ANALYSIS OF WHY HIGH GROWTH INTERNET COMPANIES IN SOUTH AFRICA TRADE AT A PREMIUM OVER "TRADITIONAL" COMPANIES UPON BUYOUT OR LISTING

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ABSTRACT

The last decade has provided some valuations of internet companies that defy traditional financial models. The stock market crash of 2001 corrected and cleaned out much of the misallocated capital. However, internet Companies in both America and South Africa still trade and sell at significant premiums versus their industrial counterparts.

There are also clear and distinct differences in growth patterns that accompany valuations of successful companies. It appears that revenue growth timelines can be successfully compressed when compared hose of traditional industrial companies. Google, Amazon, Yahoo and eBay are good examples of this phenomenon, growing at rapidly, and turning a profit in equally short measure.

This paper examines these internet premiums in South Africa, what the legitimate accelerated revenue premiums are and what can be discarded as bubble-type hype.

DECLARATION

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

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1. INTRODUCTION TO THE RESEARCH PROBLEM

1.1 Background

The Internet was developed in 1973 by the U.S. Defence Advanced Research Projects Agency (DARPA) when it initiated a research program to investigate techniques and technologies for interlinking packet networks of various kinds. The objective was to create a network that would withstand a nuclear attack. The system of networks which emerged from the research was known as the "Internet" (ISOC, 2007).

Vint Cerf (1995), one of the "fathers" of the Internet, aptly described the internet inflection point in his piece on Networks: "the internet has gone from near invisibility to near ubiquity in little more than a year". In no other time in history has a new technology diffused so quickly.

Since then, "the number of Internet users has more than doubled since the year 2000, and now, in 2006, it is available to over one billion people worldwide" (Budde, 2006: 3).

Clearly the Internet is very important. The question that this paper tries to answer is: "How Important?"

The last decade has provided some valuations of internet companies that defy traditional financial models. For example, Lowenstein (2005: 01) stated of the first bubble: "it strains credulity to report that eBay was trading at 1,800 times its previous year's earnings, but at least eBay had earnings".

This appears to have been influenced by a mania that usually accompanies market bubbles. Fisher (2002: 56) states: "The rise of the stocks, especially technology, and their subsequent fall is often described as the inflation of a bubble". The first tech bubble started circa 1998, with the implosion starting 10th of March 2000.

Burton Malkiel (2004: 84) went as far as to call the market mania circa 1998 to early 2001: "surfing on the Internet: the biggest bubble of all time".

Interestingly, Greenspan's famous "irrational exuberance" speech at end of 1996 came only at the beginning of "what may be called the biggest historical example to date of speculative upsurge in the stock market" (Shiller, 2005: 2), with the biggest surge in stock prices and technology listings still to come after his speech, and with implosion only in early 2001.

It appears another bubble is brewing in the so-called "Web 2.0" (social networking) area, raising the question of internet valuations yet again. Microsoft has just paid $240mn for a 1.6% stake in Facebook, making it the 5th most valuable internet company in the world. This is surprising for many reasons, not least of which that its revenues currently stand at $70mn, and it only makes a tiny accounting profit, while still being cash flow negative.

Internet companies have generally commanded a significant premium over traditional industrial companies. It is clear that much of this premium is due to the perceived potential of the sector to grow rapidly. Being at the forefront of the Information Age, the industry is creating new business models and revenue flows out of nascent internet technologies, many of which are yet to be proven. It is true that other traditional businesses also benefit from innovation in internet technology, but this appears to be due more to enablement and enhancement of existing revenue streams as opposed to direct revenue generation.

There is some evidence in the USA that these premiums are warranted in certain instances. Google, Amazon, Yahoo and eBay, all NASDAQ listed, have produced significant money-earning business models based on the internet channel in very short spaces of time.

In South Africa, there has been no systematic study of whether there is an "internet" premium that applies to internet companies in the country (both listed and private), and if existent, what that premium should be.

Because most South African internet companies are Internet Service Providers (ISPs), this paper will use ISPs as a proxy for internet companies; discounting the premium slightly for the capital intensity of building network infrastructure.

Due to the lack of focused internet companies in South Africa, the even lower number of these companies having financial information in the public domain, the excellent access to information in the ISP sector and the fact the new generation ISPs are operating in the value-added-services (internet-related) market, the ISP valuations are being used as a proxy for South African Internet companies.

Lastly, the ISPs are being used as a proxy because: "There are more than 1,000 ISPs across (Africa)" (Budde, 2007: 4), so the revenue numbers are available, making for easier analysis. The prevalence of ISPs versus the tiny number of niche internet portals makes it easier to establish what kinds of premiums exist and how they compare to American internet companies.

A study of this kind would be a significant benefit to management in the IT sector here in South Africa as the "convergence" (BMI, 2006) of technologies continues. It will at least provide some guidance as to whether the acquisition of or investment in internet companies is being done at fair value, and therefore help them in their potential acquisition strategy. Currently there is a land grab in South Africa and throughout the world by the large ISPs, Telcos and IT Services businesses to ensure they are well positioned for the convergence trend. This paper will ideally be a guide to the acquiring companies, in the pursuit of the commanding heights in the ICT sector.

Equally importantly, it is the hoped that this paper will provide a platform for further, more detailed and specific research in the internet sector in South Africa.

This study is an attempt to answer three broad questions:

1. Do the high internet premiums and multiples evidenced in the USA apply to South Africa?

2. And if so, should they apply to the South African internet sector?

3. And finally, to what degree are they justifiable?

1.2 The Research Problem

Do high growth internet companies in South Africa command a justifiable premium over traditional industrial companies upon private buyout or public listing?

There is considerable debate amongst financial experts globally as to whether the valuations placed on internet companies are justifiable. The main concern is whether the implied rates of year-on-year growth are achievable.

The primary justification in favour of the premiums is that the time taken to grow an internet company can be considerably shorter than traditional industrial companies. In other words, revenues and earnings can double and triple for many years in a row. There are good examples of this in Google, eBay, Yahoo, and Amazon, all of which reached one billion dollars in revenue in record time as well as providing profits, albeit in varying quality, in similarly short times (Shiller, 2004: 91).

This paper aims to answer whether there is a South African internet company premium, how large it is, and if it exists, propose some rationale as to whether it is justifiable and sustainable.

1.3 Objectives of this Research

By using listed figures from both NYSE (Industrial Companies) and NASDAQ (Internet Companies) as proxies for America, a basket of privately held and bought-out companies here in South Africa, the objectives of this research report are as follows:

1. To determine if there is a valuation premium between internet stocks and traditional stocks in South Africa in either publicly traded companies or private buyouts. (The analysis of private buyouts is due to the small population of publicly listed internet companies and access to information of the private buyouts.)

2. What is this premium, if it does exist?

3. Is the premium between industrial and internet companies in the USA proportionate to that which exists between those sectors in South Africa?

4. Is the premium in South Africa justified based on fundamental financial analysis?

1.4 Scope and Limitations of this Research

1.4.1 Scope

The scope of this assignment is limited to the following:

1. Comparing the valuations of industrial companies in the US (S&P500) and those in South Africa (INDI 25). The INDI has been chosen to strip out resource stocks which are volatile, subject to vagaries of government licensing and prospecting, and/or sit outside of mainstream valuation methodologies.

2. Comparing company valuations between a basket of USA listed and private internet companies, and a basket of South African internet companies, all but one being privately held.

3. South African internet company data will come from a population of 17 private South African company buyouts 1 South African Listed valuation.

1.4.2 Limitations

- There is no published research available on internet company valuations in South Africa.

- The small population of internet companies in South Africa, vis-à-vis the United States of America, with which to conduct a study.

- Most Internet properties are privately owned, and therefore information is not readily available

- Access to 16 of the 18 private internet company buyouts in the last five years has been obtained; however, it is widely considered public markets are more efficient at pricing assets due to liquidity (Reilly, 2000).

- The scarcity of publicly available information on internet companies here in South Africa. Much of the industry data is contained in expensive Gartner and BMI reports.

- Because primary South African data is non-public it will mean company names will be masked when analysed which is not ideal for further research. I have however been given permission to list the names independently of the analysis.

- Comparing listed and non-listed values from the USA with only non-listed values here in South Africa might result in a gap in the premium that could be explained by illiquidity in the South African market. So then, even if the internet premiums do apply, it may be that they don't translate into the pricing due to lower liquidity in the local markets.

2. LITERATURE REVIEW

2.1 Asset Pricing Methodologies

"Asset Pricing refers to the process by which the prices of financial assets are determined and the resulting relationships between expected returns and the risks associated with those returns in the capital markets" (Sharpe, 2006:1). This thesis will attempt to unravel this statement by looking at each asset pricing and valuation method available to the investment community with respect to internet companies in South Africa, both upon a private buyout and public listing. Accordingly, each of the mainstream valuation methods will be reviewed in at least in some detail to see if their application is useful for valuing internet companies in this country.

It is also important to be mindful of the two problems in valuing growth stocks that Durand highlighted in his classic piece about Growth Stocks and the Petersburg Paradox (1957):

1. The practical difficulties in forecasting sales, earnings, and dividends.

2. Deciding what discount rate to use to bring these estimates to present values – discounting growth stocks at the same rate in perpetuity sometimes produces present values of infinity, Durand points out (1957: 348).

And lastly, before a review of the financial valuation literature, it is prudent to be mindful of Shiller's assertion (2005): "stock prices are far too volatile to be explained by current and historical earnings and dividends". So any valuation methods need to be contextualised with a long term framework.

2.1.1 The Asset Pricing Schools of Thought

Broadly speaking, there are four philosophical frameworks with which investors can view potential investments. These are: Fundamental Analysis, Efficient Market School, Technical Analysis and Behavioural Finance. A discussion of these is only relevant in so much as they provide the rationale by which investment takes place and the method chosen by this paper to undertake its research.

Fundamental analysis is defined well by Ou (1989): It is valuing a company through Financial Statement Analysis and trading on the differences between this implied value and the value at which the company is trading in the public market. In a private buyout scenario it would be the differential between asking price and implied value derived from the financial statements.

Efficient Market Hypothesis (Fama, 1970) has three forms: Weak, Semi-Strong and Strong. Essentially they are different strengths of the same principle, that being, that the current market price is the right price for a given asset and that all information publicly available at the time is currently priced into the share price. Broadly speaking, the conclusion of this is that most kinds of analysis are futile, and that people should invest in broad based indices of the entire market. The subtleties extend further, for example, "weak" form means technical analysis is futile, "semi-strong" precludes both technical and fundamental analysis, and finally "strong" form precludes any kind of analysis. Strong form has largely been debunked by Fama himself (2006; 2168). Malkiel, perhaps the most famous mind proselytising EMH, is a strong proponent of semi-strong.

Technical Analysis is the: "Examination of past market data, such as prices and the volume of trading, which leads to an estimate of the future price trends, and therefore, an investment decision" (Reilly, 2000: 870). Although used by the big investment trading houses, its use in decision making is small and declining, and has little value in defining the value of an asset, so will not be looked at further in this paper.

Financial theory assumes that all investors are intelligent people who do extensive research before making decisions, and those that don't will quickly be traded or priced out of the market (Singal: 2004). Behavioural Analysis is an examination of the cognitive biases in people and how they trade. It derives from early work done by Herbert Simon (1984) in what he called the "Olympian Model", which postulates that only the mind of a God makes comprehensive choices in a completely integrated universe. However, the mind of a normal mortal is prone to at least some irrational choices and heuristic biases that guide investment decisions.

Therefore, it is assumed for the purposes of this paper that prices are not always efficient, and that comprehensive investment analysis is a worthwhile pursuit. As such, the only investment philosophy examined in this paper is Fundamental Analysis.

Fundamental Analysis is divided into two broad categories: models that price an asset and models that value an asset. This paper looks at both, because many companies are bought on the basis of asset price multiples, although it will be shown later that the lack of mathematical rigour is likely the reason for excessive asset valuations on a short term basis.

2.1.2 Earnings and Market based Valuations

"The price-to-earnings ratio is a measure of how expensive the market is relative to an objective measure of the ability of corporations to earn profits" (Shiller, 2005: 6).

The earnings valuation method requires the combining of two measures: Earnings per Share (EPS) and the Price-to-Earnings (PE) ratio. Both of these are used in conjunction with each other because earnings alone provide very little information.

According to Barker (1999), "survey evidence suggests that the dominant valuation model is the price-to-earnings (PE) ratio".

However, to assume PE ratio alone is sufficient for valuation is a mistake. As Fisher (2000) points out in January 1917 PE ratios stood at a very low 6.3, normally a good indication that the market is cheap and undervalued, however the market fell by 15.09% that year. Similarly, a historically high PE ratio of 25.8 in 1922 was accompanied by 27.65% gain.

The EPS is calculated by dividing Net Earnings in the audited Annual Financials Statements (AFS) by the number of shares outstanding in the market. There are a few variations of this, such "forward" earnings per share and "interim" and "trailing" earnings per share. Forward earnings are based on some forecast of earnings while Interim and Trailing earnings are derived from the company's historical results. Another key thing to note is that earnings are not divided by the entire share capital, but rather only the shares that have been issued to the market.

Example: Calculation of Earnings-Per-Share (EPS)

EPS = R2mn / 2mn shares = R1 per share

- Total Shares Outstanding = 2 million
- Total Net Earnings = R2 million

By taking the EPS, the Price-to-Earnings can then be calculated by taking the current share price and dividing it by the earnings per share, as such:

Example: Calculation of Price-to-Earnings (PE) Ratio

PE = R20 / R1 = 20

- Current Market Price = R20
- Current EPS = R1

This calculation will yield what is known as the "Trailing PE" as it is based on historical earnings. This can be calculated for "Forward PE" by replacing historical earnings with forecasted earnings.

"There is a large population of individual investors who stop their entire analysis of a company after they figure out the trailing PE ratio" (Fool.com, 2006). However, this is widely considered as insufficient for robust valuations (Fisher, 2000).

It is important to note too, that the PE only makes sense for growth companies relative to their earnings growth. If a company has lost money in the past year or had a drop in earnings per share over the past twelve months, the PE becomes less useful than other valuation methods (Riley, 2000).

Therefore, by itself, the price-to-earnings ratio is of little use in determining valuation, rather it is a good quick measure to indicate whether further analysis would be productive.

The other limitation to using the PE ratio as a valuation method is that it precludes almost all unlisted stocks and becomes less effective the lower the liquidity of trading in the shares. Lower liquidity is usually associated with greater nominal movements in prices (Fama, 1970), and therefore less efficient pricing.

Also called a "multiple", the price-to-earnings ratio is most often used in comparison with the current rate of growth in earnings per share. The growth of a company is usually associated with the rate of historical earnings-per-share growth over the last four quarters.

“A common Wall Street rule of thumb is the growth rate ought to be roughly equal to the PE ratio” (Bodie, 2005) or as investment guru Peter Lynch puts it: “The PE ratio of any company that’s fairly priced will equal its growth rate (for earnings)” (Lynch, 2001: 86). Accordingly, a more common usage of the PE ratio is what is known as the PEG (PE and Growth Ratio) and the YPEG (year-ahead PE and growth ratio).

The PEG simply takes the annualised rate of growth for earnings of the last four quarters and compares this with the current PE (Share Price over Earnings). The YPEG looks at the future growth over next four quarters and compares to today’s current share price.

If a company is expected to grow at 10% over the next year and has a PE of 10, it will have a PEG of 1.0.

Example: PEG calculation

PEG = PE / Future Earnings Growth = 10 / 10% = 1 = Fairly Valued

A PEG of 1.0 suggests that a company is fairly valued. If the ratio is below one, then it would appear that the company is trading at a discount; greater than one means that the share is potentially expensive (Reilly, 200).

While the YPEG (future earnings) is most often used for high growth companies, the PEG (historical earnings) is best suited for valuing larger, more-established firms. The YPEG uses the same assumptions as the PEG but looks at forward earnings per share. Most earnings estimates are simply taken as an indication of the fair multiple for a company's stock going forward (Bodie, 2005). Thus, if the current PE is 10 but analysts expect the company to grow at 20% over the next five years (year-on-year), the YPEG is equal to 0.5. Anything below 1 is said to be cheap (Fisher, 2000).

Although the PEG and YPEG are helpful, they both operate on the premise that the PE should equal the EPS rate of growth. However, if a company has historically traded at about 10 times earnings and is currently down to 7 times earnings because it missed estimates one quarter, it would be reasonable to buy the stock with the expectation that it will return to its historic 10 times multiple if the missed quarter was only a short-term anomaly.

A modification to the Multiple Approach is to determine the relationship between the company's PE and the average PE of an index, usually the S&P 500.

For example: If a company has historically traded at 150% of the S&P 500 and the S&P is currently at 10, many investors believe that that company should eventually hit a fair PE of 15, assuming nothing changes. This historical relationship requires some sophisticated database analysis and spreadsheets to figure out and is not widely used by individual investors, although many professional money managers often use this approach (Lynch, 2001). Bloomberg, Reuters and I-Net readily provide metrics for investment professionals.

Lastly, Yong (2006: 182) "found that combining several simple multiple valuation outcomes of a firm, each of which is based on a stock price multiple to a historical accounting performance measure of the comparable firms (historical multiple), improves the valuation accuracy of the simple multiple valuation using a single historical multiple". In other words, multiples appear to work better the more an investor uses on an integrated basis. Or put another way, the more multiples used, and the more they are used relative to the rest of the market, the more effective they are.

The last point of relevance comes from an analyst at a South African Hedge Fund: "Most long / short equity funds use these multiples not for absolute valuation, or even relative to the overall market, but relative to another stock in exactly the same sector. So it doesn't matter too much if both stocks in the pair trade are cheap or expensive when compared to the overall market. What matters is their price (PE and PEG) relative to each other" (Robinson, 2007).

2.1.3. Revenues Valuation

Revenues are the sales generated by a company selling its goods or services. Irrespective of whether or not a company has made money in the last year, there will always be revenues (Brigham, 1994).

Even companies that may be temporarily losing money, have earnings depressed due to short-term circumstances (like product development of a start-up or higher taxes), or are relatively new in a high-growth industry are often valued from their revenues and not their earnings (Brigham, 1994). Revenue-based valuations are calculated using the Price-to-Sales ratio (PSR).

A benefit of using the PSR is that revenues are less likely to be engineered by different accounting practices the way earnings can be. The downside in using the PSR however is that they are not informative on key measures like return on capital invested and return on equity, which are measures of the companies efficiencies.

The PSR simply takes the current market capitalisation of a company and divides it by the last 12 months trailing revenues (Reilly, 2000).

The market capitalisation is the current market value of a company, arrived at by multiplying the current share price times the shares outstanding in the market.

Example: Market Capitalisation

Market Capitalisation = 1mn shares x R20 per share = R20mn

Bodie (2005) outlines a more conservative approach by adding the current long-term debt of the company to the total current market value of its stock to get the Enterprise Value. The logic here is that if you were to acquire the company, you would acquire its debt as well, effectively paying that much more. This avoids comparing PSR's between two companies where one has taken out enormous debt to boost sales.

Example: PSR

PSR	= Enterprise Value / Annual Revenues
	= (2mn shares x R10 per share + R1mn of Debt) / R100mn revenues
	= R21mn / R100mn = 0.21
	→ Anything below 1.0 is considered under valued

Where:

- 2 million shares outstanding
- Current market price per share = R10
- R1 million of Debt on the balance sheet
- R100mn in revenues in last 4 quarters

The PSR is a measurement that companies often consider when making an acquisition. Deals and valuations done based on a certain "multiple of sales," is the PSR in use. As it is a perfectly legitimate way for a company to value an acquisition, many stock market participants use it to value a company as an ongoing concern (Fisher, 2000).

As with the PEG and the YPEG, the lower the PSR, the better. Ken Fisher, who is arguably the most famous for using the PSR to value stocks, looks for companies with PSR's below 1.0 in order to find value stocks that the market might currently be overlooking. This is the most common application of the PSR and is actually a pretty good indicator of value, according to the work that James O'Shaughnessy (2005) has done with S&P's CompuStat database.

The PSR is also a valuable tool to use when a company has not made money in the last year. Unless the corporation is going out of business, the PSR can tell you whether or not the concern's sales are being valued at a discount to its peers. For example, if a company lost money in the past year, but has a PSR of 0.50 when many companies in the same industry have PSRs of 2.0 or higher, you can assume that if the company starts making money again, it is likely to have a substantial upside as it increases that PSR to be more in line with its peers.

A good example is the Auto sector in America. In recessionary times companies struggle to make profits. By using the PSR instead of the PE to measure how much you are paying for a dollar of sales instead of a dollar of earnings, you can uncover good investment opportunities (Reilly, 2000).

"PSRs vary greatly from sector to sector, so they are most useful in comparing similar stocks within a sector or sub-sector. Also, since sales are less easy to manipulate as compared to earnings, price-sales ratios are more indicative of performance as compared to price-earnings ratios" (Fisher, 2007)

It is good practice to use the PSR in conjunction with the PE in order to confirm value (Yong, 2006). If a company has a low PE but a high PSR, it can warn an investor that there are potentially some one-time gains in the last four quarters that are pumping up earnings per share. Finally, new companies in hot industries are often priced based on multiples of revenues and not multiples of earnings (Brigham, 1994) due to their capital intensity early on.

Although an early proponent and evangelist of the PSR as a valuation method, Fisher (2007), now believes that the PSR is no longer a good indicator for undervalued stocks. Much like Benjamin Graham's Price-to-Book ratio, it has become a less effective method of spotting value as more participants have used it, trading out any potential pricing inefficiency (Graham, 1951).

2.1.4. Equity Valuation

Equity valuations look at accounting measures like cash, current assets, working capital and shareholder's equity, and intangible qualities like management or brand name (Reilly, 2000).

Traditionally, investors like having enough equity available that should the company go into liquidation, value can still be extracted. However, the premiums in equity values have been pushed by emphasizing qualities that have no tangible or concrete value, but are absolutely vital to the company as an ongoing concern (Reilly, 2000). Internet companies are good examples of considerable levels of implied intangible value.

Another measure of value is a company's current working capital relative to its market capitalisation. Working capital is what is left after you subtract a company's current liabilities from its current assets. Working capital represents the funds that a company has ready access to for use in conducting its everyday business. If a company can be bought close to its working capital, the investor has essentially bought a dollar of assets for a dollar of stock price (Brigham, 1994).

Book Value is also another popular measure to look at, although its ability to find underpriced assets as in the Ben Graham era (1959), have decreased as markets become more efficient. To calculate book value per share, the investor takes the company's shareholders equity and divides it by the current number of shares outstanding in the market. By taking the stock's current market price and dividing by the current book value, you have the price-to-book ratio (Graham, 1959).

Book value is also viewed sceptically in today's markets since most companies have latitude in valuing their inventory, as well as inflation or deflation of real estate depending on what tax consequences the company is trying to avoid. Due to this potential engineering of the financial statements, book value should be taken with some scepticism (Fisher, 2000).

A better measure of a floor for the stock price is the Liquidation Value per share. This represents the amount of money that could be realised by breaking up the firm, selling its assets, repaying its debt, and distributing the remainder to the shareholders (Bodie, 2005).

Another use of shareholders equity is to determine return on equity (ROE). Return on equity is a measure of how much in earnings a company generates in four quarters relative to its shareholder's equity, measured as a percentage. For instance, if a company made a million rand in the past year and had a shareholder's equity of ten million, then the ROE is 10%. Some investment analysts use ROE as a filter to find companies that can generate large profits with little in the way of capital investment.

Intangibles such as a strong brand can also sometimes mean that a company's shares will trade at a premium to its growth rate. Thus a company with larger than industry-average profit margins, a dominant market share, consistent estimate-beating performance or a debt-free balance sheet can trade at a slightly higher multiple than its growth rate would otherwise suggest (Brigham, 1994).

2.1.5. Yield Valuations

The predominant yield valuation model is the Dividend Discount Model. In this model, "dividends are the cash flow returns on an equity investment, and the equilibrium share price equals the discounted value of the expected future dividends" (Barker, 1999).

To derive the Dividend Discount Model, start with the Intrinsic Valuation Formula of a firm:

$$V_0 = [(d_1 + P_1) / (1 + k)]$$

Where:

- V_0 = Intrinsic value (what the asset is worth today)
- d_1 = dividend at the end of year 1
- P_1 = share price at the end of year 1
- K = required rate of return shareholders

This formula states that the value of a company's share price is it future cash flows (dividends and capital gains, assuming sale) discounted for an equity related cost of capital to get today's value.

Forecasting the stock price one year or more in advance is difficult; therefore the model is refined by substituting for P_1 and continuing the substitution in perpetuity, which results in the following formula:

$$V_0 = [d_1 / (1 + k)] + [d_2 / (1 + k)^2] + [d_3 / (1 + k)^3]\ldots$$

As such, the Dividend Discount Model (DDM) states that the stock price should equal the present value of all expected future dividends into perpetuity (Bodie, 2005).

Although it appears capital gains have been omitted from the valuation of the stock, that conclusion is not correct. Capital gains are determined by dividend forecasts at the time the stock is sold. In conclusion, the DDM asserts, "stock prices are determined ultimately by the cash flows accruing to stockholders, and those are dividends (Brigham, 1994).

If you assume that the dividend growth is constant, then the formula can be simplified to the following (Bodie, 2005):

$$P_t = [d_t\ (1+g)] / (k - g)$$

$$P_t = d_t / (k-g)$$

Where:

- P_t = price of share
- d_t = dividend paid
- k = shareholders required rate of return
- g = growth rate (constant)

This formula can be re-arranged to get what is known as the Dividend Yield:

$$d_{t+1} / P_t = k - g$$

Barker (1999) states the fact the finance literature typically assumes the Dividend Discount Model is the basis for share price determination, however, "this theoretical position stands in contrast to survey evidence which suggest that stock market participants place heavy reliance upon the dividend yield rather than the DDM as a basis for valuing shares".

Barker (1999) reconciles this disconnect in four ways:

1. The dividend discount model is highly sensitive to assumptions, making the yield more reliable.
2. The marginal cost of investment research is significantly high enough to make the dividend yield the preferred method.
3. Investors are motivated by short term performance; therefore, the short term measure is sufficient.
4. The dividend is used by management as a signal of forward value.

In summary, although commonly used in the investment community, the Dividend Yield is less effective than the PE ratio "as a valuation model used by analysts for companies" (Barker, 1999). It has been shown too, that yield-valuations are used more commonly in the financials and utilities sectors. Barker (1999) suggests that financials and utilities companies have more predictable cash flows that can be tracked accurately by the dividend yield. Conversely, chemicals and building sectors have very cyclical earnings, and as such, the dividend is a bi-product of earnings, making the dividend yield relevance lower.

2.1.6. Discounted Cash Flow Valuation

Discounted Cash Flow (DCF) valuation is the most widely used by the investment community. This is said to be due to the combination of mathematical rigour and intellectual robustness. Koller (2001: 103) goes as far as to say: "Investment values always revert to a fundamental level based on cash flows". "The Oracle of Omaha", Warren Buffett is one of the more famous supporters of discounted cash flows valuations (Fool.com: 2006).

The father of discounted cash flow analysis and the dividend discount model (DDM), John Burr Williams (1938), also developed the cash flow multiple approach in the early 1950s, and Warren Buffett has evangelised it in the years since. In a private or public market acquisition, the price-to-cash flow multiple is normally in the 6.0 to 7.0 range. When this multiple reaches the 8.0 to 9.0 range, the acquisition is normally considered to be expensive (Williams, 1938).

Mansour (2005) points out that the Discounted Cash Flow approach presents a serious weakness when evaluating internet companies, despite being the best valuation method. This issue is how to deal with high risk and uncertainty, which characterize future cash flows of these companies.

Fundamentally, the DCF model assumes that future cash flows are highly predictable. The effects of uncertainty are therefore tackled implicitly by discounting the expected value of the cash flows at a risk-adjusted cost of capital.

Because of the uncertainty, Mansour (2005) argues, a range of values of possible outcomes exist. Vaaler (2000) agrees, saying: "valuation of Internet firms emphasise the range of possible estimates rather than a single, most likely estimate". Accordingly, both Mansour and Vaaler, amongst others, propose using a Monte Carlo simulation Discounted Cash Flow model for valuing an Internet Companies. Unfortunately Monte Carlo simulations are beyond the scope of this paper, but it is hoped that future research will take the data and conclusions from this research and continue with the mathematically intensive process of Monte Carlo simulations.

The DCF methods used by the investment community:

1. Net Present Value (NPV)
2. Capital Cash Flow (CCF)
3. Economic Value Added (EVA)
4. Free Cash Flow (FCF)

For valuing risky cash flows such as those of Internet Companies, Kottolli (2007) recommends the Free Cash Flow method.

All of the discounted cash flow methods introduce a concept called Cost-of-Capital, defined as a percentage rate used to discount the relevant future flows for the time value of money (Reilly, 2000).

2.1.6.1 The Cost of Capital

Cost-of-Capital, as the name suggests, is the percentage rate an investor needs to exceed in order to derive a profit. It implicitly embodies the risk versus reward payoff postulated by Markowitz.

In their seminal work, Miller and Modigliani (1958) outlined the definition of the "cost-of-capital" under the assumption of perfect markets. There has been much contention around the assumptions that presuppose their definition, not least of which come from Durand (1989). But that analysis is beyond the scope of this paper.

Suffice to say that valuations that want to account for the time value of money must be discounted by a "Cost of Capital", and any resulting figure that is greater than zero will mean the business is a potential buy.

2.1.6.2 Weight Average Cost of Capital (WACC)

Lower risk profiles imply lower costs of capital. For example, most debt has a lower cost than equity due to the lower risk profile of the instrument. Investment analysts use a concept called the Weighted Average Cost of Capital that assigns weightings to each asset class depending on the mix of debt and equity a firm has. In the absence of firm-based information, industry averages can be used as proxies (Bodie, 2005).

The formula is as follows:

$$WACC = w_d\ (1\text{-}T)\ k_d + [w_e\ .\ k_e]$$

Where:

- w_d = % of total capital that is in the form of debt
- T = tax rate (interest is a tax deductible expense)
- k_d = required rate of return on debt capital
- w_e = % of total capital that is in the form of equity
- k_e = required rate of return on equity capital

The WACC is used to discount all future cash flows to get the Net Present Value (NPV). The NPV will tell you what the investment's future cash flows are worth in today's terms.

2.1.6.3 Free Cash Flow Valuation Method

Free Cash Flow is defined by Brigham (1994) as being similar to earnings, but omitting "paper only" expenses, and accounting for capital spending when it actually occurs rather than depreciating it over many years. The real difference between earnings and free cash flow is that depreciation accounts for sunk costs of the past while free cash flow is meant to capture all real cash outlays of the present.

Despite infrequent use by individual investors, cash flow is probably the most common measurement for valuing public and private companies used by investment bankers (Reilly, 2000). Cash flow is literally the cash that flows through a company during the course of a quarter or the year after taking out all fixed expenses. Cash flow is normally defined as "earnings before interest, taxes, depreciation and amortization" (EBITDA).

The rationale for using EBITDA in discounted FCF comprises:

1. Interest: Interest income and expense are excluded because cash flow is designed to focus on the operating business and not secondary costs or profits.

2. Taxes: These depend on the vagaries of the laws in a given year and actually can cause dramatic fluctuations in earnings power.

3. Depreciation and Amortization: These are GAAP related non-cash charges, as the company is not actually spending any money on them. Rather, depreciation is an accounting convention for tax purposes that allows

companies to distribute their capital expenditures over the useful life of their plant and equipment.

4. Amortization normally occurs when a company acquires another company at a premium to its shareholder's equity. The number is accounted for on the balance sheet as "goodwill", which is then "amortized" (written-down) over a set period of time, according to Generally Accepted Accounting Principles (GAAP).

When looking at a company's operating cash flow, it makes sense to cut out accounting conventions that might mask cash strength. Cash flow valuations are used intensely to value industries that involve tremendous up-front capital expenditures and companies that have large amortization burdens. This can include internet companies who usually have to spend considerable amounts on geographically dispersed data centres and network hubs.

As McKnight (1999) points out, cable and telecommunications companies have reported negative earnings for years due to the huge capital expense of building their networks, even though their cash flow has actually grown. This is because huge depreciation and amortization (non-cash accounting) charges have masked their ability to generate cash. Sophisticated buyers of these properties use cash flow as one way of pricing an acquisition, thus it makes sense for investors to use it as well. Therefore, discounted free cash flows provide an ideal pricing method for valuing internet companies, which burn lots of capital early on.

Equation: Discounting Cash Flows

$$\text{Value} = \sum[CF_t/(1+k)\hat{}^{t}]$$

where t = 1 to infinity

The simplified form of this equation, assuming constant growth is:

$$\text{Value} = CF_{(t\,=\,0)}*(1+g)/(k-g)$$

Where:

CF = cash flow (constant)

g = growth

k = discount rate

t = 0 is the cash flow from the previous year

The equation above is valid only if the discount rate is greater than the growth rate ($k > g$). If k is less than or equal to g, the equation is undefined. As g starts to get close to k the value starts to get large, and increase rapidly. (See Appendix 9.1 for an illustrated example.)

If the constant growth formula breaks down, we can break the equation into parts: a fast-growth part and slower-growth sections.

At the Berkshire Hathaway annual meeting (1999), Warren Buffett referred to this as the St. Petersburg Paradox, based on a paper by David Durand (1989). No investment has infinite value. So investment analysts have to be very careful using a growth rate (g) greater than the cost of capital (k) for extended periods of time, otherwise valuations will tend to undefined, infinite values (Durand, 1999).

2.1.6.6 Economic Value Added

Economic Value Added (EVA) is another sophisticated modification of cash flow analysis that looks at the cost of capital and the incremental return above that cost as a way of separating businesses that truly generate cash from businesses that are cash hungry. It will not be evaluated in this paper due to its proprietary nature.

2.1.6.5 The Capital Asset Pricing Model (CAPM)

The Capital Asset Pricing Model (CAPM) is used as both an asset pricing and valuation method and although outside the scope of this paper, it is worth mentioning this valuation technique for its popularity alone. "CAPM, along with portfolio theory, developed by Sharpe's mentor and co-Nobel winner Harry Markowitz, is the foundation of every finance program in the country, if not the world" (Chernoff, 2006: 2).

Sharpe concluded that most of a stock's risk stemmed from the market. The idea of an index fund — passively tracking the entire market — came directly out of CAPM and the "efficient market hypothesis" unveiled a year later by Eugene F. Fama in his doctoral dissertation at the University of Chicago's Graduate School of Business. In a diversified portfolio therefore, it is only market risk that is residual. As such, by looking at the co-variability of the stock with the market, you could determine the risk measure, which was Sharpe's Beta. This Beta, adjusted for the risk-free rate (usually a short term treasury rate) and the return on the market, became the discount rate, or what is known as the "Cost of Capital" (Bodie, 2005: 283)

The CAPM formula is:

$$K_c = R_f + \beta\ (k_m - R_f)$$

Where:

- K_c = risk adjusted cost of capital
- R_f = risk free rate of return

- k_m = Return on the market benchmark (usually the S&P 500)

CAPM is a simple equation to express the concept that higher risk accompanies higher rates of return and more importantly, that in a diversified portfolio, the only risk is that of the market (Chernoff, 2006: 2).

Analysts sometimes use a more complicated value for Beta that grows with a company's debt level. There is also lots of controversy about whether beta, which measures past volatility, is sufficient or even relevant in predicting future risk.

Critics of CAPM are many. Fama & French (2006: 2184) in their study, stated: "We conclude CAPM has fatal problems throughout the 1926 to 2004 period". They lay out the fact that Beta does not significantly explain size of the firm and the book-to-market, which are important in expected returns.

Perhaps the crowning indictment of CAPM comes from its founder William Sharpe, in changing the measure of risk from mean variances against the market (Beta) to his newly proposed "*State/Preference* approach that relies on an easy-to-understand simulation" (Chernoff, 2006: 3).

Chernoff (2006) outlines that in contrast to mean-variance analysis, the state/preference approach does not rely on a normal distribution and the mathematics are far simpler than in mean-variance analysis. The jury on this new method is still out, and as such, there will be no further investigation in this paper on CAPM.

2.1.7. Subscriber-based Valuations

Subscriber-based valuations are most common in media and communication companies that generate regular, monthly income -- like cellular, cable TV and online companies (McKnight, 1999). Often, in a subscriber-based valuation, analysts will calculate the average revenues per subscriber over their lifetime and then figure the value for the entire company based on this approach.

For example: If an internet company has 1,000 members and each remains, on average, for 24 months, spending an average of R250 a month, the company is worth = 1,000 x R250 x 24 = R6 million.

It is important to note that this valuation method is extensively used in the ISP, Cable and Telecommunications Industries (Knight, 1999) and that no discounting factor is used to obtain the net present value of the business. According to a CEO of a leading ISP in South Africa, who asked to remain unnamed, he believes this to have emanated from the Average Revenue Per User (ARPU) model that the Telco carriers always used.

2.2 Internet and Growth Company Valuations

Durand (1957) talks about the difficulties in appraising growth stocks in general. Although investors prefer growth stocks due to their potential, this potential will usually get priced into the stocks very quickly and then the usual benchmarks such as PE, Dividend Yield and Book-to-market fall out of line when compared to conventional standards. Durand concludes that the market appears to pay too much for growth in general.

Bond and Pecaro (2000) outline the following about internet company valuations:

1. Traditional valuation methods don't apply due to the high operating costs and steep growth patterns.
2. Income and Subscriber valuation approaches appear to be the most effective methods. Within these, the key items are:
    a. Revenue drivers
    b. Sales and marketing expenses
    c. Operating cash flow margin
    d. The need for a higher discount rate to compensate for risk

Point 2d is interesting because research shows that discounting rarely occurs for valuations of internet companies done by this method.

2.2.1 ISP Valuations

Due to the lack of focused internet companies in South Africa, the even lower number of these companies having financial information in the public domain, the excellent access to information in the Internet Service Provider (ISP) sector and the fact the new generation ISPs are playing in the value-added-services (internet-related) market, the ISP valuations are being used as a proxy for South African Internet companies.

Outside of the ISP industry, many non-public businesses are valued based on some percentage of annualized sales revenue (typically 1 to 5 times annual earnings). Historically, however, "the ISP industry appears to prefer to price companies based on a value per subscriber, which is then multiplied by the number of subscribers to arrive at an asking price" (Knight, 1999).

In practice, buyers' contracts often specify that the seller gets paid only for the subscribers that remain with the new ISP after the deal. Typically, if you get more than 80 percent to convert to the new ISP, you are doing well (Knight, 1999).

Knight (1999) laid out some of the major factors that help determine the value per subscriber:

- The size of your subscriber base and contract terms
- Average Revenue Per User (ARPU)
- The percentage of subscribers paying by credit card as opposed to printing invoices or terms, i.e., the cash float
- The growth rate, relative to the marketing budget and its ability to keep bringing in new subscribers after the deal is made
- The company's churn ratio, i.e., how many customers leave your business

Biz-Net (1999); "Many ISPs that have been sold over the past couple of years which has enabled the industry to develop their own Rules-of-Thumb". As an example, values are being quoted as:

1. Value per Dial-up Customer – (usually in the range of $100-$300, with some over $500)

2. Value per Host Account - (varies dramatically, values as high as $75,000+ per hosting account have been used)

3. Multiple of Annual Revenue – (dialup normally 0.75 – 1.5 times, on occasion 3.0+, commercial revenues normally 1.5 – 4.0 times, on occasion 6+)

4. Hosting businesses typically have a market value of somewhere between 6 months and two time annual gross sales. The wide variance depends of the type of accounts and services, the amount charged per month, the billing method, the control panel, the platform, the overall size of the operation, the brand name, and about 25 other metrics, not the least of which is gross and net profitability of the operations / accounts

Stephenson (2000) then detailed a list of nine criteria that are influential in determining a company's value, which are difficult to tie back to any valuation model but are worth noting for their relevance to the valuation process:

- Quality of management team
- Potential for revenue growth
- Market position
- Scalability of infrastructure and operations controls
- Depth of technical talent
- Sales and marketing effectiveness
- Value-added service offering
- Ability to generate positive cash flow (EBITDA)
- Public vs. private markets

Knight (1999) describes that historically, public-market valuations have been quite high relative to the private market. In 1995 they averaged an amazing 12 times annual revenue. They dropped in 1996, hit bottom in 1997, and have been climbing since, up as high as 10 times revenue. Privately traded ISPs have experienced very steady slow growth - about one multiple over the same 5 year period (Knight, 1999).

Knight (1999) offered the following breakdown of public ISP valuations, based on 14 companies (expressed in multiples of annual revenue):

Table 1: ISP Valuation Multiples

Internet Valuations based on Revenue	
High	12.4 x revenue
Median	4.9 x revenue
Mean	4.6 x revenue
Low	2.7 x revenue

Source: Knight, M. (1999)

Companies at the higher end of the spectrum tend to be acquisitions by value-added-services (VAS) providers, explained Knight (1999).

Regarding acquisitions in the private market, Knight (1999) also gave valuation averages for past 24 months, which he broke down by the type of acquisition:

Table 2: Types of Internet Company Multiples

2. Internet Valutions based on Revenue	
Regional & dominant local ISPs	2.3 x revenue
Top 25 hosting companies	4.2 x revenue
National transit providers	4.6 x revenue
Access—customer base only	0.8 x revenue
Hosting—customer base only	1.72 x revenue

Source: Knight, M. (1999)

2.4 Conclusion

"It was tempting for observers in 2000, at the peak of the internet boom, to extrapolate this earnings growth and to believe that some fundamental changes in the economy had produced a new higher growth trend in earnings" (Shiller, 2005: 6). This is not the case. Fundamentals still count and financial analysis still has its place.

Corporate profits fell in 2000 and 2001 causing the biggest drop in profits in percentage terms since 1920-21. "The drop certainly pulled the support out of the ideas that the new high-tech economy was infallible" (Shiller, 2005: 6). This further affirms the need for rigorous financial analysis.

In conclusion, there are many valuation models, defined by the different schools of thought and broadly falling into two main categories: Asset Pricing models (CAPM, PE, Dividend Yield) and Asset Valuation models (NPV, DCF and FVA). For the purpose of this research, we look specifically at the discounted Free Cash Flow Model due to its widespread popularity, academic rigour and economic robustness.

The benchmark process for this thesis will be the use of a Discounted Cash Flow (DCF) model. Kaplan (1995: 1059) indicates that "most economists readily accept the concept of estimating market values by calculating the discounted value of their corresponding cash flows".

Mansour (2005) also confirms that the Discounted Cash Flow (DCF) analysis is the most accepted approach for company valuations.

Lastly, Shrieves (2001, 34) confirms: "The use of discounted cash flow methods for investment decision making and valuation is well entrenched in finance and practice".

Fisher (2000: 73) states: "We study the PE ratios and dividend yields at the beginning of 128 years from 1872 through 1999, and find they provide unreliable forecasts of future returns". Furthermore, Campbell and Shiller (1998) and Shiller (2000) find a negative relationship between PE ratios and subsequent ten-year returns.

There have been several techniques for valuations of internet companies, especially in the "Internet Bubble" halcyon days, circa 1998 through early 2001, from eyeballs to number of clicks (Donelly, 1999). These appear to have lost popularity with the investment community post "The Crash" and as such will be disregarded on the basis of prudence in this paper.

The concern with using discounted cash flow models is summarised by Penman (1996): "Standard formulas for valuing equities require prediction of payoffs "to infinity" for going concerns but a practical analysis requires that they be predicted over finite horizons. This truncation inevitably involves (often troublesome) terminal value calculations".

On a wider level, one also needs to be wary of the vagaries in pricing in the short term: "We know that markets have made egregious mistakes, as I think occurred during the recent Internet bubble" (Malkiel, 2003: 61)

Fisher (1989: 19) states: "The variability of book value to price exceeds the variability of earnings to price ratios, both across the universe of stocks and over time, suggesting that the earnings figure is a better measure of value than the book value figure".

3. RESEARCH QUESTIONS

From a South African perspective, there have been no published or peer reviewed papers on internet company valuations, so this research is designed to be discursive and build a base for future research. To that end, the research has been kept simple and revolves around determining the valuation methods used for pricing Internet companies, both here and in America, and then trying to conclude if these valuations are synchronous with industrial companies here and in America.

The specific research questions that this paper attempts to answer are:

1. Is there a premium in the valuation of internet companies over traditional industrial companies in South Africa?

2. How does the premium paid for South African internet companies compare to the premium paid for USA Internet companies? Is it proportionate?

3. What valuations methods are used to value internet companies?

4. How do these valuation methods compare to the more aggressive discounted Free Cash Flow methods for valuing a company?

4. RESEARCH METHODOLOGY

4.1 Research Design

This paper uses quasi-experimental methodology. Welman and Kruger (2005) define quasi-experimental research as when the researcher cannot randomly assign units of analysis for the research.

The aim of this study was to define and categorise six groups of companies. These include:

1. Listed industrial companies in the USA – these have been called "traditional" companies

2. Listed internet companies in the USA

3. Privately held internet companies in the USA

4. Listed industrial companies in South Africa – these are defined by the INDI 25 Index on the Johannesburg Stock Exchange (JSE). The usual benchmark is the ALSI (All Share Index) but these include many resource stocks. The INDI is the industrial company index

5. A Listed internet company on the AltX Board

6. Privately held internet companies in South Africa

This categorisation is essential for the production of comparable valuations, which is why quasi-experimental research was conducted.

There was also a large body of qualitative research done for this thesis, with interviews being conducted with all the CEOs of the acquiring South African companies.

The research method for this paper has followed this sequence:

1. I have analysed the industrial South African company valuations in order to benchmark "normal" valuations against internet company valuations – for this, the JSE Index "INDI 25" was used as it removes the volatile resources stocks of the broader ALSI Index. The INDI 25 is defined as such:

Table 3: INDI 25 Index Definitions

FTSE/JSE Africa **INDI 25**: The top twenty-five companies which are constituents of either the Basic Industrial or General Industrial economic groups ranked by full market capitalisation Source: Johannesburg stock Exchange, 2007 - www.jse.co.za

2. I then collated the data for sample population of 16 private internet company buyouts and 1 listed internet company and compared and contrasted the valuation multiples for each.

3. I then compared the actual prices paid for the 17 Internet companies versus discounted Free Cash Flow valuations for each of these companies to derive the premium attributed to South African internet companies.

4. I then compared the South African premium to the American premium ascertain the differentials between markets.

5. By comparing the multiples on various levels I was able to draw conclusions and make inferences based on the data.

6. Lastly, I examined whether the premiums in South Africa are justifiable based on the data that has been gathered.

4.2 Unit of Analysis

Welman and Kruger (2005) define units of analysis as members or elements of a population.

The unit of analysis will be companies, both private and listed, in South Africa and the United States of America as defined above in the Research Design.

The List of companies was chosen as follows:

Table 4: Company Categories

Unit of Analysis	Source
USA Industrial Stock	S&P500
USA Listed Internet Stocks	NASDAQ and NYSE
USA Privately held Internet Stocks	Public Domain
South African Listed Industrial Stocks	INDI 25 (JSE)
South African Listed Internet Stock[1]	Alt-X (JSE)
South African Private Companies[2]	Meetings with CEO

Notes:

1. There is only one company listed on the JSE that completely focuses on internet technologies. There are others that have internet subsidiaries, but they constitute considerably less than 50% of the revenues, so have been excluded.

2. Meetings with CEOs – I managed to interview the CEOs of the companies involved with 16 of the 18 internet company acquisitions completed in the last five years in South Africa.

4.3 Population of Relevance

Welman and Kruger (2005) define the population as an entire collection of cases or units about which one wishes to make conclusions. The population of relevance is vis-à-vis this research is the 25 Stocks contained in the JSE's INDI 25, a basket of American internet "Benchmark" stocks, American internet company valuations in the public domain and information from privately held companies in South Africa.

The population of relevance in South Africa is the private buyout data on internet companies as well as the one listed company that fulfils the definition of an internet company, DataPro (renamed Vox). From a South African point of view, this paper contains data on 16 of the 18 internet company transactions that have occurred in the last five years in South Africa.

The list of South African companies includes:

Table 5: South African Internet Properties Analysed

South African Internet Properties
Tiscali
Mjvnet
Shisass
Xsinet
Atlantic
AIA
Futurenet
Netralink
Discovery Vitality Internet
Vottle.com (forward)
Accelon
UCS
Orion
Definity
Storm
Internet Solutions
Data Pro

For the USA data, a basket of internet companies, widely considered the benchmark proxy for the internet sector has been used. These companies include:

Table 6: American Internet Properties Analysed

American Internet Properties
Facebook (2007)
Instapundit
Youtube
Myspace
women.com
Yahoo
Amazon
eBay
Google
Time Warner
Cisco
Microsoft

The benchmarking for traditional company valuations will be against broad industrial indexes, specifically the JSE's INDI 25 Index which lists the top 25 industrial companies by market capitalisation and S&P 500 Index. The JSE ALSI has not been used by design due to the fact that it contains volatile resource stocks that might skew results and comparisons. See Appendix 9.7 and 9.8 for the companies that are embedded in these indexes.

4.4 Sample Size and Sampling Method

The sampling method used was "non-probability" convenient sampling. Welman and Kruger (2005) define this method as an undeterminable probability that unit of analysis will be included in a non-probability sample. Albright (2003) defines non-probability as a "judgement sample" where no formal random mechanism is used to select the sampling units. Essentially the selection of the units-of-analysis is subjective and judgemental, which is what this research has done.

Organisations that were excluded include the following:

1. Resource and commodity based stocks – the variability and high unpredictability in their earning patterns preclude them from being a good benchmark with which to compare internet stocks

2. Financial stocks - due to the unique way in which they derive their revenue, the impact of their capital adequacy requirements, and invasive regulatory oversight.

4.5 Details of Data Collection

Data collection falls into two broad groups: firstly, the categorisation of companies into traditional and internet based companies, and secondly, collection of performance data of the companies in their respective categories

4.5.1 Data to Determine Categorisation

The data collected for categorisation was both primary and secondary. Primary is defined by Welman and Kruger (2005) as original data collected by researcher for the purposes of his or her own study. Secondary data is that which is collected for other purposes, but is reused in its current form for another piece of research.

The secondary data collected was historical market data that places companies into the sector.

4.5.2 Performance Data

The data collected for performance measurement was both primary and secondary.

The performance data were comprehensive management accounts of each of the private acquired companies reworked in discounted FCF statements with multi-stage growth forecasts and an industry surveyed WACC.

Primary research was done by way of surveying investment companies on the WACC they would assign to the internet sector. This was done to ensure the companies being researched didn't provide discount rates that were favourable to the buying of the companies in question, ie, soft discount rates to make their values look higher than what they were paying.

4.6 Process of Data Analysis

This paper has used inferential statistics. Welman and Kruger (2005) define inferential statistics as data that allows researcher to make inferences about a population index on the basis of a corresponding index.

Therefore, I have compared the internet company population with the industrial company population by the pulling market time series data and company management account data into spreadsheets to do comparisons on various levels. Multiples in PSR, PE, DY, and PEG for each population were compared to each other. Finally, these were then compared to mathematically rigorous discounted FCF models for each company.

4.7 Limitations of Research

The limitations of the research for this paper can be summarised as follows:

- The fact that there has been no published research on internet company valuations in South Africa has made it extremely difficult to know how to conduct this research. This was compounded by the fact that research experience was limited, and as a result, the research changed tack many times.

- The small population of internet companies in South Africa, vis-à-vis the America, even on a relative basis made it very difficult to compare like for like. Despite the excellent access to the management accounts of 16 of the last 18 transactions that have occurred in South Africa in the last 5 years, the lack of competing bid information meant the pricing from South Africa was not as efficient as that derived from the markets on the NASDAQ in the United States.

- Most Internet properties are privately owned in South Africa and despite access to most of the internet company buyouts in the last five years; it is widely considered public markets are more efficient at pricing assets due to liquidity (Reilly, 2000).

- The scarcity of publicly available information on internet companies here in South Africa. This leads on from the previous points but is more pervasive. It includes the lack of publicly traded stocks; the lack of press in the internet sector; the lack of business to spur the aforementioned. The boom in the resource and commodity-based non-tech sectors might explain the lack of sophistication here.

- Much of the primary South African data is non-public, hence the inclusion of information from private buy-outs. Although I was lucky to have access to information on 89% of all the deals done in the sector in the last five years, this information is sensitive and I have accordingly been asked to mask the names of these companies. I am allowed to state the companies, just not against any financial data.

- Comparing listed and non-listed values from USA with just non-listed values here in the South Africa, although impossible to ascertain, appears to have resulted in a gap partially explained by illiquidity of the private South African companies (see Chapter 6: Discussion of Results).

5. RESULTS

5.1 South African valuations: Traditional v Internet Companies

Table 7: JSE INDI 25 - Last 5 years

JSE Stock Exchange – INDI 25 – Top 25 Industrial Companies by Market Cap						
Summary: Quarterly Data – Last 5 years						
	PSR	DY	P/E	Peg	High(c)	Low(c)
Averages	1.08	2.05	15.18	1.05	9172.20	7818.35

Source: McGregor BFA, 1 November 2007.

- The Price-to-Sales Ratio of the top 25 listed industrial companies in South Africa over the last 5 years is 1.08

- The Dividend Yield of the top 25 listed industrial companies in South Africa over the last 5 years is 2.05%

- The Price-to-Earnings of the top 25 listed industrial companies in South Africa over the last 5 years is 15.18

- The Price-to-Earnings Growth (PEG) of the top 25 listed industrial companies in South Africa over the last 5 years is 1.05

Table 8: JSE INDI 25- Time Series Graph

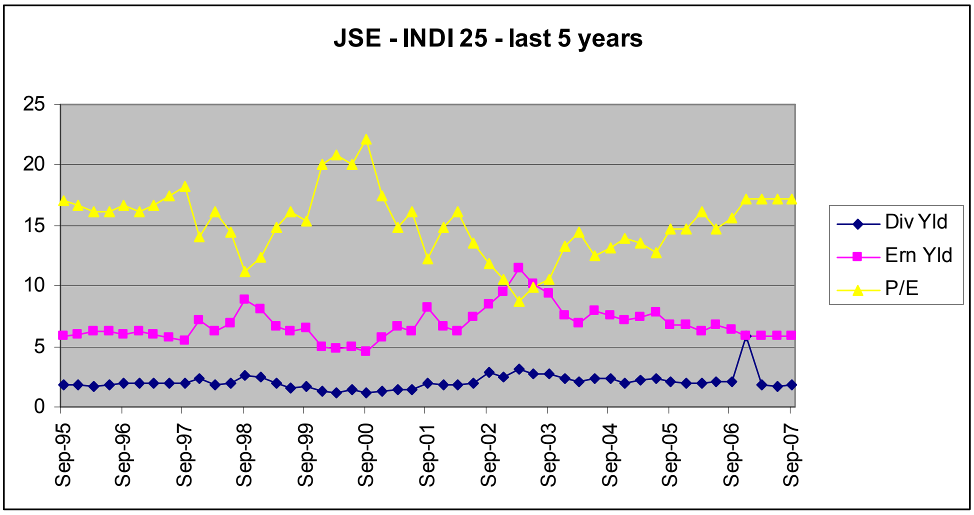


Table 9: South African Internet Companies v JSE INDI 25

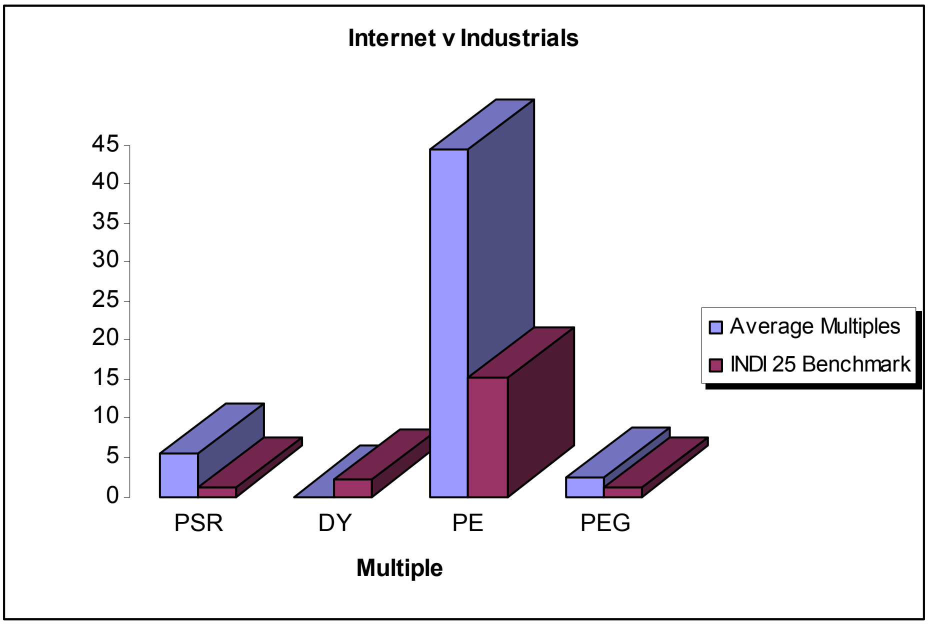
South Africa Internet Companies – 1st November 2007							
Internet Properties	**Company Value**	**PSR**	**DY**	**PE**	**PEG**	**TYPE**	**ACQUIRER**
Company A	R 320,000,000.00	3.10	0.00	76.00	3.40	private	Mweb (Naspers)
Company B	R 1,156,500.00	1.20	0.00	41.00	1.40	private	Atlantic (Vox)
Company C	R 740,700.00	1.40	0.00	38.00	1.40	private	Atlantic (Vox)
Company D	R 18,450,000.00	1.90	0.00	51.00	1.70	private	Atlantic (Vox)
Company E	R 45,000,000.00	2.10	0.00	58.00	2.10	private	DataPro (Vox)
Company F	R 73,000,000.00	2.00	0.00	71.00	3.10	private	Atlantic (Vox)
Company G	R 1,100,000.00	1.60	0.00	16.00	1.30	private	SA Internet
Company H	R 8,500,000.00	1.10	0.00	15.00	1.10	private	DataPro (Vox)
Company I	R 2,100,000.00	1.30	0.00	18.00	1.10	private	IS
Company J	R 44,100,000.00	1.70	0.00	12.00	1.40	private	IS
Company K	R 14,550,000.00	1.60	0.00	19.00	1.20	private	IS
Company L	R 380,000,000.00	3.10	0.00	63.00	2.80	private	DataPro (Vox)
Company M	R 70,000,000.00	2.10	0.00	52.00	2.10	private	DataPro (Vox)
Company N	R 360,000,000.00	4.50	0.00	67.00	3.30	private	DataPro (Vox)
Company O	R 7,200,000.00	32.00	0.00	80.00	6.34	private	Naspers - 51%
Internet Solutions	R 4,200,000,000.00	2.21	0.00	21.00	1.40	private	Dimension Data
Data Pro	R 2,187,000,000.00	7.76	0.00	52.91	1.70	public	Listed - JSE
Av. Internet Multiples		**5.54**	**0.00**	**44.26**	**2.44**		
INDI 25 Benchmark		**1.08**	**2.05**	**15.18**	**1.05**		
Differential: Internet v Industrial Sector		**513%**	**n/a**	**292%**	**232%**		

Once the JSE Industrial numbers are mapped against the South African Internet companies we can see there is a significant premium for internet companies in South Africa.

In all three measurable categories there is a premium:

- Price-to-Sales (PSR) displays a more than five time premium
- Price-to-Earnings has almost a three time premium
- Price-to-Earnings Growth (PEG) has almost a two and half time premium

Table 10: Internet v Industrial Price Multiples



5.2 Premiums: SA Internet Companies v USA Internet Companies

It is clear that the private companies push up the multiples in the below data and this would appear to be in line with early stage venture capital type investment. There is a greater potentiality for rapid growth earlier in the life cycle of the business.

Dividends are also non-existent with most of the companies and this too is in line with growth type companies. The logic here is that Internet companies can get a higher return on capital invested (ROIC) than would be attained if funds were returned to the investor. There is also the rationale that early stage companies are cash hungry, so it may even be a matter of necessity to retain all funds.

Table 11: USA Internet Company Valuations

USA Internet Companies – 1st November 2007						
Web Properties	**company value**	**PSR**	**DY**	**PE**	**PEG**	**TYPE**
Instapundit	$35,100,000	16.67	0	117.00	1.10	private
Facebook 2007	$15,000,000,000	214.29	0	3061.22	3.10	private
Youtube	$1,650,000,000	787.40	0	122.22	2.20	private
Myspace	$550,000,000	81.83	0	137.50	2.10	private
Women.com	$540,000,000	11.11	0	409.09	1.40	private
Yahoo	$37,100,000,000	5.41	0	53.75	2.61	public
Amazon	$36,100,000,000	2.75	0	100.51	3.22	public
EBay	$45,800,000,000	6.32	0	283	1.22	public
Google	$228,780,000,000	15.28	0	57.34	1.37	public
Time Warner	$66,800,000,000	1.45	1.40%	11.07	1.22	public
Cisco	$199,480,000,000	5.71	0	27.99	1.48	public
Microsoft	$332,000,000,000	6.15	1.60%	23.31	1.57	public
Av. Multiples		**104.94**	**0.0%**	**400.36**	**2.05**	
Av. Multiples (Ex Facebook)		**95.00**	**0.00**	**158.47**	**1.96**	
Av. Multiples (Ex Pvt.)		**6.15**	**0.00**	**79.57**	**1.81**	
Historical Av. (equities)[1]			**2.1%**	**14**		
S&P 500 – 5yr Average			**1.0%**	**16.3**		
Differential: Av. v S&P500			**1%**	**28.6x**	**1.8x**	
Differential: Av. (Exc. Private) v S&P500			**1%**	**24.5x**	**1.6x**	

Notes:

- Public listings source: finance.yahoo.com
- Private company pricing source: public domain (see reference list, Chapter 8)
- Note 1: This is the arithmetic mean since 1900; geometric mean is 16. source: wikipedia.org

Table 12: Time Series of S&P PE ratio for last decade

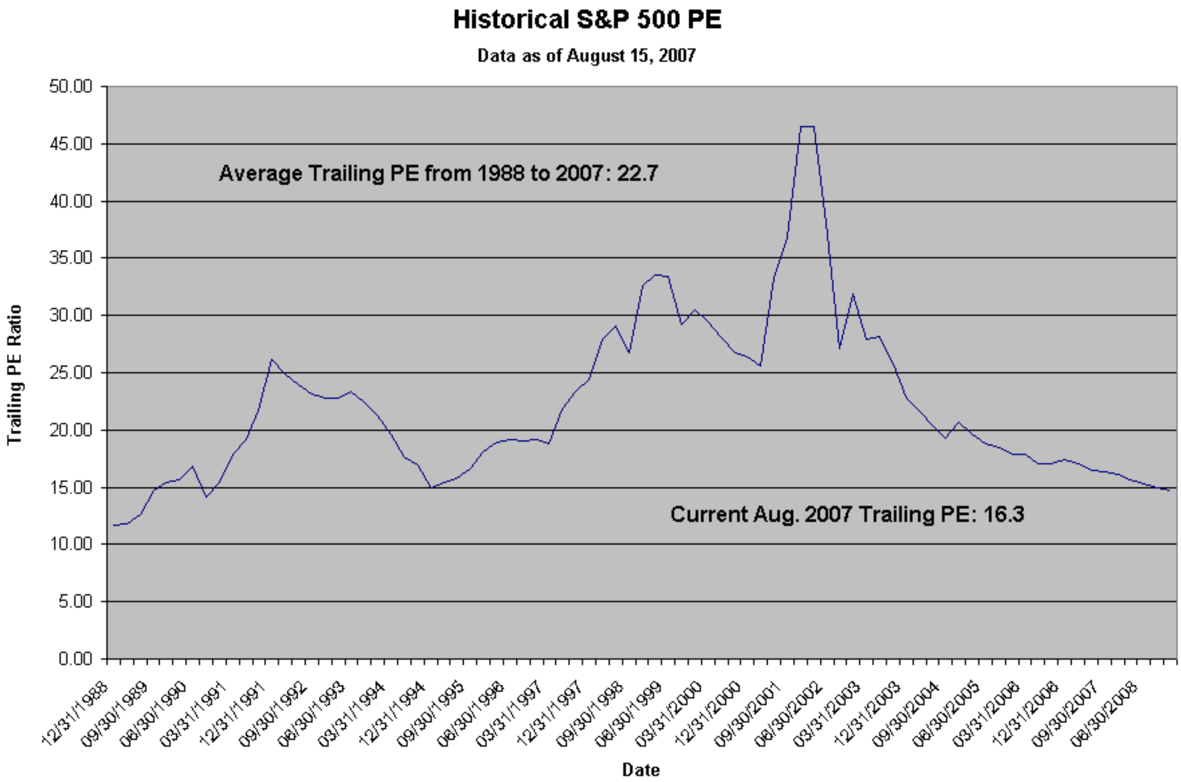


Table 13: USA v Internet Premium Comparison Table

USA - Internet v Industrial - 5 yr summary				
Measure	**PSR**	**DY**	**PE**	**PEG**
Average Multiples	104.94	0.00%	400.36	2.05
Average Multiples (Ex Facebook)	95	0	158.47	1.96
Average Multiples (Ex Private)	6.15	0	79.57	1.81
Historical Average (all US equities)[1]	1.02	0.90%	14	1.02
S&P 500 – 5yr Average	1.113	1.00%	16.3	1.12
Differential: Average v S&P500	9429%	n/a	2456%	183%
Differential: Average(Ex Private) v S&P500	553%	n/a	488%	162%

South Africa - Internet v Industrial - 5y Summary				
Measure	**PSR**	**DY**	**PE**	**PEG**
Average Internet Multiples	5.54	0	44.26	2.44
INDI 25 Benchmark - 5yr Average	1.08	2.05	15.18	1.05
Differential: Average Internet v INDI 25	513%	n/a	292%	232%

Premium Comparisons: USA v South Africa				
Measure	**PSR**	**DY**	**PE**	**PEG**
Differential: Average v S&P500	9429%	n/a	2456%	183%
Differential: Average(Ex Private) v S&P500	553%	n/a	488%	162%
Differential: Average Internet v INDI 25	513%	n/a	292%	232%
Premium - US over SA	1838%		842%	-79%
Premium (Exc. US Private) - US over SA	108%		167%	-70%

It appears the Americans are willing to pay a much larger premium for sales (PSR) than South African purchases of internet companies. For current earnings (PE), however, the South African companies seem willing to pay a higher price for earnings growth (PEG) than their counterparts in the USA. This apparent disconnect will be discussed in next section.

It should be noted that for simplicity and readability, some calculations for PEG are YPEG, but the universal term PEG is used for all, as in most investment houses.

5.3 Valuation Methods used to Value the South African Internet Companies

Table 14: South African Valuation Methodologies

South Africa Internet Companies – 1st November 2007								
Web Properties	**company value**	**ACQUIRER**	**valuation method**	**PSR**	**DY**	**PE**	**PEG**	**TYPE**
Company A	R 320,000,000	MWeb	Subscriber based	3.10	0.00	76.00	3.40	private
Company B	R 1,156,500	Atlantic	Subscriber based	1.20	0.00	41.00	1.40	private
Company C	R 740,700	Atlantic	Subscriber based	1.40	0.00	38.00	1.40	private
Company D	R 18,450,000	Atlantic	Subscriber based	1.90	0.00	51.00	1.70	private
Company E	R 45,000,000	DataPro	Subscriber based	2.10	0.00	58.00	2.10	private
Company F	R 73,000,000	Atlantic	Subscriber based	2.00	0.00	71.00	3.10	private
Company G	R 1,100,000	SA Internet	Subscriber based	1.60	0.00	16.00	1.30	private
Company H	R 8,500,000	DataPro	Subscriber based	1.10	0.00	15.00	1.10	private
Company I	R 2,100,000	Internet Solutions	DCF - conservative forecast	1.30	0.00	18.00	1.10	private
Company J	R 44,100,000	Internet Solutions	NPV	1.70	0.00	12.00	1.40	private
Company K	R 14,550,000	Internet Solutions	NPV	1.60	0.00	19.00	1.20	private
Company L	R 380,000,000	DataPro	Subscriber based	3.10	0.00	63.00	2.80	private
Company M	R 70,000,000	DataPro	Subscriber based	2.10	0.00	52.00	2.10	private
Company N	R 360,000,000	DataPro	Subscriber based	4.50	0.00	67.00	3.30	private
Company O	R 7,200,000	Naspers - 51%	DCF - optimistic forecasts	32.00	0.00	80.00	6.34	private
Internet Solutions	R 4,200,000,000	Dimension Data	DCF - Merrill Lynch	2.21	0.00	21.00	1.40	private
Data Pro	R 2,187,000,000	Public Company	Market – JSE	7.76	0.00	52.91	1.70	public
Average Multiples				**5.54**	**0.00**	**44.26**	**2.44**	

It is clear that the primary valuation method for buying companies in South Africa is subscriber-based valuations, and this was affirmed by the interviews with the CEOs of the acquiring companies. The one exception was an ISP that uses a variety of models with more conservative growth forecasts than their peers. This appears to be the result of an already large market share, while its competitors have to pay premiums to acquire increasing market share.

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5.4 South African Internet Company valuation methods v Discount FCF valuation

5.4.1 Survey: Internet Sector WACC in South Africa

Surveys were conducted with 3 leading Hedge Funds in South Africa, while the rest of the data was collected of the internet. The South African calculations were given higher weightings to account for market specific knowledge.

Table 15: Surveyed WACC for Internet Sector

INVESTMENT FIRMS	WACC for South Africa Internet Companies
Cannon Assets – interview	15.20%
Ralk Capital – interview	17.80%
Craton Capital – interview	16.20%
Valuatum – internet	13.80%
Berkshire Hathaway – internet	12.50%
ISPs	**WACC for South Africa Internet Companies**
Universo Online (ISP - Brazil)	17.0%
Tiscali (ISP - Italy)	9.0%
Telstra (ISP - Australia)	10.8%
internet solutions (ISP - South Africa)	16.0%
data pro (ISP - South Africa)	17.0%
United Internet (ISP - Germany)	8.5%
Comcast (ISP - USA)	8.5%
Rogers Communication (ISP - Canada)	7.75%
LG Dacom	10.5%
Telkom	12.5%
Journals and Papers	**WACC for South Africa Internet Companies**
Mansour, E. M	16.10%
Valeer, P.	14.70%
Russell 3000	10.84%
Av WACC (larger weightings for SA numbers)	15.30%
Risk Free Rate = 9% (R153 Bond)	

5.4.2 Price paid for Internet Asset v Discounted FCF valuation

Table 16: Price Paid v Discounted FCF

South Africa Internet Companies – 1st November 2007			
Internet Properties	**Purchase Price**	**DFCF as at purchase**	**DFCF today**
Company A	R 320,000,000.00	R 208,000,000.00	R 64,000,000.00
Company B	R 1,156,500.00	R 474,165.00	R 231,300.00
Company C	R 740,700.00	R 422,199.00	R 148,140.00
Company D	R 18,450,000.00	R 14,022,000.00	R 3,690,000.00
Company E	R 45,000,000.00	R 36,450,000.00	R 9,000,000.00
Company F	R 73,000,000.00	R 24,090,000.00	R 24,090,000.00
Company G	R 1,100,000.00	R 990,000.00	R 440,000.00
Company H	R 8,500,000.00	R 5,525,000.00	R 1,700,000.00
Company I	R 2,100,000.00	R 1,890,000.00	R 1,890,000.00
Company J	R 44,100,000.00	R 38,808,000.00	R 38,808,000.00
Company K	R 14,550,000.00	R 12,367,500.00	R 13,822,500.00
Company L	R 380,000,000.00	R 209,000,000.00	R 190,000,000.00
Company M	R 70,000,000.00	R 45,500,000.00	R 42,000,000.00
Company N	R 360,000,000.00	R 108,000,000.00	R 108,000,000.00
Company O	R 7,200,000.00	undefined - no earnings	R 1,440,000.00
Internet Solutions	R 4,200,000,000.00	R 4,200,000,000.00	R 4,620,000,000.00
Data Pro	R 2,187,000,000.00	publicly listed	R 437,400,000.00
Av. Difference - Paid v DFCF value		**-R 45,225,595.43**	**-R 60,062,661.43**

Clearly South African acquires are valuing internet companies using methodologies that appear to be substantially more generous than the discounted Free Cash Flow models. Interestingly too, is that gap in the price paid for the business at purchase date and today has widened. There are many reasons why this is possible, which will be discussed in Section 6.

The below table illustrates, on a percentage basis, just how big this gap is. Using management accounts at purchase date, the premium over discounted FCF is around a third (making allowance for varying growth rates) and as of today just over half. Growth rates used were based on the management account valuations done by the acquiring company. Only two of the acquisitions' management accounts actually contained discounted FCFs, however.

Table 17: Price Paid v Discounted FCF %'s

South Africa Internet Companies - 7th November 2007				
	Differential @ Purchase	**As a % of Purchase Price**	**Differential Today**	**% of Purchase Price**
Company A	R 112,000,000.00	35.00%	R 256,000,000.00	80.00%
Company B	R 682,335.00	59.00%	R 925,200.00	80.00%
Company C	R 318,501.00	43.00%	R 592,560.00	80.00%
Company D	R 4,428,000.00	24.00%	R 14,760,000.00	80.00%
Company E	R 8,550,000.00	19.00%	R 36,000,000.00	80.00%
Company F	R 48,910,000.00	67.00%	R 48,910,000.00	67.00%
Company G	R 110,000.00	10.00%	R 660,000.00	60.00%
Company H	R 2,975,000.00	35.00%	R 6,800,000.00	80.00%
Company I	R 210,000.00	10.00%	R 210,000.00	10.00%
Company J	R 5,292,000.00	12.00%	R 5,292,000.00	12.00%
Company K	R 2,182,500.00	15.00%	R 727,500.00	5.00%
Company L	R 171,000,000.00	45.00%	R 190,000,000.00	50.00%
Company M	R 24,500,000.00	35.00%	R 28,000,000.00	40.00%
Company N	R 252,000,000.00	70.00%	R 252,000,000.00	70.00%
Average Differential	**R 45,225,595.43**	**34.21%**	**R 60,062,661.43**	**56.71%**

Notes:

1. Internet Solutions was excluded from the differential math for two reasons. One, the valuation was derived by Merrill Lynch Equities (July, 2007) using the discounted FCF method; and two, it was only published four months ago.

2. Vottle.com has been left out has it has no earnings or revenues. Valuations have been established based on potential earnings. Growth targets are so varied as to render discounted FCF valuations useless.

The Weighted Average Cost of Capital (WACC) used for discounting the projected FCFs was a combination of the companies' own management accounts and an average of the following surveyed entities, adjusted for a South African domestic risk-free rate of 9% (R153 government bond) and "Global Internet Beta" (Valuatum, 2007).

6. DISCUSSION OF RESULTS

6.1 South African valuations: Traditional v Internet Companies

As suspected, internet companies in South Africa command a premium over their more "mature" industrial type brethren.

Price-to-Sales is absurdly priced at over R5 for every R1 of sales – the presumption here being that sales growth will be huge in a short space of time. This kind of asset pricing might be possible in a country like the USA with almost 300 million people, but in a post-apartheid South Africa that is struggling to bring a large section of its population in the economic mainstream, this is difficult to justify.

Dividend yield, as expected was non-existent in the Internet space. This is due to two forces:

1. Accelerated growth requires large amounts of cash, therefore, distribution would be imprudent

2. The belief that fast growing companies will return a better rate than that which investors can obtain elsewhere

This research paper has no problem with this dynamic for internet companies in South Africa.

The PE ratio also seems to be fair and reasonable in the context of the mainstream market and the sector's potential. Investors in Internet companies are prepared to pay three times more for R1 of earnings that in mainstream industrial companies. If one were to look at a company that is in its infancy, it is highly likely that if it is to survive the cash hungry process of growing, then doubling or tripling its earnings in one to three years is very much attainable. Accordingly, this paper has no disagreement with the PE valuations for internet companies in South Africa, assuming these are underpinned by correctly discounted earnings forecasts – a gap that does appears to exist, which is discussed in Chapter Seven.

It is also true that there is massive pent up demand for broadband connectivity which will spur a flood of revenues throughout all Internet niches in South Africa – South Africa's internet connectivity is 1,000 times more expensive than the cheapest provider, South Korea, thanks entirely to the Telco monopoly in this country.

The justification for these premiums is always the potentiality of this nascent industry's growth.

6.2 Premiums: SA Internet Companies v USA Internet Companies

As expected, the multiples in America display a premium for both industrials and internet Companies. Specifically, internet sector multiples in America are significantly higher on historical performance perspective (PSR and PE ratios), although, trade at a discount on a forward earnings view (PEG). This would seem to fit with a larger potential market, where investors are willing to pay a greater premium for both sales and earnings, in lieu of bigger marketability of the product.

6.2.1 Price-to-Sales Ratio

As stated, the PSR is significantly larger (over 18 times) than the equivalent South African PSR for internet basket of companies. However, this massive gap can be accounted for by a larger venture capital market in America. In other words, the companies being bought in South Africa are significantly more mature than their early counterparts in the states. Accordingly, early stage investment information in South Africa is more closely held, and furthermore, the requirement for large amounts of capital required in the America are absent in South Africa, and therefore valuations only become publicly known much later in the company's maturity cycle.

If we exclude the private sector in America, we see that PSR's are relatively similar, with difference possibly explained by the bigger market.

6.2.2. Dividend Yield Comparison

Dividend yields in both countries are virtually zero throughout the industry, and as previously stated, this is due to the greater need for cash to grow a new business and the higher return potential in investing in a young company, compared to distributing returns to shareholders.

6.2.3 Price-Earnings Comparison

For this unit of analysis, results also came in as expected: that American acquirers of internet companies are prepared to pay a premium for a dollar of internet sector earnings than their counterparts in South Africa.

If the private internet company basket is included, Americans are prepared to pay almost 8.5 times **more** for every unit of earnings than South African acquirers. Excluding the American Private Internet basket of companies, it comes down to a more sensible premium of 1.7 times more for every unit of earnings, notwithstanding the fact that the comparison is a publicly traded basket in America versus a privately traded basket in South Africa.

6.2.4 PEG Comparison

Interestingly, the PEG ratio is higher for South African Internet companies by almost 70%, indicating that procurers of internet businesses in South Africa are prepared to pay more than American investors for future growth.

This could be accounted for by the small population sample and the illiquidity in South Africa's private and public markets. There are simply not enough companies on supply, nor buyers for those companies, so growth prospects appear to be of higher value to South African acquirers. Paradoxically, the market here in South Africa, as previously stated, is considerably smaller than America, so it would appear this is nonsensical. Further research in this area would be both required to resolve this dichotomy.

6.3 Valuation Methods used to Value the South African Internet Companies

The predominant method used by acquirers of Internet companies in South Africa is Subscriber-based valuation as detailed in the Literature review (Section Two).

Through discussions with the CEOs of the companies, it appears that this practice is common place because in the early days of the internet sector, internet companies had very similar financial attributes as cable companies and telecommunications firms.

Looking back at the now infamous acquisition of Time Warner by Steve Case's America Online (AOL), the same method was used for valuing both companies. At the time, it was believed that the lifetime value of AOL's subscribers were considerably greater than those displayed of Time Warner. This valuation method, adopted from the Telco industry, became the standard in the internet industry, filtered through to South Africa and seems to have been made the standard going forward without any questioning of its validity in the current market.

Out of the entire internet company whose CEOs were interviewed for this research, only one ISP had any discounting process in company valuations for acquisition, and even then, the price was usually set and paid by Subscriber-based valuations, due to the high demand for the company.

It therefore appears that it has been profitable for target internet companies to be the acquired in this sector for the last five years.

6.4 South African Internet Company Valuation methods v Discount FCF in South Africa

Following on from the previous section it appears very clear, that accounting for conservative growth forecasts and the higher end WACCs, the acquiring companies have overpaid for internet properties in South Africa.

Over time, the discounted FCF values of the companies may tend toward the prices paid, but in the few companies that have had time pass since the acquisition, we can clearly see that the value of the company has diverged. This probably attributable to the changing economics of the industry – from dial-up internet access to broadband and the conversion thereof.

The changes in the industry specifically are the move from slow dial-up connectivity to the affordable fast broadband. Acquirers paid large premiums for considerable dialup bases believing that they would have lock-in when the users converted from dial-up to broadband. This has not transpired as internet connectivity has become increasingly commoditised and the cost of switching ISPs has become increasingly cheap. For example, internet connectivity contracts are no longer term-based in large part and customers can switch with a month's notice if a competitor comes out with a product that is cheaper or offers more.

So as the economics of the industry has changed, the already expensive purchases have looked even more expensive. However it is too soon to argue that this is another one of history's capital waste dumps. There is still a strong argument that economies of scale and consolidation will play a role, and if it does, growth rates should adjust and cash expenses should fall, recalibrating the current values of the internet companies studied in this paper.

What does appear to be clear is that the Internet industry in South Africa would do well to ask hard questions about its valuation methodologies and put in place a more conservative approach to asset valuations. It might end up saving their shareholders a great deal of money by avoiding misallocated capital.

6.5 Conclusion

In conclusion, the conducted research indicates that there is strong evidence that internet companies trade at premiums to industrial companies in South Africa and that these premiums are significant. As expected, there were also substantial price premiums for internet companies over their industrial counterparts in America too.

7. CONCLUSION

7.1 Background

"Almost 75% of global Internet host computers attached to the World Wide Web are located in the USA" (Budde, 2006: 6). Internet penetration in America is extensive, but still has considerable upside.

The recent decline in technology stocks in the United States is worrying. Hansell (9th November 2007) puts a positive spin on the reallocation of capital flows: "for technology companies, the benefits of falling stock prices are even stronger. If certain sectors are inflated, capital flows to the wrong places, and deals are done at the wrong value. Think about AOL's ability to buy Time Warner with its inflated shares: A few people benefited; a lot were hurt."

So, notwithstanding the findings in this paper, it may be that valuations will start tending towards their intrinsic values and accordingly, those of the industrial flagships of today's economy. It is the view of this research that this is inevitable; it is just a matter of time.

Netscape founder Marc Andreessen (2007) talks to the bubbling capital markets surrounding the current internet sector: "In the technology industry, lots of start-ups being funded with some succeeding and many failing does not equal a bubble. It equals status quo. The whole structure of how the technology industry gets funded - by venture capitalists, angel investors, and Wall Street - is predicated on the baseball model. Out of ten swings at the bat, you get maybe seven strikeouts, two base hits, and, if you are lucky, one home run. The base hits and the home runs pay for all the strikeouts. If you're going to call a bubble on the basis of lots of bad start-ups getting funded and failing, then you have to conclude that the industry is in a perpetual bubble, and has been for 40 years. Which may be fun, but isn't very useful."

7.2 Findings

The findings appear to be fairly clear. Even adjusting key growth variables and discount rates for conservativeness, these are:

1. Internet companies trade at a premium to industrial companies in both South Africa and America

2. Internet companies in America trade at a premium over South African Internet companies for historical growth rates (PSR and PE)

3. Internet companies in South Africa trade at a premium over American Internet companies based on future growth of earnings (PEG)

4. Internet companies in South Africa trade at significant premiums to the discounted Free Cash Flow methods of asset valuation, even when using the more conservative growth rates and the higher levels of WACC

5. The disparity in the aforementioned statistic is likely attributed to the fact that the predominant valuation method in South Africa is Subscriber-based, which doesn’t discount any future values and values at multiples of subscribers over contract life, which in the changing world of month-to-month subscriptions, is less and less reliable

7.3 In Summary

Internet companies currently trade at higher values than their industrial counterparts both in America and in South Africa, and appear to have done so since the "Internet Bubble" starting circa 1999.

American internet companies, when including the private basket of companies, display considerable premiums over the South African counterparts. This could by explained by the larger economically active market for internet products and services. When excluding the private American internet companies, the American premium moves more into line with what South African Internet companies display over their industrial counterparts, but there is still a large differential.

In South Africa, the internet company valuations appear out of line with the fundamentals of the businesses that are being acquired, even using conservative rates of growth and higher WACCs.

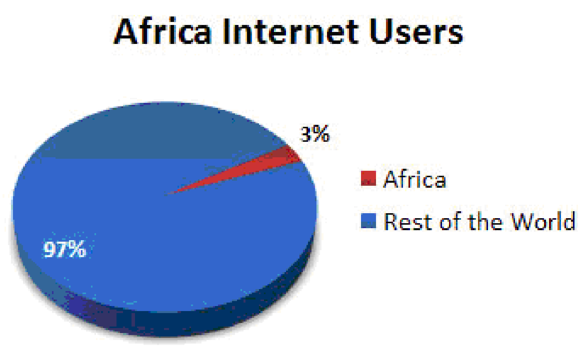
It is unclear whether it is just a matter of time that these fundamentals have diverged negatively with the price paid. It may be the economies will realign and that there is a point of inflection in the near future – possibly when the incumbent Telco monopoly finally has competition at the "local loop" level.

7.4 Recommendations

The Internet industry is still in its infancy and will display growth rates that are supernormal for at least another decade (Budde, 2006). As such, it is safe to assume that there will be many companies in the internet sector that will display these growth rates and return phenomenal gains to their shareholders.

In South Africa the probability for supernormal growth is also very high and the trend shows that this will tend towards being proportionate with the American internet sector.

Table 18: Internet Users - Africa v ROW



Source: www.isoc.org, 2007

The huge potential of the Internet sector does not mean executives involved in the buyouts of internet companies should ignore the macroeconomic and financial fundamentals of the company and the sector. It is simply not feasible for a company to grow at supernormal rates for an indefinite period of time – most models allow for 5 year time horizons stepping down into moderate growth for the following five years and then finally to average levels into perpetuity. At a minimum, asset valuations in the internet sector need to abide by this logic.

Secondly, this paper recommends more rigorous valuation methods for acquiring Internet companies. Furthermore, if market conditions do push valuations higher, at the very least they should be underpinned by fundamentals that relate to the economics of the business. Anything outside of this process would be considered a lottery by this paper and imprudent business. An argument could be made that not doing so verges on a breach of fiduciary duty.

The valuation method that this paper recommends is the Discounted Free Cash Flow (DFCF) method for asset valuations. For multiple scenario analysis it is also recommended that a Monte Carlo simulation model be used. This multiple scenario outcomes model suits the Internet industry's high growth rates.

Using Monte Carlo Simulation was beyond the scope of this paper, but it is recommended that future research into internet sector valuations in South Africa use this approach.

Valuation models that connect with the economic fundamentals of the business and the risk of the sector are reckless and can result in companies over paying for assets that don't get close to achieving the weighted-average cost of capital (WACC).

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9. APPENDICES

9.1 Illustrated Example of FCF: Google – end of 2004

To calculate whether Google is overvalued we can get everything in the upper half of the table from the latest financial statements. We don't know the growth rate. Assume a discount rate and solve for growth.

Google		**(on 12/31/2004)**			
Diluted Shares	272.8	**Market Cap**	$52,590	**CFFO**	$977
Price	$192.78	**Debt**	$0	**CAPEX**	$319
		Cash	$2,100	**FCF**	$658
		Enterprise Value	$50,490		
		Assume *k*	10%	25%	50%
		Solve for *g*	8.60%	23.40%	48.10%
		k - g	1.40%	1.60%	1.90%

Source: Fool.com, 2005 - Dollar values in millions

- Assume k 10% 25% 50%
- Solve for g 8.60% 23.40% 48.10%
- k - g 1.40% 1.60% 1.90%

The results tell us that cash flow needs to grow at 23.4% per year from now until infinity to achieve a 25% annual return. So in year 19, Google will have to generate $35.7 billion in cash. For comparison, Microsoft generated $13.5 billion of cash in its 19th year as a publicly traded company.

9.2 South African Legislation

"Leading to liberalisation and Spurring Growth"

Local Loop unbundling and deregulation will drive internet usage growth

Legislation

- Sentech Act, 1996 (as amended)
- Telecommunications Act, 1996 (as amended)
  - ICASA Media Release following the Minister's earlier announcement (22 November 2004)
  - Announcement by Minister of Communications regarding deregulation (2 September 2004)
  - Gazetted Notice 1924 of 2004
- Independent Communications Authority of South Africa Act, 2000 (as amended)
- Electronic Communications and Transactions Act, 2002
  - Draft Accreditation Regulations (2004-07-30)[PDF file]
  - Draft Cryptography Regulations (2004-09-01) [PDF file]
  - Cryptography Regulations (2006-03-10) [PDF file]
- Regulation of Interception of Communications and Provision of Communication-related Information Act, 2002
  - RICPCI Act with proposed amendments, 2004
  - Draft Directives for ISPs, 2004
  - Draft Directives for other Telecommunication Service Providers, 2004
  - RICPCI Amendment bill, May 2006
- Draft legislation
  - Draft Convergence Bill, 2004

9.3 JSE – Industrials Index – Last 5 years – Quarterly Data

FJA-INDI						
Quarterly - Last 5 years until 1st November 2007						
Date	Div Yld	Ern Yld	P/E	High(c)	Low(c)	Close(c)
1995/09/29	1.8	5.9	17	6079	5711	6020
1995/12/29	1.8	6	16.7	6709	6002	6678
1996/03/29	1.7	6.2	16.1	7322	6696	6850
1996/06/28	1.8	6.2	16.1	7245	6429	6922
1996/09/30	1.9	6	16.7	7164	6431	7044
1996/12/31	2	6.2	16.1	7139	6441	6741
1997/03/31	2	6	16.7	7237	6677	7024
1997/06/30	1.9	5.7	17.5	7433	6868	7433
1997/09/30	1.9	5.5	18.2	7716	7130	7166
1997/12/31	2.3	7.1	14.1	7435	5714	6002
1998/03/31	1.8	6.2	16.1	6995	5353	6995
1998/06/30	2	6.9	14.5	7983	6082	6237
1998/09/30	2.6	8.9	11.2	7058	4412	4931
1998/12/31	2.5	8.1	12.4	5774	4563	5357
1999/03/31	1.9	6.7	14.9	6674	5355	6351
1999/06/30	1.5	6.2	16.1	6650	5810	6566
1999/09/30	1.7	6.5	15.4	6682	5795	6104
1999/12/31	1.3	5	20	8431	6215	8431
2000/03/31	1.2	4.8	20.8	9407	8272	8439
2000/06/30	1.4	5	20	8504	6751	8087
2000/09/29	1.2	4.5	22.2	8808	8090	8570
2000/12/29	1.3	5.7	17.5	8719	7420	7691
2001/03/30	1.4	6.7	14.9	8300	6493	6493
2001/06/29	1.4	6.2	16.1	7381	6266	7240
2001/09/28	2	8.2	12.2	7227	5272	5808
2001/12/31	1.8	6.7	14.9	7506	5751	7001
2002/03/28	1.8	6.2	16.1	7669	6849	7295
2002/06/28	2	7.4	13.5	7722	6914	7178
2002/09/30	2.8	8.5	11.8	7229	5782	5825
2002/12/31	2.5	9.5	10.5	6436	5580	5910
2003/03/31	3.1	11.5	8.7	6176	4608	4619
2003/06/30	2.7	10.1	9.9	5628	4619	5205
2003/09/30	2.7	9.4	10.6	5991	5117	5696
2003/12/31	2.3	7.5	13.3	6927	5617	6874
2004/03/31	2.1	6.9	14.5	7441	6816	7303
2004/06/30	2.4	8	12.5	7684	6852	7332
2004/09/30	2.3	7.6	13.2	8128	7170	8088
2004/12/31	2	7.2	13.9	9803	8085	9803
2005/03/31	2.2	7.4	13.5	10165	9290	9762

2005/06/30	2.3	7.8	12.8	10577	9208	10383
2005/09/30	2.1	6.8	14.7	12343	10192	12343
2005/12/30	2	6.8	14.7	13084	11167	12939
2006/03/31	1.9	6.2	16.1	14620	12755	14353
2006/06/30	2.1	6.8	14.7	15075	12376	13644
2006/09/29	2.1	6.4	15.6	15306	12867	15079
2006/12/29	5.8	5.8	17.2	18002	14887	17826
2007/03/30	1.8	5.8	17.2	19013	17409	18754
2007/06/29	1.7	5.8	17.2	20200	18728	19522
2007/09/28	1.8	5.8	17.2	20641	18212	20205
Averages	2.05	6.82	15.18	9172.20	7818.35	8655.49

9.4 Merrill Lynch Report – UK Equities: Dimension Data Report – July, 2007

Below are the workings for embedded value of Internet Solutions if sold out of Dimension Data Holdings.

Table 7: Internet Solutions estimated valuation

	2007E	2008E
Revenue (MLe)	200	240
growth %		20%
Operating profit (MLe)	30	36
operating profit margin (MLe)	15%	15%
Taxes (30%)	9	11
Earnings	21	25
Value (1.5x Revenue)	300	360
Value (2.0x Revenue)	400	480
% of market cap	**17-23%**	**20-27%**
Value (20x PE)	420	504
Value (25x PE)	525	630
% of market cap	**24-30%**	**28-36%**

Source: Merrill Lynch estimates

9.5 Internet Users – Globally and Africa – 2007

INTERNET USERS AND POPULATION STATISTICS AFRICA						
	Population (2007 Est.)	Pop. % in World	Internet Users, Latest Data	Penetration (% Population)	% Users in World	Use Growth (2000-2007)
Total for Africa	933,448,292	14.20%	**43,995,700**	4.70%	3.50%	874.60%
Rest of World	5,641,218,125	85.80%	**1,200,453,901**	21.30%	96.50%	236.80%
WORLD TOTAL	6,574,666,417	100.00%	**1,244,449,601**	18.90%	100.00%	244.70%

NOTES:

- Internet Usage and Population Statistics for Africa are for September 30, 2007
- Population numbers are based on figures contained in world-gazetteer.com

9.6 Internet Users – South Africa v Africa - 2007

INTERNET USERS AND POPULATION STATISTICS SOUTH AFRICA						
	Population (2007 Est.)	Internet Users Dec-00	Internet Users Latest Data	% Population (Penetration)	% Users in Africa	User Growth (2000-2007)
South Africa	49,660,502	2,400,000	5,100,000	10.30%	11.60%	112.50%
TOTAL AFRICA	933,448,292	4,514,400	43,995,700	4.70%	100.00%	874.60%

NOTES:

- Africa Internet Statistics were updated September 30, 2007
- Population numbers are based on the data contained in world-gazetteer.com

9.7 Johannesburg Stock Exchange – INDI 25 Index

Rank	Security	Ticker	Mkt Cap (ZAR)
1	Sabmiller Plc	SAB	286,419,152,297
2	Richemont Securities Dr	RCH	229,888,800,000
3	Mtn Group Ltd	MTN	192,416,109,912
4	Telkom Sa Ltd	TKG	95,973,236,668
5	REMGRO LTD	REM	79,213,589,536
6	Naspers Ltd -n-	NPN	62,337,119,120
7	Mittal Steel Sa Ltd	MLA	52,643,326,789
8	Bidvest Ltd Ord	BVT	44,354,567,044
9	Tiger Brands Ltd Ord	TBS	31,661,058,882
10	Imperial Holdings Ltd	IPL	27,858,124,300
11	Murray And Roberts H Ord	MUR	27,713,033,687
12	Steinhoff Interntl Hldgs	SHF	27,325,031,097
13	Sappi Ltd	SAP	25,341,632,000
14	PRETORIA PORT CEMNT	PPC	24,683,123,197
15	Barloworld Ltd	BAW	24,308,760,960
16	Network Healthcare Hldgs	NTC	23,892,194,427
17	Aveng Ltd	AEG	20,203,441,308
18	Shoprite Hldgs Ltd Ord	SHP	19,347,868,776
19	SUN INTERNATIONAL LTD	SUI	18,386,151,732
20	Massmart Holdings Ltd	MSM	17,309,671,569
21	Woolworths Holdings Ltd	WHL	16,644,228,678
22	Pik N Pay Stores Ltd	PIK	16,036,295,781
23	Truworths International	TRU	14,838,285,434
24	Foschini Ltd Ord	FOS	12,695,902,142
25	TONGAAT HULETT LTD	TON	10,557,466,794

Source: Johannesburg Stock Exchange – www.jse.co.za

9.8 Johannesburg Stock Exchange – ALSI Index

The large percentage of resource based companies precluded the use of the ALSI as the benchmark for South African Industrial companies.

ALSI				
Rank	**Security**	**Ticker**	**Mkt Cap (ZAR)**	**Type**
1	ANGLO AMERICAN PLC	AGL	563,385,137,400	resource
2	Bhp Billiton Plc	BIL	517,101,564,917	resource
3	Sabmiller Plc	SAB	286,419,152,297	
4	Richemont Securities Dr	RCH	229,888,800,000	
5	Anglo Platinum Ltd	AMS	227,879,712,691	resource
6	Mtn Group Ltd	MTN	192,416,109,912	
7	Sasol Ltd	SOL	178,007,271,565	
8	Standard Bank Group Ltd	SBK	136,804,895,983	
9	Impala Platinum Hlgs Ld	IMP	131,857,937,816	
10	Firstrand Ltd	FSR	125,182,543,074	
11	Old Mutual Plc	OML	117,860,794,796	
12	Telkom Sa Ltd	TKG	95,973,236,668	
13	Anglogold Ashanti Ltd	ANG	84,462,908,478	
14	Absa Group Limited	ASA	83,356,884,250	
15	REMGRO LTD	REM	79,213,589,536	
16	Gold Fields Ltd	GFI	77,131,084,938	resource
17	Lonmin P L C	LON	74,171,690,011	resource
18	KUMBA IRON ORE LTD	KIO	68,677,189,149	resource
19	Naspers Ltd -n-	NPN	62,337,119,120	
20	Nedbank Group Ltd	NED	59,270,022,370	
21	LIBERTY INTERNATIONL PLC	LBT	59,023,113,897	
22	Mittal Steel Sa Ltd	MLA	52,643,326,789	resource
23	Investec Ltd	INL	17,769,213,638	
	Investec Plc	INP	32,921,122,572	
24	Sanlam Ltd	SLM	49,757,939,366	
25	Bidvest Ltd Ord	BVT	44,354,567,044	
26	Rmb Holdings Ltd	RMH	39,102,658,124	
27	MONDI LIMITED	MND	10,620,374,287	
	MONDI PLC	MNP	25,519,563,539	
28	Tiger Brands Ltd Ord	TBS	31,661,058,882	
29	Harmony G M Co Ltd	HAR	29,517,434,450	resource
30	Imperial Holdings Ltd	IPL	27,858,124,300	
31	Murray And Roberts H Ord	MUR	27,713,033,687	
32	Steinhoff Interntl Hldgs	SHF	27,325,031,097	
33	EXXARO RESOURCES LTD	EXX	26,341,295,700	resource
34	African Rainbow Minerals	ARI	25,836,856,799	resource
35	Liberty Group Ltd	LGL	25,575,512,465	
36	Sappi Ltd	SAP	25,341,632,000	
37	PRETORIA PORT CEMNT	PPC	24,683,123,197	resource
38	Barloworld Ltd	BAW	24,308,760,960	
39	Network Healthcare Hldgs	NTC	23,892,194,427	
40	Woolworths Holdings Ltd	WHL	16,644,228,678	

Source: Johannesburg Stock Exchange – www.jse.co.za

9.9 Calculations for WACC

All data collected by primary or secondary survey.

INVESTMENT FIRMS	WACC for South Africa Internet Companies	Workings / Notes
Cannon Assets	15.20%	Rf + (2 x Beta)
Ralk Capital	17.80%	See workings for Ralk
Valuatum	13.80%	Rf + (3 x Beta)
Berkshire Hathaway	12.50%	Rf + 3% + (Beta)
ISPs	**WACC for South Africa Internet Companies**	**Workings / Notes**
Universo Online (ISP - Brazil)	17.0%	
Tiscali (ISP - Italy)	9.0%	
Telstra (ISP - Australia)	10.8%	Exclude phone business - would increase WACC then
internet solutions (ISP - South Africa)	16.0%	
data pro (ISP - South Africa)	17.0%	
United Internet (ISP - Germany)	8.5%	
Comcast (ISP - USA)	8.5%	3% perpetual growth
Rogers Communication (ISP - Canada)	7.75%	
LG Dacom	10.5%	kd = 4.2%; Rf = 5%; MRP = 7%; ke = 13.1%; D:C = 30%
Telkom	12.5%	
Journals and Papers	**WACC for South Africa Internet Companies**	**Workings / Notes**
Mansour, E. M	16.10%	Rf + 2.5 x Beta
Valeer, P.	14.70%	Rf + 2.8 x Beta
Russell 3000	10.84%	small cap, high growth figure
Av WACC	15.30%	higher weightings for South Africa
Risk Free Rate = 9% (R153 Bond)		

Some risk components to think about (potential weighting):	
Financial leverage	20 %
Size	20 %
Valuation	20 %
Subjective Industry / Business	20 %
Subjective Company	20 %

Source: valuatum.com

Sector	Levered Beta	Unlevered Beta
Internet	1,51	1,50
Semiconductor	1,34	1,31
Telecom equipment	1,21	1,17
Computer software & services	1,20	1,20
Air transport	1,10	0,83
Drug	1,06	1,04
Retail store	1,05	0,95
Furniture, home	0,90	0,82
Railroad	0,87	0,65
Textile	0,82	0,49
Beverage	0,80	0,73
Food wholesale	0,80	0,66
Tobacco	0,75	0,68
Real Estate	0,74	0,69
Food processing	0,72	0,63
Electric utility	0,60	0,40

Source: Valuatum.com

9.9.1 Ralk Capital Survey

RALK Capital Survey Internet WACC			
Blue = Inputs			
Market Risk premium			7%
Risk Free Rate (R153 bond)			9%
Beta			1.5
Debt			10
Equity (Market Value i.e. Market Cap)			50
Cost of Equity = Risk Free + Beta (Market Risk Premium)			
Cost of Equity			19.500 %
Cost of Debt			13%
WACC = (E/E+D * Cost of Equity) + (D/D+E*Cost of Debt*(1-taxrate))			
WACC			**17.8%**

Notes from survey with analyst:

- The riskiness and therefore higher required return (aka WACC) of an internet company is captured primarily in the Beta.
- Everything else is pretty much a given. So if you want to adjust the Cost of Equity to suit your needs / hypothesis then do it by adjusting the Beta.
- If you don't know the debt and equity to total capital rates of the companies then use a "target ratio" or an industry average.
- Important to note is that it is the Debt to total capital (D/D+E) and not debt to equity ratio (D/E) - common mistake.