Equity Market Risk Premium – Research Summary

31 March 2022

We recommend an MRP of 5.5% as per 31 March 2022

If you are considering this publication, it is likely that you are in regular contact with KPMG Corporate Finance & Valuations ("KPMG Corporate Finance NL") on the topic of valuations. The goal of this document is to provide a summary to our business partners about our recent observations and conclusions regarding one of the key valuation parameters, being the equity market risk premium.

We recommend the use of an equity market risk premium ("MRP") of 5.5% as per 31 March 2022. Between the fourth quarter of 2021 and first quarter of 2022 we have observed lower stock prices, albeit combined with increased volatility due to increasing global uncertainties. As a result of these developments, we increase our MRP to 5.5%, an increase of 50 bps compared to the fourth quarter of 2021.

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Introduction – valuation and discount rates

Introduction

The discount rate is an important input parameter to any valuation based on the discounted cash flow methodology ("DCF"). All else equal, a higher discount rate will lead to a lower asset value and vice versa.

In this document, we will specifically focus on the derivation of the cost of equity for company valuations. This discount rate can either be directly applied to equity cash flow forecasts of a company or it can be used in conjunction with the cost of debt and a certain financing structure to derive the weighted average cost of capital ("WACC").

A general DCF model can be expressed by the following formula:

$$\text{Present value} = \frac{CF_1}{(1+k)^1} + \frac{CF_2}{(1+k)^2} + \frac{CF_3}{(1+k)^3} + ... = \sum_{t=1}^{\infty} \frac{CF_t}{(1+k)^t}$$

Present value	=	value of the analysed asset (e.g. a company)
CF_t	=	cash flow that the asset will generate in period t
k	=	asset-specific discount rate

Discount rate derivation

While there are several ways to derive discount rates, the most commonly applied methodology is the 'build-up methodology' based on the Capital Asset Pricing Model ("CAPM"). This methodology builds up the discount rate by summation of several asset-related risk components in order to derive a return at which investors are willing to invest in this asset (e.g. a company).

The build-up of the cost of equity ("k") of a company can be expressed as:

$$k = rfr + \beta \times MRP + \alpha$$

k	=	required return on equity
rfr	=	risk-free rate
β	=	a company's systematic risk
MRP	=	market or equity risk premium
α	=	asset-specific risk factors

The function and derivation of the individual discount rate parameters are briefly discussed on the following slide.

Introduction – discount rate parameters

Risk-free rate

The risk-free rate forms the basis for any discount rate estimation using the build-up methodology. As the name implies, this rate should not take into account any risk factors and should only include two general components:

— The time value of money; and

— Inflation.

Since there are no investments that are truly risk-free, the risk-free rate is commonly approximated by reference to the yield on long-term debt instruments issued by presumably financially healthy governments (e.g. AAA-rated government bonds with a maturity of 30 years).

Beta

Beta measures a stock's volatility in relation to the relevant market benchmark.

A beta greater/smaller than 1.0 means that the share price of a company is more/less volatile than the general market and therefore investors will require a higher/lower return to compensate for this volatility.

Alpha

Alpha is an asset-specific adjustment factor representing unsystematic risk not already being captured by way of the beta. If a financial forecast does not account for certain operational risks, it may be appropriate to include a forecast risk premium. Other examples of alpha adjustments are size premia and illiquidity premia.

Equity market risk premium (MRP)

The MRP is the average return that investors require over the risk-free rate for accepting the higher variability in returns that are common for equity investments (i.e. the MRP reflects a minimum threshold on top of the risk-free rate for investors in order to be willing to invest).

Since alpha only relates to unsystematic adjustments, it can be omitted if considering the overall market (alpha = 0). Furthermore it is important to note that for the overall market, beta will by definition always be 1.0, since the sum of all returns of individual stocks equals the overall return of the market, and therefore, the two are perfectly correlated.

As the figure below shows, the required return for the overall market is defined entirely by the risk-free rate and the MRP.

r_f

MRP

β

α

Cost of equity individual company

r_f

MRP

Cost of equity overall market
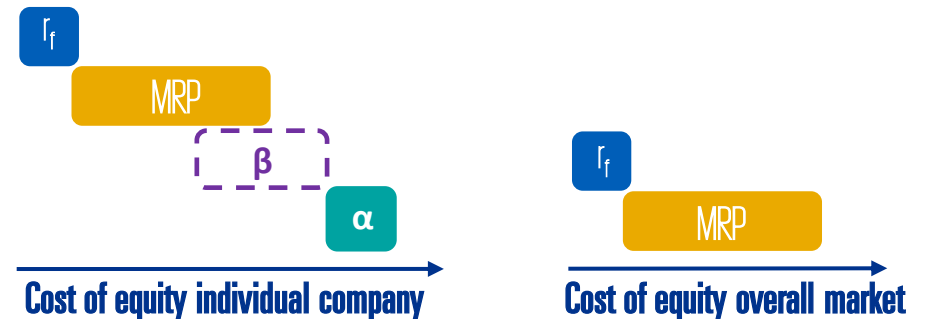
Measurement of the equity market risk premium – methodologies

Implied equity market risk premium

The general DCF formula discussed earlier can be used to solve for the implied discount rate that reconciles these parameters.

Deducting the risk-free rate from this implied discount rate will yield an implied MRP.

The implied MRP methodology is to some extent sensitive to input assumptions and careful consideration must be given to:

— The selection of income proxies (e.g. dividends, buy-backs, cash flow);

— The basis of expected growth rates (e.g. macroeconomic considerations, analyst forecasts); and

— The trade-off between outcome stability and current relevance with regards to certain historical inputs (e.g. dividend yield normalisations, pay-out ratios).

KPMG Corporate Finance NL, continuously inspects if enhancements in applying the above input assumptions are necessary for the current MRP method in order to accurately reflect the current market dynamics.

We deem the implied MRP methodology the most appropriate methodology in order to derive changes in the MRP as a result of economic developments, because it incorporates recent market developments, expectations, and it can be logically deduced from observable market data.

Historical observation methodology

This methodology assumes that the expected MRP can be derived by studying historical equity returns.

While this methodology is well established and theoretically sound, it does not allow for the incorporation of the most recent market developments.

Other methodologies

There are a number of other prominent methodologies which may lead to additional insights, the most common being:

— The multi-factor model;

— The yield spread build-up; and

— The survey approach.

While each of these methodologies offers some unique advantages, the application of these methodologies involves similar trade-offs as the ones between the historical and the implied MRP methodology.

Development of discount rates
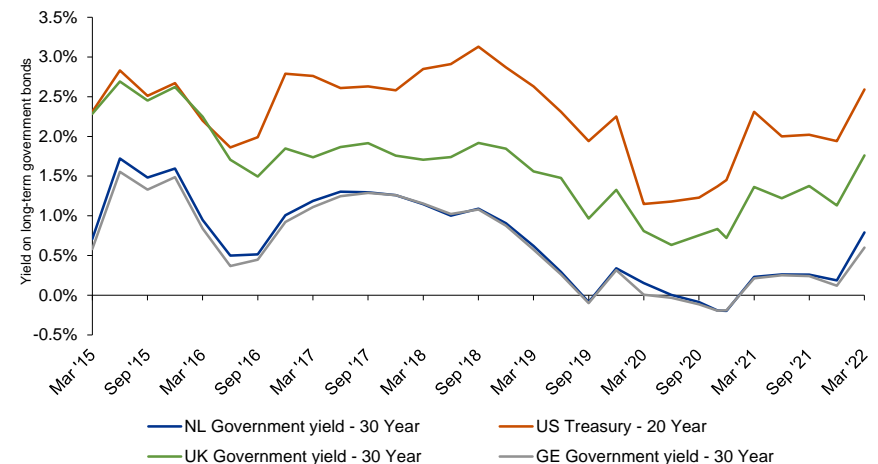
Implied equity return

The graph below illustrates the movement in the implied equity returns for a number of major equity markets over time. From this graph it can be observed that the implied equity returns of the markets included have experienced an increase since 31 December 2021.
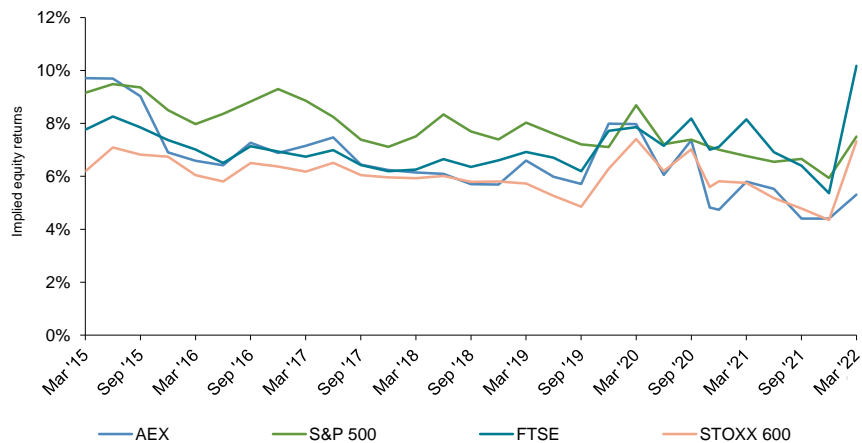
Yield on long-term bonds

In the graph below, the interest rate movements for a number of highly developed markets (Netherlands, UK, Germany and US) are displayed.

From this graph it can be observed that the long term yields of the German, Dutch, UK and US government bonds have all increased compared to 31 December 2021.

Equity market risk premium as per 31 March 2022: 5.5%

Findings

In our current update we observe increases in MRP estimates compared to 31 December 2021. This is driven by higher implied equity returns, despite increased risk-free rates.

Equity market risk premium KPMG Corporate Finance

Based on the analyses set out in this report we conclude that the markets included in our study (with more weight given to the S&P 500, FTSE and STOXX 600), show higher implied premiums compared to 31 December 2021. Therefore, KPMG Corporate Finance NL recommends the use of an **MRP of 5.5%** as per 31 March 2022.

We note that our estimation is based on information available as at 31 March 2022. Developments in the market after 31 March 2022 are not reflected in the MRP estimate as at 31 March 2022. However, due to the high volatility currently observed in the market, we will monitor the MRP at the end of each month and update it accordingly should any significant changes occur.
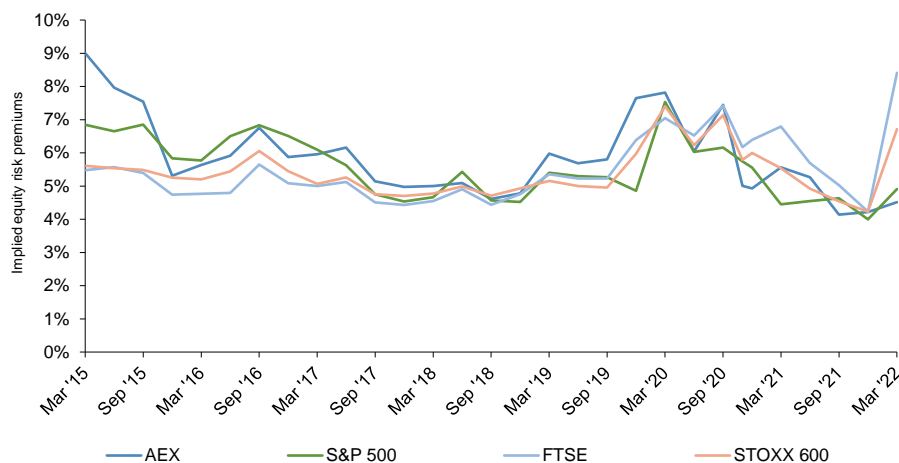
Considerations

In order to assess the reasonableness of the outcomes of our implied MRP study, we have considered various other methodologies as previously described. To the extent that these methodologies are valid to derive insights about the current level of the MRP, these methodologies have confirmed our findings.

Based on our research and professional judgement we consider the outcome of our study to represent a global MRP. However, when calculating a discount rate for a specific valuation purpose, consideration must be given to (amongst others):

- The basis for the applied risk-free rate;
- The applicable country risk premium; and
- Expected differences in inflationary outlook.

We highlight that the individual input parameters used in the determination of the discount rate should never be viewed in isolation.

Appendix

Historic MRP estimates

Please find an overview of the historic MRP estimates by KPMG Corporate Finance NL in the graph below.
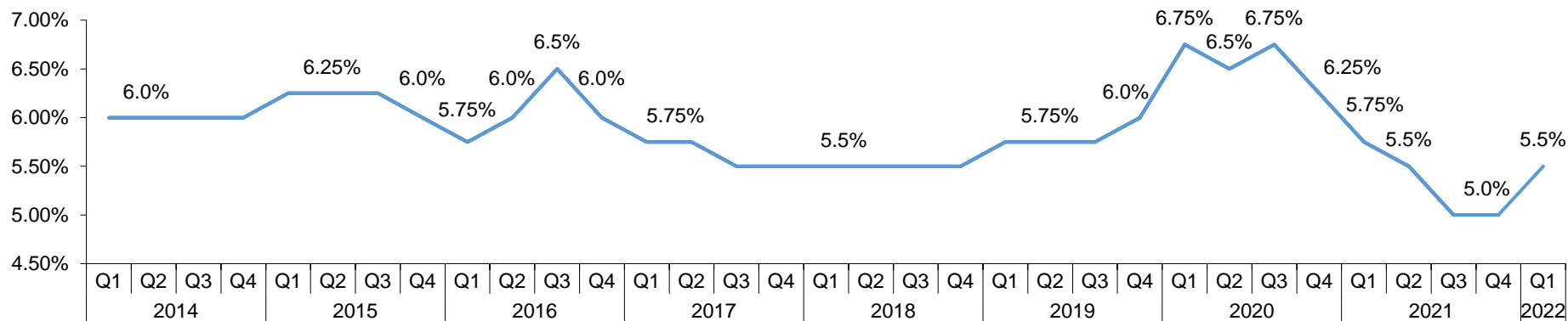
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