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A Systematic Approach for Asset Class Valuation

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> "Price is what you pay. Value is what you get."
>
> — Warren Buffett

Summary

In this paper, we introduce Mackenzie's Multi Asset Class Intrinsic Valuation ("MACIV") model, a key building block in our multi-asset valuation framework. The paper makes three key points:

- Asset valuations are a critical driver of total returns over longer horizons. Historically, low asset prices relative to the fundamentals predicted high long-run returns.
- Using the right measures of value is also important. Simplistic valuation measures, such as the price-earnings (P/E) ratio, are useful but can signal attractive value opportunities at times when the long-run fundamentals suggest otherwise. This paper introduces a theoretically sound, multi-stage discounted cash flow model that estimates fair value based on the fundamental drivers of discount rates and cash flows.
- Any investment insight, including the valuation anchor discussed in this paper, needs to be sized appropriately in relation to other important insights in the construction of a portfolio. These include factors that influence returns over shorter horizons, such as investor sentiment and the macroeconomic environment, and maintaining a diversified strategic portfolio.

Contents

Mackenzie's framework for intrinsic valuation

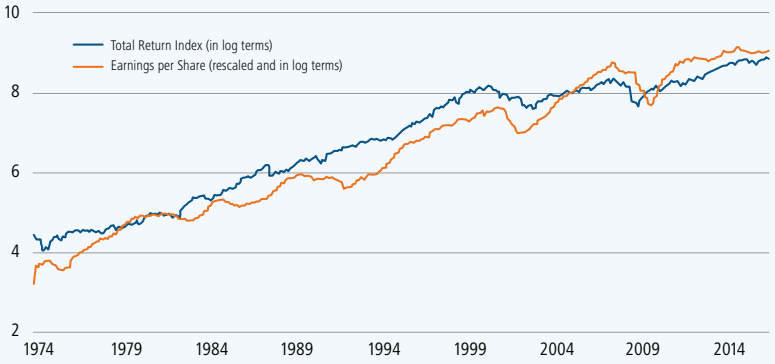
Legendary value investors like Warren Buffett have long invested on the basis of intrinsic value. The success of these investors stems in part from finding shares in companies that are cheap relative to longer term fundamentals. This paper describes Mackenzie's Multi Asset Class Intrinsic Valuation ("MACIV") model, a tool to value global assets on the basis of expected long-run fundamentals. The MACIV model was developed by Mackenzie's Asset Allocation and Alternatives team and constitutes an important building block in the team's asset allocation process. We make three key points in this paper:

- Asset valuations relative to expected long-run fundamentals, such as earnings and dividends, have reliably predicted returns over long horizons.[1] Section 1 elaborates on this link.
- Using the right measure of value is important. Conventional valuation measures, such as the price-earnings (P/E) ratio, can be useful but also misleading at times. Section 2 introduces MACIV as a multi-stage discounted cash flow model that estimates fair value based on the fundamental drivers of expected discount rates and cash flows using a systematic and macro consistent approach. As an illustration of the framework, Section 2 also presents current estimates of long-run expected returns for major stock and bond markets.
- Any valuation model, even a robust framework like MACIV, should be combined with other valuation models to strengthen overall expected risk-adjusted returns. Moreover, investing solely on the basis of intrinsic valuation would ignore valuable insights about macroeconomic conditions and market sentiment that influence returns over shorter horizons. As elaborated in Section 3, we believe in combining all of these insights when building strategic policy portfolios and when making tactical decisions. In this way, we expect to enhance expected risk-adjusted total returns over the full market cycle.

Asset valuations and long-run expected returns

Asset prices are anchored to fundamental variables over the long term, providing an opportunity for patient investors to invest in inexpensive assets relative to the fundamentals. Figure 1 illustrates that share prices and fundamental variables, such as earnings per share (EPS), trend together over time. As a result, the price-earnings ratio tends to be mean-reverting.

FIGURE 1. U.S. Stock Market Prices and Earnings Trend Together, 1973-2016
(U.S. stock market total return index and EPS shown in logarithms on vertical axis)



Sources: Datastream market indexes and fundamental data covering September 1974-April 2016. The log of EPS has been multiplied by a scalar for presentation purposes. See "Discount Rates" by John Cochrane, Journal of Finance, Vol., LXVI, No. 4, August 2011.

[1] See "Discount Rates" by John Cochrane, Journal of Finance, Vol. LXVI, No. 4, August 2011.

Investors have used financial ratios to assess stock market valuations since at least the groundbreaking work of Graham and Dodd, such as the ratio of market price-to-trailing earnings over the last 12 months.[2] Robert Shiller later popularized the cyclically-adjusted P/E ratio by taking the ratio of current share prices to the 10-year average of earnings to control for the impact of the business cycle.[3] Consistent with this approach, Table 1 reports the association between initial valuations based on Shiller's cyclically -adjusted Price-to-Earnings (P/E) ratio and subsequent 10-year total returns of the S&P 500 benchmark index.[4] The table shows that 10-year forward returns fall consistently with higher starting valuations. As of March 2017, Shiller's P/E exceeds 29, placing the market's starting valuation in the richest bucket with the lowest expected long-run returns.

TABLE 1. Stock Market Total Returns for the S&P 500 Starting from Different P/Es
(initial valuations based on Shiller's Cyclically-Adjusted P/E)

	Starting P/E (Low-High Range)	Subsequent 10-yr Real Avg. Return
	5.2 - 9.6	10.3%
	9.6 - 10.8	10.4%
	10.8 - 11.9	10.4%
	11.9 - 13.8	9.1%
	13.8 - 15.7	8.0%
	15.7 - 17.3	5.6%
	17.3 - 18.9	5.3%
	18.9 - 21.1	3.9%
	21.1 - 25.1	0.9%
Current CAPE=29.77	**25.1 - 46.1**	**0.5%**

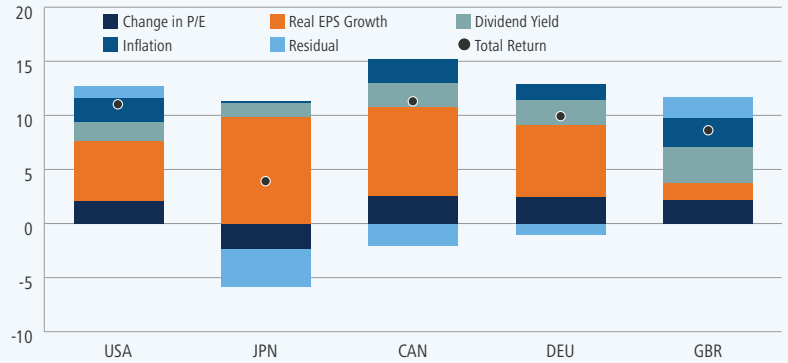
Source: Reproduced from "An Old Friend: The Stock Market's Shiller P/E" by Clifford S. Asness, AQR Capital Management, November 2012. The table reports total returns during 1927-2012 for different starting values of Shiller's cyclically-adjusted P/E multiple. As of March 2017, Shiller's P/E exceeds 29, placing the market's starting valuation in the richest bucket, implying relatively low expected returns over the long run based on the historical trend.

The importance of fundamental variables to stock markets over longer horizons can also be analyzed by decomposing total returns into its underlying components. Specifically, average annual total stock returns can be expressed as capital gains plus income, which in turn can be related to growth in real EPS, the dividend yield and inflation.[5]

$$\text{Total Stock Return} = \text{Capital Gain} + \text{Income}$$
$$\text{Total Return} = [\text{Inflation} \times \text{Real EPS Growth} \times (\text{Change in P/E})] + \text{Dividend Yield}$$

Figure 2 illustrates the decomposition of total stock market returns in selected stock markets over the last 20 years.

FIGURE 2. Decomposing Total Stock Market Returns, 1995-2016
(components of annualized total return in percent)



Source: Datastream equity market indexes and fundamentals covering January 1995-October 2016

The decomposition has important implications for investors:

- The sum of real earnings growth and dividends contributes the largest share to total stock returns over time followed by compensation for inflation;
- Higher valuations, as measured by an increase in the traditional P/E ratio, are typically smaller contributors to average returns over longer horizons because the P/E ratio is mean reverting as prices trend with the fundamentals (Figure 1).

[2] Graham and Dodd. Security Analysis, 1934.
[3] Robert Shiller's website for information and historical data.
[4] "An Old Friend: The Stock Market's Shiller P/E", by Clifford S. Asness, AQR Capital Management, November 2012. The author buckets rolling 10-year returns since 1926 based on 10 initial valuations.
[5] Ibbotson and Chen (2003), "Long-Run Stock Returns: Participating in the Real Economy," Financial Analyst Journal, Vol. 59, No. 1, February 2003 for a detailed breakdown of U.S. equity returns based on different decompositions of total returns. The authors find that growth in dividends and EPS accounts for the bulk of total returns in the U.S. stock market since 1926.

Mackenzie's MACIV model

a. Traditional value metrics: popular but simplistic

Many investors use popular but often simplistic valuation measures to help guide their investment decisions, such as the price-earnings (P/E) ratio. These measures can be useful but also problematic at times. For example, the P/E ratio may signal opportunities when a more robust fundamental measure suggests otherwise.

As an example, lower expected discount rates imply a higher asset value today. The intrinsic value of an asset equals the discounted sum of all expected future cash flows. For this reason, a high P/E ratio may not reflect a fundamentally expensive market but an equilibrium response to a low interest rate environment. The role played by interest rates can be seen in the discounted dividend growth model. In principle, the value of an asset equals the discounted sum of expected future dividends. In the example, D_1 represents the expected dividend, R is the discount rate and G is the real dividend growth rate:

$$\text{Value} = D_0 + D_1 / (1+R) + D_2 / (1+R)^2 + \ldots$$

This expression can be expressed as the Gordon dividend discount model by assuming constant discount and growth rates over time:

$$\text{Value} = D_0 (1+G) / (R-G)$$

If investors expect rates to decline permanently by 1% with an expected dividend of 100 and a real growth rate of 2%, this simple model suggests that the equilibrium asset price increases by a third![6] This simple model illustrates how low discount rates can help explain historically elevated P/E ratios in a number of major global stock markets after 2009. The P/E ratio of the U.S. stock market has increased to over 20 compared to its long-term historical average of about 15 as the 10-year real interest rate fell sharply and remains about 0.5% today.[7]

Another issue with the simple P/E ratio relates to earnings estimates. Forward-looking estimates of corporate earnings are sometimes used to avoid issues with trailing earnings. However, analyst forecasts suffer from well-documented behavioural biases, such as over-optimism and anchoring on recent outcomes. In previous research, we found that 12-month aggregate trailing earnings actually predict future earnings better than analysts' aggregate forward-looking estimates.

Given problems with popular but often simplistic valuation metrics, we developed a more robust framework for valuation that links expected fundamentals to intrinsic asset valuation.

b. Overview of MACIV

This section summarizes the MACIV model and provides illustrative estimates of long-run expected stock and bond returns. The MACIV model is a systematic approach to evaluate how macroeconomic and fundamental forces impact the valuation of assets generating cash flows. It encompasses two core elements: expected cash flows accruing to investors and discount rates. Investors estimate the intrinsic value of an asset by discounting expected cash flows into present value terms. In this way, the MACIV generates macro-economically consistent estimates of fair value for any asset generating cash flows. We assume that asset prices converge to estimated fair values over 7 years to produce estimates of average annual expected returns.

c. Expected adjustment process to fair value

Asset prices behave cyclically, often fluctuating around intrinsic value depending on macroeconomic conditions and shifting market sentiment. However, over the longer run, discount rates and cash flows adjust towards a sustainable equilibrium. The MACIV captures this transition process based on a four-stage discounted cash flow framework as depicted in Figure 3.

FIGURE 3. MACIV: Four-Stage Discounted Cash Flow Model

Transition to Local Equilibrium:	Local Equilibrium:	Transition to Global Equilibrium:	Global Equil.:
Years 1-7	Years 8-20	Years 21-40	After Year 40

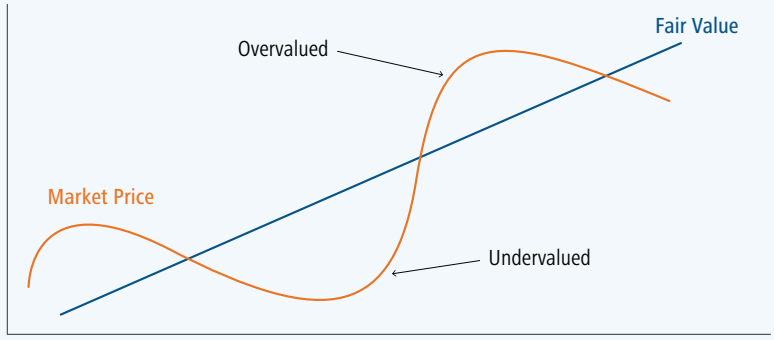
The first stage involves an assumed 7-year transition from current market prices and fundamentals to a "local equilibrium". In the local equilibrium, each country converges to its own equilibrium state. Inflation stabilizes at the target and the level of earnings converges to the normal or sustainable level based on the local characteristics and institutions of each country. The real risk-free rate (RRFR) and growth rate of normal earnings also converge with the trend growth rate of real economic growth.

[6] The Gordon model relates the equilibrium asset value to the discounted sum of all expected future cash flows. Assuming a constant growth rate in dividends, earnings and the discount rate, the Gordon growth model can be expressed as shown above. In our example, we assume for simplicity a real dividend growth rate of 2% and an initial discount rate equal to the real risk-free interest rate of 2% plus a risk premium of 4%. This implies an initial valuation of ($100 x 1.02) / [(.02+.04) - .02] = $2,550. A decline in the discount rate by 1%, all else being equal, implies a higher equilibrium asset valuation by a third.

[7] Based on market pricing of U.S. inflation-linked bonds as of March 16, 2017.

In the third stage, markets begin converging towards a "global equilibrium", which serves both a conceptual and practical function in the MACIV framework. Conceptually, the RRFR gradually converge across countries in the 40-year adjustment period. Consistent with Tobin's Q, the value of the stock market converges to its replacement cost, eliminating arbitrage opportunities between returns available in financial markets and real investment. Relatedly, the expected cost of capital equalizes with the return on equity in the global equilibrium. As medium- to long-term fundamental variables tend to change slowly, tactical opportunities are driven mainly by changes in prices relative to the long-term fundamental anchor (Figure 4).

FIGURE 4. Market Prices Fluctuate Around a Long-term Fundamental Anchor
(MACIV provides an estimate of long-term Fair Value)



For illustrative purposes only.

d. MACIV discount rates

Discount rates are the required return to compensate investors for delayed consumption, the erosion of purchasing power due to inflation and taking risk. Specifically, required returns for each market consist of the RRFR, expected inflation and the risk premium:

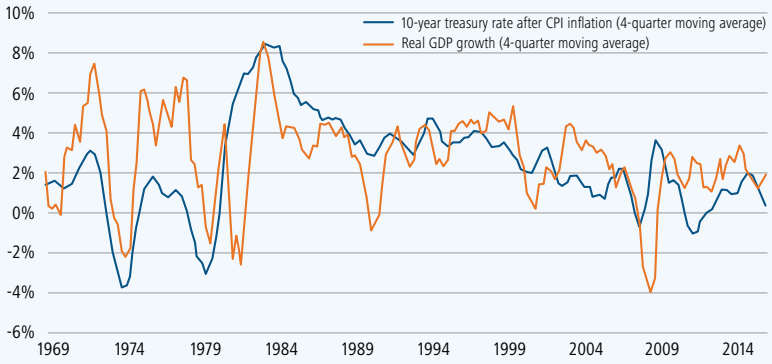
Required Return = RRFR + Inflation + Risk Premium

In the first stage, the current values of these components converge towards the local equilibrium values, which are described in more detail below:

Real interest rates provide compensation to investors for delaying consumption. Economic theory and historical data suggest that RRFRs move in line with the trend rate of real GDP growth (Figure 5). Long-run economic growth depends in turn on the rate of technological progress, workforce growth and capital accumulation. In coming decades, we project a decline in average economic growth due to population aging, lower capital accumulation to keep capital-worker ratios in balance, and lower total factor productivity growth compared to the historical average.[8]

As elaborated in the next section, the trend rate in economic growth also determines expected corporate earnings growth over time. In stage 4, we assume a global equilibrium in which real interest rates converge globally to 1.25%, which is broadly consistent with the expected average economic growth rate in major economies after the 40-year transition.

FIGURE 5. Real Risk-Free Interest Rate Tracks Real GDP Growth Over Time
(U.S. Real GDP Growth and 10yr Treasury Real Yield)

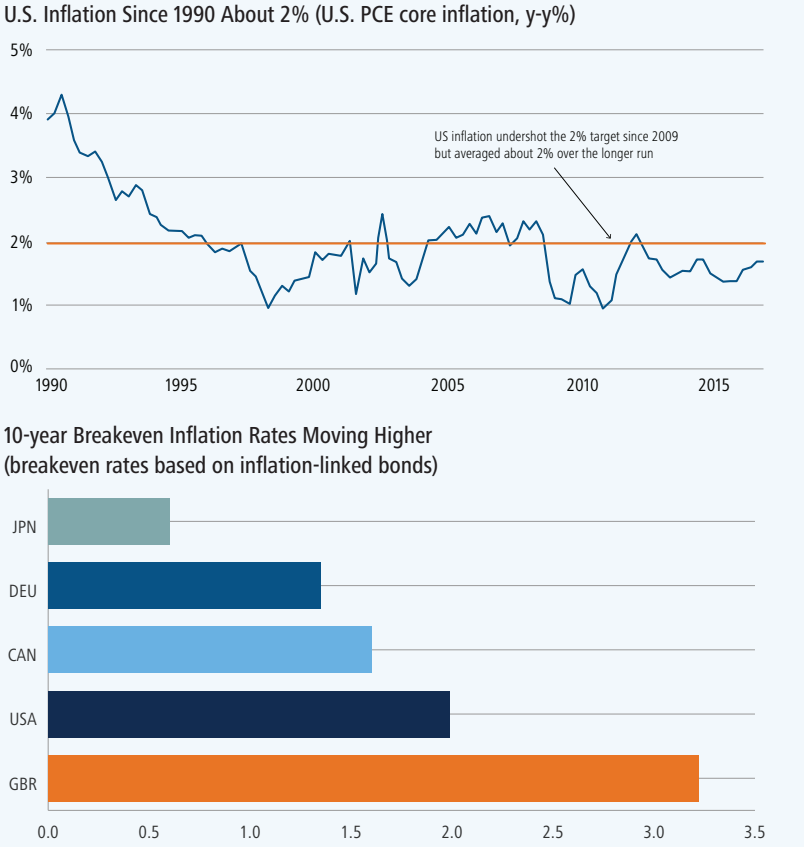


Source: U.S. GDP at constant prices, 10-year U.S. Treasury rate and CPI provided by Bloomberg

[8] Population aging may reduce productivity growth as discussed in The Effect of Population Aging on Economic Growth, the Labor Force and Productivity, NBER Working Paper No. 22452, Maestas, Mullen and Powell, 2016.

Inflation over the long run is determined mainly by central bank policies. Most industrial countries have established inflation targeting frameworks to anchor expectations. In this way, central banks adjust monetary policy over the cycle so that average inflation stays in line with the target. In most advanced economies, central banks set the target inflation rate at 2% or less. While central banks generally missed their targets after the global financial crisis in 2008, due in part to persistently sluggish economic activity, we believe that the targets remain credible in most countries over the longer term. Despite missing inflation targets recently, inflation in the U.S. has averaged about 2% since 1990 (top panel of Figure 6). Also, markets have already begun pricing in a normalization of inflation rates as implied from inflation-linked bonds (bottom panel of Figure 6).

FIGURE 6. Historical and Forward-looking Inflation Indicators



Sources: Data on U.S. core PCE price deflator and 10-year breakeven inflation rates based on inflation-linked bonds provided via Bloomberg as of February 17, 2016

Risk premiums compensate investors for volatility in market returns that cannot be diversified away. Investors require a higher expected return in markets with higher beta to global markets. Consistent with the capital asset pricing model (CAPM), we identify risk premiums based on the correlation or "beta" of the asset to the return of the Global Capital Market (GCM) portfolio. Specifically, the CAPM relates the risk premium, RP_i, of each asset i to its volatility, $\sigma_{i,t}$, correlation with the GCM portfolio, $\rho_{i,m}$, and the global price of risk given by the Sharpe Ratio of the market portfolio:

$$RP_{i,t} = \sigma_{i,t}\, \rho_{i,m}\, (R^{mt} - R^{ft}) / \sigma_{m,t}$$

This exercise requires a robust estimate of the global market portfolio and its historical returns, which can be complicated by substantial amounts of illiquid and non-tradable assets like private equity, leveraged loans, local currency denominated bonds in emerging markets and real estate. We leverage empirical research by Goodall, Manzini and Rose (2005) who have adopted this approach to estimate risk premiums for global stock markets and government bonds.

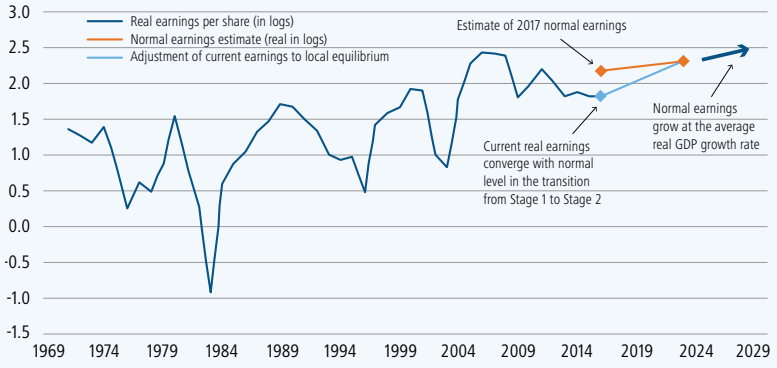
In the next section, we outline how we forecast cash flows in stock markets and government bonds.

e. Expected cash flows from stocks

Expected cash flows distributed to shareholders depend on the path of fundamental variables to their longer run equilibrium levels. In forecasting cash flows, we begin by estimating how current earnings transition towards the 'normal' or sustainable level of earnings from stage 1 to 2 (throughout this paper we refer to the sustainable level of earnings in the long run as the normal level). The second step involves forecasting the trend growth rate of normal earnings beginning in stage 2. The estimated payout rate of earnings to investors in the form of dividends and share buybacks also satisfies longer run equilibrium conditions.

Figure 7 illustrates the assumed 7-year transition of real earnings in 2016 to its normal level for the French stock market as an illustrative example. As current earnings are lower than our estimate of normal earnings, we expect higher-than-trend growth in earnings over the next 7 years as earnings gradually catch up to the normal level. In contrast, current earnings appear high relative to normal levels for the U.S. stock market. We expect slower-than-trend pre-tax earnings growth in the U.S. over the next 7 years. To help us understand normal earnings at the country level, we use a combination of techniques to identify the earnings capacity of a country over multiple cycles.

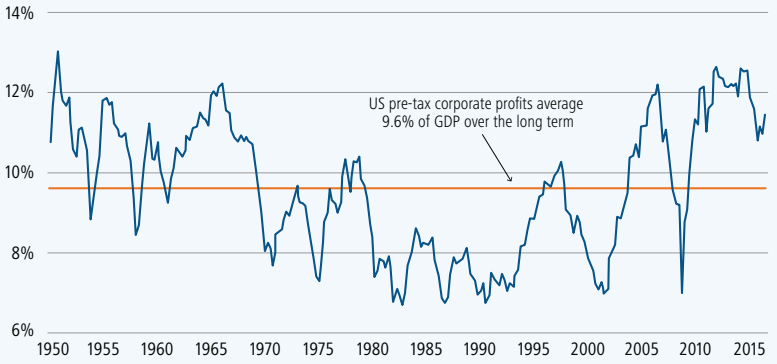
FIGURE 7. France: Stock Market Transition to 'Normal Earnings'
(real earnings expressed in log terms)



Source: Corporate earnings of MSCI France stock market index provided via Bloomberg. Forecast of normal earnings and adjustment to future normal earnings in 7 years by Mackenzie's Multi-Asset Strategies Team.

Once the level of corporate earnings converges to the normal level in stage 2, we forecast subsequent growth in real earnings so that it matches the trend rate of overall economic growth. We expect the corporate sector to remain balanced as a share of GDP over long time horizons. Otherwise, the share of corporate profits in GDP would eventually grow to absorb the entire economy or decline to a negligible level. Figure 8 illustrates the tendency of corporate profits to be mean-reverting over shorter run economic cycles while converging towards its longer run average over time. This means that forecasting the trend rate of earnings growth over the long run requires a strong estimate of the average growth rate in real GDP.

FIGURE 8. U.S. Corporate Profits as a Share of GDP, 1950-2015
(pre-tax corporate profits as a share of GDP)

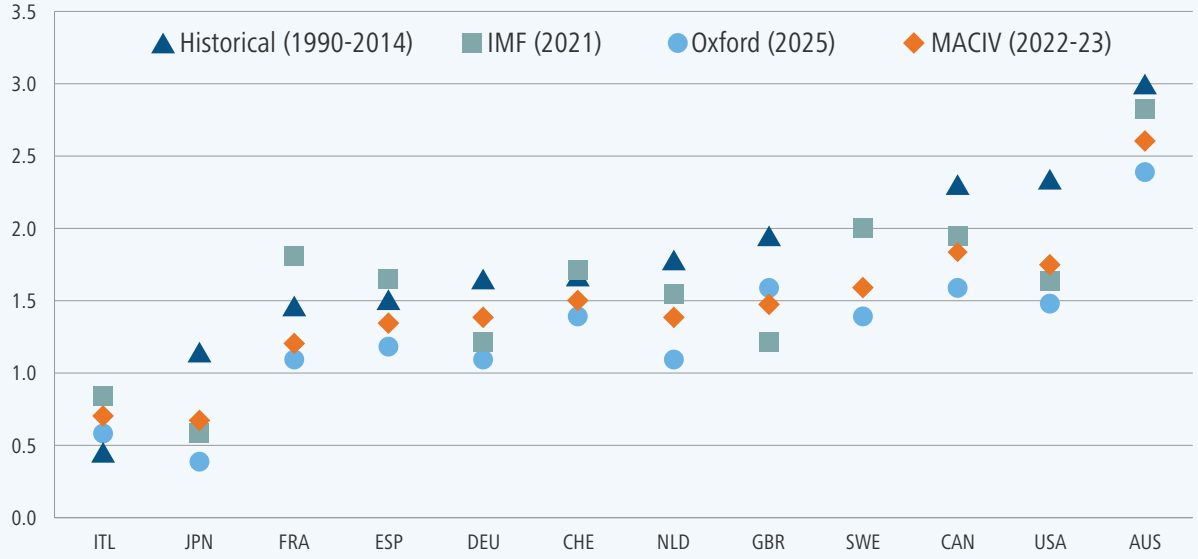


Source: U.S. corporate profits and real GDP at current prices are provided via Bloomberg

We estimate the trend rate of economic growth over different horizons by forecasting the supply-side contributors of growth. These factors include workforce growth, capital accumulation and total factor productivity. We expect a slowdown in average economic growth over time in most countries as population aging slows workforce growth, capital accumulation slows in sympathy with lower employment growth (keeping the ratio of capital to workers in balance) and productivity remains below the post-war historical average. We expect persistently low productivity for several reasons, including the secular shift towards services, such as healthcare and education, which typically deliver smaller productivity gains compared to manufacturing. Average productivity in the U.S. has also declined in each decade since the 1950s despite the technology revolution.[9] We expect this multi-decade trend to continue as new innovations struggle to increase productivity to the same extent as the great innovations of the past.

[9] Population aging may reduce productivity growth as discussed in The Effect of Population Aging on Economic Growth, the Labor Force and Productivity, NBER Working Paper No. 22452, Maestas, Mullen and Powell, 2016.

FIGURE 9. Expected Slowdown in Trend Economic Growth
(comparison of real GDP growth forecasts by country in percent)



Source: Historical growth rates computed by Mackenzie's Multi-Asset Strategies Team. Growth forecasts from IMF World Economic Outlook (October 2016) and Oxford Economics (as of December 2016).

f. Applying MACIV to government bonds

A common approximation of the expected return for a bond portfolio is the current yield-to-maturity of a benchmark bond of similar maturity (e.g., a 10-year government bond). The problem with this approach is that it assumes the bond portfolio is not rebalanced over time. Essentially, it assumes that as time passes, investors let the maturity of their bond portfolio get shorter and shorter until they all mature. In practice, most investors would purchase new bonds as the older bonds mature. Institutional investors, for example, would target a very specific duration in their bond portfolio, and rebalance the portfolio to match that duration.

Hence, investors need to take into account additional factors beyond yield-to-maturity when estimating the expected return of their bond portfolio. This process first involves estimating an expected forward curve beyond the maturity of the bonds investors are currently buying to rebalance the portfolio to a constant duration. This allows investors to take into account the expected returns associated with capital gains and roll-down yields of the current bonds in the portfolio as well as the expected yield-to-maturity of bonds that will be purchased in the future.

The MACIV framework incorporates these aspects when estimating expected bond returns. The approach begins by building forward curves for required returns. The required forward rates are based on expected inflation, the RRFR and the risk premium at different maturities. As a macroeconomic consistent framework, we use the same expected inflation and risk-free rates for both stocks and bonds. For government bonds, the risk premiums reflect compensation for price-based volatility as well as an adjustment for convexity.

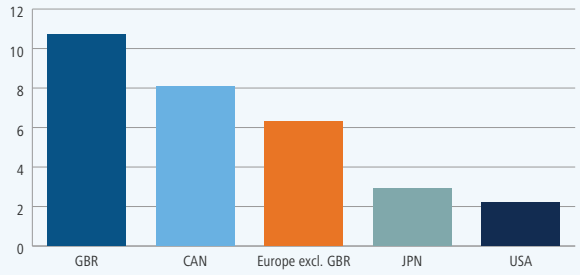
The second step involves transforming the forward curve of required returns into equivalent spot interest rates that can be compared with market-based interest rates. In this way, we can estimate the extent of over- and under-valuation relative to the required returns of investors (i.e., the unconditional returns of investors in the long run). Consistent with the approach for stocks, we assume that interest rates on government bonds converge to the estimate of intrinsic value over 7 years.

For illustrative purposes, we present results in section g of an investment in nominal government zero coupon bonds (Figure 11). For each market, we illustrate the average expected return over the next 7 years of a zero coupon bond with similar duration as the government bond index in that country. The results should be interpreted as an investor holding a constant duration exposure over time, much like buying an ETF or mutual fund indexed to a government bond benchmark. Importantly, the results do not correspond to buying a zero coupon bond and allowing the maturity to roll down over time, which would imply a decreasing duration year after year. While we focus on the duration that matches the government bond index, the MACIV framework can be applied to any maturity and most types of bonds.

g. Summary of expected returns

Figure 10 illustrates average expected returns of major stock markets over the next 7 years based on the MACIV model. The U.S. and Japanese stock markets have the lowest expected returns while the model indicates that the UK, Canada and European countries offer the highest expected returns.

FIGURE 10. MACIV: Expected Returns of Major Stock Markets over the Next 7 Years
(average annual expected return in local currency terms)

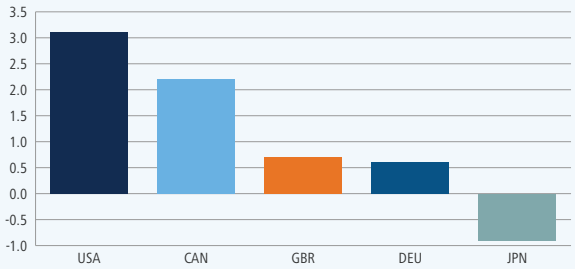


Sources: Mackenzie Multi-Asset Strategies Team as of March 17, 2016

The results for the UK mainly reflect low market prices and depressed earnings relative to the sustainable normal level. At the other extreme, US share prices appear expensive, particularly as we expect pre-tax earnings to grow more slowly as earnings revert over time towards the normal level. Canadian stocks also look relatively favourable over the longer run as earnings growth increase towards the longer run normal level.

Figure 11 illustrates current expected returns of government bonds in major markets over the next 7 years based on the MACIV approach. The expected returns in Figure 12 correspond to the bond duration of each country's government bond index.[10] Given exceptionally low interest rates in many countries, expected returns over the next 7 years have dropped significantly below the longer run returns required by investors (see Appendix). Lower expected returns reflect an expected increase in real discount rates and normalization of inflation over the next 7 years as real interest rates rise with the expected increase in average economic growth.

FIGURE 11. Expected Government Bond Returns
(average annual expected returns over the next 7 years based on the modified duration of the government bond index in local currency terms)



Source: Mackenzie Asset Allocation and Alternatives as of March 17, 2017.
Based on the modified duration of the Bloomberg Barclays government bond index.

h. Macro scenario analysis

The MACIV framework provides a natural mechanism to evaluate the impact of different macroeconomic scenarios on expected long-run returns. The link between fundamental variables and expected returns provides a systematic way to consider how shocks in inflation, productivity, demographics, cyclical downturns or other shocks may impact asset returns over the long run. In this way, the framework can be used to assess the impact of a sharp recession, President Trump's pro-growth policy agenda, secular stagnation or even a pandemic that affects future demographic trends.

Weighting MACIV appropriately in a portfolio

The MACIV framework provides robust input for estimating asset valuations and long-run expected returns. However, the MACIV model needs to be weighted appropriately with other complementary valuation estimates as a large part of the future is inherently unpredictable and even a strong estimate of intrinsic valuation will have shortfalls. In this context, the MACIV framework complements our suite of different valuation models to produce a robust overall valuation view compared to the output of any single model.

[10] Based on the modified duration of the Bloomberg Barclays government bond index as of March 10, 2017.

In terms of tactical allocations, asset valuations provide powerful insights about long-run expected returns but investing solely on the basis of intrinsic valuation would miss important insights influencing shorter run returns, such as investor sentiment and the macroeconomic environment. The investment insights of Mackenzie's Multi-Asset Strategies Team come from value as well as an assessment of macroeconomic conditions and market sentiment when making tactical allocations. This approach diversifies across different types of insights as well as different investment horizons.

In addition, a diversified strategic portfolio is an essential component of generating robust risk-adjusted returns over a full market cycle. While the MACIV model currently finds that expected stock and bond returns are below historical averages, we would only recommend an underweight allocation relative to strategic portfolio weights. In this way, we budget a deliberate amount of active risk to our tactical views, recognizing that timing markets is exceptionally difficult, any model will always have shortcomings and the future is inherently uncertain.[11] This risk budgeting approach is consistent with institutional best practices in portfolio construction and risk management.

As an example, consider Mackenzie's Symmetry funds, a suite of multi-asset portfolios invested in global stocks and fixed income that our team is managing. At the time of writing, the Symmetry Portfolios are tactically overweight stocks despite rich valuations based on MACIV. The equity overweight reflects a supportive assessment of investor sentiment and of macroeconomic conditions. However, the size of the overweight is lower than it would have been had MACIV indicated a neutral intrinsic valuation. In terms of fixed income, the portfolios are underweight government bonds relative to our strategic allocations. This is in line with both the MACIV over-valuation signal and other insights in our investment process.[12]

Conclusions and investment implications

Intrinsic valuation is an important driver of total asset returns over longer horizons. Patient investors equipped with a solid estimate of intrinsic value can better tilt their asset allocation so that it is aligned with long-term opportunities.

Using the right measures of value is also important. Traditional valuation measures can provide misleading signals at times, leading to "value traps". Mackenzie's Asset Allocation and Alternatives team believes that understanding and forecasting the fundamental drivers of asset returns provides a powerful approach to help predict total returns over the longer run. However, we stress the need to combine insights from MACIV with other value measures as well as other types of insights that influence shorter run returns, such as investor sentiment and macroeconomic conditions.

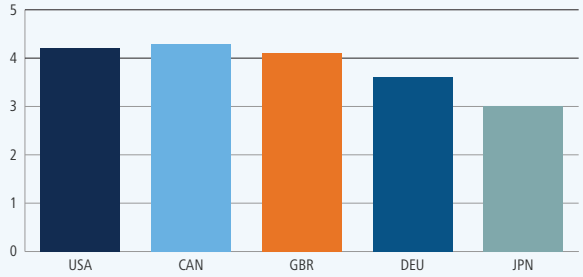
Despite the benefits of having a strong valuation anchor, we strongly believe that diversification remains essential in a balanced portfolio, whether it is strategic portfolio diversification or diversification in the types of insights used to evaluate tactical opportunities.

[11] "Pension Investing in Canada: Diversification, Risk Management and Asset Pooling" for a discussion of our approach to risk budgeting.
[12] Tactical overweight and underweight positions in Symmetry are as of March 10, 2017.

Appendix: Current expected returns vs. long-run unconditional returns

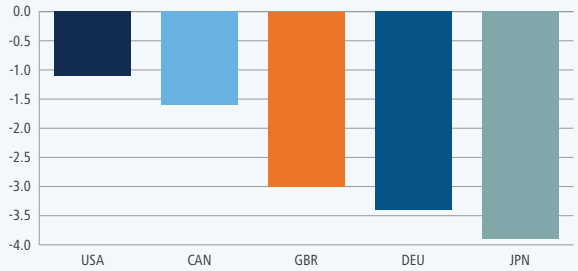
The duration of the government bond universe differs significantly across countries. For example, the duration of the U.S. Treasury index is about 6.1 years compared to 11.3 years in the UK. Differences in average duration reflect active decisions by the debt management agency in each country on the composition of short- and long-run maturities.
This appendix provides a cross-country comparison of expected bond returns at a given duration point. Specifically, Figure A1 summarizes unconditional expected returns in equilibrium for constant maturity, zero coupon bonds with 10 years of duration. Figure A2 illustrates the difference between expected returns and the unconditional equilibrium returns required by investors in the very long term. MACIV indicates that investing in Canadian government, constant maturity 10-year bonds would deliver lower expected returns by 1.6% compared to what investors should expect unconditionally.

FIGURE A1. Expected Equilibrium Return for 10-year Government Bonds
(unconditional average annual expected bond returns in equilibrium in local currency terms)



Source: Mackenzie Asset Allocation and Alternatives team as of March 17, 2017

FIGURE A2. Expected 10-year Government Bond Return in Next 7 Years Less the Unconditional (Long-run) Expected Return Required by Investors



Source: Mackenzie Asset Allocation and Alternatives team as of March 17, 2017

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