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**THE IMPACT OF INDIRECT TAXES AND THE INCOME TAX ACT ON CORPORATE
VALUATION IN MERGERS OR ACQUISITIONS**

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ABSTRACT

When mergers and acquisitions are conducted, valuation plays an important role in establishing a fair market value (FMV) of a target company. A number of variables including direct taxes are considered during the valuation process. This study looks at the impact of indirect taxes on the valuation result of target companies involved in mergers and acquisitions.

Target companies considered for this study were those from different industries that were involved in mergers and acquisition transactions in 2004/2005 period, had at least three years of financial information available and had paid capital gains tax (CGT), an indirect tax, following a successful conclusion of the transaction.

Research showed that there is likelihood that valuation result of target companies involved in mergers and acquisitions is significantly different when valuation included CGT compared to when valuation excluded CGT. Furthermore, considerable savings, implying higher ROI, could be realized should corporate acquirers and private equity factored in the effect of indirect taxes on FMV of target companies especially in industries where there are considerable under-valued operating assets. Effective tax rates can be determined for different industry groups and they can be mathematically be modelled with fair accuracy.

DECLARATION

I declare that this research project is my own, unaided work. It is submitted in partial fulfilment of the requirements of the degree of Master of Business Administration for the Gordon Institute of Business Science, University of Pretoria. It has not been submitted before for any degree or examination in any other university.

.....

Philip Kweza

Date:

DEDICATION

This work is dedicated to my wife, family and friends who kept on “pushing” and encouraging me to stay in the race especially at times when I seemed to lose momentum.

ACKNOWLEDGEMENTS

I am highly indebted to my supervisor, Prof Mike Ward, for his profound guidance, encouragement and technical input whilst conducting this research. Prof. Ward's broad but detailed industry and academic experience was invaluable to the success of this research project.

I would like to convey my thanks to South African Revenue Service (SARS) management at PIM and LBC for allowing me to conduct this research. Without their support, this research project was never going to be a success it is today. Special thanks go to all my colleagues within PIM, TPS and LBC who assisted in gathering of data for this research project.

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LIST OF ABBREVIATIONS

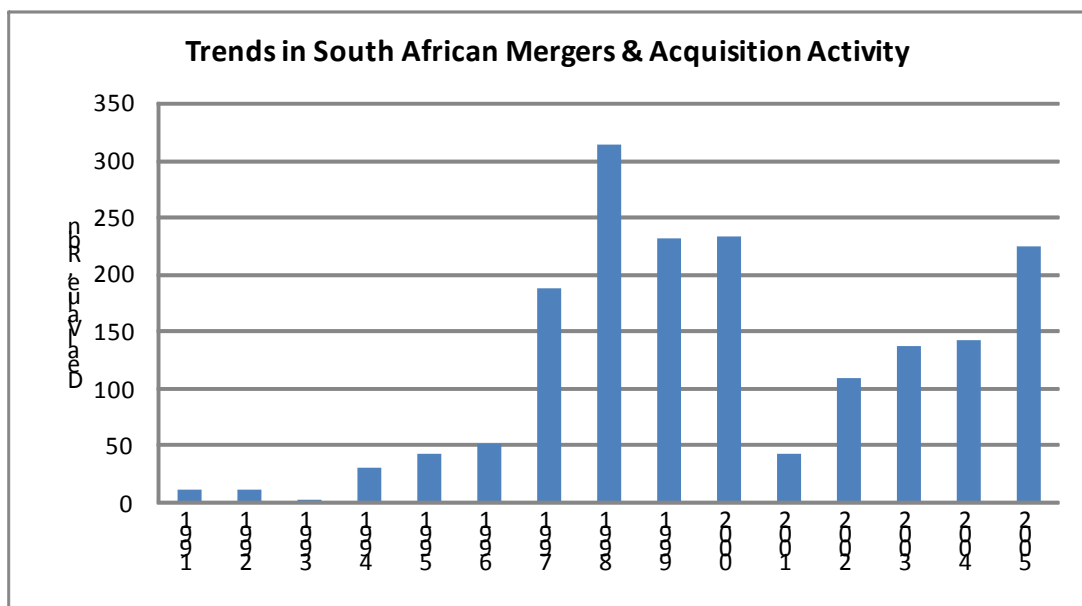
ASGISA	Accelerated Skills and Growth Initiative for South Africa
BEE	Black Economic Empowerment
CGT	Capital Gains Tax
IT	Income Tax
M & A	Mergers and Acquisitions
PAYE	Pay-As-You-Earn
SARS	South African Revenue Service
SDL	Skills Development Levy
UIF	Unemployment Insurance Fund
EBIDTA	Earnings Before Interest, Depreciation, Tax and Amortisation
DCF	Discounted Cash Flow method
ATR	Average Tax Rate

CHAPTER 1: INTRODUCTION TO THE RESEARCH PROBLEM

1.1. DESCRIPTION OF THE PROBLEM AND BACKGROUND

Growth strategies such as those depicted by the Ansoff's matrix indicate that organisations can grow organically through market penetration and expansion or through new product development or diversification. However, acquisitive growth, which is a form of diversification, is popular among big business as a route to enhance the growth of the company in short timeframes. In South Africa, growth of organisations is not different from the norm described above. As such, the South African business environment has seen a cycle of mergers and acquisitions (M&A) over the past decade as illustrated in figure 1 below.

Figure 1: Mergers and Acquisition trends in South Africa



Source: Ernst & Young, 2005

There are many reasons why organisations merge with or acquire targets, but those reasons and motives are beyond the scope of this paper. However, the factors that influence mergers and acquisition pricing are of interest to participating stakeholders, especially with regards to the treatment of indirect taxes on valuation during the merging and acquisition process.

Ernst & Young (2005) observed that Black Economic Empowerment (BEE) was a significant driver of acquisitions depicted in the trends shown in figure 1 above. With regards to BEE, this is a policy framework promulgated by the government meant to redress economic disadvantages faced by the minorities in the past¹. BEE deals like any other structured deals acquire a target company's shareholding, hence such deals are a subset of mergers and acquisitions as noted by Burger (2007). Details of BEE deals and their financial structuring are beyond the scope of this paper, hence no further treatment of this subject will be done except their consideration as a form of acquisitions. Of interest in this paper is the valuation result and treatment of indirect taxes as well as the consideration of the over-arching Income Tax Act especially the anti-avoidance section 76A. Using section 76A of the income Act, South African Revenue Service (SARS) tend to re-look at any major transaction and ascertain that any schemes of arrangements entered into by parties to the deal don't transgress the Income Tax Act.

Corporate acquirers, investors and private equity are aware of impact of direct taxes on income earned and probably less aware of impact of indirect taxes.

¹ Ernest & Young, 2007

Thus, should there be any tax obligations uncovered, these resulting tax liabilities will affect the valuation result of the target company.

The positive trend of mergers and acquisitions in South Africa since 2001 therefore makes a compelling case to investigate the valuation artefacts considered during the merging or acquisition process as well as to understand the role indirect taxes can have on the overall valuation result. However, more empirical evidence is needed to disapprove or agree with the hypotheses many researchers have put forward.

Academics and practitioners in South Africa have not given much attention to this topic of indirect taxes impacting target companies valuations. Lack of literature on this subject within the South Africa context supports this view. In United States of America (USA), considerable research on this subject has been done. Thus, there is a high probability that South African corporate acquirers, investors and private equity might be overpaying for the businesses they are acquiring. Overpayment on a merger or acquisition transaction literally reduces the return on investment (ROI). Plesko (2003) and Harrison (1987) highlight that average tax rates used in valuation introduce bias in tax incidences, hence the pricing of target companies.

1.2. PURPOSE OF RESEARCH

Considering the positive trend of mergers and acquisitions alluded to earlier on, the key issue around fair market value (FMV) will continue to dominate the negotiations of mergers and acquisitions. In the same breadth, tax considerations in valuation would still influence formulation of a merger or acquisition decision. In this context, this study therefore attempts to

- 1) Understand the impact of indirect taxes on valuation of target companies involved in mergers and acquisitions.
- 2) Establish if corporate acquirers are over paying for target companies during acquisition.
- 3) Establish effective tax rates for major South African industry groupings.

Target companies involved mostly in acquisitions within major South African industry sectors will be considered in order to investigate the impact of indirect taxes on the valuation result as well as other variables.

In addition to the above research objectives, this study would then benefit the following stakeholders

- Investors, private equity and corporate acquirers; an understanding of the impact of indirect taxes on valuation would ensure that these stakeholders don't overpay for target companies, hence realizing a low return on capital (ROC) invested in the long run.

- South African Revenue Service (SARS); the study findings would simplify the administration of tax anti-avoidance legislation especially section 76A as well as enhancing the ability to determine tax due for companies involved in mergers and acquisitions through use of factored tax rates.

The research report is structured around 7 chapters and they proceed as follows

- Chapter 2: Literature review
- Chapter 3: Hypothesis
- Chapter 4: Research method
- Chapter 5: Results
- Chapter 6: Results analysis and interpretation
- Chapter 7: Conclusion

CHAPTER 2: LITERATURE REVIEW

2.1. CRITICALITY OF VALUATION FOR MERGERS AND ACQUISITIONS

Valuation has always been interpreted to mean a process that puts a value on assets, both tangible and intangible. Garland (1987) asserts that parties engaged in a sell arrive at a price viewed to be a fair market value (FMV), neither both “being under a compulsion to buy or sell and both aware of the relevant facts”. In the same work, Garland (1987) alludes to the presence of two alternatives for determining the FMV, that is,

- a) the parties agreeing to the allocation of the selling price among assets acquired
- b) the parties independently determine the FMV of assets as of the date of acquisition.

It follows then that getting the right price is key in any transaction. This is no different when a merger or acquisition is taking place between two parties. Underpinning a successful merger and acquisition (M&A) process is acceptable valuation of a target company. As these deals (M&A) get negotiated, a variety of corporate valuation techniques are used to get the FMV, albeit on the backdrop of an agreement between two parties involved in the M&A negotiation. These methods could be comparables or discounted cash flow (DCF) method, net present value, adjusted net present value (Firer et al, 2004). However, all these valuation methods are affected by possible hidden tax liabilities or indirect taxes in one way or another. In support of this view, Corbin (2005) highlights similar observations in his article on the role of indirect taxes during a business valuation.

Accuracy of these multitudes of valuation techniques is subject to the data available. As such, the market multiple analysis approach is the most common method employed by practitioners where market-determined multiples are applied to net income, EBITDA or other measures. According to Corbin (2005), this comparable method attempts to make an “apples-to-apples” comparison of businesses by eliminating some of the effects capital structure can have on the company’s earnings. In contrast to this observation is the work of McDiarmid (2007) where Sandra Beswick from ABSA Private Equity asserts that her company arrives at a true valuation by considering profitability history and current assets of a company they buy into.

Even though the market multiple analysis approach helps to identify the value of a target company, it is highly prone to erroneous results as it ignores things like effects of indirect taxes as noted by Kent (2004) in his work on merger motives and target valuation. In separate work, Plesko (2003) and Harrison (1987) also found out that the financial statement-based average tax rate used in valuation of businesses introduces substantial bias into analyses of tax incidences. The more popular DCF technique as observed by many other researchers gives sound final valuation result but also doesn’t factor the full impact of indirect taxes. Firer, Ross, Westerfield and Jordan (2004) also observed that FCF models (base of DCF techniques) which investors might use, values the entire operations of the firm yet don’t factor in the impact of indirect taxes.

In the same work, Firer *et al* (2004) show that the FCF is affected by tax as represented by

$$\text{FCF} = \text{PBIT} (1 - T_c) + \text{Depreciation} - \Delta\text{NWC} - \text{Net capital expenditure}$$

Where PBIT –Earnings before interest and tax

T_c –Corporate tax rate based on income

ΔNWC –Net working capital

Corbin (2005) highlights the fact FCF method takes into account changes in receivables, payables and capital expenditures as shown above by Firer *et al* (2004), hence no consideration of impact of indirect taxes on the FCF valuation.

In establishing the role of indirect taxes in valuing a business, Corbin (2005) acknowledges the merit of each method to the valuation process. To support this, the South African government gazette (1998, 19412) on competition Act advises parties to a merger or acquisition to eliminate value added tax (VAT), a consumption tax, from the pricing models.

Regardless of the valuation approach used, proper and agreeable valuation is necessary for M&A negotiations to be successful. Many researchers concur with this observation. However, partial or none consideration of impact of indirect taxes as noted by Corbin (2005), Auerbach and Reishus (1987) and Kent (2004) pose a possibility of affecting the final target company value.

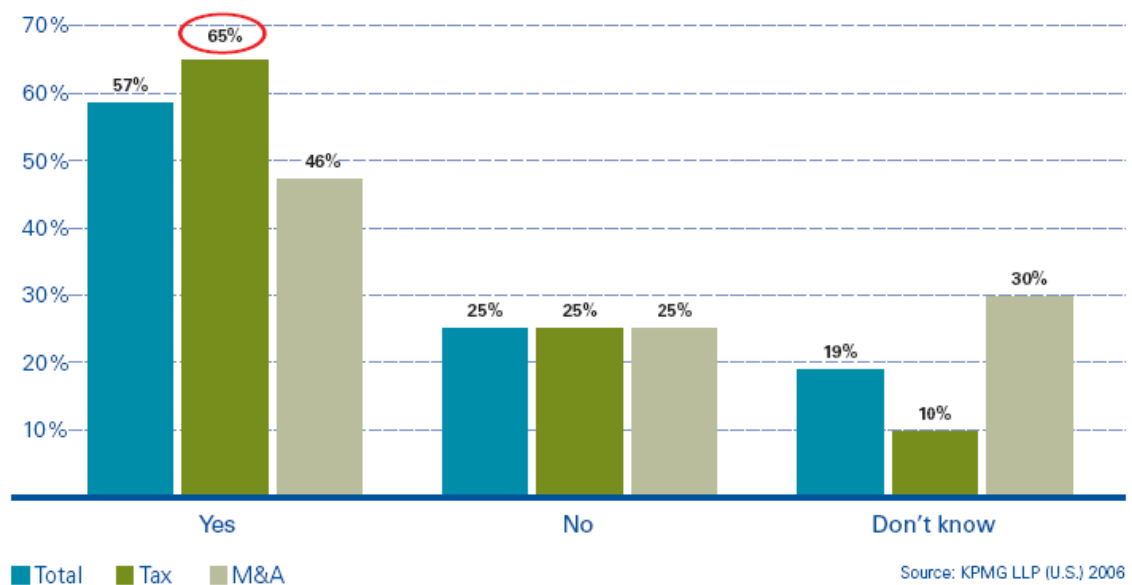
2.2. IMPACT OF TAX ON VALUATION DURING MERGERS AND ACQUISITIONS

Auerbach and Hines (1986) observed that the taxation of corporate assets is well understood to influence investment decisions and firm valuation. In converse, the impact of tax on valuation and the consequent decisions made to proceed or not with an acquisition is a topic that needs no further treatment in this paper.

In USA, a number of studies have been done over periods from 1960 – 1990's on merger motives and many of these studies conclude that tax issue has a role in the merger decision. In particular is the trend of the acquirers to try and gain the unused tax credits of target companies and improve the acquirer's profitability. However, an observation of interest is the increase of the value of a target company when there are unused tax credits. Confirming this observation is a recent study done by KPMG shown in the graph below where it observed that 65% of respondents acknowledged that the target company valuation was influenced by unused tax credits.

Figure 2: KPMG LLP tax basis research result

S. Does the ability to obtain a tax basis step-up of a potential acquisition target increase its purchase price?



In South Africa, a similar observation was made when one private equity firm (Brait) was buying out shareholders in Shoprite and tried to operate it as a private company. A considerable tax advantage to the value above R1 billion partly motivated the decision to acquire Shoprite shareholding. Surely this deal structuring was aggressive and it prompted South African Revenue Service to intervene.

Despite the desire to gain access to unused tax credits and make a M&A decision, the most common valuation technique, the DCF, do factor in tax rates applicable to a target company. Normally these tax rates are related to income

(direct taxes) earned by the target company in the course of doing its business.

This level of tax consideration therefore demonstrates the understanding of its impact on valuation of target companies.

Considering that the impact of tax on valuation of firms is a well understood subject and that valuation is vital to any merger and acquisition deal as indicated in the previous section, it becomes paramount to understand the impact of direct and indirect taxes on the overall valuation result. To illustrate the importance of considering indirect taxes in the valuation process, the cost of indirect taxes are considered in relation to mergers and acquisitions concluded over the last five years.

2.3. STRUCTURE AND COST OF INDIRECT TAXES

A number of taxes are payable in South Africa as illustrated in table 1 below, of which personal income tax (PIT) and company income tax (CIT) constitute direct taxes and the balance being indirect taxes. Both forms of taxes, direct and indirect have been increasing over the years as shown in table 1.

Table 1: Breakdown of revenue collected – South Africa

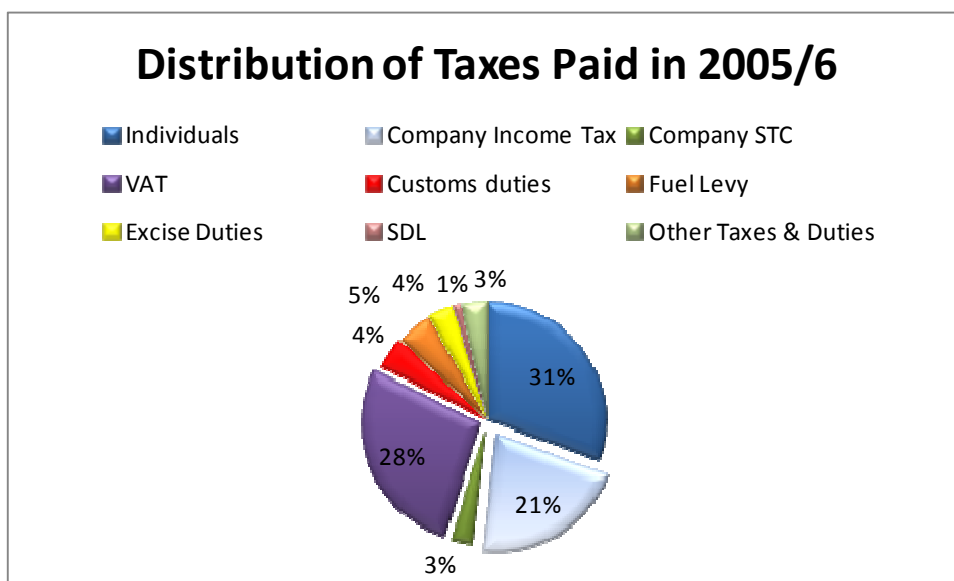
Year	PIT	CIT	STC	VAT	Fuel Levy	Customs	Other	Total Tax Revenue	GDP	Total Tax as % of GDP
2001/02	90 976	42 979	7 163	61 057	14 923	8 632	26 568	252 298	1 047 992	24,1
2002/03	94 924	56 326	6 326	70 150	15 334	9 331	29 819	282 210	1 198 344	23,5
2003/04	99 220	61 712	6 133	80 682	16 652	8 479	29 630	302 508	1 281 438	23,6
2004/05	111 697	71 629	7 487	98 158	18 688	12 888	34 433	354 980	1 419 991	25,0
2005/06	126 416	87 326	12 278	114 352	19 923	18 303	38 736	417 334	1 563 270	26,7

Source: South African Revenue Service 2005/6 annual report

Indirect taxes comprise Capital Gains Tax (CGT), Excise duties, Customs duties, payroll based levies (UIF, SDL) and regional council levies. CGT arise when assets are disposed of during a sell (typical of an acquisition process) and all asset classes are liable to pay CGT should there is evidence of a capital gain.

From figure 3 below, 20% of total revenue collected in 2005/6 constituted indirect taxes which translates to R80 billion. By including consumption tax, VAT, the amount increases to about R200.9 billion in the same period.

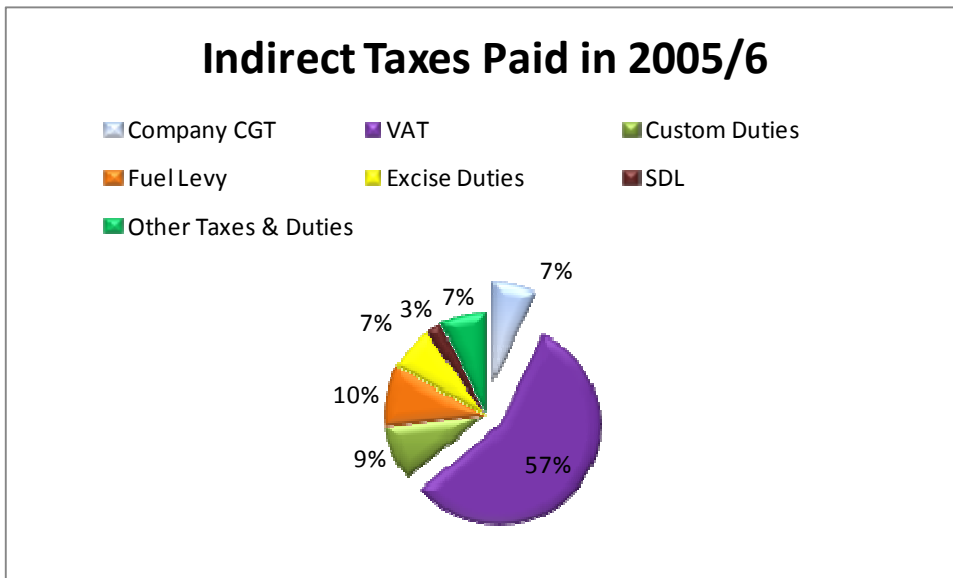
Figure 3: Distribution of taxes paid in 2005/6- South Africa



Source: SARS 2005/6 annual report

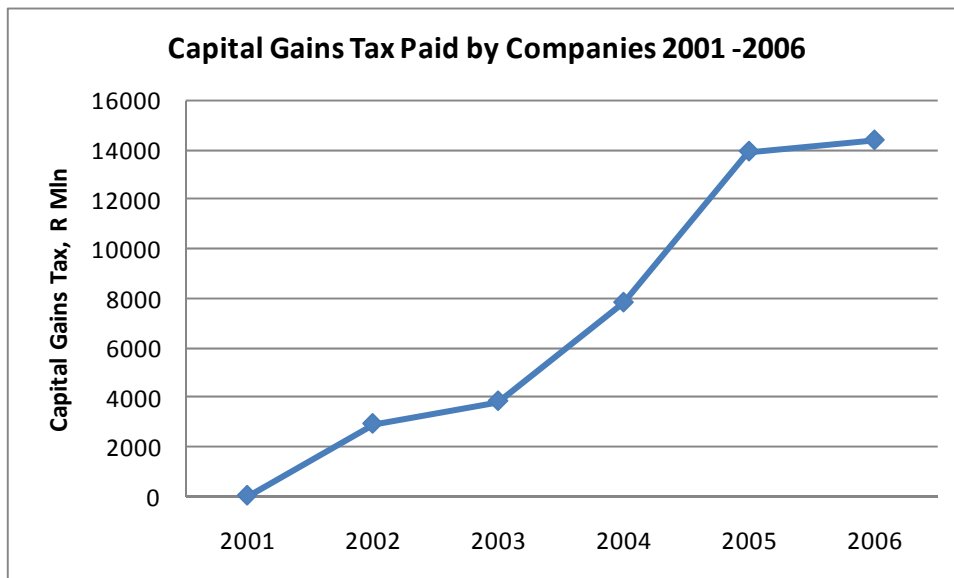
Of the 21% revenue collected by SARS from companies in the tax period of 2005/6, 7% of that tax was in the form of CGT as illustrated in figure 4 below. This translates to about R14 billion which is 6.25% of total mergers and acquisitions concluded in the same period, therefore a considerable amount.

Figure 4: Indirect taxes paid in 2005/6 – South Africa



Looking at CGT, a form of indirect tax that usually arises during a merger or an acquisition, figure 5 below illustrates a positive trend over the years. The size of CGT being paid is increasing year on year, therefore CGT as an indirect tax needs to be “watched” when valuation is being computed.

Figure 5: CGT paid by companies – South Africa



From such empirical evidence, it is therefore not prudent to ignore the impact of indirect taxes during the valuation process of target companies, a view echoed by Bardazzi, Grassini and Longobardi (1991) in their work on price formation. Moreover, the graph highlights an important fact in that indirect taxes are becoming significant in recent years within the South African business environment.

It is important to note that most of these indirect taxes are hidden in annual financial statements as observed by Corbin (2005). They are usually hidden in the cost of goods sold, depreciation and other expense lines. Undetected indirect tax would increase both before tax and after tax profits, at least in the short run thereby affecting the valuation result.

Vigilance on effect of indirect taxes on the value of a target company would therefore likely to increase the return on capital expended during the acquisition process and reduce the adverse effects of non-factored tax obligations that would affect the purchase price (BusinessReport, 2007).

Harrison (1987) notes that local or indirect taxes are increasingly becoming a significant expense to corporations. Despite the significant size of these indirect taxes, investors, private equity and corporate acquirers alike, probably tend to overlook at these non-income taxes during the M&A process as observed by researchers Corbin(2005), Kent (2004) , Butters, Linter and Cary (1951) and Auerbach *et al* (1987). The situation is also aggravated by the non-availability of information especially from financial statements that are prepared to provide minimal information as per regulations in force.

In separate work but related subject, Garland (1987) stresses on diligent pre-acquisition planning and greater post-acquisition compliance in a way that reinforces the impact of indirect taxes on a fair purchase value.

This view is similarly shared by Gramlich (1992), Callihan (1994), Shackelford and Shelvin (2001) who identified a need for further study on tax rate measure refinement and improvement.

2.4. IMPACT OF INDIRECT TAXES ON VALUATION OF TARGET COMPANIES

Corbin's (2005) work highlights that businesses paid nearly \$400bn in indirect taxes in 2003, 10% higher than the FY2000 yet \$131bn was paid as federal income taxes. In the same work, Corbin (2005) found that property taxes constituted the bulk of the indirect taxes paid amounting to \$156bn for FY2003. Payroll tax cost businesses some \$30bn in tax liabilities in 2003. Corbin (2005) asserts that despite the size and impact of indirect taxes on businesses, investors are rarely aware of indirect taxes as they are with direct taxes. In separate work, Garland (1987) found that before the enactment of Sec. 1060 in USA, the increasing mergers and acquisitions resulted in increasing litigation cases as taxpayers sought to maximize the tax benefits emanating from purchase price allocations. Faber (2001) shares similar sentiments to previous authors' views on unawareness of indirect taxes by arguing that statutes are poorly designed and as such illogical and haphazard consequences result, treating economically identical transactions in different ways and different transactions similarly. Herron-Hinds and Heikkinen (2003) raise the spectre of indirect tax unawareness for corporate acquirers who buy companies operating in different states where local taxes differ.

Harrison's (1987) work on state and local taxation concurs with Herron-Hinds *et al* when he argues that the "activities of a target company may create "nexus" for acquiring company in additional taxing jurisdictions".

Moreover, Harrison (1987) alludes as well to the fact that property, payroll or sales of the target may have a substantial impact on the apportionment of income to the state by the acquiring company.

In the same work, he highlights that most acquisition contracts include indemnification clauses to protect the acquiring company from prior taxes liabilities of the target. However, such covenants are often limited to net income taxes and don't address the multitude of diverse state taxes such as sales/use, gross income, property and excise taxes.

Indirect taxes often reside in the company's financial statements among the cost of goods sold, selling, general administration and other expenses. Corbin (2005) concedes that most due diligence and tax planning in business acquisitions generally revolves around planning for direct taxes (e.g. income tax, franchise tax). On the same subject, Garland (1987) stresses the importance of pre-acquisition planning for both buyer and the seller of a trade or business especially with regards to all classes of assets. Bekker and Kennedy (1999) subscribe to the view that state & local taxes associated with M & A transactions are often ignored until the time of closing the deal. Their position on due diligence is limited to the need to identify the target's exposure for unpaid state and local taxes. In the same work, Bekker and Kennedy (1999) highlight that any inaccuracies of the representations during due diligence process can trigger indemnification clauses or can justify the buyer's refusal to consummate a transaction.

However, Plesko (2003) stresses the need to properly define the effective tax rate when considering average tax rate (ATR) and marginal tax rate (MTR) when measuring tax burdens.

This view is contrary to what private equity consider as the tax rate (mostly consider direct taxes not indirect taxes) for acquisition purposes. It is this effective tax rate that can be used to determine the appropriate cash flows for a business being acquired. However, after an acquisition has been completed, Harrison (1987) alludes to the notion that parties re-visit the structuring process and vet out any tax burdens such as indirect taxes that were not considered from the initial negotiation. This reinforces the pre-supposition that an effective tax rate is not generally equal to the ATR that is determined from the financial reports of corporations that are being acquired. Therefore this observation is conceding to the fact that indirect taxes have an impact on valuation as per Corbin (2005) and Harrison (1987). Modigliani and Miller (1977) propositions I and II show that a levered company has a higher enterprise value than an unlevered one. Tax shielding enhances the enterprise value of a levered company, hence more evidence that direct tax or indirect tax has an impact of valuation.

CHAPTER 3: HYPOTHESES

The valuation of target companies involved in the merger and acquisition process and the non consideration of indirect taxes have been discussed in the previous sections. The positive trend of mergers and acquisitions in South Africa in the last five years has necessitated investigation on the impact of indirect taxes on firm valuation. It has been highlighted earlier on that at present CGT, an indirect tax, constituted 6.5% of value of mergers and acquisitions concluded in South Africa in 2005. Based on these arguments and other considerations, a hypothesis has been formulated to test the following

- 1) H_0 : Indirect taxes are not understated in the valuation of target companies in mergers and acquisitions

As a way to test the hypothesis, valuations of target companies will be done for two cases. First case will be where indirect taxes are considered for a given target company and secondly where indirect taxes are excluded for the same target company. A paired T-test will be conducted on the result sets and the output will be used to infer on (interpret) the hypothesis. Moreover, the above hypothesis would also validate the possibility that private equity, individual investors and corporate acquirers might overpay for target companies when indirect taxes are excluded in the acquisition valuation process. In addition to the above objectives, results of hypothesis 1 would also attempt to validate if indirect taxes can be determined from transaction value using mathematical models.

CHAPTER 4: RESEARCH METHODOLOGY

This research aims to apply exploratory techniques to analyse secondary data to establish the impact of indirect taxes on valuation of target companies involved in a merger and acquisition process. As Zikmund (2003) points out that secondary data is previously collected data, this study's data were obtained from the following institutions

- Ernst & Young
- BusinessMap
- South African Revenue Service (SARS).

Ernst & Young annual survey² of mergers and acquisitions as well as BusinessMap research papers constituted the source of data on target companies. This data then enabled secondary data extracts on indirect taxes (mostly CGT) to be drawn from SARS's databases. With regards to outputs of this study, similar studies have been done elsewhere by other researchers whose work is referenced herein. Thus, this research uses empirical data to investigate the impact of indirect taxes on valuation within the South African business environment context.

To enable simple results analysis, two sets of variables were identified. Target company valuation result was chosen as a dependent variable whereas the industry group was identified as independent of the target companies.

² Period 2003 to 2005

However, details on variables and groups will further be expounded in the sections that follow.

4.1. POPULATION OF RELEVANCE

The population of relevance in this study was defined as all companies, from South African industry groups, who had been subject to a merger or acquisition in the recent past, that is, in 2004 or 2005. Therefore the criteria used to select companies for population of relevance comprised

- Companies involved in mergers and acquisition in 2004 and 2005
- Deals were completed in the year of initiation and reported by 2006 as successful
- Companies that submitted tax returns with relevant financial information for at least three consecutive years. This allowed more accurate valuation estimates to be made
- Acquisitions or mergers were done at arms-length, hence company re-organisations could not be considered
- No connected persons could be considered as part of the acquisitions
- Only South African acquisition and mergers, therefore outward or cross border acquisitions and mergers were excluded
- BEE deals were considered as acquisitions

4.2. PROPOSED UNIT OF ANALYSIS

In this study, a unit of analysis considered for consideration is a target company engaged in a merger or acquisition process in 2004 or 2005. These target companies had at least three years of financial information available from SARS databases.

4.3. SAMPLING METHOD AND SIZE

A sample of 69 target companies involved in a merger or acquisition process in 2004 and 2005 were randomly selected as the primary data set and used in the analysis. Out of the 69 target companies selected, those companies that had financial information which was one or two years old in SARS's secondary database but had met the population of relevance criteria were removed from the primary data set. This data "cleansing" process produced an intermediate sample of 51 target companies that could be used to create a "clean" final sample of 18 target companies suitable for use in this investigation. See the following section for details on data "cleansing" process.

By considering mergers or acquisitions that took place in 2004 and 2005, financial data could then be drawn from SARS's secondary databases from 2006 to 2001. However, the secondary databases had other possible companies that could have been used in the analysis, but the limitation of the primary data set meant that one could not extend the sample.

However, the ability to classify many of the mergers and acquisitions into variables such as “industry groups” and “having paid CGT after acquisition or merger” allowed analysis to be conducted and the hypotheses to be tested accordingly.

4.4. DATA COLLECTION METHOD

Documentary research was conducted for the purpose of this study to gather target companies involved in mergers and acquisitions. According to Scott (2006), documentary research involves the use of texts and documents as source material. Thus interrogation and search of secondary databases that were easily accessible was done. The following list comprise a set of databases that were searched

- Ernst & Young M&A Yearly Review
- Liquid Africa
- KPMG
- BusinessMap
- EmpowerDex

However, no “face-to-face” interviews were conducted for the purpose of this study. After the initial search and identification of a primary data set, a further search was conducted on secondary databases of CIPRO to get company registration details especially the company registration (CK) numbers. Using CK numbers, tax reference numbers of target companies were extracted from the SARS’s secondary database. Financial information of the respective target companies was then extracted for given tax reference numbers for the periods of 2001 to 2006. Out of the intermediate sample of 51 target companies, some of these companies did not indicate if there was a capital gain after the

acquisition or merger process. Thus more target companies were eliminated from the intermediate sample of 51 to give a final sample of 18 target companies. In summary, all 18 target companies had indicated a capital gain after the conclusion of an acquisition or merger process. This final sample of target companies could then be used to investigate the impact of indirect taxes on valuation.

4.5. DATA COLLECTION DESIGN TOOL

Data collected on companies involved in mergers and acquisitions according to the population of relevance criteria was organized as per template shown in appendix A. For the “first run”, the data collected consisted of

- Target company name
- Acquirer company name
- Year of transaction
- Value of transaction
- Type of transaction, that is, merger or acquisition and if cross border
- Industry group

For the “second run” where data was searched on secondary databases of CIPRO and SARS, the data was organized into the following format as in template shown in appendix A. The data collected consisted of

- Target company name
- CK number
- Industry group
- Tax reference number
- Balance sheet information

- Income Statement information
- Capital Gains Tax (CGT) information
- Deal size

The industry groups considered for the purpose of this study were

- Information technology
- Construction
- Hospitality
- Financial services
- Mining
- Logistics
- Transport
- Healthcare
- Investment
- Manufacturing

Thus, target companies that could not be classified into one of the major industry groups above were dropped from the data set. Furthermore, target companies that had less than three consecutive years worth of financial data were excluded from the data set. Target companies who did not provide full financial disclosure in terms of line items above EBIDTA line were also excluded from the final sample.

4.6. DATA ANALYSIS APPROACH

To aid analysis, data was classified into various industry groups. In order to establish the impact of indirect taxes on the fair market value (FMV), two valuations of a target company were computed. Firstly, a value (V_{E1}) of the target company was computed as at the time of transaction. This value excluded the capital gain declared after the successful conclusion of the transaction. Secondly, for the same target company, another value (V_{E2}) was computed that incorporated the capital gain declared.

The capital gain was included in cash flows earned within the year when the transaction was initiated and concluded. The two values (V_{E1} and V_{E2}) for all 18 target companies created the data set for the paired t-tests that were conducted.

A paired T-test was conducted at 5% significance level to test if there was statistical significant difference between sample means of the two subsets (V_{E1} and V_{E2}) for all target companies in the selected industry groups. Note the following

- 1) V_{E1} is the valuation where indirect taxes were excluded in the valuation of target companies. This was designated a category of “without indirect tax”
- 2) V_{E2} is the valuation where indirect taxes were included in the valuation of target companies. This was designated a category of “with indirect tax”.

After the valuation computations, V_{E1} should equal the value of the transaction at the date of announcement.

Indirect taxes are constituted by a number of tax items of which Capital Gains Tax (CGT) is the most significant when an acquisition or a merger transaction is concluded. As such, CGT was considered in the calculations of one of the category and creation of the above two subsets of “with indirect tax” and “without indirect tax” categories respectively.

Effective tax rates per industry group were calculated for the subset where indirect taxes were considered. The effective tax rate was calculated as follows

Effective Tax Rate (ETR) = Normal Income Corporate Tax ± Tax Savings rate

where “Tax Savings” rate was computed as a percentage of capital gains declared to transaction value.

For valuation of target companies, the DCF technique was utilised with appropriate discounting rates. The discount rates, WACC, were estimated based on data drawn from secondary databases such as from the Bond Exchange and JSE together with appropriate assumptions made per industry group. The data used from secondary sources such as Bond Exchange was the R_f rate and from JSE was the market risk premium (MRP) for different industry groups.

Valuation method used as illustrated in Frykman and Tollerryd (2003) work is shown below as

EBIT-Cash taxes on EBIT – Capex + Depreciation +/- Change in working capital where

Cash taxes are expressed as

Taxes on EBIT = Tax on profit and loss account + Tax deductible from interest payments – Tax on interest income – Tax on non-operating income.

CGT was regarded as tax on non-operating income and therefore was included in the calculation to give the “With indirect tax” category. For the purposes of the “taxes on EBIT” calculation, CGT was incorporated in the year when the transaction was concluded and not the year it was paid over to SARS.

Approximation of cash flows were done from three years worth of financial information obtained from SARS’s secondary database. Appropriate assumptions were made to enable calculation of terminal values and five years of cashflow forecasts. Assumptions were based on the historic growth rates of the target companies and possible future industry growth.

4.7. RESEARCH LIMITATIONS

Even though the research efforts yielded a credible final data set, this effort had limitations to it. A notable limitation was the non-availability of a large data set that could be stratified into industry groups with a sizeable population. Limited access to information residing at private equity firms reduced the possible sample size that could be used for the investigation. A large data set could have enabled further extensive parametric tests to be conducted and produce more meaningful results.

The research sample was limited to mergers and acquisitions that took place only in South Africa between 2004 and 2005, this approach therefore presented two limitations

- i) The research period “window” was small, hence few data sets. Perhaps in future, other researchers can increase the period “window” to increase the sample size and get better results and trends. However, this would be subject to availability of tax, financial data and any other data useful to aid investigations.
- ii) By considering South African mergers and acquisitions, “cross border” acquisitions were excluded, hence loss of possible generality of result. This implies that the findings from this research can not simply be extrapolated to all other countries that have different economic and tax systems respectively.

Furthermore, the research effort used mostly one type of indirect tax, the CGT. Other indirect tax types such as customs and excise duties, payroll based levies (SDL and UIF) can be considered in the future to establish the full impact of all South African indirect taxes on valuation. The other indirect taxes (UIF, SDL) are normally shielded in the cost of labour, a component of cost of goods sold (COGS) for manufacturing companies as well as sales and general administration (SGA) cost expense line. Vigilance on these “above the line” expense items can increase the value of a target company, thus any future work will help stakeholders such as tax authorities to understand possible revenue streams when acquisitions take place.

Despite all these limitations, this study is important as it provides further insights into the impact of indirect taxes on valuation of as well as effective tax rates that should be used by target companies involved in mergers and acquisitions. For the foreseeable future, the trend of mergers and acquisitions is positive for South Africa and abroad, thus, the results of this study will be of immense help to private equity firms, corporate acquirers and tax authorities alike.

CHAPTER 5: RESULTS

The extensive research on databases that had merger and acquisitions information yielded an initial set of 69 target companies that fitted the population of relevance criteria. Ernst & Young, BusinessMap and SARS were institutions that provided the data as alluded to in the previous section. After the data “cleansing” process, 18 target companies could finally be used for analysis. The results that will be interpreted forthwith emanated from the analysis of the 18 target companies. Going forward, this section is divided into three sections as follows

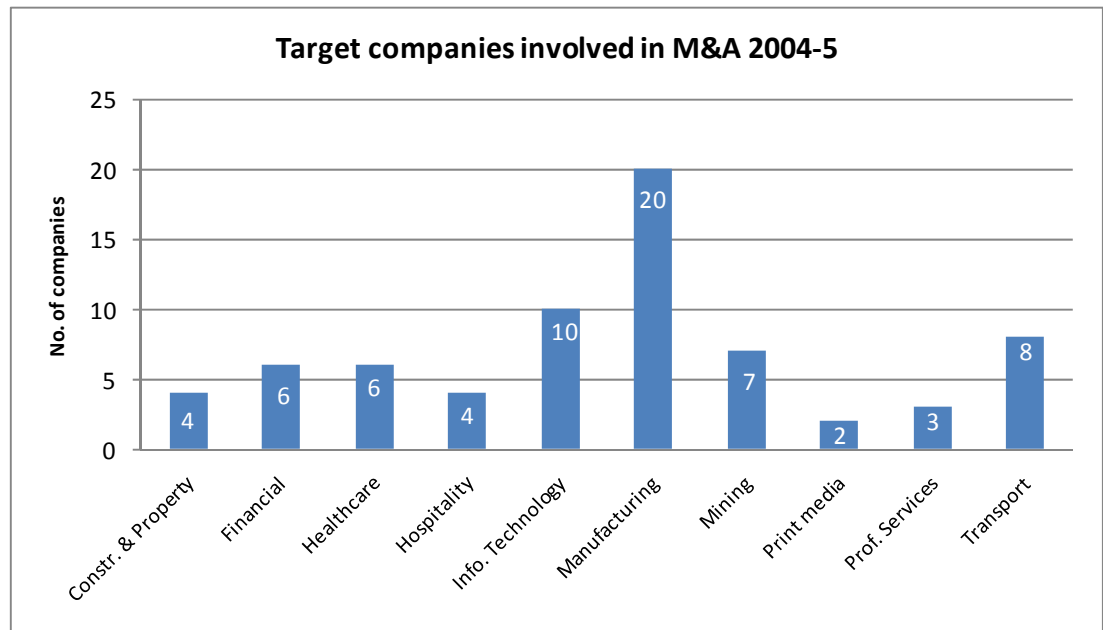
- First part depicts descriptive statistics of the initial sample. This analysis highlights the spread of the initial sample with regards to industry groups, deal sizes and sample size per industry before the data cleansing process was applied. This step therefore demonstrated the randomness of the choice of sample.
- Second part presents the descriptive statistics of the final sample
- The analytical statistics are presented under the last section. These last two parts of analysis highlight the results as per tests (investigations) conducted on the sample of 18 target companies. Inference into primary set of results yielded new subset results such as tax effective rates. See the following sections for a detailed inference.

5.1. DESCRIPTIVE STATISTICS OF THE PRIMARY DATA SET

Figure 6 below depicts the number of target companies identified which were involved in mergers and acquisitions in 2004-5 period.

High incidences of mergers or acquisitions are observed for the manufacturing industry whereas the least incidences are observed for the print media.

Figure 6: Number of companies per industry group

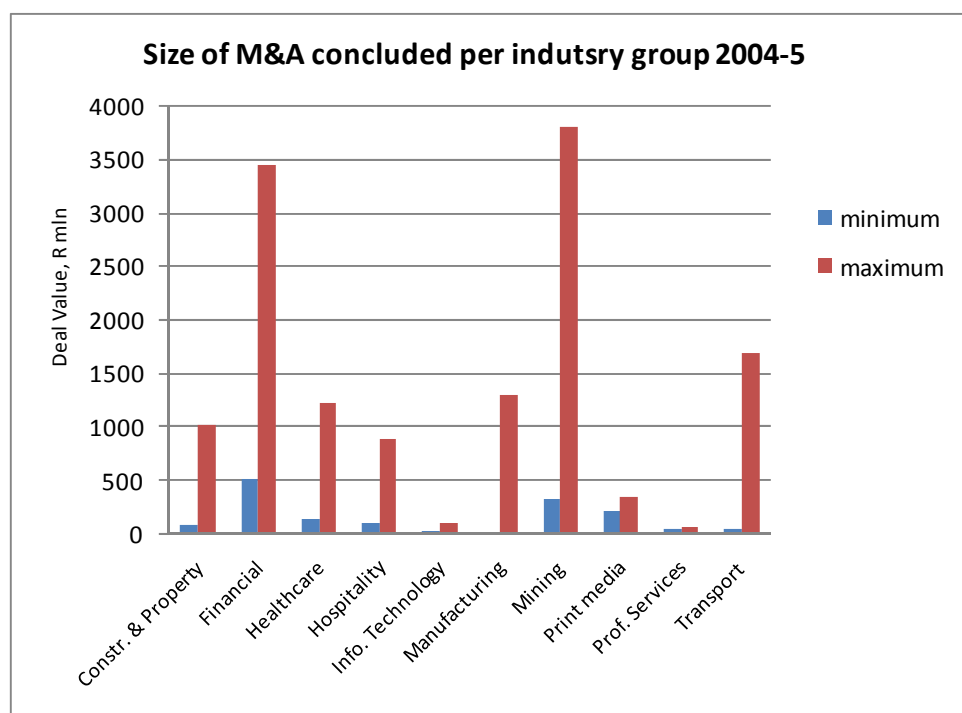


Source: BusinessMap and Ernst & Young

From the above figure, it is evident that all major industries were equally represented in the initial data sample. This would have ensured that bias was minimised at the beginning of the process.

Figure 7 below highlights that within the sample, mergers and acquisitions involving different amounts were considered. This should have eliminated bias towards homogenous merger and acquisition deals, that is, deals of similar amounts being considered exclusively.

Figure 7: Minimum and maximum deal size per industry group

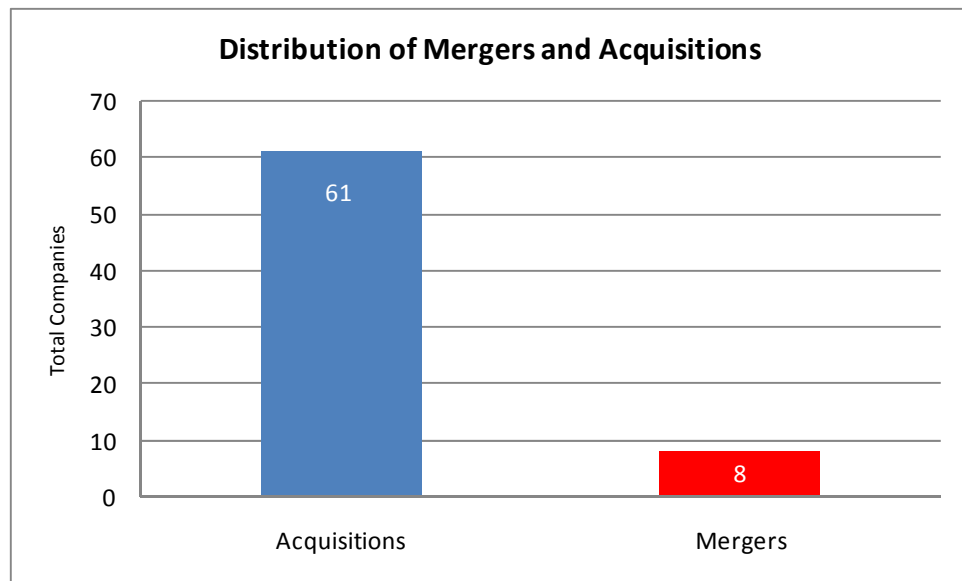


Source: BusinessMap and Ernst & Young

Mergers and acquisitions in IT are small relative to the rest of other industry sectors. Financial and mining industries mergers and acquisitions are higher in value than other industries whereas construction, healthcare, hospitality and manufacturing mergers and acquisitions seem to be at par.

Distribution of mergers and acquisitions within the sample is illustrated in figure 8 below.

Figure 8: Acquisition and merger statistics



Source: BusinessMap and Ernst & Young

There were more acquisitions than mergers within the sample for the period considered³. The weighting towards acquisitions compared to mergers will not most likely influence the analysis result so long similar asset classes were used to pay for the merger or acquisition.

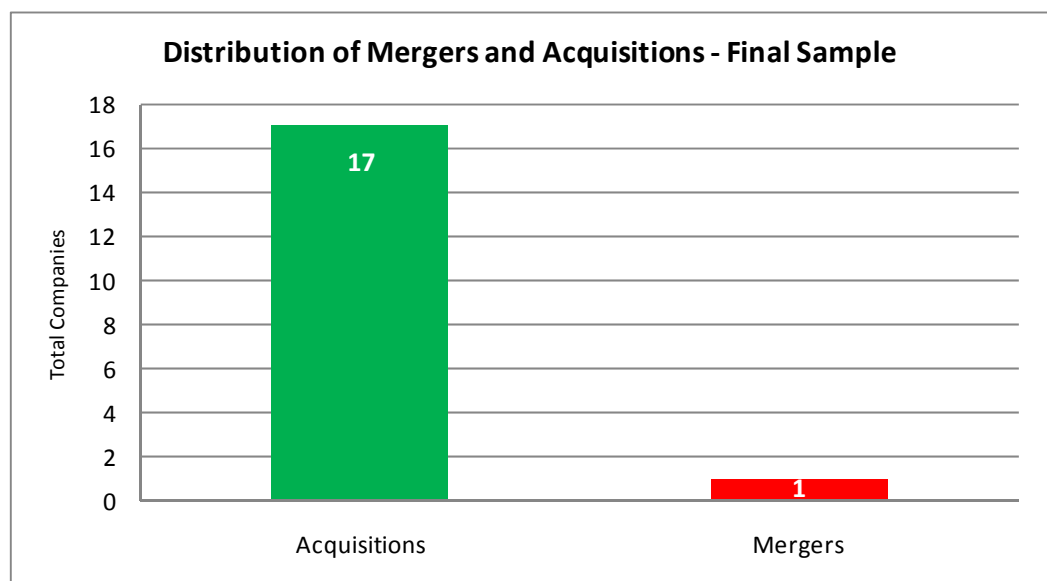
³ Period 2004 and 2005

5.2. DESCRIPTIVE STATISTICS OF THE FINAL DATA SET

After the initial data scrubbing process a final sample of 18 target companies were used for analysis. These 18 target companies were selected on considering the capital gains tax (CGT) they paid to SARS after the successful conclusion of a merger or acquisition process.

Figure 9 below depicts the distribution of the 18 mergers and acquisitions that constituted the final sample used for analysis.

Figure 9: Mergers and acquisitions used for analysis

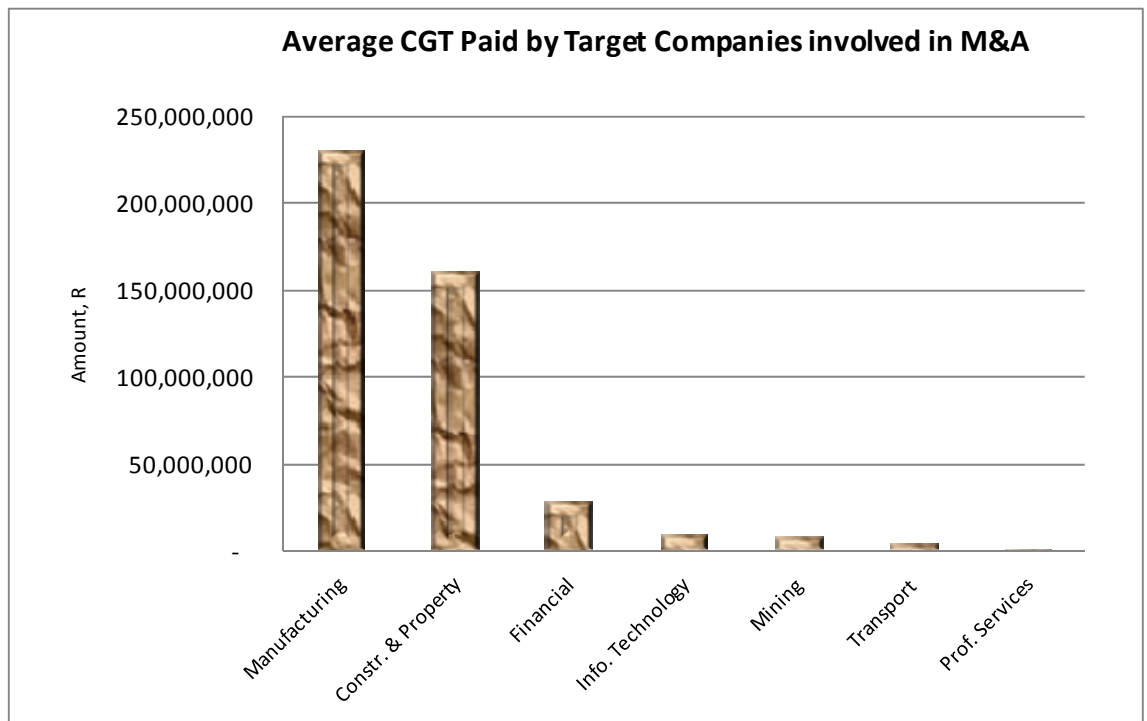


Source(s): BusinessMap, Ernst & Young and SARS database

Acquisitions were predominant unlike mergers in this final sample as illustrated in graph above. For the purpose of this research, differences (“noise”) that could potentially exist during valuation in merger or acquisition “scenarios” were regarded minimal or none existent.

Shown in figure 10 below is a breakdown of average CGT paid by companies per major industry groups involved in mergers or acquisitions. Manufacturing has the highest average indicating under-valuation of operating assets within this industry. For construction and property businesses, the rising property prices are probably the driver of the high CGT paid to SARS.

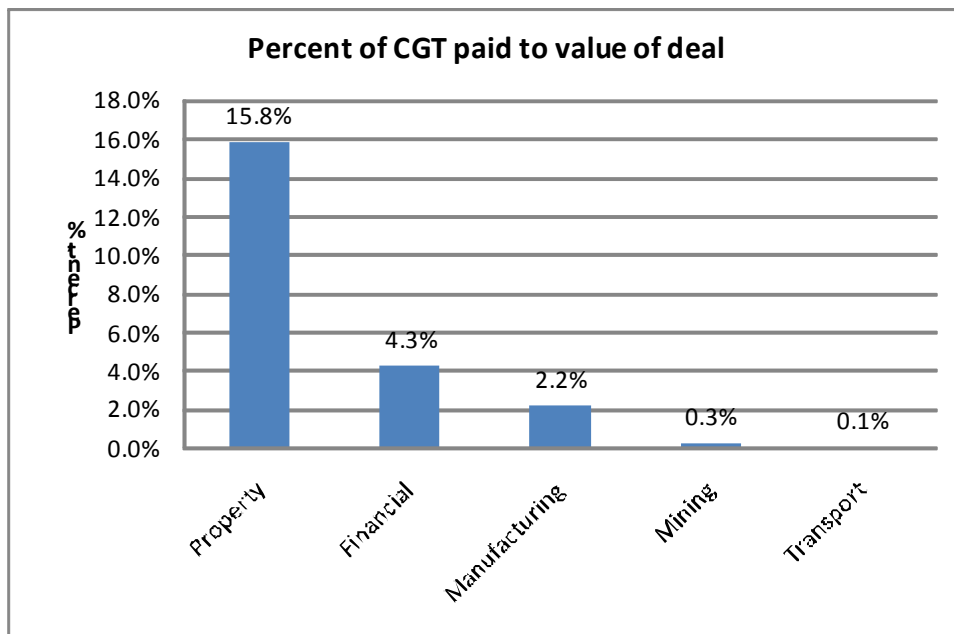
Figure 10: Capital Gains Tax paid per industry group – 2004 and 2005



Source: SARS database

Professional services paid the least CGT applicable. This seems to be logical when one considers that professional services' most valuable assets are people not tangible operating assets. Figure 11 below depicts the capital gains tax paid as a percent of the deal value for each industry grouping.

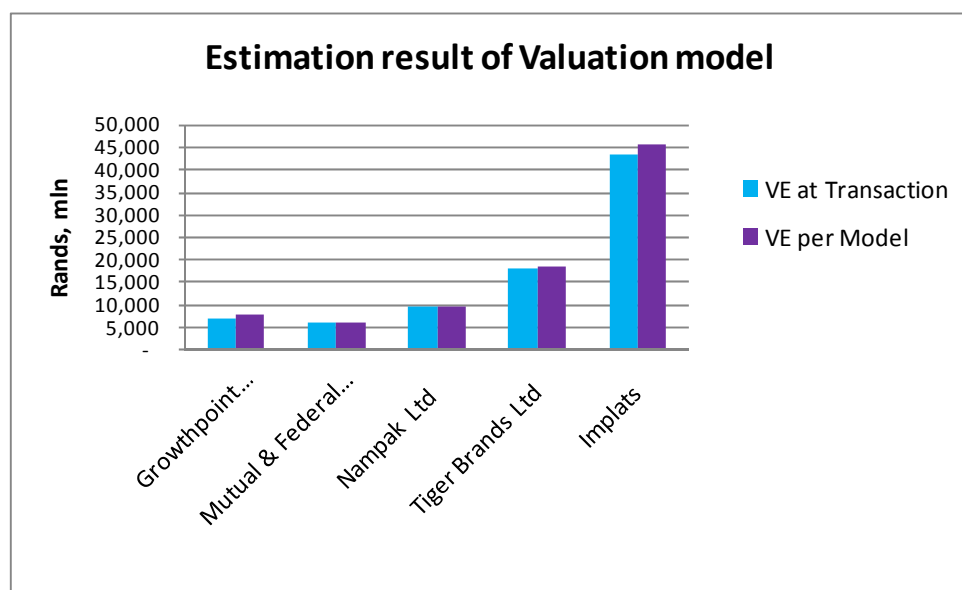
Figure 11: Capital Gains Tax paid as percentage of Deal value



Property has the highest percentage which in the context of the rising property values in the recent years makes sense. Even though the manufacturing industry paid on average, the highest CGT, the value of the transactions is huge, hence a low percent. With regards to the transport industry, the high depreciating assets meant that low CGT was paid. In combination with low transaction values, the overall percent is low.

Valuation of target companies was used as the basis to compute data sets for the paired T-tests. In order to reduce noise that could be potentially be introduced by the research valuation model, the results⁴ of the valuation model were compared to the size of the deal at the time of announcement. Appropriate forecasts had been made to determine the enterprise value (V_E). Due to Income Tax Act section 4 that stipulates guidelines on privacy to divulge private companies tax information, only a few listed companies are shown in figure 12 below as illustration of accuracy of valuation model used.

Figure 12: Comparison of estimated target company value from model created vs deal size announced



From the figure above, it is evident that the valuation model results compared very well with the announced deal sizes. In most cases the valuation model over-compensated in the final valuation.

⁴ Enterprise value without CGT was compared to value of target company at merger or acquisition time

5.3. ANALYTICAL STATISTICS OF THE FINAL DATA SET

Table 2 below depicts the descriptive statistics of the valuation result of mergers and acquisitions where CGT (indirect tax) is considered and where it is excluded.

Table 2: Descriptive Statistics of Valuation

Variable	Count	Mean (million)	Standard Deviation
V _E _Without_CGT	17	6132.201	6031.747
V _E _With_CGT	17	6028.159	5985.586
Difference	17	104.0424	288.0448

T for Confidence Limits = 2.1199

Note that one transaction was excluded in the calculation as its value was an outlier. Interpretation of these descriptive statistics will be done in conjunction with the tests of normality and the appropriate paired T-test results.

A sample of 18 target companies (n) involved in merger and acquisitions, of which “n < 30”, was evaluated for sample normality for the two sub-groups (with and without CGT). The findings are shown in table 3 below.

Table 3: Normality test results (Tests of Assumptions)

Assumption	Value	Probability	Decision (5%)
Skewness Normality	4.7198	0.000002	Reject normality
Kurtosis Normality	4.1520	0.000033	Reject normality
Omnibus Normality	39.5153	0.000000	Reject normality
Correlation Coefficient	0.998880		

Based on the tests of normality shown above, the sample is not normally distributed, as such differences in medians will be compared for the two samples using non-parametric results. As such Table 4 below summarises the Wilcoxon Signed-Rank test results.

Table 4: Wilcoxon Signed-Rank test results

Wilcoxon SignedRank Test for Difference in Medians										
W	Mean	Std Dev	Number	Number	Sets	Multiplicity				
Sum Ranks	of W	of W	of Zeros	of Ties		Factor				
145	76	21.11871	1	0		0				
Alternative Hypothesis	Exact Probability		Approximation Without Continuity Correction			Approximation With Continuity Correction			Decision (5%)	
	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)	Z-Value	Prob Level	Decision (5%)		
	X1-X2<>0	0.000381	Reject Ho	3.2672	0.001086	Reject Ho	3.2436	0.001180		Reject Ho
	X1-X2<0	0.999855	Accept Ho	3.2672	0.999457	Accept Ho	3.2909	0.999501		Accept Ho
X1-X2>0	0.000191	Reject Ho	3.2672	0.000543	Reject Ho	3.2436	0.000590	Reject Ho		

The results of figure above will therefore form the basis of interpretation on the impact of indirect taxes on valuation of companies involved in mergers and acquisitions.

CHAPTER 6: DISCUSSION OF THE RESULTS

Two sub-groups namely “ V_E with CGT” and “ V_E without CGT” were created for the purpose of testing the hypothesis on impact of indirect taxes on valuation of companies involved in mergers and acquisitions. 18 companies were considered for the different tests conducted. Paired T-tests were conducted at 95% confidence level (5% significance) and results were as shown in the previous section. The results are interpreted in this section in relation to the hypothesis stated below which is

- 1) H_0 : Indirect taxes are not understated in the valuation of target companies in mergers and acquisitions

Furthermore, deductive reasoning was then used to interpret the results in context of the effective tax rates and the pricing of target companies in specific industries.

6.1. IMPACT OF INDIRECT TAXES ON VALUATION OF ACQUIRED COMPANIES

Descriptive statistics shown in table 2 above indicate that the means are different by a magnitude of about 2%. With such a result, the paired T-test results depicted in Table 4 will therefore be considered to refine the interpretation of these results and build an argument to either reject or fail to reject the null hypothesis (H_0) stated above.

Considering the fact that the samples were rejected for normality as shown in Table 3⁵ above, **Wilcoxon Signed- Rank** t-test results⁶ were considered. From the results, the alternative hypothesis (H_1) rejected the null hypothesis (H_0) at 5% significance level. Therefore this implies that there is significant difference between valuation of a merger or acquisition that includes indirect taxes⁷ to that which excludes indirect taxes.

These results seem to agree with the findings of Corbin (2005), Baker and Kennedy (1999) where they established that most indirect taxes affect the final merger and acquisition purchase price of an enterprise. Also supporting this finding is the considerable CGT that is being paid by companies that are involved in mergers and acquisitions.

⁵ Results shown in section 5 above as an extract from Appendix B

⁶ Table 4 in section 5

⁷ Such as CGT, Excise duties, Custom duties and payroll based levies

The manufacturing industry paid an average CGT of about R220 million, which equates to about 0.1%⁸ of all mergers and acquisition concluded in 2005.

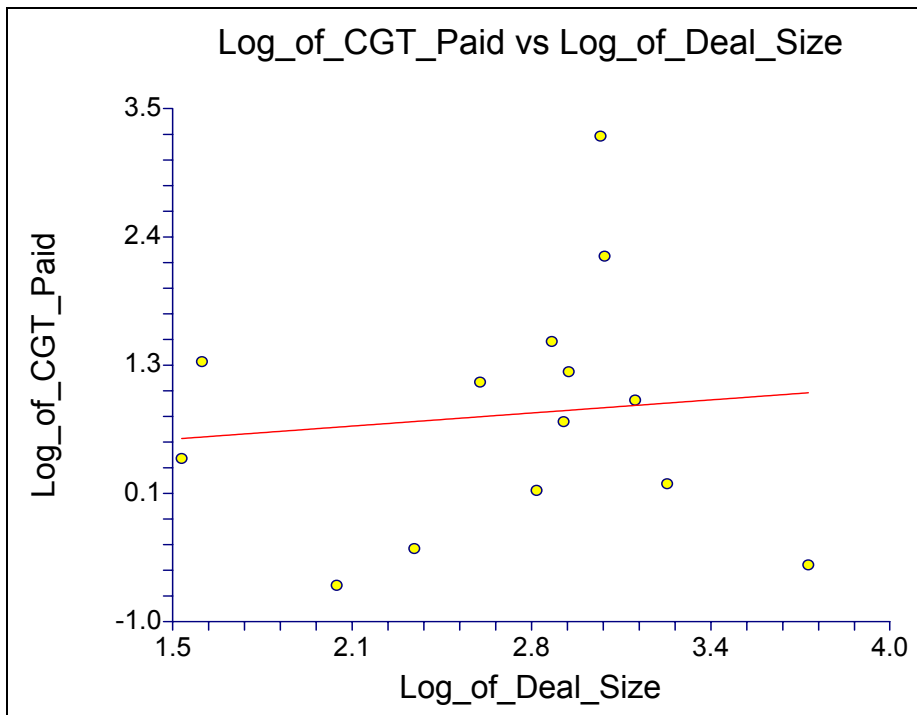
Figure 10 in section 5 above illustrates this fact.

It then follows from this empirical evidence that CGT, one form of indirect taxes, significantly reduce the valuation of a target company involved in a merger and acquisition. Christensen, Cline and Neubig (2001) observations' are also consistent with this finding where they found out that non-income taxes reduce the companies' after tax rate of return, therefore implying that the value of a company will be affected by the same factor especially when the DCF technique is used for valuation. In separate work but related subject, Auerbach and Reishus (1986) also established in their work on mergers decision that unused tax credits accounted for about 10% of the target company market value. These findings of Christensen *et al* (2001) and Auerbach and Reishus (1986) therefore support the view that unconsidered non-income tax will influence the fair market value (FMV) of a target company, an observation confirmed by this study.

Looking at a possible relationship existing between the deal size and the CGT that is paid, the gradient of the line in figure 15 below indicates a weak correlation.

⁸ Percentage excludes all the other indirect taxes

Figure 13: Regression analysis of CGT paid in relation to deal size



From this observation, the equation

$$\text{Log_of_CGT_Paid} = (0.3242) + (0.1837) \text{Log_of_Deal_Size}$$

can not be used to predict the CGT payable given a transaction value regardless the significance of CGT payable as figure 13 above illustrated.

In conclusion, the observations other researchers have made and the facts presented from the empirical evidence shown in this study supports the view that indirect taxes might have an impact on the overall valuation result, hence the enterprise value.

The amount of CGT paid after a successful conclusion of a merger or acquisition cannot be accurately determined by mathematical models. This is possibly due to the uniqueness of acquisition or merger process entered into as well as the industry group.

6.2. PRICING OF TARGET COMPANIES INVOLVED IN ACQUISITIONS

Since the null hypothesis failed to reject the presence of a significant difference between the two sub groups⁹, by deduction, it implies that there are some “potential savings” when mergers and acquisitions are done for specific industries. Table 5 below summarises “potential savings” to be realized by investors and corporate acquirers alike should they consider the effect of indirect taxes on the valuation result. Note that industries represented by one company were excluded in the result set.

Table 5: Percent potential savings per industry¹⁰

Industry	Number of Companies	“Potential Savings” Realised
Manufacturing	8	2.747%
IT	2	2.530%
Transport	3	0.037%
Mining	2	0.003%

It follows that the return on invested capital should be higher when the above savings rates are factored in during the merger and acquisition process.

⁹ “ V_E without CGT” and “ V_E with CGT”

¹⁰ Savings calculated only for CGT

These findings are consistent with observations made by Corbin (2005) and Christensen *et al* (2001) where they found out that if investors save on indirect taxes embedded in the “Above-the-line” expense items, their returns increase with multiples of the savings.

In conclusion the pricing of target companies involved in mergers and acquisitions is sensitive to indirect taxes which tend to be overlooked in many transactions as also observed by Harrison (1987).

6.3. EFFECTIVE TAX RATES APPLICABLE DURING ACQUISITIONS

Considering the savings stated in the previous section above, table 6 below then depicts the possible Effective Tax Rates (ETR) per industry. These ETRs can possibly be used in the DCF method where EBIT is adjusted by a tax factor to calculate the free cash flows of a target company, thereby giving a more appropriate valuation result.

Table 6: Effective Tax Rate¹¹ calculations

Industry	Effective Tax Rate ¹²
Manufacturing	31.747%
IT	31.530%
Transport	29.037%
Mining	29.003%

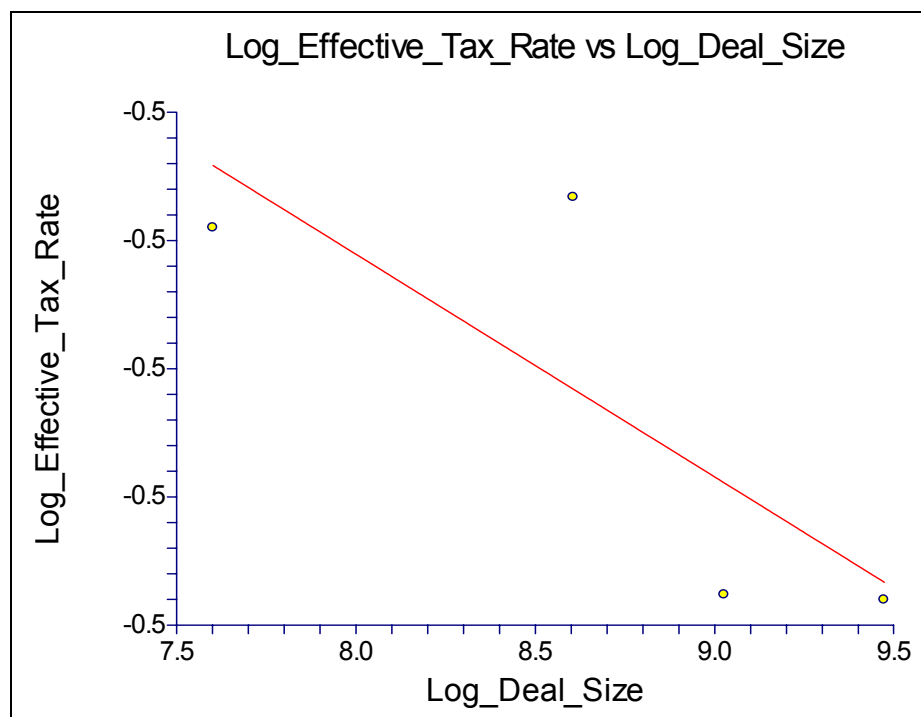
The work of Harrison (1987) and Garland (1987) suggest corporate acquirers and private equity to re-visit the tax issues post the merger or acquisition. These observations are then consistent with the findings shown above considering that there are possible savings that can be realized either during or after the merger and acquisition process. In Table 6 above, manufacturing relatively high effective tax rate is in support of these views. Sharing same views is Plesko (2003) who stresses the need to properly define the effective tax rate when considering average tax rate (ATR) and marginal tax rate (MTR) when measuring tax burdens.

¹¹ Effective tax rate not considering all indirect taxes but CGT only

¹² Base tax rate for corporates is currently 29%

This therefore implies that potential movements of valuation result either way is possible, hence the vigilance on indirect taxes being suggested by other researchers as well as due diligence pre and post merger or acquisition process. Figure 16 below depicts the relationship existing between effective tax rate and the deal value.

Figure 14: Mathematical Model of Effective Tax Rate to Deal value



The sample size was small as can be seen from figure above but regardless of that fact, R-Squared value of 0.6395 indicates a fairly strong relationship.

The equation written below can then possibly be used to determine the effective tax rate.

$$\mathbf{Log_Effective_Tax_Rate = (-0.3303) + (-0.0217) Log_Deal_Size}$$

In conclusion, impact of indirect taxes on valuation can therefore be factored into the effective tax rate thereby providing potential savings to corporate acquirers, investors and private equity.

CHAPTER 7: CONCLUSION AND RECOMMENDATIONS

7.1. SYNTHESIS OF RESEARCH FINDINGS

Mergers and acquisitions valuations that factor in indirect taxes are significantly lower at 95% confidence level than those valuations that exclude indirect taxes. Therefore this implies that indirect taxes might have an impact on valuation of a target company involved in a merger or acquisition.

With the significance of indirect taxes on final merger and acquisition valuation having been established, “potential savings” of up to 2% can be realized when CGT, a type of indirect tax, is considered. This is applicable to South African business environment only. Higher “potential savings” should be realized when all South African indirect taxes are considered. CGT cannot be predicted accurately from mathematical models as acquisition or merger transactions have unique characteristics.

Effective Tax Rates (ETR) for different industry groups can be deduced from the savings realized when indirect taxes are considered during valuation of target companies. These ETRs can be used to calculate or determine a fair market value (FMV) of a target company and effectively reduce the need to do post merger and acquisition tax evaluation processes. Moreover, ETR can be mathematically modelled using deal value as an independent variable.

7.2. RECOMMENDATIONS TO STAKEHOLDERS

Corporate acquirers, investors and private equity should be aware of possible impact of indirect taxes on the valuation of target companies involved in mergers and acquisitions. The lowering of valuation result of indirect taxes implies that these stakeholders can potentially improve their return on investment (ROI) especially in industries where there are considerable tangible operating assets such as in manufacturing.

The prevalence of effective tax rates (ETR) per industry grouping has the potential of informing corporate acquirers, investors and private equity on determining a possible fair market value (FMV) in the shortest possible time. Use of ETRs in practice will improve ROI for all of the stakeholders considered here. Note that ETRs are determined from the savings accruing to investors, corporate acquirers and private equity when indirect taxes are included in calculation of valuation result.

South African Revenue Service (SARS) would find the prevalence of ETR per industry to be useful in determining compliance with tax laws especially for target companies involved in mergers or acquisitions. Tax invasion would be minimised as target companies involved in mergers and acquisitions per industry grouping would declare tax due (CGT¹³) that is characteristic of that industry.

¹³ Capital Gains Tax

7.3. FUTURE RESEARCH RECOMMENDATIONS

This study raised some potential further hypotheses that can be answered in future research. There are a considerable number of indirect taxes in South Africa which corporate acquirers, investors and private equity as stakeholders in mergers and acquisitions might not be aware of. There is a significant consumption tax, VAT, which can be embedded in “above-the-line” expense lines within an income statement. The impact of these taxes would need to be researched on using a bigger sample size of target companies in many more mainstream industry groupings. Thus a question to be researched on would be “Do all indirect taxes in South Africa significantly lower the valuation of target companies involved in mergers and acquisitions?” Such a study would inform the stakeholders of the true return on capital invested.

After a successful conclusion of a merger and acquisition, do stakeholders involved re-visit the transaction and re-look for potential tax liabilities or benefits? Should liabilities are found related to indirect taxes, do stakeholders re-negotiate or the acquirers use indemnities to protect themselves from prosecution or obligation. Knowledge of success rates of parties to a transaction re-visiting it and agreeing on a fair price inclusive of tax liabilities found out at a later stage would assist corporate acquirers and private equity on structuring the price right first time. Thus, such questions would need to be investigated in future and help practitioners and academics understand further tax-related issues on valuation of target companies.

Pulling the results of this study together, it is possible that indirect taxes can impact the valuation of target companies involved in mergers and acquisitions. The consideration of CGT in this study highlighted that possibility. This finding was however consistent with literature where other researchers observed a significant impact of indirect taxes on valuation of target companies involved in mergers and acquisitions.

By considering the effect of indirect taxes on the valuation result, corporate acquirers and private equity can realize considerable savings on a given transaction. For industry groups, such as the manufacturing industry, where there are under-valued tangible operating assets, the “potential saving” can be as high as 2.5% of the transaction value.

Establishment of effective tax rates (ETR) per industry group would benefit corporate acquirers, private equity and South African Revenue Service (SARS). Acquirers would determine fair market value (FMV) of a target company in the shortest possible time and would in the long run improve on return of capital invested at acquisition stage. SARS would detect more easily tax evasion practices when mergers and acquisitions are concluded successfully in certain industry groups. In future, both academics and practitioners can possibly model the ETR to the deal value.

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APPENDICES

APPENDIX A: DATA COLLECTION DESIGN TOOL: PRIMARY DATA SET (TARGET COMPANIES)

CK No.	Description	Group	Transaction value	% Acquired
1969/000032/06	Group five Ltd	C	406	26.1
2003/031772/07	Vaal Mall	C	85	20
2004/008431/07	IFA Zimbali Lodge (Pty) Ltd	C	85	100
1987/004988/06	Growthpoint Properties	C	1014	14.2
1999/004855/10	Old Mutual Plc	F	3448	5.6
1966/010630/06	Nedbank Group Ltd	F	3085	9.3
1970/006619/06	Mutual & Federal Insurance Co	F	663	11
1946/021193/06	African Bank Investmnets Limited	F	600	7
1998/003298/10	Deutsche Bank South Africa	F	500	25
2000/018468/07	Cipla Medpro (pty) Ltd	H	1217	100
1983/010725/06	Medi-Clinic Corporation	H	1088	15
1996/008242/06	Network Healthcare Holdings	H	1000	10
1999/007789/06	Discovery Holdings	H	831	7
1985/002935/06	Aspen Pharmacare Holdings Ltd	H	645	10.4
1999/027578/07	Metropolitan Health Group	H	135	17.63
1992/002802/07	NETGroup Solutions (Pty)	IT	0	30
1995/008898/07	Bidvest Network Solutions	IT	90	100
1998/020465/07	Mthombo IT Services	IT	40	25
1986/000334/06	Pinnacle Technologies	IT	37.3	20
1966/005628/07	Synergy Computing	IT	19.27	81.56
2005/013444/07	Redsox Telecommunications	IT	0	0
1994/007598/07	Call Centre Nucleus (CNN)	IT	0	26
	Namitech	IT		
	Tusk Casino Resorts & Hotels Group	L	583	
1997/010949/07				
1967/007528/06	Sun International Ltd	L	603	7
1988/002162/07	Protea Hospitality Corporation	L	100	37.5
1919/006020/06	Delta Electrical Industries Ltd	M	1296	
1968/008070/06	Nampak Ltd	M	981	10
1944/017881/06	Tiger Brands Ltd	M	729	4
1997/013722/06	Fabvest (Pty) Ltd	M	587.5	100
1968/002379/06	Premier Foods Ltd	M	545	45
1957/000634/07	Pioneer Foods (Pty)	M	373	9.1
2003/014760/07	Peters Papers	M	220	25
2004/003053/10	Rentokil Initial SA	M	220	25.1
1995/009169/06	Astrapak Ltd	M	125	10
2003/017152/07	NCP Chlorem (Pty) Ltd	M	100	15
1984/008441/07	Endress+Hauser	M	45	33.3
1947/027242/07	Beier Industries (Pty) Ltd	M	34	25
1998/006153/06	Racec Group (Pty) Ltd	M	5.26	30



	Consol	M		
1957/001979/06	Implats	Mi	5197	12
1980/001395/06	Mvelaphanda Resources Ltd	Mi	760	23
	Pamodzi Resources	Mi		
2000/015708/07	Iliso Consulting (Pty) Ltd	PS		
2003/012630/07	Sifikile Procurement Services	PS	64.5	100
2002/005720/07	Simeka Consulting	PS	43.8	100
	ACSA	T	1675	
1946/021048/06				
.	Imperial Holding	T	1406	7
	Barloworld Logistics Africa (Pty)			
1905/000694/07	Ltd	T	118	25
1951/000799/06	Transpaco Ltd	T	38.3	27
1962/002958/07	MAN Truck & Bus (SA)	T	0	30

APPENDIX B: VALUATION MODEL UTILISED

Part 1: Valuation model without CGT

	2004	2005	5% 2006	15% 2007	15% 2008	15% 2009	15% 2010
NOPAT		2,065,816	34,006,911	39,107,948	44,974,140	51,720,261	59,478,300
Depreciation		1,051,577	1,782,809	1,871,949	1,965,547	2,063,824	2,167,015
Capex		-	1,720,338	1,806,355	1,896,673	1,991,506	2,091,082
Increase in NWC		-4,717,799	11,847,410	12,439,781	13,061,770	13,714,858	14,400,601
FCF		7,835,192	22,221,972	26,733,762	31,981,245	38,077,721	45,153,633
WACC	10%						
Terminal growth rate	5%						
PV of near term FCFs	R 25,488,168						
Terminal value of FCF	948,226,290						
Enterprise Value	R 973,714,458						
LT Debt @ 2006	103,797,950						
Value of Equity	R 869,916,508						

Part 2: Valuation model with CGT (2006)

	2004	2005	5% 2006	15% 2007	15% 2008	15% 2009	15% 2010
NOPAT		2,065,816	33,569,911	39,107,948	44,974,140	51,720,261	59,478,300
Depreciation		1,051,577	1,782,809	1,871,949	1,965,547	2,063,824	2,167,015
Capex		-	1,720,338	1,806,355	1,896,673	1,991,506	2,091,082
Increase in NWC		-4,717,799	11,847,410	12,439,781	13,061,770	13,714,858	14,400,601
FCF		7,835,192	21,784,972	26,733,762	31,981,245	38,077,721	45,153,633
WACC	10%						
Terminal growth rate	5%						
PV of near term FCFs	R 25,127,011						
Terminal value of FCF	948,226,290						
Enterprise Value	R 973,353,301						
LT Debt @ 2006	103,797,950						
Value of Equity (cgt)	R 869,555,351						

APPENDIX C: PAIRED T-TEST RESULTS (REPORT)

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Database

Variable X1 = VE_Without_CGT, X2 = VE_With_CGT

Descriptive Statistics Section

Variable	Count	Mean	Standard Deviation	Standard Error	95% LCL of Mean	95% UCL of Mean
VE_Without_CGT	17	6132.201	6031.747	1462.913	3030.963	9233.439
VE_With_CGT	17	6028.159	5985.586	1451.718	2950.655	9105.663
Difference	17	104.0424	288.0448	69.86113	-44.05663	252.1411

T for Confidence Limits = 2.1199

Tests of Assumptions about Differences Section

Assumption	Value	Probability	Decision (5%)
Skewness Normality	4.7198	0.000002	Reject normality
Kurtosis Normality	4.1520	0.000033	Reject normality
Omnibus Normality	39.5153	0.000000	Reject normality
Correlation Coefficient	0.998880		

T-Test for Difference between Means Section

Alternative Hypothesis	T-Value	Prob Level	Decision (5%)	Power (Alpha=.05)
VE_Without_CGT-VE_With_CGT<>0	1.4893	0.155862	Accept Ho	0.288314
	0.108389			
VE_Without_CGT-VE_With_CGT<0	1.4893	0.922069	Accept Ho	0.001056
	0.000107			
VE_Without_CGT-VE_With_CGT>0	1.4893	0.077931	Accept Ho	0.413414
	0.168508			

Nonparametric Tests Section

Quantile (Sign) Test

Hypothesized	Number	Number	Prob	Prob

Prob

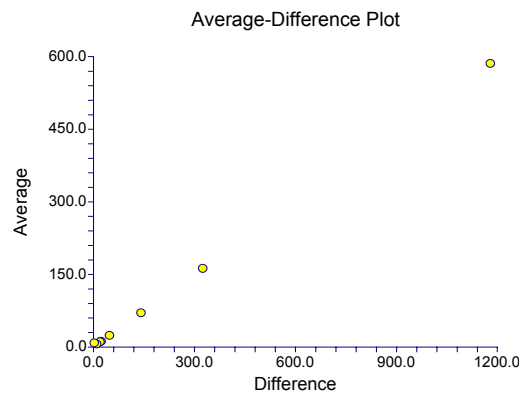
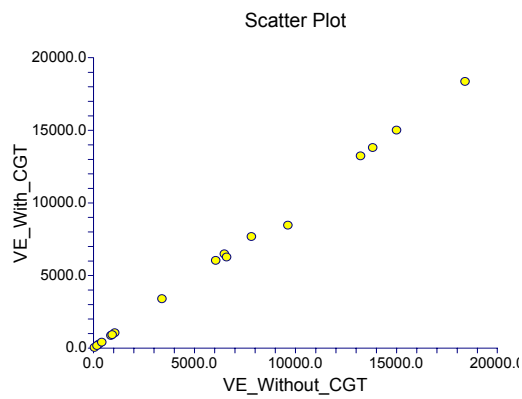
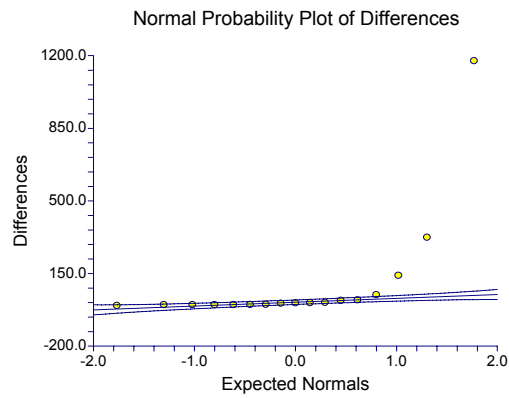
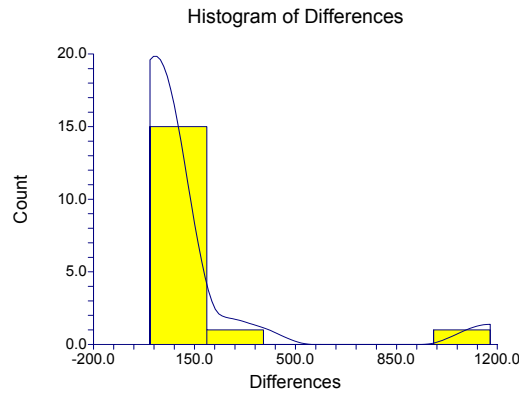
Value	Quantile	Lower	Higher	Lower	Higher
0	Both 0.5 0.000519	1	15	0.000259	0.999985

Wilcoxon Signed-Rank Test for Difference in Medians

W	Mean	Std Dev	Number	Number Sets	Multiplicity
Sum Ranks	of W	of W	of Zeros	of Ties	Factor
145	76	21.11871	1	0	0

Alternative	Exact Probability		Approximation Without Continuity Correction			
	Prob	Decision	Prob	Decision	Prob	Decision
X1-X2<>0	0.000381	Reject Ho	3.2672	0.001086	Reject Ho	3.2436
X1-X2<0	0.999855	Accept Ho	3.2672	0.999457	Accept Ho	3.2909
X1-X2>0	0.000191	Reject Ho	3.2672	0.000543	Reject Ho	3.2436

Plots Section



Linear Regression Report

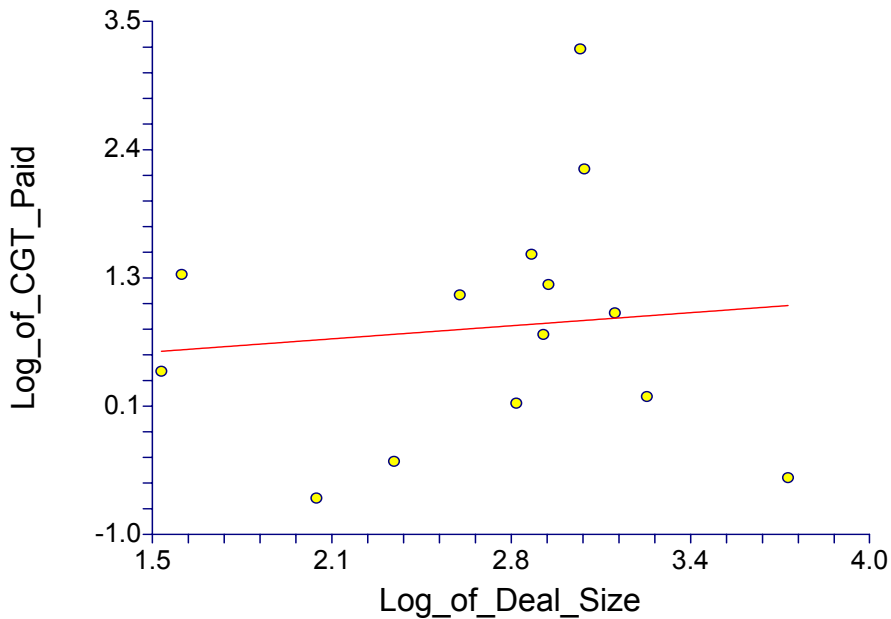
Page/Date/Time 1 2007-11-13 03:33:00 PM

Database

Y = Log_of_CGT_Paid X = Log_of_Deal_Size

Linear Regression Plot Section

Log_of_CGT_Paid vs Log_of_Deal_Size



Run Summary Section

Parameter	Value	Parameter	Value
Dependent Variable	Log_of_CGT_Paid	Rows Processed	16
Independent Variable	Log_of_Deal_Size	Rows Used in Estimation	14
Frequency Variable	None	Rows with X Missing	2
Weight Variable	None	Rows with Freq Missing	0
Intercept	0.3242	Rows Prediction Only	0
Slope	0.1837	Sum of Frequencies	14
R-Squared	0.0108	Sum of Weights	14.0000
Correlation	0.1040	Coefficient of Variation	1.3661
Mean Square Error	1.243109	Square Root of MSE	1.114948

Summary Statement

The equation of the straight line relating Log_of_CGT_Paid and Log_of_Deal_Size is estimated as: $\text{Log_of_CGT_Paid} = (0.3242) + (0.1837) \text{Log_of_Deal_Size}$ using the 14 observations in this dataset. The y-intercept, the estimated value of Log_of_CGT_Paid when Log_of_Deal_Size is zero,

is 0.3242 with a standard error of 1.3903. The slope, the estimated change in Log_of_CGT_Paid per unit change in Log_of_Deal_Size, is 0.1837 with a standard error of 0.5069. The value of R-Squared, the proportion of the variation in Log_of_CGT_Paid that can be accounted for by variation in Log_of_Deal_Size, is 0.0108. The correlation between Log_of_CGT_Paid and Log_of_Deal_Size is 0.1040.

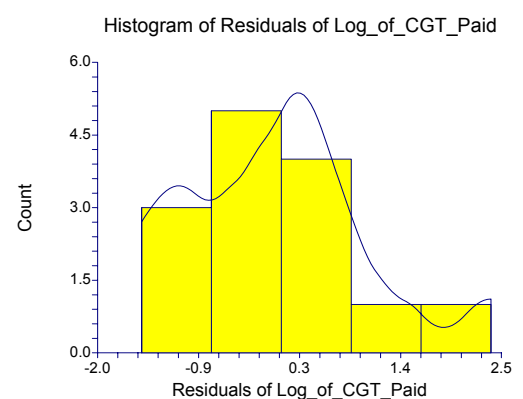
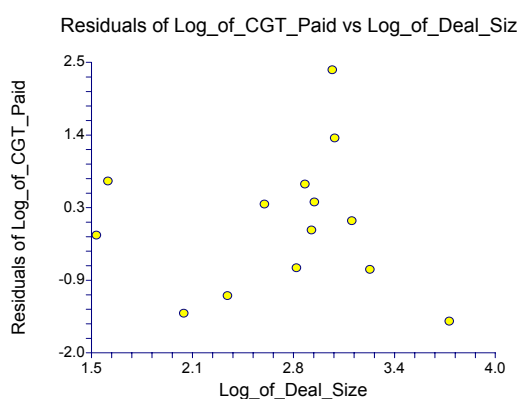
A significance test that the slope is zero resulted in a t-value of 0.3623. The significance level of this t-test is 0.7234. Since $0.7234 > 0.0500$, the hypothesis that the slope is zero is not rejected.

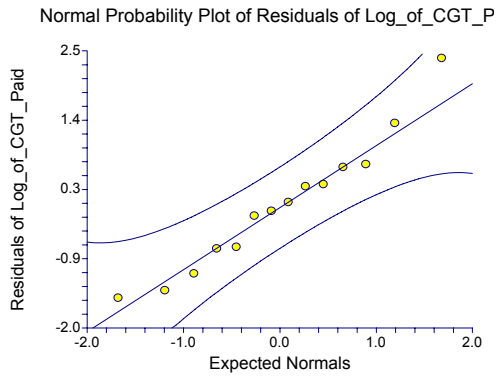
The estimated slope is 0.1837. The lower limit of the 95% confidence interval for the slope is -0.9208 and the upper limit is 1.2882. The estimated intercept is 0.3242. The lower limit of the 95% confidence interval for the intercept is -2.7050 and the upper limit is 3.3533.

Descriptive Statistics Section

Parameter	Dependent	Independent
Variable	Log_of_CGT_Paid	Log_of_Deal_Size
Count	14	14
Mean	0.8162	2.6788
Standard Deviation	1.0771	0.6100
Minimum	-0.6822	1.5315
Maximum	3.2572	3.7158

Residual Plots Section

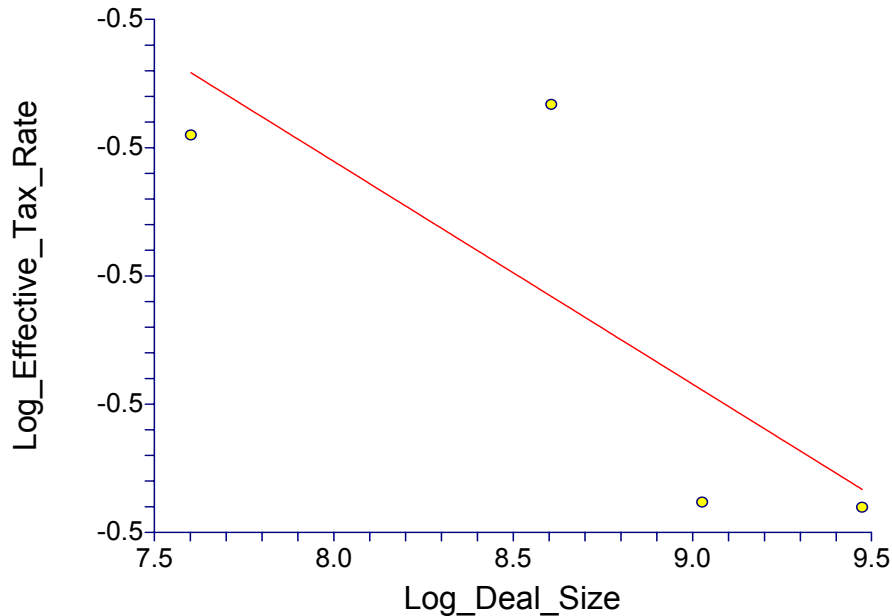




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Database
Y = Log_Effective_Tax_Rate X = Log_Deal_Size

Linear Regression Plot Section

Log_Effective_Tax_Rate vs Log_Deal_Size



Run Summary Section

Parameter	Value	Parameter	Value
Dependent Variable	Log_Effective_Tax_Rate	Rows Processed	16
Independent Variable	Log_Deal_Size	Rows Used in Estimation	4
Frequency Variable	None	Rows with X Missing	12
Weight Variable	None	Rows with Freq Missing	0
Intercept	-0.3303	Rows Prediction Only	0
Slope	-0.0217	Sum of Frequencies	4
R-Squared	0.6395	Sum of Weights	4.0000
Correlation	-0.7997	Coefficient of Variation	-0.0308
Mean Square Error	2.545301E-04	Square Root of MSE	0.015954

Linear Regression Report

Summary Statement

The equation of the straight line relating Log_Effective_Tax_Rate and Log_Deal_Size is estimated as: $\text{Log_Effective_Tax_Rate} = (-0.3303) + (-0.0217) \text{Log_Deal_Size}$ using the 4 observations in this dataset. The y-intercept, the estimated value of Log_Effective_Tax_Rate when Log_Deal_Size is zero, is -0.3303 with a standard error of 0.1003. The slope, the estimated change in Log_Effective_Tax_Rate per unit change in Log_Deal_Size, is -0.0217 with a standard error of 0.0115. The value of R-Squared, the proportion of the variation in Log_Effective_Tax_Rate that can be accounted for by variation in Log_Deal_Size, is 0.6395. The correlation between Log_Effective_Tax_Rate and Log_Deal_Size is -0.7997.

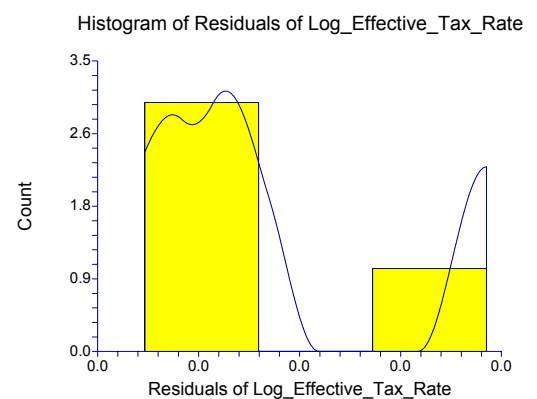
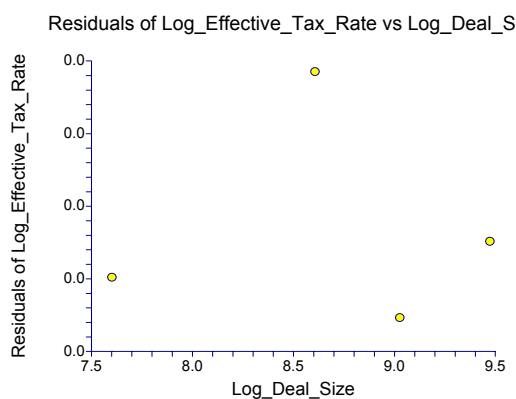
A significance test that the slope is zero resulted in a t-value of -1.8835. The significance level of this t-test is 0.2003. Since $0.2003 > 0.0500$, the hypothesis that the slope is zero is not rejected.

The estimated slope is -0.0217. The lower limit of the 95% confidence interval for the slope is -0.0712 and the upper limit is 0.0279. The estimated intercept is -0.3303. The lower limit of the 95% confidence interval for the intercept is -0.7617 and the upper limit is 0.1011.

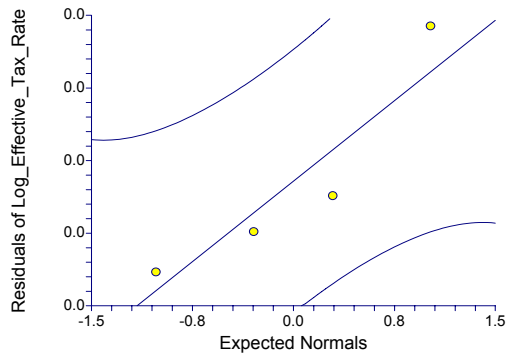
Descriptive Statistics Section

Parameter	Dependent	Independent
Variable	Log_Effective_Tax_Rate	Log_Deal_Size
Count	4	4
Mean	-0.5185	8.6778
Standard Deviation	0.0217	0.7997
Minimum	-0.5376	7.6021
Maximum	-0.4983	9.4740

Residual Plots Section



Normal Probability Plot of Residuals of Log_Effective_Tax



APPENDIX C: EXAMPLE – DATABASE INFORMATION

Balance sheet Information as extracted from SARS database

Tax year: 2005 Form year: 2005 Batch number: 008401P47396

Income / Deductions / Statistical Information

Type Desc	IRP5 No	RFI	Amount	Source
26 TAX COMPUTATION			1138638.00	6969
28 TAX COMPUTATION			238288.00	6992
29 TAX COMPUTATION			475316.00	6912
25 STATEMENT OF EQUITY INFORMA			15250205.00	4537
26 BALANCE SHEET INFORMATION			46184308.00	4609
26 BALANCE SHEET INFORMATION			6801522.00	4610
26 BALANCE SHEET INFORMATION			3564246.00	4645
26 BALANCE SHEET INFORMATION			57306.00	4613
26 BALANCE SHEET INFORMATION			29239977.00	4611
26 BALANCE SHEET INFORMATION			2926662.00	4634

To how many full time employees were equity shares allocated?

Process the Assessment Online

Local Refund? Yes No

Print notice? Local Bulk None

Office
Foreign
CGT
FinInfo
Previous
Exit

Income Statement Information as extracted from SARS database

year: 2005 Form year: 2005 Batch number: 008401P47396

Income / Deductions / Statistical Information

Type Desc	IRP5 No	RFI	Amount	Source
26 BALANCE SHEET INFORMATION			1897993.00	4624
26 BALANCE SHEET INFORMATION			16114511.00	4627
26 BALANCE SHEET INFORMATION			2984556.00	4629
26 BALANCE SHEET INFORMATION			14187292.00	4632
27 INCOME STATEMENT INFORMATIO			117996214.00	4501
27 INCOME STATEMENT INFORMATIO			50303171.00	4502
27 INCOME STATEMENT INFORMATIO			67693043.00	4503
27 INCOME STATEMENT INFORMATIO			1672789.00	4513
27 INCOME STATEMENT INFORMATIO			11314459.00	4564
27 INCOME STATEMENT INFORMATIO			11924061.00	4523

To how many full time employees were equity shares allocated?

Process the Assessment Online

Local Refund? Yes No

Print notice? Local Bulk None

Office
Foreign
CGT
FinInfo
Previous
Exit