: 4) the problem with stock market mysteries in respect of the disparity between book and market value, is that investors are obliged to develop their own explanations for them. They can view the previous years' cash flow because it is recorded in the financial statements, but when it comes to assessing changes in the value of the intangible assets that will generate future cash flows, they are on their own.

As a consequence of this ill-informed investor guessing the market values of companies rich in intangible assets tend to fluctuate excessively, in line with general economic cycles and the mood among the investors (Sveiby, 1997: 4).

Koppius (1999: 3) rightly states that the first and perhaps most important aspect of intangible assets deals with the problem determining their value. According to Koppius, one of the issues complicating this value determination is the idiosyncratic nature of intangible assets, for example in the case of a patent, which makes it hard to determine the value based on the value of similar assets.

1.4 GOAL OF THE STUDY AND RESEARCH OBJECTIVES

This paper is primarily aimed at researching, exploring and identifying various intangible asset valuation techniques used to make investment decisions; the advantages and disadvantages of each valuation method so identified; identifying which one or more of the valuation methods identified is the most appropriate measure to value intangible assets; identifying the accuracy of the most appropriate valuation method selected as compared with the other methods.

Invariably, the aforesaid primary goal cannot be viewed in isolation and must be researched in conjunction with the following subservient but essential goals, namely:

- defining intangible assets; ways in identifying an intangible asset; identifying and describing the attributes an asset need to have in order to qualify as an intangible asset;
- identifying and exploring the relationship between intangible assets and tangible assets; the contribution of intangible assets to the value of other assets, properties and business entities;
- identifying the legal frame work within which intangible assets exist;
- exploring the value of an intangible asset now and in the future;
- investigating whether intangible assets should be analyzed as an individual asset, or discrete, economic entity or as an integral part of a

larger economic entity; identifying the most appropriate valuation method.

The primary research objective for this paper is to describe the most appropriate valuation method for valuing intangible assets having regard to selected criteria such as reliability and accuracy of the appropriate selected method as compared to the other methods identified, including the application of the selected method in the qualified circumstances as provided in the problem statement.

The secondary research objective is to describe the various valuation methods applied by companies and investors for valuing intangible assets, which will include the analyzing and assessing of the advantages and disadvantages associated with each method.

The research classification to be applied will be quantitative with deductive reasoning.

1.5 RESEARCH METHODOLOGY

1.5.1 Research Strategy and Design

A conclusive, more particularly descriptive research design has been applied. The reason for using this design is that prior knowledge of the management problem is available and the province of this paper was designed to provide a solution to management's dilemma.

In addition, it was the aim to identify the subject matter of the research first, describe the same in specific particularity and then to identify the various measuring methods used by companies and investors, and thereafter to determine the most appropriate valuation methodology between the various methods by comparing their application, advantages and disadvantages.

1.5.2 Study Limitations

This paper is limited to a general literature study based on the various popular valuation methodologies applied by businesses and investors in valuing intangible assets which are not reflected on a business's balance sheet. The subject matter

of this paper is further limited to the valuation of intellectual property and intangible assets not reflected on the balance sheet.

This paper is not intended to deal with all industries within the areas of the management dilemma, but will be restricted to a general overview of the specific areas of management's dilemma in respect of valuing intangible assets. In particular, this paper is restricted to a literature overview of the most common valuation techniques applied in valuing intangible assets, as a general generic concept, without attaching a particular valuation method to any particular class of intangible assets.

1.6 Chapter outline

Chapter TWO

Attributes that is relevant for the determination of economic phenomena representing intangible assets.

Chapter THREE

Analytical methods for valuing intangible assets.

Chapter FOUR

Valuation methods used for intangible assets.

Chapter FIVE

Results, conclusion and recommendation

Chapter TWO

2.1 INTRODUCTION

This chapter focuses, amongst others, on exploring the various definitions of intangible assets as postulated in disciplines of law and accounting, including some definitions of value proposed by various authorities; identifying intangible assets; ascribing certain common attributes to intangible assets which are typically associated with them; exploring the relationship between intangible and tangible assets in a typical business environment; defining intellectual property and intellectual capital as part of the broader definition of intangible assets, particularly within the South African context, and the existence of intangible assets as a component of the business of an enterprise. Furthermore, this chapter addresses the accounting distortions as certain intangible assets are not reflected on the balance sheet of a business, but which are expensed as prescribed by accounting standards.

This chapter further explores the standard of value to be applied when valuing intangible assets being an essential premise to any valuation being undertaken in respect of intangible assets.

2.2 DEFINING INTANGIBLE ASSETS

It is common cause that there are numerous legal, accounting and taxation related definitions of the term intangible asset. However, as will more clearly appear below, these definitions are typically purpose specific for which they were created.

2.2.1 Companies Act

From the South African Companies Act, 61 of 1973, as amended (“the Companies Act”), perspective, paragraph (4) (r) of schedule 4 to the Companies Act, provides as follows:

“intangible assets’ are non-monetary assets without physical substance and include but are not restricted to goodwill, patents, trademarks, brand names, copyrights, franchises, licences, know-how and publication titles”.

This is a broad definition of intangible assets and may include software, patents, brands, copyright, customer lists, servicing rights, fishing licences, customer relations, customer loyalty, market share, models, recipes, know-how and the like.

2.2.2 Income Tax Act

From the South African Income Tax Act, 58 of 1962, as amended (“the Income Tax Act”) perspective, paragraph 16(2) of the eighth schedule to the Income Tax Act, intangible asset is defined as:

“(2) For the purposes of subparagraph (1), 'intangible asset' means-

- (a) goodwill;*
- (b) any patent as defined in the Patents Act, 1978 (Act 57 of 1978), or any design as defined in the Designs Act, 1993 (Act 195 of 1993), or any trade mark as defined in the Trade Marks Act, 1993 (Act 194 of 1993), or any copyright as defined in the Copyright Act, 1978 (Act 98 of 1978), any rights recognised under the Plant Breeders' Rights Act, 1996 (Act 15 of 1996), or any model, pattern, plan, formula or process or any other property or right of a similar nature;*
- (c) any intellectual property right or property or right of a similar nature in respect of which a proprietary interest may be established in terms of the common law of the Republic of South Africa; or*
- (d) any other intangible property except any financial instrument.”*

The aforesaid restrictive definition is specifically tailored by the Receiver of Revenue to combat previous abuses relating to the valuation of intangible assets, particularly on the acquisition of a business, and that certain anti-avoidance measures are required in respect thereof¹.

¹ See explanatory memorandum on the Second Revenue Laws Amendment Bill, 2001. par 76.

2.2.3 Accounting Definition

From a purely accounting point of view, International Accounting Standard 38 (“IAS 38”) of the International Financial Reporting Standards (IASB, 2004: 1571) defines an intangible asset as:

“an identifiable non-monetary asset without physical substance”.

IAS 38 (IASB, 2004: 1571) further defines an ‘asset’ as follows:

“... a resource:

- (a) controlled by an entity as a result of past events. And*
- (b) from which future economic benefits are expected to flow to the entity.”*

Paragraph 17 of IAS 38(AC 129) states that *“the future economic benefits flowing from an intangible asset may include revenue from the sale of products, services, cost savings, or other benefits resulting from the use of the asset by the entity”.*

Vorster et al (2003: 705) also states that included in the definition of an intangible asset, is that it must invariably be held for use in the production or supply of goods or services, for rental to others, or for administration purposes.

In terms of IAS 38 (IASB, 2004: 1572) entities expend resources, or incur liabilities, on the acquisition, development, maintenance or enhancement of intangible resources such as scientific or technical knowledge, design and implementation or new processes or systems, licences, intellectual property, market knowledge and trademarks, common examples of items encompassed by these broad headings are computer software, patents, copyright, motion pictures, customer lists, mortgage servicing rights, fishing licences, import quotas, franchises, customer and supplier relationships, customer loyalty, market share and marketing rights.

2.2.3.1 Intangible Asset Definition Criteria

However, for an asset to meet the definition of an intangible asset set forth in IAS 38:

- the asset must be identifiable;

- the entity must have control over the asset; and
- there must be an existence of future economic benefit.

If an asset in the scope of this standard does not meet the definition of an intangible asset, expenditure to acquire it or generate it internally is recognised as an expense when it is incurred and accordingly not reflected on the balance sheet of the business, as opposed to tangible assets, where its acquisition is capitalised as an asset on the balance sheet and is depreciated over some period of useful life (Vorster *et al*, 2003: 705).

2.2.3.2 Identifiably Criteria

According to IAS 38 (IASB, 2004: 1572) the definition of an intangible asset requires an intangible asset to be identifiable to distinguish it from goodwill. Goodwill acquired in a business combination represents a payment made by the acquirer in anticipation of future economic benefits from assets that are not capable of being individually identified and separately recognised. The future economic benefit may result from the 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 business combination.

In terms of IAS 38 (IASB, 2004: 1572) an asset meets the identifiability criterion in the definition of an intangible asset when it:

- (a) is separable, i.e. is capable of being separated or divided from the entity and sold, transferred, licensed, rented or exchanged either individually or together with a related contract, assets or liability; or
- (b) arises from contractual or other legal rights, regardless of whether those rights are transferable or separable from the entity or from other rights and obligations.

2.2.3.3 Control Criteria

In terms of IAS 38 (IASB, 2004: 1573), an entity controls an asset if the entity has power to obtain the future economic benefits flowing from the underlying resource

and to restrict the access of others to those benefits. The capacity of an entity to control the future economic benefits from an intangible asset would normally stem from legal rights that are enforceable in a court of law. In the absence of legal rights, it is more difficult to demonstrate control. However, IAS 38, at least appreciates that legal enforceability of a right is not necessarily a condition for control because an entity may be able to control the future economic benefits in some other way. Market and technical knowledge may give rise to future economic benefits. An entity controls those benefits if, for example, the knowledge is protected by legal rights such as copyright, restraint of trade agreements or by a legal duty on employees to maintain confidentiality.

Further, an entity may have a team of skilled staff and may be able to identify incremental staff skills leading to future economic benefits from training. The entity may also expect that the staff will continue to make their skills available to the entity. However, an entity usually has insufficient control over expected future economic benefits arising from a team of skilled staff and from training for these items to meet the definition of an intangible asset. For a similar reason, specific management or technical talents is unlikely to meet the definition of an intangible asset, unless it is protected by legal rights to use it and to obtain the future economic benefits expected from it, and it also meets the other parts of the definition.

In terms of IAS 38 (IASB, 2004: 1573) an entity may have a portfolio of customers or a market share and expect that, because of its efforts in building customer relationships and loyalty, the customers will continue to trade with the entity. However, in the absence of legal rights to protect, or other ways to control, the relationships with customers or the loyalty of the customers to the entity, the entity usually has insufficient control over the expected economic benefits from customer relationships and loyalty for such items to meet the definition of intangible assets. In the absence of legal rights to protect customer relationships, exchange transactions for the same or similar non-contractual customer relationships, other than part of a business combination, provide evidence that the entity is nonetheless able to control the expected future economic benefits flowing from the customer relationships. Because such exchange transactions also provide

evidence that the customer relationships are separable, those customers meet the definition of an intangible asset.

2.2.3.4 Future Economic Benefit

Regarding the future economic benefit, IAS 38 (IASB, 2004: 1573) provides that the future economic benefit flowing from an intangible asset may include revenue from the sale of products or services, cost savings or other benefits resulting from the use of the asset by the entity. For example, the use of intellectual property in a production process may reduce future production costs rather than increase future revenues.

2.2.3.5 Recognition

According to IAS 38 (IASB, 2004: 1574) the recognition of an item as an intangible asset requires an entity to demonstrate that the item meets:

- (a) the definition of an intangible asset; and
- (b) the recognition criteria.

The recognition criteria are stated that an intangible asset shall be recognised if, and only if:

- (a) it is probable that the expected future economic benefits that are attributable to the asset will flow to the entity; and
- (b) the cost of the asset can be measured reliably.

2.2.4 Other Definitions for Intangible Assets

Thompson (1994: 488) defines an intangible asset as something unable to be touched and that cannot be precisely assessed or defined.

Lev (2001: 5) defines intangible asset as a claim to future benefits that does not have a physical or financial embodiment, such as a patent, a brand, and a unique organisational structure that generate costs savings.

However, Smith and Parr (2000: 15) approaches the definition from an entirely different perspective by stating that intangible assets comprises all the elements of

a business enterprise that exist in addition to monetary (being money held and assets to be received in fixed or determinable amounts of money) and tangible assets. They are elements after working capital and fixed assets, that makes the business work and often is the primary contributors to the earning power of the enterprise. Their value is dependant on the presence, or expectations of earnings. They typically appear last in the development of a business and disappear first in its demise. The aforesaid authors categorise these assets into rights, relationships, undefined intangibles and intellectual property.

2.3 ACCOUNTING DISTORTIONS

Palepu (2004: 4-15) states that in some firms, the most important assets are excluded from the balance sheet, as the above accounting rules prohibit the reflection of most intangibles because of the uncertainty associated with them. Expensing the cost of intangibles has two implications, namely the:

- omission of intangible assets from the balance sheet inflates measured rates of return on capital, either in the form of return on assets or return on equity. For firms with key omitted intangible assets, this has an important implications for forecasting long-term performance, unlike firms with no intangibles, competitive forces will not cause their rates of return to fully revert to the cost of capital over time;
- second effect of expensing outlays for intangibles is that it makes it more difficult for the analyst to asses whether the firm's business model works. Under the matching concept, operating profit is a meaningful indicator of the success of a firm's business model since it compares revenues and the expenses required to generate them. Immediately expensing outlays for intangible assets runs counter to matching and, therefore, makes it more difficult to judge a firm's operating performance.

2.5 IDENTIFYING INTANGIBLE ASSETS

According to Reilly and Schweihs (1998: 5) for an intangible asset to exist from a valuation or economic perspective, typically it should possess a number of characteristics or attributes, such as:

- it should be subject to a specific identification and recognisable description. If an intangible asset cannot be identified and concretely described then that asset may only be an idea or concept, but it may be too nebulous to qualify as an intangible asset;
- it should be subject to legal existence and protection. The intangible asset should enjoy all of the legal rights, benefits and privileges of property. Among these rights is the right of the property owner to claim ownership rights and to protect those rights in a court of law with appropriate jurisdiction;
- it should be subject to the right of private ownership, and the private ownership should be legally transferable. In order for an intangible asset to have economic existence, the intangible should be subject to private ownership and that the private ownership should be able to be transferred to a new owner. However, this does not mean that all intangible assets must be transferable separately and independently from all other properties. Some intangible assets are typically transferred separately and independently from other properties and others are transferred as an assemblage of properties, i.e. two or more intangible assets transferred collectively or intangible assets transferred with tangible assets;
- there should be some tangible evidence or manifestation of the existence of the intangible asset, e.g., a contract, a license, a listing of customers, a set of financial statements, etc. To be enforceable, the property rights should enjoy some tangible documentation, but the intangible economic value does not accrue from this tangibility, but the intangible economic existence thereof. For example, the customer relationships intangible may be evidenced by a customer listing, a file of historical purchase orders or correspondence;
- It should have been created or have come into existence at an identifiable time or as a result of an identifiable event. Like any other type of property, an intangible asset comes into existence at a certain point in time. It may be created or developed over a long gestation period and may evolve or change over time;

- It should be subject to being destroyed or to a termination of existence at an identifiable time or as a result of an identifiable event.

2.6 INTANGIBLE ASSET ATTRIBUTES

In addition to the foregoing, Reilly and Schweihs (1998: 9) states that for an intangible asset to have a quantitative value from an economic analysis or appraisal perspective it should possess the following additional attributes, namely:

- the intangible asset should generate some measurable amount of economic benefit to its owner. The economic benefit to the owner may be in the form of an income increment or of a cost decrement. This economic benefit is sometimes measured by comparing the amount of economic income generated by the subject intangible to the amount of economic income otherwise available to the owner if the subject intangible did not exist;
- the intangible asset should potentially enhance the value of other assets with which it is associated, which combination should result in a value increment. The intangible asset should have a positive contributory effect of the value of the assemblage of assets. Conversely, if the addition of an intangible to an assemblage of assets results in a lower collective value for the group assets, then the subject intangible asset probably does not have a positive economic value, at least for that purpose (compare Reilly & Schweihs, 1998: 10).

The above approach is helpful in their distinction between economic existence and economic value to evaluate intangible assets. In essence, intangible assets have economic existence if they should be identified, protected legally and possess the rights of private ownership that should be transferable. Nevertheless, economic existence does not mean that an intangible asset has economic value. For example, a registered trademark, which is not used in production of income, has economic existence throughout its registration period but does not have economic value. Accordingly, its value attribute should generate some measurable amount of economic benefit to the owner. Thus, it should potentially enhance the value of a pooling of other assets. To that extent, a registered trademark which does not produce any income but is used as a barrier to entry may have economic existence and economic value.

2.7 RELATIONSHIP WITH TANGIBLE ASSETS AND VALUE CONTRIBUTION

Reilly and Schweihs (1998, 11) are of the opinion that tangible assets are often required in order to fully realise the value or the income producing capacity of intangible assets. They provide the example; computer hardware (a tangible asset) is required in order to effectively exploit the computer software (an intangible asset). Conversely, working capital, machinery and equipment are often necessary for the commercialisation of intangible assets, such as patents, trademarks, copyright, goodwill, etc.

Reilly and Schweihs (1998, 12) further conclude that intangible assets have value separate and distinct from tangible assets, even though the intangible asset may require the use of tangible assets in order to realise its full value. Likewise, tangible assets have value separate and distinct from intangible asset. In addition, intangible assets, which may possess discrete value of and by themselves, may also enhance the value of tangible assets with which they are not associated. This increment value could be measured as the difference between the value of the tangible asset and the value in exchange of the tangible asset.

However, intangible assets seldom create value by themselves. The value of intangible assets arises when they are combined effectively with other assets, both tangible and intangible

2.8 INTELLECTUAL PROPERTY

For the purposes of this paper, it is necessary to distinguish between intellectual property and intellectual capital as this distinction is important for variety of accounting, legal and financial application reasons.

The term intellectual property refers to patents, trademarks, copyrights and designs (Smith and Parr, 2000: 27). There is a specialised classification of intangible assets named intellectual property. Intellectual property manifests all of the economic existence and economic value attributes of other intangible assets, however, because of their special status, intellectual property enjoys special legal recognition and protection. Because of their unique creation process, intellectual property are registered and protected by specific statutes.

According to Reilly and Schweih (1998: 21), legal registration provides motivation for intellectual property innovators as well as protection for intellectual property creators. The information content of intellectual properties requires this special protection in order for the intellectual property owners to realise the economic value of these special intangible assets.

Smith and Parr (, 2000: 27) classifies proprietary technology, being trade secrets and know how under the overall heading of intellectual property, because in essence, much of intellectual property is a trade secret at the time of its creation. Accordingly, those responsible for the creation can either maintain the secrecy or elect to obtain statutory protection in return for divulging its content.

According to Smith and Parr (2000: 28) trade secret has been defined as:

“... any formula, pattern, patentable device or compilation which is used in one's business and which gives an opportunity to obtain an advantage over competitors who do not know or use it. It may be a formula for a chemical compound, a process of manufacturing, treating or preserving materials, a pattern for a machine or other device, or a list of customers ... or it may ... relate to the sale of goods or to other operations in the business such as a code for determining discounts, rebates or other concessions in a price list or catalogue, of bookkeeping or other office management.”

2.9 SOUTH AFRICAN PERSPECTIVE

2.9.1 Introduction

Both the South African common law and its statutory law recognizes and protects various intellectual property rights, such as trade secrets, patents, copyright, designs and trademarks. These concepts will be further elucidated upon as more fully set forth hereunder.

2.9.2 Trade Secrets

Trade secrets are protected in South Africa. Where a trader filches or in some other manner obtains information from a competitor, which is secret and confidential and which has been developed by the competitor's skill and industry, the trader commits a wrongful act if he or she uses the information in his business

to the detriment of the rival². The competitor may recover damages sustained and in appropriate circumstance, the rival may also be interdicted against the continuation of such wrongful competitive conduct and to ancillary relief³.

To qualify for protection as a trade secret or confidential information, the information involved must first of all not only relate to, but also be capable of application in trade and industry⁴. Secondly, the information must be secret or confidential, that is, it must be limited to certain people or be something which is not public property or public knowledge⁵. Thirdly, the information must have economic value⁶. The following two factors may be indicative of a trade secret's economic value for its proprietor. First, the potential or actual usefulness of the information to a rival⁷ and secondly, the work, skill and time that were needed to produce the trade secret⁸.

Such information is considered to be intellectual property belonging to the owner thereof and is protected against misappropriation by competitors as well as non-competitors⁹. Any type of trade information may qualify as trade secrets, for example, the know-how of a business¹⁰, an unpublished trademark¹¹, customer lists¹², customer or trade connections¹³, credit records¹⁴, price lists¹⁵, tender prices¹⁶, business discussions¹⁷, a technical process¹⁸ and computer software¹⁹.

Reilly and Schweih's (1998: 21) advocate that intellectual properties are not a different property type from intangible assets. It is not separate or distinct assets

² *Waste Products Utilisation (Pty) Ltd v Wilkes* 2003 2 SA 515 (W) 571 et seq;

³ *Van Castricum v Theunissen* 1993 2 SA 726 (T) 732;

⁴ *Waste Products Utilisation (Pty) Ltd v Wilkes* supra 577; *Walter McNaughten (Pty) Ltd v Schwartz* [2003] 1 All SA 770 (C) 777; *Kleyenstrüber v Barr* [2001] 1 SA 560 (W); 2001 3 SA 672 (W) 679-680;

⁵ *Walter McNaughten (Pty) Ltd v Schwartz* supra 777; *Waste Products Utilisation (Pty) Ltd v Wilkes* supra 573-577;

⁶ *Waste Products Utilisation (Pty) Ltd v Wilkes* supra 577; *Walter McNaughten (Pty) Ltd v Schwartz* supra 777;

⁷ *Van Castricum v Theunissen* supra 732;

⁸ *Northern Office Micro Computers (Pty) Ltd v Rosenstein* 1981 4 SA 123 (C) 137;

⁹ *Sage Holdings Ltd v Financial Mail (Pty) Ltd* 1991 2 SA 117 (W) 132; *Crown Cork & Seal Co Inc v Rheem SA (Pty) Ltd* 1980 3 SA 1093 (W) 1095;

¹⁰ *Atlas Organic Fertilizers (Pty) Ltd v Pikkewyn Ghwano (Pty) Ltd* 2 SA 173 (T) 189-196;

¹¹ *Stellenbosch Wine Trust Ltd v Oude Meester Group Ltd, Oude Meester Group Ltd v Stellenbosch Wine Trust Ltd* 1972 3 SA 152 (C);

¹² *Atlas Organic Fertilizers (Pty) Ltd v Pikkewyn Ghwano (Pty) Ltd* supra 195-196;

¹³ *Knox D'Arcy Ltd v Jamieson* 1992 3 SA 520 (W);

¹⁴ *Dun & Bradstreet (Pty) Ltd v SA Merchants Combined Credit Bureau (Cape) (Pty) Ltd* 1968 1 SA 209 (C)

¹⁵ *Premier Medical & Industrial Equipment (Pty) Ltd v Winkler* 1971 3 SA 866 (W) 870;

¹⁶ *Sibex Construction (SA) (Pty) Ltd v Injectaseal CC* 1988 2 SA 54 (T) 63-64;

¹⁷ *Sage Holdings Ltd v Financial Mail (Pty) Ltd* supra 128;

¹⁸ *Aercrete SA (Pty) Ltd v Skema Engineering Co (Pty) Ltd* 1984 4 SA 814 (D) 821-822;

from intangible assets. Rather, intellectual property is a specially recognised subset of intangible assets.

2.9.3 Copyrights²⁰

2.9.3.1 International arrangements

South Africa is a signatory to the Berne Convention for the Protection of Literary and Artistic Works, Brussels text of 1948, and acceded thereto on 1 August 1951. It is also a signatory of the Agreement on Trade Related Aspects of Intellectual Property Rights (TRIPS) and acceded to it in April 1994. Membership of these treaties has the effect that South Africa and the other signatories (which include South Africa's major trading partners) grant reciprocal protection to each other's work.

2.9.3.2 Requirements for the subsistence of copyright

Unlike other intellectual property rights, there is no system whereby copyright can be registered in South Africa, other than copyright in cinematograph films. In order for a work to enjoy copyright protection in South Africa however, certain requirements must be met:

- (a) The work must be original. (Copyright Act, No. 98 of 1978: s 2(1)). Originality in copyright law simply means that the author must have expended some skill and labour in the creation of the work.
- (b) The work must be reduced to a material form (Copyright Act, No. 98 of 1978: s 2(2)).

¹⁹ *Northern Office Micro Computers (Pty) Ltd v Rosenstein supra*;

²⁰ The statutes relating to copyright are the Copyright Act 98 of 1978, ("the Act"), the Copyright Regulations of 1978, promulgated thereunder, the Registration of Copyright in Cinematograph Films Act 62 of 1977 ("the Registration Act") and the Registration of Copyright in Cinematograph Films Regulations of 1980, promulgated thereunder. The Copyright Act of 1978 came into effect on 1 January 1979. The Copyright Act of 1978 was amended by the Copyright Amendment Act 56 of 1980, the Copyright Amendment Act 66 of 1983, the Copyright Amendment Act 52 of 1984, the Copyright Amendment Act 39 of 1986, the Copyright Amendment Act 13 of 1988, the Copyright Amendment Act 61 of 1989, the Copyright Amendment Act 13 of 1988, the Copyright Amendment Act 61 of 1989, the Copyright Amendment Act 125 of 1992 and the Intellectual Property Laws Amendment Act 38 of 1997. Copyright was previously dealt with in the Copyright Act 63 of 1965, which came into effect on 11 September 1965 and, prior to that, by the Patents, Designs, Trade Marks and Copyright Act 9 of 1916. Although the Copyright Act of 1978 has retrospective effect, the 1965 and 1916 Acts are still relevant to a certain extent.

- (c) (i) the author, or in the case of a work of joint authorship any one author, must, at the time of the work's creation, have been a "qualified person" (Copyright Act, No. 98 of 1978: s 3(1)). A "qualified person" is defined as, in the case of an individual, a person who is a citizen of, domiciled in or a resident of the Republic of South Africa or a country to which the protection of the Act has been extended or, in the case of a juristic person, a body incorporated under the laws of the Republic of South Africa or a country to which the protection of the Act has been extended;
- (ii) the work must, in the case of a literary, musical or artistic work, a sound recording, a cinematograph film or a published edition, have been first published in the Republic of South Africa or a country to which the protection of the Act has been extended or, in the case of a cinematograph film or a broadcast, have been made in the Republic of South Africa, or in the case of a programme-carrying signal, have been emitted to a satellite from a place in the Republic of South Africa (Copyright Act, No. 98 of 1978: S 4(1)).

2.9.4 Works eligible for copyright

The following works are eligible for copyright protection (Copyright Act, No. 98 of 1978: s 2(1)):

- (a) literary works;
- (b) musical works;
- (c) artistic works, which are defined to include photographs, works of architecture, works of artistic craftsmanship and craftsmanship of a technical nature;
- (d) cinematograph films. A cinematograph film is defined to include the soundtrack;
- (e) sound recordings;
- (f) broadcasts;

- (g) programme-carrying signals;
- (h) published editions. A published edition is defined to mean the first print, by whatever process, of a particular typographical arrangement of a literary or musical work;
- (i) computer programs.²¹

2.9.5 Rights granted by copyright

Copyright grants the owner the exclusive right to do, or authorise the doing of, any of the following acts:

- (a) In the case of a literary or musical work, reproducing the work in any manner or form, publishing the work, performing the work in public, broadcasting the work, causing the work to be transmitted in a diffusion service, making an adaptation of the work and doing, in relation to an adaptation of the work, any of the acts set out above (Copyright Act, No. 98 of 1978: s 6);
- (b) in relation to an artistic work, reproducing the work in any manner or form, publishing the work, including the work in a cinematograph film or television broadcast, causing a television or other programme which includes the work to be transmitted in a diffusion service, making an adaptation of the work and doing, in relation to an adaptation of the work, any of the acts set out above (Copyright Act, No. 98 of 1978: S 7)
- (c) in the case of a cinematograph film, reproducing the film in any manner or form, causing the film to be seen or heard in public, broadcasting the film, causing the film to be transmitted in the diffusion service, making an adaptation of the film, doing, in relation to an adaptation of the film, any of the acts set out above, and letting, offering or exposing for hire by way of trade, directly or indirectly, a reproduction or adaptation of the film (Copyright Act, No. 98 of 1978: S 8);

²¹ This category was introduced by the Copyright Amendment Act 125 of 1992. Previously computer programs were held by the court to be a species of literary work. See *Northern Office Micro Computers (Pty) Ltd v Rosenstein* 1981 4 SA 123 (C).

- (d) in the case of a sound recording, making, directly or indirectly, a record embodying the sound recording and letting, or offering or exposing for hire by way of trade, directly or indirectly, a reproduction of the sound recording (Copyright Act, No. 98 of 1978: S 9);
- (e) in the case of a broadcast, reproducing the broadcast in any manner or form, re-broadcasting the broadcast and causing the broadcast to be transmitted in diffusion service (Copyright Act, No. 98 of 1978: S 10)
- (f) in the case of a programme-carrying signal, undertaking, or authorising, the direct or indirect distribution of such signal by any distributor to the general public (Copyright Act, No. 98 of 1978: S 11)
- (g) in the case of a published edition, making or authorising reproductions of the edition in any manner (Copyright Act, No. 98 of 1978: S 11A)
- (h) in the case of a computer program, reproducing the work in any manner or form, publishing the work, performing the work in public, broadcasting the work, causing the work to be transmitted in a diffusion service, making an adaptation of the work, doing in relation to an adaptation of the work any of the acts set out above and letting or offering or exposing for hire by way of trade, directly or indirectly, a copy of the computer program(Copyright Act, No. 98 of 1978: S 11B).

2.9.6 Infringement

The Copyright Act (98/1978) provides for two types of infringement, that is, primary or direct infringement on the one hand and secondary or indirect infringement on the other.

Primary or direct infringement occurs when any person, not being the owner of the copyright in the work, and without the licence of the owner, does, or causes to be done, any of the acts which the owner of the copyright is authorised to perform (Copyright Act, No 98 of 1978: s 23(1)). Lack of knowledge or intention on the part of the infringer is no defence to such an action.

Secondary or indirect infringement occurs when any person, without the licence of the owner of the copyright, imports an article into the Republic of South Africa for a

purpose other than his private and domestic use, sells, lets or by way of trade offers or exposes for sale or hire in the Republic any article, or distributes in the Republic of South Africa, any article for the purposes of trade or any other purpose, to such an extent that the owner of the copyright in question is prejudicially affected thereby, if, to his knowledge, the making of that article constitutes an infringement of the copyright or would have constituted such an infringement if the article had been made in South Africa (Copyright Act, No. 98 of 1978: S 23(2)).

In either case, the copyright owner (or an exclusive licensee) is entitled to an interdict and delivery-up of infringing copies or plates (Copyright Act, No. 98 of 1978: S 24(1) read with s 25) Damages are available except where the defendant can show that he was not aware, and had no reasonable grounds for suspecting, that copyright subsisted in the work (Copyright Act, No. 98 of 1978: S 24(2)). In lieu of damages a copyright owner may at his option be awarded an amount calculated on the basis of a reasonable royalty which would have been payable by a licensee in respect of the work or type of work concerned (Copyright Act, No. 98 of 1978: S 24(1A)). The Act also provides for an award of punitive or additional damages in circumstances where the court, having regard to all considerations including the flagrancy of the infringement and any benefit shown to have accrued to the defendant by reason of the infringement, is satisfied that effective relief would not otherwise be available to the plaintiff (Copyright Act, No. 98 of 1978: S 24(3)).

The Copyright Act (98/1978) also provides that it is a criminal offence, when copyright subsists in a work, to make articles by way of trade, or to import, sell, hire, distribute or trade in articles with knowledge that such articles are infringing copies of the work.

2.10 Designs²²

2.10.1 The definition of “design”

²²The statute currently governing the law of designs in South Africa is the Designs Act 195 of 1993 (“the current Designs Act”) as amended by the Intellectual Property Laws Amendment Act 38 of 1997. The Designs Act 57 of 1967 (“the repealed Designs Act”) was repealed by the current Designs Act which came into operation on 1 May 1995.

The current Designs Act provides protection for two types of designs, aesthetic designs and functional designs.

An aesthetic design is defined to mean any design applied to any article, whether for the pattern or the shape or the configuration or the ornamentation thereof, or for any two or more of those purposes, and by whatever means it is applied, having features which appeal to and are judged solely by the eye, irrespective of the aesthetic quality thereof.

A functional design is defined to mean any design applied to any article, whether for the pattern or the shape or the configuration thereof, or for any two or more of those purposes, and by whatever means it is applied, having features which are necessitated by the function which the article to which the design is applied, is to perform, and includes an integrated circuit topography, a mask work and a series of mask works.

2.10.2 Requirements for a design to be registrable

In terms of the current Designs Act, an aesthetic design must be new and original, and a functional design must be new and not commonplace in the art in question.

Certain designs are expressly excluded from registrability. Designs for articles which are not intended to be multiplied by an industrial process are not registrable. No feature of an article in so far as it is necessitated solely by the function which the article is intended to perform, or method or principle of construction, affords the registered proprietor of an aesthetic design any rights in terms of the current Designs Act, in respect of such feature, method or principle.

Further, and in particular, in the case of an article which is in the nature of a spare part for a machine, vehicle or equipment, no feature of pattern, shape or configuration of such article affords the registered proprietor of a functional design applied to any one of the articles in question, any rights in terms of the current Designs Act in respect of such features.

Again, certain designs were expressly excluded from registrability. Designs which were contrary to law or morality, or designs for articles which were not intended to be multiplied by an industrial process, were excluded from registrability.

2.10.3 Who may apply for a design registration?

In terms of the current Designs Act, an application for registration of a design may be made by the proprietor of the design. The proprietor of a design means (a) the author of the design; or (b) where the author of the design executes the work for another person, the other person for whom the work is so executed; or (c) where a person, or his employee acting in the course of his employment, makes a design for another person in terms of an agreement, such other person; or (d) where the ownership in the design has passed to any other person, such other person.

An applicant for a design is defined to include the legal representative of a deceased applicant or of an applicant who is a person under legal disability.

2.10.4 Infringement of a design registration

The effect of the registration of a design is to grant to the registered proprietor in the Republic of South Africa the right to exclude other persons from the making, importing, using or disposing of any article included in the class in which the design is registered and embodying the registered design or a design not substantially different from the registered design, so that he shall have and enjoy the whole profit and advantage accruing by reason of the registration. It follows that infringement occurs if any of these acts are performed by any person who is not authorised by the registered proprietor to perform them and who has no defence.

2.11 PATENTS²³

²³ The statute currently governing the law of patents in South Africa is the Patents Act 57 of 1978 as amended by the Patents Amendment Acts 14 of 1979; 67 of 1983; 44 of 1986; 76 of 1988; the General Law Amendment Act 49 of 1996, the Intellectual Property Laws Amendment Act 38 of 1997, the Nuclear Energy Act 46 of 1999, the Patents Amendment Act 10 of 2001 and the Patents Amendment Act 58 of 2002. The Patents Act 37 of 1952 was repealed by the current Patents Act 57 of 1978 which came into operation on 1 January 1979. Some of its provisions are very similar to the corresponding provisions of the British Patents Act of 1977.

As of 16 March 1999, South Africa is also a party or Contracting State to the Patent Cooperation Treaty (PCT) done at Washington on 19 June 1970, amended on 28 September 1979, and modified on 3 February 1984. The system of patent cooperation established by the PCT means that, by filing a single international application with one office, an applicant can obtain the effect of regular national filings in any of the PCT Contracting States being designated without initially having to furnish a translation of the application or pay national fees. The national patent granting procedure and expenses are postponed, by up to 18 months. This means that a South African national or resident can file an international application, designating up to 100

2.11.1 The definition of “invention”

The definition of invention states what an invention is not, rather than what it is. According to the definition, anything which consists of:

- (a) a discovery;
- (b) a scientific theory;
- (c) a mathematical method;
- (d) a literary, dramatic, musical or artistic work or any other aesthetic creation;
- (e) a scheme, rule or method for performing a mental act, playing a game or doing business;
- (f) a program for a computer; or
- (g) the presentation of information,

is not an invention for the purposes of the Patents Act.

Anything else, including but not limited to chemical compounds, compositions, articles, products, apparatus, machines, methods and processes, is regarded as an invention.

2.11.2 Requirements for an invention to be patentable

An invention must be new, involve an inventive step, and be capable of being used or applied in trade or industry or agriculture.

Certain inventions are expressly excluded from patentability. A patent cannot be granted (a) for an invention the publication or exploitation of which would be generally expected to encourage offensive or immoral behaviour; or (b) for any variety of animal or plant or any essentially biological process for the production of

countries at present, at the South African Patent Office, in terms of the Articles of the PCT and the Regulations under the PCT.

This also means that South Africa may be designated in an international application. The procedure for entry into the national phase in South Africa is dealt with below.

animals or plants, not being a micro-biological process or the product of such a process; or (c) an invention which is obviously contrary to well known natural laws.

In addition, an invention of a method of treatment of the human or animal body by surgery or therapy or of diagnosis practised on the human or animal body is deemed not to be capable of being used or applied in trade or industry or agriculture, and thus is not patentable.

2.11.3 Infringement of a patent

The effect of a patent is to grant to the patentee in the Republic of South Africa the right to exclude other persons from making, using, exercising, disposing of, offering to dispose of or importing the invention, so that he/she shall have and enjoy the whole profit and advantage accruing by reason of the invention.

In order to ascertain whether or not there has been infringement of a patent, the first step is to decide whether the act alleged to have been done by the defendant is of such a nature that it could constitute an infringement of the patent, i.e. to decide whether the defendant has committed an act of making, using, exercising, disposing of, offering to dispose of or importing the invention.

The scope of protection afforded by a patent is defined by the claims. Thus, the second step is to construe the claims to determine whether or not the alleged infringement falls within the scope of any of the claims.

The third step is to determine whether or not the defendant has a valid defence.

2.12 TRADE MARKS²⁴

2.12.1 Common law trademarks

Rights in a trademark are acquired by registration or by use. The latter rights, under the common law, only arise once a trademark has been so extensively used that it has come to identify goods (or services) as originating from a particular source. Goodwill is associated with the mark and the common law remedy of passing off is available to the owner against anyone who seeks to represent his goods or services as the goods or services of the owner of the mark.

2.12.2 The nature of a Trade Mark

The Trade Marks Act (hereinafter referred to as “the 1993 Act”) contains a definition of “mark” which does not purport to be exhaustive. A “mark” is defined as any sign capable of being represented graphically including a device, name, signature, word, letter, numeral, shape, configuration, pattern, ornamentation, colour, container, or any combination of the aforementioned (Trade Marks Act, No. 194 of 1993: s 2(1)).

2.12.3 The function of a trademark

The fundamental function of a trademark is to distinguish the goods or services of one trader from the same kind of goods or services connected with others in the course of trade. This function is now included in the definition of a trademark (Trade Marks Act, No. 194 of 1993: s 2(1)).

²⁴The law relating to trade marks in South Africa has its origin in both common law and statute law. The common law rights which give rise to the action for passing off are derived from general principles of Roman Dutch law, *Policansky Bros Ltd v L& H Policansky* 1935 AD 89. And have remained unaffected by the legislation on the subject. The statute law is contained primarily in the Trade Marks Act, No. 194 of 1993 and the Trade Mark Regulations of 1993, which came into effect on 1 May 1995. Although the Trade Marks Act 62 of 1963 has been repealed by the 1993 Act, its provisions are still relevant because in terms of section 3(2) of the 1993 Act, all applications and proceedings commenced under the 1963 Act shall be dealt with under that Act. Further, section 70(1) of the 1993 Act provides that the validity of the original entry of a trade mark on the register of trade marks existing at the commencement of that Act is to be determined in accordance with the laws in force at the date of such entry. Other Acts which, in one way or another, affect the use of trade marks are the Merchandise Marks Act, as amended, the Standards Act⁴ and the Counterfeit Goods Act.

2.12.4 Registrable trademarks

In order to be registrable, a trademark should be capable of distinguishing the goods or services of its proprietor from the goods or services of other persons (Trade Marks Act, No. 194 of 1993: S 9(2)). A trademark will be considered capable of distinguishing if, at the date of application for registration, it is inherently capable of distinguishing or it is capable of distinguishing by reason of prior use thereof.

2.12.5 Requirements for proprietorship

Under the common law, a trademark as such cannot be the subject of proprietary rights. A person is not entitled to the exclusive use of a trademark unless the mark has been used to such an extent that it has acquired a reputation as indicating that the goods or services in relation to which it is used are those of the proprietor.

The word “proprietor” as used in the Trade Marks Act (194/1993) does not refer exclusively to common law proprietorship since it is possible to seek registration of a trademark which is proposed to be used. Accordingly, the term “proprietor” extends to someone who has originated, acquired or adopted the trade mark but has hitherto not used it at all, or to the requisite extent, provided he proposes to use it²⁵. In addition, a proprietor must have used a mark either to the extent that it has acquired a reputation or he must have originated, acquired or adopted the trademark proposing to use it in the future²⁶.

2.12.6 Copying of a foreign trade mark

There is no legal bar to the adoption of a foreign trademark in South Africa unless it is attended by “something more”²⁷.

In delivering the unanimous judgment of the full court in *P Lorillard Co v Rembrandt Tobacco Co (Overseas) Ltd* (1967 4 SA 353 (T) 356G-H), Boshoff J

²⁵ *Moorgate Tobacco Co Ltd v Phillip Morris Inc* (unreported judgment of the Honourable WG Trollip as a hearing officer delivered on 21 May 1990);

²⁶ *Tie Rack PLC v Tie Rack Stores (Pty) Ltd* 1989 4 SA 427 (T).

held that the “*basis of the challenge on this ground is that the objector was to the knowledge of the applicant the proprietor of such a trade mark in the United States of America and that the applicant improperly appropriated the mark. In the present state of the law a trade mark is a purely territorial concept and there is, generally speaking, nothing to prevent a person from asserting a proprietary right in a trade mark in relation to which no one else has in the same territory asserted a similar right*”.

In *Tie Rack PLC v Tie Rack Stores (Pty) Ltd* (1989 4 SA 427 (T) 447B), Kriegler J, after referring to the principle that a person can rightly claim to be the proprietor of a trade mark if he has “*originated, acquired or adopted it*” provided he proposes to use it, went on to state as follows:

“*[A]n applicant can be regarded as the author of a trade mark in the RSA even if he has copied or selected (i.e. ‘adopted’) it in respect of certain goods from a trade mark registered and used (even extensively used) in respect of the same goods in a foreign country.*”

2.12.7 Definition of certifications mark

A certification mark is a mark which is capable of distinguishing, in the course of trade, goods or services certified by any person in respect of kind, quality, quantity, intended purpose, value, geographic origin, or characteristics of the goods or rendering of services, as the case may be, or the mode or time of production of services, as the case may be, from goods or services not so certified (Trade Marks Act, No. 194 of 1993: s 2(1)(iii) read with s 42(1)).

A trademark may not be registered as a certification mark in the name of a person who carries on a trade in goods or services of the kind sought to be protected by such registration (Trade Marks Act, No. 194 of 1993: S 42(1)).

2.12.8 Effect of registration

Without the registration of his trademark a trader would have to rely on the common law remedy of passing off and, for this purpose, it would be necessary for him to adduce substantial evidence to establish the rights which he claims.

²⁷ *Victoria’s Secret Inc v Edgars Stores Ltd* 1994 3 SA 739 (A) 746F

Registration of the trademark avoids this, and enables the owner of the trademark to institute the statutory action for infringement.

Under the 1993 Act, the rights of a trade mark proprietor to sue for trade mark infringement are not limited to the goods and/or services for which the trade mark has been registered (Trade Marks Act, No 194 of 1993: s34(1)(b)) broadens the scope of infringement to include use of a trade mark in relation to goods or services which are so similar to the goods or services in relation to which the trade mark is registered that the likelihood of deception or confusion exists in the use of the allegedly infringing mark. The introduction of the dilution provisions and the protection of well-known trade marks in section 34(1)(c) (Trade Marks Act, No. 194 of 1993) also affords the trade mark proprietor the right to interdict the use of a trade mark in circumstances where he does not have the trade mark registered in respect of the goods/services in question.

In addition to providing a facilitated remedy against the adoption by a competitor of a confusingly similar trademark, registration also facilitates proceedings for opposition against an applicant seeking to register a confusingly similar trademark.

2.13 INTELLECTUAL CAPITAL

Smith and Parr (2000: 54) view intellectual capital as not being different from any category of business assets, but rather a different way of classifying assets in order to focus on their management. According to them, intellectual capital is a combination of human, intellectual assets, and intellectual property. They comprise the intangible assets and intellectual property of an enterprise.

Loverde (2001: 58) defines intellectual capital as the ability to create and use knowledge to make profits. Loverde is further of the opinion that it is important to define intellectual property in terms of profitability because:

- if an organisation cannot obtain the sustained highest and best use of intellectual capital, then the organisation is vulnerable to counter attack from a competitor, therefore intellectual capital metrics should be linked to profitability;

- the intellectual capital elements embedded in the ongoing profitable operation of the firm are different from saleable intellectual capital elements (often called intangible assets). According to Loverde, saleable intangible assets are defined in terms of market value that can be obtained when it is sold independently of the company that had put them into a profitable action.

Bouteiller (2001: 3) defines intellectual capital from a valuation point of view as knowledge that can be converted into profit. It is a developmental knowledge that is human, structural, and customer based, and needs to be aligned with the corporate strategy and formalised and packaged in some way. According to Bouteiller, a global definition of intangible assets should include an asset base mainly made of intellectual property and a knowledge base representing the intellectual capital.

2.14 INTANGIBLE ASSETS AS A COMPONENT OF BUSINESS

Reilly and Schweih's (1998: 37) state that intangible assets often exist as part of an integrated assemblage of other business assets. These assets, some tangible and some intangible, are combined in order to provide economic income to the owners of the assets. According to them, the value of a business exceeds its tangible asset value because it requires more capital spending or additional labour units to perpetuate the business growth. Diminishing returns on those capital asset investments eventually dampen growth and it is the underlying intangible asset value and the co-ordination of those assets that fuels growth.

Reilly and Schweih's (1998: 38) continues that while intangible assets typically function as part of a going concern business enterprise, many intangible assets are bought, sold and licensed as independent intellectual properties, such as trade secrets, copyright and trademarks. Accordingly, these assets can generate income separately and independently from any other assets, tangible or intangible.

2.15 SUMMARY

This chapter introduced the attributes or factors that are relevant for determining what economic phenomena represent intangible assets. The various definitions of intangible assets were explored from different disciplines, each definition of which

was purpose driven for that specific discipline. A distinction was drawn between intellectual property and intangible assets, the contribution and interrelationship between intangible assets and the broader business. Finally, the difference between analyzing an intangible asset as a component of business and analyzing it as an independent economic unit were highlighted. In the following chapter, various analytical methods will be distinguished for valuing intangible assets, their methodologies will be explored and their respective advantages and disadvantages will be illuminated.

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Chapter THREE

3.1 INTRODUCTION

In this chapter the concept of value will be explored and defined in particular, the highest and best use principle applicable with intangible asset valuation will be addressed. The standard of value to any valuation will be explained. Further, various valuation techniques commonly used will be explored, which can be broadly classified under quantitative methods, being the market approach, cost approach and the income approach. In addition, an adapted discounted cash flow method will be discussed. The advantages and disadvantages of each of these quantitative valuation methods will be illuminated.

3.2 THE CONCEPT OF VALUE

One of the essential elements in appraising intangible assets is the identification of the standard of value or the definition of value being estimated, as there are different values for the same intangible asset, all of which is dependant on the standard of value to be applied.

Smith and Parr (2000: 152) describe value as the representation of all future benefits of ownership, compressed into a single payment, and value is continually changing as those future benefits increase or decrease with passage of time. In addition, the future benefits of ownership cannot be quantified without defining whose ownership is assumed and the underlying purpose of the valuation. According to the said authors, the distinction of ownership and the purpose are essential to the valuation process, and a valuation cannot proceed without a definitive premise of value.

However, the selection of the appropriate premise of value may be dictated by the highest and best use of the subject intangible asset. The highest and best use of an intangible asset is typically defined as the reasonably probable and legal use of the intangible asset that is physically possible, appropriately supported, financial feasible and results in the highest value.

3.3 HIGHEST AND BEST USE ANALYSES

As stated above, the highest and best use of an intangible asset is the foundation for creating and sustaining value to the organisation. Smith and Parr (2000: 55) state the valuation of intangible assets must always be guided by the consideration as to whether that property achieves its highest and best use in combination with an aggregation of other assets or as an individual unit.

According to Reilly and Schweihs (1998: 62) the highest and best use for an intangible asset may be analysed under and selected using the following criteria:

- *Legal permissibility* – the highest and best use should be a lawful use for that particular intangible asset or intellectual property. It must accordingly apply with regulatory, licensing, fair trade, truth in advertising and other legal requirements;
- *Physical possibility* – the highest and best use should be physically possible, given the physical, functional, and technological attributes of the subject intangible asset or intellectual property;
- *Financial feasibility* – the highest and best use generates a positive rate of return on the investments in the subject intangible asset. Even though the best use can be the best use among several unprofitable uses, it still may not be the highest and best use. The highest and best use generates a positive economic return to the intangible asset owner; otherwise, the intangible asset would not be used at all.
- *Maximum profitability* – of all the remaining alternative uses for the subject intangible asset that are legally permissible, physically possible, and financially feasible, the one use that results in the greatest value for the subject intangible asset is its highest and best use.

Reilly and Schweihs (1998: 62) concludes that among all reasonable, alternative uses, the use of the intangible asset that yields the highest present value after payment are made for all economic costs, typically represents the highest and best use of the subject intangible asset. Unless otherwise constrained, the subject

intangible asset should be appraised at its highest and best use, regardless of what the standard of value is being estimated.

3.4 STANDARD OF VALUE

Smith and Parr (2000: 59) state that the same intangible asset can have many different values. It is therefore important to understand exactly what is represented by the particular value that is being quantified. Smith and Parr (2000: 155) states further that the fair market value is the most commonly used and is also the most misunderstood measure of value.

3.4.1 Fair Market Value

Reilly and Schweihs (1998: 59) defines fair market value as what a typical hypothetical willing buyer will pay to a hypothetical willing seller with neither being under undue influence to transact.

Smith and Parr (2000:155) state that there are two recognised definitions of fair market value.

- first, fair market value embodies the two concepts of an exchange of property. It further defines the conditions of that exchange and accordingly, there are different types of fair market value as those conditions change. They define fair market value as the amount at which a property would exchange between a willing buyer and a willing seller, neither being under compulsion, each having full knowledge of all relevant facts and with equity to both;
- second, fair market value is equal to the present value of the future economic benefits of ownership.

Smith and Parr (2000:156) states that the definition of fair market value is often amplified to accommodate different types of property or different exchange conditions.

The South African Courts have also provided their opinion on the appropriate standard of value. In *Novick v Comair Holdings Ltd* (1979 (2) SA 116 (WLD) at 146) Colman J, rejected the proposition that the value of a company should be

measured with reference to the underlying net assets or solely by reference to profits earned during the past year. He held that *“the only test which can reasonably be applied ... is the test of value. And by that I mean market value in the sense of the price which the assets under consideration would fetch in a bona fide sale between a willing buyer and a willing seller, both of whom are reasonably well informed about the transaction, and neither of whom is under extraordinary pressure to buy or to sell, as the case may be.”*

3.4.2 Alternate Premise of Value

Reilly and Schweihs (1998: 61) state that the selection of the appropriate standard of value is greatly influenced by the purpose of the valuation and the selection of an appropriate standard will have a direct impact on the value estimate. The authors continue (1998: 63) that virtually any type of intangible asset may be valued under each of the following alternative premises of value:

- *Value in continued use, as part of a going-concern business enterprise.* The premise postulates that the subject intangible asset is analyzed as part of a mass assemblage of assets, some intangible and some tangible. This value contemplates the contributory value of the subject intangible asset both to the other assets of a business enterprise and assumes that the subject intangible asset will transact in the market place that encompass the sale of operating going concern business;
- *Value in place, but not in current use in the production of income.* Under this premise the subject intangible asset is also analyzed as part of the mass assemblage of assets and as part of a going concern business enterprise. This premise of value assumes that the subject intangible will transact in the market place that encompass the sale of non-operating going concern businesses. A non-operating going concern business is a business that is functional but not currently functioning. An example of this apparent contradiction is a business that is fully assembled but has not yet opened for business.
- *Value in exchange, as part of an orderly disposition.* This premise of value contemplates that the subject intangible asset will enjoy a normal period of exposure to its appropriate secondary market. The individual intangible

asset is not sold as part of a going concern business enterprise, but is sold on a piecemeal basis. This premise assumes that the subject intangible asset will transact in the market place which encompass the sale or licence of discrete, individual intangible assets.

- *Value in exchange, as part of a forced liquidation.* This premise contemplates that the subject intangible asset will experience less than a normal period of exposure to its appropriate secondary market. The individual intangible asset is not sold as part of a going concern business enterprise, but it is sold on a piecemeal basis. It is further assumed that the intangible will transact in the market place that encompass the auction or other rapid sale of discrete, individual intangible assets.

Smith and Parr (2000: 159) postulate that in the case of a forced liquidation and/or auction, the exchange price for the intangible asset would be reduced and result in a low exchange price.

Loverde (2001: 62) expands on the above and states that there are three levels of traditional evaluation of a company:

- the lowest value: liquidation value (forced sale as soon as possible at least price);
- a medium value: orderly disposition (sale of assets to outsiders at close to market value); and
- a higher value: going concern value (sale of assets as part of a business or value of assets in a business that is profitable).

3.5 OBJECT OF VALUATION

Smith and Parr (2000: 57) states that the object of a valuation should be clearly articulated dealing with, at least the following issues:

- identifying the intangible asset to be valued;
- the legal rights related to the intangible asset being valued;
- the standard of value or the definition of value being estimated;

- selecting the appropriate valuation date.

3.6 VALUATION TECHNIQUES

3.6.1 Introduction

There is a number of different valuation methods used in practise and the primary goal is to investigate the advantages and disadvantages of the various approaches. Management's dilemma is to choose the right approach to evaluate the best investment option in order to make the right investment decision.

If disposable cash is available, the company can either, keep and reinvest the cash, or return it to its shareholders in the form of dividends. If the decision is made to reinvest the cash, the opportunity cost should be at least the expected rate of return that the shareholders could have obtained by investing in financial assets.

Reilly and Schweih's (1998: xxvi) state that more than the most esoteric technique or arcane formulae are used in valuing intangible asset. Intangible asset valuation is not a science in the same sense that chemistry and physics are sciences. In those disciplines, there are natural relationships that can be measured with certainty and precision. In chemistry, precise relationships exist between pressure, volume, and temperature. In physics, there are precise relationships between mass, energy, and velocity. These exact and repeatable relationships are based on the laws of nature. There are no corresponding universal laws of nature that relate to intangible asset valuation. However, intangible asset valuation is a science in the sense that mathematics and economics are sciences. These soft sciences are based on logical relationships, rules of order, consistency, and generally accepted analytical protocols. Based upon such protocols, the various disciplines within mathematics, such as algebra, trigonometry, and calculus, function efficiently. Based upon similar protocols, the various disciplines within economics, such as money and banking, macroeconomics, land economics, and intangible asset valuation, function efficiently. Some analysts assert that the valuation discipline is purely an art because the application of the discipline requires skill, experience, judgment, knowledge, study, and observation. The successful application of the discipline does require all these attributes. Invariably, the same could be applicable to the successful application of physical chemistry, astrophysics, or any other hard science. If the art versus science debate is worth recognising at all, the answer

may be that the valuation discipline incorporates the best elements of both art and science.

Smith and Parr (2000: 112) states that accounting for intangible assets and intellectual property has long been a problem because these assets do not fit well into traditional definitions of assets. The authors further state that (2000: 114), it is recognised that intangible assets and intellectual property are becoming increasingly significant to the business and to investors worldwide and it is also apparent that there is a divergence between what can be observed in financial statements of a business and the assets that really drive the organisations earnings. They continue that that the current financial statements are much less useful than they could be, because information about intangible assets and intellectual property, either is not contained therein or is inconsistently presented. However, conversely, the accounting fraternity express their concern about including this type of information in financial statements because:

- financially describing intangible assets or intellectual property invariably requires forecasts;
- definitions of intangible assets are unclear;
- methods for valuing intangible assets are thought to be imprecise;
- economic useful life of intangible assets can be unclear.

Palepu et al (2004:4-6) states that it is almost always difficult to accurately forecast the future associated with capital outlays because the world is uncertain. Accounting deals with these challenges by stipulating which types of resources can be recorded as assets and which cannot. The said authors give the following example, the economic benefits from research and development are generally considered highly uncertain as research projects may never deliver the promised new products or the products the research and development generate may not be economically viable, or the products may be made obsolete by competitor's research and development. Accordingly, accounting rules require the research and development outlays be expensed. In contrast thereto, economic benefits from plant and equipment are considered less uncertain and are required to be capitalised.

However, although it is true that it is difficult to estimate the economic benefits from many intangible assets, but due to the intangible nature of some assets does not mean that they do not have value. The reluctance of accounting rules to reflect these assets on the balance sheet does not in any way diminish their value. If these assets are not included in the balance sheet, alternative sources of information on these assets must be looked at.

According to Lev (2001: 135), accounting theory states that all costs incurred to develop intangible assets that are not specifically identifiable should be recorded as an expense.

Smith and Parr (2000: 93) states that if one makes an assumption that the equity value of a business enterprise comprises only its ordinary shares, then it would be obvious that there can be considerable disparity between the value as shown on the balance sheet (as a residual between assets and liabilities) and its value to the investor who is applying completely different criteria to its quantification. To an investor, the financial statements of a business are just a starting point in the valuation process. An investor is primarily concerned with the present and prospective earning power of a business (Compare Wyatt & Abernethy, 2003: 1).

According to van den Berg (2001: 33), there are a growing number of methodologies for the measurement of intangible assets. He further holds that the measurement of intangible assets is important by reason of the following:

- *Socio-Economic Significance* - Markets of all types require information in order to function. Buyers must know what sellers are offering, or transactions are not likely to occur. If they do occur, prices will be higher than they otherwise need be in order to account for the risks that buyers assume when they are not well informed. Various estimates indicate that intangible assets currently constitute a majority percentage of corporate value, on average. The socially harmful consequences of the failure to account properly for those assets, and disclose their attributes are numerous and very significant. They include:
 - using intangibles for widespread manipulation of financial information,

- excessive gains to corporate insiders from trading the stock of their companies,
- high volatility of stock prices, and
- excessive cost of capital to intangible-intensive companies, hindering innovation and growth.

Within this context, economic prosperity rests upon knowledge and its useful applications. According to the said author, this supports the assertion that intangible assets are instrumental in the determination of enterprise value and national economic performance. Today, the nature and performance consequences of the strategies used by organizations to develop, maintain, and exploit knowledge for innovation, constitute an important topic in the field of business strategy. According to the said author, the debate no longer centres on whether or not knowledge assets exist, but on its measurement.

However, Yegge (2001: 17) warns that intangible asset value is a highly judgemental aspect of valuation and requires conscientious attention. The author continues that numerous rating schemes have been developed through the years to determine intangible value, many provide logic to the rationale and assist in developing more values that are defensible. However, in the final analyses, technical competence and experienced financial judgment must win out. According to the author the final value judgement must meet tests of cash flow analysis, when it does not rating schemes are not worth the paper it is written on.

3.7 GENERAL VALUATION APPROACHES

According to Smith and Parr (2000: 163), there are three accepted valuation methodologies, namely:

- *Cost Approach* – This approach seeks to measure the future benefits of ownership by quantifying the amount of money that would be required to replace the future service capability of the subject property, being the cost of replacement. The underlying assumption is that the price of the new property is commensurate with the economic value of the service that the property can provide during its life;

- *Market approach* – this approach measures the present value of future benefits by obtaining consensus of what others in the market place have judged it to be;
- *Income approach* – The income approach steps away from the cost of constructing or creating a new property and focuses on a consideration of the income producing capability of the property. The underlying theory is that the value of property can be measured by the present value of the net economic benefit to be received over the life of the property.

However, Bouteillier (2001: 5) distinguishes between measurement and methods and classifies the valuation methodologies as follows:

- Asset by Asset approaches:
 - Cost methods;
 - Market methods;
 - Income methods;
 - Option-pricing methods.
- Global Approaches:
 - Market to Book Value;
 - Tobin's Q;
 - Total Value Creation Method;
 - Normalized earnings method.

Although there are various other valuation methods, it is not the province of this paper to address any of the other methods, but would be restricted to the methods identified below.



3.8 MARKET APPROACH

3.8.1 Introduction

According to Reilly and Schweih's (1998: 101) the market approach to intangible asset valuation is based upon the related economic principles of competition and equilibrium, being that in a free and unrestricted market, supply and demand factors will drive the price of any goods to a point of equilibrium. This value is often defined and the expected price, being the price that the property would expect to fetch in its appropriate market place.

Smith and Parr (2000: 181) indicate that the market approach provides an indication of value by comparing the price at which a similar property has been exchanged between a willing buyer and seller, and then comparing these transactional intangible assets to the subject intangible asset. The requirements for the successful implementation are:

- the existence of an active market involving comparable property;
- past transactions of comparable property;
- access to price information at which comparable property exchanged;
- arm's length transactions between independent parties.

The most difficult part in the market approach is comparability as transactions of specific items of intellectual property are still rare events. Even if pricing information for a specific exchange of intellectual property exists, the price at which the property exchanged most likely will have no bearing on the value of other intellectual property unless positive comparability exists.

Reilly and Schweih's (1998: 149) suggests that a comparative analysis be performed which focuses on similarities and differences among intangible assets and transactions that may affect value, these may include differences in property rights appraisal, the motivations of buyers and sellers, financing terms, market conditions at the time of sale, size attributes and economic characteristics.

According to Smith and Parr (2000: 184) the market approach can indicate the value of intellectual property and intangible assets by determining the value of the entire enterprise within which the property resides. Once this value is established, allocation of the value among all of the other asset categories leaves a residual amount that often can be ascribed as intellectual property, such as strong trademarks, copyright, distribution networks or proprietary technology. Invariably, this is based on the premise that the value for intellectual property is dependent on successful commercialisation that is embedded in the value of the business enterprise in which it resides.

According to Reilly and Schweih (1998: 152), there are four alternative market approach methods which will be discussed in short hereunder.

3.8.2 Sales Transaction Method

This method estimates the value of the subject intangible asset based upon actual market transactions, which is the sale of comparable or guideline intangible asset to independent third parties at arm's length transactions. When data is available, this is considered the most direct and systematic approach to value estimation. This approach consists of three interdependent steps, namely:

- the first – is an assessment of the relative economic strength and weaknesses of each individual market observation and of the subject intangible asset;
- the second – is the identification and quantification of adjustment factors related to the differences between the market observations (the comparable guideline transaction) and the subject intangible asset.
- the third – is the analysis, by which the valuation multiples are estimated and applied to the appropriate subject intangible asset financial parameter (e.g. sales operating profit, cost etc) in order to estimate the value indication via the sales transaction method.

Reilly and Schweih (1998: 225) are of the opinion that the primary criterion for using the sales transaction method is the existence of reasonably comparative transactions involving the arm's length sale of intangible asset. According to the writers, this method can be especially useful for appraising seasoned or mature

intangible assets because most of the reported guideline transactions represent interest in mature intangible assets

3.8.3 Relief from Royalty Method

This method is sometimes considered an income approach valuation method, because the estimated royalty income is capitalized to reach an indication of value. According to this method, the subject intangible asset is valued by reference to the amount of royalty income it would generate if the intangible asset. The net revenues expected to be generated by the subject intangible asset from all sources during its expected remaining life are then multiplied by a selected benchmark royalty rate.

The result is an estimate of the royalty income that could hypothetically be generated by licensing the subject intangible asset. The estimated royalty stream, which the owner is relieved from to paying since the intangible asset is already owned, is capitalised, reflecting the indicative value of owning the intangible asset.

3.8.4 Comparative Income Differential Method

In some circumstances, information gathered from the market may permit the analyst to compare the income generated by two similar operations, one that operates with an intangible asset and one without. When these two operations consistently generate significantly different income, the value of the intangible asset can be estimates using comparative income differential method.

3.8.5 Market Replacement Cost Method

This method contemplates the replacement cost of the intangible asset in the open market. While the traditional replacement cost method begins with the internal records of the intangible asset's owner, this method considers estimates of the replacement cost of intangible asset by knowledgeable outsiders. If objective arm's length estimates can be obtained, it will lead to a reliable market derived estimate of the intangible asset's replacement cost.

3.8.5.1 Disadvantages of Market methods

According to Bouteiller (2001: 9) even if their implementation depends on available information and reliable transactional data, those methods represent the most direct and efficient approaches to the valuation of intangibles. Their practical application has some limitations due to the following factors:

- (a) most intangibles are not sufficiently traded to determine a comparable market value;
- (b) intangible assets are more frequently traded with a business including tangible assets and are difficult to dissociate from; and
- (c) they may be unique and similar transactions do not exist. In addition, market cycles, or purchaser's special interests, such as strategic or competitive premiums, may introduce distortions.

Because of these, analysts consider adjustments on those factors as "vital" for making the market approach relevant. The most applicable standard of value in market approaches is nevertheless the "fair" market value. When selecting and analyzing guideline sales or license transactions, the following elements usually require careful consideration: appraisal of the property rights, motivations to the transaction, financing terms, market conditions, size, attributes, and economic situation at the time of sale.

The market value is usually given by the application of a multiple to the price of the guideline transaction, or the application of some relevant variable coming from: the guideline transaction's financial statements, the market potential, or projections of future earnings.

Their choice may appear subjective, such as the different elements of comparison seen above. Those are often especially difficult to collect for intangible assets, due to their unique character and their possible lack of marketability. They represent severe difficulties when implementing market approaches (Bouteiller, 2001: 9, Reilly and Schweih, 1998: 154).

Smith and Parr (2000: 181) state that transactions of specific items of intellectual property are still rare events. The most difficult aspect of the market approach as it

applies to intangible assets is comparability. Even if pricing information for a specific exchange regarding a specific intangible asset were available, the price at which the property exchanged most likely will have no bearing on the value of other intangible assets unless positive comparability exists.

Smith and Parr (2000:170) state that the market approach is the most direct and most easily understood appraisal method. It measures the present value of future benefits by obtaining a consensus of what others in the marketplace have judged it to be. There are however two requisites namely: an active market and an exchange of comparable properties. However, the biggest challenge is to find, for a subject property, an arm's length sale of an exact replica property on the same day of the valuation. According to the authors, this does not happen with enough regularity to eliminate the need to make adjustments when the comparable assets are not exactly comparable. In other cases, it is necessary to utilise sale information that are not contemporaneous with the appraisal. In this case, the appraiser must adjust the price changes over time. This may necessitate a separate study of changes in property value in the subject industry during a recent period of time so as to develop some specialized indices to use in the valuation process.

According to Smith and Parr (2000:172) the market approach is most effective for real estate, machinery and equipment in general use, vehicles, general purpose computer software, computer hardware, liquor licences and franchises, but is typically least effective for most intangible assets and intellectual property. The market approach takes the analyst to the bottom line of fair market value. The assumption is that other buyers of comparable property, were willing, had knowledge of all relevant facts, and struck a deal that was fair and. Therefore, represented fair market value at that time and for that property.

3.10 COST APPROACH

3.10.1 Introduction

The cost approach seeks to measure the future benefits of ownership by quantifying the amount of money that would be required to replace the future service capability of the subject property. The assumption underlying this approach is that the price of a new property is commensurate with the economic value of the

service that the property can provide during its useful life (Smith and Parr, 2000: 464).

Cost methods are classical approaches for Intangibles' individual appraisal. Among them, several related analytical techniques (creation / recreation, historical / prospective, reproduction/replacement, avoidance cost) are relevant for their valuation. However, the most common are reproduction cost and replacement cost (Reilly and Schweih, 1998: 122).

Reproduction cost is the estimated cost to construct, at current prices as of the date of the analysis, an exact duplicate or replica of the subject intangible asset, using the same materials, production standards, design, layout and quality of workmanship as the subject intangible asset. The subject intangible asset will include the same inadequacies, super-adequacies and obsolescence as the subject intangible. Replacement cost is the estimated cost to construct, at current prices as of the date of the analysis, an intangible asset with equivalent utility to the subject intangible, using modern materials, production standards, design, layout and quality of workmanship. The replacement intangible will exclude all curable inadequacies, super-adequacies, and obsolescence that are present in the subject intangible asset.

The reproduction cost and the replacement cost provide a "*reasonable*" measure of the value of intangibles when two conditions are met, namely:

- ❖ the first one is to include all the cost components of the intangible;
- ❖ the second one (unless it is brand new) is to reduce it for all forms of obsolescence. Putting together all the cost components is the more step when it applies to intangibles because they are resulting from multiple and accumulated expenses and are often closely associated to tangible asset.

The common way takes into account materials, labour and overheads. It must also include the developer's profit and an entrepreneurial incentive which are difficult to appreciate for intangible assets regarding their more often indistinct nature and their associated uncertainty.

Smith and Parr (2000: 205) indicate that recreation cost is the most appropriate method in the event of inaccurate record keeping. In this instance, the aggregate

of all expenses relating to the intangible asset is an indication of the cost to reproduce the asset. However, adjustment for elements of obsolescence must then be considered. Then the physical depreciation must be reflected. According to the said authors, the cost of replacement less depreciation can be stated in terms of the following formula:

$$CORLD = CRND - PD - FO$$

Where:

CORLD = Cost of replacement less depreciation;

CRN = Cost of replacement;

PD = Physical depreciation;

FO = Functional obsolescence.

According to Smith and Parr (2000: 208) there is an indestructible link between the fair market value of a business property and its earning power. Accordingly, the following equation of the cost approach determines fair market value:

$$FMV = CRN - PD - FO - EO$$

Where:

FMV = Fair market value;

CRN = Cost of replacement;

PD = Physical depreciation;

FO = Functional obsolescence;

EO = Economic obsolescence.

Smith and Parr (2000: 199) describe:

- Functional obsolescence as the time it takes so that the intellectual property has no more value;

- Economic obsolescence is a concept based on the assumption that property devoted to business use achieves full fair market value only when it is capable of contributing to the earnings of that business and when those earnings are capable of providing a reasonable rate of return on all property devoted to the enterprise.

3.10.2 Disadvantages of the Cost Approach

According to Bouteiller (2001: 8) the cost approach, provide a reasonable measure of the value of intangible assets when two conditions are met, namely the first is to include all the costs components of the intangible and the second is to reduce it for all forms of obsolescence. Putting together all the costs components is difficult when it applies to intangible assets because of they are resulting from multiple and accumulated expenses are often closely associated with intangible assets. The common way takes into account materials, labour and overheads. It is therefore difficult to distinguish between normal operating expenses and intangible asset investment expenditure.

Choosing the right costs of reference also raises questions. Historical costs may be objective, consistent and reliable, but suffer from practical limitations. There is often a lack of relevant information for older intangible assets. Expenditure incurred in maintaining the value of intangible assets and investments in enhancing its value cannot be differentiated. The historical costs reflect a particular situation or prices on a market and adjustments may not reflect current prices. The main aim of the replacement and recreation costs is to rectify this uncertainty; however, they do not fix the problem of the present required costs of recreating the intangible asset. Intangible assets are associated with a history that largely determines their attributes and may be currently be impossible to replicate some intangible asset which is irreplaceable. In addition, the subjective nature of estimate of costs of replacement is not always that simple as certain intangible assets are not replaceable.

Smith and Parr (2000: 208) states that the cost approach is especially useful for appraising highly specialised property such as a foundry, a reservoir, steel mill, a nuclear reactor or power plants. The cost approach is also very useful in valuing certain intangible assets such as computer software, an assembled workforce,

corporate practices, quality control procedure, engineering drawings, assembly practices, purchasing procedures, packaging designs and distribution networks.

Identifying and measuring obsolescence is also an acute operation in order to estimate the value of an intangible asset. The common forms of obsolescence include functional, technical and external ones. Their measurement requires a particular care, in order to separate obsolescence related to the intangible asset from the associated tangible asset, and to use only the obsolescence related to the intangible. Qualitative methods, such as the "*Life Cycle Analysis*" and the "*Remaining Useful Life*" can assist in appreciating the obsolescence of an intangible. The main limit of costs related methods lies in their fundamental and implicit assumption that expenditures should always create value. This assumption may be untenable given the variable success of new intangible assets (e.g.: brands) brought to the market (Bouteiller, 2001: 9).

The main limit of the cost related approaches lies in their fundamental and implicit assumption that expenditure should always create value.

Smith and Parr (2000: 209) points out that cost does not equal value, unless the economic benefits earned for ownership of the property, the value of such property is low regardless of the amount needed to develop the intangible asset. Unique assets may suffer considerably because they have little use outside a particular business. Other assets that have a general use may only suffer in value to the extent of the costs that would be incurred to remove them from the business and transport and install them in a new business and location for use in a more profitable industry.

According to Smith and Parr (2000: 212) many of the important factors that drive value are not directly reflected in the methodology and must be considered apart from the basic cost approach process, namely:

- ❖ the cost approach does not directly incorporate information about the amount of economic benefits associated with the intangible asset. These benefits are driven by demand for the intangible asset and the profits that can be generated;

- ❖ information concerning the trend of the economic benefits is also missing from consideration. Intangible assets providing economic benefits with an increasing growth rate can be far more valuable than that which displays a downward trend. This trend is affected by social attitudes, demographics and competitive forces, but the cosy approach cannot capture the effect on value;
- ❖ the duration over which the economic benefits will be enjoyed is another element not directly considered that has a significant effect on value. The economic remaining life of the property is a vital component to a value conclusions;
- ❖ the risk associated with receiving the expected economic benefits is not directly factored into the cost approach model. Where a higher degree of risk makes realisation of expectations speculative, a lower value should correspond;
- ❖ the adjustments that are necessary to reflect the affects of obsolescence must be separately calculated and are often difficult to quantify.

3.11 INCOME APPROACH

3.11.1 Introduction

The income approach steps away from the cost of constructing or creating a new property and focuses on a consideration of the income producing capability of the property. The underlying theory is that the value of property can be measured by the present value of the net economic benefit to be received over the life of the property. Underlying the income approach, is the principle that assets are only worth in the open market what they can earn,, and the true measure of the worth of assets the assets earnings when related to the risk inherent in the business situation (Smith and Parr: 2000, 164).

According to Bouteiller (2001: 10) income methods can be grouped into two categories: the yield capitalisation method and the direct capitalisation method. Reilly and Schweih's (1998: 161) is of the opinion that both these share a common conceptual basis that the value of an intangible asset is the present value of the expected economic income associated with the ownership, use, or forbearance of

that intangible asset. Although the two methods employ different mechanical procedures to quantify the present value, they both strive to quantify the present value of expected future economic income.

3.11.2 General

3.11.2.1 Components of the Income Approach

Damodaran (2001: 20) states that the value of an asset should be a function of three variables, namely:

- ❖ how much the asset generates in cash flows;
- ❖ when these cash flows are expected to occur; and
- ❖ the uncertainty associated with these cash flows.

According to the said author, the discounted cash flow valuation brings all three these variables together by computing the value of the asset to be the present value of its expected future cash flows.

According to the aforesaid author, there are three fundamentals which determine value of a business is:

- a firm's capacity to generate cash flows from existing investments. Firms generating higher cash flows from existing investments should be worth more than firms that generate lower or negative cash flows;
- the expected growth in these cash flows over time. Firms that expect to grow faster in the future should have higher value than firms that have lower growth rates;
- the uncertainty about whether or not these cash flows will be generated in the first place. Less uncertainty about future cash flows should translate into higher value for firms.

Smith and Parr (2000: 168) reaffirm the aforesaid three components of the income approach, being the amount of the income stream that can be generated by the intangible asset; the assumption as to the duration of the income stream and assumption as to the risk associated with the realisation of the forecasted income,

which three components are illustrated by general formula below, based on the assumption that intangible asset is expected to produce income perpetually:

$$V = \frac{I}{r}$$

Where:

- V = the value of the earnings stream attributable to the intangible asset.
- I = Income derived from employment of the intangible asset, representing the net cash inflows and outflows.
- R = Capitalisation rate reflecting all the business, economic and regulatory conditions affecting the risk associated with employing the intangible asset and achieving the prospective earnings.

3.11.2.2 **Income Component**

Smith and Parr (2000: 166) states that as far as it relates to income contributions in respect of intangible assets, income can be classified into three categories:

- ❖ income derived from increases in revenues;
- ❖ income derived from decreases in expenses and costs;
- ❖ income derived decreases in investments.

The challenge associated with the income component is the assignment of that portion of revenues generated by a business which are contributed by intangible assets. The mere existence of profit is not enough to justify and support an assignment of value to intangible assets. Earning derived from operations of a business must be of an amount, on a consistent basis, to yield a fair rate of return over the term of the investment in intangible assets and complementary assets. A business enterprise comprises of monetary assets, tangible assets and intangible assets. Economic benefits are generated form the integration of employment of all these assets. Based upon the relative importance of each category of each of these assets and the associated risk, the aggregate net income of the enterprise can be allocated to its components (Smith and Parr: 2000, 226).

Smith and Parr (2000: 227) are of the opinion that the future stream of economic benefits is best measured by the amount of net cash flow to be derived from employment of the intangible asset. This should take into consideration the costs of conducting business as well as additional capital investment that will be needed to sustain that cash flow. After accounting for these future uses of gross cash flow, the net amount represents the economic benefits derived from the ownership of the property.

Smith and Parr (2000: 166) and Damodaran (2001: 456) warn that while cash flow, growth and risk remain the determinants of value, growth plays a disproportionately large role in determining the value. However, it is not growth that creates value, but growth with excess returns, as firms can grow at high rates and creates no value or even destroys value, because they earn less than is required on their new investments.

3.11.2.3

Economic Life

A further challenge of the income approach is the estimation of the useful life of an intangible asset in order to quantify the future cash flows to be generated of the useful life of the intangible asset.

Reilly and Schweihs (1998: 206), postulates that intangible asset value is sometimes defined as the present worth of future cash flows expected to be derived from the ownership or use of an intangible asset during the remaining economic life of the intangible asset. At the end of the economic life, the intangible asset owner perceives that it is no longer profitable to use the intangible asset. Accordingly, intangible asset value is a function of potential economic life and the projection of the remaining useful life of an intangible asset is usually necessary in the estimation of the value of that intangible asset.

According to Smith and Parr (2000: 283) economic life is the period during which the use of the asset is profitable. Economic life ends when the asset is no longer profitable to use as an asset or when it more profitable to use another asset.

3.11.2.4 Capitalisation factor

According to Smith and Parr (2000: 545), intangible assets are forms of investment that should be judged using the same framework that incorporates the dynamics of risk and investment return into valuation decisions. The foundation of investment value is the present value of the expected stream of economic benefits over the remaining economic life of the investment. Thus, value is derived by discounting future economic benefits at an appropriate rate of return that reflects the risks associated with the realisation of the expected benefits.

The required rate of return consists of three primary components: the risk-free rate; the expected rate of inflation, and the risk premium. The risk-free rate is the basis value of money assuming that there is no risk of default on the principal and that the expected earnings stream is guaranteed. Because investors are interested in a real rate of return, a portion of the required rate of return must include an amount that is sufficient to offset the effects of inflation. However, most investments are not risk free and must provide additional return to compensate for the risks that are associated with an enterprise. This risk premium represents a compensation for the possibility that the actual returns will deviate from the expected returns (Smith and Parr: 548).

There are varieties of methods used to determine the required rate of return, being the following, which will be discussed briefly hereunder (Smith and Parr: 550):

- ❖ Dividend growth model;
- ❖ Built-up model;
- ❖ Capital asset pricing model;
- ❖ Arbitrage pricing theory.

3.11.2.4.1 Dividend Growth Model

The formula for valuing preference shares presents a simple version of the dividend growth model:

$$\text{Value} = \frac{\text{Dividend}}{\text{Rate of return}}$$

The dividend stream is known, being contractually set. It is promised to continue in perpetuity at the established level. However, if the value of the preferred shares is known and the value of the dividends is known, the required rate of return is shown by:

$$\text{Required Rate of return} = \frac{\text{Dividend}}{\text{Value}}$$

The resulting rate is the rate of return that investors require for investments that provide a fixed dividend into perpetuity.

In the case of ordinary shares, the future level of the cash streams and the rate at which they might grow is not known with certainty. Accordingly, the value of ordinary shares is as follows:

$$V = \frac{D1}{(1+i)} + \frac{D2}{(1+i)^2} + \frac{D3}{(1+i)^3} + \dots$$

Where:

V = the value of ordinary shares;

D = the amount of dividend during each successive time period;

I = the required rate of return on the stock.

The value of the shares is presented as the discounting of all future dividends. Rather than attempting to determine the amount of the dividends that will be paid in each future year, an assumption is made regarding the rate at which the current dividend will grow, and the dividend growth model is reflected as:

$$V = \frac{D_0(1+g)}{i-g}$$

The value of the shares is related to the growth of the current dividend, D_0 , at the growth rate, g , capitalised at the required rate of return, i . If the value of V , D_0 , and

g can be determined, the required rate of return, for an equity investment possessing comparable characteristics of risk, can be derived.

According to Smith and Parr (2000: 551) the dividend growth model is most useful for defining appropriate rates of return for intellectual properties that are close to the mature portion of their economic lives and already proven as commercially viable. At this point of the life cycle, future growth rates can be predicted more accurately and the overall market for the product or service with which the property is associated is better defined.

3.11.2.4.2 **Built-up Method**

According to Smith and Parr (2000: 551) the built up model is very subjective but can be used to directly reflect the amount of risk associated with the major risk factors associated with intangible assets. This method lists each component of risk and assigns an amount of return to compensate for each risk component.

The table below presents an example for the use of valuing new technology commercialisation effort.

Built-up Rate of Return for New Technology

Risk Component	Required Return (%)
Risk-free rate of return	3.0
Purchasing Power Risk	1.0
Market Risk	2.0
Interest rate risk	1.0
General Business and industry risk	6.0
New Technology risk	6.0
Total Required Rate of Return	19.0

Source: Smith and Parr (2000: 559)

Smith and Parr (2000: 559) is of the opinion that this method is attractive because it addresses each of the risk components individually and can reflect an individual investor's own perceptions of the relative degree of risk presented by each component. However, specific quantification of the exact amount of return that is necessary to compensate for each risk component is not easy.

3.11.2.4.3

Capital Asset Pricing Model

The capital asset pricing model (“CAPM”) is one of the several factor models that associate the proper rate of return to various investment factors. In the case of CAPM, the appropriate rate of return is considered to be determined by one factor, being the volatility of return relative to the returns that can be achieved by a broad market portfolio (Smith and Parr: 559).

One form of the equation that describes the model is:

$$R_e = R_f + B(R_m - R_f)$$

Where:

R_e = the equity rate of return

R_f = the risk free rate of return

R_m = the rate of return provided by the overall market portfolio of investments

B = beta, a measure of the volatility for a specific investment relative to the market portfolio

The CAPM can be used to estimate the required rate of return for specific intangible assets by analysing the required rates demanded by investors on specific shares that operate in the same industry as that in which the intangible assets reside. Analysis of equity of companies that are dominated by the type of intangible asset being studied will reflect more directly required rates of return for intangible asset in specific industries. In addition, a risk measure for valuing intangible assets can also be determined by studying the betas of publicly traded companies that are highly dependant on the same intangible asset for which a value is desired. If the risk of comparable and public companies in the same industry is the same as that affecting the subject intangible asset, then a study of their betas can serve as a useful risk benchmark (Smith and Parr: 553).

3.11.2.4.4

Arbitrage Pricing Theory

The arbitrage pricing theory (“APT”) asserts that an asset’s risk is related to more than one type of investment risk. APT attributes total return to the sensitivity of investment returns to unanticipated changes in five factors, namely:

1. Default risk;
2. the term structure of interest rates;
3. Inflation;
4. the long-run expected growth rate of profits for the economy;
5. Residual market risk.

The APT can be expressed by the following equation:

$$R = E + (B1)(F1) + (B2)(F2) + (B3)(F3) + (B4)(F4) + e$$

Where:

R = the actual return on an asset

E = the expected return on an asset

B_n = the asset’s sensitivity to a change in F_n

F_n = a specific economic factor

e = the return attributed to idiosyncratic factors specific to the asset.

According to Smith and Parr (2000: 555) it is not easy to determine the sensitivity of asset returns to each economic factor. Share price movements are not easily traced to a given factor because so many different economic and idiosyncratic forces affect the movements. The implementation of the inferences of APT can be accomplished by requiring premiums rates of return on investments where expected returns can be significantly affected by unanticipated changes in the identified economic factors.

3.11.3 Adjustments to be made

According to Reilly and Schweih's (1998: 176), depending on the particular type of intangible asset, several important adjustments may need to be made to the accounting-orientated measures of income in order to arrive at the level of income associated with the particular intangible asset, being three categories of adjustments:

- funnel of enterprise income adjustments, which recognises that the fact that not all income generated by a business enterprise is generated by a particular intangible asset. Many of the projections of intangible asset income start with projections of the enterprise income, which is the income generated by the enterprise from both tangibles and intangibles, and in order to analyze the subject intangible it is necessary to separate the total enterprise income and to isolate that portion of the total enterprise income that is directly associated with the subject intangible. According to the authors, the reason for this is twofold:
 - the historical income available for analysis is typically on enterprise basis, by taking cognizance of historical financial statements related to the business that employs the subject intangible, which relate to the enterprise as a whole;
 - except for intangible assets that are licensed separately from the operating business, the income contributed by the subject intangible is just one part of the overall income generated by the business enterprise in which it functions.
- capital charge adjustments, is necessary to ensure that when economic income is analysed on an enterprise level, there is a fair return on the investment of all the assets that are used or used up in the production of the income associated with the subject intangible. This adjustment, according to the authors consists of the following steps:
 - the first step is to identify all the assets that are used or used up in the production of the enterprise income associated with the intangible asset, which may include net working capital and other intangible

assets, being those intangibles used in the enterprise other than the subject intangible;

- the second step is to estimate a value for all the assets to which a capital charge will be applied. This value estimate represents the market value of the capital charge assets. But if this rate is not practical or possible, the capital charge rate to the accounting book value of the assets may be more appropriate;
 - the third step is to estimate a fair rate of return on each of the asset categories subject to the capital charge. The fair rate of return should reflect the risk associated with an investment in the various asset categories;
 - the fourth step is to multiply the asset values by the fair rate of return in order to calculate the amount of the capital charge. The capital charge is subtracted from the measure of economic income associated with the subject intangible asset. Subtracting the capital charge allocates part of the economic income in order to provide for a fair return on the assets (tangible and intangible) that are used or used up in the production of the income associated with the subject intangible.
- Portion of income adjustments, relates to the question of how much of the economic income generated by the subject intangible should be included in a particular case. This issue is only considered after any appropriate funnel of income adjustment is made and after any appropriate capital charges are subtracted from the economic income projection.

3.12 INCOME APPROACH METHODS

There are various income approach methods, mainly based on the discounted cash flow models, of which Yield Capitalisation and Direct Capitalisation are examples. Below, the aforementioned two methods will be discussed together with the adapted income method as would more fully appear below.

3.12.1 Yield Capitalisation Method

Reilly and Schweih's (1998: 161) define this method as the present value of a non-constant stream of projected economic income flows over a discrete time period. According to Reilly and Schweih's (1998: 162), this method consists of five distinct but interrelated steps namely:

- the estimation of the appropriate measurement of economic income to be used in the valuation analysis, although numerous alternative measures of economic income can be used in the yield capitalisation method;
- the estimation of the remaining expected term of the economic income projection, which encompasses the estimation of the expected remaining useful life of the subject intangible asset. This expected remaining useful life becomes the discrete period of time over which the economic income is projected;
- the estimation of a discrete economic income projection. In this projection, a specific flow of economic is estimated for each particular period in the term of the projection;
- the estimation of the appropriate present value discount rate in order to convert the series of the projected economic income to a present value. This discount rate has to be consistent with:
 - the risk associated with the subject intangible asset actually generating the projected level of economic income; the greater the probability that the subject intangible asset will generate a level of economic income different from the specific projection, the greater the appropriate present value discount rate;
 - the measure of economic income included in the projection, for example a before tax measure of income requires a before tax discount rate; a measure of income to the equity component of an intangible asset requires an equity derived present value discount rate.
- to reach an indication of value of the subject intangible asset. The value indication is reached by calculating the present value of the projected economic

income stream over the expected term of the economic income, at the selected value discount rate.

Reilly and Schweihs (1998: 163) illustrate the yield capitalisation method as follows:

	Projected Variable	Useful Life		
		Year 1	Year 2	Year 3
	Revenue			
<i>minus</i>	Cost of Sales			
<i>equals</i>	Gross Profit Margin			
<i>minus</i>	Operating Expenses			
<i>equals</i>	Earnings before interest and taxes			
<i>minus</i>	Income tax expense			
<i>equals</i>	Pre-debt income			
<i>plus</i>	Annual depreciation expense			
<i>minus</i>	Projected capital expenditure			
<i>minus</i>	Additional net working capital investments			
<i>minus</i>	Capital Charge on the associated tangible and intangible assets			
<i>equals</i>	Economic income (net cash flow)			
<i>times</i>	Present value discount factor			
<i>equals</i>	Discounted net cash flow for each year. If added together then gives value of intangible asset.			

Source: Reilly and Schweihs (1998: 163)

3.12.2 Direct Capitalisation Method

Reilly and Schweihs (1998: 163) defines the direct capitalisation method as the division by an appropriate rate of return of a constant or constantly changing stream of economic income flows over a specific time period. Reilly and Schweihs (1998: 164) approach this method as follows:

- the estimation of an appropriate measurement of economic income to be used in the valuation or economic analysis.
- the estimation of the remaining expected term of the economic income projection, which encompasses the estimation of the expected remaining useful life of the subject intangible asset;
- the estimation of the economic income projection. This economic income projection should be either:
 - constant, either for a finite number of periods or for an infinite number of periods;
 - constantly changing, either for a finite number of periods or for an infinite number of periods.
- the estimation of the appropriate direct capitalisation rate. The direct capitalisation rate is used to convert the projected economic income to a present value. The direct capitalisation rate includes a growth rate factor, which allows the rate of change of the economic income projection to be positive, negative or zero.
- to reach an indication of value of the subject intangible asset, this is reached by calculating the present value of the projected economic income stream over the expected term of the economic income, at the selected direct capitalisation rate.

Reilly and Schweih's (1998: 163) illustrate the direct capitalisation method as follows:

	Projected Variable	Next Period Projection
	Revenue	
<i><u>minus</u></i>	Cost of Sales	
<i>equals</i>	Gross Profit Margin	
<i><u>minus</u></i>	Operating Expenses	

<i>equals</i>	Earnings before interest and taxes
<i>minus</i>	Income tax expense
<i>equals</i>	Pre-debt income
<i>plus</i>	Annual depreciation expense
<i>minus</i>	Capital expenditure
<i>minus</i>	Additional net working capital investments
<i>minus</i>	Average (or normalized) capital charge on the associated tangible and intangible assets
<i>equals</i>	Economic income (net cash flow)
<i>divided</i>	Half for midyear convention
<i>equals</i>	Net cash flow each midyear period
<i>times</i>	Capitalization factor
<i>equals</i>	Indicated value of subject intangible

Source: Reilly and Schweihs (1998: 163)

3.13 ADAPTED INCOME METHOD

Smith and Parr (2000: 257) however, apply an alternative approach to the income method, which will be discussed in greater detail below.

According to Smith and Parr (2000: 225), earnings used in the income method must be debt-free operating net income in order to eliminate some artful manipulation to net income. Earnings contributions from intangible assets should be studied independent of all interest payments that are associated with a company, as interest expenses are associated with the financial decision making of a company's management that can substantially affect the overall company earnings.

However, the authors continue (2000:226) that the mere existence of profit is not enough to justify and support assignment of value to intangible assets or intellectual property. Earnings derived from the operations must be of an amount, in a consistent basis, to yield a fair rate of return over the terms of the investment in the intangible asset as well as the complimentary assets.

Smith and Parr (2000: 227) are correctly of the view that corporate investments must typically pass a hurdle rate in order to be considered as a viable opportunity, and since equity and debt fund are used to finance these investments, the return that is provided must be sufficient to satisfy the interest due on the debt and also provide a fair rate of return on the equity funds. According to the authors, the hurdle rate must be the weighted average cost of capital (“WACC”) in order to earn a fair rate of return on invested capital. Accordingly, the cost to the company of the invested capital equals the rate of return that the investors expect to receive, less any tax benefits that the company enjoy, such as deductibility of interest expenses on debt.

Brealey and Myers (2000: 77) are of the opinion that the discounted cash flow is the most appropriate method to use in valuing a business, as the value today always equals future cash flow discounted at the opportunity cost of capital.

3.14 WACC

WACC is based on the market value of equity and the value of long-term debt and represents the minimum amount of invested return that should be considered as acceptable from operating the business. This amount of return that the company must earn on its overall investment as comprised of the monetary assets (net working capital), tangible assets, intangible assets and intellectual property, each of which must provide a portion of the overall return relative to the risk associated with the asset. The WACC requirement must be allocated among the assets that are employed within the business enterprise and such allocation must be conducted with respect to the amount of investment risk that each component represents to the business enterprise. According to the authors (2000: 231) just as WACC is allocated among debt and equity components of the invested capital, it is also possible to allocate a portion of the WACC to the asset components with consideration to the relative risk associated with each category of assets.

3.14.1 Appropriate Return on Intangible Assets

Smith and Parr (2000: 323) are correctly of the view that intangible assets and intellectual property often are considered the highest risk asset components of the overall business enterprise. These assets may have little liquidity and poor versatility for redeployment elsewhere in the business, thus increasing their risk. Therefore, a higher rate of return on these assets are required, since the overall return of the business is established as the WACC, and since reasonable returns for the monetary and tangible assets can be established, an appropriate rate of return to be earned by the specific intangible assets or intellectual property can be derived.

3.14.2 Discount Rate

According to Smith and Parr (2000: 264), the discount rate measures the compensation of the investor for the commitment of capital as a capital commitment causes an investor to give up other investment opportunities and assume the risks associated with a particular investment. The discount rate is used to translate the future economic benefits into present value. According to the authors, the following equation shows that the discounted future cash flows equal the value of the underlying intangible assets:

$$V = \frac{CF1}{(I+i)} + \frac{CF2}{(I+i)} + \frac{CF2}{(I+i)}$$

Where:

V = the value of the intangible asset;

CF = the amount of net cash flow during each successive time period;

i = the required rate of return on the intangible asset.

However, according to the authors, if the cash flows are expected to grow at a constant rate, the introduction of this factor into the model provides a useful form of this equation as follows:

$$V = Cf_0 \frac{(1+g)}{i-g}$$

If the growth rate is expected to be higher than the discount rate (i), the equation is not useful, and specific projections of each year are necessary.

3.14.3 Allocation of WACC

According to Smith and Parr (2000:360) since the overall return on the business is established as the WACC, and since reasonable returns for monetary and intangible assets can be estimated, the analyst is in the position to derive an appropriate rate of return to be earned by the intangible asset. According to the authors, the following equation represents the means by which the rates of return can be arrived:

$$WACC = \frac{V_m}{V_{bev}}(R_m) + \frac{V_t}{V_{bev}}(R_t) + \frac{V_i}{V_{bev}}(R_i)$$

Where:

- WACC = the weighted average cost of capital for the overall business enterprise;
- V_m , V_t and V_i = are the fair market values of the monetary, tangible and intangible assets respectively;
- R_m , R_t and R_i = are the relative rates of return associated with the business enterprise asset components;
- V_{bev} = is the fair market value of the business enterprise, which is the total of V_m , V_t and V_i .

Accordingly, the appropriate rate of return on intangible assets is as follows:

$$R_i = \frac{WACC(V_{bev}) - R_m(V_m) - R_t(V_t)}{V_i}$$

According to the authors (2000: 361) once satisfied the individual asset rates of return are correctly aggregated to the WACC, they can be used to allocate the debt free operating income amongst the asset classifications.

The WACC represents an overall return from the diversified investments or asset base of the business. The rate attributed to a specific intangible asset must reflect the various risks associated with the division in which the specific property is used. Accordingly, the process of quantifying intangible asset investment risk first require determination of an appropriate WACC for the whole business, This is then followed by a determination of an appropriate WACC for each operating division, working towards a business segment in which specific intangible asset resides (Smith and Parr: 569).

The authors (2000: 279) state that the debt free cash flows are calculated using the discounted cash flow model, and the appropriate rate of return for use in discounting these cash flows is the weighted average cost of capital. This includes a portion for an appropriate return on equity and a return that is sufficient to satisfy debt obligations, but it is imperative that the value attributed to the intangible assets does not include a portion of value associated with the other intangible assets of the company.

3.14.4 Disadvantages of the Income Approach

According to Bouteiller (2001: 10), the yield capitalisation method and direct capitalisation methods are possibly among the most accurate and controlled valuation methods. They require however to consider all the critical economic variables associated with intangibles including:

- (a) the income generating capacity;
- (b) the expected remaining life of the intangible;
- (c) the appropriate cost of capital for an investment in the intangible asset;
- (d) the risk associated with the intangible.

All of these variables are considered implicitly in the market and costs methods, but need to be explicitly addressed in the income methods.

Bouteiller (2001: 10) continues that the income allocation between the intangible asset and associated tangible asset is a prerequisite to the measurement of the income generating capacity. Another important step for a consistent valuation is to

identify clearly the origin and the production mechanism of the income. The potential sources of incomes of an intangible asset are the same than tangible ones and may occur through the use, ownership or forbearance of use of the intangible. License agreements typically illustrate the different incomes coming from their respective use or ownership, and are quiet easy to measure. Forbearance of use (but ownership) of a trademark, patent or technology for defensive purposes does generate indirect incomes but are much more problematic to evaluate.

A problem associated with the measurement of income associated is that it should be associated only with the subject intangible asset. The income stream should not include income earned by:

- ❖ intangible assets other than the subject intangible asset;
- ❖ the overall business enterprise in which the subject asset functions, unless an appropriate charge is made against the business enterprise income stream for the assets that are used or used up in the production of the subject intangible income;
- ❖ tangible assets that are used or used up in the production of the subject intangible asset's income, unless an appropriate capital charge is provided for in the income stream projection to allow for a fair allocation of the income and value between the subject intangible asset and the associated tangible assets.

The correct appreciation of the expected remaining life of the intangible asset is a second difficult issue in this approach. According to Bouteiller (2001: 10) this is especially important when applying yield capitalization methods, but also true for direct capitalization methods implementation. The number of periodic income flows to be projected depends on the length of the time period of the valuation. This is why life analysis must be used and the remaining useful time of the intangible asset must be estimated. According to the author, the value estimation of incomes depends on the duration of the life period. For instance, the conclusion of the income method is very sensitive to variations in remaining useful life when the life estimate is under ten years, and has no effect when the life estimate is above twenty years.

Bouteiller (2001: 10) states further that the choice of appropriate capitalization rates is a third important issue in the application of income methods, even if there is no radical difference when applying to intangible rather than to tangible asset. There are two kinds of capitalization rates: yield capitalization rates and direct capitalization rates. Both of them should include to the extent possible to:

- (a) market-derived data;
- (b) forward-oriented data;
- (c) risk appreciation, and
- (d) consistency with the measure and the term of income stream.

The multiplicity of the variables involved in income approaches may make them heavy to process, particularly when the income -or a part of it- is indirect. The most serious limitations that are shared by the cost, market or income approaches lie in the static way they consider intangibles. They fundamentally consider them as given.

Bouteiller (2001: 10) concludes that the traditional asset-by-asset methods do not evaluate (unless indirectly with rules of thumb or discrete adjustments) intangibles through the risks/opportunities that are embedded in them. Those correspond very often to the most important part of their value, if not to their whole or sole value.

According to Reilly and Schweih's (1998: 174) the following are negative attributes associated with the use of the income approach to analyse intangible assets:

- ❖ income approach methods are subject to the introduction of bias. Because some of the methods are fairly complicated, it is possible for a goal-orientated analyst to subtly influence the particularly sensitive economic variables in such a way as to manipulate the valuation;
- ❖ the approach is subject to honest mistakes as the methods are complex and is relatively easy for an analyst to make a honest mistake;
- ❖ income approach is subject to double counting (overestimating) the value of intangible assets. However, this weakness can be overcome by the correct assessment of a capital charge in the analysis;

- ❖ income approach methods are sometimes not subject to market confirmation. Because these methods appear analytical sophisticated, some analysts do not always confirm the economic variable inputs with market derived empirical data.

3.15 MARKET-TO-BOOK VALUE

According to the CEC (2003: 161) the *Market-to-book Value* method is undoubtedly one of the most widely used for measuring and evaluating Intellectual Capital by virtue of its mathematical simplicity and its intelligibility. The calculation derives from the ratio between market value (stock market capitalisation) and the company's net accounting value (taken from the annual financial statements). The basic assumption behind this method is that the intangible asset value is essentially equal to the difference between the company's market value and its accounting value (CEC, 2003: 161, Bouteiller, 2001: 5).

3.15.1 Disadvantages of the Market to book value ratio

However, the simplicity of the *Market-to-book value* method is offset by several problems associated with its use. A basic criticism of the ratio in question is the fact that it does not take numerous exogenous factors into account, which may influence investors' perceptions of the company's potential to generate profits in the future, factors, then, which indirectly influence the company's market value. Some examples of these factors are macroeconomic conditions, current industrial policies, securities demand and supply (CEC, 2003: 161, Boutellier, 2001: 5).

According to the CEC (2003: 161), a second criticism of the *Market-to-book value* method is the fact that the ratio's numerator and denominator are derived from the different calculation procedures. While book value is determined on the basis of accounting practices and policies already adopted by the company, with a likely impact on the final result, market value reflects both the company's current policies and its strategic objectives. In other words, market value reflects not only the combined value of intangible assets (expressed by the book value), but also investors' expectations concerning the company's strategies and its perceived potential to generate profits in the future (compare Boutellier, 2001: 6).

3.16 TOBIN'S Q

Another popular Intellectual Capital measurement method is the so-called “Q: developed by James Tobin, Nobel Prize winner for economics in 1981 (Boutelier, 2001: 6). The Q method has the same numerator in its ratio as the previous model, but it also considers the replacement cost of the company’s assets, regardless of the interest rate applied, with a view to predicting investor behaviour (CEC, 2003: 162).

Accordingly, the “Q” is the ratio between the company’s market value and the replacement cost of its intangible assets. Tobin’s Q is essentially the same as the market to book ratio except that Tobin used replacement cost of intangible assets rather than the book value of tangible assets in its calculation. The use of replacement costs neutralizes many of the difficulties associated with the market to book value ration. Tobin’s Q is reflected as follows:

$$Q = \frac{\text{Market Value}}{\text{Asset Value}}$$

When Q is positive, that is, when the intangible assets replacement cost is less than the company’s market value, the company enjoys monopoly profits or a higher-than-average return on investment. Accordingly, the higher the Q ratio, the higher the value of the company’s intellectual capital since, the latter is determined by the difference between the company’s market value and its intangible assets value (fixed assets, including long-term financial assets). A high Q ratio is observed more frequently in organisations with a high degree of knowledge and technology as well as in companies where human capital is the source of most of the knowledge (CEC, 2003: 162, Boutellier, 2001: 6, van den Berg, 2001: 14).

3.16.1 Disadvantages of Tobin’s Q

However, the Q ratio is also affected by the same exogenous variables as is the case with the *Market-to-book value* method since, as mentioned, the numerator of both ratios is the company’s market value which is notoriously subject to unpredictable fluctuations having nothing to do with actual increases in the company’s real worth (Boutellier, 2001: 6). According to CEC (2003:162), as a result, the two models are useful in the following cases, namely, when:

- making comparisons between very similar companies, i.e., those operating in the same industry and/or market with easily comparable tangible assets;
- monitoring trends in the (value of the) company's Intellectual Capital.

When both the market-to-book value and the ratio decrease, it seems reasonable to assume that the company's intangible assets value is also contracting. Such trends convey to investors a clear signal that there is no guarantee concerning the company's future profit-generating capability (CEC, 2003: 162, Boutellier, 2001: 6).

3.17 ECONOMIC VALUE ADDED (“EVA™”)

This method was first proposed by Stern Stewart & Co. in 1991 (Stewart III, 1991) and further developed across the 1990's. The Economic Value Added (“EVA®”) method has been primarily conceived as an *internal* performance indicator adopted by companies to evaluate their effectiveness in employing invested capital (van den Berg, 2001: 9). The EVA® model compares two drivers in value creation:

- return on investment (“ROI”); and
- the cost of factors generating such ROI (the cost of debt and capital).

Given:

- Weighted Average Cost of Capital (“WACC”), being the weighted average of the cost of debts after taxes and the cost of the equity;
- Net Operating Profit After Operating Taxes (“NOPAT”) = Earnings before Interest and Taxes (“EBIT”) – Cash operating taxes = (Net sales – Operating expenses) – Cash Operating Taxes;
- ROIC = ratio between NOPAT and invested capital (which is a ratio similar to ROI) (van den Berg, 2001: 10)

The EVA® can be calculated according to one of the following formulas:

- I. Multiplying the spread between ROIC and WACC by invested capital:
i.e., $EVA = (ROIC - WACC) * \text{invested capital}$; or
- II. $EVA = NOPAT - (WACC * \text{invested capital})$.

According to the CEC (2003: 163), the EVA® model is designed essentially to be an internal performance indicator utilised by company managers in helping them to make investment decisions. In practice, it has been demonstrated that an investment project whose return is higher than its financing cost net of taxes, while generating accounting profits, does not necessarily increase company value. A company should instead undertake only investment projects capable of generating a positive and possibly growing EVA®, thus contributing to its shareholder value (CEC, 2003: 163). It becomes obvious, then, that applying EVA® principles requires a company to change its way of considering its priorities. This, in turn, implies a deep-seated change in corporate management methods and culture (CEC, 2003: 163).

According to the CEC (2003: 163), shareholder value implies maximising the difference between the company's market value and its book equity capital (the shareholders' original investment); this difference is defined as *market value added* (MVA) or *present value of EVA®*, and it essentially represents the shareholders' value which is added up to the amount of their initial investment. However, the gap between market and book value is also one of the most widely used measures of company worth attributable to its intangible assets, which tend to be neglected by traditional accounting reports (CEC, 2003: 163). Market value added is an *external* performance indicator, the counterpart to EVA® as the *internal* performance indicator, from the market's point of view (CEC, 2003: 163).

According to the CEC (2003:163) if a company generates a positive and increasing EVA®, investors should pay a premium over the net equity, thus creating value. The contrary is also true: if the return on invested capital (ROIC) is less than the weighted average cost of capital, a company should be valued at a discount to net equity, thus destroying value (CEC, 2003: 164).

The CEC (2003: 164) states that since investors discount all information concerning a company's future profit performance into its share price, MVA® can be considered the value which the stock market attributes to the company's ability allocate effectively its capital in the future and to generate a fair return (van den Berg, 2001: 11). MVA® can be seen as a measure of sustainability of growth, and it is strongly influenced by the following factors:

- political, economical and social environment;
- market's structure; and
- competitive advantage.

According to the CEC (2003: 164), the whole enterprise value is equal to the sum of the invested capital – debt plus equity equivalents – and the present value of current level of EVA® flows (*Current Operations Value®* – “COV”) on the one hand, and the present value of the estimated growth in EVA flows (*Future Growth Value®* – “FGV”). It is important to note that, in turn, the sum between the COV and FGV provides the MVA® or the present value of the total future flows of EVA®.

3.17.1 Disadvantages of EVA®

The CEC (2003: 165) argues that the EVA® and the resulting MVA® measure are a holistic and monetary-based method for intangible asset valuation. They only indirectly represent these assets, as a sort of by-product of the calculative procedure, since the EVA® methodology has been primarily developed to offer a criterion for evaluating management performance and selecting investments.

According to van den Berg (2001:10) there is an implicit assumption in using EVA® that the future value of a firm is entirely a function of historic activity. Equity valuation is ultimately the discounted present value of future equity cash flows, and EVA® are ultimately still based on historic events

3.18 THE TOTAL VALUE CREATION METHOD

Boutelier (2001: 7) states that this method was designed by the Canadian Institute of Chartered Accountants tries to track the value creation process through intangibles and is illustrated with a hypothetical biopharmaceutical example called "Greengene". According to the author, the case study portrays the concept of a Total Value Creation (“TVC”) database depending on the following components:

- a value creation/realization formula;
- a value stream model;
- a value creation capacity assessment;

- value creation for multiple key stakeholders' measures.

It is organized for value creation tracking and it gives an estimate of the corporate value creation related to intangible assets. The TVC approach is based on disclosure and analysis of outcome variance, the latter being the difference between total shareholders return and a cost of capital return on opening Discounted Cash Flow ("DCF") present value. According to Boutellier (2001: 7), this method is equivalent to the Stern - Stewart concept of "Economic Value Added" ("EVA") except it is not applied to GAAP plus adjustments but rather to DCF present value.

3.18.1 Disadvantages of the Total Value Creation method

Boutellier states that in this method, the Value Stream Model is a "*forward-looking approach*" focused on future value streams rather than concerned with "*sunk costs of the past*". Accordingly, the assets bound up in the business (such as laboratory equipment or such as cash fully committed to the future R&D 'cash burn') are not counted. The reason for this is difficult to conceive in an EVA perspective, as this would result in a double-counting to value both the future cash flow stream and the asset giving rise to them (Boutellier, 2001: 7). Boutellier (2001: 7) further reasons that investments in intangible assets, even if they are counted as expenses must be part of the calculation of value.

3.19 LEV'S KNOWLEDGE CAPITAL FORMULA

Lev developed the Knowledge Capital calculation method with the aim of measuring the financial statement impact of knowledge-related investments (CEC, 2003: 165).

The first stage in Lev's method is to estimate annual normalised earnings based on "three years of historical year-end results through 1997, the last available full year, and three years of projected earnings using IBS International consensus estimates published in October 1998" (Lev, 1999: 36).

The author assumes that normalised annual earnings can be broken down into two distinct components, deriving from the following resource categories, respectively:

- tangible fixed assets and long-term financial assets (including equity investments); and
- intangible assets.

The second stage in the Lev's method is to identify the portion of normalised annual earnings attributable to tangible assets and the portion attributable to long-term financial assets. These proportions are obtained by applying an average expected yield rate, respectively of 7 percent to tangible assets, and 4.5 percent to long-term financial assets. These rates are then applied equally to all the companies in both the industries considered, chemicals and pharmaceuticals, both knowledge-intensive industries, regardless of each individual company's risk profile and capitalisation. In addition, as Lev affirms, "With more time and resources, companies can adjust these rates to reflect their specific track records. This limitation notwithstanding, the process computes credible measures of earnings linked to tangible and financial assets" (Lev, 1999: 33, CEC, 2003: 165).

The earnings component deriving from intangible assets, the so-called Knowledge Capital Earnings ("KCE"), which is not shown in the financial statements, is calculated as a residual; in other words, as the result of the difference between total company earnings and the amount of earnings attributable to tangible and long-term financial assets which was previously estimated. This calculation results in a range of non-financial measures, for example, Knowledge Capital Margin (KCE/Sales) and Knowledge Capital Operating Margin (KCE/Operating income). In this way, companies can for the first time estimate the contribution of knowledge capital to their performance and to their ability to generate profits (CEC, 2003: 165).

Repeating this residual calculation with the view to future performance, a future earnings flow attributable to intangible assets is obtained. Then, a company's knowledge capital by determining the present value of future earnings flows estimated previously, using a suitable discount rate (10.5 percent after taxes), applied to three knowledge-intensive industries can be obtained (software, biotechnology, and pharmaceuticals) (CEC, 2003: 165).

The knowledge capital calculation method can be reflected as follows:

$$\text{Knowledge Capital} = \frac{\text{Normalised Earnings} - \text{Earnings From Intangible and Financial Assets}}{\text{Knowledge Capital Discount Rate}}$$

(CEC, 2003, 166)

The numerator in this formula represents earnings attributable to knowledge capital, while the denominator refers to the interest rate used for present value discounting.

According to the CEC (2003: 168), the knowledge capital measurement method proposed by Lev is to a large extent based on the traditional goodwill calculation in turn based on additional earnings. However, in the Lev method, additional earnings are replaced by residual earnings attributable to intangible assets. In the analytical framework, Lev's proposal is a holistic/monetary model for measuring the value of knowledge capital (CEC, 2003: 166).

3.19.1 Disadvantages of Lev's Knowledge Capital Formula

According to the CEC, (2003: 166) this approach has several specific weaknesses, First, that Lev's basic assumption is that earnings can be broken down into two distinct components, one portion attributable to tangible and long-term financial assets, on the one hand, and a portion to intangible assets on the other. But this assumption, for example, is not part of the Italian business accounting tradition according to which earnings are an aggregate, one and indivisible, in that they express the interaction of all the company's resources considered as a unit.

A second criticism of Lev's proposed method is directed at the calculation method for the portion of earnings attributable to tangible and long-term financial assets and, as a consequence, for the portion attributable to intangible assets. There is no unanimous agreement on this calculation method since determining average earnings from tangible and long-term financial assets is highly subjective and so it is difficult to define technically (CEC, 2003: 166). The entire analysis is based on an assumption of the clear separability of returns on physical, financial and intangible capital, but earnings are generated precisely through these assets interaction.

Lastly, determining the discount rate to be applied to knowledge capital is based on a proxy, and as such, it is also highly subjective (CEC, 2003: 166).

3.20 SUMMARY

In this chapter, a general overview was provided of the most popular valuation methods employed in valuing intangible assets. It should be noted that the enumerated techniques is not intended to be exhaustive as there are numerous other techniques which have not been included in this paper. The advantages and disadvantages of the enumerated valuation techniques have been dealt with in general terms. It is quite apparent from the foregoing discussion, that various techniques lend themselves to appraising intangible assets. Each of which has its specific application depending on the subject intangible asset and the purpose of the valuation.

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Chapter FOUR

4.1 INTRODUCTION

As indicated in chapters two and three, it is clear that over the past decade, issues surrounding the valuation of intangible assets have become increasingly common and their valuation involved increasingly significant. Accordingly, it is apparent that this trend reflects the growing importance of intellectual property and intangible assets in the value of business operations.

Historically, intangible assets have not been appropriately reflected in corporate accounts, with much expenditure on internally created intangibles simply being expenses. Even acquisitions of intangibles from third parties, have either not been recorded at all under merger accounting or seen classified within goodwill under acquired intangibles. The new International Financing Reporting Standards are forcing companies to go through a much more rigorous process of identifying and valuing intangible assets.

4.2 DEFINING INTANGIBLE ASSETS

Intangible assets are often narrowly defined for specific legal, accounting and taxation purposes. For example, the definition of intangible assets as postulated in ISA 38, does not give management the latitude to define those intangible assets that it considers relevant to the business and which may not be reflected on the organisation's balance sheet. These assets may include patents, trademarks, copyright, royalty agreements, proprietary designs, know-how, customer relationships and many others.

As far as it relates to intangible assets not reflected on a company's balance sheet, it is crucial for any valuation of these assets, that such intangibles be broadly defined, in order that they be able to be identified.

The following definition of intangible assets is proposed, namely intangible assets are identifiable objects that have no physical existence but having economic or pecuniary value or use to human kind, which assets are the subject of legal existence and protection.

4.3 VALUATION METHOD

4.3.1 Introduction

Smith and Parr (2000: 152) describe value as the representation of all future benefits of ownership, compressed into a single payment, and value is continually changing as those future benefits increase or decrease with passage of time. In addition, the future benefits of ownership cannot be quantified without defining whose ownership is assumed and the underlying purpose of the valuation. According to the said authors, the distinction of ownership and the purpose are essential to the valuation process, and a valuation cannot proceed without a definitive premise of value.

It follows, that valuation is essentially bringing together of the economic concept of value and the legal concept of property. An intangible asset only has a value if it is in existence and legally protected. An intangible asset would only have value for the owner or rightful user thereof if the owner or rightful user, as the case may be, has the right to protect and enforce its ownership or other rights against any third party. Although it may very well be possible for an unlawful user to obtain some sort of economic benefit from illegally using such an intangible asset, there can be no value attributed to such an asset as the use thereof is unlawful and the rightful owner or user is entitled to prevent such unlawful user gaining any economic benefit therefrom.

The presence of an asset is a function of its ability to generate a return and the discount rate applied to that return. In any valuation, the value of something cannot be stated in the abstract, what can be stated is the value of a thing in a particular place, at a particular time and in particular circumstances.

It has been stated that the valuation of intangible assets is not a formulaic exercise, but requires a detailed understanding of the intangible asset to be valued and the legal, regulatory, commercial, and economic factors which influence that value. Invariably, this involves an analysis of the context within which it is being currently exploited or might be exploited in the future, the factors that contribute to the value of the intangible asset, the owner of the intangible asset and the person or entity responsible for the development and use of the intangible asset.

The purpose of the valuation needs to be understood in order to ensure that the valuation approaches it on a basis consistent with the underlying purpose and valuation requirement. For example, the Income Tax Act may stipulate a particular basis on which a valuation should be made, often assuming an arm's length deal between a willing seller and a willing buyer. This is not necessarily the same value to the current owner within the existing context in which the asset is being used.

Further, it is crucial to understand fully what exactly it is that has to be valued. For example, it is necessary to distinguish an asset classed as intellectual property (i.e. trademarks, copyright, patent etc), which has legally enforceable rights, as compared to broadly defined intangible asset such as customer relationships, trade secrets and the like, which may have significant value to an enterprise, but does not necessarily comprise legally enforceable rights. As illustrated earlier, the type and definition of value becomes increasingly important and is as such a crucial element in the valuation process.

This chapter will focus on the most appropriate valuation method for valuing intangible assets, generally. It should be understood that there may very well be other methods more appropriate to a given asset, at a given time and in a particular circumstances.

4.3.2 Appropriate Valuation Method

4.3.2.1 Introduction

When performing an intangible asset valuation, the appraiser is generally free to select the valuation type and method (or some combination of the methods) in determining the intangible asset value. Under the current procedures, there is no correct answer; there is only the best possible informed guess for any given valuation. Further, the reliance on informed guessing places a heavy reliance on the knowledge and experience of the appraiser. Given the appraiser's wide latitude for selecting the method, the large variability of experience levels in the industry and the high likelihood of appraiser bias, it is generally very difficult to compare the valuations of two different appraisers--even for the same intangible asset.

Another limitation to any valuation methodology to be applied is that financial statements and accounting records have traditionally provided the basis for most

intangible asset valuations. Appraisers generally spend a great deal of time extracting, aggregating, verifying and interpreting the information from accounting systems as part of the valuation process. Accounting records do have the advantage of being prepared in a generally unbiased manner using the consistent framework of Generally Accepted Accounting Principles. Unfortunately, these accounting statements have proved to be increasingly inadequate for use in evaluating the financial performance of modern companies.

Accounting systems track tangible assets while ignoring intangible assets. Intangible assets such as the skills of the workers, intellectual property, business infrastructure, databases, and relationships with customers and suppliers are not measured with current accounting systems. This may be critical because the success of an enterprise is increasingly determined by its ability to use its intangible assets than by its ability to amass and control the physical ones that are tracked by traditional accounting systems. In contrast, it should be noted that while many theories of how to value intangible assets have been noted, none have become established as an accounting standard.

These deficiencies of traditional accounting systems are particularly noticeable in high technology companies that are highly valued for their intangible assets and their options to enter new markets rather than their tangible assets.

4.3.2.2 Discounted Cash Flow Method

As indicated earlier in this paper, the cost method of valuing intangible assets include either the use of the historic cost of the subject intangible asset and/or the estimation of the future cost of re-creating the subject intangible asset. A valuation method based on the historic costs less allowances for depreciation or obsolescence is not appropriate as it fails to take cognizance of the future benefits which might accrue to the intangible asset. It is trite that all investments, whether tangible or intangible, are undertaken by a firm to generate future economic benefits

The aim of the market approach methods is to value the intangible asset by studying the sales price of other comparable intangible assets, which have been traded between the parties at arms length in an active market. The only case this would work is when the same intangible asset is sold in a very recent comparable

commercial transaction. However, this would only manifest itself in a perfect world with perfect conditions. No intangible asset would have a comparable counterpart consisting of the same characteristics, use, functions and benefits to the owner or future owner thereof. Accordingly, this method is difficult to use properly because no two intangible assets are exactly the same and no two transactions are completed for the exact same reasons.

Income valuations are based on the premise that the current value of a business is a function of the future value that an investor can expect to receive from purchasing all or part of the business. Income valuations are the most widely used type of valuation. They are generally used for valuing businesses that are expected to continue operating for the foreseeable future. In these valuations the expected returns from investing in the business and the risks associated with receiving the expected returns are evaluated by the appraiser.

This paper is mainly based on the following hypotheses that the value of a company, and it is submitted also its assets, is based on the company's capacity to generate cash flows and the uncertainty associated with these cash flows. Thus the value of an asset is the present value of its expected cash flows from such asset discounted at a certain perceived risk associated with such cash flows. This hypothesis lies at the core of the discounted cash flow approach to valuation method leads to better investment decisions than other criteria, provided it is properly used and implemented.

Discounted Cash Flow analysis is probably the most comprehensive of all valuation techniques. This method recognizes market conditions, likely performance and potential and the time value of money. Thus, this approach is based on projected, future economic benefits rather than historical figures.

As stated earlier, value of an intangible asset is influenced by three basic dimensions:

1. incremental cash flows related to Intangible Assets earned during valuation period;
2. duration of these cash flows;
3. the risk and uncertainty associated with these cash flows.

The discounted cash flow account for the time value of money and the risk associated with the projected cash flows. However, estimating the economic benefits that can flow from the employment of intangible assets is one of the most difficult challenges in the discounted cash flow method.

These problems may be solved by using a risk adjusted discount rate to discount the cash flows, thus accounting for time value of money and the risk associated with the projected cash flows or using certainty equivalent cash flows, in which estimated cash flows are adjusted to account for the riskiness and the changing risk. Thus, risk may be reflected by adjusting either the cash flows or the discount rate or both. However, the risk reflected in the measurements should only be un-diversifiable risk, which is risk which is common to an entire class of assets. Diversifiable risk, which is asset-specific risk, is only reflected in the measurements if there is persuasive empirical evidence that market prices also would reflect that risk.

The discount rate to be applied to the cash flows can be derived from a number of different models, including:

- ❖ Dividend growth model;
- ❖ Built-up model;
- ❖ Capital asset pricing model;
- ❖ Arbitrage pricing theory;
- ❖ WACC.

Regarding the utilisation of WACC, the WACC must be allocated to the asset components with consideration for the appropriated return on each category of assets, whether tangible, monetary or otherwise, on the basis proposed by Smith and Parr (2000: 360) more fully discussed earlier.

It is clear from the previous discussions, in any valuation process of intangible assets, the following issues should be identified and defined, namely:

- ❖ the history of the subject intangible asset;

- ❖ the intangible asset's expected remaining economic life;
- ❖ the economic benefits, direct or indirect, that an intangible asset is likely to provide to its owner during the asset's life;
- ❖ whether the economic benefits will increase or decrease during the asset's life.

Regarding the economic benefits, it is important to bear in mind that an intangible asset may provide above average profits or it may produce cost savings and accordingly provide a source of enhanced earnings. Also, a combination of the above average profits and producing cost savings, resulting in enhanced earnings is also possible.

It has been postulated that the discounted cash flow method suffers from the following shortcoming, namely, that with multi stage cash flows, the risk associated with the cash flow would vary very much over the lifetime of the intangible asset. Accordingly, the use of a single discount rate may not be appropriate. This assumption does not consider the cardinal rule in any valuation is that the value of an intangible asset cannot be stated in the abstract, all that can be stated is the value of an intangible asset in a particular place, at a particular time and in particular circumstances. In addition, the risk may be reflected by adjusting either the cash flows or the discount rate or both, which will give the valuation a more acceptable end result.

4.4 SUMMARY

In this chapter, revised definition of intangible assets has been proposed. Although various other valuation methods may be more appropriate in certain specific circumstances depending on the subject intangible asset and the purpose of the valuation, the Discounted Cash Flow analysis has been proposed as the most comprehensive of all valuation techniques, as this method recognizes market conditions, likely performance and potential and the time value of money and is more appropriately based on projected, future economic benefits rather than historical figures.

Chapter FIVE

RESULTS, CONCLUSION AND RECOMMENDATIONS

5.1 RESULTS

It is common cause that intangible assets are increasingly becoming the critical determinant of value creation and future profitability of most businesses. There is a clear distinction between the accounting treatment of physical assets and are reported on the firm's balance sheets, but intangible assets are by large written off in the income statement, along with regular expenses such as wages, rents and interest.

This distorted treatment of intangibles in an accounting sense, has dire consequences for managers, investors and policymakers relying on financial information, thus giving an extremely limited view of a company's potential for value creation and are virtually worthless as a basis for assessing the development of intangible assets as a whole.

The balance sheet of companies report on a small fraction of assets and disclose unrepresented earnings, which leads to difficulties in valuing intangibles, despite widespread recognition that intangibles are the main source of value creation in most enterprises. Even though the relevance of intangible assets is recognised, the delicate and complex issue of valuing intangible assets remains wide open.

5.2 CONCLUSION

The problems posed by intangible assets appear to be based on two levels. The first is the difficulty to identify, collect and analyse data regarding intangible assets. The second overlapping level is the lack of external financial reporting on intangibles. The problem herein manifests itself in the lack of recognition of the current accounting principles, thus resulting in intangible assets not being systematically reported in financial statements leading to a lopsided view of the assets employed by a company to generate revenues.

It has been argued that the inability of current financial reporting model to provide adequate information concerning intangible assets is a significant factor to losing

its relevance to investors. An indication of this loss is the continued divergence between the value of a firm as reflected in its financial statements and the market value of the firm. This clearly indicates that the significant contribution of intangible assets to the value of the firm is not even recognised in the financial statements.

Conceptually, the value of an intangible asset should be the present value of the future economic benefits of ownership of the asset discounted at a certain risk factor associated with such economic benefits. The cost of any expense incurred in connection with the generation of the asset is often irrelevant when considering the value placed on the intangible asset.

Each valuation method examined, have certain general criticisms manifesting itself in consistency, reliability, thoroughness and meaningfulness. The consistency problems concerns the atomistic methods in the risk of inconsistency amongst the conceptual categories used the indicators within those categories and the wider consistency arising from the need to decide on a measurement method that is consistent with the aims of the measurement itself.

The reliability problem manifests itself in the so-called "*soft data*". There is an evident relationship among data reliability, the conceptual and logical sustainability of determining data, particularly the data reliability of documents meant for outside use in particular for stakeholders.

The thoroughness of the indicators used in the various models are questionable as a definitive list of indicators varies from model to model, each having a different result on the valuation outcome.

There is also a certain amount of doubt as to the meaningfulness of the intangible asset indicators, as it is uncertain whether the group of indicators selected by each method is able effectively to represent intangible assets, as there still remains a high degree of subjectivity in the measurement associated with that selection.

The intangible asset indicators are highly specific to each industry, operation and context in which the business is placed, the intangible asset's relationship with other tangible or intangibles and this poses the inevitable problem of external comparability.

It is recognised that that the true value of a company lies in its synergy created by all the various intangible and tangible assets and a valuation method should take this synergy into account.

Recognising of the potency of leveraging intangible assets is still in its infancy. Certainly, from an investor's perspective, the notion that intangible assets can ensure better than average results to their owners is gaining recognition.

As indicated earlier, the present value of future the future economic income of an intangible asset approach is possibly the most accurate and controlled valuation methods. As indicated earlier herein, the value of an intangible asset should be a function of; how much the asset generates in cash flows, when these cash flows are expected to occur, and the uncertainty associated with these cash flows.

Although the earning capability of the intangible asset is a crucial element in determining its value, an intangible asset may not produce income, but reduce production costs and is so doing enhancing earnings of a firm. Accordingly, in this scenario, the intangible assets contribute to the earnings of a company, by reducing costs.

In addition, the contribution to earnings by intangible assets may be so subtle, even when active contributions to earnings are not present, intangible assets can provide a company with above average returns. A dominant position in a market allows a company to enjoy sales volume on a consistent basis. Very often costs are saved just from operating efficiencies because of the availability of intangible assets.

There exists empirical evidence and various authority, that, generally, the income approach provides better results because of the following:

- it is adaptable and flexible, as it can be easily adapted in order to analyse numerous standards of value within numerous premise of value. This method can also be used for transfer pricing, royalty rate analysis, damage analyses and various other types of economic analysis;
- it is well known and widely recognised;

- it translate well across the various valuation and appraisal disciplines, as there is general similarity of income approach methods between intangible asset analyses and business valuation;
- it closely emulate the actual decision making process of intangible asset market participants, such as intangible asset creators, owners, buyers, seller and the like all analyse possible transactions explicitly from an income approach analysis perspective;
- it is arguably the most rigorous and structured intangible asset analysis tools. The income approach methods require the analyst explicitly to consider all critical economic variables associated with the subject intangible asset, including income-generating capacity, allocation of income between the intangible asset and associated assets, the expected remaining life of the intangible asset and the risk associated with an investment in the intangible. Other valuation approaches also require the analyst implicitly to consider all of these variables; however, the income approach requires that these variables be addressed explicitly and individually.

It is apparent from the foregoing discussions and research that the value of a company is based on its capacity to generate cash flows and the uncertainty associated with these cash flows. However, because of the lack of reliable financial and other information, the application of this method may be skewed. In order to prevent this, it is crucial that a proper pre-valuation analysis be performed, relating specifically to the indicators necessary for the proper application of this method.

It should be noted that the income method is not mutually exclusive from the other valuation methods. The other methods may very well be an appropriate valuation method, depending on the reason for undertaking a specific valuation of the subject intangible, such as for insurance claim purposes, it would be more appropriate to undertake the market related method or even the replacement cost method, all of which depends on the purpose and direction of the valuation being undertaken.

According to Reilly and Schweih's (1998: 178), in applying any of the income approaches, care should be taken of the following issues, namely:

- not to introduce any bias. Because some of the methods are fairly complicated, it is possible for a goal orientated analyst to subtly influence the particularly sensitive economic variables in such a way as to manipulate or otherwise bias the analysis;
- income approach is subject to honest mistakes as well as unscrupulous manipulation, as the method is analytical complex. Accordingly, it is relative easy to make an honest mistake, yet a mistake than can have a material impact on the indicated valuation conclusion;
- the approach is subject to double counting the value of the intangible asset. This weakness is easily overcome by the correct assessment of a capital charge in the analysis. Conversely, it is also easy to make the mistake of underestimating the requisite capital charge;
- it is sometimes not subject to market confirmation, as these methods appear analytical sophisticated, some do not always confirm the economic variable imposed with market derived empirical data. The use of projection variables that are inconsistent with actual market dynamics will result in dubious analytical conclusions, regardless of how rigorous and structured the analysis is;
- it is sometimes confused with income approach methods for other appraisal method disciplines.

If performed correctly, income approach methods are equally applicable to individual valuation of discrete intangible assets and to the collective valuation of a group of intangible assets. Procedurally, it is easier to analyze a discrete intangible using the income approach as is then only a single income stream and a single useful life estimate. In addition, the method is limited to one present value calculation. However, as long as there is consistency in all the valuation variables, collective income approach analyses will yield virtually the same results as individual income approach analyses. That is, the conclusion of the collective analyses will equal the sum of all the individual analyses.

5.3 RECOMMENDATIONS

Valuating intangible assets is a difficult task as the true value may not be readily available. In some instances, the full value of an intangible asset is never recognized in income because such intangible asset resides in the negative right to prevent others from doing something they would otherwise be permitted to do. Accordingly, the true value of intangible asset is generally difficult to measure, and even though accepted techniques are available for assessing a value of an intangible asset, the full value of an intangible asset is likely not captures with those valuation techniques.

It is clear from the foregoing, that valuation of intangible assets not being reflected on a company's balance sheet is still in its infancy, and requires further research in order to establish more appropriate valuation methods for a particular asset, in a particular circumstance and place.



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