Equity Strategy

A Research Publication by DZ BANK AG



Methodology for equity indices

The methodological approach to generating forecasts for selected equity indices involves defining fundamental and other factors which have an influence when it comes to producing index forecasts.

At DZ BANK Research, forecasts are generated and published against the background of various time horizons for the following equity indices: MSCI World, S&P 500, Euro Stoxx 50, DAX and Stoxx Global ESG Leaders Select 50.

The analysts at DZ Bank Research arrive at price forecasts typically for a variety of time horizons, ranging between 3 and 15 months.

Our forecasts regarding the future trend in equity indices are intended *inter alia* for Germany's Genossenschaftsbanken (Co-operative Banks) and for Genossenschaftsbank customers who have sufficient in-depth knowledge and experience in equity business. In addition, index forecasts are generated for institutional clients.

It may not be possible to derive general investment recommendations, defined on an *ex ante* basis, from a comparison of the current market prices of selected indices with our forecasts for the future trend in those indices.

Due to the manifold factors which influence the trend in equity indices, the generation of price forecasts is not only an objective issue but also involves "soft" subjective factors which cannot be quantified. We do not therefore believe that it is expedient to employ a purely model-based approach when it comes to generating index forecasts.

Equity strategists invariably need to keep a close eye on both fundamental and other determinants, comparing these with already published forecasts. Accordingly, it may become necessary to alter index forecasts during the forecast period on account of an extremely dynamic market environment (triggered by such things as changes in the earnings situation of companies contained in the index, interest-rate decisions by relevant central-banks or cyclical and political events). As a consequence of this, equity strategists develop an opportunity/risk profile for the existing index forecast in the event of a shift in important determinants influencing the index forecast in question. The next step is to determine whether the opportunities now outweigh the risks, or the risks the opportunities, and whether the price forecast needs to be altered as a result.

It is therefore the task of equity strategists to constantly assess the relevance and significance of the determinants which have been identified and to appraise their importance for the equity-index forecasts concerned.

EQUITIES

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THEORETICAL BASIS

Fundamental analysis (FA) provides the theoretical basis for the generation of index forecasts. Such analysis attempts to ascertain the fair or appropriate price ("intrinsic value") for a given equity index. In contrast to technical analysis (TA), FA is not based on the monitoring of stock-market prices or historical chart patterns but rather on corporate data and on the so-called fundamentals, i.e. the economic environment underlying a given equity index.

The FA approach is based on balance-sheet-analysis methods and - especially when it is a question of deriving index forecasts - on a series of equity-price-related parameters such as the dividend yield, the price-earnings ratio or the earnings expectations of the companies contained in the index in question. Fundamental analysis results in a price target which provides a clue to the fundamentally derived value of a given equity index. However, such a fundamentally derived price target is only one component of equity-index forecasting. This component is supplemented by a further one involving so-called "soft" factors (i.e. ones which it is either impossible or difficult to quantify), the determination and assessment of which require a large degree of discretionary judgement.

The index forecasts we arrive at are generated with the utmost care, taking into account all the relevant facts which are recognisable at that particular point in time. The analysts on our team have a high degree of specialised knowledge about the market in question, which enables them to arrive at a qualified assessment even of determinants which are difficult or impossible to quantify. However, fundamental analysis is the basic component used to generate index forecasts. In this respect, it is mainly relevant fundamental parameters which are utilised when generating index forecasts.

Fundamental analysis entails calculating individual parameters. Yet there are no general rules regarding how big a weighting should be assigned to each individual parameter, i.e. how strongly each respective parameter should be factored into the overall assessment of a given equity index. In this respect, a major role is played by the experience and the capacity for discretionary judgement of the equity strategists involved.

Fundamental analysis:

While also depending on a whole multitude of other parameters, the question of whether an equity index is set to rise or fall hinges to a decisive extent on the business performance of the companies contained in the index. The keystone of fundamental analysis, prior to the generation of an equity-index forecast, is therefore constituted by aggregate stock valuations, which - in turn - take their bearings by stock ratios and other fundamental data (company-specific and macroeconomic data).

Below we will be looking at a selection of central stock ratios, used on an aggregate basis to determine the fair value of the index as a whole:

Price-earnings ratio (PER): This parameter captures the ratio of the index level of a given equity index to index earnings (composed of the earnings generated by the companies contained in the index on the basis of their respective index weighting). Comparing the respective PERs is a workable basis for comparing the performance of a given equity index with that of other indices. This provides a good indicator of the valuation of a given equity index. However, it is always imperative to take

account of the attendant circumstances when appraising a PER. It is especially helpful to use PERs on a comparative basis, relative to historical PERs for the equity index concerned.

Price-book ratio (PBR): This parameter captures the ratio of the market value of equity for all the companies in a given index to the book value of equity as reported on company balance sheets (ascertained on the basis of the index weighting for the companies contained in the index). The higher the PBR, the brighter, as a rule, the business future of the companies contained in the given equity index is reckoned to be. In principle, the PBR is higher than 1. If the PBR is below 1, an investor could theoretically purchase the equity index for less than it is worth. If price-book ratios are below 1, negative expectations play a large role. (Further) losses, eroding the equity base, are believed to be on the cards.

Price-sales ratio (PSR): This parameter is used to appraise the market value of an equity index using the weighted sales of all the companies contained in that index. In this connection, the ratio of the current stock-market price/ index level to (weighted) aggregate sales for the index is computed.

Price cash flow ratio (PCR): This parameter captures the ratio of an equity index's level to expected (weighted) cash inflows at the companies contained in that index. This metric adjusts especially for depreciation because it does not involve any cash outflows.

Dividend yield: The dividend yield for an equity index captures the average dividend yield for all the companies contained in that index. Amongst others, this is a good indicator to determine the attractiveness of an equity investment.

RELEVANT FACTORS WHEN GENERATING EQUITY-MARKET FORECASTS

When it is a question of generating equity-index forecasts, a large number of relevant factors are drawn on. Whether the latter play a more or less prominent role will depend on how the equity strategists concerned weight the overall environment at the given point in time on the basis of their discretionary judgement.

The factors in question including the following (our list is non-exhaustive, taking its bearings by the market constellation prevailing at the time in question; it should also be noted that the order in which factors are set out below does not imply that certain factors are being prioritised):

Sectoral situation:

Is a sector in a special situation on account of external or internal factors? A case in point here would be the influence of oil prices on the oil and gas industry or the repercussions of the low-interest-rate environment on the banking industry. What influence does the specific sector have on the overall index?

Earnings situation at companies:

The earnings situation at companies can be derived from the sectoral situation at a particular point in time. How are corporate earnings looking, especially in a historical context? In-house models as well as consensus estimates (Bloomberg, Factset) are used to forecast future index earnings (resulting from the cumulative earnings of the companies contained in the index concerned).

Equity-market valuation:

Equity-market valuation is an important yardstick for assessing the current situation on equity markets. Is an index's valuation on the high side or is it comparatively favourable by historical standards? What is the expectation regarding the future trend in index valuation? Does the current valuation level imply that index forecasts are going to tend to be adjusted upwards or downwards?

>> Central-bank policy at the world's major central banks:

In the period since the financial crisis, the ultra-expansionary monetary-policy stance adopted by the world's major central banks has turned out to be one of the most important determinants influencing the trend in equity indices. The question as to whether the world's most important central banks will maintain their extremely accommodative monetary policy - and, if so, for how long - is therefore a very important consideration in the context of index forecasts.

A country's monetary policy is influenced by national factors (growth, inflation, labour market, financial-market developments), by the central bank's mandate (inflation target) as well as by external, global factors. By means of its monetary policy, a central bank exercises a direct influence on the yield level. It therefore indirectly determines the relative attractiveness of equity investments (bond-market yield versus dividend yields) as well.

Growth, inflation and prevailing inflation expectations play a particularly pivotal role for a central bank's monetary policy. On this score, high growth rates and mounting inflation tend to result in a more restrictive monetary-policy stance while low growth and falling inflation prompt central banks to respond by loosening the monetary reins. A more restrictive stance is usually negative for equity markets while a more expansionary stance has a positive impact. As to the trend in growth, but also the trend in the inflation rate and in inflation expectations, it should be noted that these variables are influenced by external factors (such as the trend in commodity prices) as well as by national ones.

Cyclical situation:

Cyclical determinants likewise play a major role in the context of equity-market forecasts on account of their indirect influence on corporate earnings. The following are classic examples:

GDP growth: GDP growth is an important indicator when it comes to assessing the cyclical situation which a given economy is in. In this context, it needs to be established whether a positive growth rate is a function of a healthy, sustainable development or whether it is based, for instance, on a fiscal policy geared to deficit spending and is not therefore sustainable. To ascertain this, it is necessary to take a closer look at the individual components of GDP growth (consumption, government expenditure, investment activity, exports and imports). On top of this, a country's growth rates need to be set against the rates of expansion in comparable economies, against global growth and against the country's historical growth performance.

- Labour-market trend: Although it is admittedly a lagging indicator (the unemployment rate only begins declining once the economy has already recovered to a noticeable extent), the labour market plays an important role nonetheless. Falling unemployment rates and the rising wages which these frequently entail have significant knock-on effects on consumption (and, by extension, on aggregate growth) as well as on the inflation rate.
- **》** Fiscal policy: A government's fiscal policy plays a major role, exercising a decisive influence on a country's economic development. The term "fiscal policy" encompasses all public-sector measures designed to steer economic activity by changing the level of government revenue and expenditure. An anti-cyclical fiscal policy is a political strategy whose objective it is to counteract cyclical fluctuations in economic activity through carefully targeted changes in government revenue and expenditure in order to guarantee stable economic growth. In phases of weaker economic growth in particular, national politicians regularly face demands to launch fiscal programmes designed to stimulate the If such a - usually debt-financed - economic-stimulus programme is economy. implemented by a state, it will have a direct positive influence on economic activity as well as an indirect positive influence on the trend in corporate earnings. In top of this, a country's fiscal policy has a significant impact on the yield level, and therefore on the relative attractiveness of the "equities" asset class. That, in turn, will exercise a strong influence on the trend in equity indices.

Political factors:

The more recent past in particular has demonstrated that political factors play a more prominent role for equity markets than used to be the case. Assessing and forecasting the future political situation is therefore also playing an increasingly important role when it comes to generating index forecasts.

Commodity prices:

The trend in important commodity prices - in oil quotations, for example - exerts a major influence both on market sentiment and on the trend in equity indices.

Seasonal factors:

Seasonal factors sometimes have an influence on the trend in equity indices which it would be wrong to underestimate.

Correlation analyses:

The historical and expected degree of synchronisation between the forecast index and benchmark indices, such as the Stoxx Global Leader ESG Select 50 and the Euro Stoxx 50, also has a significant influence on a formulated index forecast.

SOURCES: DATA, STUDIES, INFORMATION

Equity strategists draw on a broad spectrum of data and information when conducting their analyses and generating their index forecasts. Given the high degree of transparency of equity markets, the key to success is to sift out the information which has a crucial bearing on the generation and, later, on the permanent validation of equity-index forecasts from the vast amount of available data.

The following types of data are utilised in the forecasting process employed to generate equity-index forecasts:

Internal data:

In the first instance, we take advantage of research results and forecasts from the various departments at DZ BANK with respect to the macroeconomic trend, bond or commodity markets, and benefit from the expertise of DZ BANK Research equity-market analysts with respect to assessments of companies or sectors. In those cases where it is not possible to draw on such internal sources, external data and/or forecasts are resorted to, such external material being accordingly indicated in the list of sources accompanying our studies.

External data:

- Fundamental data: For the most part, we derive fundamental data from such data providers as Datastream/Refinitiv, Bloomberg (consensus estimates) and Factset. Data from index providers are usually also used to calculate the weightings. If this data is not available, the index is calculated on the basis of generally publicly available information from the index providers, ETF providers and other providers, using the publicly available index calculation guidelines. In addition, we make use of data from international organisations such as the IMF or OPEC. National statistical offices and central banks also furnish relevant data. As a matter of principle, we take pains to ensure that trustworthy sources are used. In case of doubt, our analysts are required to verify data from one particular source with the help of other sources.
- Market indicators: Exchange rates, interest rates, spreads, equity prices, commodity prices, and so on, are obtained from Datastream/Refinitiv, Bloomberg and Reuters. The same applies to volatility indices and other market indicators.

News:

- News agencies: Breaking news is obtained from such news agencies as Bloomberg and Reuters.
- Media: On this score, our analysts are required to keep abreast of developments on an ongoing basis, especially by reading relevant specialised publications.

THE FORECASTING PROCESS

Due to the manifold factors which influence the trend in equity indices, the generation of price forecasts also involves a strongly subjective element. As a result, equity strategists invariably need to keep a close eye on the fundamental factors we have delineated above as well as on other determinants, comparing these with already published forecasts. Accordingly, it may become necessary to alter index forecasts during the forecast period on account of an extremely dynamic market environment (triggered by such things as changes in the earnings situation of companies contained in the index, interest-rate decisions by relevant central-banks or cyclical and political events).

Should the circumstances change, then, our forecasts are duly reworked and may be adjusted in response to a shift in the framework conditions. This means that equity-index forecasts have to display a certain flexibility and may - at least to some extent - "breathe" with the changing market constellation. This does not mean that equity-index forecasts are subject, even in turbulent market phases, to a permanent revision process. When an adjustment to an index forecast is needed and when this is not the case is left to the discretion of equity strategists, hinging on changes to the framework conditions and on how significant the equity strategist in question considers these to be.

INFORMATION:

1.) Developments related to financial instruments or indexes in the past do not provide a reliable indicator for future developments. 2.) Gross price developments (specifically, without taking account of costs, fees, commission and where applicable taxes and relevant investments) unless otherwise stated. This means that the return yielded by an investment can, in reality, be lower 3.) Where foreign currencies are used for financial instruments and indexes, currency fluctuations can (negatively or positively) affect euro returns.

For details on any investment recommendations possibly mentioned, in particular regarding the respective conflicts of interest with issuers, please refer to the respective current Research Reports on these issuers and to our website www.dzbank.com/disclosures

I. IMPRINT

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- 3.1 The Research Reports (Financial Analyses and Other Research Information) of DZ BANK are independently prepared by its employed analysts or by competent analysts commissioned in a given case on the basis of the binding Conflicts of Interest Policy.
- 3.2 Each analyst involved in the preparation of the contents of this Research Report confirms that
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4.1 Statements on Isolated Aspects of an Investment Decision

Statements on the isolated evaluation of specific aspects that precede an investment recommendation on a financial instrument and / or an issuer - especially according to the sustainability criteria defined by DZ BANK, its defined value approach, its defined asset allocation (DZ BANK Sample Portfolio), its defined sector strategy Euro-Stoxx (DZ BANK Sector Favorites), its defined valuation of payments to beneficiaries (DZ BANK Dividend Aristocrats), their weighting recommendations for market segments or otherwise defined groups of different issuers, i.e. their weighting recommendations in the overall market strategy Fixed Income, in the sector strategy Corporates and their weighting recommendations for covered bond jurisdictions - are not investment categories and therefore do not contain any investment recommendations.

These isolated statements **alone** are **not sufficient** to form the basis of an investment decision. Reference is made to the explanation of the used relevant methods.

4.2 Sustainability Analysis

Issuers of shares and bonds are analysed on the basis of predefined **sustainability factors** and classified in isolation as '**sustainable**' or '**non sustainable**'. For sovereigns, a classification as '**transformation state**' can be made that lies between these two classifications.

4.3 Share Indices

For defined share indices, share price forecasts are made at regular intervals. From the comparison between the current prices and the prepared forecasts on the development of such equity indices, **investment recommendations that are not generally definable and that cannot be defined in advance** may be developed.

4.4 Currency Areas

The assessment of an investment in a **currency area** is based on the total return that can be expected from an investment in the corresponding **currency area**. As a rule, this total return results primarily from the forecast exchange rate change. In addition, the general interest rate level and a possible change in the yield level of the bonds on the corresponding bond market to be taken into account are included in the assessment. A Sharpe ratio, which adjusts the expected yield using the average standard deviation of the total return over the past two years, is used to calculate which currency areas are "attractive", which are "unattractive" and which are "neutral".

"Attractive" means that the risk-adjusted exposure in the currency area is expected to show an above-average and positive return over the next six to twelve months.

"Unattractive" means that the risk-adjusted exposure in the currency area is expected to show a below-average and negative return over the next six to twelve months.

"Neutral" means that the risk-adjusted exposure in the currency area is expected to show relatively low or average returns over a period of six to twelve months.

The aforementioned returns are **gross returns**. The gross return as success parameter relates to bond yields before deduction of taxes, remunerations, fees and other purchase costs. This compares with the net return of a specific investment, which is not calculated and can deliver significantly lower returns and which measures the success of an investment in consideration of / after deducting these values and charges.

4.5 Weighting recommendations for market segments

Weighting recommendations for market segments or otherwise defined groups of different issuers, i.e. their weighting recommendations in the overall market strategy Fixed Income, in the sector strategy Corporate Bonds and their weighting recommendations for Covered Bond jurisdictions, are not independent investment categories and therefore do not contain investment recommendations.

These isolated statements **alone** are **not sufficient** to form the basis of an investment decision. Reference is made to the explanation of the used relevant methods.

In the case of recommendations on market segments or otherwise defined groups of different issuers, the terms "Overweight", "Underweight" and "Neutral weight" are used.

"Overweight" means that the aforementioned bond segment is expected to perform significantly better on a six-month horizon than the average of the other bond segments in coverage, both in the event of a positive and negative overall market trend.

"Underweight" means that the aforementioned bond segment is expected to perform significantly worse on a six-month horizon than the average of the other bond segments in coverage, both in the event of a positive and negative overall market trend.

"Neutral weight" means that the bond segment in question is expected to perform approximately in line with the average of the other bond segments in the coverage over a six-month period.

The weighting recommendations for market segments or otherwise defined groups of different issuers are independent of the recommendations for individual issuers or those of superordinate or subordinate market segments. They are relative, i.e. if not all the segments mentioned are weighted "Neutral", at least one bond segment is weighted "Overweight" and one bond segment is weighted "Underweight". Accordingly, the weighting recommendations are not an absolute statement about profit and loss (cf. DZ BANK methodological studies at

www.dzbank.com/disclosures). 1. Overall market strategy

The weighting recommendations in the overall Fixed Income market strategy refer to the comparison of bond segments relative to one another. There are currently five bond segments in the overall market strategy: 1. Government Bonds, 2. Agency Bonds, 3. Covered Bonds, 4. Bank Bonds (senior unsecured), 5. Corporate Bonds (senior unsecured). Calculations of the total return are decisive for the expected performance. The weighting recommendations in the overall market strategy are independent of the weighting recommendations within the individual bond segments themselves, because the respective peer group within each individual bond segment is a completely different one. For example, weighting recommendations within government bond sector refer to issuer countries in relation to each other, which have no relevance at the level of weightings in the overall market strategy.

2. Sector strategy Corporate Bonds

In the corporate bond segment, we summarise the relative performance we expect of a sector in comparison with the developments forecast for the other sectors in a sector assessment. Calculations of the credit spread return are decisive for the expected performance.

3. Strategy Covered Bonds

Our weighting recommendations for Covered Bond jurisdictions ("country") are based on a comparison of the respective country segment (sub-index within the iBoxx \in Covered Index) with the total index (iBoxx \in Covered Index). The credit spread return is decisive for the expected performance.

4.6 Derivatives

For derivatives (Bund futures, Bobl futures, treasury futures, Buxl futures) the arrows (\uparrow) (\downarrow)(\rightarrow) merely indicate the trend direction and do not contain any investment recommendation. The trend direction is derived solely from the use of generally recognised technical analysis indicators without reflecting an analyst's own assessment.

4.7 Commodities

"**Upward arrow** (♠)" means that the absolute price increase expected in the next twelve months is greater than 10%.

"**Downward arrow** (Ψ)" means that the absolute price decline expected in the next twelve months is greater than 10%.

"Arrow pointing to the right (\Rightarrow) " means that the absolute price change expected in the next twelve months will lie between +10% and -10%.

5. Updates and Validity Periods for Other Research Information

- 5.1 The frequency of updates of Other Investment Information depends in particular on the underlying macroeconomic conditions, current developments on the relevant markets, the current development of the analyzed companies, measures undertaken by the issuers, the behavior of trading participants, the competent supervisory authorities and the competent central banks as well as a wide range of other parameters. The periods of time named below therefore merely provide a non-binding indication of when an update may be expected.
- 5.2 No obligation exists to update an Other Investment Information. If an Other Research Information is updated, this update replaces the previous Other Research Information with immediate effect.

5.3 The validity periods for Other Research Information are as follows:

Sustainability analyses:	twelve months
Analyses according to the value approach:	one month
Asset allocation analyses (DZ BANK Sample Portfoli	o): one month
Euro Stoxx Sector Strategy (DZ BANK Sector Favour	ites): one month
Dividends (DZ BANK Dividend Aristocrats):	three months
Share indices (fundamental):	three months
Currency areas:	six to twelve months
Weighting recommendations for market segments	six months
Overall market strategy	six months
Sector strategy Corporate Bonds	six months
Strategy Covered Bonds:	six months
Derivatives	
(Bund futures, Bobl futures, treasury futures, Buxl futur	res): one month

Commodities: one month 5.4 In a given case, updates of Other Research Information may also be

- temporarily suspended without prior announcement on account of compliance with supervisory regulations.
- 5.5 If no updates are to be made in the future because the analysis of an object is to be discontinued, notification of this shall be made in the final publication or, if no final publication is made, the reasons for discontinuing the analysis shall be given in a separate notification.

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- 7.3 No individual investment recommendation Under no circumstances can or should an Other Research Information replace a specialist investment advice necessary for a specific investment. For this reason an Other Research Information cannot be used as sole basis for an investment decision.
- Summary of used Methods and Procedures
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