

Valuation Methodology Survey

2007/08 Edition



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Foreword

PricewaterhouseCoopers Corporate Finance is pleased to present the fourth edition of its biennial Valuation Methodology survey. The survey provides insights into the valuation methodologies, assumptions and parameters used in South Africa by leading financial analysts and corporate financiers.



The current survey represents the views of 25 financial analysts and corporate financiers. A full list of respondents is included as an appendix to the survey. I would like to take this opportunity to thank our respondents for their valued contribution and the time and effort taken to participate in the survey.

Recent changes in accounting standards have resulted in the concept of fair value and general valuation methodology becoming an integral part of corporates' financial reporting. Purchase price allocations, impairment testing, fair value measurements and adjustments in terms of International Financial Reporting Standards have required financial managers to obtain a greater

degree of understanding of the concepts covered in this survey. We trust that the latest edition will add to the body of knowledge available on these topics.

Since the completion of the 2005 survey an increase in general merger and acquisition activity in South Africa has also resulted in an increase of valuations performed for transaction purposes and fairness opinions provided for corporate buy-outs and private equity transactions. The level of transaction activity is important as the inputs received from our respondents should reflect views that had been tried and tested in the marketplace over the past two years.

In the 2007/08 edition we have included a few topics that are specific to the South African market:

1. A new section of the survey deals with valuation issues regarding Black Economic Empowerment ("BEE") transactions. Specific areas dealt with include the concept of a BEE discount on ruling price and the impact of holding period requirements included in BEE transactions on value; and
2. A second section deals with the impact of the switch from a Secondary Tax on Companies to a withholding tax on dividends on corporate value.

Other additions to the well established parts of the survey include questions regarding:

- The impact of employee share incentives on valuations;
- Proxies applied in calculating betas;
- Questions regarding terminal value calculations in application of the Income Approach; and
- Risk premia applied in calculating weighted average cost of capital.

The responses received on prior editions of the survey indicated that readers found the survey useful. We trust that this edition will similarly be of benefit to readers and contribute to the development of valuation practice in South Africa.



Jan Groenewald
Valuation & Strategy Leader
PricewaterhouseCoopers
Corporate Finance (Pty) Ltd
Johannesburg
28 February 2008

Introduction



Survey methodology

The survey was conducted via an electronic questionnaire. The responses from various financial analysts and corporate financiers were analysed for each question, and the results of the analysis are presented in the sections that follow. The questionnaire contained the following basic types of questions:

- Frequency-type questions in terms of which the respondent had to indicate whether they always, frequently, often or seldom used the particular methodology, variable or source;
- Alternative-type questions in terms of which the respondent had to indicate whether or not a certain procedure is being followed; and
- Range-type questions in terms of which the respondent had to indicate the value or value range normally used for a particular variable.

Frequency-type questions

The objective of the frequency-type questions was to determine the relative importance of each of the items tested. The frequency questions were analysed based on the following matrix:

Value	Description
3	Item tested is always used/considered by respondents
2	Item tested is frequently used/considered by respondents
1	Item tested is often used/considered by respondents
0	Item tested is seldom or never used/considered by respondents

Alternative-type questions

Respondents were required to make a choice between two or more alternative responses. The result of the alternative type questions was presented as a percentage of total respondents.

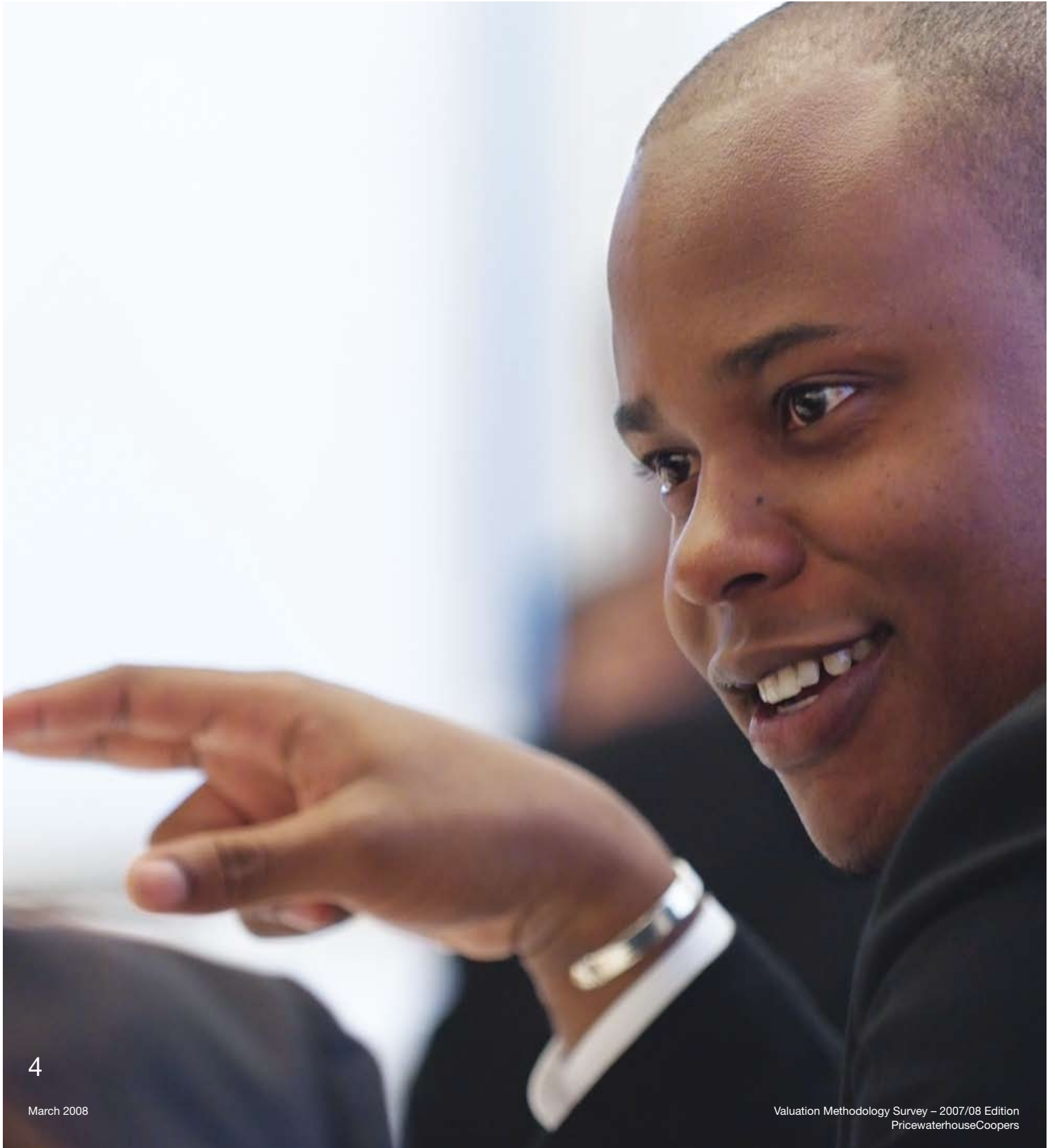
Range-type questions

Respondents were required to provide the value(s) for certain variables, for example, the market risk premium. Respondents had the option to include either a single value or a range of values.

In cases where a range was provided, the data was analysed utilising the midpoint of the range to calculate, for example, average/median values.

Current Valuation Issues

In this section we address topical South African market issues that may influence the application of generally accepted valuation methodology. In the 2007/08 survey specific areas of focus were the valuation principles applicable to Black Economic Empowerment (“BEE”) transaction pricing, the impact of the move from Secondary Tax on Companies (“STC”) to a withholdings tax on dividends and finally the treatment of Employee Share Incentive Schemes.



Black Economic Empowerment transactions

BEE is an integral part of South Africa's transformation process and the empowerment process has been identified as crucial to the future viability of the country's economy.

Since the inauguration of President Thabo Mbeki in 1999 the pace of transformation in South Africa has accelerated. In February 2007 government released the final Codes of Good Practise for Broad Based Black Economic Empowerment ("BBBEE"). The Codes provide a comprehensive framework and measurement for compliance by an entity with BBBEE.

In 2006 around 317 BEE deals were announced. The total value of these deals, where the value has been indicated, amounted to an estimated R75 billion. This represents a 36% increase on the R55 billion value of the BEE deals concluded in 2005.

The valuation complexities surrounding BEE transactions have been considered in this year's survey for the first time.

We identified the following key questions that may have to be considered in performing valuations for BEE purposes:

- Should a BEE discount be applied to a valuation to facilitate BEE and, if so what would an appropriate discount be?
- A typical BEE transaction includes a lock-in period in which the BEE partner may not trade the shares acquired. How should valuations be adjusted to account for these lock-in periods?

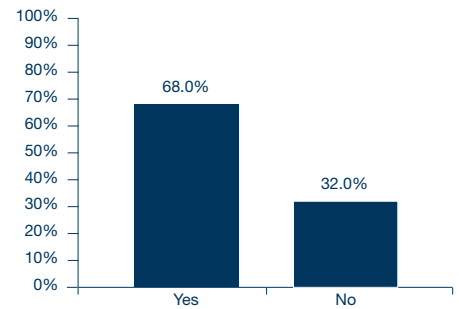
The responses to these questions are highlighted on the next few pages.

Source: The BusinessMap Foundation – BEE 2007: Empowerment and its Critics

[Q] For a BEE transaction involving a listed share, would you apply a discount to the observed share price for purposes of pricing this BEE transaction?

The survey indicates that respondents would normally consider a discount to the observed market price to facilitate the entry of BEE shareholders.

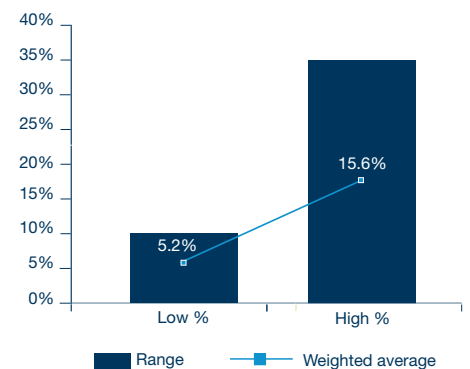
BEE transaction discount



[Q] What is the range of discounts that you would consider applying?

The weighted average discount applied by the respondents in the low range is 5.2% and in the high range, the average discount applied is 15.6%.

Range of discounts

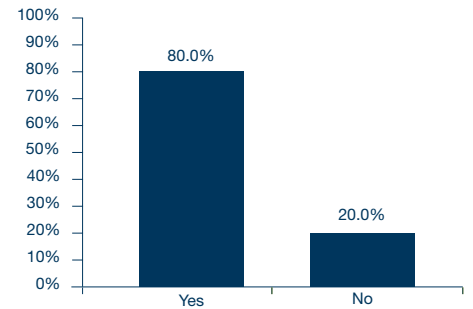


Typical BEE structures include lock-in periods whereby BEE entities are required to remain invested in the structure for a number of years. We asked respondents how they consider these lock-ins from a valuation perspective.

[Q] A hypothetical BEE transaction has been structured to include the following lock-in periods for the empowerment parties: 3 years, 5 years and 10 years. The BEE interest is held in a listed company. Would you apply a discount to the observed share price for the lock-in agreed between the parties?

The 2007 survey has indicated that the majority of market practitioners apply a discount to reflect the lack of transferability inherent in the BEE structures.

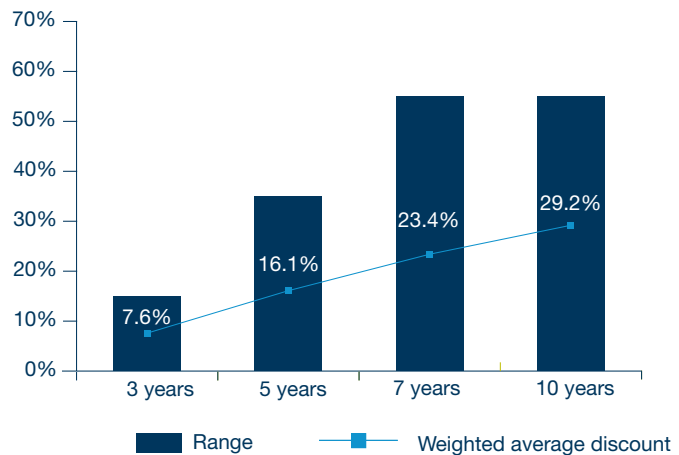
Lock-in period discounts



[Q] What is the average discount you would apply for the lock-in periods above?

This discount tends to increase as the lock-in period increases, with an average lock-in discount of 29.2% being applied in the case of a 10 year lock-in period.

Average discounts for lock-in periods



Secondary Tax on Companies

In the 2007 Budget speech, the Minister of Finance noted that most countries have a dividend tax at the shareholder level. The South African equivalent to this dividend tax is STC. This tax provides the practical basis whereby dividend tax is collected directly from a few thousand companies as opposed to millions of shareholders.

In 2007 the Minister aimed to further improve the transparency and equity of the tax system and proposed that STC be phased out and replaced by a dividend tax at shareholder level.

The two phases of this reform consisted of:

1. Reducing the rate of STC from 12.5 per cent to 10 per cent;
2. Redefining the base of taxation to apply to all dividends.

The reduced rate came into effect on 1 October 2007.

Subsequently the conversion to a dividend tax collected at the shareholder level is aimed to be completed by the end of 2008 subject to the renegotiation of a number of international tax treaties.

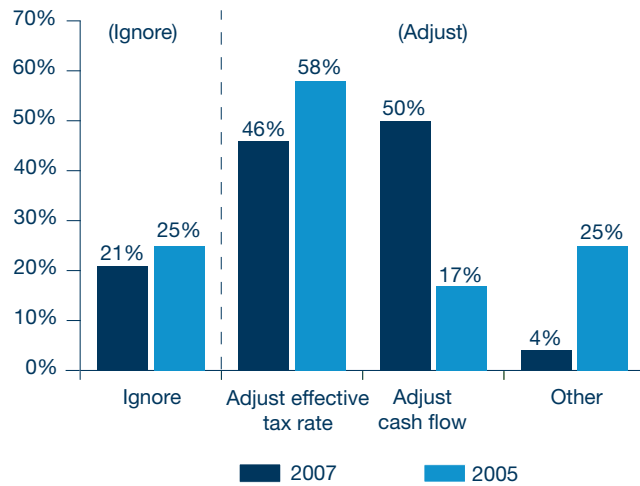
We asked respondents to comment on their current treatment of STC and the likely impact of a change to a withholding tax on dividends.

[Q] *How do you currently treat STC in valuations?*

- Ignore
- Adjust effective tax rate
- Adjust cash flow
- Other

In general most respondents make some form of adjustment to incorporate STC. Of the 79% of respondents that do not ignore STC in valuations in the 2007 survey, the most popular adjustment considered is an adjustment to the cash flow followed by an adjustment to the effective tax rate.

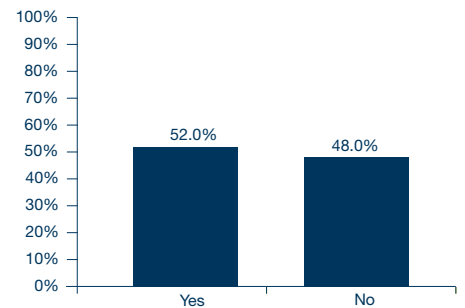
STC in valuations



[Q] *STC is currently being phased out and is likely to be replaced by a 10% withholding tax on dividends. Would you incorporate the proposed dividend tax in your business valuation?*

The respondents appear divided as to whether to include withholding taxes on dividends in business valuations.

Proposed dividend tax



[Q] If you would consider the proposed dividend tax, how would you incorporate it?

- *Adjust effective tax rate*
- *Adjust cash flow*
- *Other*

Of the 52% of the respondents who indicated that they would consider withholding tax on dividends in performing valuations:

- 16% of the respondents adjust the effective tax rate;
- 32% adjust the cash flows; and
- 4% of the respondents consider “other” adjustments.

Employee share options

There are two possible effects¹ that employee options can have on the value per share of a company. Firstly, options that have already been granted reduce the value of equity per share. This is because a portion of the company’s existing equity has to be set aside to meet the future obligation of these options.

The other effect that employee options can have is the likelihood that companies will continue to reward or compensate employees with options. This will reduce the expected future cash flows of the current shareholders.

It is therefore important to ensure that employer share options or incentive schemes are correctly considered in the valuation of companies.

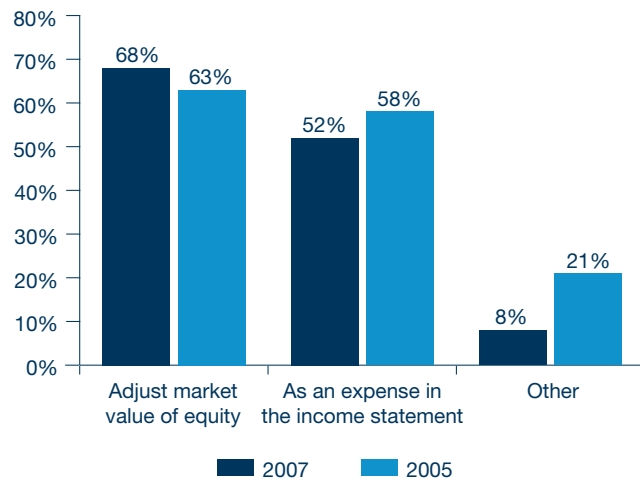
¹Source: Damodaran http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

[Q] *How do you treat options issued to employees and others from a valuation point of view?*

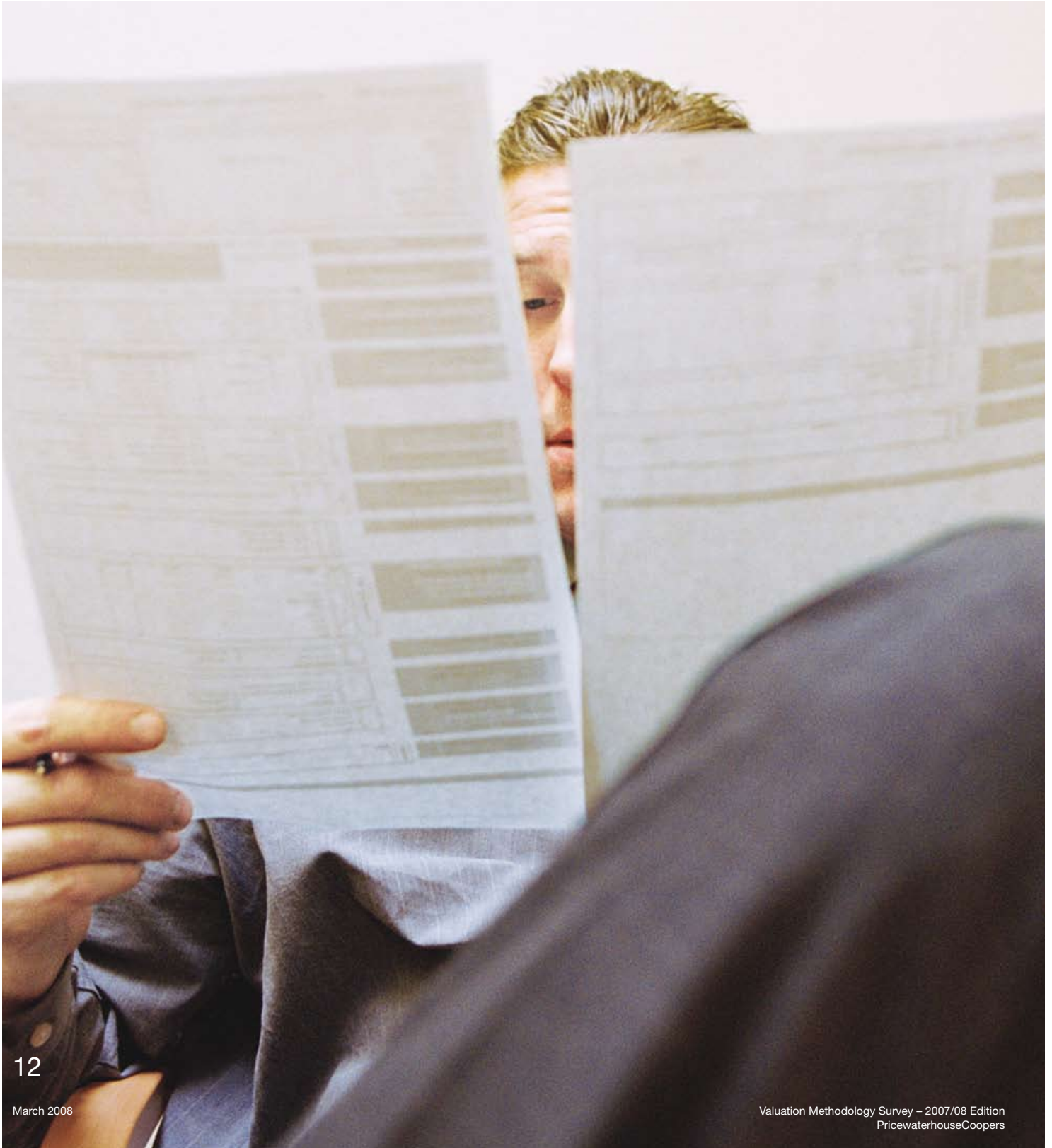
- *Adjust market value of equity*
- *As an expense in the income statement*
- *Other*

All the respondents indicated that they take options issued to employees and others into consideration during a valuation. The majority of respondents adjust the market value of equity by the value of the options while another option commonly utilised is the expensing of the employee options in the income statement. Some respondents indicated that they would consider both methodologies in adjusting for employee share options. The treatment has remained relatively consistent between the 2005 and 2007/08 surveys.

Employee options



Valuation Approaches



Valuation Approaches

There are various methodologies that can be utilised by financial analysts and corporate financiers when performing a business enterprise valuation. The approaches most commonly used in South Africa are the following:

- 1. The Income Approach** indicates the market value of the ordinary shares of a company based on the value of the cash flows that the company can be expected to generate in the future. This includes traditional discounted cash flow techniques and also real option valuations (“ROV”), which use option pricing models to measure the value of assets that share option characteristics.
- 2. The Market Approach** indicates the market value of the ordinary shares of a company based on a comparison of the company to comparable publicly traded companies and transactions in its industry, as well as prior transactions in the ordinary shares of the company.

- 3. The Net Assets Approach** indicates the market value of the ordinary shares of a company by adjusting the asset and liability balances on the company’s balance sheet to its market value equivalents. The approach is based on the summation of the individual piecemeal market values of the underlying assets less the market value of the liabilities.

These valuation methodologies have evolved over a number of years. Market multiples were very popular during the 1930s. Gradually the Income Approach gained popularity as different types of assets needed to be valued. In a global economic environment characterised by uncertainty, the trend is towards the use of ROV in managing capital investments and transaction decisions.

Approaches Utilised

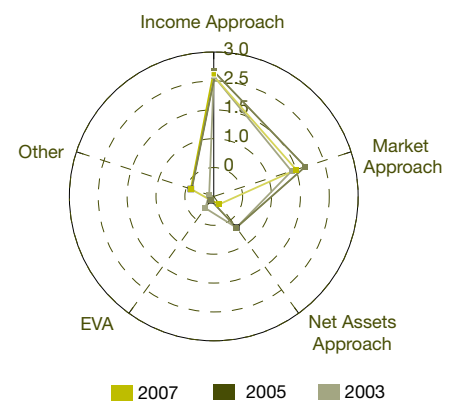
The aim of this section was to determine the most popular valuation approaches being utilised in business enterprise valuations in South Africa.

[Q] Which of the following valuation approaches are most often used to value a going concern?

- *Income Approach (Discounted Cash Flow)*
- *Market Approach (e.g. Price:Earnings Ratio)*
- *Net Assets Approach*
- *Economic Value Added (“EVA”)*
- *Other*

The primary valuation approaches used in South Africa based on the results of the survey are the Income Approach and Market Approach. This observation is consistent with that of the previous surveys. The general indication from the respondents in the survey is that the Income Approach is used as the primary valuation method with some of the other valuation methods used as supporting methodologies.

Valuation Approaches Utilised



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Income Approach



Cost of Capital

$$WACC = C_d \times (d\%) + C_e \times (e\%)$$

When applying the Income Approach (Discounted Cash Flow Method), the cash flows expected to be generated by a business are discounted to their present value equivalent using a rate of return that reflects the relative risk of the investment, as well as the time value of money. This return, known as the Weighted Average Cost of Capital (“WACC”), is calculated by weighting the required returns on interest-bearing debt, preference share capital and ordinary equity capital in proportion to their estimated percentages in an expected industry capital structure, target or other structure as appropriate.

The general formula for calculating the WACC (assuming only debt and equity capital) is:

$$WACC = C_d \times (d\%) + C_e \times (e\%)$$

Where:

WACC = Weighted average rate of return on invested capital

C_d = After-tax rate of return on debt capital

$d\%$ = Debt capital as a percentage of the sum of the debt and ordinary equity capital (“Total Invested Capital”)

C_e = Rate of return on ordinary equity capital

$e\%$ = Ordinary equity capital as a percentage of the Total Invested Capital

The cost of equity gives an estimate of an equity investor’s required rate of return for a given risk level associated with an investment. There are two globally accepted methodologies that can be used to estimate cost of equity, namely the Capital Asset Pricing Model (“CAPM”) and Arbitrage Pricing Theory (“APT”).

$$E(\text{Re}) = R_f + \beta \times E(\text{Rp})$$

CAPM

The CAPM estimates the required rate of return of an equity investor in the subject company. The CAPM formula is as follows:

$$E(\text{Re}) = R_f + \beta \times E(\text{Rp})$$

Where:

$E(\text{Re})$ = Expected rate of return on equity capital

R_f = Risk-free rate of return

β = Beta or systematic risk

$E(\text{Rp})$ = Expected market risk premium: expected return for a broad portfolio of shares less the risk-free rate of return

$$E(\text{Re}) = R_f + \beta_1 P_1 + \beta_2 P_2 + \beta_3 P_3 + \beta_4 P_4$$

APT

APT was introduced as an alternative explanation of expected returns in the 1970s by Dr Stephen Ross. APT measures overall risk in terms of multiple economic factors such as inflation, industrial production and interest rates. According to APT, the expected equilibrium return on a security is:

$$E(\text{Re}) = R_f + \beta_1 P_1 + \beta_2 P_2 + \beta_3 P_3 + \beta_4 P_4$$

Where:

$E(\text{Re})$ = Expected rate of return on equity capital

R_f = Risk-free rate of return

βP = Risk premium reflecting sensitivity to changes in a specific risk

CAPM, APT or?

The next question was included in the questionnaire to determine the method utilised in estimating cost of equity.

[Q] In calculating an appropriate rate of return to apply to the future cash flows, which of the following methods are being used?

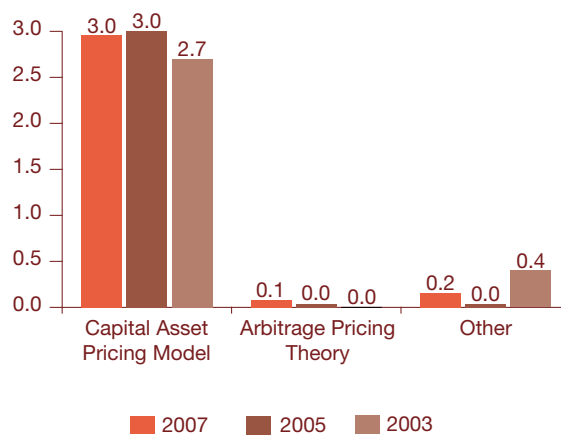
- CAPM
- APT
- Other

The 2007 survey confirms the CAPM remains the primary methodology used to estimate cost of equity. It appears from the responses that the use of APT has not gained wide acceptance in South Africa.

Methods included by respondents in the “Other” category are Peer composites and the Build-up method.

Survey responses relating to the assumptions made in application of the CAPM are included in the next section of the survey.

Methods used to estimate Cost of Equity



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

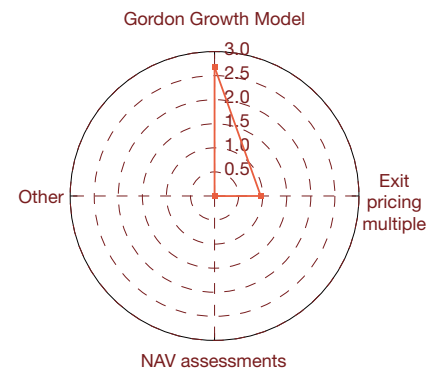
Terminal value calculations

[Q] Which of the following approaches are used in valuing the terminal year in a business valuation?

- Gordon Growth Model/ Capitalised economic income method;
- Exit pricing multiple of some economic income variable, such as EBIT or EBITDA;
- NAV assessments;
- Other.

The Gordon Growth Model is clearly the most popular methodology used in terminal value calculations with some participants considering exit multiples as an alternative.

Approaches used in valuing the terminal year



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Long-term growth assumptions

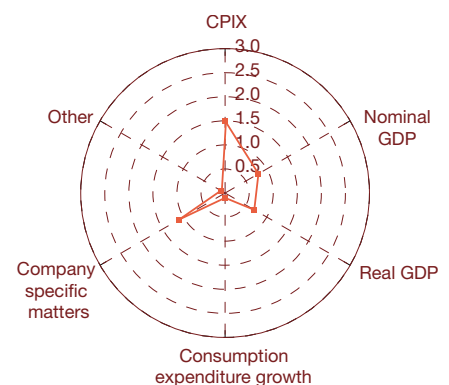
[Q] If you apply the Gordon Growth Model / Capitalised economic income method, on what do you base your long-term growth assumptions?

- Consumer Price Index excluding interest rates on mortgage bonds (“CPIX”);
- Nominal Gross Domestic Product (“GDP”) growth;
- Real GDP growth;
- Consumption expenditure growth;
- Company specific factors;
- Other.

The results indicate that the majority of the respondents base the future growth on CPIX, whilst a company specific approach is the next most popular methodology.

The varied responses received from respondents appear to indicate a differing practice regarding long term growth assumptions.

Long-term growth assumptions



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Country Risk

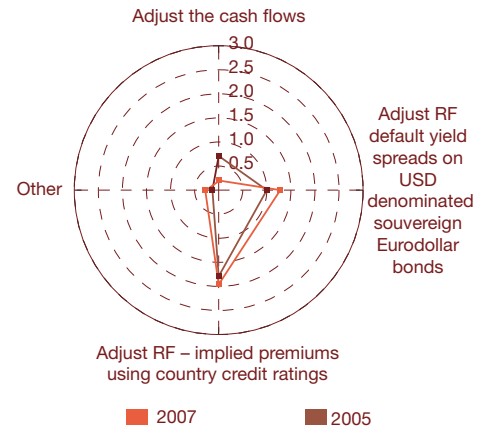
[Q] How do you generally adjust for country risk when valuing an asset in a country where no reliable long-bond yield (i.e. risk-free rate) can be observed?

- Adjusting the cash flows
- Determining an appropriate risk free rate with reference to:
 - default yield spreads on USD denominated sovereign Eurodollar bonds
 - implied premiums using country credit ratings
- Other

The results indicate that country risk differentials are recognised, mainly through adjustments to the risk-free rate when calculating an appropriate rate of return for Income Approach purposes. This is consistent with the results from the previous survey.

In this survey we also observed a slight increase in preference for adjusting the discount rate rather than the cash flows to account for country risk.

Income Approach: Country Risk



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Capital Asset Pricing Model



Introduction

The previous section highlighted the importance of the CAPM as the primary method used to estimate the cost of equity. This section of the survey focuses on the individual components used in the CAPM formula:

$$E(Re) = R_f + \beta \times E(R_p)$$

Where:

$E(Re)$ = Expected rate of return on equity capital

R_f = Risk-free rate of return

β = Beta or systematic risk

$E(R_p)$ = Expected market risk premium

We asked our respondents a number of questions relating to how they derive values for the above components of the CAPM.

Risk-free Rate

$$E(Re) = R_f + \beta \times E(R_p)$$

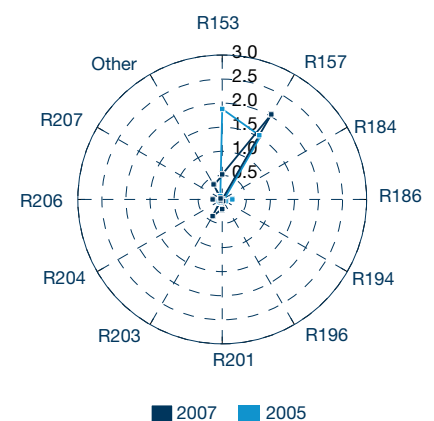
There are various proxies that may be used for R_f , and the following question was posed to gauge the current practice in South Africa.

[Q] *The risk-free rate of return ("Rf") generally represents the return that an equity investor can expect when investing in risk-free assets such as government bonds. Which of the following are used as a benchmark for the Rf?*

- RSA R153 Bond ("R153")
- RSA R157 Bond ("R157")
- RSA R196 Bond ("R196")
- RSA R201 Bond ("R201")
- RSA R203 Bond ("R203")
- RSA R204 Bond ("R204")
- RSA R206 Bond ("R206")
- RSA R207 Bond ("R207")
- Other

The R157 is used by the majority of respondents as proxy for the risk-free rate.

Proxies for Rf



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

The shift from the R153 to the R157 is not unexpected given the shortening of the time horizon for the R153. The R157 provides an alternative with a longer term to maturity and has continued to gain popularity in the 2007/08 survey. Salient data relating to the most commonly used bonds are presented in the table below:

Bond	Maturity date	Time to maturity	Amount issued	Coupon Rate %
RSA 153	31 August 2011	3.7 years	98 706 million	13.00
RSA 157	15 September 2016	8.7 years	55 905 million	13.50
RSA 201	21 December 2014	7.0 years	36 489 million	8.75
RSA 203	15 September 2017	9.7 years	22 281 million	8.25

Source: Bond Exchange of South Africa – quoted as at 31 December 2007

Adjustments to Rf

We then surveyed the following:

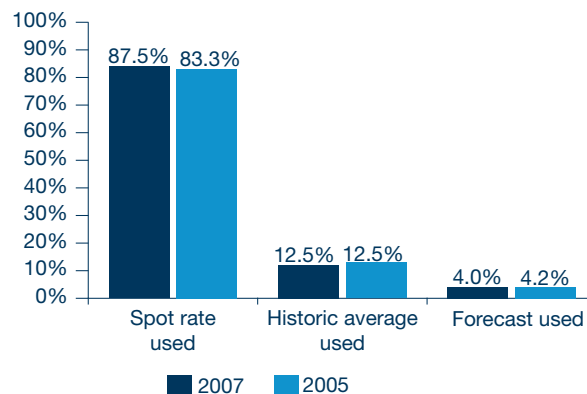
1. How the Rf benchmark was determined, e.g. spot rate, historic averages, etc.; and
2. Whether a taxation adjustment is made to the Rf benchmark.

The results are presented below:

[Q] In utilising the Rf benchmark, do you use the spot rate, historic average or forecast, as at the valuation date?

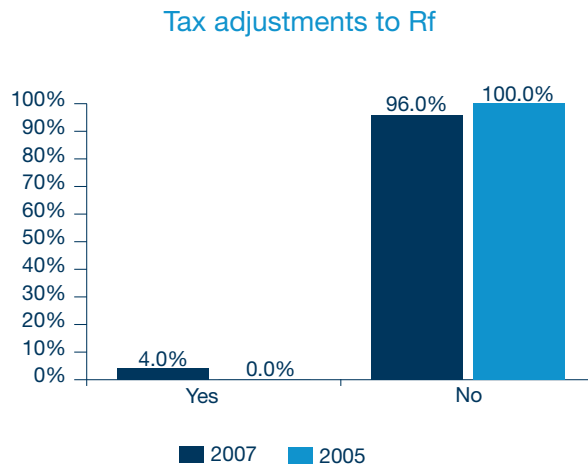
The majority of respondents use spot rates in determining the Rf at the valuation date.

Risk-free rate determination



[Q] *Do you adjust the Rf benchmark for taxation?*

The 2007 survey indicates that respondents generally do not make a tax adjustment to the Rf.



Beta

$$E(R_e) = R_f + \beta \times E(R_p)$$

Beta typically measures the sensitivity of a share price to fluctuations in the market as a whole.

Holding a diversified portfolio of investments can eliminate unique or firm-specific risk that is associated with investing in a particular share. Market or systematic risk cannot be eliminated through diversification, and the principles of CAPM advocate that an investor should be compensated for this risk.

Beta is typically calculated by regressing the individual share returns against the returns of the market index. The formula for Beta is as follows:

$$\beta = \frac{\text{cov}(R_i, R_m)}{\sigma^2(R_m)} = \frac{\rho(R_i, R_m)\sigma(R_i)}{\sigma(R_m)}$$

Where:

- $\text{cov}(R_i, R_m)$ = Covariance between security i and the market index
- $\sigma^2(R_m)$ = Variance of the market index
- $\rho(R_i, R_m)$ = Correlation coefficient between security i and the market index
- $\sigma(R_i)$ = Standard deviation of returns of security i
- $\sigma(R_m)$ = Standard deviation of market returns

Financial analysts and corporate financiers often do not use raw data (e.g. share prices and share returns) to estimate Beta based on their programmed regression algorithms. They rather use professional information systems and databases as sources for Betas. Service providers often make adjustments in calculating Betas, for example:

1. Bayesian adjustments: this technique is used to compensate for estimation error; and
2. Illiquidity adjustments in respect of thinly traded shares.

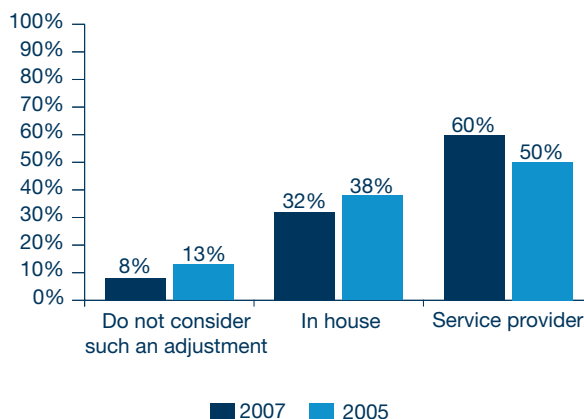
In addition, the frequency of returns (daily, weekly, monthly or quarterly) is one of the major practical issues when estimating Beta. The CAPM is based on maximising expected utility, therefore, the security returns have to be normally distributed and the distribution is fully described by standard deviation and the expected return. Different service providers often use different frequencies, which may or may not be in line with the specific best practice guidelines being followed by financial analysts and corporate financiers.

Adjustments to Beta

[Q] Do you perform any adjustments to the beta (e.g. for thin trading), or do you rely on the service provider for the beta calculations?

A total of 92.0% of the respondents adjust the observed beta for factors such as illiquidity, of which 32.0% make these adjustments in-house and 60% rely on the service provider to make such adjustments.

Adjustments to Beta



Based on the above, it is clear that the choice of service provider is an important consideration as part of the estimation of Beta.

[Q] Which of the following service providers are used as a source of information for Beta?

- *McGregor BFA*
- *Bloomberg*
- *University of Cape Town ("UCT") Financial Risk Service*
- *Reuters/Factiva*
- *In-house calculation/research*
- *MSCI Barra*
- *Other*

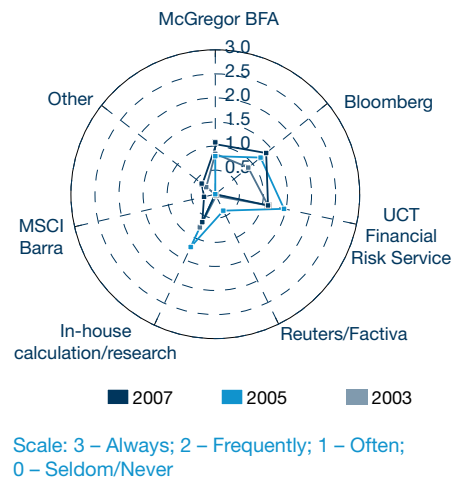
The survey highlighted a wide variety of sources that are currently used for the determination of Betas in the South African market. The most popular source for Beta estimates remains the UCT Financial Risk Service and Bloomberg sources, with Bloomberg having gained popularity in 2007.

Other sources listed by respondents include I-Net, Damodaran and Thomson Datastream.

The next question determines whether observed Betas are being adjusted for the impact of different gearing levels.

Valuation theory suggests that if the comparable companies being used in the estimation of cost of equity have different gearing levels from the subject company, an adjustment for financial leverage needs to be made to the observed Betas.

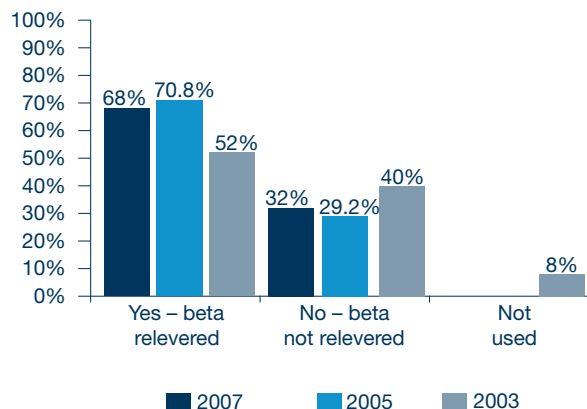
Source of information for Beta



[Q] When calculating the Beta, is it ever unlevered and relevered?

68.0% of the respondents adjust observed Betas to take differences in gearing into account. The number of respondents making the abovementioned adjustment decreased in the 2007/08 survey compared to the previous surveys.

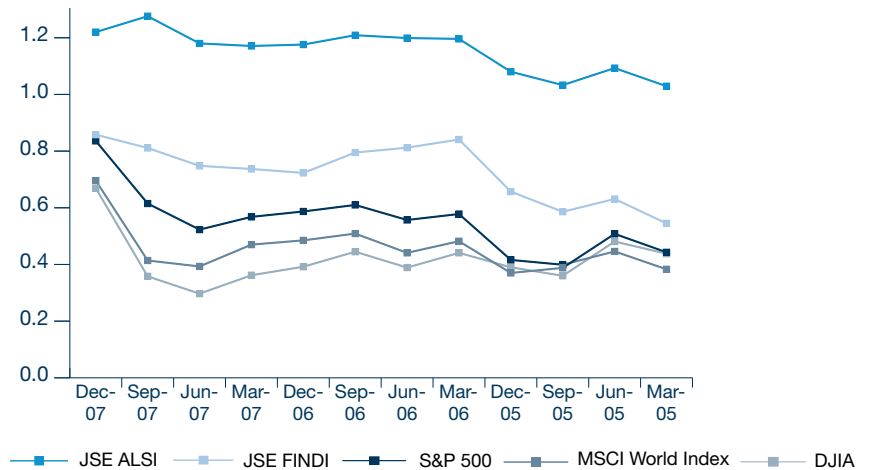
Beta unlevered and relevered



Beta comparisons

The following graph illustrates the Betas of Sasol Limited measured against different market proxies. We compared Sasol's Beta as derived from the following indices:

- Johannesburg Stock Exchange ("JSE") All Share Index
- JSE Financials and Industrial Index
- S&P 500 Index
- MSCI World Index
- Dow Jones Industrial Average



Source: Bloomberg

The above graph illustrates the imperative of index selection when calculating Betas. The ALSI indicates an equity Beta in excess of 1 whereas when the equity Beta is calculated relative to other indices, the equity Beta is in the region of 0.7 to 0.9.

The question below was included to test market practice regarding the selection of a proxy for Beta calculations.

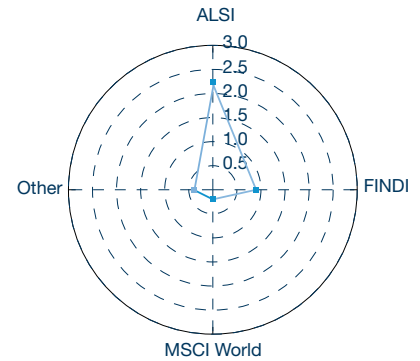
[Q] *What would you consider to be an appropriate market index to use as a market proxy for a Beta calculation in the South African market?*

- *ALSI*
- *FINDI*
- *MSCI World*

The most popular source to use as a market proxy for a Beta calculation in the South African market remains the ALSI index.

Comments from respondents included that the ALSI index should be adjusted for its resources bias and that the index used depends on the nature of the company being evaluated.

Market proxy

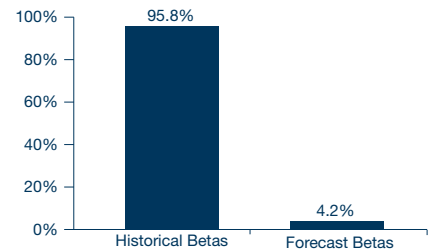


Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

[Q] *When calculating the Beta at the valuation date, do you use historical or forecast Betas?*

The majority of respondents indicated that they use the historical Betas at valuation date.

Betas



Market Risk Premium

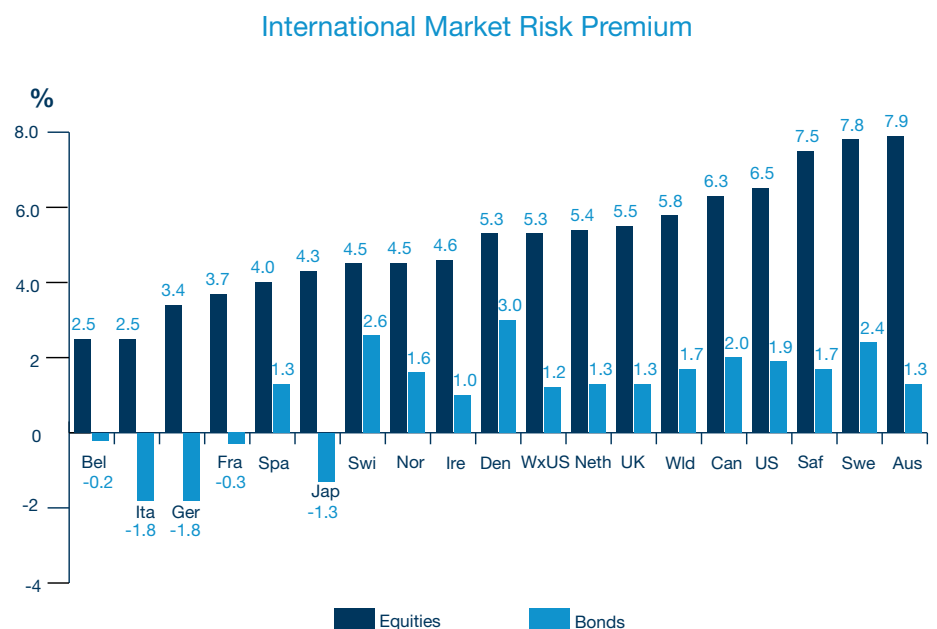
$$E(R_e) = R_f + \beta \times E(R_p)$$

In this section we surveyed the quantum of the Market Risk Premium and the rationale behind the estimate of the Market Risk Premium.

In principle, the Market Risk Premium $E(R_p)$ is a forward-looking concept measuring the market's expectations of share returns. Since the market's expectations are not readily observable, financial analysts and corporate financiers must in practice rely on evidence from various sources from which to draw inferences about the market. The sources for such evidence vary from country to country. Relevant information may include historical market performance, expectations of market analysts or surveys of fund managers.

International Market Risk Premium Comparisons

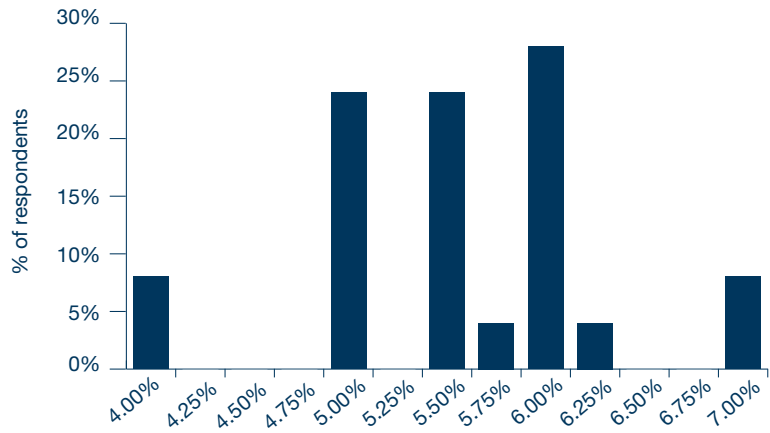
The graph below summarises real returns on equities and bonds internationally over the period 1900 – 2007.



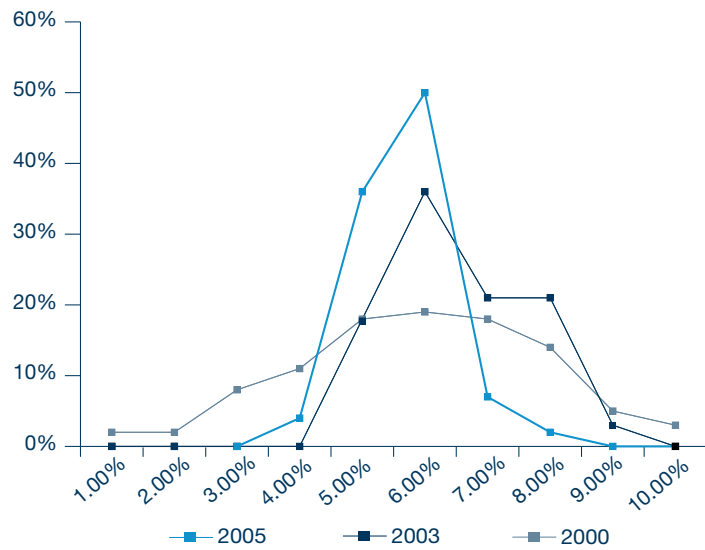
Source: ABN-AMRO/LBS Global Investment Returns Yearbook 2008
 Copyright © 2008 E Dimson, P Marsh, and M Staunton

[Q] What $E(R_p)$ do you use when making use of the CAPM?

Estimate of $E(R_p)$ 2007/08



Estimate of $E(R_p)$ – Previous surveys



Two key observations can be made from the above graphs:

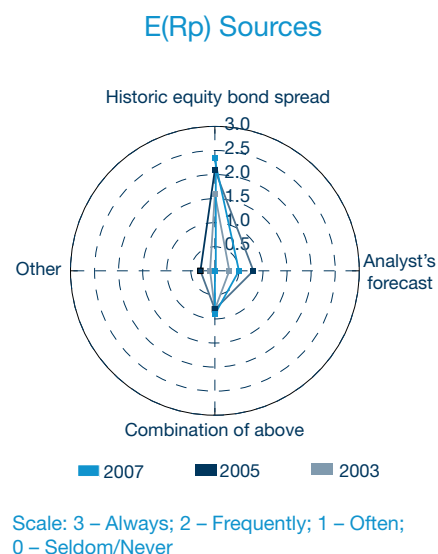
- The $E(R_p)$ estimate most frequently used ranges from 5% to 6%; and
- The $E(R_p)$ range used by the respondents has consistently narrowed since the 2003 survey, with 80% of the 2007 respondents using an $E(R_p)$ of between 5% and 6%.

Rationale for Market Risk Premium

[Q] Which of the following would you consider to be the rationale behind your estimation of the $E(R_p)$?

- Historic equity bond spread
- Analysts' forecasts
- Combination of above
- Other

The historic equity bond spread is most frequently used as a source in estimating the expected $E(R_p)$. A combination of historic equity bond spreads and analysts' forecasts is also often considered by respondents.



Small Stock Premium

Historical data indicates that the CAPM underestimates the returns on small companies. We interpret this to indicate that small companies have additional risk characteristics that are not fully captured by the standard estimates of Beta. Accordingly, financial analysts and corporate financiers often adjust for these factors by adding a Small Stock Premium (“Ssp”) to the CAPM estimate.

This is illustrated in the table below:

Size-Decile Portfolios of the NYSE/AMEX/NASDAQ Long-term Returns in Excess of CAPM from 1926 to 2006					
Decile	Beta*	Arithmetic Mean Return	Actual Return in Excess of Riskless Rate**	CAPM Return in Excess of Riskless Rate**	Size Premium (Return in Excess of CAPM)
1	0.91	11.35%	6.13%	6.49%	(0.36%)
2	1.04	13.25%	8.04%	7.39%	0.65%
3	1.10	13.85%	8.64%	7.82%	0.81%
4	1.13	14.28%	9.07%	8.04%	1.03%
5	1.16	14.92%	9.71%	8.26%	1.45%
6	1.18	15.33%	10.11%	8.45%	1.67%
7	1.23	15.63%	10.42%	8.80%	1.62%
8	1.28	16.61%	11.39%	9.12%	2.28%
9	1.34	17.48%	12.27%	9.57%	2.70%
10	1.41	21.57%	16.36%	10.09%	6.27%
Mid-Cap, 3-5	1.12	14.15%	8.94%	7.97%	0.97%
Low-Cap, 6-8	1.22	15.67%	10.46%	8.70%	1.76%
Micro-Cap, 9-10	1.36	18.77%	13.56%	9.68%	3.88%

*Betas are estimated from monthly returns in excess of the 30-day U.S. Treasury bill total return, January 1926 to December 2006.

**Historical riskless rate measured by the 81-year arithmetic mean income return component of 20 year government bonds (5.21).

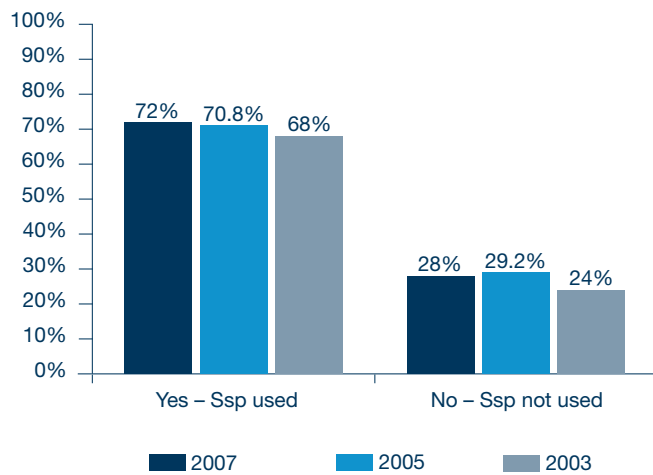
Source: Ibbotson Associates

This question determines whether the CAPM is being adjusted for the additional risk inherent in smaller companies.

[Q] Do you adjust the CAPM rate of return by a premium that reflects the extra risk of an investment in a small company?

The majority of respondents to the 2007, 2005 and 2003 surveys apply an additional risk premium in determining an appropriate rate of return for small capitalisation stocks.

Use of a Ssp



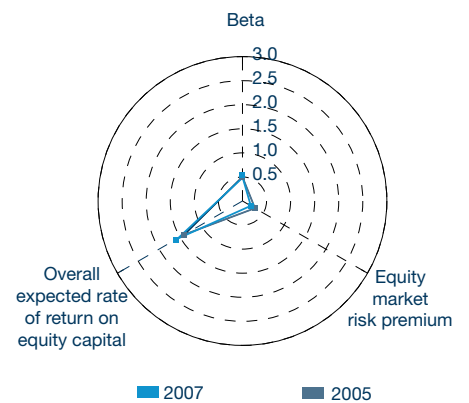
Nature of adjustments made to account for risks inherent in smaller companies

[Q] What factor is being adjusted?

- Beta
- Equity market risk premium
- Overall expected rate of return on equity capital

Most of the respondents adjust the overall expected rate of return on equity capital to take account of the additional risk inherent in smaller companies. This is consistent with the results of the 2005 survey.

Market Multiple Utilised

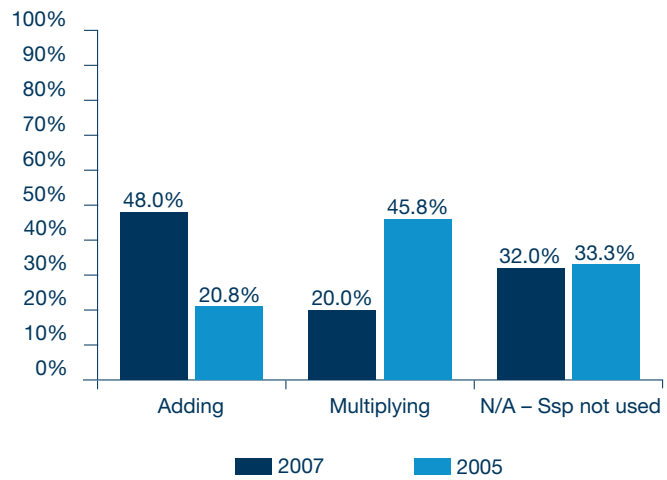


Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

[Q] Do you adjust by multiplying a factor (i.e. $CAPM \times (1+Ssp)$)? Do you adjust by adding a factor (i.e. $CAPM + Ssp$)?

Most of the respondents adjust the overall expected rate of return on equity capital by adding a Small Stock premium to the CAPM estimate. In the 2005 survey, most of the respondents made the adjustment by multiplying the CAPM by a factor.

Ssp inclusion method

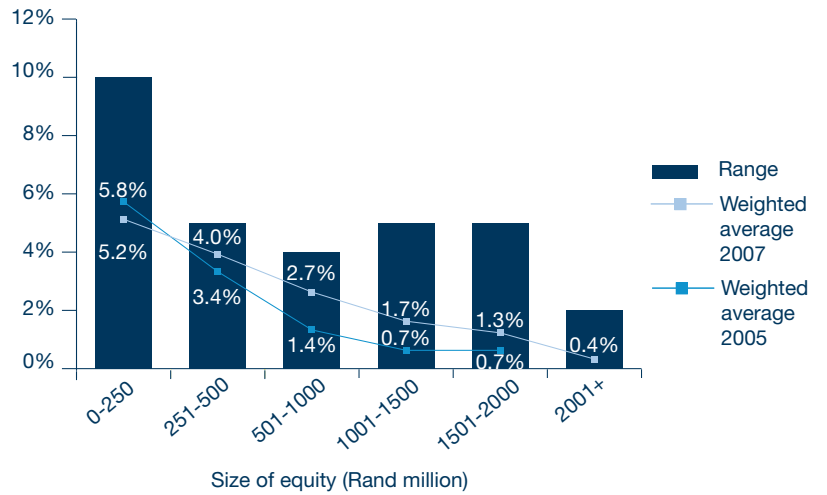


Adjustments to the CAPM in respect of smaller companies

[Q] What is the benchmark small stock premium applied, given the expected size of the company or entity?

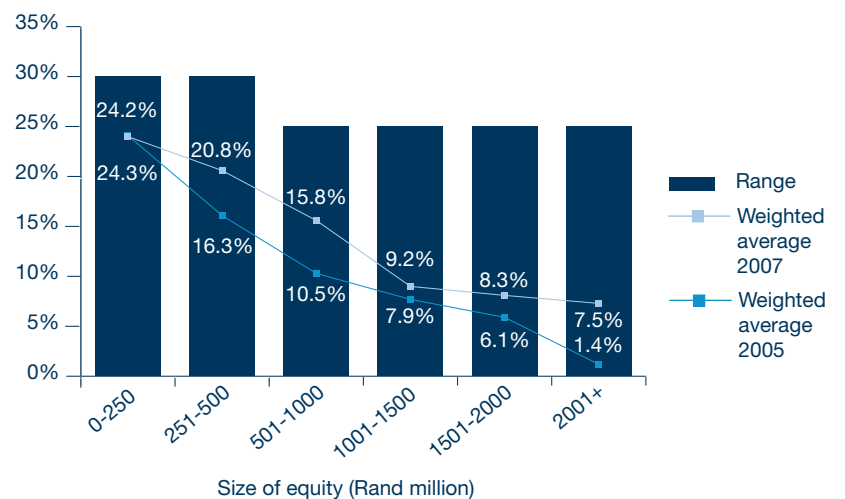
In respect of respondents who are adding a factor (i.e. CAPM + Ssp):

Small Stock Premium – Adjustment Added



In respect of respondents who are multiplying by a factor (i.e. CAPM x (1 + Ssp)):

Small Stock Premium – Adjustment Multiplied



Specific Risk Premium

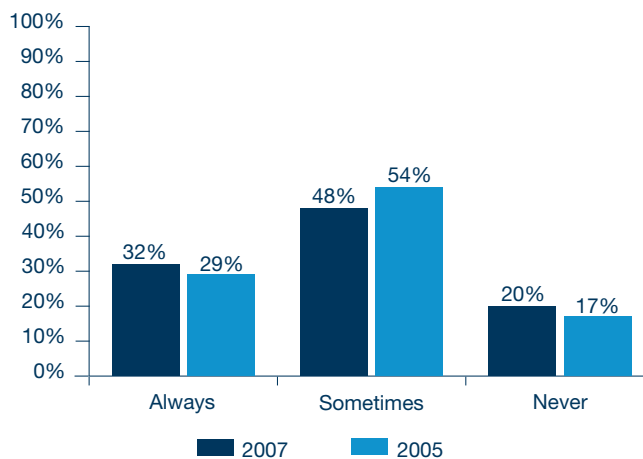
This question determines whether the CAPM is adjusted for unsystematic risk.

A Specific Risk Premium or Unsystematic Risk Premium may be added to the cost of equity to reflect specific risks identified from an analysis of the company, for example, dependence on a single or limited number of customers/suppliers or exposure to external factors that are difficult to forecast in cash flows.

[Q] Do you adjust the CAPM rate of return by a premium that reflects unique risks to the extent that such risks could not be modelled in the forecast cash flows?

80.0% of the respondents adjust the CAPM by applying a Specific Risk Premium to take account of unique risks not modelled in the forecast cash flows. 32.0% of these respondents make this adjustment always and 48.0% sometimes.

Use of a Specific Risk Premium



[Q] What are the typical conditions you would consider applying a Specific Risk Premium?

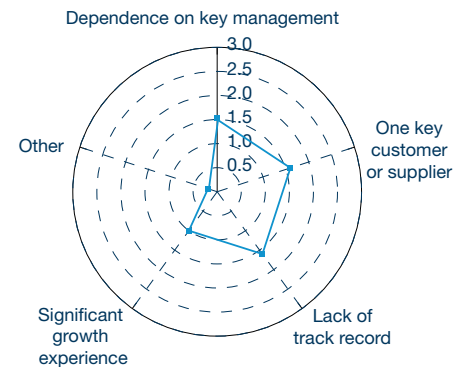
- Dependence on key management
- One key customer or supplier
- Lack of track record
- Significant growth expectations
- Other

Respondents indicated that most of the factors listed would at some time be considered as motivation for inclusion of a SRP.

Other conditions noted by respondents include:

- Legal Risk; and
- Lack of BEE.

Conditions where SRPs are applied

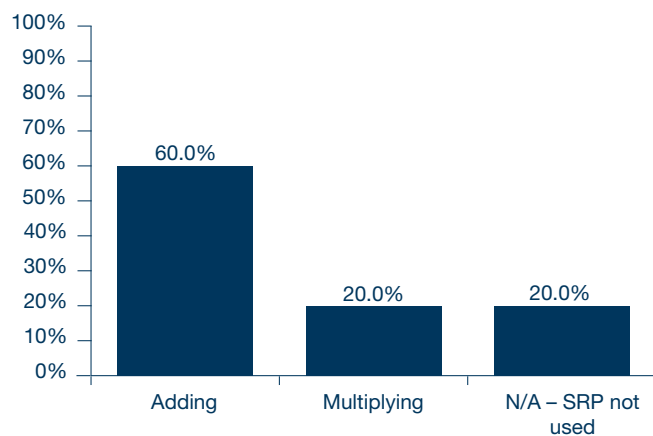


Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

[Q] Do you adjust by multiplying a factor (i.e. CAPM x (1+SRP)? Do you adjust by adding a factor (i.e. CAPM + SRP)?

Most of the respondents adjust the overall expected rate of return on equity capital by adding a factor to the CAPM. In the previous survey, most of the respondents made the adjustment by multiplying a factor to the CAPM.

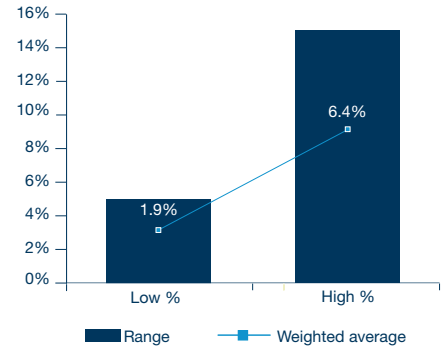
SRP inclusion method



[Q] *What typical range of specific risk premia would you apply?*

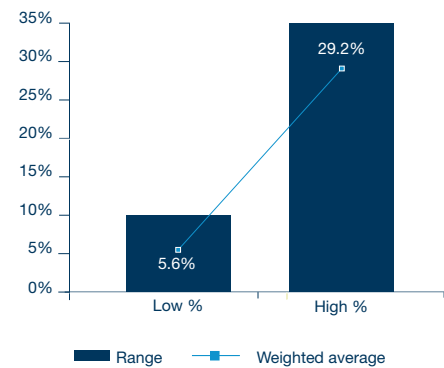
In respect of respondents who are adding a factor (i.e. CAPM + SRP):

Specific Risk Premium adjustments – Adding



In respect of respondents who are multiplying by a factor (i.e. CAPM x (1 + SRP)):

Specific Risk Premium adjustments – Multiplying



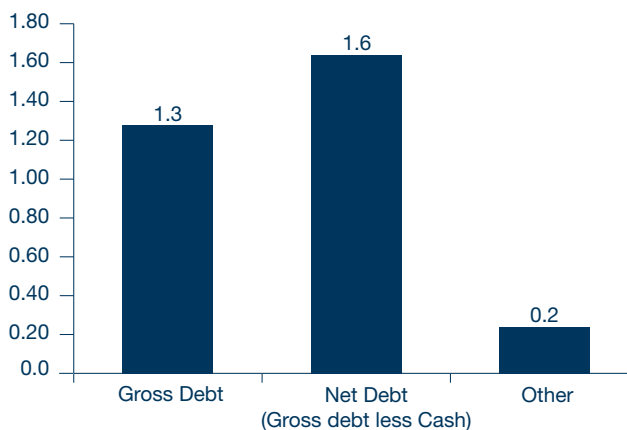
Cost of Debt

[Q] Which of the following methods are used in calculating the Debt:Equity ratio in the Cost of Capital calculation?

- Gross debt;
- Net debt (Gross debt less Cash);
- Other.

Debt / Equity

Methods used in calculating Debt-Equity ratio



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

There appears to be a wide range of methodologies applied by market practitioners. A small majority of respondents use net debt as opposed to gross debt.

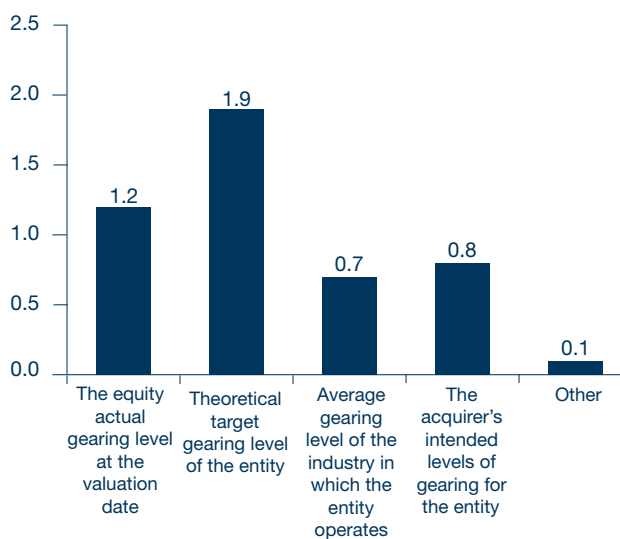
Appropriate levels of debt

[Q] Which of the following approaches are used in determining an appropriate level of debt and equity in the Cost of Capital calculation?

- The entity's actual gearing level at the valuation date;
- Theoretical target gearing level of the entity;
- Average gearing level of the industry in which the entity operates;
- The acquirer's intended levels of gearing for the entity;
- Other.

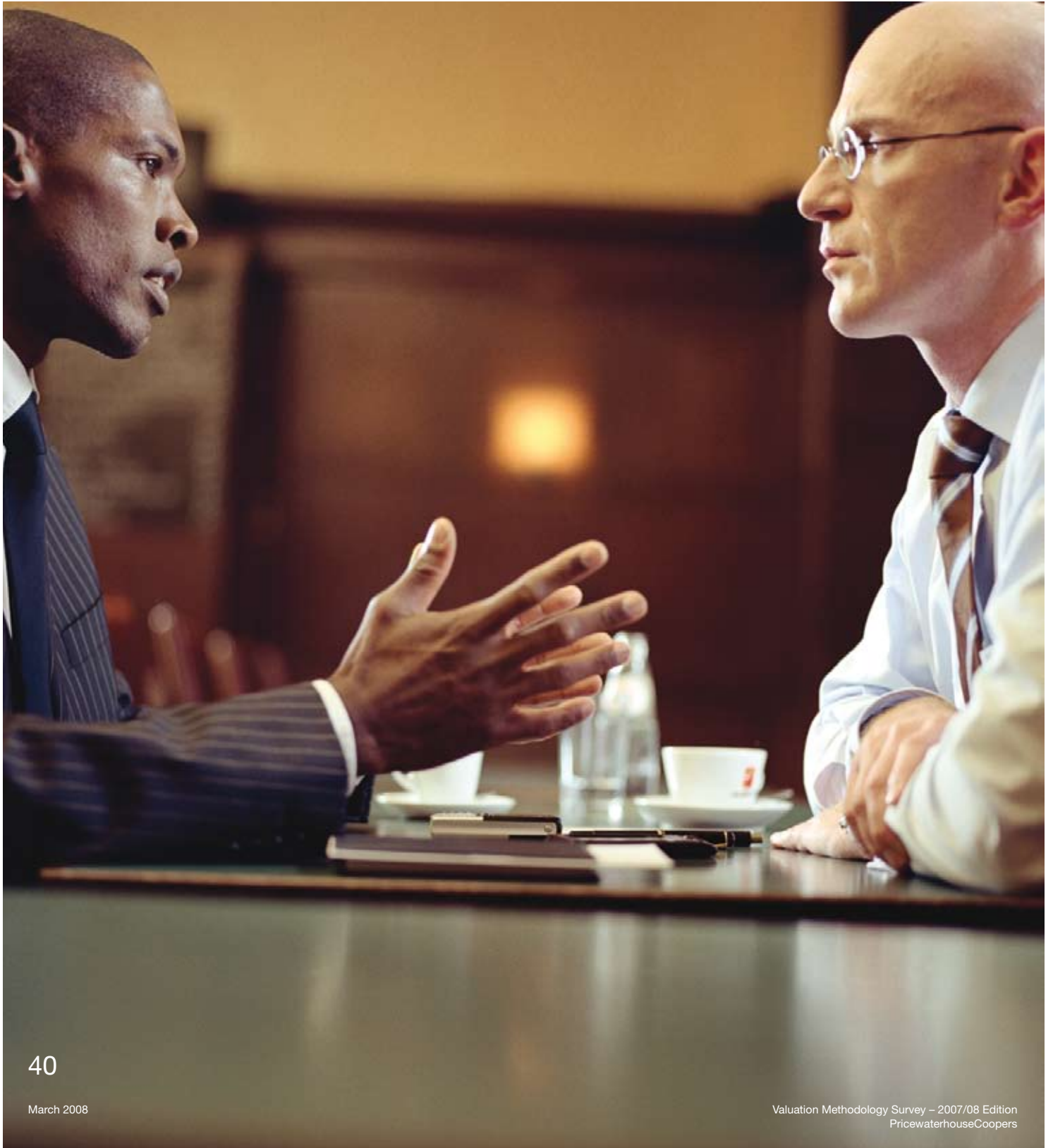
The theoretical target gearing level of the entity was the most frequent response.

Approaches used to determining gearing



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Market Approach



Valuation Multiples

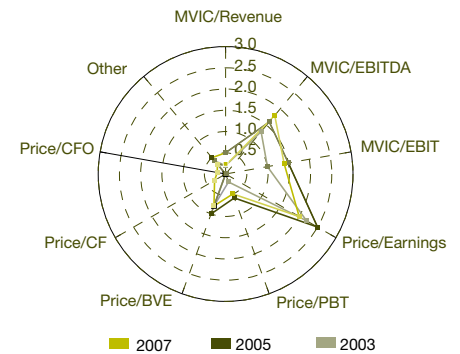
[Q] *When using the Market Approach, which of the following valuation multiples are used?*

- *Market value of invested capital ("MVIC")/Revenue*
- *MVIC/Earnings before interest, tax, depreciation and amortisation ("EBITDA")*
- *MVIC/Earnings before interest and tax ("EBIT")*
- *Price/Earnings (Earnings representing net income after tax)*
- *Price/Pre-tax earnings ("PBT")*
- *Price/Book value of equity ("BVE")*
- *Price/Earnings plus non-cash charges ("CF")*
- *Price/Cash flow from operations ("CFO")*
- *Other*

A number of valuation multiples can be used in the application of the Market Approach. This section of the survey tested the frequency of use of a range of common market multiples.

The Price/Earnings multiple remained the most used valuation multiple in the application of the Market Approach. The use of the MVIC/EBITDA continues to gain popularity and is used almost as often as the Price/Earnings multiple. The increased use of this multiple continues the trend towards greater use of cash-flow and cash-flow-related methodologies noted in the 2005 and 2003 surveys. The use of the Price/CFO and Price/CF multiples further illustrates this trend.

Market Multiples Utilised



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Adjustments to Market approach

Size and Growth

The returns that a company achieves are negatively correlated to its size. Studies have empirically demonstrated the market effect which the size of a listed company has on its earnings multiples. Because of reduced risks associated with an investment in a larger firm, investors prefer the relative security of larger companies to smaller firms.

The growth projected by a company in a mature industry would vary materially from the growth projected by a company in a developing market. This principle is also true for a start-up company or a company in a new industry or market compared to an established or mature company. As a company progresses through the maturity life-cycle, the forecast growth would differ in every phase and thus also be different between companies in different phases of the maturity life-cycle⁴.

Growth and size are linked according to Damodaran⁵. He contends that the larger the current size of the firm, the shorter the high growth period. He maintains that size remains one of the most potent forces that push firms towards stable growth; the larger a firm, the less likely it is to maintain an above-normal growth rate.

Diversification

Diversification of operations may be taken into account when comparing companies to each other as diversified companies may tend to have lower risk profiles than those companies that are not diversified.

Country Risk

Country risk reflects risks inherent to investing in different sovereign territories and could potentially affect all the investments in a particular sovereign territory simultaneously. This risk generally refers to differences in economic, political, financial and institutional stability between countries. These risks can have a material impact on shareholder value, particularly in emerging markets.

Theoretically, the expected cash flows should be adjusted for factors such as the risk of civil unrest, expropriation, exchange controls, etc. This approach is, however, not always practical (it is often difficult to quantify and assign probabilities to its occurrence) and financial analysts often adjust discount rates or valuation multiples in order to account for these risks.

The next section tested the adjustments normally considered by respondents in application of the market approach.

⁴ Source: Damodaran on Valuation: Security Analysis for Investment and Corporate Finance – Aswath Damodaran (John Wiley & Sons, Inc.)

⁵ Source: Damodaran Online http://pages.stern.nyu.edu/~adamodar/New_Home_Page/

[Q] *If applicable, which of the following adjustments to observed comparable company multiples would you consider in applying the Market Approach?*

- Size
- Growth
- Diversification
- Country Risk
- Other

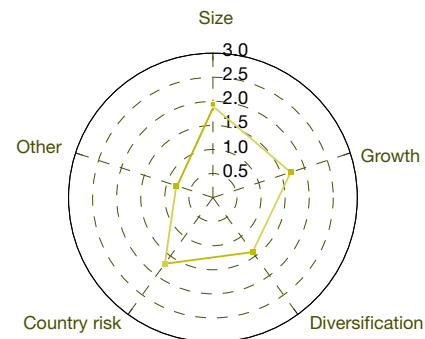
All the respondents indicated that they make adjustments in determining appropriate multiples in terms of the Market Approach. The adjustments made most often are adjustments for size, growth and country risk.

Some of the respondents specified the following adjustments to be considered in applying the Market Approach:

- Company specific risk factors;
- Marketability;
- Different tax regimes;
- Experience and depth of target management team;
- Liquidity;
- Control;
- Profitability; and
- Historic information on company.

Marketability, control and liquidity are revisited later in the survey.

Adjustments to observed comparable company multiples



Scale: 3 – Always; 2 – Frequently; 1 – Often; 0 – Seldom/Never

Source: The Real Cost of Capital – Ogier, Rugman, Spicer (FT Prentice Hall)

Discounts and Premia



Discounts and Premia

Discounts and premia are often the subject of negotiations and debate due to their significant potential impact on value.

Discounts for minority interests and marketability, as well as premia for control may be applied to the equity value of the company subject to the valuation.

1. Minority discounts are usually applied when valuing a stake of less than 50% to discount the value for lack of control. Characteristics of control include the ability to elect directors, determine management compensation and perquisites, declare dividends, sell shares, acquire or liquidate assets, set policy, make acquisitions, award contracts, change bylaws, liquidate, dissolve, or recapitalize the business. Factors such as voting rights, company bylaws, and strength of regulatory protection offered to minority shareholders, distribution of ownership, and size of the minority block of shares can also be considered.

2. Control premia can be applied to stakes greater than 50% or where voting rights or other measures result in significant influence or control.
3. Marketability discounts are usually applied to privately held companies, as investors prefer equity investments that have access to a liquid secondary market and that may be readily converted into cash. Equity interest without such marketability characteristics normally sell at a discount in order to provide an investor with compensation for lack of liquidity.

The section that follows addresses the application of the above discounts and premia.

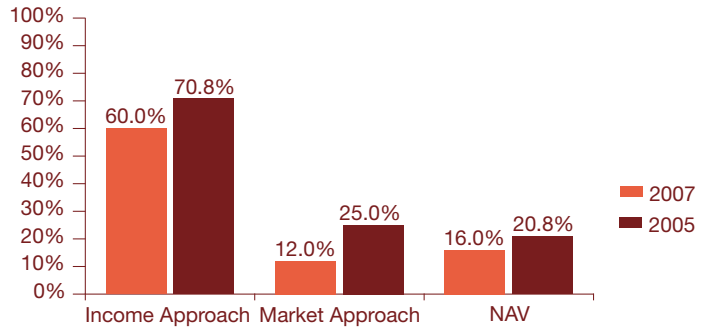
Application of Discounts and Premia

[Q] When appropriate,

The majority of respondents applied the various discounts and premia listed above. The graphs below summarise the percentage of respondents applying the various discounts and premia.

Do you generally apply a minority discount to the following approaches?

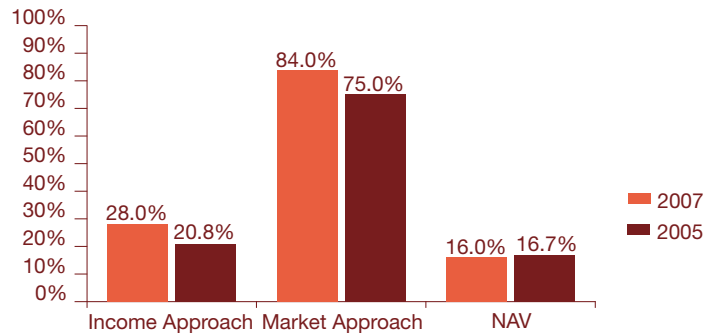
Minority discount applied



The majority of respondents consider a minority discount in the Income Approach.

Do you generally apply a control premium to the following approaches?

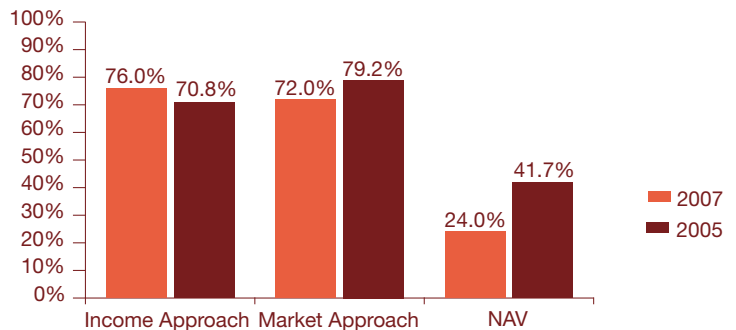
Control premium applied



The majority of respondents consider a control premium in the Market Approach.

If the entity is not listed, do you apply a marketability discount to any of the following approaches?

Marketability discount applied



It is evident that most respondents consider a marketability discount in both the Income and Market Approaches.

Valuation Approaches to which Discounts and Premia are Applied

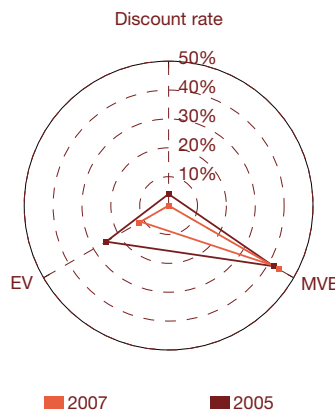
[Q] Where do you apply the following discounts / premia?

- Minority discount
- Control premium
- Marketability discount

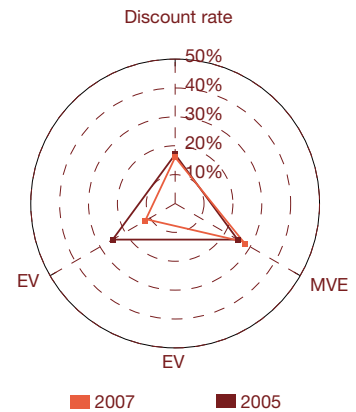
Please note that the graph below indicates the percentage of respondents applying adjustments to market value of equity (“MVE”)

and enterprise value (“EV”) or the discount rate. It therefore excludes responses marked as “other” or “not applicable”.

Income Approach: Minority discount



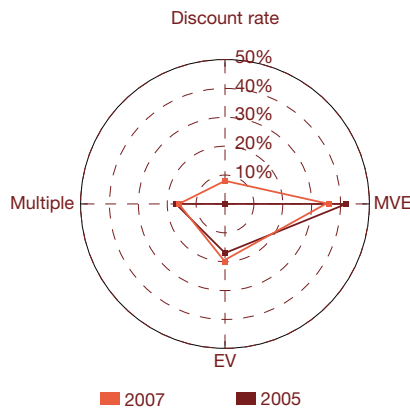
Income Approach: Marketability discount



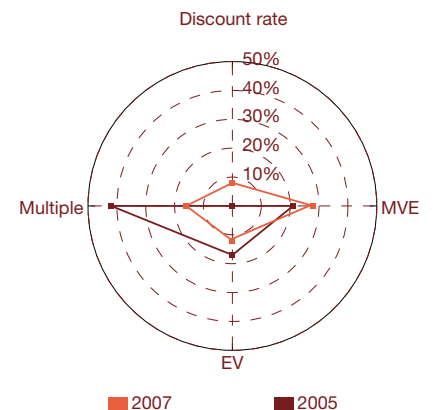
The majority of respondents adjust the estimated value (MVE or EV) derived from the Income Approach for marketability discounts whereas only 16% of the respondents adjust the discount rate.

All respondents adjust the estimated value (MVE or EV) derived from the Income Approach for minority discounts whereas none of the respondents adjust the discount rate.

Market Approach: Control premium



Market Approach: Marketability discount



In applying a control premium or minority discount to the Market Approach, most respondents adjust the MVE. Marketability discounts in application of the Market Approach are also generally applied to MVE.

Minority Discount

[Q] Please indicate the benchmark minority discount normally applied given the size of the stake being valued.

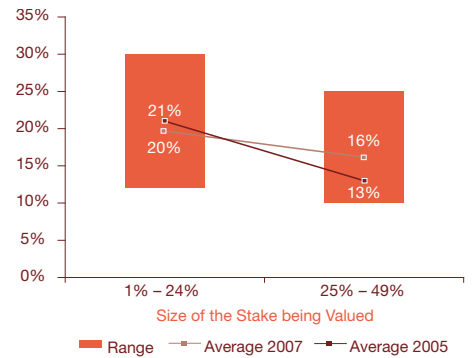
Average minority discount applied

The summary of the responses below, relate to quantum of adjustments being made in applying the Income Approach.

Average adjustment to the MVE

The range of minority discounts has narrowed in the 2007 survey, with discounts averaging 20% for interests lower than 25% and 15% for interests above 25%.

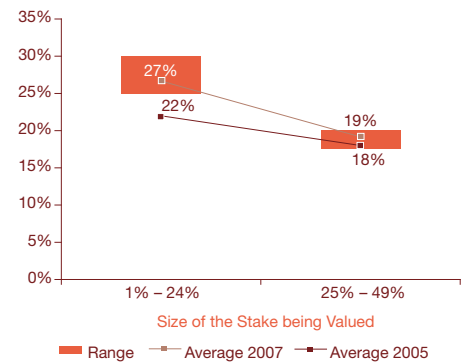
Average adjustment to the MVE



Average adjustment to the EV

The average adjustment to the EV results of the 2007 survey should be viewed with caution, as only three respondents indicated that they make adjustments to the enterprise value.

Average adjustment to the EV



Control Premium

[Q] Please indicate the benchmark control premium normally applied given the size of the stake being valued.

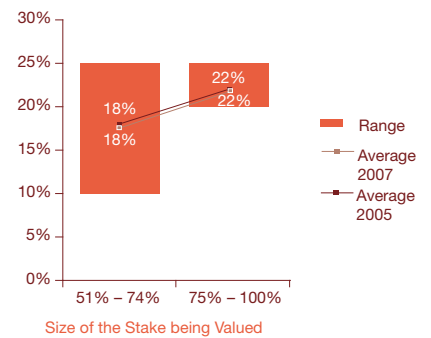
Average control premium applied

The summary of the responses below, relate to adjustments being made in applying the Market Approach.

Average adjustment to the MVE

The average control premiums applied have remained in line with the average discounts from the 2005 survey.

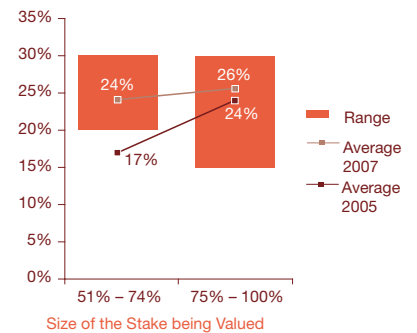
Average adjustment to the MVE



Average adjustment to the EV

The average adjustment to the EV results of the 2007 survey should be viewed with caution, as only four respondents indicated that they make adjustments to the enterprise value.

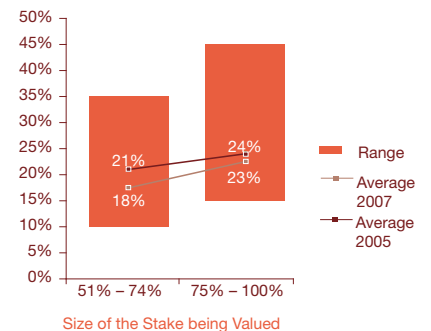
Average adjustment to the EV



Average adjustment to the Market Multiple

The 2007 survey indicates that the range of control premiums applied has widened since the 2005 survey but that the average control premium has declined.

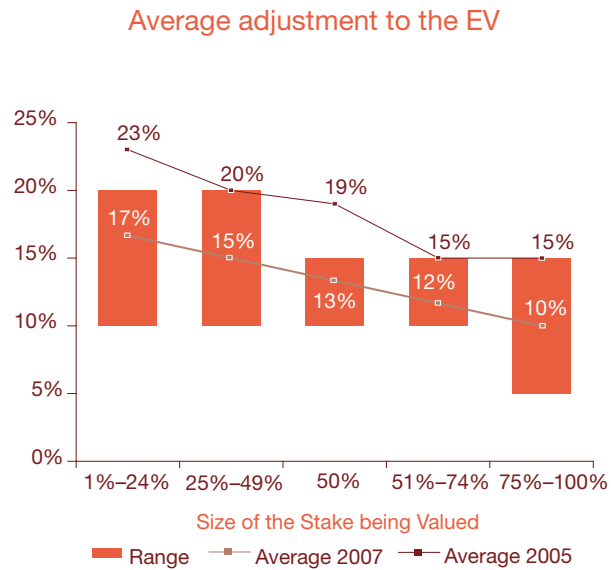
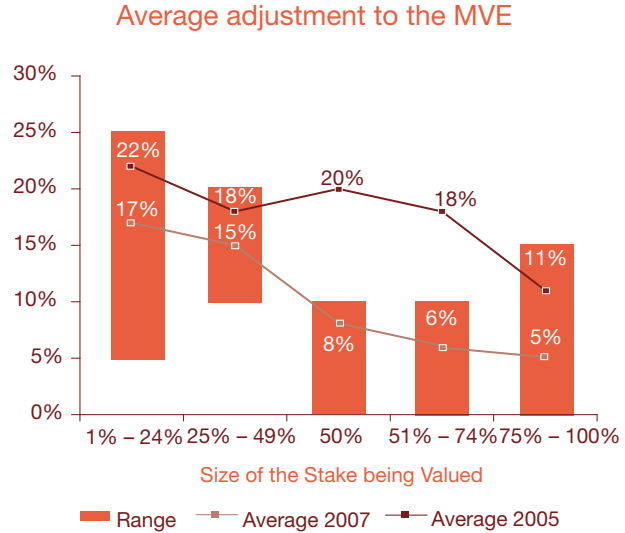
Average adjustment to the Market Multiple



Marketability Discount

Income Approach

[Q] Please indicate the benchmark marketability discount normally applied given the size of the stake being valued.



The ranges and the average marketability discounts have narrowed from the results of the 2005 survey.

As observed in previous surveys an inverse relationship between the size of the stake being valued and the marketability discount is observable.

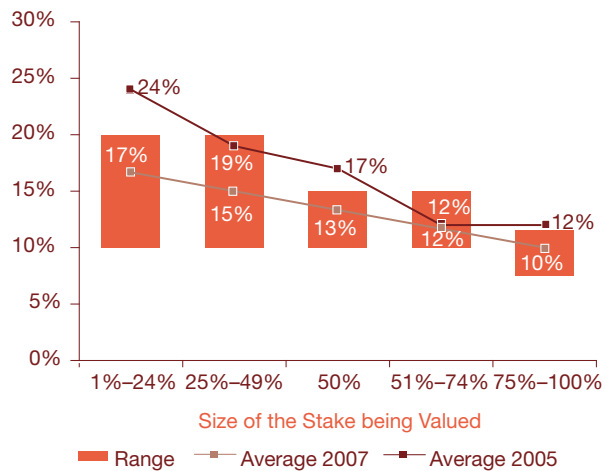
Market Approach

[Q] Please indicate the benchmark marketability discount normally applied given the size of the stake being valued (continued).

Average adjustment to the MVE



Average adjustment to the EV



Adjustments for marketability discounts on the Market Approach are, as expected, similar to those indicated by respondents for the Income Approach. A similar trend was also noted with an inverse relationship between the size of the interest being valued and the marketability discount.

Appendices



List of abbreviations

Abbreviation	Full Description
APT	Arbitrage Pricing Theory
β	Beta
BBBEE	Broad Based Black Economic Empowerment
BEE	Black Economic Empowerment
CAPM	Capital Asset Pricing Model
DCF	Discounted Cash Flow
E(Re)	Rate of Return on Equity Capital
E(Rp)	Market Risk Premium
EBIT	Earnings before Interest and Tax
EBITDA	Earnings before Interest, Tax, Depreciation and Amortisation
EV	Enterprise Value
EVA	Economic Value Added
MVE	Market Value of Equity
MVIC	Market Value of Invested Capital
NAV	Net Assets Value
PBT	Pre-tax Earnings
PE	Price: Earnings Ratio
Rf	Risk-free Rate of Return
ROV	Real Option Valuation
Ssp	Small Stock Premium
STC	Secondary Tax on Companies
UCT	University of Cape Town
WACC	Weighted Average Cost of Capital

Contact details

Jan Groenewald:

Tel: +27 11 797 5380 Fax: +27 11 209 5380

E-mail: jan.groenewald@za.pwc.com

Simon Venables:

Tel: +27 11 797 5660 Fax: +27 11 209 5660

E-mail: simon.venables@za.pwc.com

Johan Basson:

Tel: +27 21 529 2074 Fax: +27 21 529 1574

E-mail: johan.basson@za.pwc.com

About PricewaterhouseCoopers

PricewaterhouseCoopers is the pre-eminent professional services organisation in the world, and our phenomenal global resources make the firm a major player in the transformation to the knowledge economy.

PricewaterhouseCoopers (www.pwc.com) is the world's largest professional services organisation. Drawing on the knowledge and skills of more than 146 000 people in 150 countries, we build relationships by providing services based on quality and integrity.

PricewaterhouseCoopers is a major player in South Africa, and our diverse client base covers the full spectrum of economic activities. We bring appropriate local knowledge and experience to bear and use the depth of our resources to bring clients a professional service, specifically tailored to meet their requirements. In providing these services we are constantly aware of the importance of our social responsibility to the communities in which we operate, and are committed to the successful implementation thereof throughout the firm and in our dealings with clients.

PricewaterhouseCoopers Corporate Finance

The PricewaterhouseCoopers Corporate Finance practice provides comprehensive financial, economic and strategic advice to companies with complex business challenges.

Our corporate finance team has developed a reputation for excellent advice, strong relationships and unique levels of independence. These attributes, coupled with a vast range of experience, have made PricewaterhouseCoopers Corporate Finance a key corporate adviser in the Southern African market. Our position has been reinforced through the completion of key local and cross-border deals.

Our range of specialist advisory services across critical areas of corporate finance include:

Valuation & Strategy

Our Valuation & Strategy team specialises in complex and specialist valuations.

The demands of a new and sophisticated business environment require specialist solutions to determine the value of enterprises. Our team specialises in development of valuation models for unique and complex businesses.

Key services offered by the Valuation & Strategy team are:

Business Valuations

Valuations for transaction pricing, regulatory reporting, taxation and estate planning.

Corporate Finance Consulting

Consulting support for clients undertaking transactions such as understanding value, assistance in preparing assets for sale and examining shareholder value impact.

Fairness Opinions and Independent Adviser Options

Services to boards of directors in terms of the JSE Listings Requirements or the Securities Regulation Code on Takeovers and Mergers.

Shareholder Value Services

Develops and implements a comprehensive management framework to harness the efforts of your organisation towards value creation.

Intellectual Asset Valuations

Measures the value of intellectual property, including trademarks, patents, technology and know-how.

Corporate Finance and Investment Banking

In an increasing international merger and acquisition environment we offer unrivalled cross-border ability and in-depth industry expertise. Our dedicated and exclusive Merger and Acquisitions research resources enable us to identify opportunities, locally and internationally, as well as provide input and global transactions, while assisting you through your transaction.

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We have local and international financial advisory experience in a wide range of sectors including transport, water, telecommunications, power, healthcare, property and public-private partnerships.

We specialise in the development and negotiation of innovative institutional, financial and security arrangements for limited-recourse and asset-based transactions. We provide independent advice, thereby ensuring the best-structured and most competitive deals for our clients.

Our privatisation specialists act for government, municipalities, public authorities and state-owned enterprises preparing for and implementing privatisation programmes and transactions. Our team also provides specialist advice to potential investors, management and employees.

JSE Sponsor

PricewaterhouseCoopers Corporate Finance is registered as a JSE Securities Exchange accredited sponsor. A sponsor is responsible not only for assisting an issuer on its application for listing but is also responsible for providing advice on a continuing basis to the issuer on the application of the Listings Requirements.

in acting as a sponsor, we are able to add considerable value in areas such as corporate governance, best practice in reporting, disclosure and accounting issues. We also provide regular updates on topical issues associated with being a listed company.

Few can rival the wealth of relevant experience and knowledge within PricewaterhouseCoopers Corporate Finance.

Contacts:

Jan Groenewald
Tel: +27 11 797 5380

Simon Venables
Tel: +27 11 797 5660

Mike Krzychylkiewicz
Tel: +27 11 797 4405

Chris Morris
Tel: +27 11 797 5045

Services PricewaterhouseCoopers offers

PricewaterhouseCoopers has a number of service divisions that could add real value to your business. We have vast experience in providing independent professional services to a wide range of industries and service lines, both locally and internationally.

Assurance

- Audit services
- Accounting and regulatory advice
- Attest and attest-related services
- Public services audit and advisory
- Company Secretarial services

Tax services

Corporate Tax

- General tax advice
- Corporate tax management and tax planning
- Pre-issuance and pre-filing reviews
- Reorganisation/mergers and acquisitions
- Evaluation of financing schemes
- Capital gains tax

International Tax

- Inward/outward investment
- Transfer pricing
- Exchange control
- Offshore trusts

- International structured, project and infrastructure finance
- International mergers, acquisitions and reorganisation

Human Resource Services

- Employment tax services
- Tax-based rewards, including share schemes
- International assignment services
- Organisation effectiveness and development

Indirect Taxes

- Value added taxation
- Customs and excise duties
- Cross-border transactions

Advisory services

Performance Improvement

- Business Continuity Management
- Business Process Management
- Asset Management Services (Combined Systems)
- Compliance Embedding
- Corporate Universities

- Digital Identity Solutions
- Enterprise Application Integrations (“EAI”) and System Oriented Architecture (“SOA”)
- Exordia
- Finance Effectiveness
- Human Resource Effectiveness
- Infrastructure Accelerator
- Project Support Office
- Revenue Enhancement and Management
- Ringfencing and Restructuring
- Talent Management
- Turnaround and Transformation
- Technology Advisory Services
- IT Strategy and Architecture
- IT Quality Assurance and Testing
- IT Governance
- IT Security
- IT Sourcing
- Data Management

Transactions

- Business Recovery Services
- Infrastructure, Government and Utilities
- Public Private Partnerships
- Project Finance
- Smart Procurement
- Mergers and Acquisitions
- Black Economic Empowerment (“BEE”)
- Fund Raising
- JSE Sponsoring
- Transaction Services
- Valuations and Strategy
- Financial Reporting Valuations
- Value Advisory Services

Risk Advisory Services

- Financial Risk Management
- Governance Advisory
- Enterprise Risk Management
- Internal Audit
- Sustainability
- Systems, Process and Data Services
- Accounting Litigation and Support
- Anti-Corruption and Fraud Consulting Services
- Audit Involvement
- Forensic Accounting and Investigations
- Forensic Technology Solutions

the 1990s, the number of people with diabetes has increased in all industrialized countries, and this increase is continuing to rise.

Diabetes is a chronic disease, and the prevalence of diabetes is increasing in all industrialized countries. In the Netherlands, the prevalence of diabetes is estimated to be 6.5% in 2000, and this prevalence is expected to increase to 10% in 2020. The prevalence of diabetes is also increasing in developing countries, and this increase is expected to continue to rise.

The prevalence of diabetes is increasing in all industrialized countries, and this increase is expected to continue to rise.

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