# Equity Market Risk Premium – Research Summary

31 March 2020

# We recommend a MRP of 6.75% as per 31 March 2020

If you are reading this, it is likely that you are in regular contact with KPMG 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, the equity market risk premium.

We recommend the use of an equity market risk premium ("MRP") of 6.75% as per 31 March 2020. The COVID-19 outbreak has had a significant impact on capital markets worldwide causing stock prices to plummet in Q1 of 2020. This resulted in a sharp increase in the required equity returns for all markets. Combined with decreasing risk-free rates for all markets this resulted in an increase in the global MRP with 75 basis points. Refer to the next page for additional background on the analyses performed by KPMG Corporate Finance NL resulting in the Q1 2020 MRP outcome.

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# Sensitivity analyses on the growth outlook

## Growth forecast

The growth outlook as applied in our MRP analysis is derived from estimations provided by analysts. These analyst reports provide an indication of the future earnings of the companies included in the indices analysed. The reports are published on a relatively frequent basis, but in the current situation reports published two months before the valuation date could already be considered outdated since they do not include the impact of COVID-19.

By investigating a sample of the analyst reports applied in our MRP analysis as at 31 March 2020 we have reason to believe that the growth outlook as included in our current analysis does not fully reflect the impact of COVID-19. However, the stock prices of the companies are already fully affected by the global crisis. Resulting in a mismatch between two of the input parameters applied in the implied equity return calculation.

If we were to apply the growth outlooks currently derived from the analyst reports the resulting MRP for the individual indices would range between 7.0% and 7.5%. Our global MRP outcome would also be within this range. To account for the mismatch between the market capitalisation and the growth outlook, available as at 31 March 2020, we performed multiple sensitivity analyses including one or multiple of the following adjustments:

- The estimated growth rate for the first 12 months is lowered;

- A decline has been estimated for the first 12 months; and/or

- The estimated growth rate for the second 12 months is lowered.

The growth rates as derived for the third year and all later years have not been adjusted in the sensitivity analyses.

The analysis above resulted in a MRP range of 6.5% to 7.0%. Therefore, we concluded on a global MRP as at 31 March 2020 of 6.75%. Although, we are not in favour of adjusting the inputs obtained from external source we are of the opinion that this approach is justified for the 31 March 2020 MRP analysis given current circumstances.

## Market capitalisation

While the market capitalisation of the companies included in the indices analysed reflects the impact of the COVID-19 outbreak as at 31 March 2020 it is impossible to separate the panic element from our analysis as the second half of February and first half of March were characterised by historical stock market declines. This resulted in a much lower total market capitalisation at the end of Q1 2020 compared to the end of Q4 2019 (the date of our previous MRP analysis). From mid March to late April there has been a recovery followed by a further decline. We are satisfied that the market capitalisation as at 31 March provides a suitable indication of the market levels as at our estimation date.

The figure below illustrates this decline in the stock markets in the first quarter of 2020 for the four markets included in our analysis (31 December 2019 has been set equal to 100).
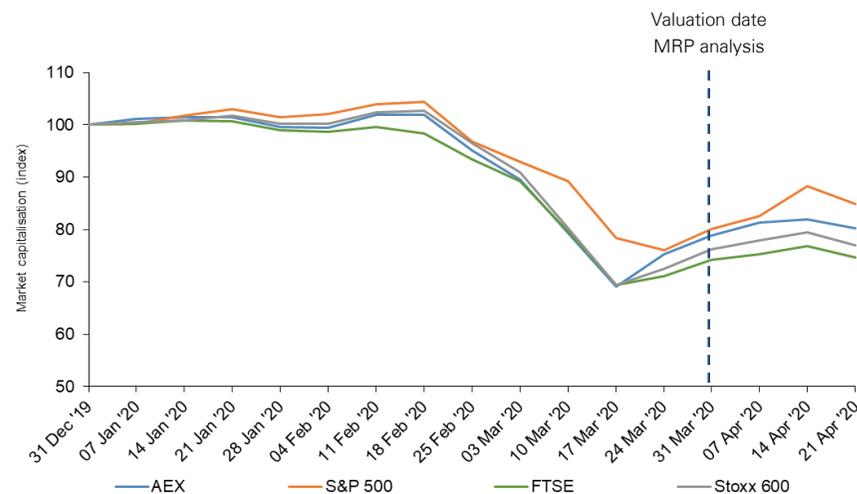
# Introduction – valuation and discount rates

## 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:

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

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 how the returns of a certain company behave in relation to the returns of 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 that may need to be applied for a number of different reasons. 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 equity market risk premium ("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 for investors in order to be willing to invest).

Since alpha only relates to company-specific 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 equity market risk premium.



**Cost of equity individual company**

**Cost of equity overall market**
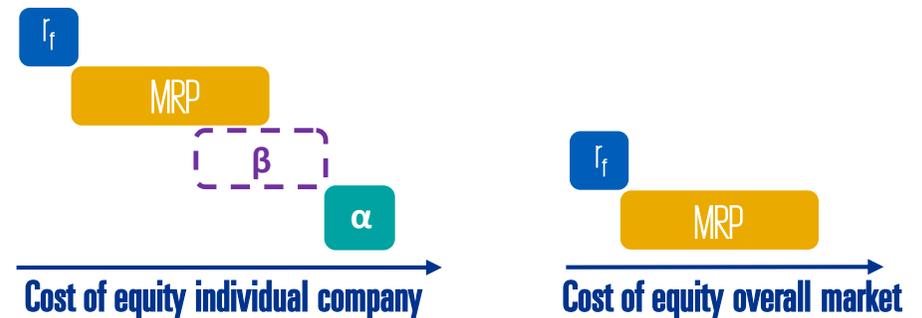
# Measurement of the equity market risk premium - methodologies

## 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 equity market risk premium.

The implied equity market risk premium 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, a division of KPMG Advisory N.V. ("KPMG Corporate Finance"), 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 equity market risk premium methodology the most appropriate methodology in order to derive changes in the equity market risk premium as a result of the financial crisis, 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 equity market risk premium 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 equity market risk premium 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 is clearly visible that the implied equity returns for the S&P 500 and Stoxx 600 markets have increased significantly in the first quarter of 2020. Whereas the implied equity return of the FTSE already showed an increase in the last quarter of 2019 and remained relatively stable in the current quarter.
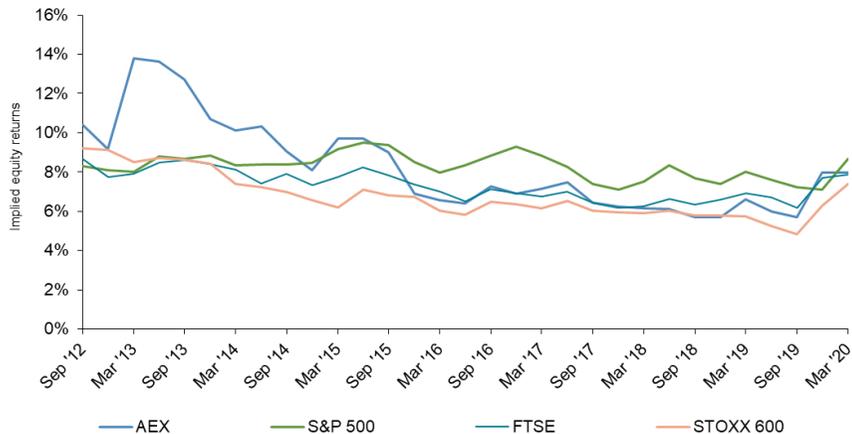
## Yield on long-term bonds

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

The final months of 2019 showed an increase in the risk-free rates after a year of declining rates. However, due to the current market insecurity resulting from the COVID-19 pandemic the risk-free rates have dropped again for all markets. With the sharpest decrease noticeable for the US.
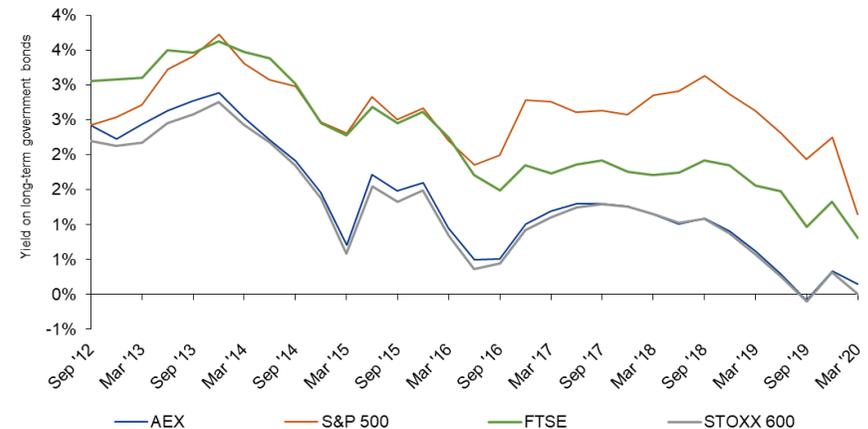
# Equity market risk premium as per 31 March 2020: 6.75%

## Findings

Since markets fluctuate on a daily basis and there are some differences between market risk premia in different regions, it is difficult to mathematically derive one single point estimate for a universal equity market risk premium for all developed markets.

In our current update we observe a significantly higher equity risk premium compared to the previous quarter. This is driven by strong increases in implied equity returns and decreasing risk-free rates.
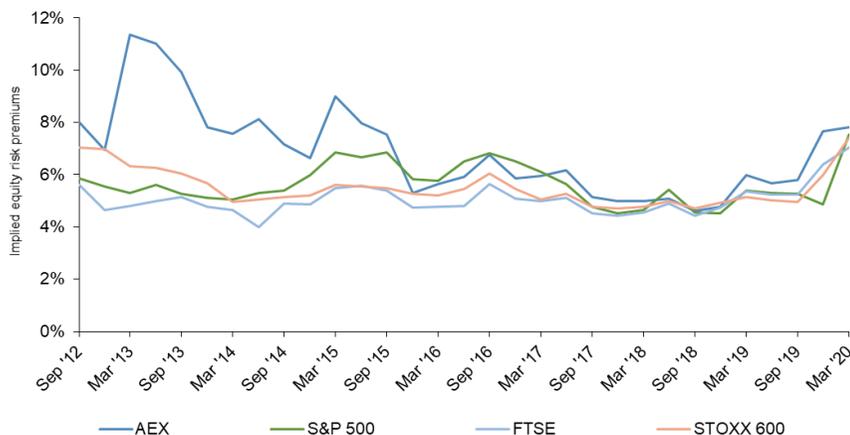
## Equity market risk premium KPMG Corporate Finance

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 last quarter. Therefore, KPMG Corporate Finance recommends the use of an **equity market risk premium of 6.75%** as per 31 March 2020.

We note that our estimation is based on information available as at 31 March 2020. Developments in the market after 31 March 2020 may have an impact on the perceived market risk which is not reflected in the equity market risk premium estimate as at 31 March 2020.

## Considerations

In order to assess the reasonableness of the outcomes of our implied equity market risk premium 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 equity market risk premium, these methodologies have confirmed our findings.

Based on our research and professional judgement we propose a global equity market risk premium. However, when calculating a discount rate 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 individual input parameters should never be viewed in isolation.

# Appendix

## Historic MRP estimates

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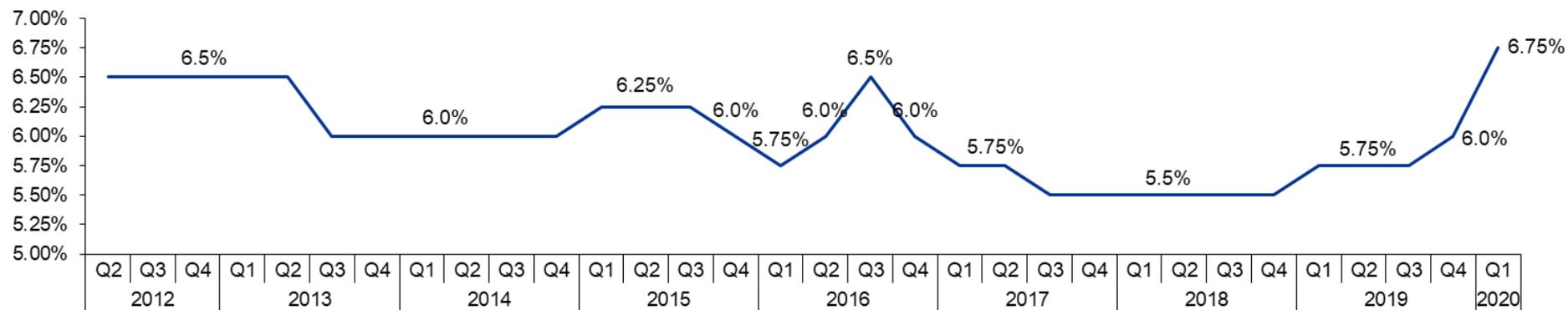
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