AN INVESTIGATION INTO THE HARMONY OF ACCOUNTING PRACTICES BY LISTED COMPANIES ON LEADING STOCK MARKETS

A DISSERTATION PRESENTED TO

THE DEPARTMENT OF ACCOUNTING

UNIVERSITY OF CAPE TOWN

IN FULFILLMENT

OF THE REQUIREMENTS FOR THE

MASTER OF COMMERCE

DEGREE IN

FINANCIAL ACCOUNTING

by

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FEBRUARY 2006

DECLARATION

This work has not been previously submitted in whole, or in part, for the award of any degree. It is my own work. Each significant contribution to, and quotation in this dissertation from the work or works of other people has been attributed, and has been cited and referenced.

Signature:..... Date: February 2006

Etienne Mbuyi

ACKNOWLEDGEMENTS

I would like to express my sincere gratitude to the following people:

Professor Geoff Everingham, my dissertation supervisor, for his invaluable insight, guidance, encouragement and comments;

Mrs Terri Grant, for her advice and comments on the proposal;

Dr Ross Taplin from Murdoch University, for providing the harmonisation package and helpful advice;

My family and Maguy, for their love and encouragement;

The financial assistance of the Postgraduate Funding Office (PFO) of the University of Cape Town is hereby acknowledged.

Abstract

Generally accepted accounting principles differ among countries. As a result, company reporting may not be comparable and multinational enterprises may be required to produce more than one set of financial reports in order to meet the needs of different users. The development of business activities internationally generates a need for the harmony of accounting practices. Accounting harmony occurs when a cluster of companies concentrates on the application of one or a few available accounting methods.

This study investigates the level of harmony of accounting measurement practices of 195 large companies from Australia, China, France, Germany, Japan, South Africa, the United Kingdom (UK), and the United States of America (US). Eight financial statement items, including tangible fixed asset valuation, depreciation methods, methods of accounting for goodwill, research and development expenditures, inventory valuation methods, foreign currency translation, finance leases, and business combination methods have been analysed. These items have a direct impact on company financial statement figures. Data were collected from companies' annual reports of the 2004 financial year.

The level of harmony was checked using the unified approach T index including the Herfindahl H index, the I index and the within-country comparability, the between-country comparability, as well as the total comparability C indices. These indices have yielded the levels of harmony of different accounting measurement practices.

The levels of harmony range from 0.263 to 0.828 for the overall C index and H index, from 0.249 to 0.827 for the between-country C index, from 0.256 to 0.837 for the I index, and from 0.364 to 0.832 for the within-country C index. These figures reveal that there were wide ranges for the selected items.

The chi-squared test was used to determine whether accounting policy choices made by the selected companies are significantly different between the selected countries. Although there were some levels of harmony in the practices of certain areas, the

various tests show that there are significant differences among the selected countries in the treatment of financial statement items examined.

This study illustrates the extent of accounting harmony in practice currently and the potential extent to which international accounting harmonisation will increase the comparability of financial information globally.

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List of abbreviations

AASB: Australian Accounting Standards Board

AC: South African Accounting Statement

AG: German *Aktiengesellschaft* (Limited company)

ASB: Accounting Standards Board

ASX: Australian Stock Exchange

Austr.: Australia

Ch.: China

CNC: *Comité National de Comptabilité*

EC: European Community

ED: Exposure Draft

EU: European Union

FASB: Financial Accounting Standards Board

FIFO: First-In First-Out

Fr: France

FRS: Financial Reporting Standards

GAAP: Generally Accepted Accounting Principles

GDP: Gross Domestic Product

Ger.: Germany

GNP: Gross National Product

IAS: International Accounting Standards

IASB: International Accounting Standards Board

IASC: International Accounting Standards Committee

IFRS: International Financial Reporting Standards

I/S: Income Statement

Jp: Japan

LIFO: Last-In First-Out

OECD: Organisation for Economic Cooperation and Development

SA: French *Société Anonyme* (Limited company)

S.A.: South Africa

SAICA: South African Institute of Chartered Accountants

U.K: The United Kingdom

UN: United Nations

US or USA: The United States of America

Chapter One

INTRODUCTION

1.1. BACKGROUND

The rapid growth of business and trade across international boundaries has become an important feature of the globalisation process. Multinational companies operate globally. They are listed on several stock markets and users of the financial statements can be found throughout the world. In order to meet the needs of various decision makers, financial information has to be comparable, reliable, relevant, and understandable. However, accounting practices have evolved differently through time in different countries due to variations in histories, values, cultures, legal, political and economic systems.

Over the years, many efforts to harmonise accounting standards and rules have been undertaken by different organisations as a part of the process to reduce the variations in financial accounting practices in different global and regional capital markets (Astami, Rusmin, and Tower 2004). A similar set of standards and rules would make comparison of accounting practices easier for preparers and users of corporate financial reporting.

Among organisations that have committed substantial resources to promote international understanding of accounting issues and to pursue the aim of international accounting harmonisation/harmony are some international organisations such as the International Accounting Standards Board (IASB), the Organisation for Economic Cooperation and Development (OECD), the European Union (EU) and some national accounting organisations such as the Financial Accounting Standards Board (FASB) in the US, the UK's Accounting Standards Board (ASB), the Australian Accounting Standards Board (AASB), the French *Comité National de Comptabilité* (CNC), and the South African Institute of Chartered Accountants (SAICA).

1.2. RESEARCH PROBLEM

In the light of the above background, the main research problem that this study attempts to answer is stated as follows:

To what extent does accounting measurement and valuation harmony exist between listed companies in the leading stock market countries?

Sub-questions to consider are:

- To what extent does accounting measurement and valuation harmony exist among selected companies within every selected country?
- Are the accounting policy choices made by companies significantly different between the selected countries?

A full listing of null hypotheses to be tested is as follows:

Ho: There are no significant differences in the frequency of accounting measurement policies by listed companies across the selected countries;

Ho_1: There is no significant difference in the valuation bases of tangible fixed assets used by the selected companies;

Ho_2: There is no significant difference in the depreciation methods used by the selected companies;

Ho_3: There is no significant difference in the methods of treating goodwill used by selected companies;

Ho_4: There is no significant difference in the methods of treating research and development costs used by the selected companies;

Ho_5: There is no significant difference in the stock (inventory) valuation methods used by the selected companies;

Ho_6:There is no significant difference between accounting methods used in the measurement of foreign currency translation by the selected companies;

Ho_7:There is no significant difference in the methods of treating financial leases by the selected companies; and

Ho_8:There is no significant difference between accounting methods used in the measurement of business combinations by the selected companies.

1.3. RESEARCH APPROACH

This research examines the harmony of accounting policy choices in listed companies in Australia, China, France, Germany, Japan, South Africa, the United Kingdom and the United States of America following a comparative approach. Eight key accounting policies are examined, namely: tangible fixed asset valuation, depreciation methods, methods of accounting for goodwill, research and development expenditures, stock valuation methods, foreign currency translation, financial leases, and business combination methods. These accounting policies are chosen because they have a direct impact on income determination. Australia, France, Germany, Japan, the United Kingdom and the United States are considered to be developed markets while China and South Africa are regarded as emerging markets. However, China has become a major economic force in recent years; and South Africa has the oldest and largest stock exchange in Africa. Moreover, they are converging to International Financial Reporting Standards (IFRS)[1].

1.4. RESEARCH OBJECTIVE

This study aims to examine the extent to which financial accounting practices are harmonised within and between the leading stock market countries. The harmonisation process is seen to be crucial as there is a great demand for more comparable information internationally by a wide range of users (Astami et al., 2004).

[1] South African listed companies have fully adopted IFRS since January 2005. The development of new Chinese accounting standards and their adoption bring about substantial convergence between Chinese accounting standards and IFRS as set by the IASB. Currently, China's accounting appears to have dual accounting system, IFRS and Chinese accounting. Nevertheless, China is in the process of converging to IFRS as all its listed companies will fully adopt IFRS by January 2007.

1.5. SIGNIFICANCE OF THE STUDY

This research is important as it would be of interest to users of financial statements in understanding to what extent accounting figures are comparable across different jurisdictions. This would help the users of financial reporting to cope with accounting diversity through a better understating of the nature and impact of accounting practices in the selected countries. This research also contributes to accounting literature in terms of the methodology pertaining to the measurement of accounting practice harmony as advocated by different scholars (Van der Tas, 1988; 1992b; Tay and Parker, 1990; Emenyonu and Gray, 1992; Archer, Delvaille, and McLeay 1995; 1996; Herrmann and Thomas, 1995; McLeay *et al.* 1999; Cañibano and Mora, 2000, Aisbitt, 2001; Astami *et al.* 2004; Taplin, 2004).

This research is also of interest because the process of harmonisation results in the potential reduction of accounting diversity leading to enhanced financial information comparability and understandability.

1.6. DELIMITATION

For the purpose of this study, data have been collected from the 2004 annual reports of the selected companies listed in eight the leading stock market countries. The reason for the selection of countries is that most of previous studies mainly focussed on developed countries only; in contrast this study attempted to measure the degree of accounting harmony between developed and developing countries. The data collection has been focused on 2004 annual reports as the study is concerned with the degree of harmony at a particular time and not in two different periods.

1.7. RESEARCH STRUCTURE

The remainder of this study is structured as follows:

Chapter two reviews three sets of literature namely: international accounting harmonisation, different measurement methods, and related studies by analysing countries and issues that have been examined.

Chapter three reviews the methodologies advocated by different scholars and unified by Taplin (2004). The method of data collection is also discussed in this chapter.

Chapter four reports on the findings of this study by analysing different accounting policies made by the selected companies, by analysing the degree of comparability and harmony through statistical indices, by determining whether there are significant differences in the measurement choices made by companies. Finally, in chapter five, conclusions are drawn and areas for possible further research are suggested.

Chapter Two

LITERATURE REVIEW

2.1. INTRODUCTION

This literature review examines three distinct sets of literature. Firstly, literature on comparative and international accounting harmonisation is examined in some detail. Secondly, different techniques of measuring the degree of harmony between populations of companies both at local and international levels are reviewed. Thirdly, related studies and links are analysed with regard to countries and issues that have been examined.

2.2. INTERNATIONAL ACCOUNTING HARMONISATION

We live in a period characterised by the rapid growth of international business and trade. Multinational enterprises operate on a global level and are listed on several stock markets. Therefore, users of financial statements can be located in any part of the world. Accounting practices have however, evolved differently in the course of history in different countries due to variations for example, in political, economic, environmental, and historical systems.

Accordingly, there have been numerous attempts to describe and explain differences and similarities in financial accounting and reporting practices internationally. The most important concepts used to describe and differentiate between different accounting systems have been: harmonisation, standardisation, and related concepts such as: harmony, standards, uniformity and comparability.

In any endeavour to assess international accounting harmonisation, it is important to clarify the meaning of concepts used in the literature: i.e. harmony, harmonisation, standards, standardisation, comparability, and uniformity.

2.2.1. Harmony and harmonisation

Several scholars have differently attempted to describe and define the concepts 'harmony' and 'harmonisation' (Tay and Parker, 1990; Wallace, 1990; Falk, 1994; Arpan and Radebaugh, 1985; Van der Tas, 1988; Meek and Saudagaram, 1990; Nobes, 1994).

For the purpose of this study, I have chosen to adopt the definition of harmony as described by Tay and Parker (1990). This does not mean that other definitions as described by other authors are less relevant.

Tay and Parker (1990) define 'harmony' as "a clustering of companies around one or a few available accounting methods" (p.73).

Wallace (1990) and Falk (1994) describe 'harmony' as a state in which many member bodies share a sufficient level of individual needs to produce a common purpose. Arpan and Radebaugh (1985) see harmonisation as a process of setting boundaries to the degree of variation among accounting practices.

Similarly, Nobes (1994) considers 'harmonisation' as "the process of increasing the consistency and comparability of accounts in order to remove the barriers to the international movement of capital and exchange of information by reducing the differences in accounting and company law" (p.33).

Van der Tas (1988) considers harmony as the correspondence between two or more objects at a point of time, and it is therefore measured on the basis of data collected at a particular point in time (for example: the financial year 2004); and harmonisation as an increase in harmony, that it is coordination or tuning of two or more objects. Thus, harmonisation is a process measured by comparing harmony at different times or over time (for example financial year 2000 and financial year 2004) (Emenyonu and Gray, 1996; Meek and Saudagaran, 1990; Tower, Hancock and Taplin, 1999).

Although these authors have attempted to describe the concepts 'harmony' and 'harmonisation' in different ways, they actually have the same meaning since they aim to set bounds to the degree of variation and diversity of accounting practices, that will lead to increase the comparability and reliability of accounting practices. However, these differences reside in terms of measurement in time as stated above.

Tay and Parker (1990) identified two types of harmonisation, namely, *de facto* harmonisation and *de jure* harmonisation. The former refers to the harmonisation between practices (increase in comparability that arises from greater conformity in practices); and the latter refers to the harmonisation between regulations or the extent that regulations in companies acts and accounting standards are aligned. Alternatively, Van der Tas (1988, 1992a) distinguishes between *formal* and *material* harmonisation as to respectively referring to *de jure* and *de facto* harmonisation.

Formal harmonisation would normally lead to material harmonisation (Parker and Morris, 2001), but this is not always the case. Formal harmonisation may be accompanied by disharmonisation if the standards allow for more options for companies. At the same time, material harmonisation might take place without being prompted by formal harmonisation. This will be referred to as *spontaneous* harmonisation; which is according to Van der Tas (1988, 1992a) a third type of harmonisation. This concept has been also used in the accounting literature by different scholars (e.g. Tay and Parker, 1990; Cañibano and Mora, 2000; Parker and Morris, 2001).

Both formal and material harmonisation may refer to the degree of disclosure or to the accounting method selected (Cañibano and Mora, 2000). The former is called *disclosure harmonisation* and latter *measurement harmonisation*. The details on different measurement methods of accounting harmonisation are given on pages 12-25.

2.2.2. Standards and standardisation

Financial reporting is a communication process (Van der Tas, 1988). A company translates the events that influence its financial position and affairs into its financial statements to provide users with information regarding its financial position and performance. This translation process is based upon company policies. As a part of these policies, a company decides whether to translate a particular event in its financial report and which accounting method to apply.

Van der Tas (1988) argues "when formulating an accounting policy, the company's choice between alternative degrees of disclosure and alternative accounting methods is restricted by standards". He thus, defines *standards* as "any financial reporting rule

published by either the government or private standard setting body" (Van der Tas, 1988, p.157). These standards can refer either to the degree of disclosure or to the accounting method to be applied.

Tay and Parker (1990) see standardisation as an analogous process to harmonisation but applied to situations where regulations and practices are or are becoming, increasingly strict or rigid.

Archer *et al.* (1996) also define standardisation as a process which constrains choice and results ultimately in the adoption of the same accounting methods by all firms in all countries. Likewise, international harmonisation is an increase in the unconditional probability that a particular accounting method will be adopted by firms in different countries (McLeay *et al.,* 1999).

While accounting harmonisation is seen as a process by which accounting moves away from total diversity of practice towards uniformity; standardisation is considered as a process by which all participants agree to follow the same or very similar accounting practices (Tay and Parker, 1990; Emenyonu and Gray, 1992; Roberts, Weetman and Gordon, 1998; Nobes and Parker, 2000).

In practice, it might be very difficult to point out precisely at which point on the continuum an accounting regulatory process changes from harmonisation to standardisation. So, these two concepts are used in conjunction in the literature. However, the end result of harmonisation is the state of harmony while the end result of standardisation is a state of uniformity (Tay and Parker, 1990).

2.2.3. Uniformity

In the same context of accounting harmonisation and standardisation, some scholars have attempted to describe and explain differences and similarities in financial accounting and practices internationally (Mueller, 1967; Wallace and Gernon, 1991; Gernon and Wallace, 1995; Roberts and Salter, 1999). One of the most important concepts they use to describe and differentiate between different accounting systems has been uniformity. In the earliest study in international accounting (Mueller, 1967) the extent of uniformity in financial reporting practices has been seen as an important element in the description and

evaluation of cross-national differences in financial reporting practices. Uniformity has also been used to classify financial reporting systems (Nobes, 1983; Doupnik and Salter, 1993).

In a similar study, Roberts and Salter (1999) find that attitudes of accounting participants internationally towards uniform accounting are as important as uniformity. They state that attitudes about uniformity, consistency, or comparability are a fundamental feature of accounting principles worldwide.

Gray (1988) described uniformity as one of the four basic accounting values exhibited by accounting process participants. These accounting values are then used to describe and explain differences across accounting systems.

Attitudes towards uniformity are important in a domestic setting. They are likely to influence both the voluntary choices made by companies and their willingness to accept new accounting rules (Roberts and Salter 1999). Attitudes towards uniformity are also important in the international arena. Generally, the more hostile accounting participants are towards increased uniformity, the less likely it is that international accounting moves towards increased harmonisation will succeed.

Nobes and Parker (1998) describe uniformity as "the degree to which financial reporting is uniform among companies within a country". Accordingly, they identify three areas where uniformity may exist: financial statement formats, accounting principles, and, disclosure requirements. Gray (1988) instead, defines uniformity as "a preference for the enforcement of uniform accounting practices between companies and for the consistent use of such practices over time as exposed to flexibility in accordance with the perceived circumstances of individual companies".

Thus, Gray (1988) identifies two key types of uniformity, namely that which ensures that all companies will be the same in their financial reporting practices in any one accounting period (inter-company uniformity) and that which ensures uniformity in the practices of one company over time (inter-temporal uniformity).

Uniformity has often been explained by reference to the institutions of a country. Nobes (1983) suggests that inter-company uniformity is a product of Government demands for

accounting information. Gray (1988) explains the development of accounting systems by reference to a theoretical model linking societal culture and accounting systems. Using Hofstede's (1980) work Gray (1988) argues that uniformity in accounting will be strongly and positively related to the cultural dimension of *uncertainty avoidance*, moderately and positively related to *power distance* and strongly, but negatively related to cultural dimension of *individualism*. In contrast, he argues that "uniformity should not be significantly related to *achievement orientation*".

Roberts and Salter (1999) argue that a mixture of cultural and capital market variables might influence a desire for uniformity. More general economic factors such as tax rates and GNP seem not to be associated with extant levels of uniformity (Cooke and Wallace, 1990).

2.2.4. Comparability

Comparability is one of the qualitative characteristics of financial information, since the objective of financial statements is to provide information that is useful to a wide range of users of financial information with respect to the enterprises in making economic decisions (IASB, 2003). To be useful, financial information about an enterprise must be comparable through time and with information about other enterprises.

To be comparable, all information is required to refer to facts of the same kind. That means the transactions and events affecting the assets and liabilities, the financial position and the performance of enterprises have to be classified into a group of similar events so that the treatment in financial accounting of transactions or events of the same class may be compared.

This comparability is dealt with on the level of particular items of the annual accounts and not on the level of the accounts as a whole (Van der Tas, 1988). As a matter of principle, information on similar transactions or events is comparable if it represents these transactions or events in the same way (Krisement, 1997).

With regard to the comparability of financial accounting information, Krisement (1997) highlights the question of as to how information about similar transactions or events must be collected, transformed and presented in order to have the same contents. To answer

this question, Krisement (1997) explains that it depends on the accounting method (s) applied. Accordingly, she argues that financial accounting information on similar transactions or events is comparable to another if they are collected and transformed applying the same accounting methods. Furthermore, the contents of financial accounting information are influenced by the choice between alternative disclosure policies.

Some scholars argue that the use of the same accounting method by different firms will improve financial statement comparability (Van der Tas, 1988, 1992a; Emenyonu and Gray, 1992; Archer *et al.* 1995; Herrmann and Thomas, 1995; Krisement, 1997). This assumption has not been, in contrast, supported by McLeay and Neal (1999) who think that "the universal application of a uniform accounting method does not necessarily enhance comparability since it is the availability of alternative accounting treatments and the use by individual firms of the appropriate method that produces financial statement which are comparable".

Compared to the IASB's point of view, this statement seems to be in opposition with the IASB's one: the degree of comparability of financial accounting information is dependent on the number of alternative accounting methods for collecting and transforming information on a specific kind of transaction or event and on the number of enterprises applying each of these alternatives. For the purpose of this study, the point of view of the IASB seems to be more appropriate since it states that the highest possible degree of comparability is reached if all enterprises choose the same accounting method (IASB, 2003).

2.3. MEASUREMENT TECHNIQUES OF ACCOUNTING HARMONISATION

In the field of the measurement of harmonisation, some researchers have investigated formal harmonisation using different statistical methodologies (see for example, Garrod and Sieringhaus, 1995; Rahman, Perera, and Ganeshanandam, 1996; Lainez *et al.* 1996 quoted in Cañibano and Mora, 2000). But most of the empirical studies have measured *de facto* harmonisation or *de facto* harmony at a point or different points in time (e.g. Nair and Frank, 1981; Van der Tas, 1988; 1992a; Emenyonu and Gray, 1992; Archer *et al.*

1995; 1996; Herrmann and Thomas, 1995; Krisement, 1997; McLeay *et al.* 1999; Cañibano and Mora, 2000, Aisbitt, 2001).

This multitude of studies shows that accounting harmonisation studies are very much at an experimental stage, where methodology and techniques of analysis are still being proposed and tested on particular samples of accounting issues and countries. Although similarities in their purpose, they vary in their results. This is attributable to the differences in the issues selected, countries examined and the analytical techniques used (Rahman *et al.* 1996).

In the present research, particular attention is paid to studies whose main aim has been to evaluate either the *de facto* harmonisation process or the state of *de facto* harmony.

Van der Tas (1988) introduced into the accounting literature precise ways of measuring national and international harmony of accounting policies, namely the H index, the I index and the C index. These indices are described below:

H index

To measure national harmony, Van der Tas (1988) advocated the 'H' or Hirschman Herfindahl Index used in industrial concentration studies. The H index is the sum over accounting methods of their squared frequencies of use within a single country. Its formula is:

$$H = \sum_{i=1}^{m} p_i^2$$

where: H= the Hirschman – Herfindahl index

m= Number of alternative accounting methods

p_i= the relative frequency of accounting method i

The idea is that comparability increases when the result of the choice that companies make between alternative accounting methods becomes concentrated on one or only a limited number of methods (Cañibano and Mora, 2000).

The greater the relative frequency of accounting method i, the higher the value of the H index is. Should 85% of companies adopt accounting method 1, and 15% method 2, the H Index will be $0.85^2+0.15^2=0.745$

The H index has a maximum value of 1 (uniformity) and a minimum value of $\frac{1}{n}$, where n accounting methods are adopted in equal proportions (Herrmann and Thomas, 1996).

As less than complete harmony can occur because of different economic circumstances among firms, Parker and Morris (2001) suggest the following scheme in order to judge the level of harmony: «an H index of 0.75 to 0.89 is regarded as evidence of 'some' harmony and an H index of 0.90 to 0.99 as evidence of 'considerable' harmony; while an H index of 1.00 is 'complete' harmony, and an H index of less than 0.75 is seen as 'little' harmony.

Tay and Parker (1990) criticized this method (H index) because of its limitations due to:

- The difficulties in calculating the significance of changes in the degree of harmony, measured by the H index. They concluded: "The use of a concentration index seems to be a useful way to evaluate the level of harmony, and track movements in harmonisation over time. The main problem with concentration indices is that no significance tests have been devised to indicate how trivial or significant (statistically) variations in index values are" (p.83).
- Its inability to cope with multiple reporting or additional data in the notes about the outcomes of alternative measurement methods. Each company (or financial report) must be assigned to one and only one alternative measurement method (Tay and Parker, 1990; Van der Tas, 1992b).

I index

For international comparisons, Van der Tas (1988) introduced the I index as a variant of the H index. While recognizing that the H index is just one of many possible concentration measures, Tay and Parker (1990) state that the use of a concentration index

"seems to be a useful way to evaluate the level of harmony, and track movements in harmonisation over time".

The general formula for the I index as defined by Van der Tas (1988) is:

$$I = \left(\sum_{i=1}^{n} (f^1 i \; x \; f^2 i \; x \; \ldots f^m i \;) \right)^{\frac{1}{(m-1)}}$$

where: fi= relative frequency of method i in country m

m= number of countries

n= number of alternative accounting methods

Van der Tas's I index is the sum over accounting methods of the product of the relative frequencies of accounting method i in each of m countries. In other words, the I index is computed by multiplying the relative frequency of use a particular accounting method across countries and subsequently adding up the results for all alternatives methods (Tay and Parker, 1990; Emenyonu and Gray, 1992; Morris and Parker, 1998). Consequently, the I index rises when more companies across countries use the same method from the available accounting options.

An example of a 3 country/2 method case is as follows:

Table 1: Example of a country/method case

Methods	**Countries**		
	1	2	3
Method I	0.5	0.6	0.9
Method II	0.5	0.4	0.1

Source: Adapted from Emenyonu and Gray (1992)

$$I = \left((0.5 \ x \ 0.6 \ x \ 0.9) \ + \ (0.5 \ x \ 0.4 \ x \ 0.1)\right)^{\frac{1}{(3-1)}}$$

$$= 0.29^{\frac{1}{2}}$$

$$= 0.538$$

However, as indicated by Tay and Parker (1990), there may be problems in operationalising this approach in terms of identifying the range of accounting methods involved and the companies that are affected by a particular accounting method. In this regard, Emenyonu and Gray (1992) suggest that a test is to be devised to evaluate the significance of variations in index values. They argue that the users of the index are also expected to determine subjectively the desired value of the index for an acceptable degree of harmony to be said to exist (Emenyonu and Gray, 1992).

Archer and McLeay (1995), quoted in Parker and Morris (2001), have criticized Van der Tas's formulation of the I index. They argue that the exponential factor 1/(m-1) is not consistent with the I index being an analogue of the H index because 1/(m-1) does not equal 2 – the exponent in the H Index and is applied to the sum of cross products and not to individual cross products for each accounting method. To ensure that the I index is an analogue of the H index, Archer and McLeay (1995), quoted in Parker and Morris (2001), suggest that the I index must be computed as:

$$I = \sum_{i=1}^{n} (f_{i1} \ x \ f_{i2} \ x \ \ldots f_{im} \ )^{\frac{2}{m}}$$

where f_{i1} is the relative frequency of accounting method in country 1

m is the number of countries

n is the number of alternative accounting methods as before

The I index as stated above is the sum across accounting methods of the squared geometric means of the relative frequencies of accounting method i in each of m countries. So formulated, it becomes a multi-country analogue of the H index (Morris and

Parker, 1998). In the two country case, the exponent equals 1 and the corrected and uncorrected I indices are equivalent.

Using the data from table 1 on page 14, the I index may be calculated as:

$$I = (0.5 \ x \ 0.6 \ x \ 0.9)^{\frac{2}{3}} + \ (0.5 \ x \ 0.4 \ x \ 0.1)^{\frac{2}{3}}$$

$$= 0.417 + 0.074$$

$$= 0.491$$

C Index

Van der Tas (1988) also introduced the comparability 'C' index as an indicator of harmonisation effects to measure the extent to which accounting information disclosed by companies is comparable. The C index can be interpreted as a model of interfirm comparison, as it measures the proportion of pairwise comparisons that are feasible given the alternative accounting methods adopted by different companies.

Van der Tas (1988) describes the C index as a means of dealing with companies using multiple accounting policies for the same issue (for example, through footnote disclosures), although the index can be employed as an alternative to the H and I indices. The C index is based on combinatorial mathematics and measures the probability that any pair of randomly selected companies adopted the same accounting method.

It is the number of company pairs in which each pair uses the same accounting method, summed over accounting methods and divided by the number of possible pairs if all companies used the same accounting method (Van der Tas, 1992a, Archer and McLeay, 1995 quoted in Morris and Parker, 1998).

Pair members can be from the same or different countries. Algebraically, Van der Tas's C Index is presented as follows:

$$C = \frac{\sum_{j=1}^{k} \left(X_j (X_j - 1) \right)}{n(n-1)}$$

where X_j is the number of companies using accounting method j_1

k is the number of accounting methods, and n the total number of companies

The C Index and H index are related, but the only one difference is that the H index does not assume multiple reporting (Van der, 1988: Morris and Parker, 1998):

$$C = \frac{H - 1/n}{1 - 1/n} \quad \text{or} \quad H = \left(\frac{n-1}{n}\right)C + \frac{1}{n}$$

where n is the total number of companies. As $n \to \infty \; C \to H$

The convergence occurs rapidly for even moderate values of n.

When used to measure international harmony, Van der Tas's (1988) C index does not distinguish between national and international effects. To correct this deficiency, Archer *et al.* (1995) reformulated and decomposed Van der Tas's C Index into a between-country C index and a within-country C index. The former is used in order to measure international harmony of accounting policies, and the latter is used to determine the degree of comparability between companies operating in the same country. And the third component advocated in this decomposition of Van der Tas's C index is the total comparability.

Archer *et al.* (1995) used the following table to illustrate how within-country, between-country and total comparability can be calculated:

Table 2: The basic grid of sample counts X_{ij}

		j^{th} accounting method		Totals
		1	**2**	
i^{th} country	**1**	X_{11}	X_{12}	X_{1+}
	2	X_{21}	X_{22}	X_{2+}
Totals		X_{+1}	X_{+2}	X_{++}

Source: Archer *et al.* (1995).

Archer *et al.* (1995) illustrated the decomposition of C Index by showing the number of companies in the i^{th} country adopting the j^{th} accounting methods X_{ij}. The double subscripts refer to the position of the cells in the arrangement. For instance, X_{12} refers to the number of companies in country i=1 adopting accounting method j=2. They illustrated a 2x2 version of the grid as displayed in Table 2 on the preceding page. The marginal totals X_{i+} and X_{+j} are summed over the subscripts j and i, respectively, as indicated by replacing the relevant subscript with "+". For example, the marginal total X_{1+} is the total number of companies in country i=1 adopting both accounting methods j=1 and j=2.

The marginal total X_{+j} is the total number of companies selecting method j=1 in both countries i=1 and i=2. The total number of companies, n, is denoted as X_{++}.

The number of pairwise comparisons that may be made in the i^{th} country amongst companies selecting the j^{th} accounting method is $\frac{1}{2}X_{ij}\left(X_{ij}-1\right)$

Therefore, the total number of comparisons that may be made between companies operating within the same countries is given by the sum of the combinations for the four cells, $\frac{1}{2}\sum_i\sum_j\left(X_{ij}(X_{ij}-1)\right)$, that is, for the 2x2 example.

$$\frac{1}{2}X_{11}\left(X_{11}-1\right)+\frac{1}{2}X_{12}\left(X_{12}-1\right)+\frac{1}{2}X_{21}\left(X_{21}-1\right)+\frac{1}{2}X_{22}\left(X_{22}-1\right)$$

This will be referred to as within-country comparability. The number of pairwise comparisons that may be made between companies selecting the j^{th} accounting method but operating in different countries is given by the sum of the products between cells within each category of accounting method, divided by two as these are combinations not permutations. This will be referred to as between-country comparability which for the above grid, is equal to $X_{11}X_{21} + X_{21}X_{22}$ (the comparisons between countries i=1 and i=2 for, first, method j=1 and, second, method j=2). Given that the number of companies outside the ith country using the jth method is equal to $X_{+j} - X_{ij}$, it follows that between-

country comparability may be expressed as $\frac{1}{2}\sum_i \sum_j \left(X_{ij}(X_{+j} - X_{ij})\right)$

Archer *et al* (1995) go on to explain that within-country and between-country comparability indices may be constructed by dividing the numbers of feasible within-country and between-country pairwise combinations as stated above by $\frac{1}{2}\sum_i \left(X_{i+}(X_{++} - X_{i+})\right)$

Hence, the resultant indices may be expressed as follows:

Within-country comparability index:

$$\frac{\sum_i \sum_j \left(X_{ij}(X_{+j} - 1)\right)}{\sum_i \left(X_{i+}(X_{i+} - 1)\right)}$$

Between-country comparability index:

$$\frac{\sum_i \sum_j \left(X_{ij}(X_{+j} - X_{ij})\right)}{\sum_i \left(X_{i+}(X_{++} - X_{i+})\right)}$$

The total number of feasible pairwise comparisons is the sum of the within-country and between-country totals, as follows:

$$\frac{1}{2}\sum_i \sum_j \left(X_{ij}(X_{ij} - 1)\right) + \frac{1}{2}\sum_i \sum_j \left(X_{ij}(X_{+j} - X_{ij})\right)$$

$$= \frac{1}{2}\sum_j \left(X_{+j}(X_{+j} - 1)\right)$$

It can be seen that, unlike its within-country and between-country components, the total number of feasible pairwise comparisons does not itself depend on the counts in individual cells, the X_{ij}s, but on the marginal counts, the X_{+j}s. Thus, the overall C index may be stated as follows:

Total comparability index:

$$\frac{\sum_j \left(X_{+j}(X_{+j}-1)\right)}{X_{++}(X_{++}-1)}$$

This total comparability is calculated by computing the weighted average of within and between-country indices.

The table 3 below summarises the mathematics of comparability index as proposed by Archer *et al.* (1995) and used in other studies as tools of analysis (see for example, Astami, Rusmin and Tower, 2004).

Table 3: Mathematics of the comparability index

	Number of pairwise comparisons	Maximum	Comparability indices
Within-Country Comparability	$\frac{1}{2}\sum_i \sum_j \left(X_{ij}(X_{ij}-1)\right)$	$\frac{1}{2}\sum_i \left(X_{i+}(X_{i+}-1)\right)$	$\frac{\sum_i \sum_j \left(X_{ij}(X_{ij}-1)\right)}{\sum_i \left(X_{i+}(X_{i+}-1)\right)}$
Between-Country Comparability	$\frac{1}{2}\sum_j \sum_i \left(X_{ij}(X_{+j}-X_{ij})\right)$	$\frac{1}{2}\sum_i \left(X_{i+}(X_{++}-X_{i+})\right)$	$\frac{\sum_i \sum_j \left(X_{ij}(X_{+j}-X_{ij})\right)}{\sum_i \left(X_{i+}(X_{++}-X_{i+})\right)}$
Total Comparability	**Total 'number of pairwise comparisons' within and between country comparability**	**Total 'maximum of pairwise comparisons' within and between country comparability**	$\frac{\sum_j \left(X_{+j}(X_{+j}-1)\right)}{X_{++}(X_{++}-1)}$

Source: Archer *et al.* (1995)

After having decomposed Van der Tas's (1988) C index into within-country and between-country components in 1995, Archer *et al.* (1996) developed their methodology further by using a nested hierarchy of log-linear models which allowed them to measure the level of harmony between countries in a period and the variation in the level of harmony (harmonisation) between two periods. This captured the extent to which changes in harmony could be attributed to efforts towards international harmonisation or national standardisation. The methodology is extremely complex but Archer *et al* (1996)

attempted to reconcile their results with the indices of Van der Tas (1988) and Archer *et al.* (1995).

Krisement (1997) criticized Van der Tas's (1988) C index for the way that it was affected by the number of observations in the calculations and Archer *et al.'s* (1995) model because the within– and between–country components do not sum to the total value of the index (Aisbitt, 2001). She thus proposed an approach to quantify the degree of comparability of financial accounting information based on the frequencies of application of each accounting alternative by the means of entropy[2].

Since the degree of comparability of financial accounting information is determined by the number and the relative frequencies of application of alternative accounting methods, concentration indices seem basically to be appropriate for its measurement. Namely, these indices quantify concentration as accumulation of a quantity at single elements of a set of objects. In the field of accounting, these objects are the alternative accounting methods, and the quantity is the relative frequency of application by the enterprises.

It could be argued that this approach links the C index and entropy so that, in her opinion, "the advantages of these measures complement one another while any disadvantages are eliminated" (Krisement 1997, p.477). Entropy is computed as follows (Curry and George, 1983, quoted in Krisement, 1997).

$$E = \sum_{i=1}^{N} y_i . \ln \frac{1}{y_i}$$

where

i = numerical characterizing the alternative accounting methods to collect and transform information on a specific kind of translation or event;

N =number of existing alternative accounting methods;

y_i = relative frequency of application of accounting method i;

ln = natural logarithm

[2] Although the concept of entropy was originally a thermodynamic concept, it has been adapted in other fields of study, including: information theory, psychodynamics, and thermoeconomics. In the field of accounting, it is used to measure the degree of comparability of financial accounting information.

Krisement (1997) also treated the problem of multiple reporting from what she described the so-called assignment problem. This means that the number of enterprises where multiple reporting is found may not be assigned definitely to one of the accounting alternatives applied with multiple reporting (Van der Tas, 1988).

McLeay *et al.* (1999) developed another statistical measurement technique of harmonisation for which the comparability would depend on the use of accounting method appropriate to a firm's circumstances, and not on the use of the same method by all firms.

Subsequently, Cañibano and Mora (2000) carried out a critical analysis of previous research related to the index-based methods of measurement harmonisation in the grounds that no test of significance has been included in prior research. They proposed a bootstrapping test of the C index as a way of measuring the significance of the change in its value. They consider that the characteristics of the bootstrapping test could make it an appropriate method if the value of a change in the C index from one period to another is considered significant in order to conclude whether there is (or not) a process of harmonisation.

Alternatively, Taplin (2003) in another study on statistical inference with the Herfindahl H index and C index, proposed formulae to estimate the standard error of the H and C indices calculated from a sample. He argued that his formulae avoided the necessity to perform intensive bootstrapping tests such as those adopted by Cañibano and Mora (2000). Taplin (2003) proposed the statistical inference for the H index from where he derived the formulae for the bias and standard error of the Herfindahl H index; and the statistical inference for the C index.

Very recently, Taplin (2004) introduced in the literature of international accounting harmonisation a new index, called T index. This aims to provide a unified treatment of possible measurement indices; it includes the commonly used indices, namely H, I and C indices. Accordingly, Taplin (2004) criticises Van der Tas's (1988) and Archer *et al*'s (1995) C Index in the way that despite its multiple reporting advantage, the C index gives

more weight to countries with a larger number of sampled companies. He states that the T index constitutes a unified framework that can both allow multiple reporting and give each country equal weight. Many individual indices arise from the unified framework T index by selecting one of several options for each of the four criteria:

1. The weighting given to companies/countries;

2. International focus (within-country, between-country, or overall);

3. The treatment of multiple accounting policies;

4. The treatment of non-disclosure.

Computing the measurement of accounting harmonisation, the T index requires the choice of two coefficients (the comparability of accounting methods and the weighting of countries).

The general formula for T index is given by:

$$T = \sum_{i=1}^{N} \sum_{j=1}^{N} \sum_{k=l}^{M} \sum_{l=j}^{M} \alpha_{kl} \beta_{ij} P_{ki} P_{lj}$$

where

α_{kl} is the coefficient of comparability between accounting method k and l;

β_{ij} is the weighting for the comparison between companies in countries i and j;

P_{ki} is the proportion of companies in country i that use accounting method k;

P_{lj} is the proportion of companies in country j that use accounting method l;

and there are N countries (labeled 1 to N) and M accounting methods (labeled 1 to M).

This introduction of the T Index in the accounting literature has been followed by the conception of *Harmoniser,* software developed in order to enable researchers to customise their own index with additional properties when the standard properties possessed by the H, C and I indices are inadequate (Taplin and Roselli, 2004). The *Harmoniser* can perform calculations automatically for over 100 indices and gives researchers great flexibility as they can select a suitable combination of desirable

properties for an index rather then the particular combinations of properties imposed by the standard H, C and I indices (Taplin and Roselli, 2004). All the calculations of T index following the four criteria as proposed in Taplin (2004) can be automatically performed thanks to the *Harmoniser* (Taplin and Roselli, 2004).

For the purpose of this study, the T index as advocated by Taplin (2004) will be used, with a particular attention on the international focus criteria since it allows computation of within-country comparability, between-country comparability and total comparability. The H index will be calculated as well through the various criteria of T index.

2.4. COUNTRIES AND ISSUES THAT HAVE BEEN EXAMINED

There are two types of studies in this field of international financial accounting. The first one intends to quantify the level of harmony or harmonisation and the second one intends to measure the degree of compliance with or observance of international standards. Therefore, there is a difference between international harmonisation, and compliance (or observance) with International Accounting Standards (IASs). However, international harmonisation and compliance of IASs are related in the sense that setting international standards may further accounting harmonisation; they are however, two different phenomena:

- when an IAS allows different methods to be applied and companies apply these different methods, compliance with the IAS may be high, but because different methods are applied, the degree of harmonisation may be low; and
- if all or a large number of companies apply the same method, the degree of harmony is high; the degree of compliance with IASs, however, may be low when that method is not allowed by IAS.

In regard to countries and accounting policies that have been surveyed, earlier researchers have written extensively on issues such as the benefits and costs of harmonisation, obstacles and problems hindering harmonisation, scope for harmonisation, factors that are encouraging the harmonisation drive, accounting comparability, compliance with or observance of the standards of the IASC (eg. Carey, 1970; Fantl, 1971; McComb, 1982; Nair and Frank, 1981; Evans and Taylor, 1982).

Accordingly, this section of the literature review concentrates on those studies that are directly related to the measurement of *de facto* harmony or harmonisation studies; and those studies related to comparability and compliance with international standards' studies on the other hand. In respect of countries and accounting issues that have been examined, tables 4 and 5 summarize these studies in terms of their objectives, data sources, countries surveyed, general methodology and their main conclusions.

2.4.1. *De facto* harmony or harmonisation studies

In this section, I review different *de facto* harmony and harmonisation studies in respect of their objectives, countries surveyed, topic covered, data sources, methodology and main findings.

Nair and Frank (1981) attempted to ascertain the impact of the harmonisation endeavours of the IASC. In order to achieve their objectives, they surveyed the effect of IAS 1 to 10 on the accounting practices of thirty-seven countries, using the Price Waterhouse surveys of 1973, 1975, and 1979. To analyze the data, they also used the Analysis of Variance test. It was found that the period of the IASC's existence had coincided with an increase in the harmonisation of accounting standards among the countries surveyed.

Van der Tas (1988), in an exploratory article, sought to quantify harmony and to determine when and to what extent harmonisation has taken place and then to measure the impact of the organisation involved in international harmonisation (e.g. IASC, OECD, EC, United Nations, etc.). In order to accomplish his objectives, Van der Tas (1988) advocated and developed three indices (H index, I index and C index) as described in the prior section. Using these indices, Van der Tas (1988) measured the levels of harmonisation on the issue of accounting for deferred tax in the United Kingdom, accounting for the investment tax credit equalization account in the Netherlands, and the valuation of land and building in the Netherlands. He also attempted to determine a harmonisation index for accounting for the investment tax credit in the US and the Netherlands. Data were collected over a period of 20 years ranging from 1965 to 1985 and analyzed according to these indices from which he concluded that there were periods of high and low harmonisation. However, Van der Tas's study was an

exploratory study that has created many discussions and development in the literature in terms of his scope.

Some years later, Van der Tas (1992a) conducted another study on the evidence of European Community financial reporting practice harmonisation. Data were collected from 154 European listed companies[3] over the period of 10 years from 1978-1988. The empirical study was concerned with the issue of deferred taxation and aimed to measure the degree of harmonisation in each year to determine the extent to which harmonisation took place during that period and the impact of EC efforts on harmonisation. To analyse the data, Van der Tas (1992a) used the H and C indices and concluded that the degree of harmony of accounting for deferred taxation, taking account of reconciliation data and the difference between separate and consolidated accounts, reveals a more positive picture of the degree of harmony of accounting for deferred taxation in the European Community.

Emenyonu and Gray (1992) used the Chi-Squared test to assess whether the patterns of usage of asset and profit measurement practices by 26 large industrial companies in each of the UK, France and Germany were significantly different. Data were gathered from the companies' 1989 annual reports. The I index was also computed for each asset and profit measurement practice so as to determine the extent of international harmony.

The following accounting issues were included in their study: treatment of goodwill, treatment of research and development costs, stock valuation methods, depreciation methods, valuation bases for fixed assets, treatment of extraordinary and exceptional items. In all cases, there were statistically significant differences in the measurement of financial accounting practices of large British, French and German companies, except for research and development where it was not possible to conduct the Chi-Squared test. As to the level of international harmony, the I index provided values ranging from 0.6079 (or 60.79% of harmony) for fixed assets valuation bases to 0.0076 (or 0.76% of harmony, i.e. a negligible degree of harmony) for depreciation methods.

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[3] The companies were selected from 9 EC countries: Belgium, Denmark, France, Germany, Greece, Ireland, Luxembourg, The Netherlands and The UK.

Herrmann and Thomas (1995) sought to determine the degree of accounting harmonisation in the European Community by examining selected measurement practices[4] from the 1992/93 annual reports of 217 largest companies from 8 EC countries, namely: Belgium, Denmark, France, Germany, Ireland, the Netherlands, Portugal and the UK. They used the non-parametric Chi-square statistic in order to ascertain whether the level of harmonisation for a given accounting practice was the same or different across countries. They also used the Van der Tas's I Index to measure the extent of harmonisation with respect to a given accounting practice and then to compare across countries, from where they performed the bicountry I Indices, regional basis and four-country I Indices.

The findings of the Herrmann and Thomas (1995) study demonstrated that accounting for foreign currency translation of assets and liabilities, treatment of translation differences, and inventory valuation were harmonised, while accounting for fixed assets valuation depreciation, goodwill, research and development, inventory costing, and foreign currency translation of revenues and expenses were not harmonised.

Archer *et al.* (1995) analysed the accounting policy choices made by European companies whose shares are traded internationally. The treatment of goodwill and accounting for deferred taxation were of great concern. The data were collected from 1986/87 and 1990/91 annual reports of companies from Belgium, France, Germany, Ireland, the Netherlands, Sweden, Switzerland and the UK. To analyse the data, they used the Van der Tas (1988) C index that they further developed by separating into two components relating to the intra-national (within-country) and inter-national (between-country) effects of harmonisation. The results of their study indicated that, in the two areas of deferred taxation and goodwill, little progress in harmonisation took place between 1986/87 and 1990/91, but that such progress as there was can be attributed to increases in between-country comparability, since the change in within-country

[4] These measurement accounting practices were concerned with: fixed assets valuation, depreciation methods, goodwill, research and development, inventory costing, inventory valuation, foreign currency translation of assets and liabilities, foreign currency translation of revenues and expenses, treatment of translation differences.

comparability was either very small or negative.

Emenyonu and Gray (1996) assessed the nature and extent to which the accounting measurement and associated disclosure practices of large listed companies become more harmonised internationally. They focused their study on 293 companies based in the five major developed stock market countries, namely, France, Germany, Japan, the UK and the USA. Annual reports of those companies were examined in respect of reports published during both of the periods 1971/72 and 1991/92. Accounting measurement issues were assessed relating to choices of method and associated disclosures in each of the following major accounting areas: Group accounting and consolidations; treatment of goodwill; foreign currency translation; accounting for inventories; property, plant and equipment; depreciation methods; accounting for borrowing costs; deferred taxation; extraordinary and exceptional items; research and development expenditures; pensions and retirement benefits; long-term contracts; and government grants.

To assess whether or not the changes in measurement and associated disclosure practices over the 20-year period (from 1971/72 to 1991/92) were significant, the Chi-square test was used. To assess the extent of international harmonisation as at both 1971/72 and 1991/92 the I index as introduced by Van der Tas (1988) was used. The results revealed that international accounting harmonisation has remained an elusive goal, since the impact of efforts to reduce international accounting diversity over this period has been in general terms, quite modest.

In the Spanish accounting system and international accounting harmonisation study, Lainez, Jane and Callao (1999) aimed to:

- measure the level of internal homogeneity associated with business accounting practice; and
- evaluate the degree of consensus between the accounting practices chosen by Spanish companies with respect to the IASC criteria.

To this end, Lainez *et al.* (1999) analysed the annual reports of sixty companies representing different industries in the period from 1992-1995. However, it may be noted that they based their conclusions on 1995 data analysis. To quantify the degree of

uniformity of the practices adopted by selected companies, they designed an intercompany uniformity indicator based on the C Index proposed by Van der Tas (1988). The results of their study revealed the lack of homogeneity in different accounting areas.

Cañibano and Mora (2000) evaluated the statistical significance of *de facto* accounting harmonisation in Europe for which they used the bootstrapping and chi-square tests. Data were collected from the 1991/92 and 1996/97 annual reports of multinational companies from 13 European countries to analyse the financial statements with regard to four accounting issues (deferred taxation, goodwill, leasing and foreign currency translation). They used the Van der Tas (1988) C index to test their hypothesis and in all the cases, they analysed and obtained a higher value in the second period. Using, the bootstrapping procedure they concluded that there was a significant increase of harmony for the period examined.

Aisbitt (2001) examined the usefulness of Archer *et al.*'s (1995) decomposed C index in measuring harmony and hence harmonisation between Nordic countries (Denmark, Finland, Norway and Sweden) at four dates in the period between 1981 and 1998, namely: 1981/82, 1992, 1994 and 1998. The data were obtained from the annual reports of 48 companies listed on the Stock Exchange of each of the Nordic countries, where twenty financial reporting items[5] were considered. To evaluate whether the changes in harmony were significant, the Wilcoxon signed-rank test was used. The results indicated that the level of harmony (within-countries, between-countries and total) was higher in 1998 than in 1981. Harmony did not increase between 1992 and 1994.

In a recent study conducted by Astami, Rusmin, and Tower (2004), the degree of harmonisation for four accounting policy choices in 442 companies in five Asia-Pacific countries, namely Australia, Hong Kong, Indonesia, Malaysia and Singapore was measured. The accounting issues included asset valuation, inventory measurement,

[5] Valuation of tangible fixed assets, valuation of listed investment (held short term), unsettled gains on foreign exchange, publication of group accounts, goodwill on acquisition in consolidated accounts, method of preparing cash flow statement, use of legal reserves, methods of depreciation, method of stock valuation, review of past and future performance, disclosure of segmental turnover, disclosure of segmental profit, disclosure of number of employees, disclosure of directors remuneration, disclosure od directors' interests in shares, disclosure of accounting policies, disclosure of earnings per share, disclosure about share ownership, US GAAP reconciliations, IAS reconciliations.

depreciation policies, and goodwill treatment. Astami et al (2004) used the C Index as developed by Archer *et al.* (1995) and concluded that there is a relatively high (74%) degree of comparability (both within and between –country) for depreciation and low levels of comparability as fixed asset valuation had only 51%, inventory policies 30% and goodwill 18% of comparability.

These studies are summarised in table 4 on pages 30 and 31. The key points summarised in this table are the objectives, countries surveyed, topic covered, data sources, methodology and main conclusions of *de facto* harmonisation or harmony studies. Theses studies started in the earlier 1980s and have been differently surveyed over time.

Table 4: *De facto* Harmonisation or Harmony studies surveyed

	Nair and Frank (1981)	Doupnik and Taylor (1985)	Van der Tas (1988)	Van der Tas (1992a)	Emenyonu and Gray (1992)
Objectives	To assess the impact of harmonisation endeavours of the IASC	To assess conformity of Western European countries to "a basic core of accounting practice"	To measure harmonisation, to determine when and to what extent harmonisation has taken place, and the impact of standards-setting bodies involved in international harmonisation	To assess the degree of harmony, the extent of harmonisation and the impact of harmonisation efforts in the European Community	To assess the extent to which international accounting practices were harmonised
Countries surveyed	37 countries	16 Western European countries	The Netherlands, the UK, and the USA	Belgium, Denmark, France, Germany, Greece, Ireland, Luxembourg, the Netherlands, and the UK	France, Germany, and the UK
Topics covered	IASs 1-10	IASs 1-8	Accounting for deferred taxation, investment tax, credit equalization account, valuation of land and building	Accounting for deferred taxation	Treatment of goodwill, treatment of Research and Development costs, stock valuation methods, depreciation methods, valuation bases for fixed assets, treatment of extraordinary and exceptional items
Data sources	Price WaterHouse surveys 1973, 1975 and 1979	Survey questionnaire and PW 1979 survey	National surveys from 1965-1985	Annual reports from 154 listed companies for the period from 1978-1988	Companies' 1989 annual reports
Methodology	Changes in the distribution of countries among requirement categories tested for significance with Friedman's ANOVA	Response categories weighted. Average scores calculated for regions and countries. Non parametric tests used to differentiate regions and countries	Developed and advocated the use of 3 indices (H, C, and I) to measure harmony and process of harmonisation in different time periods	Use of H and C indices introduced in Van der Tas (1988)	I index to determine the extent of international harmony; χ^2 to assess the degree of difference in the measurement of accounting practices between countries
Main conclusions	"The period of the IASC's existence had coincided with an increase in the harmonisation of accounting standards" (p.77)	"Many differences still existed in western European accounting practices" (p.33)	"Possible to measure the influence of mandatory and non-mandatory provisions" (p.167)	"the degree of harmony was low, no significant movements; the impact of EC harmonisation efforts was very significantly positive as regards the individual accounts, while it was not significant in terms of consolidated accounts"	"significant differences in the measurement practices and little international harmony ranging from 0.6079 to 0.0076" (p.56)

Table 4: (continued)

Herrmann and Thomas (1995)	Archer et al. (1995)	Emenyonu and Gray (1996)	Cañibano and Mora (2000)	Astami et al (2004)
To determine the level of accounting harmonisation in the European Community	To analyse the accounting policy choices made by European countries	To assess the nature and extent of international accounting harmonisation	To evaluate the statistical significance of de facto harmonisation	To measure the degree of harmonisation
Belgium, Denmark, France, Germany, Ireland, the Netherlands, Portugal, and the UK	Belgium, Denmark, France, Germany, Ireland, the Netherlands, Portugal, Sweden, Switzerland, and the UK	France, Germany, Japan, UK and US	13 European countries	Australia, Hong Kong, Indonesia, Malaysia, and Singapore,
fixed asset valuation, depreciation, goodwill, research and development, Inventory costing, foreign currency translation, treatment of translation differences	Deferred taxation, and goodwill	Group accounting and consolidations, treatment of goodwill, foreign currency translation, accounting for inventories, properties, plants, and equipment (PPE), depreciation methods, accounting for investments, accounting for borrowing costs, deferred taxation, extraordinary and exceptional items, research and development expenditures, pensions and retirement benefits, long-term contracts, and government grants	Goodwill, foreign currency translation, leasing, deferred tax	Asset valuation, inventory measurement, depreciation policies, goodwill treatment
217 companies' 1992/93 annual reports	Companies' 1986/87 and 1990/91 annual reports	Annual reports from 293 listed companies for the periods 1971/72 and 1991/92-1988	85 multinational companies' 1991/92 and 1996/97 annual reports	442 companies' annual reports
I index to measure the extent of harmonisation and Chi-Square for equality of proportions of accounting measurement across countries	Decomposed Van der Tas's (1988) C index into within-country, between-country, and total comparability components	Chi-Square test to assess the changes in measurement and associated disclosure practices; I index to measure the international harmonisation	Advocated the bootstrapping and chi square tests and used Van der Tas's (1988) C index	C index as decomposed by Archer et al. (1995) into within-, between-country components and total comparability.
Only accounting for foreign currency translation of assets and liabilities, treatment of translation differences, and inventory valuation were harmonised	"Little progress in harmonisation took place between 1986/87 and 1990/91"	"international harmonisation has remained an elusive goal"	"significant increase of harmony for the period surveyed"	"high degree of comparability both within and between countries (74%) for depreciation, and low levels of comparability for fixed asset valuation (51%), inventory policies (30%) and goodwill (18%)"

Source: Adapted from Tay and Parker (1990)

2.4.2. Comparability or compliance with IASs' studies

In this section, I review the compliance with IASs' studies in respect of their objectives, countries and issues examined, data sources, methodology, and main findings.

Evans and Taylor (1982), with aims similar to those of Nair and Frank (1981), studied the effect of IAS 2, 3, 4, 6 and 7 on financial reporting practices in France, Japan, UK, USA and Germany. They used the data from the financial statements of selected companies in each of the countries for the period from 1975 to 1978. The data were analysed using percentages in respect of compliance. Based on the results of their study, they concluded that the IASC had had very little effect on the accounting practices of the countries examined.

Doupnik and Taylor (1985) set out to assess the extent to which 16 Western European Countries conformed to a "basic core of accounting practice" using IASs 1-8. They collected data through a questionnaire survey in addition to the Price Waterhouse 1979 survey. The findings confirmed the hypothesis that many differences still existed in Western European accounting practices though some increased compliance with IASC standards was found. Nobes and Parker (1990) disputed these findings in a study of accounting practices by US multinationals and concluded that compliance with IASC standards was negligible. Doupnik and Taylor's (1985) study was concerned at the same time with the harmony study of accounting practices and compliance with the IASC's standards.

In a similar context of international accounting harmonisation, Tower, Hancock and Taplin (1999) examined the extent of compliance with International Accounting Standards (IASs) in six countries in the Asia-Pacific region, namely: Australia, Singapore, Malaysia, Thailand, Philippines and Hong Kong. The study was concerned with 26 IASs (IASs 1, 2, 5, 7-11, 13, 14, 16-25, 27, 28, 30-33) and the data were collected from ten listed companies' 1997 annual reports in each of abovementioned countries. The analysis approach and tools were quite different from those applied in other empirical studies (for example, Nair and Frank, 1981; Evans and Taylor, 1982; Doupnik and Taylor, 1985; Van der Tas, 1988; 1992a; Emenyonu and Gray, 1992, Herrmann and Thomas, 1995; Archer *et al.* 1995). The methodology applied consisted of

carefully scrutinizing each and every annual report for compliance with IASC rules. In total, 512 data points of compliance information were obtained from each report. These data represented the specific compliance expectation contained within each paragraph of IAS rules. Multivariate regression techniques were utilized to explain possible compliance patterns derived from each of the sixty annual reports as the independent variables. The findings supported the hypothesis that company reports influence the financial reporting rules; that is, material harmonisation might take place without being prompted by formal harmonisation (Van der Tas, 1988).

Similarly, West (1999) analyzed the compliance of South African life insurance companies with local and international benchmarks. The study was concerned with AC121 (Disclosure in the financial statements of insurance companies) and Exposure drafts of both the UK and Australian Accounting Standards Boards. Data were collected from eleven South African life insurance companies' annual reports over the period from 1993 to 1998. West (1999) performed the compilation of disclosure checklists to score compliance with domestic and international benchmarks. These scores were subjected to statistical testing (Analysis of Variance) to identify significant differences. The findings revealed that "when compared to the local benchmarks, SA companies appear to be adequately complying with the disclosure requirements; whilst the extent of compliance of companies within the UK and Australian benchmarks was inadequate and consequently differed significantly" (West, 1999).

In a similar context of approach and country sample, West (2000) analyzed the extent to which South African banks comply with local and international standards, focusing on financial risk disclosures. In his findings, West (2000) demonstrated the difference between SA, UK and Australian practices by stating the inadequacy of SA Banks in comparison to their UK and Australian counterparts which performed much better.

Parker and Morris (2001) analysed the influence of US GAAP on the harmony of accounting practices of large companies in the UK and Australia. The aim of the study has been based on the ground that as the impact of US GAAP varies across countries, it

may affect international accounting harmony[6]. The idea was tested by examining the level of international harmony for eleven accounting measurement policies[7] using data from 1993 published accounts of 80 large companies from both the UK and Australia. To measure international and national harmonies, Parker and Morris (2001) used respectively the between-country C index and chi-square test (Archer *et al.* 1995, 1996) and Van der Tas's (1988) H index. The results indicated that sampled companies displayed little international harmony, i.e. only three policies on most accounting policies studied, although they do display considerable or complete national harmony on some policies (seven for the UK and five for Australia). Australian companies appear to conform more to US GAAP than do UK companies. The UK/Australian international harmony is higher when both conform to US GAAP, and lower when only one or neither does.

Table 5 on following page summarises the comparability or compliance with IASs' studies. The key points summarised in this table are: the objectives, countries surveyed, topic covered, data sources, methodology and main conclusions of these studies. As the same applied for the *de facto* studies, the comparability or compliance with IASs' studies started in the earlier 1980s and have been surveyed in different ways over time.

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[6] US GAAP has increasingly become an influence on accounting practices in other countries. This international influence of U.S. GAAP on other countries' practices arises from that country's major contribution (via accounting standards and similar pronouncements) to solutions for financial reporting issues, its capital markets as a source of finance for non-U.S. corporations, and its substantial direct investments abroad.

[7] These accounting policies are: valuation of tangible fixed assets, depreciation of tangible fixed assets, method of inventory valuation, research and development, goodwill on consolidation, foreign exchange translation, capitalization of interest on constructions, capitalization of other identifiable intangibles, capitalization of finance leases, deferred taxation liabilities, and method of depreciation.

Table 5: Comparability or compliance with international standard studies

	Evans and Taylor (1982)	Doupnik and Taylor (1985)	Tower et al. (1999)	West (1999)	West (2000)	Parker and Morris (2001)
Objectives	To assess the impact of the IASC standards on the financial reporting in member nations	To assess conformity of Western European countries to "a basic core of accounting practice"	To assess the extent of compliance with IASs by companies	To analyse the extent to which SA life insurance companies comply with local and international benchmarks	To assess the extent to which SA Banks comply with local and international benchmarks	To assess the influence of US GAAP on accounting practices in the UK and Australia
Countries surveyed	France, Japan, UK, USA and Germany	16 Western European countries	Australia, Hong Kong, Malaysia, Philippines, Singapore, and Thailand,	South Africa, the UK and Australia	South Africa, the UK and Australia	The UK, USA, and Australia
Topics covered	IASs 2-4, 6 and 7	IASs 1-8	26 IASs: 1, 2, 5, 7-11, 13, 14, 16,-25, 27, 28, 30-33	South African AC121, Australian ED73 The UK ED "Statement of recommended practice on accounting for insurance business"	South African AC120, AC125, AC133; The UK FRS 13, FRS 25; Australian ED73	Valuation of tangible fixed assets; depreciation methods; inventory valuation; R & D; Goodwill; Foreign exchange translation; construction contract; finance leases; deferred tax; depreciation of tangible fixed assets; Capitalization of other identifiable intangibles
Data sources	Companies' financial reports for the period from 1975-78	Survey questionnaire and PW 1979 survey	60 listed Companies' 1997 annual reports	11 listed life insurance companies' 1993-1998 annual reports	14 listed Banks' financial statements	1993 financial reports of 80 selected companies (from the UK and Australia)
Methodology	Data analysed using percentages in respect of compliance rates per country for each year	Response categories weighted. Average scores calculated for regions and countries. Non parametric tests used to differentiate regions and countries	Compliance scoring points and multivariate regression techniques	Disclosure checklists to score compliance; Analysis of Variance to identify significant differences	Disclosure checklists to score compliance; Correlation coefficient and Analysis of Variance	H index, Between-Country C index, and Chi-square test
Main conclusions	"The IASC had had very little effect on the accounting practices of the countries surveyed" (9.126)	"Many differences still existed in western European accounting practices" (p.33)	High level of compliance with IAS. However, this level of compliance was much lower under the assumption that non-disclosure of an item was considered as non-compliance	SA insurance companies comply with local standards and reflect inadequate compliance when compared to UK and Australian benchmarks	Compliance with local standards and inadequacy of SA Banks in comparison to their UK and Australian counterparts which performed much better	Australian companies appear to follow US GAAP to a greater extent than do the UK companies

Source: Adapted from Tay and Parker (1990)

2.5. SUMMARY

In this chapter, I have reviewed different studies related to international accounting harmonisation. The use of concepts such as: harmony, harmonisation, standards, standardisation, uniformity, and comparability has been analysed. The results reveal that although these concepts have been described in different ways by different authors, they actually indicate the same purpose, that is, the harmonisation of accounting practices worldwide.

In addition, different techniques of harmonisation measurement have been analysed. The findings of earlier studies revealed that to quantify the extent to which accounting practices are harmonised between companies, two sets of measurement techniques are being recommended namely: indices (H, I, C, E and T indices) and statistical models. The T index as advocated by Taplin (2004) seems more appropriate for the realisation of this study as it appears to be a unified approach of other indices. However, it could be important to note that, despite the fact that certain scholars use both techniques (indices and statistical models) they are not alternative methods (Cañibano and Mora, 2000). Statistical models are actually used to measure significant changes in the process of harmonisation over time.

Finally, more than ten case studies have been reviewed, and the results showed that most of the scholars concentrated their surveys on the European and Asia Pacific countries; except for West (1999) and West (2000) who surveyed the extent of compliance with international benchmarks between the South African, United Kingdom, and Australian companies. Even though, West (1999) and West (2000) did not mean to measure the degree of accounting harmony between these countries; moreover, their methodologies appear inappropriate for the purpose of this study, since I aim to quantify the level of accounting harmony following the three levels of comparability: within-, between-country and total comparability. Afterwards, this study focussed on companies listed on the stock exchanges hosted by selected developed and developing countries, namely: Australia, China, France, Germany, Japan, South Africa, the UK, and the US. The research methodology will be presented in the next chapter.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. RESEARCH QUESTION

Most countries with developed stock markets are moving to fully adopt International Financial Reporting Standards (IFRS) for all listed companies. Convergence with IFRS is intended to improve comparability of accounting information. This means that demands for greater comparability in financial reporting caused by increasing international business activities and greater participation in global financial markets will be met (Astami *et al.*, 2004).

This move will, later on, facilitate more efficient decision making by reducing costs for both producers and users of financial information, therefore, facilitate enhanced capital flows (Choi and Mueller, 1992).

China and South Africa as emerging markets are not lagging behind the compliance with IFRS as they have made many efforts to harmonise with international standards. South Africa has converged with IFRS since 1 January 2005. Convergence with IFRS is supposed to improve the comparability of reporting practices. However, despite similar accounting standards, the companies' attributes, societal actors, and business environment might lead to non-comparable accounting numbers. Thus, this research raises an important issue:

To what extent does accounting measurement and valuation harmony exist between the listed companies on the leading stock markets?

A further issue to consider is the extent to which accounting measurement and valuation harmony exists among selected large companies at national level.

The level of harmony between accounting practices will be assessed in terms of accounting options chosen by companies with regard to accounting regulations of selected countries and/or with regard to IASB's standards.

3.2. RESEARCH HYPOTHESES

The move to IFRS for listed companies in different countries is likely to expedite the harmonisation of financial accounting practices. Financial statement users are ultimately concerned with a company's actual accounting measurement policy choices. The hypotheses to be tested are stated below in the null form:

Ho: There are no significant differences in the frequency of accounting measurement policies by listed companies across the selected countries;

Ho_1:There is no significant difference in the valuation bases of tangible fixed assets used by the selected companies;

Ho_2:There is no significant difference in the depreciation methods used by the selected companies;

Ho_3:There is no significant difference in the methods of treating goodwill used by the selected companies;

Ho_4:There is no significant difference in the methods of treating research and development costs used by the selected companies;

Ho_5:There is no significant difference in the stock valuation methods used by the selected companies;

Ho_6:There is no significant difference between accounting methods used in the measurement of foreign currency translation by the selected companies;

Ho_7:There is no significant difference in the methods of treating financial leases by the selected companies; and

Ho_8:There is no significant difference between accounting methods used in the measurement of business combinations by the selected companies.

3.3. DATA COLLECTION

This section is concerned with the data collection. It provides reason for which the choice of accounting policies, countries, and companies that are examined in this study.

3.3.1. Choice of accounting policies

The accounting policies selected for testing must meet two criteria for inclusion in this study[8]:

- Firstly, the accounting policy or measurement practice chosen may, on its own or in concert, significantly affect measures of net assets and/or profits, depending on the choice of treatment adopted by a company; and
- Secondly, information relating to the particular method adopted for treating each of the variables must commonly be available from the accounting policies section of most companies' annual reports, or can be deduced from the notes to their accounts.

The main hypothesis is tested by individually examining the accounting policy choices for fixed asset valuation, depreciation methods, goodwill, research and development expenditures, inventory valuation methods, foreign currency translation, financial leases, and business combination.

The Generally Accepted Accounting Practices of the selected countries for the purpose of this study must have been effective for financial years before or by the 2004 financial year.

Details of the different accounting treatments used in the classification of observations are set out in the following chapter.

[8] The same criteria have been used by Emenyonu and Gray (1992) and Herrmann and Thomas (1995)

3.3.2. Choice of countries

Some insights into the research question above would be gained from an assessment of the measurement practices of companies listed on the world's largest developed stock markets including some major emerging stock market countries, namely: Australia, China, France, Germany, Japan, South Africa, the United Kingdom (UK), and the United States of America (USA).

The choice of countries is influenced by:

- the extent of the national economy;
- the relative size and extent of capital markets;
- the residence of major multinational companies; and
- membership of the International Accounting Standards Board (IASB).

Accordingly, this study analyses the level of international accounting harmony among countries that are hosts of leading stock markets, namely: the UK, the US, France, Australia, Japan, Germany, South Africa and China. Most of these countries are converging to IFRS or are closely aligned with IFRS, which is consistent with their development as bases for international business activity.

1. South Africa (SA)

The aim of this section is to justify why the study focuses on South Africa rather than on other African countries, while the African continent has 53 countries and over 18 active stock exchanges, including one of the only regional stock exchanges in the world, linking eight French-speaking countries in West Africa.

In fact, South Africa is one of the most advanced economies on the African continent. With a wealth of natural resources, South Africa contains wide disparities of wealth, with obvious implications for broader socio-political policy directions. South Africa has a strong-shared set of interests with the developing economies of the world. On occasion, it has taken a leadership role in this regard (SA year book, 2001/2002). In terms of Gross

Domestic Product (GDP) per capita, South Africa ranks second behind Mauritius with US$ 10,700 followed by Botswana and Namibia (CIA, 2004).

The South African economy displays many world-class features. These include a sophisticated financial and physical infrastructure, and a good telecommunications and energy supply network. In 2003, its stock exchange ranked 18th in the world with a market capitalization of US$ 267,745m. South Africa ranks 20th in the world in terms of exports and imports with a total value traded of US$ 102,808m; and 21st in terms of number of listed domestic companies, with an average company size of US$ 628.5m that ranks it among the world Top 25 markets (see Appendix 1).

The South African stock market represented by JSE Securities Exchange is the oldest[9] and largest stock exchange in Africa, and ranks first with its market capitalization several times larger than all of the other African markets combined. As demonstrated in the statistics, South Africa has ranked first within an observed period of time from 1992 to 2003, although the figures can vary (see appendix 2). This reality remains true in terms of value traded, where South Africa ranks first followed by Egypt (see appendix 3). However, it ranks second in terms of number of listed companies for the same period behind Egypt, which has more than double the number of South African listed companies.

Particularly since the advent of democracy in 1994, South African listed companies have made large investments throughout the continent. At their best, South African companies are competitive with the world's biggest and best companies.

With regards to all of the abovementioned financial and economic indicators, South Africa appears more relevant to be included in this study than any other African country.

[9] The JSE securities exchange was founded in November 1887; followed by the Egyptian Stock Exchange where the Alexandria Exchange was established in 1888, while the Cairo Exchange was established in 1903 (Source: UNDP (2003), African Stock Markets Handbook)

2. The United Kingdom (UK)

The UK is a major actor in the global economy. As it is demonstrated by the statistics given in Appendix 5, the UK stands alongside the USA as being the leading source of funds for foreign direct investment and ranks second to that country as recipient of flows of foreign direct investment (Flower and Ebbers, 2002).

Standards of living are relatively high in terms of life expectancy and a rate of population growth, which is lower than the rate of growth of GDP. The UK enjoyed a GDP per capita of US$ 27,700 in 2003. Furthermore, given the third criterion of countries' choice, the UK ranks third in terms of the number of major multinational enterprises (MNEs) ranked by foreign assets that come under its jurisdiction (see appendix 5).

In terms of international capital markets, the UK ranks third in the world behind the US and Japan with a market capitalization of US$ 2,412,434m and a total value traded of US$ 2,150,753m that ranks it easily among the top 25 markets by average company size (see appendix 1).

Due to the UK's unique economic history, it is important to include the UK in a study of international accounting harmonisation. A century-and-a half ago, in the middle of the nineteenth-century, the UK was the world's leading industrial power. The industrial revolution started there in the eighteenth century and within a century, the UK had grown from essentially a commercial and maritime nation to become the most powerful industrial nation that the world had witnessed up to that time. In this period the foundations of the present system of financial reporting were being laid (Flower and Ebbers, 2002).

3. France

France is a major economic power. In 2003, France accounted for a GDP per capita of US$ 27,500 (CIA, 2004). It is the world's fourth largest trading nation as measured by exports; as regards FDI (see appendix 5), it is third in the world for outflows and inflows. There are fourteen French enterprises in the top 100 TNCs (see appendix 6).

France has had a significant influence over the development of financial reporting in other countries notably those of southern Europe, such as Spain and Italy, and former French colonies.

In terms of international financial markets, the French stock market ranks second in Europe and fourth in the world with a market capitalisation of US$ 1,355,643m. The French stock market has 723 listed companies, and in this regard, France ranks 14th in the world and fourth in Europe. It ranks 5th in the world in terms of total value traded (see appendix 3).

4. Germany

Germany is one of the largest economies in the world. Germany accounts for a GDP per capita of US$ 27,600 in 2003. It is a major power in world trade, being second only to the UK in Europe and fourth in the world in the size of its total value traded of US$ 1,147,209m (see appendix 3). German enterprises are large investors in other countries in terms of annual flows and stocks.

In terms of financial markets, the German stock market is of comparable size to that of France but smaller than that of the UK. There are 684 companies listed on the German Stock Exchanges with a market capitalisation of US$ 1,079,026m in 2003. In addition, three other factors make the choice of Germany relevant:

- Germany has had a significant influence on the development of financial reporting in a number of other countries in Central Europe and Scandinavia. This influence is still very marked in the law and practice of Austria and Switzerland;

- The traditional approach to financial reporting in Germany is fundamentally different from, and in some ways the opposite to, that adopted in the Anglo-Saxon countries; and

- German enterprises are playing a leading role in the globalization of the world's economy. A striking example is the merger of Daimler Benz with the American Chrysler Corporation to form the world's third largest automobile manufacturer.

5. The United States of America (USA)

The importance of the USA for the study of international harmonisation derives principally from that country's economic strength. The USA is statistically the world's largest economy and accounts for a GDP per capita of US$ 37,800 in 2003.

The USA is the principal driving force behind the globalization process. Its imports and exports are larger than those of any other country. It is the principal source of foreign direct investment (FDI) and also receives more FDI than any other country. There are more American MNEs (ie. 27 companies) in the top 100 than those of any other country.

The USA has a total number of 5,295 listed companies, and only ranks second to India. However, the USA ranks easily first in terms of market capitalisation with a total figure of US$ 14,266,266m.

These very numerous and powerful American MNEs are legally obliged to draw up their accounts according to US GAAP. The term US GAAP stands for the totality of the rules that govern financial reporting in the USA. However the influence of US GAAP extends beyond the USA (Parker and Morris, 2001). Very many non-American MNEs also prepare their accounts in conformity with US GAAP, for example, the British PLC BP Amoco, the German AG DaimlerChrysler, and the Japanese KR Toyota.

Furthermore, US GAAP has had and still has a very strong influence over the rules in other countries, where the rule-makers often adopt rules that are very similar to, and are clearly derived from those of US GAAP (Parker and Morris, 2001).

6. Japan

Japan is the world's second largest economy. It is a highly successful country, with an average per capita GDP of US$ 28,000 in 2003.

The Japanese GDP is relatively higher than that of that of Germany, France and the UK. Japan has achieved remarkable growth since the Second World War. It is a highly industrialized and urbanized country that is dependent for its economic success on large

international companies. There are 7 Japanese MNEs in the top 100, ranked by foreign assets in 2002.

Much of Japanese success is built on trade, with the country being the home of some of the top consumer products companies in the world. Japan has relied extensively upon exports, resulting in a large balance of payments surplus.

Japan has eight domestic exchanges where over 3000 domestic companies publicly trade either equity or bonds on one of these exchanges. The Tokyo Stock Exchange (TSE) is the largest with nearly 1800 companies listed on it, making Japan one of the largest stock markets in the developed world, behind only London and New York in terms of the number of companies listed. Japan ranks second behind the USA as measured by market capitalization with a figure of US$ 3,040,665m (see appendix 2).

7. Australia

Australia is an immensely large country with a small population. With its 7,682,300 sq.km of land mass, Australia accounts only for 19.9 m of population (in 2003). However, it is highly urbanized and most of the population live on the coast, mainly in the South-East of the continent. It is relatively wealthy and economically successful. Its per capita GDP, approximately US$ 28,900 placed it 14th in the world in 2003.

In terms of financial markets, Australia has a well organised and active stock market with a relatively long history as the first stock exchange opened in Sydney in 1837, shortly thereafter followed by further exchanges in the other states. In 1987, the stock exchanges were all amalgamated to form the Australian Stock Exchange (ASX). The ASX is a private non-profit making organisation.

The ASX has nearly 1,405 listed companies. It is the 12th largest stock market in the world at the end of 2003, as measured by the market capitalization of its domestic companies, with a total value of US$ 585,475m.

Although many other developed countries exist with a market capitalisation larger than the Australian one, the choice of Australia as well as South Africa is justified by the need to include at least one major actor in the global economy from each continent.

8. China

China has become a major economic force in the last three decades. With nearly one-quarter of the world's population[10], China has experienced remarkable growth since it began to liberalise its economy (Roberts *et al.*, 1998). China had a per capita gross domestic product of US$ 4,580 in 2003 (CIA, 2004) and a stock exchange with a market capitalisation of US$ 681,204m and a value traded of US$ 476,813m. China has 1,296 listed companies.

Although these figures are lower than those of other selected countries, China ranks first in terms of market capitalisation and ranks second behind Korea among the emerging stock market countries. China ranks 25th in terms of number of listed domestic companies with an average company size of US$ 525.6m that ranks it among the world Top 25 markets (see appendix 1).

In terms of its accounting system, the Chinese accounting system has a very long history influenced in the course of development by a variety of cultures and politico-economical system (Roberts *et al* 1998). As much as China is restructuring its accounting system, it has now in recent years begun to import western accounting systems with a particular focus on International Accounting Standards (IAS) with some modifications to match more closely the unique environment of China.

3.3.3. Choice of companies

Large companies will be chosen because international harmonisation is significantly more important for them since they are more likely to attract foreign investors, to borrow or to operate abroad (Cañibano and Mora, 2000).

Large companies are thus more likely to experience an international capital market demand for information above that from their domestic capital markets. Hence, they are more likely to use internationally recognized standards such as IASs or US GAAP

[10] China has a large population of 1,306,313,812 (CIA 2005)

(Parker and Morris, 2001). Therefore, it is of interest to analyse not only the multinational companies, but also some large domestic companies in order to assess the extent to which accounting practices are internationally harmonised.

For the purpose of this study, companies were selected according to their size by market capitalisation using annual reports of 2004. Accordingly, thirty listed companies[11] have been selected from each of the eight selected countries included in this study. Thus there existed a possibility to analyse 240 annual reports of companies. However, only 195 companies' annual reports were obtained (see Appendix 7); other companies were thus excluded from the sample.

3.4. TOOLS OF ANALYSIS

3.4.1. T index

The T index is a new index to measure harmony/harmonisation of financial accounting practices proposed by Taplin (2004). It provides a unified framework to the variety of indices proposed in the accounting literature (i.e. H index, I index or C index).

These indices can be determined individually from Taplin's unified framework *T* by selecting one of several options for each of the following four criteria:

- The country weightings;
- International focus;
- The treatment of multiple accounting policies; and
- The treatment of non-disclosure.

Each option is labelled with a code (e.g. 1(a), 1(b), 2 (a) etc), these codes are displayed on the results table so that the researcher can keep track of which options were used for each result generated:

[11] In the case of South Africa where many listed companies are fairly small, the sample was drawn from the Top 100 by market capitalisation.

Country weightings

1(a) = Companies weighted equally

1(b) = Countries weighted equally

1(c) = Countries weighted according to population

International focus

2(a) = Overall country focus

2(b) = Within country

2(c) = Between country

Treatment of multiple accounting policies

3(a) = Multiple accounting not allowed

3(b) = Completely comparable or completely incomparable

3(c) = Fractional comparability

Treatment of non-disclosure

4(a) = Exclude non-disclosure from the calculation

4(b) = Comparable to everything

4(c) = Non comparable

4(d) = Comparable to selected method

1. Country weightings

As suggested by Taplin (2004), there are three natural weighting schemes to be given to countries:

- **Companies weighted equally:** countries are weighted proportionally to the number of companies sampled from that country.

$$b_i = \frac{n_i}{n}$$

where n_i is the number of companies from country i in the sample and n is the total number of companies in the sample, so b_i is the proportion of companies in the sample from country i.

This means a country receives weight proportional to the number of companies sampled from that country

- **Countries weighted equally:** each country receives equal weighting

$$b_i = \frac{1}{N}$$

where N is the number of countries in the sample

- **Countries weighted according to population:** countries are weighted according to the total population number of companies in each country (for example, the number of companies listed in the Stock Exchange in each country).

$$b_i = \frac{u_i}{\sum_{i=1}^{N} u}$$

where u_i is the total number of companies in country i.

2. International focus

There are three major types of international focus that allow computing β_{ij} from the b_i as stated in (3.4.1.) above: overall, within-country and between-country.

- **Overall:** comparisons are made between all companies irrespective of country.

$$\beta_{ij} = b_i b_j$$

- **Within country:** comparisons of companies from different countries are given zero weighting.

$$\beta_{ij} = \frac{b_i b_j}{\sum_{i=1}^{N} b_i^2}$$

if i=j and $\beta_{ij} = 0$ if i≠j

- **Between country:** comparisons of companies within the same country are given zero weighting.

$$\beta_{ij} = \frac{b_i b_j}{\sum_{i=1}^{N} \sum_{j \neq 1} b_i b_j}$$

if i≠j

3. Treatment of multiple accounting policies

There are three treatments of multiple accounting policies, namely:

- Multiple accounting policies are not allowed,

  $\alpha_{kl}=0$ if k≠l;

- Multiple accounting policies are allowed if completely comparable,

  $\alpha_{kl}=1$ when methods k and l are completely comparable and if k≠l

  $\alpha_{kl}=0$ when they cannot be compared at all; and

- Multiple accounting policies are allowable with fractional comparability,

  α_{kl} takes a value on the continuum from 0 (cannot be compared at all) to 1 (completely comparable).

4. Treatment of non-disclosure

The companies' annual reports must contain sufficient disclosure to determine the policy selected. Hence, the analysis is dependent on the disclosures provided in the annual reports, so to that extent the basic grid of sample counts (see page 17) is determined; therefore, the disclosure harmony/harmonisation[12] is computed (Aisbitt 2001).

In some instances, companies may provide insufficient information to determine the precise nature of accounting method used. On the other hand, a particular financial statement item may not be reported in a company's annual reports.

To solve this difficulty, earlier researchers (see for example Archer *et al.* 1995, 1996; Morris and Parker 1998; and Taplin 2004) have identified different ways and interpretations of dealing with non-disclosure of accounting policy choices made by a company, namely: not applicable, comparable to everything, comparable to nothing, and comparable to standard method.

a. Not applicable

Companies who do not disclose a method are removed from the sample.

In this study, for each item where the number of non-disclosures is more than 5%, a second computation will be done excluding thus the non-disclosing companies from the calculation (see for example table 16 on page 66).

b. Comparable to everything

Companies failing to disclose an accounting policy are considered comparable with all companies, no matter which accounting method they use. That is, the accounts of a non-disclosing company are comparable with the accounts of any other company.

$\alpha_{km}=\alpha_{ml}=\alpha_{mm}=1$

for all accounting methods k and l, and where m represents a non-disclosure policy;

c. Comparable to nothing

Non-disclosure is comparable to nothing, including other non-disclosing companies. For instance if companies fail to disclose their accounting policy choices in order to withhold

[12] i.e. where harmony refers to one period and harmonisation to 2 different years (see Van der Tas, 1988).

information and make comparisons between accounts difficult, rather than because it was not applicable.

$\alpha_{km}=\alpha_{ml}=\alpha_{mm}=0$

for all accounting methods k and l;

d. Comparable to the standard method

Non-disclosure may be comparable to the standard accounting method or default. The standard method may be required by regulation and it could be assumed that the method used was not disclosed because it is understood that the default was used.

In this study, non-disclosure will be regarded as an accounting treatment, that is, comparable to everything.

$\alpha_{ks}=\alpha_{km}=\alpha_{sl}=\alpha_{ml}$,

for all k, l and m, and where s represents a standard accounting method.

3.4.2. Chi-square

The Chi-square test that will be used in this study is the test statistic for independence or the Chi-square Goodness of fit test, which generally aims to measure how well observed data fit what would be expected under specified conditions (Groebner and Shannon, 1990; Anderson, Sweeny and Williams, 1993).

For the purpose of this study, the Chi-square test aims to assess whether the pattern of usage of measurement practices by companies in the selected countries is significantly different.

As mentioned in section 3.2 above (see page 38), the general hypothesis to be tested here is stated in a null hypothesis as there are no significant differences in the frequency of accounting measurement policies by companies listed on leading stock exchanges.

The general formula of test statistic for independence is given in equation 1:

$$\chi^2 = \sum_{i=1}^{r}\sum_{j=1}^{c}\frac{(fo_{ij}-fe_{ij})^2}{fe_{ij}} \qquad \text{with d.f.= (r-1) (c-1)} \qquad (1)$$

where fo = observed cell frequency

fe = expected cell frequency

r = number of rows

c = number of columns

d.f. = degree of freedom

NB:

- the double summation in (1) is used to merely indicate that all rows and columns must be used in calculating χ^2
- $$fe_{ij} = \frac{(row\ i\ total)(column\ j\ total)}{total\ no.\ of\ observations} \qquad (2)$$

3.5. SUMMARY

The first section of this chapter presented the research question as to what extent accounting measurement and valuation harmony exists between listed companies on the leading stock markets. The research hypotheses are presented in section two in null forms. The third section presented the data collection providing the reasons for choice of accounting policies and countries sampled. The fourth section dealt with the tools of analysis. The main findings of this research are presented in the next chapter.

CHAPTER FOUR

ANALYSIS OF FINDINGS

4.1. INTRODUCTION

This chapter presents the main findings of the research. The discussion in this chapter is limited to the eight specified accounting policies in the context of eight selected countries, namely: Australia, China, France, Germany, Japan, South Africa, the United Kingdom and the United States of America.

As mentioned in the preceding chapter, eight financial statement items are examined in this study. These are: tangible fixed asset valuation, depreciation methods, accounting for goodwill, accounting for research and development costs, stock valuation methods, accounting for foreign currency translation, accounting for finance leases and accounting for business combinations. These were chosen on the basis of the two criteria used by Emenyonu and Gray (1992) and Herrmann and Thomas (1995) as discussed in 3.3.1. above.

The choice of accounting procedure by a reporting company is a function of country environmental factors, the decision to comply with International Financial Reporting Standards (IFRS) or the influence of the major economies such as the UK and the US on the development of business.

Table 6 on the following page presents the reporting environment of the sampled companies. In this table, I have classified five categories of accounting systems and acceptable accounting procedures that have been used by the selected companies. These procedures are:

- Local GAAP,
- IFRS,

- Both local GAAP and IFRS: The use of both local GAAP and IFRS appears when a reporting company relies on IFRS to define its accounting policies and valuation methods and in addition uses the preferential methods allowed by the local GAAP[13].
- UK GAAP, and
- US GAAP.

Table 6: Reporting environment of the sampled companies

GAAP	Sampled countries								
	Austr.	China	France	Germ.	Japan	S.A.	U.K.	U.S	Total
Local GAAP	21	11	16	6	21	13			88
IFRS		7	4	7		4	1		23
Local GAAP + IFRS		1	4	5		10	4		24
UK GAAP						1	22		23
US GAAP				4	2		1	30	37
TOTAL	21	19	24	22	23	28	28	30	195

As a result, the majority of companies have generated reports based on the local GAAP, followed in the second position (ignoring companies obliged to present in US or UK GAAP) by those using both local GAAP and IFRS. In the third position come those complying with IFRS. Finally, it has been found that the influence of the US GAAP and the UK GAAP on the preparation of the accounts was not significant in other countries.

The main findings of each accounting policy are presented in tables 7-42. For each financial accounting item examined, the structure below is followed:

- Firstly, there is a brief description of accounting treatments in terms of IFRS and/or accounting standards of the selected countries;
- Secondly, a list of various accounting treatments adopted by companies is given;
- Thirdly, the results of the comparability and chi-squared tests are displayed; and
- Finally, the test results are analysed. Possible reasons are given for the level of accounting harmony between the selected countries, as well as indicating if the difference between the measurement of accounting practices is significant or not.

[13] This is for an example the case of Barloworld (2004) whose the financial statements were prepared in accordance with IFRS and with South African Statements of Generally Accepted Accounting Practice.

4.2. TANGIBLE FIXED ASSET VALUATION

In terms of IFRS, Property, plant and equipment (PPE) are tangible assets that are held by an entity for use in the production or supply of goods or services, for rental to others or for administrative purposes. They are expected to be used during more than one period (IAS 16). The national disclosure requirements in most of selected countries are similar to IFRS. However, some differences may exist in regard of the valuation methods. Some countries do not allow revaluation (Germany, France, the United States[14], and Japan); while this is permissible in Australia, China, South Africa, and the UK (AASB 116, AC 123, Deloitte 2005, KPMG 2003a, KPMG 2003b, PWC 2004).

Three valuation bases of fixed assets were identified in this study, namely: historical cost, revaluation and mixture of methods.

Table 7 below summarises the results regarding the tangible fixed asset valuation methods. It shows that of 195 selected companies, over 90% of companies have used historical cost; only 1% of companies have revalued; and around 5% have combined both the historical cost and the revaluation method. The rest did not disclose their accounting methods.

Table 7: Tangible fixed assets: Distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch.	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
Hist. cost	20	95.2	19	100	18	75.0	22	100	22	95.7	24	85.7	27	96.4	25	83.3	177	90.8
Revaluation	0	0	0	0	1	4.2	0	0	0	0	0	0	1	3.6	0	0	2	1.0
Mixed Meth.	0	0	0	0	5	20.8	0	0	1	4.3	4	14.3	0	0	1	3.3	11	5.6
Non-disclosure	1	4.8	0	0	0	0	0	0	0	0	0	0	0	0	4	13.3	5	2.6
Total	21		19		24		22		23		28		28		30		195	

This reveals overwhelming support for the historical cost system, with only two companies, namely Legrand and BHP Billiton Plc revaluing comprehensively. It is clear that this finding is influenced by the required use of historical cost in the four countries

[14] No revaluations except some securities and derivatives at fair value.

mentioned earlier, but where revaluation is permissible; there is little support for it. In the case of companies applying revaluation selectively, i.e. the 'mixed method', scrutiny of the financial statements in question indicates that 11 companies selected the mixed methods. The case of the 4 companies in the US that do not disclose is of interest because they make up 4 of the 5 that have not disclosed; these companies are Abbott Laboratories, Exxon Mobil, Pfizer Inc., and Verizon Communication. Operating respectively in healthcare, chemical and petroleum, chemical, and communication sectors with non-negligible tangible assets, they failed to disclose their valuation basis. However, it could be assumed that they have used historical cost as a standard method or allowed method.

Analysis of this distribution is presented in table 8 below. The overall C index and H index are used to measure the degree of comparability and harmony between companies from one country or from a group of countries; and the I index is used to measure the level of harmony between companies from different countries. In view of the discussion above relating to table 7, it is not surprising that, as summarised in table 8, this distribution results in a high degree of harmony; the within-country comparability C index of 0.832 (or a 83.20% degree of harmony within country effects), and 0.827 of comparability between countries, as well as the overall C index and H index of 0.828. The I index also indicates a high level of comparability with 0.837.

Table 8: Unified framework T index and chi-squared test

T INDEX EQUALS:			
– H and C index (overall): 0.828			– Between Country C index: 0.827
Option*: 1(a) 2(a) 3(a)			1(a) 2(c) 3(a)
Within Country C index: 0.832			– I index: 0.837
1(a) 2(b) 3(a)			1(b) 2(c) 3(a)
$\chi^2 = 43.6686$	d.f.=21	$\chi^2_{.05} - 32.6705$	H_0: rejected

Key options (*): The unified framework T index can individually determine various indices by selecting one of several options for each of the four criteria

(country weightings; international focus; treatment of multiple accounting policies; and treatment of non-disclosure). Each option is labelled with a code (e.g. 1(a), 4(b) etc), these codes are displayed on the results table to show which options were used for each result generated:

1(a) = Companies weighted equally
1(b) – Countries weighted equally
2(a) = Overall country focus
2(b) = Within-country
2(c) = Between-country
3(a) = Multiple accounting not allowed
4(a) – Exclude non disclosers

Based on the reporting companies, findings indicate that there are significant differences in accounting measurement of fixed assets with the chi-squared statistic equal to 43.6686 at 5% level. Therefore, the null hypothesis stating that there is no significant difference in the valuation basis of tangible fixed assets used by selected companies should be rejected. This is due to the use of mixed methods (as some companies combined both historical cost and revaluation methods), and due to non-disclosure.

Table 9: Two country index table for tangible fixed asset valuation

The shading in this table represents the within-country comparability (see also Tables 12, 15, 17, 20, 22, 25, 27, 30, 32, 35, 37, 40, and 42).

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.91	0.95	0.71	0.95	0.91	0.82	0.92	0.80
China	0.95	1.00	0.75	1.00	0.96	0.86	0.96	0.83
France	0.71	0.75	0.61	0.75	0.73	0.67	0.72	0.63
Germany	0.95	1.00	0.75	1.00	0.96	0.86	0.96	0.83
Japan	0.91	0.96	0.73	0.96	0.92	0.83	0.92	0.80
S.A.	0.82	0.86	0.67	0.86	0.83	0.76	0.83	0.72
U.K.	0.92	0.96	0.72	0.96	0.92	0.83	0.93	0.80
U.S.	0.80	0.83	0.63	0.83	0.80	0.72	0.80	0.71

As measured by a two country index, table 9 indicates a very high level of harmony both within and between China and Germany where the accounting practices are completely comparable (100%). A high degree of comparability is also found between other countries on a two country basis (from 70% to 96%), except for France where five companies used the mixed methods and one company revalued comprehensively. Although revaluation is not allowed in terms of French GAAP, while domiciled in France, the accounts of these companies were prepared in accordance with IFRS. This is the case of: LVMH, Pernod Ricard SA, Pinault-Printemps Redoute, and PSA Peugeot Citroen SA.

4.3. DEPRECIATION METHODS

In terms of IAS 16: 60-62, property, plant and equipment that have limited useful lives (depreciable assets) are to be depreciated over those useful lives and specified the manner in which this is to be done as well. The national disclosure requirements of the sampled countries are the same as those of IFRS. However, there are some differences in practice due to a variety of depreciation methods.

For the purpose of this study, I have identified three depreciation methods, these are: Straight–line method; reducing balance method; and activity method which includes unit of production method and sum-of-years'-digits method.

Although there is a variety of depreciation methods that can be used to allocate the depreciable amount of an asset; there is a remarkable support for use the straight-line method. As indicated in table 10 on the following page, of all 195 companies, more than 73% have used the straight-line method, 4% have used the reducing balance method, and 18% have used a mixture of methods, while 4% did not disclose the methods used. None of the reporting companies solely used the activity method.

Table 10: Depreciation: Distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch.	%	Fr.	%	Ger	%	Jp	%	S.A	%	U.K.	%	U.S	%	Tot	%
Activity meth.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Straight-line	13	61.9	19	100	18	75.0	22	100	3	13.0	26	92.9	22	78.6	21	70.0	144	73.8
Reducing bal	3	14.3	0	0	0	0.0	0	0	5	21.7	0	0	0	0	0	0	8	4.1
Mixed Meth.	3	14.3	0	0	6	25.0	0	0	15	65.2	1	3.6	3	10.7	7	23.3	35	17.9
Non-disclosure	2	9.5	0	0	0	0.0	0	0	0	0	1	3.6	3	10.7	2	6.7	8	4.1
Total	21		19		24		22		23		28		28		30		195	

This distribution of accounting policies results in a low degree of harmony as the H index and overall C index indicate only 58.1% of comparability. Similarly the between-country C index and I index indicate respectively 56.6% and 56.5%. Although the within-country C index shows a 68.5% of harmony which is relatively high, differences in the measurement of accounting policies made are significant as indicated by the chi-square statistic (see Table 11); thus, the null hypothesis that stipulates that there is no significant difference in the depreciation methods used by selected companies is rejected. This is largely due to the number of mixed methods used by some companies (17.9%).

Table 11: Unified framework T index and chi-squared test

T INDEX EQUALS:	
– H and C index (overall): 0.581	Between Country C index: 0.566
1(a) 2(a) 3(a)	1(a) 2(c) 3(a)
– Within Country C index: 0.685	I index: 0.565
1(a) 2(b) 3(a)	1(b) 2(c) 3(a)
χ^2 – 96.1142 df–28 $\chi^2_{.05}$ 41.3372	H_0: rejected

Table 12 on the following page provides the results regarding two country indices for the depreciation methods used. The findings reveal that the vast majority of selected companies use the straight-line method. China and Germany had 100% of harmony and comparability within country and between countries; this is due to the requirements of their local GAAP that demand the use of straight-line methods. They are followed by South Africa which better performed with an 86% in the within-country score and 93% in

the between country score with both Germany and China. All other countries showed little harmony as the degree of comparability within-country was less than 75%. The level of harmony is very low between Japan and other countries where the figures are between 13 and 26%. This is due to the large number of Japanese companies using mixed methods; while the majority of companies from other countries used the straight-line method.

Table 12: Two country index table for depreciation methods

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.43	0.62	0.50	0.62	0.20	0.58	0.51	0.47
China	0.62	1.00	0.75	1.00	0.13	0.93	0.79	0.70
France	0.50	0.75	0.63	0.75	0.26	0.71	0.62	0.58
Germany	0.62	1.00	0.75	1.00	0.13	0.93	0.79	0.70
Japan	0.20	0.13	0.26	0.13	0.49	0.14	0.17	0.24
S.A.	0.58	0.93	0.71	0.93	0.14	0.86	0.74	0.66
U.K.	0.51	0.79	0.62	0.79	0.17	0.74	0.64	0.58
U.S.	0.47	0.70	0.58	0.70	0.24	0.66	0.58	0.55

4.4. GOODWILL

In terms of IFRS, Goodwill is recognised by the acquirer as an asset from the acquisition date and is initially measured as the excess of the cost of the business combination over the acquirer's share of the net fair values of the acquiree's identifiable assets, liabilities and contingent liabilities [IFRS 3.51].

Based on the requirements for the preparation of companies' 2004 financial statements, except for the United States where the amortisation of goodwill was prohibited, the amortisation of goodwill was required in all the other selected countries. However, IFRS 3 effective for business combinations on or after March 31, 2004 does not allow the amortisation of goodwill. Instead, it must be tested for impairment at the reporting unit level on an annual basis. Similarly, goodwill is no longer amortised in the sampled

countries as they have converged to IFRS since 1 January 2005; except for China where the amortisation of goodwill is still allowed.

For the purpose of this study, the following methods have been identified regarding accounting for purchased goodwill: amortisation, non-amortisation, immediate write-off to income statement and immediate write-off to reserves.

Based on 2004 companies' annual reports, the results show that of the 195 companies, 62% amortised goodwill, and 29% did not amortise goodwill (of which the majority are US companies)[15]. Only 1% of companies immediately wrote-off to income statement, while none of selected companies wrote-off the goodwill to reserves. About 8% of companies did not disclose the treatment of goodwill. The reason to this might be that there was no transaction resulting in goodwill in those companies in the year of study and/or no existing goodwill to be amortised for.

Table 13: Goodwill: Distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
Amortisation	14	66.7	15	78.9	22	91.7	13	59.1	7	30.4	26	92.9	24	85.7	0	0.0	121	62.1
Non amort.	4	19.0	0	0.0	0	0.0	8	36.4	13	56.5	2	7.1	3	10.7	27	90.0	57	29.2
Written off P/S	0	0	1	5.3	0	0	1	4.5	0	0	0	0	0	0	0	0	2	1.0
Written-off to R.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-disclos.	3	14.3	3	15.8	2	8.3	0	0.0	3	13.0	0	0.0	1	3.6	3	10.0	15	7.7
Total	21		19		24		22		23		28		28		30		195	

Table 13 highlights the difference between the treatments of goodwill in the US and in the rest of the world. With adoption of IFRS 3 in South Africa and Australia, the convergence of EU countries to IFRS and the likelihood that other countries may follow in the interests of harmonisation with IFRS, the pattern is likely to change in the future.

[15] The FASB statement used to require goodwill amortisation but have changed to non-amortisation fairly recently as the Board concluded that amortization of goodwill was not consistent with the concept of representational faithfulness, unless non-amortisation of goodwill coupled with impairment testing.

Therefore, it can be seen in table 14 that the within-country comparability is 70.2% which represents some harmony within-country and little degree of harmony between-countries and total comparability of 44.4% and 47.7% respectively. The I index represents only 45.5% of comparability.

The result of the chi-squared test is significant with 114.8256. Therefore, the null hypothesis that stipulates that there is no significant difference in the methods of treating goodwill used by selected companies is rejected.

Table 14: Unified framework T index and chi-squared test

T INDEX EQUALS:			
– H and C index (overall): 0.477 1(a) 2(a) 3(a)		– Between Country C index: 0.444 1(a) 2(c) 3(a)	
– Within Country C index: 0.702 1(a) 2(b) 3(a)		– I index: 0.455 1(b) 2(c) 3(a)	
$\chi^2 = 114.8256$	df.=28	$\chi^2_{.05} = 41.3372$	H_0: rejected

Table 15 on the following page indicates the level of comparability of financial information on a two country basis regarding the treatment of goodwill. South Africa and France have the highest bi-country I index of 0.85 followed by the UK and South Africa with 0.80, France and the UK with 0.79. This would seem to indicate that the treatment of goodwill in these countries appears to be the most harmonised.

On the other hand, China and the US with 0.02, France and the US with 0.01, South Africa and the US with 0.06; the UK and the US with 0.10, Australia and the US with 0.19, China and Japan with 0.26 produce the lowest level of harmony showing that the accounting practices between these countries are the least harmonised. These figures simply reflect the different method (non-amortisation) applied in the US, compared with the rest of the world as discussed earlier.

Little harmony of accounting practices regarding the treatment of goodwill exists between the rest of countries varying between 0.29 and 0.74 I indices.

Even compared within each country, goodwill is not consistently treated. This table indicates that goodwill is not treated consistently within some countries except for France (0.85), the UK (0.75), and South Africa (0.87) where the majority of companies amortised the goodwill. All the disclosing Americans companies (90%) took the opposite position and did not amortise the goodwill. However, due to the effect of 3 non-disclosers, the within-country index for the US is calculated at 0.82.

Table 15: Two country index table for methods of goodwill

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.50	0.55	0.62	0.46	0.33	0.63	0.60	0.19
China	0.55	0.65	0.74	0.47	0.26	0.73	0.68	0.02
France	0.62	0.74	0.85	0.54	0.29	0.85	0.79	0.01
Germany	0.46	0.47	0.54	0.48	0.39	0.57	0.55	0.33
Japan	0.33	0.26	0.29	0.39	0.43	0.32	0.33	0.52
S.A.	0.63	0.73	0.85	0.57	0.32	0.87	0.80	0.06
U.K.	0.60	0.68	0.79	0.55	0.33	0.80	0.75	0.10
U.S.	0.19	0.02	0.01	0.33	0.52	0.06	0.10	0.82

Even when excluding the non-disclosing companies, the level of harmony is consistently low. The findings indicate that there is 55% of harmony for the H index and overall C index, 51% of harmony between countries and 51% of harmony for the I index that relatively indicate a low level of harmony. However, the findings reveal a high level of harmony with 80% of comparability within-country C index (see Table 16).

Table 16: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:	
– H and C index (overall): 0.55	– Between Country C index: 0.51
1(a) 2(a) 3(a) 4(a)	1(a) 2(c) 3(a) 4(a)
– Within Country C index: 0.80	I index: 0.53
1(a) 2(b) 3(a) 4(a)	1(b) 2(c) 3(a) 4(a)
$\chi^2 = 107.728$ df=21 $\chi^2_{.05} = 32.6705$	H_0: rejected

On the two country basis, the results reveal an evidence of considerable harmony between China and France with 94%, France and South Africa with 93%; and some evidence of harmony between France and the UK with 89%, China and South Africa with 87%, South Africa and the UK with 83%, Australia and France with 78%. Any other combination has a limited degree of harmony as the latter is less than 75%. Note that any combination of countries with the USA indicates a very little harmony varying between 0 and 65%. However, in terms of the comparability within each country, the USA, and France record 100% of comparability or complete harmony, followed by China, South Africa and the UK respectively with 88%, 87% and 80% (see Table 17).

Table 17: Two country index table for methods of goodwill

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.65	0.73	0.78	0.54	0.42	0.74	0.72	0.22
China	0.73	0.88	0.94	0.56	0.33	0.87	0.83	0.00
France	0.78	0.94	1.00	0.59	0.35	0.93	0.89	0.00
Germany	0.54	0.56	0.59	0.48	0.44	0.57	0.57	0.36
Japan	0.42	0.33	0.35	0.44	0.54	0.37	0.38	0.65
S.A.	0.74	0.87	0.93	0.57	0.37	0.87	0.83	0.07
U.K.	0.72	0.83	0.89	0.57	0.38	0.83	0.80	0.11
U.S.	0.22	0.00	0.00	0.36	0.65	0.07	0.11	1.00

4.5. RESEARCH AND DEVELOPMENT COSTS

In terms of IFRS, an intangible asset must be recognised separately from goodwill if it represents contractual or legal rights or is capable of separated or divided and sold, transferred, licensed, rented or exchanged. Acquired in-process research and development is recognised as a separate intangible asset if it meets the definition of an intangible asset and its fair value can be measured reliably. The IASB requires development costs to be capitalised when certain criteria are met. Costs of the research must be expensed.

In order to capitalise development costs, the entity must be able to demonstrate all of the following:

- The technical feasibility of completing the intangible asset;
- The intention to complete the intangible asset;
- The ability to use or sell it;
- How the intangible asset will generate future economic benefits – the entity must demonstrate the existence of a market or, if for internal use, the usefulness of the intangible asset;
- The availability of adequate resources to complete the development; and
- The ability to measure reliably the expenditure attributable to the intangible asset during its development.

This means that the decision whether to write-off development expenditure or not, is not just a matter of accounting policy, but depends on the particular circumstances of the business. It would therefore be legitimate for companies following IFRS to be both writing off and capitalising development expenditure. Thus, the question of harmonisation results needs to be considered in a different light from other cases such as goodwill.

SA GAAP is the same as IFRS. Australian GAAP is closely similar to IFRS, however research and development costs must be capitalised if recoverable "beyond reasonable doubt". In China, US, France, and Japan research and development cost should be expensed when incurred. Some software and website development costs must be capitalised (PWC, 2004). In UK, development costs do not have to be capitalised. In Germany, internally generated intangible assets, including development costs, cannot be capitalised.

Based on company reporting for the financial year 2004, two accounting methods have been identified: write-off to income statement (I/S) and capitalisation.

The findings reveal that 52% of the reporting companies have written-off the research and development cost to income statement, 6% have capitalised, and about 20% have both capitalised and written-off the research and development expenditure. The remaining companies did not disclose their accounting policy regarding research and development costs.

Table 18: Research and development costs: distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
Written-off to P/S	6	28.6	6	31.6	19	79.2	9	40.9	16	69.6	7	25.0	22	78.6	17	56.7	102	52.3
Capitalised	4	19.0	3	15.8	0	0.0	0	0.0	0	0.0	0	0.0	1	3.6	4	13.3	12	6.2
Both writ. & cap.	1	4.8	1	5.3	4	16.7	12	54.5	1	4.3	19	67.9	0	0.0	2	6.7	40	20.5
Non-disclosure	10	47.6	9	47.4	1	4.2	1	4.5	6	26.1	2	7.1	5	17.9	7	23.3	41	21.0
Total	21		19		24		22		23		28		28		30		195	

As shown in table 19, the statistical tests indicate limited level of harmony for all the comparability indices: H index and overall C index of 0.364, within-country C index of 0.506, between-country C index of 0.343 and I index of 0.337. The chi-square value of 115.9466 is significant and therefore, the null hypothesis that states that there is no significant difference in the methods of treating research and development costs used by selected companies is rejected.

Table 19: Unified framework T index and chi-squared test

T INDEX EQUALS:

H and C index (overall): 0.364
1(a) 2(a) 3(a)

– Within Country C index: 0.506
1(a) 2(b) 3(a)

– Between Country C index: 0.343
1(a) 2(c) 3(a)

– I index: 0.337
1(b) 2(c) 3(a)

$\chi^2 = 115.9466$ df 21 $\chi^2_{.05} = 32.6705$ H_0: rejected

On a two country index bases, there is a very little harmony between countries varying from 0.14 to 0.63. The level of harmony remains very low even when compared within

each country, except for France, Japan, South Africa, and the UK which accounted respectively for 0.66, 0.55, 0.53 and 0.65 (see Table 20 on the following page).

As indicated earlier, the apparent lack of harmonisation may stem from the different circumstances of companies, requiring capitalisation of development costs in some instances, and not in others. These findings are therefore not truly comparable with those in respect of other 'pure' policy choices.

Table 20: Two country index table for research and development costs

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.35	0.35	0.25	0.16	0.33	0.14	0.32	0.30
China	0.35	0.35	0.28	0.18	0.35	0.15	0.34	0.31
France	0.25	0.28	0.66	0.42	0.57	0.31	0.63	0.47
Germany	0.16	0.18	0.42	0.47	0.32	0.48	0.33	0.28
Japan	0.33	0.35	0.57	0.32	0.55	0.22	0.59	0.46
S.A.	0.14	0.15	0.31	0.48	0.22	0.53	0.21	0.20
U.K.	0.32	0.34	0.63	0.33	0.59	0.21	0.65	0.49
U.S.	0.30	0.31	0.47	0.28	0.46	0.20	0.49	0.40

Removing all the non-disclosing companies from the calculation, the variations are not significant as the all the results from T index unified approach are less than 67%. Within each country, the UK and Japan performed well respectively with 92% and 89%; all the remained countries have less than 75%.

On the two country basis, only the following combinations of countries had a high degree of harmony, namely: Japan and the UK, Japan and France, France and the UK respectively with 90%, 79%, and 79%. Any other combination of countries had less than 75% degree of comparability. The full details of results of degree of harmony excluding non-disclosing companies are given in table 21 and 22.

Table 21: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:	
H and C index (overall): 0.51	– Between Country C index: 0.49
1(a) 2(a) 3(a) 4(a)	1(a) 2(c) 3(a) 4(a)
– Within Country C index: 0.67	I index: 0.48
1(a) 2(b) 3(a) 4(a)	1(b) 2(c) 3(a) 4(a)
$\chi^2 = 86.088$ df=14 $\chi^2_{.05} = 23.6848$	H_0: rejected

Table 22: Two country index table for methods of research and development costs

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.44	0.45	0.47	0.29	0.52	0.21	0.54	0.47
China	0.45	0.46	0.51	0.31	0.57	0.23	0.59	0.50
France	0.47	0.51	0.71	0.45	0.79	0.35	0.79	0.63
Germany	0.29	0.31	0.45	0.51	0.44	0.53	0.41	0.37
Japan	0.52	0.57	0.79	0.44	0.89	0.30	0.90	0.70
S.A.	0.21	0.23	0.35	0.53	0.30	0.61	0.26	0.26
U.K.	0.54	0.59	0.79	0.41	0.90	0.26	0.92	0.71
U.S.	0.47	0.50	0.63	0.37	0.70	0.26	0.71	0.58

4.6. INVENTORY (STOCK) VALUATION METHODS

In terms of IAS 2 and other GAAPs, inventory shall be measured at the lower of cost and net realisable value. However, Japanese GAAP allows enterprises to use either the cost method, or the lower of cost and market value method. The national requirements of the sampled countries are similar to IFRS. The difference would be in the valuation

methods[16]. Therefore, the variety of accounting methods for stock valuation as allowed in terms of IAS 2:25 would result in a low level of harmony.

For the purpose of this study, the following accounting methods have been identified: First-In First-Out (FIFO), Last-In First-Out (LIFO), Average cost, and mixture of methods.

The research findings reveal that 18% of companies have used FIFO, only 2.6% have used LIFO, this would be partly because of the prohibition of its use in US GAAP, SA GAAP and Australian GAAP. However, 3 American companies have in practice used LIFO. About 38% have used average cost, and 22% combined two or three methods (FIFO, LIFO, or Average). About 20% of companies failed to disclose their methods of recording inventories.

Table 23: Stock valuation: distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch.	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
FIFO	3	14.3	0	0.0	5	20.8	3	13.6	0	0.0	12	42.9	8	28.6	4	13.3	35	17.9
LIFO	0	0.0	0	0.0	1	4.2	0	0.0	1	4.3	0	0.0	0	0.0	3	10.0	5	2.6
Average cost	5	23.8	18	94.7	10	41.7	9	40.9	10	43.5	11	39.3	5	17.9	6	20.0	74	37.9
Mixed Methods	2	9.5	0	0.0	6	25.0	5	22.7	8	34.8	5	17.9	3	10.7	14	46.7	43	22.1
Non-disclosure	11	52.4	1	5.3	2	8.3	5	22.7	4	17.4	0	0.0	12	42.9	3	10.0	38	19.5
Total	21		19		24		22		23		28		28		30		195	

All this results in the very low levels of harmony as indicated in table 24 and 25 with an overall C index and H index of 0.263, within country C index of 0.364, between country C index of 0.249 and I index of 0.256. In a two country index and within each country basis, the level of harmony is still very low, except for China which performed consistently with 0.90 as the majority of selected Chinese companies record inventories using average cost method, and the rest did not disclose the accounting method used.

[16]For example, the use of LIFO is prohibited in US GAAP, South African GAAP and Australian GAAP, while it is permitted in IFRS and other countries.

The chi-square value of 100.5622 is significant. Thus, the null hypothesis that states that there is no significant difference in the stock valuation methods used by selected companies is rejected.

Table 24: Unified framework T index and chi-squared test

T INDEX EQUALS:	
– H and C index (overall): 0.263 1(a) 2(a) 3(a)	– Between Country C index: 0.249 1(a) 2(c) 3(a)
– Within Country C index: 0.364 1(a) 2(b) 3(a)	– I index: 0.256 1(b) 2(c) 3(a)
$\chi^2 = 100.5622$ df=28 $\chi^2_{.05} = 41.3372$	H_0: rejected

Table 25: Two country index table for stock valuation methods

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.36	0.25	0.20	0.26	0.23	0.17	0.32	0.16
China	0.25	0.90	0.40	0.40	0.42	0.37	0.19	0.19
France	0.20	0.40	0.29	0.27	0.28	0.30	0.20	0.24
Germany	0.26	0.40	0.27	0.29	0.30	0.26	0.23	0.23
Japan	0.23	0.42	0.28	0.30	0.34	0.23	0.19	0.27
S.A.	0.17	0.37	0.30	0.26	0.23	0.37	0.21	0.22
U.K.	0.32	0.19	0.20	0.23	0.19	0.21	0.31	0.17
U.S.	0.16	0.19	0.24	0.23	0.27	0.22	0.17	0.30

Based on the disclosing companies only, the findings always indicate a low level of harmony between countries (see Table 26 and 27). The reason is that companies in the selected countries have differently chosen the accounting methods for stock valuation; even in the within each country the level of harmony is very low for all the countries, except for China which performed with 100% of comparability.

Table 26: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:	
– H and C index (overall): 0.35 1(a) 2(a) 3(a) 4(a)	– Between Country C index: 0.33 1(a) 2(c) 3(a) 4(a)
– Within Country C index: 0.44 1(a) 2(b) 3(a) 4(a)	– I index: 0.35 1(b) 2(c) 3(a) 4(a)
$\chi^2 = 58.373$ df=21	$\chi^2_{.05} = 32.6705$ H_0: rejected

Table 27: Two country index table for methods of stock valuation

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.38	0.50	0.35	0.38	0.35	0.36	0.34	0.26
China	0.50	1.00	0.45	0.53	0.53	0.39	0.31	0.22
France	0.35	0.45	0.33	0.36	0.36	0.32	0.31	0.28
Germany	0.38	0.53	0.36	0.40	0.40	0.34	0.31	0.30
Japan	0.35	0.53	0.36	0.40	0.46	0.28	0.24	0.34
S.A.	0.36	0.39	0.32	0.34	0.28	0.37	0.37	0.24
U.K.	0.34	0.31	0.31	0.31	0.24	0.37	0.38	0.24
U.S.	0.26	0.22	0.28	0.30	0.34	0.24	0.24	0.35

4.7. FOREIGN CURRENCY TRANSLATION

Foreign currency transactions occur when an entity denominates and settles a transaction in a currency other than its measurement currency [IAS21.7]. These transactions may be the result of the purchase or sale of goods or services; a borrowing or loan in a foreign currency; or an investment in a foreign operation [IAS21.8-10]. Foreign currency transactions may give rise to assets and liabilities that are denominated in a foreign currency. Transactions in any currency other than the entity's measurement currency should be accounted for as foreign currency transactions [IAS21.7]

A foreign currency transaction (FCT) should be recorded, on initial recognition in the reporting currency, by applying to the foreign currency amount the exchange rate between the reporting currency and the foreign currency at the date of the transaction.

For the purpose of this study, the scrutiny of companies' financial statements has been done with regard to recognition of exchange differences. IFRS and local GAAPs of Australia, China, Germany, South Africa, the UK and the US have similar requirements regarding the accounting treatments of exchange differences. That is, exchange gains and losses arising on an entity's own foreign currency transactions are reported as part of the profit or loss for the year. The French GAAP has in addition to this method allowed the recognition of exchange losses as period expenses and unrealised gains deferred. There are no special rules or requirements to be applied in Japanese GAAP. However, over 50% of disclosing companies from Japan have recognised exchange losses as period expenses and deferred unrealised gains.

In this study, five accounting methods were identified for the treatment of exchange differences, namely:

- recognition of exchange gains and losses as income/loss for the year (FCT_1);
- recognition of exchange losses as period expenses and no recognition of unrealised gains (FCT_2);
- recognition of exchange losses as period expenses and unrealised gains deferred (FCT_3);
- no recognition of unrealised exchange differences (FCT_4);

FCT_1 represents symmetry of treatment, generally powered by the IASB, whereas the remained (FCT_2, FCT_3 and FCT_4) reflect a more conservative approach in line with accounting thinking in the continent of Europe.

Table 28: FCT: distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch.	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
FCT_1	13	61.9	17	89.5	14	58.3	15	68.2	10	43.5	27	96.4	22	78.6	21	70.0	139	71.3
FCT_2	0	0.0	0	0.0	0	0.0	1	4.5	0	0.0	0	0.0	0	0.0	0	0.0	1	0.5
FCT_3	3	14.3	1	5.3	6	25.0	3	13.6	11	47.8	0	0.0	3	10.7	1	3.3	28	14.4
FCT_4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-disclosure	5	23.8	1	5.3	4	16.7	3	13.6	2	8.7	1	3.6	3	10.7	8	26.7	27	13.8
Total	21		19		24		22		23		28		28		30		195	

As indicated in table 28, of the 195 companies, more than 71% have recognised exchange gains and losses as income or loss for the year, only 0.5% of companies have recognised exchange losses as period expenses but did not recognised unrealised gains, more than 14% of companies have recognised exchange losses as period expenses and deferred unrealised gains, and the rest, around 14% of reporting companies failed to disclose their accounting method used.

This results in a limited degree of harmony as the H index and overall C index indicate only 54.8%, the between country C index and I index equal respectively 53.9% and 53.5% while the within-country C index indicates 60.7% degree of harmony. Differences in the measurement of accounting policies made are significant as indicated by the value of chi-squared test with 51.5386. Thus, the null hypothesis that states that there are no significant differences in the treatment of exchange differences of foreign currency translation is rejected.

Table 29: Unified framework T index and chi-squared test

T INDEX EQUALS:

– H and C index (overall): 0.548
1(a) 2(a) 3(a)

– Between Country C index: 0.539
1(a) 2(c) 3(a)

– Within Country C index: 0.607
1(a) 2(b) 3(a)

– I index: 0.535
1(b) 2(c) 3(a)

$\chi^2 = 51.5386$ df=28 $\chi^2_{.05} = 41.3372$ H_0: rejected

On the two country basis, the findings reveal that there is a little degree of harmony between countries; this is between 34 and 71%, except for China - South Africa, and South Africa-UK which better performed respectively with 0.86 and 0.76. In a within – country basis, South African companies were highly harmonised with 93% of comparability, followed by Chinese companies with 81% of comparability, while the rest of countries had little degree of harmony between 43% and 64%.

Table 30: Two country index table for foreign currency translation

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.46	0.57	0.44	0.47	0.36	0.61	0.53	0.50
China	0.57	0.81	0.54	0.62	0.42	0.86	0.71	0.64
France	0.44	0.54	0.43	0.45	0.39	0.57	0.50	0.46
Germany	0.47	0.62	0.45	0.50	0.37	0.66	0.56	0.52
Japan	0.36	0.42	0.39	0.37	0.43	0.42	0.40	0.34
S.A.	0.61	0.86	0.57	0.66	0.42	0.93	0.76	0.68
U.K.	0.53	0.71	0.50	0.56	0.40	0.76	0.64	0.58
U.S.	0.50	0.64	0.46	0.52	0.34	0.68	0.58	0.56

When removing the non-disclosing companies from the calculation, the level of harmony is high in the within-country C index with 78% of harmony. However, the level of harmony remains relatively low in terms of overall C index, between-country C index and I index respectively with 71%, 70% and 69% (see table 31).

Table 31: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:

– II and C index (overall): 0.71
1(a) 2(a) 3(a) 4(a)

– Between Country C index: 0.70
1(a) 2(c) 3(a) 4(a)

Within Country C index: 0.78
1(a) 2(b) 3(a) 4(a)

– I index: 0.69
1(b) 2(c) 3(a) 4(a)

$\chi^2 = 39.541$ df=21 $\chi^2_{.05} = 32.6705$ H_0: rejected

In a two country index basis, most of the combinations reveal a high degree of comparability and harmony varying from 75 to 95%. The scores are recorded as follows: South Africa and the US with 95%, South Africa and China with 94%, China and the US with 90%, South Africa and the UK with 88%, the UK and the US with 85%, China and the UK with 84%, South Africa and Australia with 81%, South Africa and Germany with 79%, Australia and China with 78%, Australia and the US with 78%, Germany and the US with 76% and Germany and China with 75%. Any other combination records a level of harmony less than 75%. The lowest one is the combination of Japan and Germany with 46% (see table 31).

In a within-country basis, the companies from South Africa, the US, China and the UK were highly harmonised as shown by the results of computation respectively with 100%, 91%, 90% and 79% degree of harmony. However, the value of the chi-square is significant at 5% level. Thus, the null hypothesis that states that there is no significant difference in the treatment of foreign currency translation by selected companies is rejected.

Table 32: Two country index table for methods of FCT

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.70	0.78	0.62	0.67	0.49	0.81	0.74	0.78
China	0.78	0.90	0.68	0.75	0.48	0.94	0.84	0.90
France	0.62	0.68	0.58	0.60	0.49	0.70	0.65	0.68
Germany	0.67	0.75	0.60	0.65	0.46	0.79	0.71	0.76
Japan	0.49	0.48	0.49	0.46	0.50	0.48	0.48	0.48
S.A.	0.81	0.94	0.70	0.79	0.48	1.00	0.88	0.95
U.K.	0.74	0.84	0.65	0.71	0.48	0.88	0.79	0.85
U.S.	0.78	0.90	0.68	0.76	0.48	0.95	0.85	0.91

4.8. FINANCE LEASES

In terms of IAS 17, a lease is a finance lease if substantially all risks and rewards of ownership are transferred. Substance rather than form is important. Finance leases give rise to a depreciation expense for depreciable assets as well as a finance expense for each accounting period. The IFRS requirements are similar in selected countries but with some differences. For example in the US, the standard is similar but with more extensive form-driven requirements. In UK, the classification of leases is generally driven by tax guidelines. In many cases lease contracts are classified as operating leases, but would be finance leases under IFRS.

For the purpose of this study, I have identified two accounting methods: capitalisation and non-capitalisation of finance leases.

As indicated in table 33 below, 51.3% of selected companies capitalised the finance leases while only 7.2% did not capitalise, and 41.5% of companies failed to disclose[17] the accounting method used.

Table 33: Finance leases: Distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Aust.	%	Ch.	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
Capitalised	10	47.6	9	47.4	7	29.2	13	59.1	8	34.8	23	82.1	19	67.9	11	36.7	100	51.3
Non-capitalised	1	4.8	0	0.0	1	4.2	1	4.5	7	30.4	0	0.0	3	10.7	1	3.3	14	7.2
Non-disclosure	10	47.6	10	52.6	16	66.7	8	36.4	8	34.8	5	17.9	6	21.4	18	60.0	81	41.5
Total	21		19		24		22		23		28		28		30		195	

This results a little degree of harmony as the H index and overall C index show only 44.1%, the between-country C index as well as the I index indicate only 43%; while the within-country C index indicates 51.6% of harmony. The chi-square test of 48.0852 is significant, thus, the null hypothesis that stipulates that there is no significant differences in the treatment of finance leases by selected companies is rejected.

[17] This percentage of non-disclosures is very high. This was despite a careful review of the accounting policies, including the note on property, plant and equipment.

Table 34: Unified framework T index and chi-squared test

T INDEX EQUALS:			
– H and C index (overall): 0.441		– Between Country C index: 0.430	
1(a) 2(a) 3(a)		1(a) 2(c) 3(a)	
– Within Country C index: 0.516		I index: 0.430	
1(a) 2(b) 3(a)		1(b) 2(c) 3(a)	
$\chi^2 = 48.0852$	df=14	$\chi^2_{.05} = 23.6848$	H_0: rejected

Within each country the level of harmony is very low, being between 0.33 and 0.71. South Africa records the highest level of harmony with 0.71 as the majority of South African disclosing companies capitalised finance leases, followed by France, the UK, China, the USA, Germany, Australia and Japan respectively with 0.53, 0.52, 0.50, 0.50, 0.48, 0.46 and 0.33.

Table 35: Two country index table for finance leases

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.46	0.48	0.46	0.46	0.35	0.48	0.43	0.46
China	0.48	0.50	0.49	0.47	0.35	0.48	0.43	0.49
France	0.46	0.49	0.53	0.42	0.35	0.36	0.35	0.51
Germany	0.46	0.47	0.42	0.48	0.35	0.55	0.48	0.44
Japan	0.35	0.35	0.35	0.35	0.33	0.35	0.34	0.35
S.A.	0.48	0.48	0.36	0.55	0.35	0.71	0.60	0.41
U.K.	0.43	0.43	0.35	0.48	0.34	0.60	0.52	0.38
U.S.	0.46	0.49	0.51	0.44	0.35	0.41	0.38	0.50

On the two country basis, SA and the UK represent the highest level of harmony than any other countries. However, this level of harmony remains relatively low as it is only 0.60. Any other bi-country combination gives a lower score than the SA and UK combination. The lowest one is between Japan and the UK with only 0.34 degree of harmony.

The figures as given in table 34 result in a great number (41.5%) of non-disclosers. When excluding them from the computation, there is thus a high level of harmony as indicated by the findings as follows: 78% for the overall C index and H index, 83% for the between-country C index, 78% for the within-country C index and 78% for the I index (see table 36).

Table 36: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:	
– H and C index (overall): 0.78 I(a) 2(a) 3(a) 4(a)	– Between Country C index: 0.78 I(a) 2(c) 3(a) 4(a)
Within Country C index: 0.83 I(a) 2(b) 3(a) 4(a)	– I index: 0.78 I(b) 2(c) 3(a) 4(a)
$\chi^2 = 21.602$ df=7 $\chi^2_{.05} = 14.0671$	H_0: rejected

The level of harmony is also very high both within each country and between two country combinations (see Table 37). The exception is for the Japanese companies which record only 50% degree of harmony, and any country combination with Japan which records between 52 and 53% degree of harmony. The reason would be that more than 30% Japanese companies did not capitalise finance leases while the companies listed in other countries did not. When excluding the non-disclosures from the calculation, the value of the chi-square is significant at 5% level. Thus, the null hypothesis that states that there is no significant difference in the treatment of finance leases by selected companies is rejected.

Table 37: Two country index table for methods of finance leases

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.83	0.91	0.81	0.85	0.53	0.91	0.80	0.84
China	0.91	1.00	0.88	0.93	0.53	1.00	0.86	0.92
France	0.81	0.88	0.78	0.82	0.53	0.88	0.77	0.81
Germany	0.85	0.93	0.82	0.87	0.53	0.93	0.81	0.86
Japan	0.53	0.53	0.53	0.53	0.50	0.53	0.52	0.53
S.A.	0.91	1.00	0.88	0.93	0.53	1.00	0.86	0.92
U.K.	0.80	0.86	0.77	0.81	0.52	0.86	0.76	0.80
U.S.	0.84	0.92	0.81	0.86	0.53	0.92	0.80	0.85

4.9. BUSINESS COMBINATIONS

A business combination involves the bringing together of separate entities into one reporting entity. The accounting treatments of business combinations differ among the sampled countries in terms of their accepted accounting practice and IFRS.

For the purpose of this study, I have classified two accounting methods for the treatment of business combinations, namely: the purchase method, and the pooling of interests method. The purchase method is generally allowed by the sampled countries. The pooling of interests methods is prohibited under US GAAP, Australian GAAP and South African GAAP. It is allowed in limited circumstances under IFRS, French GAAP, German GAAP, and UK GAAP. Japanese GAAP has no comprehensive standard on business combinations; in practice, the purchase method, pooling-of-interests method, or a mixture of both is used.

Based on 2004 financial statements of the selected companies, the majority of reporting companies 51.3% failed to disclose the accounting method used (see table 38). This

percentage of non-disclosures is surprisingly very high[18]. However, some companies may have used a specific method but failed to disclose the accounting policy assuming that they have used the standard method or the method allowed by the accounting authorities. The majority of the disclosing companies (39.5%) used the purchase method and only 9.2% used the pooling of interests method. This is due to the fact that the use of this method is not required in most of countries. Although prohibited in some countries, this method has been in practice applied by some companies. This is the case for Du Pont de Nemours in the US.

Table 38: Business combinations: distribution of accounting methods by country

Acc. Methods	Frequencies of accounting methods by countries																	
	Austr.	%	Ch.	%	Fr.	%	Ger.	%	Jp.	%	S.A.	%	U.K.	%	U.S.	%	Total	%
The purchase met.	5	23.8	7	36.8	6	25.0	17	77.3	7	30.4	11	39.3	3	10.7	21	70.0	77	39.5
The pooling of int.	0	0.0	2	10.5	8	33.3	0	0.0	1	4.3	0	0.0	6	21.4	1	3.3	18	9.2
Non-disclosure	16	76.2	10	52.6	10	41.7	5	22.7	15	65.2	17	60.7	19	67.9	8	26.7	100	51.3
Total	21		19		24		22		23		28		28		30		195	

As summarised in table 39 below, this distribution results in little harmony as the H index and overall C index equals to 0.427 degree of harmony, the within country comparability C index of 0.524, the between country C index of 0.413 and the I index of 0.416. These results reveal that there are significant differences in the treatment of business combinations as indicated by the result of chi-squared test of 64.8022 at 5% level; therefore, the null hypothesis that states that there are no significant differences in the treatment of business combinations by reporting is rejected.

Table 39: Unified framework T index and chi-squared test

T INDEX EQUALS:

– H and C index (overall): 0.427
1(a) 2(a) 3(a)

– Between Country C index: 0.413
1(a) 2(c) 3(a)

– Within Country C index: 0.524
1(a) 2(b) 3(a)

– I index: 0.416
1(b) 2(c) 3(a)

$\chi^2 = 64.8022$ df=14 $\chi^2_{.05} = 23.6848$ H_0: rejected

[18] The exclusion of all the non-disclosures from the calculation would increase the level of harmony as the majority of the disclosing companies have applied the purchase method.

As measured by a two country index, table 40 indicates a low degree of harmony between countries. The highest combination is Germany and the USA with 0.60; this seems to be because both are fairly low for non-disclosure. However this level of harmony remains relatively low. The lowest one is Germany and the UK with 0.24. This level of comparability still remains low even when compared within each country as the highest indicates only a 0.64 degree of harmony.

Table 40: Two country index table for business combination methods

Two country index								
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	0.64	0.49	0.38	0.36	0.57	0.56	0.54	0.37
China	0.49	0.42	0.35	0.40	0.46	0.46	0.42	0.40
France	0.38	0.35	0.35	0.29	0.36	0.35	0.38	0.30
Germany	0.36	0.40	0.29	0.65	0.38	0.44	0.24	0.60
Japan	0.57	0.46	0.36	0.38	0.52	0.52	0.48	0.39
S.A.	0.56	0.46	0.35	0.44	0.52	0.52	0.45	0.44
U.K.	0.54	0.42	0.38	0.24	0.48	0.45	0.52	0.26
U.S.	0.37	0.40	0.30	0.60	0.39	0.44	0.26	0.56

As the same as finance leases, the business combination financial statement item has recorded a great number of non disclosures. More than half of selected companies failed to disclose the accounting method used. When excluding them from the calculation, there is a high level of harmony with regard to within country comparability as indicated by the within-country C index with the score of 84%. However, there is relatively a low level of harmony in terms of total comparability C and H index, between-country C index and I index respectively with 69, 67 and 66% (see table 41).

In a two country basis, there is considerable harmony between: Australia and Germany with 100%, Australia and South Africa with 100%, Australia and the US with 95%, Australia and China with 78%, China and Germany with 78%, China and South Africa with 78%', China and the US with 75%. Any other combination is less than 75% (see table 42 on the following page).

Table 41: Unified framework T index and chi-squared test

(The computation is done on the basis of disclosing companies only)

T INDEX EQUALS:

– H and C index (overall): 0.69

1(a) 2(a) 3(a) 4(a)

– Within Country C index: 0.84

1(a) 2(b) 3(a) 4(a)

– Between Country C index: 0.67

1(a) 2(c) 3(a) 4(a)

– I index: 0.66

1(b) 2(c) 3(a) 4(a)

$\chi^2 = 37.609$ df=7 $\chi^2_{.05} = 14.0671$ H_0: rejected

On the within country basis, the disclosing companies are highly harmonised in most of the countries (see Table 33). Australia, Germany, South Africa record the highest with 100% of harmony, followed by the US with 91% and Japan with 78%. Companies from China, the UK and France are less harmonised as they only record 65%, 56% and 51% respectively. Even when excluding the non-disclosures from the calculation, the value of the chi-square is significant at 5% level, thus the null hypothesis that stipulates that there is no significant difference in the treatment of accounting for business combinations is rejected.

Table 42: Two country index table for methods of business combinations

(The computation is done on the basis of disclosing companies only)

	Two country index							
	Australia	China	France	Germany	Japan	S.A.	U.K.	U.S.
Australia	1.00	0.78	0.43	1.00	0.88	1.00	0.33	0.95
China	0.78	0.65	0.46	0.78	0.71	0.78	0.41	0.75
France	0.43	0.46	0.51	0.43	0.45	0.43	0.52	0.44
Germany	1.00	0.78	0.43	1.00	0.88	1.00	0.33	0.95
Japan	0.88	0.71	0.45	0.88	0.78	0.88	0.38	0.84
S.A.	1.00	0.78	0.43	1.00	0.88	1.00	0.33	0.95
U.K.	0.33	0.41	0.52	0.33	0.38	0.33	0.56	0.35
U.S.	0.95	0.75	0.44	0.95	0.84	0.95	0.35	0.91

4.10. SUMMARY

The eight preceding sections of this chapter presented the main findings of this study. These findings are preceded by the analysis of the reported environment of sampled companies. In most of the financial statement items examined, the findings indicated that there was a low level of harmony of accounting measurement policies generally due to the range of options that give rise to a high degree of flexibility.

CHAPTER FIVE

SUMMARY AND CONCLUSION

5.1. INTRODUCTION

Two research questions were derived from the main research problem which was defined early in the introduction. The main research problem and the research questions are listed below. The main findings of this study are summarised in table 43 and 44. This chapter also provides areas for further research that result from the scope of this study.

The main research problem this study attempted to answer was:

To what extent does accounting measurement and valuation harmony exist between listed companies in the leading stock market countries?

Sub-questions to consider were:

- To what extent does accounting measurement and valuation harmony exist among companies within every selected country?
- Are the accounting policy choices made by companies significantly different between the selected countries?

Eight research hypotheses derived from the latter are defined in the null form. These hypotheses stated that there are no significant differences in the frequency of accounting measurement policies chosen by the selected companies. This statement was tested by examining eight accounting measurement policies using data from the 2004 annual reports of 195 large companies from eight countries, namely: Australia, China, France, Germany, Japan, South Africa, the United Kingdom and the United States of America.

This study applies a unified approach to the measurement of national and international accounting harmony as advocated by Taplin (2004). This approach, known as the 'T index', includes various statistical indices, namely Herfindahl H index, the I index and the C index as introduced by Van der Tas (1988) and its components as decomposed by Archer *et al* (1995) into Overall or total comparability C index, Within-Country

comparability C index and Between-Country comparability C index. It has been demonstrated the similarity of the H index and Overall C index. They are used to measure national harmony (harmony within a single country); they can also be used to measure international harmony when considering the degree of harmony in several countries by ignoring the country to which a company belongs. The I index and Between-Country C index are used to quantify the level of international harmony. The Within-Country C index indicates the number of pairwise comparisons between companies using a specific accounting method but operating in different countries.

The results obtained from the T index may not be exactly the same as those calculated by using the common indices as introduced by Van der Tas (1988) or developed by Archer *et al* (1995). However, the difference is negligible when the sample size is large.

5.2. SUMMARY OF THE FINDINGS

Table 43: Summary of comparability results and Chi-square test statistics

Financial Statement items	COMPARABILITY RESULTS				
	C index			I index	Chi-square Test
	Overall	Within-Country	Between-Country		
Tangible fixed assets	0.828	0.832	0.827	0.837	43.6686*
Depreciation	0.581	0.685	0.566	0.565	96.1142*
Goodwill	0.477	0.702	0.444	0.455	114.8256*
Research & Develop.	0.364	0.506	0.343	0.337	115.9466*
Stock (Inventory) valuation	0.263	0.364	0.249	0.256	100.5622*
Foreign Curr. Trans.	0.548	0.607	0.539	0.535	51.5386*
Finance leases	0.441	0.516	0.430	0.430	48.0852*
Business Combinations	0.427	0.524	0.413	0.416	64.8022*

* Significant at 0.05 level

Table 43 above indicates that the within-country comparability index of each policy is higher than between-country comparability index. This suggests that the degree of harmony of accounting practices in each country is higher when compared to the level of harmony of accounting practices among countries. This is because the country specific environmental factors guide the companies to select certain accounting policies for the preparation of financial reporting. Therefore, the level of harmony of international accounting practices may decrease.

Table 43 also indicates that when considering these eight financial statement items, overall or total comparability index provided a level of harmony ranging from 26.3% to 82.8%. That is a wide range for the selected items. Three of them are higher than 50% and the other five are lower than 50%. The highest level of harmony is yielded by tangible fixed assets with 82.8% level of harmony for use of the historical method; followed by the practice of using straight-line depreciation method with 58.1%. The lowest level of harmony is on the selection of stock valuation methods. The total comparability index of stock valuation methods yielded only 26.3%.

This observation for total comparability index is the same for the between-country indices and within-country index as well, since the results are approximately the same. The between-country C index and I index yielded level of harmony ranging respectively from 24.9% to 82.7% and 25.6% to 83.7%. The highest degree of harmony was found in the areas of tangible fixed assets; followed by depreciation and foreign currency translation. All other items yielded a level of harmony lower than 50%. The within-country C index yielded a level of harmony ranging from 36.4% to 83.2%. Except for stock valuation that yielded a level of harmony lower than 50%, all other financial statement items had a level of harmony equal or higher than 50%.

Furthermore, the results of this study also demonstrate that significant differences exist in the treatment of all of the financial statement items examined. Additionally, the lack of disclosure for certain measurement practices was pronounced. Thus, for the cases where the percentage of non-disclosure was equal or more than 5%, a second calculation was done excluding the non-disclosing companies. This was the case for goodwill, research and development costs, stock valuation, foreign currency translation, finance leases, and business combinations (see table 44 on the following page). When excluding the non-disclosing companies from the computation, the results reveal that the level of harmony increases. However, the values of chi-square tests indicate that there were statistically significant differences in the measurement practices for both calculation with non-disclosures, and calculation excluding non-disclosures.

Table 44: Summary of comparability results and Chi-square test statistics

(The computation is done on the basis of disclosing companies only)

Financial Statement items	COMPARABILITY RESULTS				
	C index			I index	Chi-square Test
	Overall	Within-Country	Between-Country		
Goodwill	0.550	0.800	0.510	0.510	107.728*
Research & Develop.	0.510	0.670	0.490	0.480	86.088*
Stock (Inventory) valuation	0.350	0.440	0.330	0.350	58.373*
Foreign Curr. Trans.	0.710	0.780	0.700	0.690	39.541*
Finance leases	0.780	0.830	0.780	0.780	21.602*
Business Combinations	0.690	0.840	0.670	0.660	37.609*

* Significant at 0.05 level

Table 45 summarises the level of national accounting harmony as quantified by Herfindahl H index.

Table 45: Summary of national harmony as measured by H index

Financial Statement items	Austr.	China	France	Germ.	Japan	S.A.	U.K.	U.S.
Tangible fixed assets	0.91	1.00	0.61	1.00	0.92	0.76	0.93	0.71
Depreciation	0.43	1.00	0.63	1.00	0.49	0.86	0.64	0.55
Goodwill	0.50	0.65	0.85	0.48	0.43	0.87	0.75	0.82
Research & Develop.	0.35	0.35	0.66	0.47	0.55	0.53	0.65	0.40
Stock (Inventory) valuation	0.36	0.90	0.29	0.29	0.34	0.37	0.31	0.30
Foreign Curr. Trans.	0.46	0.81	0.43	0.50	0.43	0.93	0.64	0.56
Finance leases	0.46	0.50	0.53	0.48	0.33	0.71	0.52	0.50
Business Combinations	0.64	0.42	0.35	0.65	0.52	0.52	0.52	0.56
Average per country	0.51	0.70	0.54	0.61	0.50	0.69	0.62	0.51

Comparatively to table 43, table 45 shows that accounting practices are more harmonised within each country than they are internationally. However, the level of harmony may be low in certain cases where companies have a diversified range of accounting policies to select. When considering these eight financial statement items in the selected countries, the level of harmony[19] ranges from 35% to 91% for Australia, from 35% to 100% for China, from 29% to 85% for France, from 29% to 100% for Germany, from 33% to 92% for Japan, 37% to 93% for South Africa, from 31% to 93% for the UK, and from 30% to

[19] These figures reflect the findings based on the computation of both disclosing and non-disclosing companies. Even when excluding the non-disclosing companies from the computation, there would not be big differences.

82% for the US. These results indicate that there is a wide gap between the lowest and the highest level of harmony.

In addition, table 45 also indicates the average level of harmony per country. In this regard, China ranks first with 70% degree of harmony, followed by South Africa with 69%, the UK with 62%, Germany with 61%, France with 54%, Australia and the United States with 51%. Japan records a very lower degree of harmony with only 50% degree of harmony. A possible reason might be tax regulations (which obviously are not the same in the sampled countries) requiring a specific treatment.

The research findings as summarised in tables 43-45 above clearly raise concerns about national and international accounting harmonisation and also the comparability of financial accounting information.

5.3. FURTHER RESEARCH

A number of developed and developing countries have converged with International Financial Reporting Standards (IFRS) since 1 January 2005 and the research measuring the extent of accounting harmonisation is still debated. Thus, numerous opportunities exist for future studies:

One could investigate the level of harmony over time by examining 2004 and 2005 companies' annual reports. Another one could investigate if there is any significant difference in the measurement of accounting practices by stratifying two or three countries.

A regional study could be conducted by examining the practices of companies from Southern African countries. Another one could be conducted by examining additional measurement practices such as deferred tax, segmental reporting, and retirement benefits.

LIST OF APPENDICES **page**

Appendix 1

Top 25 Stock Markets by Average Company Size in 2003

Rank	Market	Average Company Size (US$ millions)
1	United States	2,694.3
2	Netherlands	2,670.2
3	Switzerland	2,510.9
4	Italy	2,268.8
5	Saudi Arabia	2,247.2
6	France	1,875.0
7	Germany	1,577.5
8	Ireland	1,546.7
9	Finland	1,199.2
10	Belgium	1,142.2
11	Sweden	1,089.0
12	Russia	1,078.4
13	United Kingdom	1,043.9
14	Portugal	987.9
15	Japan	975.8
16	Luxembourg	848.5
17	Mexico	770.6
18	Hong Kong	694.5
19	Denmark	684.5
20	Brazil	639.1
21	Austria	634.0
22	South Africa	628.5
23	Norway	606.9
24	Taiwan	566.6
25	China	525.6

Note: Average company is calculated by dividing end 2003 total market capitalisation of listed companies in US$ millions by end-2003 number of listed companies, excluding listed investment funds where possible.

Source: World Stock market Statistics (2004)

Appendix 2

STOCK MARKET CAPITALIZATION, 1992 – 2003

(US$ Millions, End of Period Levels)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Algeria	-	-	-	-	-	-	-	306	303	199	145	-
Botswana	295	261	377	398	326	614	724	1,052	978	1,269	1,723	2,131
Cote d'Ivoire	483	414	428	866	914	1,276	1,818	1,514	1,185	1,165	1,328	1,650
Egypt	3,259	3,814	4,263	8,088	14,173	20,830	24,381	32,838	28,741	24,335	26,094	27,073
Ghana	84	118	1,873	1,649	1,492	1,138	1,384	916	502	528	740	1,426
Kenya	637	1,060	3,082	1,886	1,846	1,824	2,024	1,409	1,283	1,050	1,423	4,178
Malawi	-	-	-	-	15	110	148	161	212	152	107	
Mauritius	424	842	1,578	1,562	1,693	1,754	1,849	1,643	1,335	1,061	1,928	1,955
Morocco	1,909	2,651	4,376	5,951	8,705	12,177	15,676	13,695	10,899	9,087	8,591	13,152
Namibia	21	28	201	189	473	689	429	691	311	151	171	308
Nigeria	1,221	1,029	2,711	2,033	3,560	3,646	2,887	2,940	4,237	5,404	5,740	9,494
South Africa	103,537	171,942	225,718	280,526	241,571	232,069	170,252	262,478	204,952	139,750	184,622	267,745
Swaziland	111	297	338	339	471	129	85	95	73	127	144	172
Tanzania	-	-	-	-	-	-	236	181	233	398	695	
Tunisia	814	956	2,561	3,927	4,263	2,321	2,268	2,706	2,828	2,303	2,131	2,464
Uganda	-	-	-	-	-	-	-	-	37	34	52	
Zambia	-	-	-	19	195	705	301	280	236	217	231	
Zimbabwe	628	1,433	1,828	2,038	3,635	1,969	1,310	2,514	2,432	7,972	15,632	4,975
Total Africa	113,423	184,845	249,334	309,471	283,317	281,251	225,772	325,419	260,777	195,202	251,497	n.a
China	n.a.	n.a.	43,521	42,055	113,755	206,366	231,322	330,703	580,991	523,952	463,080	681,204
All Emerging markets	981,617	1,664,045	1,883,406	1,893,696	2,223,921	2,133,165	1,775,267	2,948,685	2,582,240	2,539,314	2,436,038	n.a
Australia	n.a	n.a	218,865	245,218	311,981	295,785	328,949	427,683	372,794	374,269	380,969	585,475
France	n.a	n.a	451,263	522,053	591,123	674,368	991,484	1,475,457	1,446,634	1,174,428	966,962	1,355,643
Japan	n.a	n.a	3,719,914	3,667,292	3,088,850	2,216,699	2,495,757	4,546,937	3,157,222	2,251,814	2,126,075	3,040,665
Germany	n.a	n.a	470,519	577,365	670,997	825,233	1,093,962	1,432,190	1,270,243	1,071,749	685,970	1,079,026
UK	n.a	n.a	1,210,245	1,407,737	1,740,246	1,996,225	2,374,273	2,933,280	2,576,992	2,217,324	1,864,134	2,412,434
USA	n.a	n.a	5,067,016	6,857,622	8,484,433	11,308,779	13,451,352	16,635,114	15,104,037	13,810,429	11,052,403	14,266,266
Developed Markets	9,950,909	12,352,880	13,233,217	15,894,462	18,028,762	20,983,312	25,148,563	33,180,126	29,614,264	25,246,554	20,955,876	n.a
World Total	10,932,526	14,016,925	15,116,623	17,788,158	20,252,683	23,116,477	26,923,830	36,128,811	32,222,750	27,785,868	23,391,914	n.a
Africa: Emerging Markets	11.6%	11.1%	13.2%	16.3%	12.7%	13,2%	12.7%	11.0%	10.0%	7.6%		n.a
Africa: World Total	1.0%	1.3%	1.6%	1.7%	1.4%	1.2%	0.8%	0.9%	0.8%	0.7%		n.a

Note:

1. n.a. Indicates not available

2. – Indicates no value, market not open

Source: Compiled from United Nations (2003) and Global Stock Markets Factbook (2004)

Appendix 3

VALUE TRADED, 1992 – 2003

(US$ Millions, End of Period Levels)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Algeria	-	-	-	-	-	-	-	1	5	3	0	-
Botswana	15	20	31	38	31	59	70	38	47	65	55	87
Cote d'Ivoire	4	6	12	14	19	24	39	85	33	8	16	24
Egypt	195	170	757	677	2,463	5,859	5,028	9,038	11,120	3,897	2,558	3278
Ghana	0	5	75	22	17	49	60	25	10	13	11	45
Kenya	12	14	62	65	67	106	79	74	47	40	36	209
Malawi	-	-	-	-	-	-	10	6	9	21	3	-
Mauritius	10	39	86	69	81	142	104	78	74	109	57	99
Morocco	70	498	788	2,426	432	1,051	1,390	2,530	1,094	974	587	694
Namibia	0	0	18	3	41	24	13	22	22	8	1	2
Nigeria	14	10	18	14	72	132	160	145	263	496	475	858
South Africa	7,767	13,049	15,607	17,048	27,202	44,722	58,347	72,917	77,494	69,676	78,831	102,808
Swaziland	0	0	2	0	2	378	0	0	0	10	0	0
Tanzania	-	-	-	-	-	-	0	7	40	8	19	-
Tunisia	33	46	296	663	281	260	188	420	626	316	221	164
Uganda	-	-	-	-	-	-	-	-	0	0	1	-
Zambia	-	-	-	0	3	8	3	12	8	53	2	-
Zimbabwe	20	53	176	150	255	539	186	227	279	1,530	2,485	1,345
Total Africa	8,140	13,910	17,928	21,189	30,966	53,353	65,677	85,625	91,171	77,228		na
China	n.a.	n.a.	97,526	49,774	256,008	369,574	284,770	377,099	721,538	448,928	333,369	476,813
All Emerging markets	626,236	1,096,060	1,655,209	1,040,197	1,564,670	2,353,324	2,368,356	2,922,080	3,953,491	2,404,321	2,499,768	n.a
Australia	n.a	n.a	94,726	98,654	145,395	171,531	161,080	194,336	226,325	240,667	294,658	369,845
France	n.a	n.a	307,686	364,550	277,100	402,550	591,252	787,573	1,083,263	1,077,341	934,767	995,376
Germany	n.a	n.a	460,617	573,549	768,745	535,745	761,888	814,740	1,069,120	1,419,579	1,233,056	1,147,209
Japan	n.a	n.a	1,121,438	1,231,552	1,251,998	1,251,750	948,522	1,849,228	2,693,856	1,826,230	1,573,279	2,272,999
UK	n.a	n.a	464,085	510,131	578,471	829,131	1,167,382	1,377,859	1,835,278	1,871,894	2,721,342	2,150,753
USA	n.a	n.a	3,564,315	5,108,591	7,121,487	10,216,074	13,148,480	18,574,100	31,862,485	29,040,739	25,371,270	15,547,431
Developed Markets	4,156,722	6,098,477	7,167,124	9,186,521	12,036,689	16,138,507	20,207,122	27,438,067	43,912,999	39,676,018	36,098,731	n.a
World Total	4,782,958	7,194,537	8,821,912	10,226,717	13,601,359	18,491,831	22,575,478	30,360,148	47,866,088	42,073,098	38,598,498	n.a
Africa: Emerging Markets	1.3%	1.3%	1.1%	2.0%	2.0%	2.3%	2.8%	2.9%	2.3%	3.2%	n.a	n.a
Africa: World Total	0.2%	0.2%	0.2%	0.2%	0.2%	0.3%	0.3%	0.3%	0.2%	0.2%	n.a	n.a

Note:

1. – Indicates no value, market not open

2. 0 Indicates value less than 0.5

3. n.a. Indicates not available

Source: Compiled from United Nations (2003) and Global Stock Markets Factbook (2004)

Appendix 4

NUMBER OF COMPANIES LISTED, 1992 – 2003

(End of Period Levels)

	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003
Algeria	-	-	-	-	-	-	-	2	3	3	3	4
Botswana	11	11	11	12	12	12	14	15	16	16	18	19
Cote d'Ivoire	*27*	24	27	31	31	35	35	38	41	38	38	38
Egypt	*656*	674	700	746	649	654	861	1,033	1,076	1,110	1,148	967
Ghana	*15*	15	17	19	21	21	21	22	22	22	24	25
Kenya	*57*	56	56	56	56	58	58	57	57	57	57	51
Malawi	-	-	-	-	1	3	6	6	7	7	8	8
Mauritius	*22*	30	35	40	40	40	40	41	40	40	40	40
Morocco	*62*	65	51	44	47	49	53	55	53	55	55	53
Namibia	*3*	4	8	10	12	13	15	14	13	13	13	13
Nigeria	*153*	174	177	181	183	182	186	194	195	194	195	200
South Africa	*683*	647	640	640	626	642	668	668	616	542	472	426
Swaziland	*3*	4	4	4	6	4	5	7	6	5	5	5
Tanzania	-	-	-	-	-	-	2	4	4	4	5	-
Tunisia	*17*	19	21	26	30	34	38	44	44	46	47	46
Uganda	-	-	-	-	-	-	-	-	2	2	3	-
Zambia	-	-	-	2	6	7	9	9	9	9	11	-
Zimbabwe	*62*	62	64	64	64	64	67	70	69	72	76	81
Total Africa	1,771	1,785	1,811	1,875	1,784	1,818	2,078	2,279	2,273	2,235	2,218	na
China	n.a.	n.a.	291	323	540	764	853	950	1,086	1,160	1,235	1,296
All Emerging Markets	n.a	n.a	14,556	17,572	19,565	19,244	25,927	25,661	26,100	25,533	25,145	25,441
Australia	n.a	n.a	1,186	1,178	1,190	1,159	1,162	1,217	1,330	1,334	1,355	1,405
France	n.a	n.a	459	450	686	683	711	968	808	791	772	723
Germany	n.a	n.a	417	678	681	700	741	933	1,022	988	715	684
Japan	n.a	n.a	2205	2,263	2,334	2,387	2,416	2,470	2,561	2,471	3,058	3,116
UK	n.a	n.a	2,070	2,078	2,171	2,157	2,087	1,945	1,904	1,923	1,701	2,311
USA	n.a	n.a	7,692	7,671	8,479	8,851	8,450	7,651	7,524	6,355	5,685	5,295
Developed Markets	n.a	n.a	18,916	19,029	20,362	20,263	20,171	20,246	21,766	24,635	24,099	24,414
World Total	n.a	n.a	33,472	36,601	39,927	39,507	46,098	45,907	47,866	46,168	49,244	49,855

Source: Compiled from United Nations (2003) and Global Stock Markets Factbook (2004)

Appendix 5

FOREIGN DIRECT INVESTMENT, 1999

Countries	Flows of Foreign Direct Investment						Stock of Foreign Direct Investment					
	Investor countries outflows			Host countries inflows			Investor countries outward stock			Host countries inward stock		
	US$,	%	US$/head	US$,	%	US$/head	US$,	%	US$/head	US$,	%	US$/head
USA	150,901	18.86	565	275,533	31.84	1,032	1,131,466	23.77	4,236	1,087,289	22.78	4,070
Japan	22,743	2.84	182	12,741	1.47	102	22,743	0.48	182	38,806	0.81	310
Germany	50,596	6.33	620	26,822	3.10	329	420,908	8.84	5,159	225,595	4.73	2,765
France	107,952	13.50	1,858	39,101	4.52	673	298,012	6.26	11,434	181,974	3.81	3,132
UK	199,289	24.91	3,431	82,182	9.50	1,415	664,103	13.95	17,907	394,560	8.27	6,794
Benelux	70,786	8.85	2,721	49,647	5.74	1,908	465,857	9.79	3,277	396,418	8.31	15,237
Other EU	81,201	10.15	545	107,306	12.40	721	487,751	10.25	6,270	453,775	9.51	3,048
Total EU	509,824	63.73	1,368	305,058	35.25	819	2,336,631	49.10	1,444	1,652,322	34.63	4,434
Other developed countries	48,297	6.04	887	43,117	4.98	792	786,121	16.52	162	452,383	9.48	8,311
China and Hong Kong	22,395	2.80	18	63,468	7.33	52	198,595	4.17		438,405	9.19	357
Rest of the World	45,768	5.72		165,570	19.13		283,797	5.96		1,102,776	23.11	
Global Total	799,928	100		865,487	100		4,759,333	100		4,771,981	100	

Source: Flowers and Ebbers (2002)

Appendix 6

The World's Top 100 Non-Financial MNEs, ranked by foreign assets, 2002

(Millions of dollars)

No	Corporation	Home Economy	Industry	Assets	
				Foreign	Total
1	General Electric	United States	Electrical & electronic equipment	229,001	575,244
2	Vodafone Group Plc	United Kingdom	Telecommunications	207,622	232,870
3	Ford Motor Company	United States	Motor vehicles	165,024	295,222
4	British Petroleum Company Plc	United Kingdom	Petroleum expl./ref./distr.	126,109	159,125
5	General Motors	United States	Motor vehicles	107,926	370,782
6	Royal Dutch/Shell Group	UK/Netherlands	Petroleum expl./ref./distr.	94,402	145,392
7	Toyota Motor Corporation	Japan	Motor vehicles	79,411	107,270
8	Total Fina Elf	France	Petroleum expl./ref./distr.	79,032	89,450
9	France Telecom	France	Telecommunications	73,454	111,735
10	ExxonMobil Corporation	United States	Petroleum expl./ref./distr.	60,802	94,940
11	Volkswagen Group	Germany	Motor vehicles	57,133	114,156
12	E. On	Germany	Electricity, gas and water	52,294	118,526
13	RWE Group	Germany	Electricity, gas and water	50,699	105,116
14	Vivendi Universal	France	Media	49,667	72,682
15	Chevron Texaco Corp.	United States	Petroleum expl./ref./distr.	48,489	77,359
16	Hutchison Whampoa Limited	Hong Kong/China	Diversified	48,014	63,284
17	Siemens AG	Germany	Electrical & electronic equipment	47,511	76,474
18	Electricité de France	France	Electricity, gas and water	47,385	151,835
19	Fiat Spa	Italy	Motor vehicles	46,150	96,990
20	Honda Motor Co Ltd	Japan	Motor vehicles	43,641	63,755
21	News Corporation	Australia	Media	40,331	45,214
22	Roche Group	Switzerland	Pharmaceuticals	40,152	46,160
23	Suez	France	Electricity, gas and water	38,739	44,805
24	BMW AG	Germany	Motor vehicles	37,604	58,192
25	Eni Group	Italy	Petroleum expl./ref./distr.	36,991	68,987
26	Nestlé SA	Switzerland	Food & beverages	36,145	63,007
27	DaimlerChrysler AG	Germany/US	Motor vehicles	35,778	196,375
28	Telefonica SA	Spain	Telecommunications	35,720	71,327
29	IBM	United States	Electrical & electronic equipment	34,951	96,484
30	ConocoPhillips	United States	Petroleum expl./ref./distr.	32,094	76,836
31	Wal-Mart Stones	United States	Retail	30,709	94,685
32	Sony Corporation	Japan	Electrical & electronic equipment	29,821	69,476
33	Carrefour SA	France	Retail	28,594	40,804
34	Hewlett-Packard	United States	Electrical & electronic equipment	28,247	70,710
35	ABB	Switzerland	Machinery and equipment	28,155	29,533
36	Unilever	UK/Neherlands	Diversified	27,937	46,752
37	Philips Electronics	Netherlands	Electrical & electronic equipment	27,880	33,849
38	Novartis	Switzerland	Pharmaceuticals	25,874	45,588
39	Aventis SA	France	Pharmaceuticals	23,753	32,574
40	AOL Time Warner Inc	United States	Media	23,476	115,450
41	Repsol YPF SA	Spain	Petroleum expl./ref./distr.	23,121	39,902
42	AES Corporation	United States	Electricity, gas and water	22,784	33,776
43	Deutsche Post World Net	Germany	Transport and storage	22,782	170,503
44	BASF AG	Germany	chemicals	22,694	36,781
45	Endesa	Spain	electricity, gas and water	22,460	50,503
46	Anglo American	United Kingdom	Mining & quarrying	22,450	33,581
47	Companie De Saint-Gobain SA	France	Construction materials	22,361	31,604
48	Philip Morris Companies Inc	United States	Diversified	21,513	87,540
49	Pfizer Inc	United States	Pharmaceuticals	21,161	46,356
50	Mitsui & Gamble	Japan	Wholesale trade	21,020	54,286
51	Royal Ahold NV	Netherlands	Retail	20,598	25,933
52	Procter & Gamble	United States	Diversified	20,282	43,706
53	Hitachi Ltd	Japan	Electrical & electronic equipment	20,189	84,489
54	GlaxoSmithKline Plc	United Kingdom	Pharmaceuticals	19,992	25,821
55	Pinault-Printemps Redoute SA	France	Retail	19,240	31,474
56	Deutsche Telekom AG	Germany	Telecommunications	19,172	120,589
57	Diageo Plc	United Kingdom	Beverages	18,526	26,729
58	Thomson Corporation	Canada	Media	18,125	18,542
59	Bayer AG	Germany	Pharmaceuticals/chemicals	17,957	43,706
60	Matsushita Electric Industrial Co., Ltd	Japan	Electrical & electronic equipment	17,941	65,028
61	Holcim AG	Switzerland	Construction materials	17,499	18,364
62	Volvo Group	Sweden	Motor vehicles	17,441	27,367

63	Renault SA	France	Motor vehicles	17,441	55,799
64	Dow Chemical Company	United States	Chemicals	17,386	39,562
65	Coca-Cola Company	United States	Beverages	17,379	24,501
66	Mitsubishi Corporation	Japan	Wholesale trade	17,285	67,213
67	Telecom Italia	Italy	Telecommunications	17,251	84,946
68	National Grid Transco	United Kingdom	Energy	16,541	35,574
69	Lvmh Mo t-Hennessy Louis Vuitton SA	France	Luxury goods	16,409	22,451
70	Singtel Ltd.	Singapore	Telecommunications	15,775	19,071
71	British American Tobacco Group	United Kingdom	Tobacco	15,592	26,129
72	Astrazeneca Plc	United Kingdom	Pharmaceuticals	14,796	21,576
73	Nokia	Finland	Machinery and equipment	14,528	24,454
74	Verizon Communications	United States	Telecommunications	14,239	167,468
75	Bertelsmann	Germany	Media	14,108	23,260
76	McDonald's Corporation	United States	Restaurant	13,771	23,971
77	BHP Billiton Group	Australia	Mining & quarrying	13,753	20,578
78	Nortel Networks	Canada	Machinery and equipment	13,398	15,971
79	Stora Enso OY	Finland	Paper	13,127	19,094
80	Du Pont (E.I) De Nemours	United States	Chemicals	13,040	34,621
81	Scottisch Power	United Kingdom	Electric utilities	12,971	19,903
82	NTL Inc	United States	Telecommunications	12,862	13,041
83	Johnson & Johnson	United States	Pharmaceuticals	18,814	40,556
84	Thyssenkrupp AG	Germany	Metal and metal products	12,783	30,574
85	Alcatel	France	Machinery and equipment	12,688	27,130
86	Duke Energy Corporation	United States	Electricity, gas and water	12,247	49,113
87	Cemex S.A.	Mexico	Construction materials	12,193	16,044
88	Canadian National Railway Company	Canada	Transportation	12,050	21,738
89	Metro AG	Germany	Retail	11,821	24,030
90	Reed Elseviero	UK/Netherlands	Publishing and printing	11,727	14,042
91	Alcan Inc.	Canada	Metal and metal products	11,678	17,538
92	Merck & Co	United States	Pharmaceuticals	11,388	47,561
93	Samsung Electronics Co., Ltd.	Republic of Korea	Electrical & electronic equipment	11,388	51,964
94	Danone Groupe SA	France	Food & beverages	11,313	16,238
95	Alcoa	United States	Metal and metal products	11,109	29,810
96	Abbott Laboratories	United States	Pharmaceuticals	11,073	24,259
97	Publicis Groupe SA	France	Business services	11,021	11,508
98	Interbrew SA	Belgium	Beverages	10,665	11,684
99	CRH Plc	Ireland	Lumber and other building materials dealers	10,596	11,066
100	Motorola Inc	United States	Machinery and equipment	10,433	31,152

Source: United Nations (2004)

Appendix 7

SAMPLE OF COMPANIES

No	AUSTRALIA	CHINA	FRANCE	GERMANY	JAPAN	SOUTH AFRICA	UNITED KINGDOM	UNITED STATES
1	Alinta Ltd	Changchai Co., Ltd	Accor	Babcock Borsig Serv.	Canon	AECI	Alliance unichem	Abbott Laboratories
2	Altera Capital Ltd	China Merchants Holdings Co., Ltd	Alcatel	BASF AG	Daihatsu Motor Co., Ltd	African Oxygen	Anglo American	Alcoa
3	Angus & Coote Ltd	China Mobile	Aventis SA	Bayer AG	Hankyu Corporation	Afgri	ARM Holdings	American Airlines
4	AP Eagers Ltd	China Telecom	Carrefour SA	Bertelsmann	Hitachi Ltd	Afrox Healthcare	Astrazeneca Plc	AES Corporation
5	Ballarat Goldfields NL	China Unicom Ltd	Compagnie de St Gobain	BMW AG	Honda Motor Co., Ltd	Anglo American Plat Corp	B.A.T. Group	Chevron Corporation
6	Barra Resources Ltd	China Vanke Co.,Ltd	Comp. des Machines Bull	Continental AG	Isuzu Motors Ltd	Anglogold Ashanti	BHP Billiton Plc	Coca-Cola
7	Benitec Ltd	Chongqing Changan Auto Co., Ltd	Danone Groupe SA	Degussa AG	Itochu Corporation	Anglovaal Mining	The BOC Group	Colgate-Palmolive
8	Brandrill Ltd	Hubei Sanonda Co., Ltd	Groupe SEB	DaimlerChrysler AG	JVC Victor	Aspen	Boots the Chemist	Conoco Phillips
9	CBH Resources Ltd	Konka Group Co. Ltd	Lafarge SA	Deutsche Post World Net	Kenwood Corporation	Aveng	Body Shop International	Dow Chemical Comp.
10	CCI Holdings Ltd	Lenovo Group	Legrand	Deutsche Telekom AG	Konami	AVI Ltd	Bradford & Bingley	Dow Jones & Company
11	Cellnet Group Ltd	Shangai Baosteel Group Corporation	L'air Liquide	E. On	Komatsu Ltd	Barloworld	British Petroleum Co Plc	Duke Energy Corp.
12	Coca-Cola Amatil Ltd	Shenzhen Accord Pharm. Co., Ltd	LVMH	Kloeckner Werke	Matsushita El. (Panasonic)	Edcon	Cable & Wireless	Du Pont de Nemours
13	Coles Myer Ltd	Shenzhen Textile (Hold) Co., Ltd	Michelin	Linde AG	Mitsubishi Corporation	Gold Fields	Compass Group	Exxon Mobil
14	Danae Resources NL	Shenzhen China bicycle Co.	Pernod Ricard SA	Lufthansa	Mitsui & Co., Ltd	Impala Platinum	Diageo Plc	Ford Motor Company
15	Danks Holdings Ltd	Shenzhen Huafa Electronics co. ,Ltd	Pinault-Printemps Redoute	Man AG	Nissho Iwai (Sojitz Corp.)[20]	Imperial Holdings	Dixons Group	General Electric
16	Fantastic Holdings Ltd	Shenzhen Shenbao Industrial co.,Ltd	Pininfarina (Matra)	Metro AG	Pioneer	Mittal Steel Ltd (IspatIscor)[21]	GlaxoSmith Kline Plc	General Motors
17	Futuris Corporation Ltd	Sinopec	PSA Peugeot Citroen SA	RWE Group	Sanyo Electric Co Ltd	Kumba Resources	ICI Plc	Hewlett-Packard
18	Mindax Limited	Wuhan Boiler Co., Ltd	Publicis Groupe SA	Schering AG	Sharp Corporation	Metro Cash & Carry	Imperial Tobacco	Johnson & Johnson
19	Pacific Brands Limited	Weifu High-Technologies Co., Ltd	Rémy Cointreau	Siemens AG	Sumitomo	MTN Group	Marconi Plc	IBM
20	Orica Australia Pty Ltd		Renault SA	Thyssenkrupp AG	Sony Corporation	Nampak	National Grid Transco	Merk & Co
21	Retail Cube Ltd		Sagem (Safran-Group)	Volkswagen Group	TDK	Pick 'n Pay Stores	Reed Elseviero	Microsoft
22			Suez Lyonnaise des Eaux	Wella AG	Toyota Industries Corp.	SabMiller	Rentokil Initial Plc	Motorola Inc.
23			Total SA		Yamaha Motors Co., Ltd	Sasol	Rexam Plc	NTL Inc
24			Vivendi Universal			Sappi	Rio Tinto Plc	Pfizer Inc.
25						Shoprite Holdings	Royal Dutch/Shell Group	Philip Morris Comp.
26						Tiger Brands	Tate & Lyle	Procter & Gamble
27						Truworths International	Unilever	Texas Instruments
28						Woolworths Holdings	Vodafone Group Plc	Time Warner Inc
29								Verizon Communication
30								Wal-Mart Stores

[20] On 1st April 2004, Nichimen and Nissho Iwai reconstituted as the Sojitz Group

[21] On 14th march 2005, Ispat Iscor Limited was officially renamed Mittal Steel South Africa Limited

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