



Quarterly Brief

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Dear reader

Political uncertainties over the past quarter remain unresolved, such as the potential conflict between the US and Iran, trade dispute between the US and China, and the Brexit negotiations. Of these, it is the trade war between China and the US that continues to present one of the biggest risks for the global economy. Announcements of further customs duties in the third quarter of 2019 added to the uncertainty.

The measures initiated by US President Donald Trump are also being directed against other economies such as the EU. In response to each other's announcement of the imposition of new tariffs, both parties began to increase the tariffs on a number of products, which may lead to a further escalation.

At the same time, the EU is preparing for the Brexit summit in mid-October, at which the UK's resignation agreement will be discussed, while British Prime Minister Boris Johnson maintains that a no-deal Brexit is still an option.

As a result of these developments and low inflation rates, central banks around the world continued to cut interest rates over the past three months. The US Federal Reserve decided to suspend its tight monetary policy and lower interest rates too.

These issues also impact exchange rates, of course. As such, it is timely to share in this newsletter – which we will title from this edition on “Quarterly Brief” to emphasize its benefits – our insights into currency conversion in company valuation, in addition to an update on recent capital market data that are relevant to any valuation analysis in these turbulent times:

- Major stock market performances: Emerging markets significantly decline in Q3
- EURO STOXX 600 sector multiples: IT dominates Q3 but loses significantly on a quarterly basis
- Current risk-free rates for major currencies: Interest rates continue to decline
- Recent country risk premiums and inflation forecasts for the BRIC countries: Growth expectations for Brazil have declined while risk premiums have increased

We wish you a pleasant autumn and look forward to discussing with you any questions you might have regarding valuation trends and practices.

Yours faithfully



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Achieving consistency in currency conversions



Business plans may be presented in a single reporting currency, but their underlying business operations tend to be carried out in a large number of currencies. Enterprise values can therefore be significantly impacted by the determination of relevant exchange rates. Debate has raged for some time over whether a single applicable method of currency conversion exists or if several methods are justifiable. Either way, it is clear that currency conversion is a core requirements of accurate business planning. This article shares our insights into this controversial topic.

Two primary choices: the direct and the indirect methods

Corporate valuations are based on discounting the expected future cash flows of the object being valued. For most companies that operate internationally, these cash flows are generated in various foreign currencies. So, how should cash flows be valued to give a consistent and meaningful view from the perspective of a domestic investor? Two methods can be considered: the direct and the indirect.

The direct method

Cash flows denominated in the foreign currency are discounted using the cost of capital based on the same foreign currency area. I.e. planning in US dollars uses a cost of capital for the US dollar area. This is in line with the currency equivalence principle. The present value of the cash flows is then translated into the relevant currency at the spot rate on the valuation date. It should be noted that the direct method is sometimes required – for example, by IAS 36 (Impairment of Assets).

The indirect method

Cash flows denominated in foreign currencies are initially translated into the domestic currency at expected exchange rates. The present value of the cash flows is then discounted using the cost of capital based on the domestic currency area. This means that the enterprise value is already calculated in the domestic currency. Expected exchange rates must be determined for the translation of the

individual future cash flows of the respective plan years. A typical application is when valuing companies that generate cash flows in different currency areas, as it avoids the need to break down the company's business by currency area (which must be done under the direct method).

In an ideal world, the direct and indirect methods would produce the same result if the cash flows were certain, i.e. if there was no volatility arising from price or volume elasticities due to exchange rate fluctuations. Likewise, expected real stock returns in the currency areas would need to be the same. This would be the case if capital markets were completely financially integrated, and therefore had the same real costs of capital. Differences would result only from varying inflation expectations, which would in turn be fully reflected in future exchange rates. Only in this theoretical world would future exchange rates be easy to predict and the problems of fixing them eliminated. As this is not the case in the real world, however, the two methods produce different results.

A valuation can therefore not neglect the explicit assumption of a future exchange rate. With the indirect method, this is due to the fact that exchange rates are required to convert future cash flows from a foreign currency to the domestic currency. This must also be done implicitly for the direct method, since if it is not reflected, it is assumed that future exchange rates will develop according

to the differences in inflation expectations (relative purchasing power parity according to the so-called Fisher parities). This does not hold true in practice, however. In other words, the direct method already bears its (trivial) exchange rate assumption.

How to determine exchange rates, therefore

The starting point for forecasting considerations is typically the (international Fisher) parity theories – the different interest rates (interest rate parity theory) and the varying purchasing power between currency areas (purchasing power parity theory).

The theory of interest parity assumes uniform financial securities prices in the capital market, as arbitrage possibilities would otherwise exist. In its form of covered interest parity, investments in domestic or foreign financial securities with the same features should achieve the same return at the current spot rate and simultaneous sale of proceeds from the sale in a foreign currency at the forward rate. To avoid arbitrage opportunities, the forward rate must correspond exactly to the interest differential between the domestic and foreign currencies. This correlation is confirmed in practice. Unfortunately, negotiated forward rates are usually only observable in the market for very short-term maturities of one to two years. They can be interpreted as implicit hedging transactions and could, for example, be used as a forecasting method for the short term. Forward rates derived beyond this



period are usually derived artificially from the yield curves and therefore do not represent a suitable exchange rate forecast. For example, financial services provider Bloomberg explicitly points out that calculated forward rates cannot be used as an exchange rate forecast.

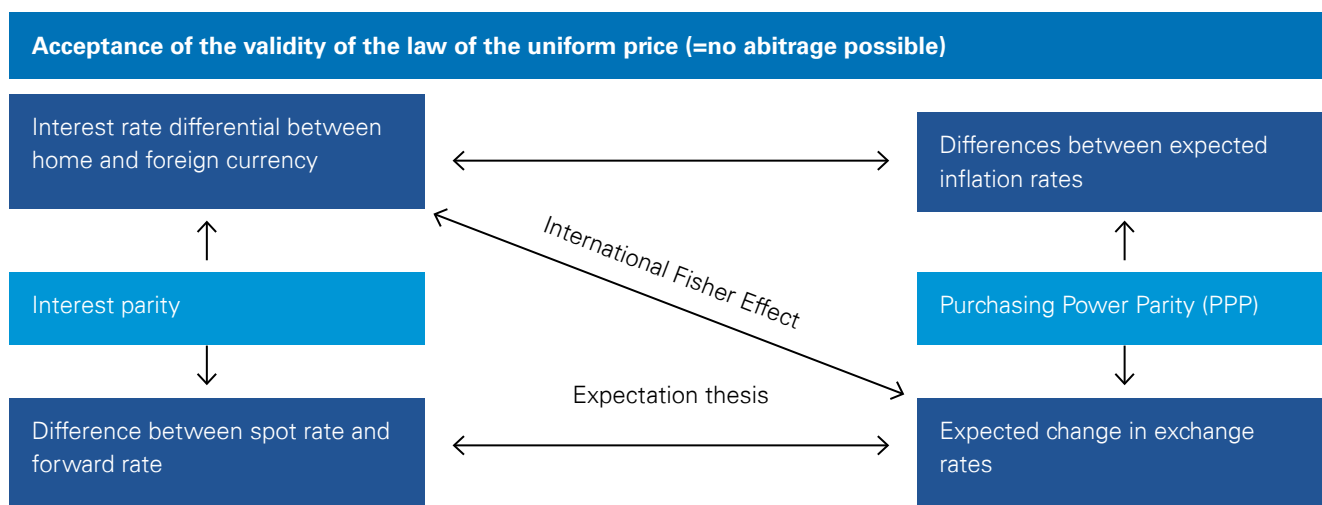
In the uncovered form of the interest rate parity theory, irrespective of hedging transactions, it is assumed that only the interest rate differences between currency areas determine future exchange rate developments.

According to this, a foreign financial security that has the same features as a domestic investment could be sold unsecured in the future and the proceeds of the sale transferred into the domestic currency at the future spot rate without any difference in yield. Conversely, future exchange rates could be predicted via the interest rate differential. In practice, however, the relationship is controversial.

The purchasing power parity theory can also be applied to the goods

market. According to the absolute purchasing power parity theory, the law of uniform price applies to all markets, so that observable price differences can only be explained by inflation differences between currencies. In other words, exchange rates would have to follow the inflation differences between domestic and foreign currencies. Purchasing power parity cannot yet be confirmed, at least not in the short to medium term. However, some studies point to a correlation over longer periods.

Relationship between exchange rates and parity theories



Source: KPMG, 2019

In analyzing exchange rate forecasting methods, the so-called random walk forecasting method is used as a benchmark. This essentially represents a naive projection of the spot rate on the valuation date. The spot rate is also a 'price' which reflects all available information observable in the foreign exchange market. Especially in the short and medium term, this tends to provide the highest forecasting quality.

Overall, no model of exchange rate forecasting is clearly superior to all other models. Conversely, several methods are possible, though application must be consistent.

Exchange rate assumptions: a plausibility check

Company valuations are mostly not possible without exchange rate assumptions. These assumptions cannot be made unequivocally, however, but can only be checked for plausibility. The starting point should always be the current spot rate, since at least theoretically all available information should already have been processed there. Observable forward rates can be used in the short-term range of one to two years. Although forward rates for longer maturities can also be derived artificially, they appear to be of limited use for plausibility checks due to the above considerations.

Short-term exchange rate assumptions can be extrapolated for the long term, or extended forecasts can be derived. In particular, the purchasing power parity theory can offer an alternative for determining long-term exchange rates. Bodies such as the OECD, ECB and IMF make the necessary data publicly available for use.

The use of qualified and understandable analyst estimates can also make sense, at least if obvious outliers are not used.

Regardless of the exchange rate assumptions used, the economic currency exposure must be kept in mind. This means ensuring that the exchange rate effect is consistently taken into account in product program planning, sales and cost planning and investment planning. Although the exchange rate is an external factor, the company adjusts to it strategically and operationally.

A business plan is created at a particular point in time, with specific exchange rate assumptions as of that date. The same business plan – and its underlying strategy – might not remain economically viable if exchange rates change significantly over time. This is why businesses must adapt their operations and strategies to longer-term movements in exchange rates. To do so clearly involves some careful decisions over which currency conversion method is most appropriate to the company's circumstances, and how this might change over a longer period.



Capital market data



In this section we provide a selection of key financial market data, covering:

- Comparison of major stock market performances for the 12 months ending 30 September 2019
- EURO STOXX 600 sector multiples
- Risk-free rates for major currencies
- Country risk premiums and inflation forecasts for the BRIC countries

Major stock market performances: Emerging markets significantly decline in Q3

The MSCI World index lost momentum since Q2 2019, remaining roughly at its previous level (+0.1). On an annual basis, the index decreased slightly by -0.2%.

The losses made by the MSCI Emerging Markets index in Q2 2019

intensified further, leading to severe losses both on a quarterly (-5.1%) and annual (-4.5%) basis. The highest losses were recorded in Q3.

The CAC40 was the best-performing index in Q3 (+2.5%), rising by 3.4% compared to Q3 2018. The Nikkei 225 and STOXX Europe 600 posted similar quarterly performances at +2.3% and +2.2% respectively. However, the Nikkei 225 saw the worst performance on an annual basis (-9.8%), due to the all-time high the index achieved in Q3 2018.

The SMI was the best-performing index on an annual basis (+10.9%) despite losing momentum over the past three months (+1.8%). The index performed very well in Q1 and Q2 2019 with quarterly growth rates of

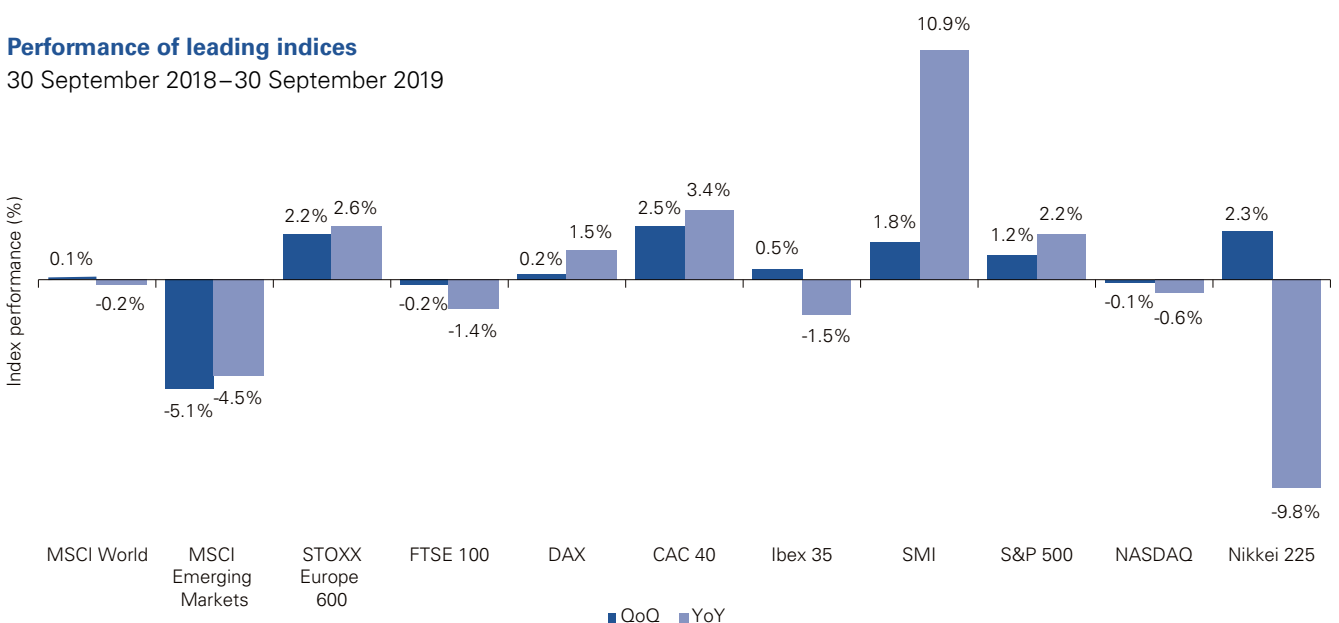
4.4% and 12.4%, forming the basis for the high annual performance in the most recent quarter.

European and US indices put in a mixed performance in Q3 2019. The Dax (0.2%) and S&P 500 index (+1.2%) posted small gains while NASDAQ (-0.1%) and the FTSE 100 (-0.2%) lagged behind. This holds also on an annual basis where the FTSE 100 (-1.4%) and NASDAQ (-0.6%) performed below the Dax (+1.5%) and S&P 500 (+2.2%).

The Ibx 35 recovered in Q3, gaining 0.5% despite its negative performance overall in the past 12 months (-1.5%).

Performance of leading indices

30 September 2018–30 September 2019



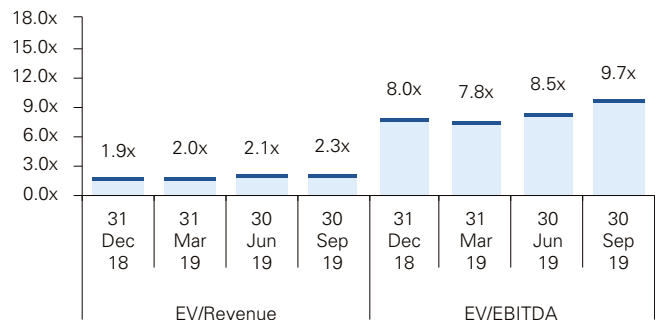
Source: Capital IQ, KPMG analysis

EURO STOXX 600 sector multiples: IT dominates Q3 but loses significantly on a quarterly basis

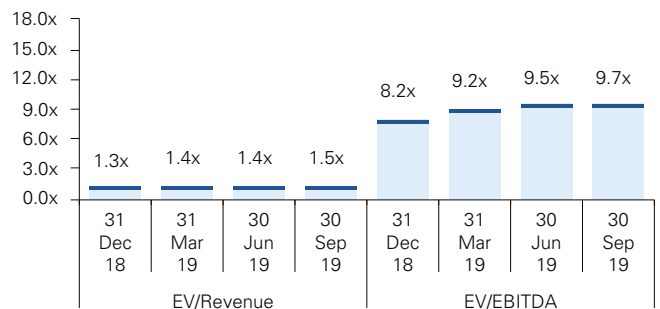
The enterprise value (EV) multiple states the market value of the business in relation to an appropriate base metric. Commonly used EV multiples are revenue and EBITDA. The numerator (EV) and denominator (revenue, EBITDA) represent all investor claims on the business.

The Euro STOXX 600 sector overview of trading multiples showed various valuation trends. Based on EV/EBITDA, most sectors in Q3 2019 experienced an increased multiple level (e.g. communication services, consumer discretionary or consumer staples, among others) while several EV/revenue multiples remained flat (e.g. energy, industrials, materials and utilities). The information technology sector still posted the highest EV/EBITDA multiples. However, its multiple dropped from 15.9x to 14.7x and subsequently reversed to its previous EV/EBITDA level of Q1 2019.

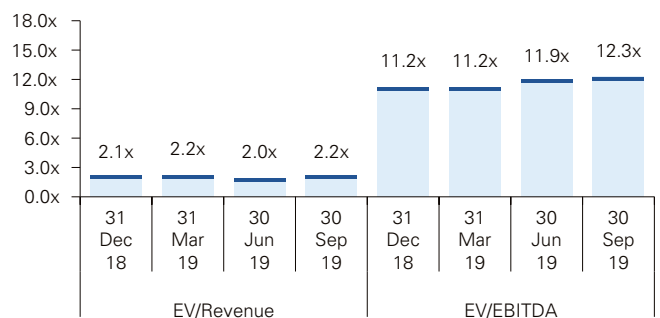
Communication Services Median



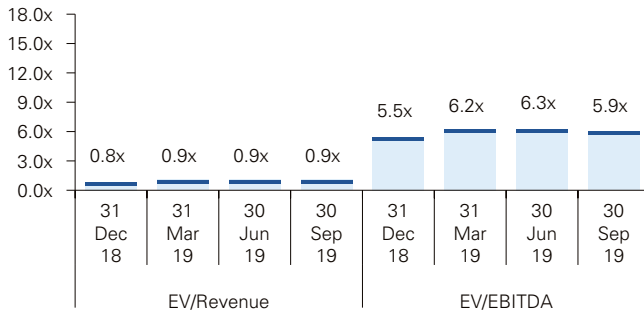
Consumer Discretionary Median



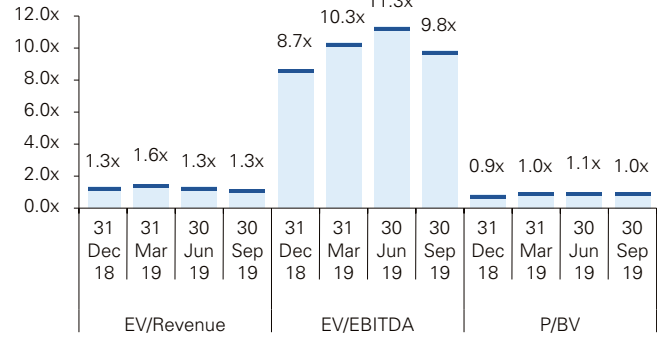
Consumer Staples Median



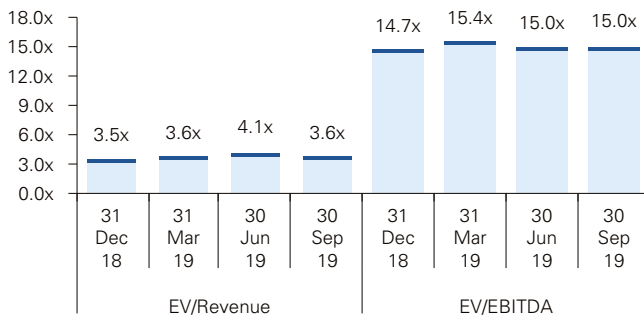
Energy (Oil and Gas) Median



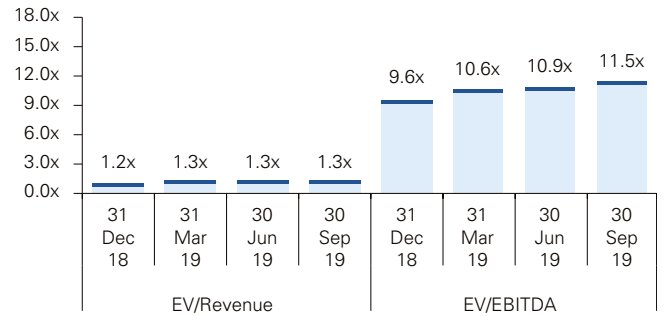
Financials Median¹



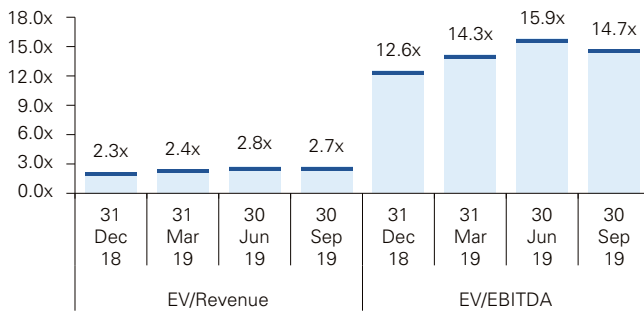
Health Care Median



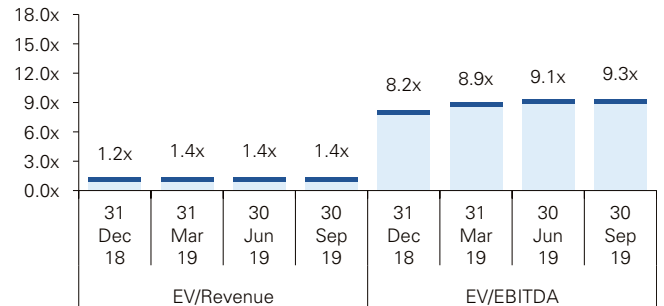
Industrials Median



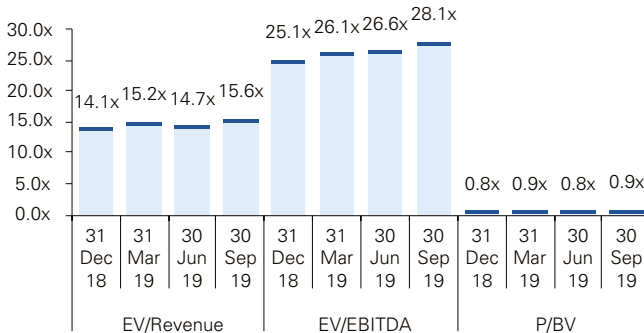
Information Technology Median



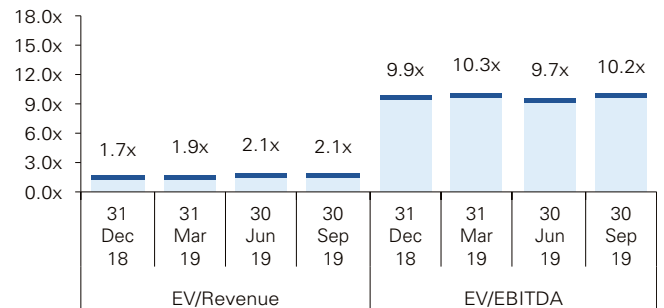
Materials Median



Real Estate Median



Utilities Median



Source: Capital IQ, KPMG analysis

Note: ¹ Financial services companies differ from many other companies in how they operate. Debt acts more like 'raw material' than operational capital for financial services companies. A common valuation metric used by analysts evaluating such firms is the price to book (P/B) ratio.

Risk-free rates: Interest rates continue to decline

The risk-free rate (or base rate) can generally be broken down into two key components that seek to compensate the investor: the first for expected inflation and the second for deferred consumption. The base rate is considered to be free of risks except for risks embedded in the underlying currency and risks related to investments in the particular country (including general political, legal, regulatory and tax risks, as well as the risk of a moratorium). As no investment is truly risk free, the risk-free rate is typically approximated by reference to the yield on long-term debt instruments issued by presumably financially healthy governments. The historical risk-free rates for Germany, the Eurozone, the US, the UK and Switzerland are below.

The drop in most risk-free rates that we noted in previous quarters continued in Q3 2019. On an annual basis, all risk-free rates reached new lows with most set at 0.0%. The US risk-free rate decreased significantly by almost 50 base points to 2.25% though it remains the highest risk free rate in Q3 2019. The UK shows a similar development in the past three months as its risk-free rate dropped from 1.56% to 1.05%. Negative risk-free rates have been floored at 0.0%.



Risk-free rates

Date	Euro-countries EUR	Germany EUR	UK GBP	Switzerland CHF	USA USD
31/3/2015	0.69%	0.70%	2.39%	0.43%	2.66%
30/6/2015	1.79%	1.65%	2.80%	0.79%	3.31%
30/9/2015	1.51%	1.38%	2.58%	0.81%	3.06%
31/12/2015	1.70%	1.55%	2.77%	0.70%	3.17%
31/3/2016	1.03%	0.90%	2.39%	0.25%	2.81%
30/6/2016	0.46%	0.49%	1.85%	0.00%	2.50%
30/9/2016	0.53%	0.47%	1.61%	0.00%	2.48%
31/12/2016	0.97%	0.95%	2.03%	0.35%	3.06%
31/03/2017	1.25%	1.24%	1.88%	0.32%	3.27%
30/06/2017	1.39%	1.33%	2.02%	0.39%	3.04%
30/09/2017	1.40%	1.38%	2.05%	0.45%	3.04%
31/12/2017	1.34%	1.34%	1.89%	0.36%	2.89%
31/03/2018	1.25%	1.24%	1.79%	0.56%	3.08%
30/06/2018	1.09%	1.12%	1.83%	0.51%	3.00%
30/09/2018	1.13%	1.15%	1.87%	0.61%	3.10%
31/12/2018	0.90%	0.94%	1.91%	0.37%	3.17%
31/03/2019	0.67%	0.65%	1.65%	0.17%	2.96%
30/06/2019	0.35%	0.33%	1.56%	0.02%	2.71%
30/09/2019	0.00%	0.00%	1.05%	0.00%	2.25%

Source: KPMG analysis

Approach: determination of a present value-equivalent uniform interest rate based on the yield curve of the specific central bank.

Country risk premium: Risk premiums in Brazil up significantly

The country risk premium is a measure of risk that accounts for incremental political, economic, legal, liquidity and other risks that businesses face in less developed capital markets. Country risk has become increasingly more relevant to investors recently due to many changes in the global economy in regards to restrictive trade policies that have made investment performance in previously stable countries less predictable. KPMG's Valuation practice has been analyzing and measuring country risk for 15 years and covers more than 150 sovereign states in a proprietary KPMG model.

The country risk premiums for Brazil, Russia, India and China are set out below as of 30 September 2019 for an investment period of between 0.5 and 2.0 years. When compared to our June 2019 update, much remains unchanged in Russia, India and China. The country risk premium for Brazil, on the other hand, over all time horizons, has increased with the greatest change being in the 0.5-year time horizon, which is up 60 basis points compared to our June 2019 update.

Country risk premium	0.5 year	1.0 year	2.0 years
Brazil	2.7%	2.8%	2.7%
Russia	2.0%	2.0%	1.9%
India	1.8%	1.9%	1.8%
China	0.4%	0.5%	0.5%

Source: KPMG CRP study as of 30 September 2019

Growth rates: Growth expectations for Brazil have declined

Growth rates are a major component of the terminal value calculation for the discounted value method and are based on country-specific inflation forecasts. The growth rates for Brazil, Russia, India and China are based on the International Monetary Fund Economist Intelligence Unit inflation forecast for the years 2020 to 2024.

Overall, growth rates are expected to be higher for India, Russia and Brazil than those for China. For India, growth rates are expected to remain stable at 4.0%, whereas China's are expected to increase slightly with an inflation rate of 2.4% in 2020. In the short run, Russia's growth rate is expected to grow by around 3.5%, which is 100 basis points lower than expected in Q2. The biggest change is seen in Brazil's growth rate expectations, which declined in Q3.

Inflation forecast	2020	2021	2022	2023	2024
Brazil	3.5%	3.8%	3.6%	3.5%	3.5%
Russia	3.5%	3.9%	4.0%	4.0%	4.0%
India	4.1%	4.1%	4.0%	4.0%	4.0%
China	2.4%	2.8%	2.9%	3.0%	3.0%

Source: IMF

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