# 6    Research methodology

## 6.1 Introduction

This chapter presents an overview of the research methods that were used in this work. Three recognised methods were used, namely, a literature survey, an analytical study and a questionnaire (Ryan *et al.* 2002). A comprehensive literature survey was undertaken, an analysis of no less than 30 companies listed on the JSE was conducted and a questionnaire was prepared and sent to a large number of listed companies and analysts. The author also has a number of years experience related to these issues in the industry.

## 6.2 Literature survey

Probably one of the best modern ways to conduct a comprehensive literature survey is to make use of the Internet and the world-wide-web (www). These powerful software tools contain a number of search engines to facilitate a search for a topic over and above the conventional way of browsing through hard copies (i.e. books, journals, microfiche, etc.) in a library. These search engines are linked to various web sites around the world which can be searched using suitable keywords.

Searches on the Internet do, however, present a number of challenges. A specific keyword or phrase must be used. It is of little use to search for a word out of context because the Internet can come up with thousands of irrelevant references. According to Du Toit (2002) there are five rules that must be followed when conducting research on the Internet:

(1) Be specific with search words (e.g. spelling, synonyms, singular).
(2) Try several search engines.
(3) Test the trustworthiness of web sites.

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(4) Stay current and informed.

(5) Occasionally use traditional sources.

The Internet searches were mostly done through the University of South Africa's (UNISA) electronic library (called Oasis). Another useful search engine used, was Google (www.google.com). Some journals are available electronically in Portable Document Format (PDF) which facilitates the tasks of downloading and printing.

A number of articles and books were read in full, while for others the indexes containing the keywords relevant to this study were consulted. Of course, when working through the references listed in books and articles, a gold mine of additional articles and books was usually revealed.

## 6.3 Analytical research

The analytical research component entailed the analysis of the financial statements of 30 listed companies. A worksheet was created in Microsoft Excel® for each company making use of the financial statements published on the McGregor BFA database. Information from the five-year summary of the financial statements was imported electronically while information needed from the notes to the financial statements was added manually.

The companies selected were chosen either because they are relatively well known or because their provisions are reported in compliance with GAAP. The following 30 companies were selected for this research:

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**Table 6.1:** List of companies selected for research purposes

| Nr. | Company name | Period | Nr. | Company name | Period |
|---|---|---|---|---|---|
| 1 | Amlac Limited | 1996-2000 | 16 | Murray & Roberts Limited | 1998-2002 |
| 2 | Avis Limited | 1998-2002 | 17 | Mustek Limited | 1998-2002 |
| 3 | Canadian Overseas Packaging Industries Limited | 1998-2002 | 18 | Pick 'n Pay Stores Limited | 1998-2002 |
| 4 | City Lodge Hotels Limited | 1998-2002 | 19 | Pretoria Portland Cement Company Limited | 1997-2001 |
| 5 | Comair Limited | 1998-2002 | 20 | Putco Limited | 1998-2002 |
| 6 | Concor Limited | 1998-2002 | 21 | Rainbow Chicken Limited | 1998-2002 |
| 7 | Edcon Limited | 1998-2002 | 22 | Richemont Limited | 1998-2002 |
| 8 | Energy Africa Limited | 1998-2002 | 23 | South African Breweries Limited | 1998-2002 |
| 9 | Foschini Limited | 1998-2002 | 24 | Sappi Limited | 1997-2001 |
| 10 | Grintek Limited | 1998-2002 | 25 | Sasol Limited | 1998-2002 |
| 11 | Highveld Steel & Vanadium Corporation Limited | 1997-2001 | 26 | Shoprite Holdings Limited | 1998-2002 |
| 12 | Iscor Limited | 1998-2002 | 27 | Siltek Limited | 1996-2000 |
| 13 | IST Group Limited | 1999-2002 | 28 | Sun International (South Africa) Limited | 1997-2001 |
| 14 | Italtile Limited | 1998-2002 | 29 | Tiger Wheels Limited | 1998-2002 |
| 15 | Mr Price Group Limited | 1998-2002 | 30 | Woolworths Limited | 1998-2002 |

Ratios that contain the deferred taxation and accumulated depreciation provisions were used to show the differences in decisions that are crucial to a company and its outside stakeholders. The choice of ratios was based on ratios identified by various researchers (refer to Chapter 4) as predictors of failure as well as other ratios that are of importance in decision-making. Ratios were adjusted by reclassifying accumulated depreciation and/or deferred taxation.

**6.3.1    Ratios adjusted by reclassifying accumulated depreciation and deferred taxation**

(1)  Return on investment ratio

This ratio measures how well all assets in a company are managed (Kinserdal 1995).

$$\text{Return on investment} = \frac{Net\ income + interest\ expense*(1 - tax\%)}{Average\ total\ assets}$$

(a)  Firstly, the ratio is used as in the traditional way.

(b)  Secondly, the depreciation provision for the period is added to the net income (nominator) and accumulated depreciation is added to the denominator (which appears below the line), to eliminate the effect of depreciation in the ratio.

(2)  Return on equity ratio

The return on ownership capital is measured when this ratio is used (Kinserdal 1995).

$$\text{Return on equity} = R + (R - i) * \frac{Liabilities}{Equity}$$

R represents the return on investment.

(a)  Firstly, the ratio is used as in the traditional way.

(b)  Secondly, for this research the ratio is adjusted by reclassifying accumulated depreciation and deferred taxation. The accumulated depreciation and deferred taxation are added to equity and deferred taxation is deducted from the long term liabilities.

(3) Fixed assets: Equity capital

This ratio is applied to measure the relation between long-term assets and equity (Wild *et al.* 2001).

$$\text{Fixed assets: equity capital} = \frac{Fixed\ assets}{Equity}$$

(a) Firstly, the ratio is used in the traditional way.

(b) Secondly, accumulated depreciation is added to the book value of fixed assets and to the equity.

(4) Cost of capital

The weighed average cost of capital (WACC) was used to calculate the cost of capital.

(a) Firstly, the ratio is used in the traditional way.

(b) Secondly, the accumulated depreciation and deferred taxation are added to the equity.

(5) Long-term-debt-to-total-equity ratio

This ratio measures the relation of long-term debt (all noncurrent liabilities) to equity capital (Wild *et al.* 2001).

$$\text{Long - term - debt - total - equity} = \frac{Long\ term\ liabilities}{Equity}$$

(a) Firstly, the ratio is used in the traditional way.

(b) Secondly, the ratio is adjusted for the deferred taxation by adding it to equity and deducting it from debt, thereby reclassifying deferred taxation as equity rather than debt.

(6) Gearing ratio

This ratio relates a company's total borrowings to capital employed.

$$\text{Gearing ratio} = \frac{Total\ noncurrent\ liabilities}{Equity}$$

(a) Firstly, the ratio is used in the traditional way.

(b) Secondly, the deferred taxation is classified as equity and not debt. In other words, deferred taxation is deducted from noncurrent liabilities and added to equity.

(c) Thirdly, as in the second instance, but accumulated depreciation is now also classified as equity.

(7) Book entries as a percentage of crucial elements in the financial statements

(a) The two major book entries namely, accumulated depreciation and deferred taxation were added together and expressed as percentages of:

- equity
- turnover
- cash from operations and operating activities
- profit attributable to shareholders.

This was done to show the substantial effect of book entries on the financial statements.

(8) A few ratios that may be useful to a company to see if they are able to generate internal funds were also tested and compared to a study done in Spain (Martínez Bobillo *et al.* 2002).

(a) INVEFF     =     Increase in fixed assets/Book value of fixed assets at beginning of period.

(b) SIFA     =     Sales increase/Book value of fixed assets at end of period.

(c) CFFA     =     Cash-flow/Book value of fixed assets at end of period, where cash-flow represents turnover plus depreciation provision for the period.

(9) Working capital ratio

This ratio was adjusted for the internal fund that may be created by the provision for deprecation. It was done as follows:

(a) Working capital was calculated in the traditional manner, deducting current liabilities from the current assets.

(b) Secondly this ratio was adjusted by deducting the accumulated depreciation (internal fund) from the current assets and adding back the acquisitions of fixed assets to replace fixed assets.

## 6.4 Questionnaire

A questionnaire can be a very important tool during research. To compile a proper and comprehensive questionnaire is potentially a very time consuming exercise. Once it has been compiled, methods of disseminating a questionnaire include:

(1) hard copies using the postal services;

(2) facsimile; and

(3) electronic mail (i.e. e-mail).

Each of these methods has its own advantages and disadvantages. The advantage of sending a hard copy using the postal services is that it arrives in the same style and font as intended by the sender. Obvious disadvantages of ordinary mail are that it is slow and mail may be misplaced, destroyed or lost. An advantage of a facsimile is that it is faster than ordinary mail, but some disadvantages are that it may be unreadable for the receiver because of a break in the transmission or a paper jam that has arisen at the receiver's side, or the print quality may simply be poor. The sender would not be able to establish this. Sending a facsimile may also be a time-consuming process — the number dialled may be engaged or out of order and every number must be dialled separately. E-mail appears to be the best of the three options. When an e-mail is sent, the potential respondent receives it almost immediately, making it easier to respond, and thereby making this method one of the fastest available. The disadvantages of e-mail are: the server could be down, the e-mail address may be invalid, or (the primary disadvantage) a company might have a general e-mail address that works like the Bermuda triangle. Unless you have the name or specific e-mail address of the potential respondent, the mail may be misplaced or even ignored.

A questionnaire was compiled in both MS Word 2000® and Corel Word Perfect® 8 formats to test the use of book entries and their effect on the integrity of information. A personal definition of a book entry was also requested as no formal definition could be found in the literature.

The following sequence of events was used to prepare, send and then analyse the responses from the questionnaire:

Step1:   Setting up the questionnaire

Taking into account, the sensitivity of the matter, statements were compiled on the basis of the literature survey and results from the analysis of the financial statements. It is difficult to convey the real meaning of a statement without offending one or more potential respondents when dealing with a sensitive issue. Having compiled the questions, staff members of UNISA's Department of Statistics were consulted with regard to validity of questions and potential problems. The questionnaire is presented in Appendix B and a discussion of the questionnaire  is given in Chapter 7.

Step 2:  Preparing an electronic mailing list

In order to send the questionnaire to all the listed companies, a database was exported from the McGregor BFA database to Microsoft Excel®. It contained the names, addresses, telephone numbers, fax numbers and e-mail addresses of 456 listed companies. Despite the electronic age, only 382 companies had e-mail addresses listed on the database, hence these companies were targeted as respondents. Some of the listed companies are analyst companies. Only the opinions of financial managers and analysts of financial statements were requested.

Getting hold of analysts was somewhat more of a challenge. PSG-Online was firstly contacted for responses. Mr Chris Wehmeyer was most helpful and referred the author of this dissertation to the JSE.co.za web site for the names of analyst companies. In addition, Ms Ann-Marie Wood of the Investment Analyst society referred one analyst, who completed the questionnaire.

Step 3:  Sending out the questionnaire

A total of 384 (350 companies, 32 analyst companies and 2 individual analysts)

electronic questionnaires were sent out. A generic message was compiled to direct the mail to the financial manager. Each e-mail address was copied in Microsoft Excel® and thereafter transferred to the Novell GroupWise® e-mail facility. For the purposes of anonymity and confidentiality the e-mails were sent as blind copies to the different companies, meaning the companies could not see each other's names. Two copies of the questionnaire (one in MS Word and one in WordPerfect) were attached to the generic message before being sent to the recipients.

Step 4:  Receiving the responses

The first completed questionnaire was received less than 24 hours later. A number of questionnaires were not delivered. Thirty-nine (39) e-mails bounced back because the e-mail addresses did not exist, another three were blocked by a firewall and two were quarantined. This left 340 responses that could be expected.

Step 5:  Recording of the responses

A record of all responses was kept on the MS Excel address list. Some companies replied to the e-mail which made it easy to match the reply with the original mail but some companies replied by fax which complicated the matching process. On some faxes no company name or fax number was indicated. The reason why a record had to be kept was that a follow-up e-mail was sent to all companies who did not respond to the first e-mail. To remind a company that had already responded would be unprofessional. Unfortunately this happened in three cases because the financial manager was also the financial manager of another company on the list.

Step 6:  Follow up

Two weeks after the first e-mails were sent out, a reminder was sent to all outstanding

responses. At this stage a total of 21 completed questionnaires had been received. The cut-off date was set at exactly eight weeks after the first questionnaire was sent out.

Step 7:  Processing of results

A summary of responses was made on Microsoft Excel® to help with the initial conclusions. While conclusions were drawn from this summary, the Department of Statistics at the University of Pretoria performed the bulk of the processing. The results are presented in Chapter 7 of this dissertation.