

May 2020

DWS Long View: The impact of COVID-19 pandemic on long-term return forecasts

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Entering 2020, the long-run return forecasts across asset classes left something to be desired. The rich valuations meant that investors could only expect low returns from most asset classes going forward. A lot has changed with the COVID-19 crisis, though. Global equity markets have experienced a significant derating amid fears of a sharp global recession. Developed market sovereign bond yields have rallied further from already low levels at the beginning of the year. The implications for asset allocators are evident if the underlying assumptions are kept unchanged. But, this may be challenging as the current economic crisis is likely to be even worse than the global financial crisis. **In this report, we examine the potential impact of the ongoing crisis on DWS's long-term¹ capital market return assumptions.**

We present three scenarios: the first (*status-quo*) uses the same economic growth, dividend, and credit risk assumptions that were used for our annual *Long View* publication from earlier this year. The forecasts under this scenario are derived by simply updating our earlier forecasts for the changes in prices and inflation forecasts observed in the first quarter. **Scenarios 2 (*2009-repeat*) and 3 (*three-sigma*) are alternative scenarios changing economic growth, dividend, and credit risk assumptions with the former assuming the ongoing crisis to be of the same magnitude as the 2008 financial crisis and the latter assuming the crisis to be much worse, like a once-in-century type event.**

The forecasts under our *three-sigma* scenario are strikingly similar to those published in our earlier report using December end prices. Given the severity of this crisis, one could argue that **markets have been broadly efficient in repricing asset returns.** Some differences still exist in Emerging Market (EM) Sovereigns, US Treasuries,

and Euro high yield (HY), though. **Those with a more sanguine economic outlook (*status-quo* and *2009-repeat* scenarios) would find better opportunities now than at the beginning of the year, both in absolute terms and relative to Treasuries.**

FIGURE 1. 10-YEAR FORECASTED HYPOTHETICAL ANNUALIZED LOCAL CURRENCY RETURNS ACROSS EQUITY AND FIXED INCOME MARKETS FOR OUR STATUS-QUO AND ALTERNATIVE SCENARIOS

	31 Dec 2019	Status-Quo (1)	2009-Repeat (2)	Three-Sigma (3)
S&P 500	5.5%	7.2%	6.6%	6.1%
MSCI Europe	5.1%	7.5%	6.5%	5.6%
MSCI UK	7.4%	10.1%	8.8%	7.5%
MSCI Germany	4.5%	7.0%	6.1%	5.3%
MSCI Japan	3.5%	4.8%	4.2%	3.4%
MSCI EM	6.5%	8.2%	7.4%	6.5%
MSCI ACWI	5.5%	7.2%	6.5%	5.9%
US Treasuries	2.1%	0.7%	0.8%	0.4%
US Corporates	2.5%	3.3%	3.2%	2.6%
Euro Agg Corp.	0.5%	1.5%	1.4%	1.1%
Pan-Euro HY	2.2%	7.7%	7.3%	5.0%
US HY	3.5%	7.0%	6.4%	3.4%
EM Sovereigns	5.9%	9.0%	9.1%	8.2%

Source: DWS Investments UK Limited. Data as of 3/31/20. See Appendix for index representation.

¹ Long-term forecasts are based on 10-year models and should not be compared with 12-month forecasts published in the DWS CIO View

Summary View

A framework for measuring the impact of COVID-19 on long-term expected returns²

Estimating the impact of an economic crisis on long-run returns is difficult. The challenge is compounded this time as the crisis is unlike any other in recorded history. Still, we can look at past experience to define scenarios as a reference point to help investors in their decision making processes.

The first step in this process is to measure the impact that changes in asset prices and inflation expectations as a result of this crisis have had on return forecasts.

Actually, this is itself a scenario as it assumes the fundamental trends that drive return forecasts will not be affected by the pandemic. This assumption is unrealistic, though. The human and economic cost of the COVID-19 pandemic is high. Dividends are being cut across multiple sectors, and bankruptcies are on the rise. Economic growth is propped up by governments and central banks but there is a price to be paid; substantially higher debt levels. This is likely to negatively affect future economic growth. Still, such a scenario is necessary to anchor forecasts. We define this scenario as **status-quo** and note:

- _ Cheaper valuations across global equity markets
- _ Lower starting yields across developed market sovereign bonds, especially US Treasuries
- _ Higher starting yields and spreads across global corporate credit and EM sovereign debt

Modelling this scenario was fairly straightforward, but the same can't be said for the alternative economic and market scenarios. There is plenty of research analyzing the economic impact of such pandemics. They suggest the impact would be significant, even in a mild scenario. The difficulty is in the wide array of potential outcomes, making the job of analysts quite challenging. Our approach has been to create **two alternative scenarios analyzing the impact on expected returns for the main asset classes (equities and fixed income).**

- _ The first assumes an economic crisis similar in magnitude to the global financial crisis (**2009-repeat**),
- _ The second assumes an even worse economic scenario, a once-in-a-century type event (**three-sigma**).

These are hypothetical scenarios and should be only used as a guide through these highly uncertain times.

For the **2009-repeat** scenario we assume revenues and profits of non-financial companies fall by the same magnitude

as experienced in 2008/09. For the **three-sigma** scenario, we assume that revenue falls by over 20%, or about twice as much as in the **2009-repeat** scenario (Figure 5). These are calculated using a bottom-up process taking into account the country, sector, and the unique circumstances of almost 1,000 listed stocks globally.

FIGURE 2. ASSUMPTIONS FOR EACH SCENARIO

Scenario	Assumptions
Status-Quo	Assumes fundamentals will be unaffected by COVID-19. Return forecasts are improved based on market repricing in Q1.
2009-Repeat	Utilizes long-term inputs observed in 2009. Dividends fall and normalize over a 5-year window. Corporate credit experiences modest negative ratings migration and default losses while sovereign bonds perform modestly better than in the status-quo.
Three-Sigma	Dividend cuts are more severe and take the full 10-year period to normalize. Credit migration and losses are more severe, based upon observation in only 2009. Sovereign bonds experience a synthetic shock scenario that embeds asymmetric default and downgrade probabilities.

Measuring the potential impact on expected return from equities

In both alternative scenarios, all of the main pillars driving equities' return (dividends, share buy-backs/rights issues, and earnings growth) need reviewing.

DWS Research Institute has published a separate report looking at the dilution risk in equities³. This report notes that (i) the operational leverage in the non-financial sector part of equities has fallen over the past three decades, (ii) banks are much better capitalized than in 2009. These suggest that **the main benchmarks do not have much dilution risk in a 2009-repeat scenario**, in aggregate. **This risk is higher in the three-sigma scenario** but is also manageable, with the exception of European Banks and Japanese Equities (including non-financial companies).

² The impact is measured as for asset prices on the 31st of March 2020.

³ DWS Research Institute, (March 2020). 'History lessons – Why do markets sell-off and then rebound'. DWS Research Institute, (April 2020). 'History lessons II - Estimating the dilution from a COVID -19 recession for equity investors'.

FIGURE 3. LOWER OPERATIONAL LEVERAGE

US Comp	Δ Revenue	Δ EBITDA Margin ⁴
1989-1991	11.0%	-296 bps
2000-2001	4.3%	-187 bps
2007-2009	-7.4%	-76 bps

Source: DWS, CROCI. The table shows fall in aggregate revenue and EBITDA Margins of U.S. companies in CROCI's database with comparable data back to 1989. Data as available on 15 April 2020.

Dividends are likely to account for the bulk of the differences in expected returns between benchmarks.

This will be the case even though companies are much better positioned this time around and do not need to cut their dividends as significantly as in 2009. A granular analysis is necessary, however, as economic and financial effects vary significantly across sectors and countries. **In the 2009-repeat scenario, we assume dividends are cut for two years and then normalize to 2019 levels over a five years.** This is exactly what happened in 2009. **In the three-sigma scenario, we expect more substantial cuts and also a longer 10 year normalization period.** Investors should note that this approach is marginally more penalizing than the earnings-based approach. In 2009, the earnings of the S&P 500 was back at 2007 level by 2010 while dividends took three more years to get there⁵.

The last factor left to review is earnings growth. Our analysis suggests there is a tendency for earnings to grow in line with gross domestic product (GDP), over the long-term. The latter is likely to come under pressure. The impact of COVID-19 on long term growth rates would depend on the shape of the economic recovery. A “V” shaped recession would have little impact while a prolonged recession would have a much bigger impact. In these alternative scenarios, our model assumes a sharp “V” shaped recovery with a 25 basis points (bps) fall in growth rates.

Measuring the impact on fixed income

For **fixed income**, the difference between the three scenarios lies in the credit risk contribution to forecast returns. In the *status-quo* scenario, we use the same transition matrix as in the January report. This is based on the long-term average numbers of defaults / downgrades from the 1970s until last year with higher weight assigned to recent years. In the second, *2009-repeat*, scenario, we use a transition matrix using long-term average from the 1970s until the end of 2009. In the third, *three-sigma*, scenario, we only use the 2009 single-year numbers of defaults and downgrades for corporates, and creating a synthetic stress scenario of significantly raised downgrades and defaults for sovereigns.

FIGURE 4. POTENTIAL IMPACT OF AN ECONOMIC RECESSION ON PROFIT & LOSS AND BALANCE SHEET OF NON-FINANCIAL COMPANIES IN 2020⁶

	USA			Europe			Japan		
	2019	Scenario 1	Scenario 2	2019	Scenario 1	Scenario 2	2019	Scenario 1	Scenario 2
Revenue Growth (y-o-y)	1.6%	-11.4%	-19.9%	2.9%	-13.2%	-20.3%	-3.9%	-13.4%	-24.0%
EBITDA Margin	20.7%	20.2%	16.2%	17.5%	16.2%	13.7%	13.2%	11.5%	7.3%
Net Profit Margin	10.9%	6.4%	2.5%	7.1%	3.0%	0.5%	5.8%	2.5%	-1.7%
Net profit growth (y-o-y)	-1.2%	-47.7%	-81.5%	-0.4%	-63.0%	-94.6%	-14.0%	-62.6%	-122.1%
Capex growth (y-o-y)	13.2%	-13.8%	-13.8%	16.6%	-4.6%	-4.6%	6.4%	-23.7%	-23.7%
Increase in Net Debt (y-o-y)	22.6%	-4.2%	-5.4%	26.7%	0.4%	6.2%	8.2%	-5.9%	42.7%
Net Financial Liabilities to M.Cap	24.6%	26.3%	26.0%	46.3%	54.1%	56.3%	44.5%	43.7%	59.5%

Source: DWS, CROCI. The table shows the impact of an economic recession similar to the great financial crisis (Scenario 2) and a 3-standard deviation event (Scenario 3) on key profit & loss and balance sheet figures of non-financial companies in CROCI's coverage. Aggregate data as available on 2 April 2020. For illustrative purposes only. Due to various risks, uncertainties and assumptions made in our analysis, actual events or results or the actual performance of the markets covered may differ materially from those described. Earnings before interest, taxes, depreciation, and amortization (EBITDA)

⁴ EBITDA Margin measures a company's operating profit as a percentage of its revenue

⁵ In the report published in March, we estimated that the impact on prices from falling earnings is 5% in a 2009-repeat situation, or 0.5% over a decade.

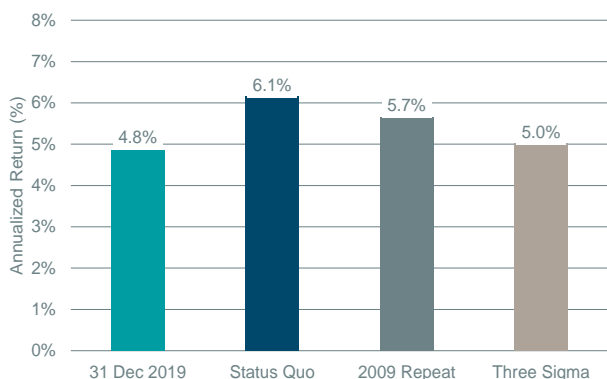
⁶ This table is from History lessons II - Estimating the dilution from a COVID -19 recession for equity investors, DWS Research Institute, April 2020

Conclusion

In the past couple of months, we have had the opportunity to look at multiple studies analysing asset prices behaviour during crises. Many have pointed that asset prices haven't corrected as much in this crisis as they have in the past. While that is the case, it may be erroneous, in our view, to conclude that price should fall further. The point is that such analysis only focuses on prices and ignores fundamentals that have also changed in the interim period. Our analysis suggests that the reaction that has been seen so far in asset prices is rational, even though different from previous experiences because of improved fundamentals.

What is interesting is that under a *three-sigma* scenario the **expected returns at the end of March are strikingly similar to what investors could have expected at the beginning of the year. In other words, assets are no more or less expensive that they were then.**

FIGURE 5. 10-YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS OF A MODERATE STRATEGIC ASSET ALLOCATION FOR STATUS-QUO AND ALTERNATIVE SCENARIOS



Source: Source: DWS Investments UK Limited. Data as of 3/31/20.

The returns under the 2009-repeat scenario are better than those at the beginning of the year. If 10-year returns were below long-term trend levels, this sell-off has provided an opportunity for long term investors as the **expected return from a moderate strategic asset allocation is 80 basis point higher now** (Figure 5).

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Scenario one: *Status-Quo*

Impact of the fall in prices and inflation forecasts on long-run asset return forecasts

Figure 6 shows the impact of the first quarter fall in prices and inflation forecasts on our 10-year return forecasts. **All asset classes except developed market sovereign bonds now offer higher returns compared to the beginning of the year levels. Most significant increases are in high-yield bonds and equity markets globally.**

FIGURE 6. 10-YEAR FORECASTED RETURNS ACROSS EQUITY AND FIXED INCOME MARKETS FOR THE STATUS-QUO SCENARIO

Local Currency	As of 31 Dec 2019	Scenario 1: Status-quo	Change (%)
S&P 500	5.5%	7.2%	1.7%
Euro Stoxx 50	4.0%	6.6%	2.6%
MSCI Europe	5.1%	7.5%	2.4%
MSCI UK	7.4%	10.1%	2.7%
MSCI Germany	4.5%	7.0%	2.5%
MSCI Switzerland	5.2%	6.6%	1.4%
MSCI Japan	3.5%	4.8%	1.3%
MSCI World	5.3%	7.1%	1.8%
MSCI EMs	6.5%	8.2%	1.7%
MSCI ACWI	5.5%	7.2%	1.8%
US Treasuries	2.1%	0.7%	-1.4%
Euro Agg Treasuries	-0.1%	-0.2%	-0.1%
Sterling Gilts	0.9%	0.5%	-0.4%
US Corporates	2.5%	3.3%	0.8%
Euro Agg Corporates	0.5%	1.5%	1.0%
US High Yield	3.5%	7.0%	3.5%
Pan-Euro High Yield	2.2%	7.7%	5.5%
EM Sovereigns	5.9%	9.0%	3.1%

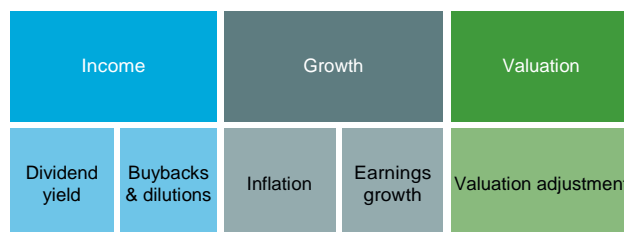
Source: DWS Investments UK Limited. Data as of 3/31/20.

Equity Forecasts

Ten-year annualized expected total returns of the MSCI ACWI index increased from 5.5% at the beginning of the year to 7.2% as of the end of Q1 (Figure 8). While a modestly depressed inflation outlook reduced nominal return forecasts by about -0.3%, significant multiple rerating in Q1 meant that the valuation adjustment pillar of our forecasts went from a -1.3% annual drag to a positive 0.2% contribution to total

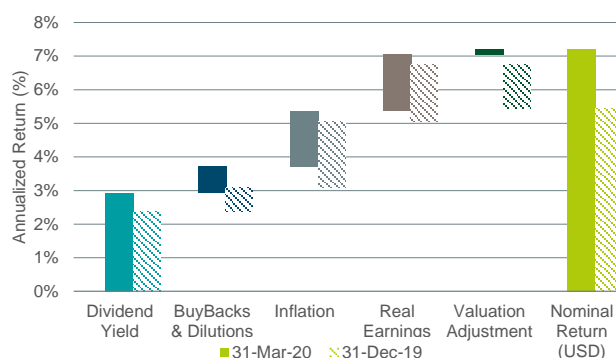
returns. In the core scenario, using our dividend methodology, we also expect an expansion to the dividend yield on a forward looking basis by virtue of the market decline relative to the last twelve month dividends.

FIGURE 7. PILLAR DECOMPOSITION FOR EQUITIES



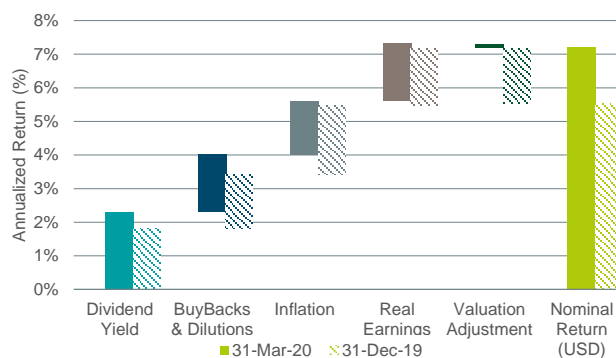
Source: DWS Investments UK Limited. As of 3/31/20.

FIGURE 8. MSCI ALL COUNTRY WORLD: CONTRIBUTION TO 10 YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS



Source: DWS Investments UK Limited. Data as of 3/31/20.

FIGURE 9. S&P 500: CONTRIBUTION TO 10 YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS

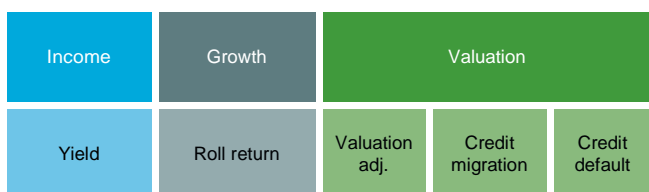


Source: DWS Investments UK Limited. Data as of 3/31/20.

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Fixed Income Forecasts

FIGURE 10. PILLAR DECOMPOSITION FOR FIXED INCOME

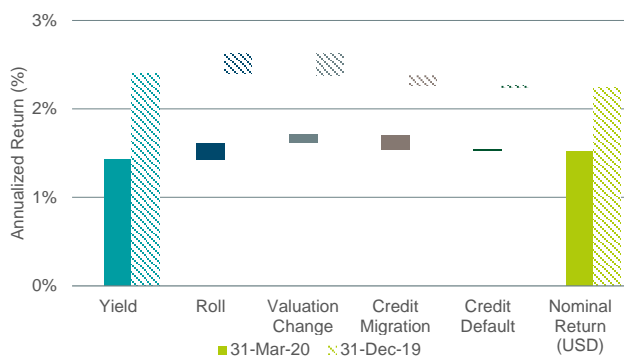


Source: DWS Investments UK Limited. As of 3/31/20.

In Q1, fixed income markets experienced a sharp contrast in performance between risk-free interest rates (yields on government securities) and yields on corporate credit, especially speculative-grade bonds.

In core fixed income, a decline in sovereign bond yields, especially in the US, lowered the starting yield level for investors. 10-year nominal return forecasts for the US Aggregate Bond Index came down -0.7% in Q1. While this exhibits a downward bias in nominal return forecasts, it is worth noting that market-based measures of inflation forecasts also fell in Q1.

FIGURE 11. US AGGREGATE BOND INDEX: CONTRIBUTION TO 10 YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS

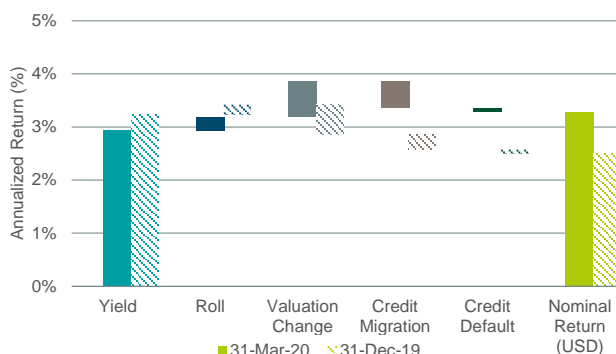


Source: DWS Investments UK Limited. Data as of 3/31/20.

In US corporate credit markets, a significant repricing of corporate bond spreads in Q1 increased the starting yield for investors in spite of the rally across the risk-free curve. In the US investment-grade market, expected returns in the core scenario increased by 0.8% because of higher starting yields, wider spreads versus historical

averages, and marginal improvements in historical observed credit migration.

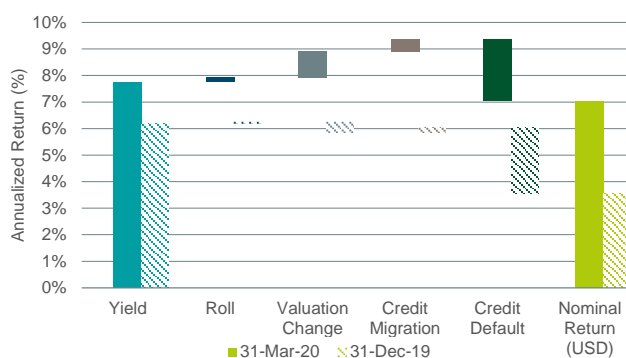
FIGURE 12. US IG CORPORATE BOND INDEX: CONTRIBUTION TO 10 YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS



Source: DWS Investments UK Limited. Data as of 3/31/20.

Within US high yield bonds, the increase in the starting yield is far more pronounced given the increased contribution of spread to both risk and total return forecasts. Figure 13 shows the impact of this on expected return which has increased by 3.5%.

FIGURE 13. US HIGH YIELD BOND INDEX: CONTRIBUTION TO 10 YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS



Source: DWS Investments UK Limited. Data as of 3/31/20. Past performance may not be indicative of future results

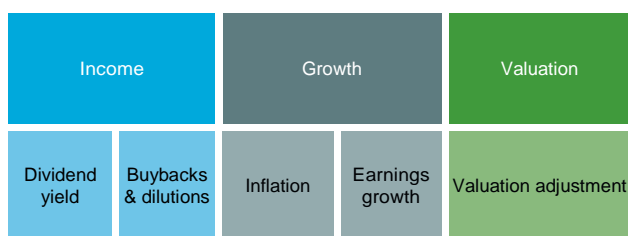
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Building Alternative Scenarios

The impact of a COVID-19 economic crisis on asset return pillars

The economic impact from the lockdown so far has been quite severe. The support measures to counter the slowdown are also quite significant and likely to have a lasting impact on assumptions underpinning the long-run asset return forecasts. In this section, we look at those assumptions and the impact that (i) an economic crisis similar in magnitude to the 2008 financial crisis, and (ii) a much deeper, once-in-a-century type crisis may have on those assumptions. The focus is on equities and fixed income, the two main asset classes.

FIGURE 14. PILLAR DECOMPOSITION FOR EQUITIES



Source: DWS Investments UK Limited. As of 3/31/20.

Equities

Equity returns can be broken down into three main pillars: Income (dividends and share buybacks), earnings growth, and changes in equity risk premia (valuation adjustment). The risk premia can be measured in a relatively straightforward manner from the observed market prices but **the impact that a COVID-19 economic crisis may have on the other two needs to be assessed.**

FIGURE 15. DIVIDENDS HAVE CONTRIBUTED A SIGNIFICANT PROPORTION OF MSCI WORLD EQUITY RETURNS



Source: DWS Investments UK Limited, FactSet and MSCI Inc. Period: 1 January 2000 to 31 March 2020. Data as available on 4/3/20. Past performance may not be indicative of future results

The impact on dividends

Historically, dividends have contributed significantly to the returns that equities have generated. Since 2001 **roughly half of the total return of the MSCI World Index has come from dividends** (Figure 15). As of April 27th, S&P 500 dividend futures were pricing a 20% decline in dividends this year from December 31st levels. As of April 15th, 22 companies in the S&P 500 are projected to trim dividend payouts in the second quarter. This compares to 80 companies cutting dividends during the financial crisis, with the larger cuts in financials.

Short term, significant downside risks to dividends include energy and financials companies, with the latter being particularly affected across the European markets.

On March 27th, the ECB advised banks to not pay dividends or engage in share buybacks until at least October 2020. The ECB has expressed willingness to impose legally binding measures if the banks fail to comply with this recommendation. The Bank of England has provided similar guidance, with the UK banks scrapping dividends and share buybacks for the remainder of 2020. The Fed has yet to formalize any restrictions around US bank dividends despite some political backlash. US regulators have thus allowed larger banks to dip into supplemental capital buffers designed to give them the ability to expand their balance sheets in times of stress. **However, companies in the more defensive sectors like Consumer Staples are also cutting dividends requiring a reassessment of the contribution from dividends going forward.**

We have used a bottom-up analysis, looking at over 1000 listed stocks to estimate the impact on dividend yield and DPS growth over the next decade⁷. The DPS cuts under the *2009-repeat* scenario are not that severe with most industries expected to see a less than 30% cut to their trailing twelve months dividends for the next two years. Under the *three-sigma* scenario, the cuts are much more significant, however (Figure 16).

⁷ CROCI's global coverage representing about 80% weight of the MSCI World Index.

FIGURE 16. ESTIMATES OF DIVIDEND CUTS UNDER THE THREE-SIGMA SCENARIO

Moderate cuts (up to 30%)	Significant cuts (50% or more)
Commercial & Professional Services	Auto & Components
Food & Staples Retailing	Banks
Food Beverage & Tobacco	Capital Goods
Health Care Equip. & Services	Consumer Durables & Apparel
Household & Personal Products	Consumer Services
Pharma and Biotech	Diversified Financials
Semiconductors	Energy
Software & Services	Materials
Tech. Hardware & Equipment	Media & Entertainment
Telecom	Real Estate
	Transportation

Source: DWS Investments UK Limited. Data as of 3/31/20.

Expected dilution from the COVID-19 crisis

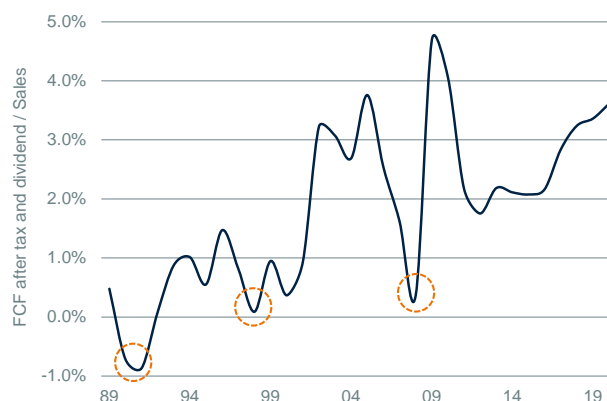
Share buybacks have historically been a source of return in the US, which is in sharp contrast with what has been happening in other regions where companies have been net issuers of capital. However, the crisis has come unexpectedly, and a few companies have already made distressed rights issues. A separate report from DWS Research Institute looked at the dilution risk in equities, concluding that an economic crisis similar in magnitude to the 2008 financial crisis would not require banks or non-financial companies to issue significant additional equity capital⁸.

Banks are much better capitalized than in 2008 while FCF generation of non-financial companies has improved. Through careful capital management (lower dividends, net working capital, and capex), the latter can weather such an economic crisis.

In a more severe recession, similar to the *three-sigma* scenario, Japanese equities (both banks and non-financial) and European banks look exposed, though. These companies may issue additional capital to reduce their debt burden. The DWS Research Institute’s report projects that net profits of Japanese non-financial firms may fall by more than 100% under this stressed scenario with net debt rising by 43%, the most of any major developed market region. European and Japanese banks may also require additional capital to absorb loan losses that may arise under this scenario. The US banks are less geared with higher profits and loan-loss provisioning and look better compared

to the other two regions. As a result, **we have reduced our long-run return forecasts from buybacks by 25 bps.**

FIGURE 17. FREE CASH FLOW TO SALES OF NON-FINANCIAL COMPANIES WITH LONG-ESTABLISHED BUSINESS MODELS SUGGEST A STRUCTURAL IMPROVEMENT IN THEIR CASH GENERATION



Source: DWS, CROCI. The chart shows after tax free cash flow to sales of companies for which CROCI has comparable data going back to 1989. Data as available on 4/9/20. For illustrative purposes only.

FIGURE 18. U.S. BANKS’ PROFITABILITY UNDER ALTERNATIVE SCENARIOS³

	2018	Scenario 1	Scenario 2
Leverage (Tangible Assets / Tangible Equity)	11x	11x	11x
Earnings before provisions (% of Tangible Assets)	1.98%	1.45%	1.45%
Provisions for loan losses (% of Gross Loans)	0.46%	2.70%	5.70%
Nominal Return on Tangible Equity (ROE)	14.8%	-0.8%	-16.1%

Source: U.S. Federal Deposit and Insurance Corporation (FDIC) data for commercial banks, DWS and CROCI. Data as available on 4/2/20. For illustrative purposes only. Due to various risks, uncertainties and assumptions made in our analysis, actual events or results or the actual performance of the markets covered may differ materially from those described.

The impact on earnings growth

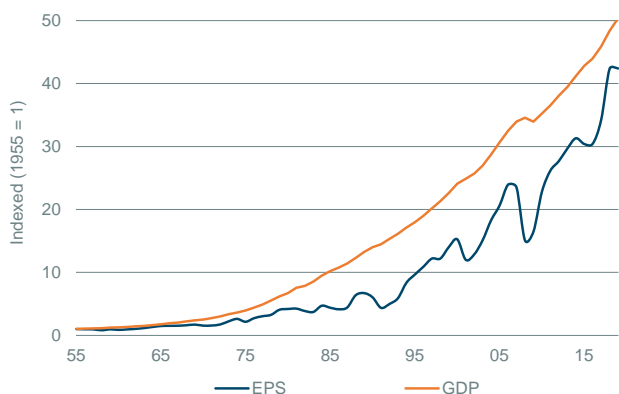
A strong relationship exists between economic growth and corporate earnings growth in the US⁹ (Figure 19). The former tends to cap the latter. We expect the ongoing crisis to have a lasting impact on the economy, with the GDP growth rate falling structurally from the levels observed in the past. Our forecasts now assume that economic and earnings growth rates would be 25 bps below their historical trend levels over the forecast horizon.

⁸ Source: History lesson II: Estimating the dilution from a COVID -19 recession for equity investors, DWS Research Institute April 2020.

⁹ The magnitude of the translation of GDP growth into corporate earnings varies across markets, with certain emerging markets equity market earnings having realized a smaller proportion of their respective economic growth rates. Past performance may not be indicative of future results

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FIGURE 19. ECONOMIC GROWTH TENDS TO CAP CORPORATE EARNINGS GROWTH



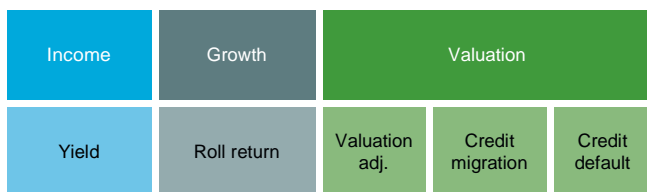
Source: DWS Investments UK Limited, Bloomberg Finance L.P. The chart shows nominal U.S. GDP and S&P 500 EPS growth between 1954 and 2019. Data as available on 4/3/20.

Our core assumption is for a “V” shaped recovery, which according to many studies will only have a minimal long term growth impact. However, the economic support measures announced by various governments are likely to add significantly to their debt burden. Eventually, this is would become a drag on economic growth. We are assuming **economic growth would fall structurally by 25 bps under both 2009-repeat and three-sigma scenarios**. The latter is a more severe scenario. Although the economic output may temporarily fall by more under this scenario, it is likely to be accompanied by even greater support measures. The long term nature of our forecasts allows time for a recovery to take place, albeit with the economy growing at a slower pace than the levels before the crisis.

Fixed Income forecasts

In fixed income, our three return pillars income, growth, and valuation, are composed of different underlying building blocks. Income consists of starting yield, growth is a function of roll yield, and valuation encompasses credit-related factors such as changes in valuations, ratings migration and credit default losses.

FIGURE 20. PILLAR DECOMPOSITION FOR FIXED INCOME

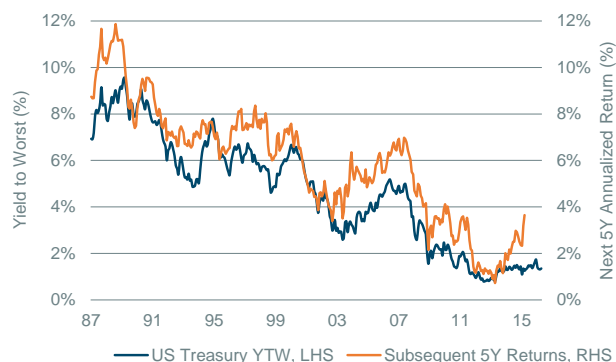


Source: DWS Investments UK Limited. As of 3/31/20. Past performance may not be indicative of future results

While growth and valuations impact forecasted returns across fixed income markets, the latter being far more important for corporate bonds, starting level yields are by far the most important driver of longer term nominal returns across both sovereign and corporate bonds. [Figure 21](#) and [Figure 22](#) illustrate for US Treasuries and US High Yield,

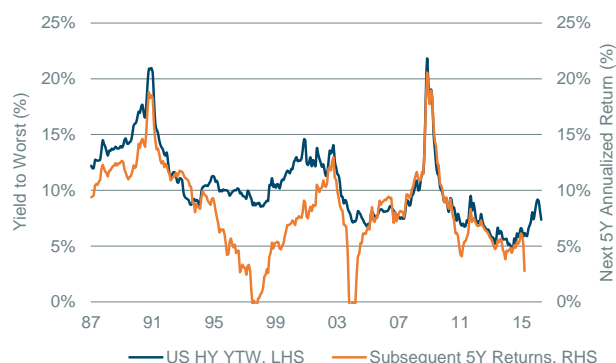
respectively, the close historical relationship between starting yields and subsequent 5 year total returns. This is particularly true in less risky fixed income markets where the valuation pillar is less important.

FIGURE 21. BLOOMBERG BARCLAYS US TREASURY INDEX YIELD-TO-WORST AND SUBSEQUENT FIVE YEAR TOTAL RETURN



Source: DWS Investments UK Limited, Bloomberg Finance L.P. Period: 1 January 1987 to 31 March 2020. Past performance may not be indicative of future results

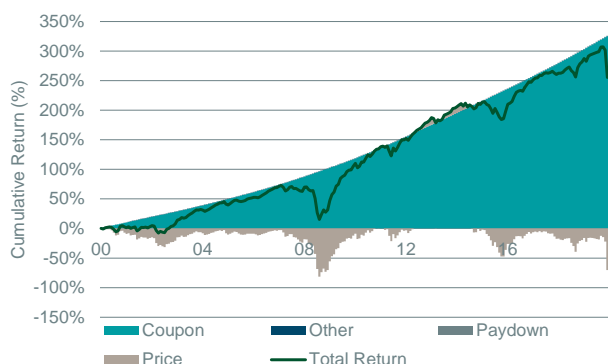
FIGURE 22. BLOOMBERG BARCLAYS US HIGH YIELD INDEX YIELD-TO-WORST AND SUBSEQUENT FIVE YEAR TOTAL RETURN



Source: DWS Investments UK Limited, Bloomberg Finance L.P. Period: 1 January 1987 to 31 March 2020. Past performance may not be indicative of future results

For High Yield, due to the mean-reverting nature of spreads, long-run total returns have predominantly been a function of contribution from coupons as shown in [Figure 23](#).

FIGURE 23. BLOOMBERG BARCLAYS US HIGH YIELD CONTRIBUTION TO TOTAL RETURN



Source: DWS Investments UK Limited, Bloomberg Finance L.P. Period: 1 January 2000 to 31 March 2020.

Within Fixed Income, we calibrate our underlying assumptions anticipating stress to credit fundamentals. We revise our assumptions around the 2009 experience to (i) potential ratings downgrades, (ii) default rates across ratings cohorts, and (iii) potential asymmetric shocks to sovereign bonds.

The impact on default losses

For corporate bonds, we estimate the likely impact of what may be the most severe economic crisis in the past 75 years on corporate bond default levels. While there has been much support from central banks and governments in the form of stimulus and corporate bond purchase programs, defaults losses would likely increase and prove to be a drag on expected returns.

In the *2009-repeat* scenario, the impact on total returns from credit migration and credit default losses in aggregate was somewhat limited when using the full 10-year historical window. To simulate a deeper and more sustained shock to corporate credit, the *three-sigma* scenario applies elevated levels of credit downgrades and losses observed only in 2009 across the full forecast window. While this formulates what is likely an overly conservative forecast on 10-year credit returns, it is important to recognize the risks of a more severe, and more importantly, prolonged, fundamental weakening in the valuation component of credit returns.

The impact on yields

For sovereign bonds, a revisit of the 2009-repeat scenario shows a stark contrast between developed and emerging sovereign bond returns. The starting level on developed market sovereign yields has declined noticeably since the beginning of the year, with the most pronounced move across the US Treasury curve. Counter to this, US dollar denominated emerging markets sovereign bond yields have repriced significantly higher alongside other risky fixed income as a function of risks to global growth as a function of the COVID-19 crisis.

Looking at the *2009-repeat* scenario, embedding the empirical credit migration and credit default data for both emerging and developed sovereign bonds does not negatively impact returns in the same way as we observed in corporate credit markets. In fact, 10-year data from 2009 showed a very modestly more positive fundamental story for sovereign bonds, and therefore this scenario yields marginally higher forecasted returns for both developed and emerging market sovereigns.

Since 2009, there has been a significant accumulative of debt balances across developed and emerging governments alike. Historically large fiscal stimulus packages are likely to continue in order to alleviate the economic drag from the COVID-19 crisis. The impact of debt accumulation on sovereign bond returns has yet to be determined. In the *three-sigma* scenario, to adjust our forecasts for a deterioration in fundamentals across developed and emerging sovereign bonds, we constructed a synthetic shock scenario. This scenario assumes that each government bond is 20% less likely to retain its current credit rating and that there is zero chance of upgrades. This increase in potential default losses associated with a negative ratings bias revises our forecasted returns for developed and emerging sovereign bonds lower in this scenario.

The impact of *2009-repeat* and *three-sigma* scenarios on long view

Equities are pricing a three-sigma event

Figure 24 shows the impact of our alternative scenarios on expected returns from some of the major equity market benchmarks. **Notably, the returns under *three-sigma* scenario are strikingly similar to those at the beginning of the year. The crisis is not affecting all benchmarks equally.** The US is more sheltered than the UK, Japan and Europe. The differences in return forecasts from various benchmarks are primarily because of the differences in their sector composition and the impact that has on expected dividends.

FIGURE 24. 10-YEAR FORECASTED RETURNS FOR THE MAJOR EQUITY MARKET BENCHMARKS

	31 Dec 2019	Status-Quo	2009-Repeat	Three-Sigma
S&P 500 Index	5.5%	7.2%	6.6%	6.1%
Euro Stoxx 50	4.0%	6.6%	5.5%	4.7%
MSCI Europe	5.1%	7.5%	6.5%	5.6%
MSCI UK	7.4%	10.1%	8.8%	7.5%
MSCI Germany	4.5%	7.0%	6.1%	5.3%
MSCI Swiss	5.2%	6.6%	6.0%	5.6%
MSCI Japan	3.5%	4.8%	4.2%	3.4%
MSCI World	5.3%	7.1%	6.4%	5.8%
MSCI EM	6.5%	8.2%	7.4%	6.5%
MSCI ACWI	5.5%	7.2%	6.5%	5.9%

Source: DWS Investments UK Limited. Data as of 3/31/20.

Changes in dividends account for the bulk of the changes in expected returns

Given the significance of dividends to equities total return we have looked at the dividend estimates in detail.

We assess their potential contribution to ten-year returns in two steps: the first step estimates the potential cuts to dividend per share (DPS) for key equity indices this year. We determine this reduced near-term DPS using the following approach:

- _ For companies that have suspended their most recent dividend payout, we set the DPS to zero.
- _ We also reduce the DPS for companies where we anticipate a dividend cut based on our earnings and liquidity analysis.
- _ For the remaining companies we apply a top-down process to decrease DPS based on their industry groups (where the *three-sigma* scenario assumes more severe DPS cut than the *2009-repeat* scenario)

Once the new dividend is estimated, we assume that DPS will remain at these reduced levels for the next 24 months and will then gradually return to pre-crisis levels; this normalization takes until year 5 in scenario 2 and until year 10 in scenario 3. Finally, we then calculate the yield which an equity investor would receive based on this (reduced) stream of dividend payments—this yield is the contribution of dividends to ten-year equity returns in our alternative scenarios.

Figure 25 shows what the cuts described above mean for dividend yields of various benchmarks (columns 2 to 4) and contributions of dividends to expected returns from those benchmarks (columns 5 to 7). The only difference between these two datasets is that the latter assumes DPS returns to pre-crisis trend level five- and ten-years in *2009-repeat* and *three-sigma* scenarios.

Under the *three-sigma* scenario, the contribution of dividends is comparable to the dividend contribution at the end of 2019. In other words, the benefit of falling prices (pushing up dividend yields) is almost entirely wiped out by potential DPS cuts. Investors in the S&P 500 and the EuroSTOXX 50 might expect 30-40 bps higher annual contributions from dividends now than at the end of 2019, but for the UK equities the potential contribution of dividends to annualized ten-year returns in the *three-sigma* scenario now stands at 4.9%—exactly as at the end of 2019 before COVID-19 struck.

FIGURE 25: 10-YEAR DIVIDEND PILLAR CONTRIBUTION ACROSS EQUITY MARKETS FOR THE STATUS-QUO AND ALTERNATIVE SCENARIOS

	Dividend yield using March 31 st prices			Forecasted contribution from dividends to 10-year annualized return			
	Div. Yield (Trailing)	2009-Repeat	Three-Sigma	31 Dec 2019	Status-Quo	2009-Repeat	Three-Sigma
S&P 500 Index	2.30%	1.94%	1.33%	1.8%	2.3%	2.2%	1.7%
Euro Stoxx 50	4.40%	2.85%	2.03%	3.3%	4.4%	3.9%	3.0%
MSCI Europe	4.35%	2.88%	1.99%	3.6%	4.4%	3.9%	3.0%
MSCI UK	5.90%	3.52%	2.28%	4.9%	5.9%	5.1%	3.8%
MSCI Germany	4.00%	2.81%	1.85%	3.0%	4.0%	3.6%	2.8%
MSCI Switzerland	3.20%	2.84%	2.25%	2.8%	3.2%	3.1%	2.7%
MSCI Japan	2.70%	2.27%	1.20%	2.3%	2.7%	2.6%	1.8%
MSCI World	2.93%	2.26%	1.41%	2.4%	2.9%	2.7%	2.1%
MSCI Emerging Markets	3.24%	2.40%	1.20%	2.6%	3.2%	3.0%	2.1%
MSCI ACWI	2.96%	2.28%	1.40%	2.4%	3.0%	2.7%	2.1%

Source: DWS Investments UK Limited. Data as of 3/31/20.

Fixed Income

Estimating the impact of COVID-19 on credit losses

In forecasting returns for credit markets, we need to account for the forecasts of a pickup in corporate default rates. The substantially higher starting levels on credit spreads across corporate credit and EM sovereign debt may not be an indication of value but rather of market expecting elevated levels of default losses over subsequent years.

For the *2009-repeat* scenario, we embed the assumption of long-term average trends observed in 2009 across defaults and downgrades as a point of reference for the impending credit deterioration related to the COVID-19 crisis. In [Figure 26](#), we illustrate that a **repeat of 2009 only incrementally trims forecasted credit returns to the effect of -0.6% across US High Yield and -0.4% across European High Yield. Interestingly, this scenario actually incrementally increases forecasting EM sovereign bond total returns by about 0.1%.**

For the *three-sigma* scenario for corporates, we use the 2009 one-year default probabilities instead of the longer term observations from 2009. As a result of this shock to defaults and downgrades, **forecasted returns declined about 3.6% for US High Yield compared to just 2.7% for European High Yield, owing in part to the differences in average credit quality across regions.**

FIGURE 26. 10-YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS ACROSS FIXED INCOME

	31 Dec 2019	Status-Quo	2009-Repeat	Three-Sigma
US Treasuries	2.1%	0.7%	0.8%	0.4%
Euro Agg Treasuries	-0.1%	-0.2%	-0.1%	-0.5%
Sterling Gilts	0.9%	0.5%	0.9%	0.1%
US Corporates	2.5%	3.3%	3.2%	2.6%
Euro Agg Corp.	0.5%	1.5%	1.4%	1.1%
US HY	3.5%	7.0%	6.4%	3.4%
Pan-Euro HY	2.2%	7.7%	7.3%	5.0%
EMs Sovereigns	5.9%	9.0%	9.1%	8.2%

Source: DWS Investments UK Limited. Data as of 3/31/20. Past performance may not be indicative of future results

Estimating the impact of COVID-19 on sovereign bonds

For sovereign bonds, due to the lack of robust single-year data on default losses, we constructed a synthetic shock scenario which assumes that each government bond is 20% less likely to retain its ratings and that there is zero chance of upgrades. Given this shock, EM sovereign bond return forecasts are lower by about 0.9%, albeit maintaining an absolutely and relatively high expected return forecast.

While downgrades are intrinsically linked to default loss forecasts, for sovereign bonds, we must make a distinction between highly rated developed market sovereign bonds and more speculative grade emerging markets sovereign bonds, where the former is subject to interest rate risk and less so default risk, whereas the latter experiences both.

In the *2009-repeat* scenario which leverages the downgrade and default observations from 2009, we see a marginal improvement in total returns across US (+0.1%), European (+0.1), and the UK (+0.4%) owing to more favorable default probabilities for senior sovereign ratings in 2009 than

currently. For the *three-sigma* scenario, the synthetic shock on sovereign bonds reduces the total return forecasts for developed market treasuries modestly from an already low base level. By introducing asymmetric downgrade and default probabilities, losses related to these components become more relevant than they have been empirically, including the *“2009-repeat”* scenario. In this scenario, US Treasury returns decline by -0.3%, Euro Agg Treasuries decline by -0.3%, and UK Gilts decline by -0.4%.

Conclusion: the potential impact of a COVID-19 on strategic portfolio returns

Figure 27 shows the impact of the three scenarios on forecasted 10-year annualized returns for a moderate strategic asset allocation.

We had little idea what the results would look like when we started to update our long-run return forecasts as we were unsure what impact deterioration in fundamentals would have on those forecasts. **The results of the three-sigma scenario were a revelation. The forecasts under this scenario are strikingly similar to our beginning of the year forecasts.** For long term investors, the outcome is better if the ongoing crisis ends up being milder than what we have modelled. An ideal situation for investors would be that fundamentals remain unchanged from those at the beginning of the year. This is unrealistic, however. **When adjusting for these adverse market conditions, the return under the 2009-repeat scenario is 80 bps higher compared to the levels at the beginning of the year.**

There are a few key takeaways that, while not unique from the perspectives readers can gauge throughout the paper, do provide a reasonable anchoring of forecasts on future returns that account for both substantial changes to asset prices over the past quarter and take into consideration the alternative downside risks that exist in the current economic and market environment.

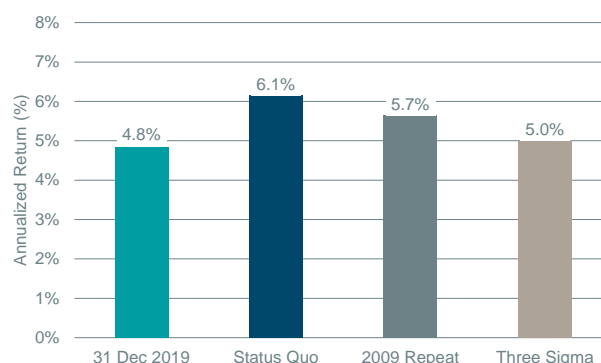
The return outlook has improved significantly from where we started the year under a status-quo scenario. This is driven by cheapening in prices across risk markets such as equities and corporate credit.

Even accounting for significant downside risks across dividends, earnings growth, buybacks, and corporate

default losses, the 2009-repeat scenario compares favorably to the beginning of the year. In particular, the outlook for risk assets has increased in favorability even if the duration of the COVID-19 crisis mirrors the global financial crisis.

In a three-sigma type scenario, portfolio returns are comparable to returns forecasted at the start of the year. This evidences that even in a once-in-a-century economic and market downturn, gradual reversion to fundamental drivers of investment return will prevail over the longer term.

FIGURE 27. 10-YEAR FORECASTED HYPOTHETICAL ANNUALIZED RETURNS OF MODERATE STRATEGIC ASSET ALLOCATION FOR CORE AND ALTERNATIVE SCENARIOS



Source: Source: DWS Investments UK Limited. Data as of 3/31/20. Past performance may not be indicative of future results

Appendix

Representative indices

TABLE 1: EACH ASSET CLASS IN THIS PUBLICATION IS FORECASTED AS PER ITS CORRESPONDING REPRESENTATIVE INDEX*

Broad Asset Class	Asset Class	Representative Index
Equities	S&P 500	S&P 500
Equities	Euro Stoxx 50	Euro Stoxx 50
Equities	MSCI Europe	MSCI Europe
Equities	MSCI UK	MSCI United Kingdom
Equities	MSCI Germany	MSCI Germany
Equities	MSCI Switzerland	MSCI Switzerland
Equities	MSCI Japan	MSCI Japan
Equities	MSCI World	MSCI World
Equities	MSCI EM	MSCI Emerging Markets
Equities	MSCI ACWI	MSCI All Country World Index
Fixed Income	US Treasuries	Bbg Barclays US Treasury
Fixed Income	Euro Agg Treasuries	Bbg Barclays Euro Treasury
Fixed Income	Sterling Gilts	Bbg Barclays Sterling Gilts
Fixed Income	US Corporate	Bbg Barclays US Corporate
Fixed Income	Euro Agg Corporates	Bbg Barclays Euro Aggregate Corporate
Fixed Income	US High Yield	Bbg Barclays US High Yield
Fixed Income	Pan-Euro High Yield	Bbg Barclays Pan-European High Yield
Fixed Income	EM Sovereigns	Bbg Barclays Emerging Markets USD Sovereign

Source: Bloomberg Finance L.P., DWS Investments UK Limited. As of 3/31/20.

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