The voluntary disclosure of intellectual capital by listed companies in Zimbabwe

W.P. Mkumbuzi
Department of Accountancy and Business Studies, Faculty of Commerce, University of Zimbabwe

ABSTRACT

This paper examines the cross-sectional effect of industry, listing status, company size, gearing, profitability and corporate governance mechanisms on the extent of voluntary disclosure of intellectual capital in 54 Zimbabwe Stock Exchange Companies for the year 2011/2012. The extent of voluntary disclosure is measured by a disclosure index based on intellectual capital attributes included in the narratives and illustrations of the annual reports. The paper predicts that agency costs may be minimised through voluntary disclosure and that the benefits of signalling may outweigh competitive costs that may be more prevalent in some industries. The results suggest that large companies operating in high-tech and innovative industries that are characterised by investment in employees and research and development processes have higher levels of hidden value. These companies, associated with reduced financial risk, the presence of financial expertise on their audit committees and higher levels of profitability, are characterised by higher levels of voluntary disclosure of intellectual capital. In contrast, multiple listing, proportion of non-executive directors and association with "big 5 auditors", are insignificant in explaining the variation in voluntary disclosure of intellectual capital in Zimbabwe.

Keywords: Voluntary disclosure; Intellectual Capital, Profitability, Financial Risk, Industry, Corporate Governance, Listed Companies

1. INTRODUCTION

This research is an investigation of the voluntary disclosure of intellectual capital (VDIC) by listed companies in Zimbabwe. There have been some studies based on different country data which investigated the extent of VDIC and the relationship between company characteristics and VDIC (April et al. 2003, Bontis 1998, Bozzolan et al. 2003, Brennan 1999, Goh and Lim 2004, Guthrie and Petty 1999, Olsson 2001 and Williams 2001). Why is it important to disclose IC attributes, particularly when such disclosure is not mandatory? Within financial markets, Healey and Palepu (2001) reported on the effective functioning of capital markets indicating that disclosure will enhance stock market liquidity and increase demand for companies’ securities. Healey et al. (1999) concluded that such disclosure increased share performance. It has been suggested that the capital markets may be at a disadvantage in several ways if information on intellectual capital (IC) is not disclosed (Starovic and Marr 2003). Smaller shareholders may be disadvantaged (Holland 2001), as they usually have no access to intangible assets (IA) information often shared in private meetings with larger investors. In addition, insider trading may occur if managers exploit internally produced information on IA, unknown to other investors (Aboody and Lev 2000). Botosan (1997) reported on the reduction of the cost of equity and his findings were also noted several years later by Lev (2001). They both attributed this increased cost of capital to the increased volatility and the danger of incorrect valuations of companies, which may lead investors and banks placing a higher risk level on companies disclosing less information. Company capital is also financed in part by debt, as found in Sengupta’s (1998) studies. His findings indicated that increased disclosure contributed to a reduction in the cost of debt in a similar way to that of a reduction in the cost of equity as established by Lev (2001). Gelby and Zarowin (2000) reported on the higher stock-price correlation with future earnings when compared to companies with low disclosure levels. They found that greater disclosure is associated with stock prices that are more informative about future earnings and therefore that it provides information benefits to investors. Starovic and Marr (2003) reported on the inability of the financial reporting system to
W.P. Mkumbuzi

explain "new" resources such as relationships, internally generated assets and knowledge and therefore stressed the importance of disclosing such IA in the annual reports. Publication of data concerning IA contributes to the establishment of trust as the one and most important ingredient in long-term growth strategies (Prusak and Cohen 2001).

An additional question that some may ask is: why is it important to investigate the characteristics that may impact on the extent of IC disclosure? Buzby (1975) argues that one reason for investigating whether certain company characteristics are associated with disclosure is to recommend policy. The evidence produced on the study would indicate which companies, based on the identified characteristics, need to make additional disclosures. Financial statements have experienced a significant loss of relevance resulting in traditional methods of valuation systematically undervaluing some companies (Sullivan and Sullivan 2000). This research is therefore important for the aforementioned reasons, moreover, no study has regressed company characteristics on the extent of VDIC in Zimbabwe. These factors illustrate the gap created by recent research and aims to add knowledge to this area of VDIC. The focus of this research is on the voluntary compliance with International Accounting Standard (IAS) 36 and IAS 38; and the extent to which companies voluntarily disclose IC in their annual reports. The objectives of this research are:

(1) to determine the extent of voluntary disclosure of IC in corporate annual reports in Zimbabwe,
(2) to assess whether there is a significant relationship between company turnover, capital employed, multiple listing, techmark listing, gearing, profit before taxation, audit committee financial expertise, proportion of non-executive directors and auditor class and the extent of voluntary disclosure of IC in Zimbabwe.

The rest of the research is organised as follows: The next chapter is the literature review, which summarises previous studies and the theory formulation before leading to the development of the hypothesis. The third chapter will examine the methodological approach, detailing the research design and establishing the methods that will be used to capture and test the data. The data analysis and presentation of results will then be examined in the fourth chapter. The conclusions of the tests on the hypothesis, the limitations of the research, the areas for further research and the policy implications will be discussed in the fifth and final chapter.

2. LITERATURE REVIEW

A number of studies have examined the impact of selected company characteristics on mandatory disclosure- (Wallace 1987, Wallace et al. 1994 and Wallace and Naser 1995) and some on both mandatory and voluntary disclosure (Wallace 1987 and Cooke 1989) whilst other studies were limited to voluntary disclosure (Firth 1979, Chow and Wong-Boren 1987 and Hossain et al. 1995). Although this research is limited to VDIC in Zimbabwe, this literature review will deal with factors which have been used to explain variation in the extent of mandatory and voluntary disclosure.

Camfferman and Cooke (2002) conducted an empirical study on the voluntary disclosure practices in UK and Dutch companies. The structured variables included in the study were size, total assets and gearing. Cooke (1989) used turnover, number of shareholders, and total assets separately as measures of size. Camfferman and Cooke (2002) established that large companies may disclose more information than others as they may already produce the information for internal use and therefore the additional costs of disclosure are minimal. Secondly, larger companies are able to attract highly skilled individuals required to introduce more sophisticated management reporting systems that can disclose an extensive array of information (Buzby 1972). Thirdly, as Watts and Zimmerman (1978) suggest, companies may suffer additional political costs because some stakeholders may lobby the government for nationalisation, expropriation, or the break-up of the company or industry (Jensen and Meckling 1976), however additional disclosure may alleviate this problem. Fourthly, companies may increase disclosure in order to lower the costs of capital or as a result of having greater exposure to public scrutiny (Lang and Lundholm 2000). The last reason relates to market liquidity, large companies may wish to ensure that their securities are appropriately priced in the secondary market, thereby avoiding the possibility of a takeover motivated by
the acquisition of an undervalued company (Cooke 1996). The most popular proxy for company size, total assets, has been found to be significantly associated with disclosure in the UK by Firth (1979), Campfferman and Cooke (2002) and Williams (2001). The next common, turnover, has been found to be significantly associated with disclosure in the UK by Firth (1979), Roberts and Gray (1988) and Gray and Roberts (1989), in Canada by Belkaoui and Kahl (1978), in Spain by Wallace et al. (1994) and in Switzerland by Raffournier (1995). This proxy was, however, not found to be significant in the USA by Stanga (1976) and in Nigeria by Wallace (1987). It may therefore be hypothesized that Company size is positively associated with the extent of VDIC.

The results of the studies which examined the relationship between gearing and disclosure levels are mixed. For example, the second structure-related variable studied by Campfferman and Cooke (2002) is gearing, measured as long-term debt to shareholders' funds. A more highly geared company has greater needs to satisfy long-term creditors by the disclosure of information than companies with lower levels of gearing, particularly when the debt is raised in the securities market rather than from banks. Demands for disclosure of debt by shareholders are also likely to be higher in Zimbabwe in order to reduce information asymmetries. Agency theory suggests that conflicts emerge when management tends to pursue their own interests over those of shareholders. Empirical research has found gearing to be an important explanatory variable by Belkaoui and Kahl (1978), Malone et al. (1993) and Wallace et al. (1994), but not by Chow and Wong-Boren (1987). Further results confirm the mixed results from gearing, for example, in the UK, Lutfi (1989) found that gearing is negatively associated with voluntary disclosure and is significant at the 0.05 level. However, Roberts and Gray (1988) also found out in the UK, that gearing is not significantly associated with the extent of voluntary disclosure. Positive association was reported elsewhere, for example, Hossain et al. (1995) found in New Zealand, that gearing is a significant explanatory variable of the extent of voluntary disclosure. In the Campfferman and Cooke (2002) study, gearing was found to be positively associated with disclosure (significant) for the Netherlands, perhaps a reflection of their corporate governance system, but negatively (not significant) related in the case of the U.K. While Malone et al. (1993) found a positive and significant relationship between gearing and disclosure; most other studies did not (Ahmed and Nicholls 1994, Chow and Wong-Boren 1987 and Wallace and Naser 1995). It may therefore be hypothesized that gearing is positively or negatively associated with VDIC.

Auditor type or class represents the quality and independence of the auditor depending on the size of the audit firm. Larger firms are likely to be more independent in rendering their services than the smaller firms as one client's fees may be insignificant for the larger firms. Auditor type has been recognised as an independent variable in several studies. Auditor type was categorized into either "Big 4" or not "Big 4" by Wallace et al. (1994, p.47) who found a relationship based on association. This suggestion was also made by Singhvi and Desai (1971) and Firth (1979). In the context of the UK, there is considerable concentration of "Big 5" auditors (now 5 since Coopers and Lybrand merged with Price Waterhouse) in the large listed companies, perhaps indicating that they perceive a better quality service and are willing to pay a premium. In the Campfferman and Cooke (2002) study, the coefficient of the audit variable is positive in the UK, indicating greater comprehensiveness of disclosure by those audited by a "Big 5" auditor and the variable was found to be significant. In the UK both Firth (1979) and Lutfi (1989) found that the auditor firm is not associated with the extent of voluntary disclosure. However, in the international context, the results of the impact of auditor firm type are mixed. For example, Singhvi and Desai (1971) and Ahmed and Nicholls (1994) confirmed in India, the USA and Bangladesh the hypothesis of a linkage between disclosure and auditor firm type. Further study on auditor type was conducted by Kent and Ung (2003) in Australia in which conclusions were reached that the public perceives that the credibility of financial statements or annual reports is associated with the quality of its auditors, and larger auditing firms, such as the "Big 5" auditors, are assumed to be of higher quality (Krishnan and Schauer 2000). By employing a "Big 5" auditor, a company could signal to the market that their information is more reliable. Therefore, companies providing information relating to anticipated earnings performance are more likely to appoint higher quality auditors. It may therefore be hypothesized that auditor quality is positively associated with VDIC.
Motivation for the formation of multiple listings is to obtain access to off-shore financing and equity financing in the countries of operation, and therefore there will be a higher probability that such companies will disclose more information than domestic companies in order to meet the needs of international capital markets (Cooke 1992, Possing et al. 1994, Gray et al. 1995 and Possing et al. 1995). In addition, multiple listed companies rely on economies of scale of production that may be achieved by proximity to markets, and they may be located in overseas markets to help improve customer product awareness. As a result, such companies are exposed to foreign regulation which may have positive effects on disclosure. It may be that companies subject to the requirements of a number of stock exchanges disclose a greater number of items in their annual reports; overseas reporting requirements may then be incorporated in their annual reports (Cooke 1989). Possing et al. (1994) conducted an empirical study on the influence of firm-specific characteristics on the general level of voluntary disclosure in the annual reports of companies listed on the Kuala Lumpur Stock Exchange and confirmed the association between extent of disclosure and multiple listing. Firth (1979) argues that listed companies are likely to give extra information because they would like their earnings potential to be fully reflected in the share prices. Another reason for expecting an association between disclosure and listing status is based on agency theory. Cooke (1989), for example, argues that the extent of disclosure may depend on quotation status because agency problems may as well vary with listing status as a greater number of shareholders may lead to higher monitoring costs. The association between foreign listing status and the extent of voluntary disclosure was found to be significant in the UK by Gray et al. (1995). The empirical evidence suggests that foreign listing status is statistically related to the level of information voluntarily disclosed by publicly traded companies. Thus, the expectation is that multiple listed companies will disclose more information than domestic companies. It may therefore be hypothesized that multiple listing is positively associated with VDIC.

The demand for IC disclosure is greater for companies that operate in industries where the variability of the future is higher and the ability to forecast results is more difficult (high profile). This is especially the case in high technology industries. Hackstone and Milne (1996) and Robb et al. (2001) research findings are consistent with those of Bozzolan et al. (2003) who separated "high profile" and "low profile" industries (Patten 1991 and Roberts 1992). In this study consistent with Bozzolan et al. (2003), Zimbabwe's listed companies are classified into "high profile" and "low profile" industries. A positive association between industry and the amount of IC disclosure is expected. Industry type has been found to be significant by Stanga (1976), Belkaoui and Kahl (1978), Amernic and Maiocco (1981) and Cooke (1996). In addition the study conducted by Bozzolan et al. (2003) also confirmed this trend. Lutfi (1989) in the UK and Raffournier (1995) in Switzerland found no association between industry type and disclosure. However, Cooke (1989, 1991 and 1992) in Sweden and Japan, found a positive association. It may therefore be hypothesized that membership of a "high profile" industry is positively associated with VDIC.

Corporate governance systems incorporate institutional and market mechanisms to narrow the divergence of interests between shareholders and management. In theory, the board of directors is in place to represent the interests of the company's shareholders and to mediate the interactions between the shareholders and management. Kosnik (1987 and 1990) found that board performance varies with the composition of its directors. She reported that companies with long-standing non-executive directors were more effective, than those composed mostly of executive directors, in making decisions that maximized shareholder interests. Lloyd et al. (1987) reported that manager-controlled companies were more likely to adopt risk-reducing and wealth-depreciating strategies. Hill and Snell (1989) found that companies with concentrated ownership had better performance records than those controlled by management, implying that managers are more likely to maximize shareholder wealth when owners have a voice. Companies with a larger proportion of non-executive directors tend generally to have less agency problems. With management promoting the interests of shareholders rather than their own it would be expected that IC disclosures would increase. In this way, although management may be privy to more information than shareholders, the non-executive directors would be more able to ensure that this information is not used to the detriment of shareholders' interests. It can, therefore, be hypothesised that the proportion of non-executive directors will be a significant positive explanatory variable of the variation in the extent of IC voluntary disclosure.
Singhvi and Desai (1971) have argued that greater profitability may induce management to provide additional information not only to reassure investors, but possibly in order to derive benefits that may accrue in terms of additional managerial compensation. Profitability signals the company's capacity to meet costs in accordance with the signalling theory. Management may wish to communicate successful strategies being conducted in the company through disclosure of profit generated. The higher the profitability, the greater will be the capacity of the company to meet costs (Buzby, 1975). If a company is profitable, it is more likely that its management may disclose more information to show additional costs will not have an adverse effect on long term performance. The finding by Singhvi and Desai (1971) is consistent with work by Courtis (1978), but is in contrast with studies by Belkaoui and Kahl (1978) and Wallace and Naser (1995). However, Lang and Lundholm (1993) have indicated that performance may serve as a proxy for information asymmetries between investors and managers and, as such, the directional relationship between the extent of disclosure and performance may be ambiguous. Net income margin was selected as the measure of profitability by Wallace et al. (1994). This research proposes the use of profit before taxation as the profitability measure. As companies that are more profitable have the resources to invest in research and development (R&D) activities, it may be the case that they are investing in IC. Profitability indicates that management has invested in favourable projects and surplus funds are signalled by the profits. A number of researchers have tested this relationship. For example, Singhvi and Desai (1971) in France, Spero (1979) and Roberts and Gray (1988) in the UK all found a significant positive relationship between profitability and disclosure indexes. However, in the United Kingdom and Sweden, Spero (1979), and in Switzerland, Raffournier (1995) found no significant relationship between disclosure indices and profitability. It will also be discovered that all the four UK studies, by Spero (1979), Roberts and Gray (1988), Gray and Roberts (1989) and Lutfi (1989) are conflicting. Therefore, it can be hypothesised that profit before taxation will be a significant positive or negative explanatory variable of the variation in the extent of IC voluntary disclosure.

Relevant financial expertise held by an audit committee member would be expected to encourage management to disclose more IC. Such an audit committee member would be expected to appreciate the potential benefits of IC disclosure. Moreover the Blue Ribbon Committee (BRC) (sponsored by New York Stock Exchange and National Association of Securities Dealers) on Improving the Effectiveness of Corporate Audit Committees, recommended with respect to the composition of audit committees, that executive or inside or "gray" directors should be excluded and that the presence of a member with financial expertise should always be considered. The association between audit committee composition and the committee's interaction with internal auditing was examined. The results indicated that committees comprised solely of independent directors, and with at least one member having an accounting or finance background, are more likely to have longer meetings with the chief internal auditor; provide private access to the chief internal auditor and review internal audit proposals and results of internal auditing. The empirical studies illustrated that the overall regression was significant and the individual coefficients were positive and significant. These findings are consistent with Raghunandan et al. (2001) who found that the existence of an audit committee member with financial expertise may enhance the effective monitoring of the board of directors over management and therefore reduce the effect of agency theory, indirectly contributing to a higher disclosure level in the annual report. However, these results are not consistent with the findings by Abbott et al. (2003), who found out that the financial expertise of audit committee members was not significant. Therefore, it can be hypothesised that audit committee financial expertise will be a significant positive or negative explanatory variable of the variation in the extent of IC voluntary disclosure.

The purpose of this chapter was to develop a number of testable hypotheses which are the subjects of empirical analysis described in chapters 4 and 5. Eight hypotheses were developed using mostly agency and signalling theories discussed in chapter 3. The hypotheses concern two company size variables (turnover and capital employed), gearing, profit before taxation, auditor type, multiple listing, audit committee financial expertise, proportion of non-executive directors and technological listing. The next chapter describes the methodology applied in collecting the data and in testing the hypotheses.
3. Methodology

The methodology will follow the basic research process as it generates evidence on the association of the dependent variable and the independent variables whilst investigating the extent of VDIC. The objective of the methodology is to enable collection of the right kind of testable data from an appropriate sample with the minimum degree of bias, and to facilitate statistical analysis of the data using the correct model. The deductive method of study will enable utilisation of the theoretical framework and the developed hypotheses to enable conclusions to be drawn from the results. There were 83 public companies quoted on the ZSE (as recorded in the Herald Business official list on 6 December 2013). The sample of Zimbabwe listed companies chosen for further study in this research comprises all industry sectors. Roscoe (1975) proposed the following rules for determining the sample size:

- generally a sample larger than 30 and less than 500 is appropriate for most research
- in multiple regression the sample size should be several times as large as the number of variables in the study (preferably 10 times or more)

The number of variables in this study is 8. Therefore, 80 elements would be selected for the target sample. However, due to closures and delisting of several listed companies, limited accessibility to complete annual reports for the period, the final sample consists of 54 companies. It is notable that the majority of prior studies in this field have worked with a sample of 20 with a few extending this number to 30 (April et al. 2003, Bontis 1998, Bozzolan et al. 2003, Brennan 1999, Goh and Lim 2004, Guthrie and Petty 1999, Olsson 2001 and Williams 2001). This study looks at annual reports published during the years ended 31 December 2011 and 31 December 2012. The focus of this research is company reports of those enterprises listed on the ZSE. These companies are therefore subject to disclosure and reporting requirements of the Companies Act (Chapter 24:03), International Accounting Standards and the ZSE listing rules. The methodology applied is based on the expectation that the results of the empirical tests are independent and as the sample data has a normal distribution, conventional statistical methods would be best suited to this study. In addition, the regression model assumes the absence of significant collinearity. The absence of auto correlation, random residuals and linearity suggests that the structural equation modelling would apply when the data is multivariate normal. These conventional statistical procedures are also called parametric tests (Gibbons 1993). In a parametric test, a sample statistic is obtained to estimate the population parameter. This estimation process involves a sample, a sampling distribution and a population.

Applying non-parametric tests on the other hand would require interval data to be converted to rank-ordered data. Examples of non-parametric tests are: Wilcoxon signed rank test, Whitney-Mann-Wilcoxon (WMW) test, Kruskal-Wallis (KW) test and Friedman’s test. Handling of rank-ordered data is considered a strength of non-parametric tests. Gibbons (1993) observed that ordinal scale data are very common in social science research and almost all attitude surveys use a 5-point or 7-point Likert scale. But this type of data is not ordinal, rather it is interval data. In the view of Gibbons (1993), non-parametric tests are considered more appropriate than classical parametric procedures for Likert-scaled data. The data in this study is therefore more suited to parametric tests. A major task was the selection of the items of information to be included in the scoring sheet. The research was not limited to the financial statements only but rather to the entire contents of the annual reports. The selection was based on IC attributes included in previous similar studies such as Guthrie and Petty (1999), Brennan (1999), April et al. (2003), Bozzolan et al. (2003) and Goh and Lim (2004). Further attributes were included from those recommended for disclosure by the International Accounting Standards Committee. Thus the extensive list of disclosures was not constrained by the exclusion of items likely to be irrelevant to a user group (Barrett 1977) nor confined only to items previously included in similar studies. The number of items finally selected totalled 23 included under the IC framework (Appendix A1). A numerical coding scheme was applied, similar to Guthrie et al. (1999). However, as almost all the information in the annual reports was of a discursive form and IC attributes were rarely quantified, a dichotomous approach was adopted in this study. This approach uses a procedure in which an
item scores one if it is disclosed and zero if it is not disclosed. The total disclosure for a company is additive as follows:

$$TD = \sum_{i=1}^{m} di$$

where: $d_i = 1$ if the item $di$ is disclosed
$= 0$ if the item $di$ is not disclosed

Where attributes were mentioned multiple times in the reports, but where these were mostly repetitions of the same basic attribute then the number of occurrences was ignored, that is a value of "i" was chosen to mean that the attribute was mentioned at least once.

Information from the content analysis was summarised in a table identifying the incidences of IC reporting for the 54 chosen companies. Content analysis requires the selection of a unit of analysis. According to Holsti (1969, p.116) a recording unit is "the specific segment of content that is characterised by placing it into a given category". In the accounting literature, a debate arose (Gray et al. 1995) regarding the use of words, sentences or portions of pages as the basis for the coding. Gray et al. (1995) reported that sentences are preferred in written communication if the task is to infer meaning. Most content analyses use sentences as the basis for coding decisions. Using sentences for both coding and measurement is likely to provide complete, reliable and meaningful data for further analysis (Milne and Adler 1999). Once all the items have been scored, an index was created to measure the relative level of voluntary disclosure by the company. The index is a ratio of the actual scores awarded to a company, to the scores which that company is expected to earn. Thus the maximum score (M) varies. With reference to (m) in the equation above:

$$m < n$$

Where $n =$ the number of items which the company was expected to disclose, i.e. $n < 23 \; d =$
expected item of disclosure

Thus,

$$M = \sum_{i=1}^{n} di$$

The total index (TI) for each company then becomes $TD/M$. The dependent variable is the total index (TI) which is a ratio of the actual number of intellectual attributes disclosed to the disclosable IC attributes. Content analysis is a research technique for making replicable and valid inferences from data to their context (Krippendorff 1980, p.21) and involves codifying qualitative and quantified information into pre-defined categories in order to derive patterns in the presentation and reporting of information.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalisation</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Multiple listing.</td>
<td>Dummy variable coded 1 if company listed on more than one exchange; 0 otherwise.</td>
<td>Multiple Listing (Mltl).</td>
</tr>
<tr>
<td>2 Industry Listing.</td>
<td>Dummy variable coded 1 if company is in a &quot;high profile&quot; sector on ZSE; 0 otherwise.</td>
<td>TechMARK (Tmrk).</td>
</tr>
<tr>
<td>3 Turnover.</td>
<td>Measured in terms of total sales (Natural log).</td>
<td>Turnover (Sales12).</td>
</tr>
<tr>
<td>4 Gearing.</td>
<td>Long-term debt divided by long-term debt plus shareholders’ equity at the end of the financial period.</td>
<td>Gear (Gear).</td>
</tr>
<tr>
<td>5 Profit before taxation</td>
<td>Measured in terms of profit before taxation (Natural log).</td>
<td>Profit (Pbit).</td>
</tr>
</tbody>
</table>
Table 1: cont

<table>
<thead>
<tr>
<th>Variable</th>
<th>Operationalisation</th>
<th>Acronym</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 Audit committee financial expertise.</td>
<td>Dummy variable coded 1 if at least one member of the audit committee has accounting or financial management experience; 0 otherwise.</td>
<td>AudExpert (Finexp).</td>
</tr>
<tr>
<td>7 Proportion of non-executive directors.</td>
<td>Number of non-executive directors divided by total number of all directors on company’s board of directors at the preceding annual report date.</td>
<td>Propnon.</td>
</tr>
<tr>
<td>8 Capital employed.</td>
<td>Measured in terms of capital employed (Natural log).</td>
<td>Equity Capital and Reserves (Eqcr).</td>
</tr>
<tr>
<td>9 Audit Type. 0 otherwise.</td>
<td>Dummy variable coded 1 if audit firm member of “the big 5”; otherwise.</td>
<td>AudTyp (Crpa).</td>
</tr>
</tbody>
</table>

Content analysis of annual reports has been carried out in several previous accounting and IC studies, demonstrating that it is a rigorously tested research instrument for such studies. (Abbott and Monsen 1979, Abeysekera and Guthrie 2003a, b and 2004, Andrew et al. 1989, April et al. 2003, Bontis 2003, Bozzolan et al. 2003, Brennan 2001, Choon, Smith and Taylor 2000, Guthrie 1983, Guthrie and Mathews 1985, Guthrie and Petty 2000, Guthrie et al 1999, Olsson 2001, Petty 2003 and Subbarao and Zeghal 1997) These studies have been able to capture and organise diverse empirical data. It was decided to use the robust Ordinary Least Squares Regression (OLS) Model to test hypothesised relationships jointly. The technique is relevant due to the nature of the data as the total index (DI) is measured on a ratio scale and the independent variables are measured on ratio and nominal scales.

The OLS technique was chosen as the alternative, ordinal scaled probit, does not give better results with rank ordered data (Lutfi 1989). The OLS regression model output is easier to interpret (Kaplan and Urwitz 1979). The OLS regression model is often used to explain the extent to which the amount of voluntary disclosure is a linear additive function of some of the company characteristics chosen. The reliability of any model is related to whether the basic assumptions of regression analysis have been violated or not. In most cases, analysis of residuals is used to examine any violations in the model. For linearity of the independent variables with the dependent variable, a plot of the predicted and residual values should show no relationship between them. Any pattern in the plot could indicate that the linearity assumption has been violated. The general idea of reliability is that the number of independent observations needed must be larger than the number of regression co-efficients. This idea has led to a number of guidelines about the size of the model (Hebden 1981). The most basic constraint is that the error degrees of freedom must be positive, with the maximum of 10 degrees of freedom, namely,

\[ n - k - 1 > 10 \]

where; \( n \) = the sample size and

\( k \) = the number of predictors

Another rule is to have at least 5 observations per predictor, or, \( n > 5k \). For example, in the case of the current research, the maximum number of predictors is 8. To have 10 error degrees of freedom requires a sample size of 19, i.e. 10 + 9, while the \( n > 5k \) rule requires a sample of 40. Since the minimum sample size tested by this research is 54, this means that all the sample sizes tested by this research meet the two requirements. Multicollinearity is the problem that arises when two or more of the independent variables in an equation are highly correlated (Kleinbaum et al. 1988). In practice, multicollinearity is checked by scanning the correlation matrix for high values. However, if correlation coefficient is less than 0.80 it does not seem to offer a serious threat to regression results (Judge et al., 1985). A second problem is that whilst five independent variables — turnover, gearing, capital employed, profit before taxation and proportion of non-executive directors are continuous, techmark listing, multiple listing, auditor type and audit expertise are not. Each
The voluntary disclosure of intellectual capital by listed companies in Zimbabwe

non-continuous independent variable will require a dummy variable. The regression equation used is as follows:

\[ D_{i} = a_0 + a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_5D_5 + B_1X_{ji} + u \]

Where

- \( D_I \) = disclosure index
- \( D_1 \) = multiple listed
- \( D_2 \) = techmark listed
- \( D_3 \) = profit after taxation
- \( D_4 \) = financial expertise in audit committee
- \( D_5 \) = audit firm member of "big 5"
- \( D_{1-5} \) = dummy 0/1 variables
- \( X_j \) = alternative models (continuous models)
- \( X_1 \) = turnover
- \( X_2 \) = gearing
- \( X_3 \) = capital employed
- \( X_4 \) = proportion of non-executive directors
- \( u \) = the stochastic disturbance term
- \( i \) = the ith observation
- \( a, B \) = constants or parameters

The purpose of this section was to explain the procedures adopted to examine the association of various corporate characteristics on voluntary disclosure practices. The chapter also described how the items of voluntary disclosure which were included in the voluntary disclosure index were selected. Finally, the chapter described how the various corporate characteristics were measured and the statistical tests that were applied in the research. The parametric procedure applied is the robust OLS. Various steps which were taken to build the best regression model for explaining the variation in the extent of voluntary disclosure were described.

4. ANALYSIS AND PRESENTATION OF RESULTS

This chapter is structured as follows: The first subsection focuses on the analysis of the findings on the extent of disclosure both from a category and an industry perspective. The second subsection focuses on the findings of the descriptive statistics on the extent of disclosure. The third section summarises the results of the regression model, which investigates the role of the independent variables in explaining the content and type of IC disclosure.

With regard to the amount of disclosure, results show that the average number of IC elements disclosed is 18% with an average 16% for Structural Capital (SC), 24% for Relational Capital (RC) and 14% for Human Capital (HC). In general, the relatively high disclosure of RC is consistent with findings in the Irish and Italian studies. Most of the information disclosed here is in respect of customers, distribution channels, business collaborations, brands, company names, contracts and agreements. This information has been traditionally published by companies in their annual reports and may not be a conscious effort by management to signal these IC attributes.

The low average numbers represented by SC and HC disclosure may be explained by concern regarding competitors. Although the benefits of high disclosure may outweigh the shortfalls, disclosure does have its risks. The company may not wish to signal its intentions particularly if they are likely to have a negative impact on its reputation. However, these results may illustrate the lack of knowledge and appreciation of the impact of VDIC on equity markets. The findings in table 2 indicate that most of the information disclosed is related to management philosophy (67%), management processes (75%), customers (75%), business collaborations (69%) and innovativeness (69%).
Table 2: Analysis of IC Attributes

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Structural Capital (SC)</td>
<td>16%</td>
<td>0%</td>
<td>75%</td>
</tr>
<tr>
<td>Relational Capital (RC)</td>
<td>24%</td>
<td>9%</td>
<td>75%</td>
</tr>
<tr>
<td>Human Capital (HC)</td>
<td>14%</td>
<td>5%</td>
<td>69%</td>
</tr>
</tbody>
</table>

The least disclosed attributes relate to patents (0%), copyrights (0%), trademarks (2%), know-how (5%) and vocational qualifications (6%). In general IC was not frequently disclosed. The summary of previous studies illustrated the lack of VDIC of the SC category with the exception of Guthrie et al. (1999) in Australia who found that this category ranked amongst the main areas disclosed. Brennan (1999) investigated 11 knowledge based companies in Ireland; these did not disclose IP to any extent but would have been expected to, particularly due to the nature of their business. April et al. (2003) also found similar results on her studies in South Africa with the least reported attributes being copyrights and patents. Therefore, it is difficult for investors to determine whether research and development in companies result in the establishment of patents, copyrights or trademarks. This lack of disclosure may be an intentional move by companies to curb this type of analysis by competitors and other stakeholders.

The VDIC in HC averaged 14 per cent. This may be attributed to the very low vocational qualifications (6%). In this category, only three companies disclosed vocational qualifications and only ten on education (20%). Similar results were obtained for know-how (5%) and work related knowledge (16%). These results compare well with Bozzolan et al. (2003), who found that HC (57 per cent) consisted mainly of employees' turnover, average age, etc. Guthrie et al. (1999) also found work related knowledge to be relatively more unlike the Italian study in which it was lower. Abeyesekera and Guthrie (2000) found the most significant attribute to be entrepreneurial spirit in their Sri-Lankan HC study; whilst April et al. (2003) identified work related staff competencies to be more prevalent. This finding was also echoed by that of Goh andLim (2004) who identified work related competencies as a high VDIC attribute. The study by Olsson (2001) in Sweden revealed that of the 18 companies, none reported more than 7 per cent of HC attributes. Although these were large companies, country differences may explain this variance.

The RC disclosure (24%) is the largest amongst the IC attributes disclosed. These results are in part, consistent with Brennan (1999) who found business collaborations and customers to rank highly. April et al. (2003) also found a high score for business collaborations, customers and brands. Generally, Zimbabwe's voluntary RC disclosure appears lower than that of other countries studied. Most businesses value their distribution channels and 42% of companies disclosed this IC attribute. Infrastructure assets (16%) comprised comparatively lower scores with management processes and management philosophy providing higher scores consistent with Guthrie et al. (1999) who found management structures to be relatively high; similarly, April et al. (2003) found management processes to be reasonably disclosed in South Africa; and so too did Goh and Lim (2004) in Malaysia on infrastructure assets. It appears that other countries may disclose a greater proportion of their infrastructural assets than Zimbabwean companies.

Table 3: Industry Analysis

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Automotive</td>
<td>0.37</td>
</tr>
<tr>
<td>Banks and Financial Inst.</td>
<td>0.37</td>
</tr>
<tr>
<td>Beverages</td>
<td>0.35</td>
</tr>
<tr>
<td>Chemicals</td>
<td>0.35</td>
</tr>
<tr>
<td>Construction and bldg materials.</td>
<td>0.33</td>
</tr>
<tr>
<td>Diversified industries</td>
<td>0.30</td>
</tr>
</tbody>
</table>
The voluntary disclosure of intellectual capital by listed companies in Zimbabwe

Table 3: cont.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Average Disclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electronic and electrical equip't</td>
<td>0.22</td>
</tr>
<tr>
<td>Food producers and processors</td>
<td>0.33</td>
</tr>
<tr>
<td>Forestry and paper</td>
<td>0.28</td>
</tr>
<tr>
<td>General retailers</td>
<td>0.32</td>
</tr>
<tr>
<td>Insurance</td>
<td>0.25</td>
</tr>
<tr>
<td>Leisure and hotels</td>
<td>0.38</td>
</tr>
<tr>
<td>Property Investment</td>
<td>0.24</td>
</tr>
<tr>
<td>Pharmaceuticals and biotech</td>
<td>0.43</td>
</tr>
<tr>
<td>Steel and other</td>
<td>0.27</td>
</tr>
<tr>
<td>Telecommunication services</td>
<td>0.61</td>
</tr>
<tr>
<td>Tobacco</td>
<td>0.57</td>
</tr>
<tr>
<td>Transport</td>
<td>0.17</td>
</tr>
<tr>
<td>Utilities</td>
<td>0.43</td>
</tr>
</tbody>
</table>

The analysis by industry illustrates that pharmaceutical and biotech with a disclosure rate of 43%, telecommunications (61%) and tobacco (57%) are the most disclosing sectors; in general these are involved with R&D projects and therefore generate IC. The automotive industries with a disclosure rate of 37% and banking and financial institutions (37%), beverages (35%) and chemicals (35%) meet expectations based on prior studies. Transport with a disclosure rate of 17%, steel and other (27%), property investment (24%), insurance (25%) and electronic (22%) industries showed significantly lower disclosure indices. These industries generally trade using traditional tangible assets with little or no IA. The results are also consistent with expectations. The correlation matrix illustrates the nature, direction and significance of the bivariate relationships of the variables. A significance of $p = 0.05$ is the generally acceptable conventional level in the social sciences. The correlation matrix indicates that there is a significant positive correlation between the disclosure index (DI) and capital employed (Eqcr), turnover (Sales12), high-profile industries (Tmrk) and profitability (Pbit) at a 1 per cent significance level; long-term liabilities (Ltliab) and audit financial expertise (Finexp) at a 5 per cent significance level. Multiple listing (Mltl) and the corporate governance mechanisms (Crpa and Propnon) are insignificant in explaining the variation in VDIC. The direction of the relationships is consistent with the theoretical framework and the direction of the hypothesis that were developed. Some academics may argue that turnover (Sales12) and capital employed (Eqcr) have a high correlation; this is mitigated by the three regression models, Model 1 (full model), Model 2 (excluding capital employed) and Model 3 (excluding turnover) as illustrated in the next section.

Table 4: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>Di</th>
<th>Mltl</th>
<th>Tmrk</th>
<th>Eqcr</th>
<th>Ltliab</th>
<th>Gear</th>
<th>Pbit</th>
<th>Finexp</th>
<th>Crpa</th>
<th>Propnon</th>
<th>Sales12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Di</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mltl</td>
<td>0.067</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tmrk</td>
<td>0.354(*** )</td>
<td>-0.069</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eqcr</td>
<td>0.410(*** )</td>
<td>0.049</td>
<td>0.264( )</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ltliab</td>
<td>0.274(*** )</td>
<td>0.111</td>
<td>0.173</td>
<td>0.592(*** )</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gear</td>
<td>0.211</td>
<td>0.048</td>
<td>-0.047</td>
<td>-0.175</td>
<td>0.019</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pbit</td>
<td>0.477(*** )</td>
<td>-0.037</td>
<td>0.455(**)</td>
<td>0.853(*** )</td>
<td>0.524(*** )</td>
<td>-0.094</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finexp</td>
<td>0.324(*** )</td>
<td>-0.053</td>
<td>-0.128</td>
<td>0.477(*** )</td>
<td>0.289(** )</td>
<td>-0.014</td>
<td>0.286(** )</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crpa</td>
<td>0.098</td>
<td>-0.125</td>
<td>-0.172</td>
<td>0.156</td>
<td>0.096</td>
<td>0.045</td>
<td>0.16</td>
<td>0.307(*** )</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Propnon</td>
<td>-0.015</td>
<td>0.131</td>
<td>-0.131</td>
<td>0.111</td>
<td>-0.081</td>
<td>-0.181</td>
<td>-0.096</td>
<td>-0.021</td>
<td>0.036</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Sales12</td>
<td>0.488(** )</td>
<td>-0.040</td>
<td>0.223</td>
<td>0.767(*** )</td>
<td>0.325(** )</td>
<td>-0.123</td>
<td>0.740(*** )</td>
<td>0.325(*** )</td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.10 level (2-tailed); "Correlation is significant at the 0.05 level (2-tailed);
"Correlation is significant at the 0.01 level (2-tailed)
Table 5: Regression Results

<table>
<thead>
<tr>
<th>Overall Index</th>
<th>Coeff.</th>
<th>St. err.</th>
<th>t</th>
<th>p</th>
<th>t</th>
<th>p</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Constant)</td>
<td>0.221</td>
<td>0.064</td>
<td>3.430</td>
<td>0.001</td>
<td>3.170</td>
<td>0.003</td>
<td>4.070</td>
<td>0.000</td>
</tr>
<tr>
<td>Mltl</td>
<td>0.058</td>
<td>0.040</td>
<td>1.440</td>
<td>0.156</td>
<td>1.110</td>
<td>0.274</td>
<td>1.350</td>
<td>0.185</td>
</tr>
<tr>
<td>Tmrk</td>
<td>0.160</td>
<td>0.037</td>
<td>4.270</td>
<td>0.000</td>
<td>5.170</td>
<td>0.000</td>
<td>2.780</td>
<td>0.008</td>
</tr>
<tr>
<td>Eqcr</td>
<td>0.000</td>
<td>0.000</td>
<td>-1.530</td>
<td>0.133</td>
<td>0.330</td>
<td>0.744</td>
<td>-0.720</td>
<td>0.477</td>
</tr>
<tr>
<td>Ltlab</td>
<td>0.000</td>
<td>0.000</td>
<td>0.890</td>
<td>0.380</td>
<td>0.330</td>
<td>0.744</td>
<td>0.260</td>
<td>0.795</td>
</tr>
<tr>
<td>Gear</td>
<td>-0.019</td>
<td>0.010</td>
<td>-1.890</td>
<td>0.066</td>
<td>-1.690</td>
<td>0.099</td>
<td>-1.890</td>
<td>0.065</td>
</tr>
<tr>
<td>Pbit</td>
<td>0.000</td>
<td>0.000</td>
<td>0.980</td>
<td>0.333</td>
<td>0.000</td>
<td>0.998</td>
<td>1.670</td>
<td>0.103</td>
</tr>
<tr>
<td>Finexp</td>
<td>0.073</td>
<td>0.034</td>
<td>2.160</td>
<td>0.037</td>
<td>1.890</td>
<td>0.066</td>
<td>2.170</td>
<td>0.035</td>
</tr>
<tr>
<td>Crpa</td>
<td>0.017</td>
<td>0.027</td>
<td>0.630</td>
<td>0.533</td>
<td>0.590</td>
<td>0.561</td>
<td>0.800</td>
<td>0.431</td>
</tr>
<tr>
<td>Propnon</td>
<td>0.050</td>
<td>0.090</td>
<td>0.560</td>
<td>0.580</td>
<td>0.250</td>
<td>0.800</td>
<td>0.030</td>
<td>0.974</td>
</tr>
<tr>
<td>Sales12</td>
<td>0.000</td>
<td>0.000</td>
<td>3.070</td>
<td>0.004</td>
<td>1.710</td>
<td>0.095</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Three regression models were run using the full model and two size proxies, turnover and capital employed. The results of the models are presented in Table 8. The results of Model 1 show that techmark (Tmrk), turnover (Sales12), audit committee financial expertise (Finexp) and gearing (Gear) have the highest explanatory potential. These results are reflected in Model 2 and Model 3, although capital employed (Eqcr) is insignificant as a size variable. However, corporate governance variables (Propnon and Crpa), capital employed (Eqcr) and multiple listing (Mltl) are insignificant in explaining the variation in VDIC. The adjusted R² of 0.429 for the regression indicates that the control variables techmark, gearing, turnover and audit committee financial expertise are significant in explaining the variation in IC disclosure up to 42.9%; note that the coefficients of techmark and turnover are statistically significant at the one per cent level. In Model 2, the results show that techmark, gear, audit committee financial expertise and turnover have the highest explanatory potential. The adjusted R² of 0.395 for the regression indicates that the control variables techmark, gear, audit committee financial expertise and turnover are significant in explaining the variation in VDIC.

Turnover has been confirmed to be significant in explaining the variation in disclosure by Bozzolan et al. (2003), Raffournier (1995), Wallace and Naser (1995), Cooke (1989, 1991 and 1992), Lufti (1989), Gray and Roberts (1989) and Firth (1979) but not by Wallace (1987) and Stanga (1976). Capital employed as a proxy for size has been confirmed to be significant in explaining the variation in disclosure by Camfferman and Cooke (2002), Raffournier (1995), Wallace and Naser (1995), Cooke (1989, 1991 and 1992), Gray and Roberts (1989), Wallace (1987), Firth (1979) and Singhvi and Desai (1971) but not by Williams (2001), Hossein et al. (1994), Chow and Wong-Boren (1987) and Spero (1979). This study confirms that size measured in terms of turnover is a significant positive variable on the extent of VDIC. However, capital employed is insignificant in explaining the variation. The results on turnover and capital employed are therefore consistent with some of the above prior studies and therefore the hypothesis in respect of turnover is confirmed and that of capital employed, rejected based on this research. The results show that multiple listing is insignificant in explaining the variation in VDIC. General disclosure studies by Raffournier (1995), Ahmed and Nicholls (1994), Hossein et al. (1994) and Cooke (1989, 1991 and 1992), confirmed multiple listing as significant variable on voluntary and mandatory disclosure. However, this variable was not confirmed.
by Roberts and Gray (1988). Consistent with Roberts and Gray (1988), the results of Models 1, 2 and 3 indicate that multiple listing is statistically insignificant in explaining the variance in IC disclosure. Therefore the hypothesis is rejected. Techmark listing has indicated that it is positively associated with the extent of VDIC. Previous studies by Bozzolan et al. (2003), Williams (2001) and Cooke (1989, 1991 and 1992) yielded similar results. In this case however, Raffournier (1995) and Lufti (1989) did not confirm this variable as significantly associated with mandatory disclosure. Therefore, the conclusion for this variable is that the hypothesis is accepted.

There have been little studies identified in the literature review that have investigated financial expertise of the audit firm as a variable on the extent of disclosure. The empirical studies illustrate in all Models 1, 2 and 3 that the overall regression was significant and the individual coefficients were positive and significant. These findings are consistent with those by Raghunandan et al. (2001) but not with the study by Abbot et al. (2002). Nevertheless, the results of this study conclude that the hypothesis is accepted. The balance of results from Model 1 indicates that none of the remaining variables are statistically significant at the 5 per cent level in explaining the variance in VDIC. However, although gearing has been found to be statistically significant by Camfferman and Cooke (2002), Williams (2001), Malone et al. (1993), Lufti (1989) and Gray and Roberts (1989), it has not been found significant by Raffournier (1995), Wallace and Naser (1995), Hossein et al. (1994), Roberts and Gray (1988) and Chow and Wong-Boren (1987). Under Model 1, H2: is rejected. The results of Models 1, 2 and 3 however indicate that gearing is a negative significant variable on the variances in VDIC at the 10% level, thus the hypothesis is accepted. Profit before taxation as a proxy for profitability is significant at the 1 per cent significance level for models 1 and 2 but not in model 3. Profitability has had mixed results from previous studies. On the one hand, some studies have concluded that it is statistically significant at the 5 per cent level on mandatory and voluntary disclosure overall, for example Wallace and Naser (1995), Lang and Lundholm (1993), Roberts and Gray (1988), Spero (1979) and Lufti (1989) who confirmed a negative association, whereas on the other hand, other studies have not confirmed profitability as being significant. Such studies include Williams (2001), Raffournier (1995), Wallace and Naser (1995), Gray and Roberts (1989) and Wallace (1987). Based on past empirical studies and on the results of Model 1 and Model 2 of this study, the hypothesis is accepted. The variable auditor type has had several studies, some of which have concluded that a positive association does exist with extent of disclosure (Kent and Ung 2003, Ahmed and Nicholls 1994 and Singhvi and Desai 1971), others have not confirmed the variable, such as Raffournier (1995) and Wallace and Naser (1995). The results of this study however indicate a negative but not significant association with VDIC and therefore the hypothesis in all models is rejected. The variable proportion of non-executive directors in the board of directors has not been confirmed as being positively associated with the variance in disclosure by Lufti (1989). The results of this study are consistent with these findings, and as such, the hypothesis is rejected. The results on technological listing and turnover are consistent with those by Bozzolan et al. (2003).

5. SUMMARY, CONCLUSION AND FURTHER RESEARCH
The research set out to achieve two objectives. With regard to the first research objective, which aims to determine the extent of VDIC, some conclusions may be reached based on the findings already reported in this study. Disclosure by Zimbabwean companies mainly occurs with regard to Relational Capital (RC) attributes. This finding is not comparable with the Australian voluntary reporting practices (Guthrie and Petty 2000b) while it is comparable with the Irish (Brennan 2001) findings and the Italian (Bozzolan 2003) findings. With regard to the second research objective, technological listing, turnover, profitability, multiple listing, gearing and audit committee financial expertise seem to be relevant factors in explaining the differences in reporting behaviour amongst Zimbabwean companies. This result is consistent with the majority of previous studies (Mathews 1997, Gray 2002, Williams 2001 and Bozzolan 2003).

Certain limitations have been identified with respect to this study; although content analysis as a methodology may prove to be practical and useful however it involves a large number of subjective "judgement calls". Content analysis involves the application of judgement in deciding whether an attribute is indeed mentioned.
or not. There is also the possibility of the misinterpretation of information due to differences in the understanding of IC between the relevant companies. This possibility will be minimized by taking cognizance of the work of Miles and Huberman (1994) who suggest constant reference to the IAS and academic definitions of the specific IC attributes. Additionally, the age of a company may be relevant, as older companies may have built up differential experience in corporate reporting over time. The study only focuses on disclosures in annual reports; however disclosures via other reporting channels may not exhibit the same characteristics. For example, prior research has indicated that companies with bad news tend to disclose that information earlier through interim reports (Skinner 1994). A longitudinal study of the extent of VDIC may reveal more evidence on the practises of companies. As Williams (2001) uncovered, in some years companies will disclose more information than in other years.

Further studies to establish an internationally recognised framework for those IA and IC elements that are not recognised by any of the accounting regulatory bodies is urgently required. Chaminade and Johanson (2003) suggest that the basic idea is that these guidelines should have the capacity to be used within different cultures and within different countries. In addition, regulatory bodies should educate their members regarding the elements of IC and their positive effect on companies when disclosed in the annual reports. In addition, researchers should concentrate on the similarities between the various definitions of IC so that this can bring about a generally accepted definition of IC and of its components, and can lead to a broad reporting framework. The various IC components are closely related and are also intertwined with other resources a company has. This interrelationship should be further investigated in order to be able to get a comprehensive insight into the cause and effect relations of the IC value-creation capacity. Specific attention should be paid to the influence of network relations. Further research could also be conducted on a larger sample in order to investigate what kind of IC and knowledge management information is actually sought by decision makers. Future research could add sophistication to the model presented in this study by attempting to assess the quality of the disclosure in the annual reports. In particular, the location of the disclosure is potentially quite revealing in terms of formulating a view of the company's commitment to the development of its IC (Guthrie and Petty 2000).

BIBLIOGRAPHY
The voluntary disclosure of intellectual capital by listed companies in Zimbabwe


The voluntary disclosure of intellectual capital by listed companies in Zimbabwe


### APPENDICES

**Appendix A1: Intellectual capital framework**

<table>
<thead>
<tr>
<th>External Capital (Relational/Customer Capital)</th>
<th>Internal Capital (Structural Capital)</th>
<th>Human Capital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brands</td>
<td>Patents</td>
<td>Know-how</td>
</tr>
<tr>
<td>Customers</td>
<td>Copyrights</td>
<td>Education</td>
</tr>
<tr>
<td>Customer loyalty</td>
<td>Trademarks</td>
<td>Vocational qualifications</td>
</tr>
<tr>
<td>Company names</td>
<td>Management philosophy</td>
<td>Work-related knowledge</td>
</tr>
<tr>
<td>Distribution channels</td>
<td>Corporate culture</td>
<td>Work-related competencies</td>
</tr>
<tr>
<td>Business collaborations</td>
<td>Management processes</td>
<td>Entrepreneurial spirit, innovativeness,</td>
</tr>
<tr>
<td>Licensing agreements</td>
<td>Information systems</td>
<td>proactive and relative abilities,</td>
</tr>
<tr>
<td>Favourable contracts</td>
<td>Networking systems</td>
<td>changeability</td>
</tr>
<tr>
<td>Franchising agreements</td>
<td>Financial relations</td>
<td></td>
</tr>
</tbody>
</table>