

Starting the new decade on the wrong foot

Executive Summary

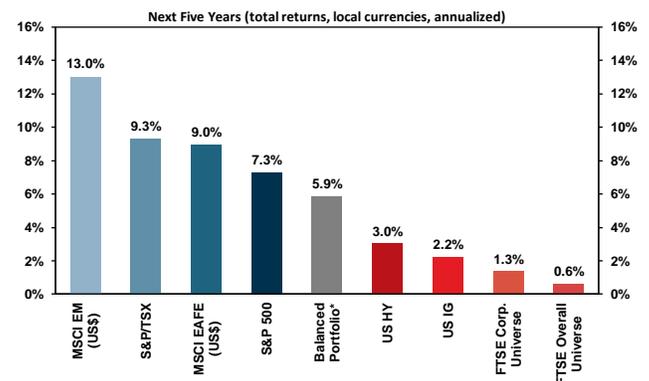
- > Our main scenario for the next five years is that of sound, albeit uncertain, growth. In the wake of a sharp COVID-induced recession, economic activity should rebound, while large fiscal and monetary stimuli could provide inflationary pressures beyond 2021.
- > Longer-duration sovereign bonds are likely to face headwinds as short-term rates only have one way to go over the next five years, particularly should inflation accelerate significantly in the wake of record-large fiscal stimulus across developed nations.
- > Initial spreads far above their historical mean should help both IG and HY bonds shine within the fixed-income space, although increased default rates are likely to weigh on the latter's performance over the next few years.
- > After a sharp rebound from their March 2020 lows, equities are poised to deliver more sustainable risk-adjusted returns. Below trend Earnings per Share (EPS) are likely to improve significantly throughout 2021 and beyond, in part thanks to the reopening of most major economies following the COVID-induced shutdowns.
- > Risks to this outlook are the relatively stretched valuations, especially in the U.S., where P/E ratios stand at their highest level in nearly 20 years.
- > Overall, the average return of a balanced portfolio (60% equities/40% bonds) for the next five years will likely be similar to the past five, although contributions to performance will likely differ.
- > This highlights that diversification is key, as a balanced portfolio should sit comfortably above the Capital Allocation Line and offer a higher Sharpe ratio than any individual asset class under study (Charts 2 & 3).

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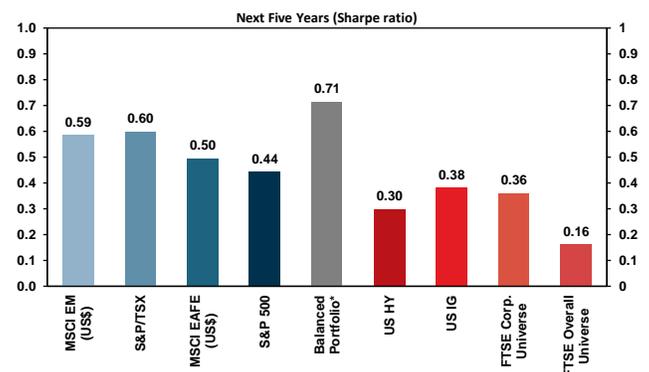
2 The greater the risk, the greater the expected return...



CIO Office. (Data via Refinitiv). * Balanced portfolio composed of 25% FTSE Overall Universe, 10% U.S. Investment Grade, 5% U.S. High Yield, 21% S&P 500, 21% S&P/TSX, 12% MSCI EAFE, 6% MSCI EM.

Data as of June 30, 2020

3 ... but diversification remains a "free lunch"



CIO Office. (Data via Refinitiv). * Balanced portfolio composed of 25% FTSE Overall Universe, 10% U.S. Investment Grade, 5% U.S. High Yield, 21% S&P 500, 21% S&P/TSX, 12% MSCI EAFE, 6% MSCI EM.

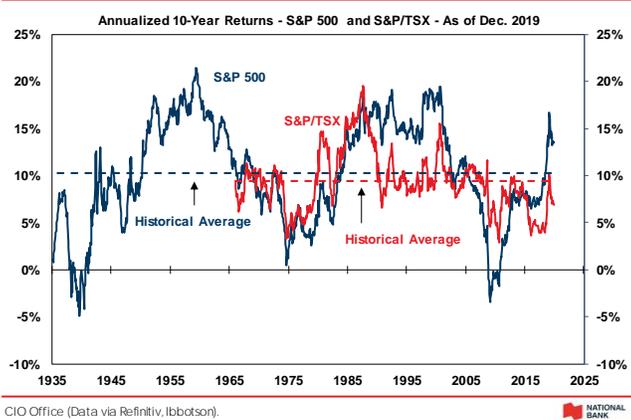
Data as of June 30, 2020

Introduction

Every year, we present our long-term forecasts for major asset class returns, volatility, and correlations. They form the basis of our Capital Allocation Line (CAL), an important input into National Bank Investments' Strategic Asset Allocation (SAA) and portfolio construction efforts.

Having closed the last decade with U.S. equities up at an annualized rate of nearly 14% (about 400 bps above the historical norm and twice as much as Canadian equity performance), many investors were questioning how things could possibly continue at the same pace for much longer (Chart 4).

4 Time for a leadership change?



If a period of more modest returns was to be expected – as concluded in last year’s iteration of this report – no one could have known that the new decade would start with such dreadful events.

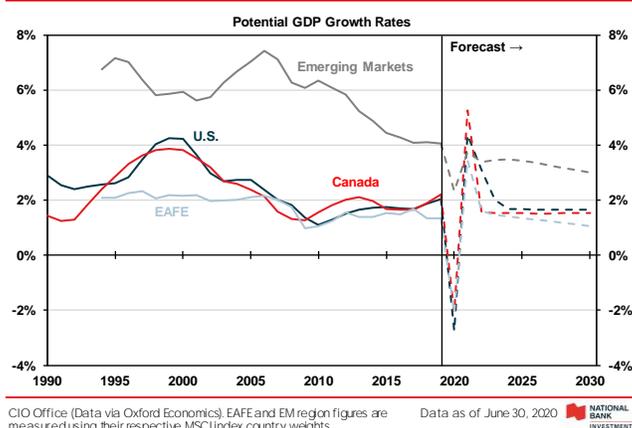
Does the coming of COVID-19 and the Great Cessation change everything? Well, since making long-term market expectations means working with averages, episodic ups and downs usually don’t matter too much: if equities go down (up) in any given year, then valuations will adjust to reflect upside (downside) potential for years to come. In the current chain of events, equities fell precipitously, only to rebound almost as forcefully. Meanwhile, bond yields fell to historical lows. So, where does that leave us?

To answer this, we need to know if economic growth and inflation expectations have been hampered permanently or just temporarily. Surely, the longer it takes for economies to fully reopen, the more people will feel there was a pre- and post- pandemic. This could lead to more polarization, rising protectionism around the globe, and supply chain disruptions. In turn, this would likely negatively affect potential economic activity. However, the end-result is unclear, as these could possibly be offset by an acceleration of the

ongoing digital transformation. Turning to inflation, one could rightfully think of the current environment of severe economic contraction as deflationary, with resource prices markedly down at the forefront. But, what about large-scale fiscal deficits and “unlimited” quantitative easing? Won’t those be inflationary in the longer run?

Making projections amid an economic storm is no easy task, especially since neither the cause nor the response by fiscal and monetary authorities have any valuable comparables in modern history. Under these circumstances, we decided to work under the premise that the current pandemic shock will not have a disproportionate effect on the longer-term path of growth and inflation (Chart 5), an assumption that we will certainly have the opportunity to revisit as the situation evolves in the coming quarters.

5 Growth trends should resume in a post-COVID world



CIO Office (Data via Oxford Economics). EAFE and EM region figures are measured using their respective MSCI Index country weights. Data as of June 30, 2020

If we are right in our assessment, risk assets will continue to outperform safer ones. To be sure, we first account for long-term trends in economic growth and inflation, which form the basis of the risk-free rate. Then, working from our building-block methodology, we compute valuation-adjusted expected returns for major asset classes and compare risk premiums on a historical basis. Finally, using volatility and correlations, we regress the optimal CAL to form our SAA recommendations.

Martin Lefebvre
Chief Investment Officer
National Bank of Canada

1. Economic Backdrop

We first look at trends in economic growth and inflation, which form the first building block in our forecasts.

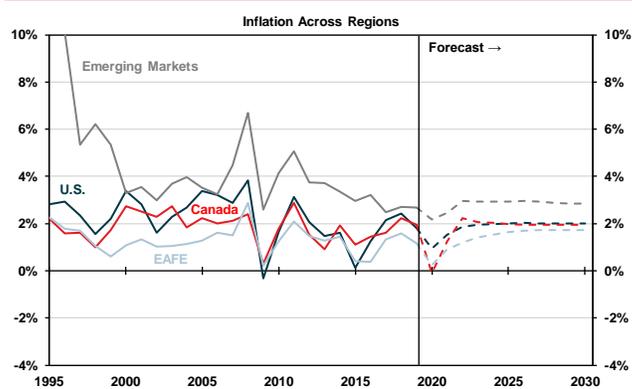
A common proxy for future economic activity is potential GDP growth, which represents a combination of productivity (output per person) and labour force growth, both of which tend to vary only structurally. With COVID-linked forced closures, there is no doubt that the output per person will shrink tremendously in 2020. However, provided that containment measures are first partially, and then, fully reversed, economic activity will recover. Our base case assumption is that by mid-2021, potential growth will have closed in slightly below its pre-crisis rate. One of the reasons is that rising protectionism and supply chain disruptions may jeopardize some of the benefits of globalization and lead to a drop in both labour (through immigration) and productivity (because of more expensive costs) growth around the world. However, downward adjustments should be minor as some of the repercussions could be offset by earlier adoption of digital technologies (for example, automation and artificial intelligence).

Based on this, potential real GDP growth in the United States should average 1.7% over the next five years (Table 1). Canada will not be far behind, with strong labour force growth offsetting part of the weaker gains in productivity. Overseas, with many structural difficulties still to overcome in major European countries and Japan, potential growth should remain the weakest in developed nations, while emerging and developing economies will continue to see the highest rate of growth.

Turning to inflation, we were expecting to see an acceleration in 2020, as economic activity was getting closer to the end of the cycle – as measured by U.S. short-term rates reaching the neutral rate. Instead, the impact of COVID-led shutdowns was a severe blow to

many consumption items, with energy prices at the forefront. While we expect oil prices to stabilize, overall inflation will remain depressed compared to the recent past, before historically low interest rates help it return to target rates (Chart 6). Risks to this outlook are tilted to the upside however. For one thing, the potential impact of rising protectionism on global trade and supply-chain disruptions would likely result in upward price pressures if more goods are produced locally. For another, large-scale fiscal deficits and “unlimited” quantitative easing are also perceived by markets as inflationary, although the Japanese and European cases suggest this may take longer than expected for that to take hold.

6 Inflation set to rise as economies reopen



CIO Office (Data via Oxford Economics). EAFE and EM region figures are measured using their respective MSCI Index country weights. Data as of June 30, 2020. NATIONAL BANK INVESTMENTS

Based on this, U.S. inflation will gradually move from close to 0% in 2020 toward the target rate later on, averaging 1.4% over the period. With lower productivity growth, inflation in Canada is expected to be slightly higher than in the U.S. Because of lower potential growth in Europe and Japan and a re-anchoring of expectations much below central bank targets, inflation in EAFE will remain the lowest of the surveyed regions, while EM will stay the highest (Table 1).

Table 1 Five-year economic forecasts (local currencies, annualized rate)

Countries	Labor force growth	Productivity growth	Real Potential Growth	Inflation	Nominal Potential Growth
United States	0.4%	1.3%	1.5%	1.6%	3.1%
Canada	0.5%	1.0%	1.9%	1.5%	3.4%
EAFE	0.5%	0.6%	1.3%	1.0%	2.3%
Europe	0.4%	0.6%	1.3%	1.1%	2.4%
Pacific	0.6%	0.5%	1.4%	0.7%	2.1%
Emerging Markets	0.6%	2.6%	5.7%	2.6%	8.3%

CIO office (data from Refinitiv).

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Labor force, productivity growth, and inflation estimates from Oxford economics.

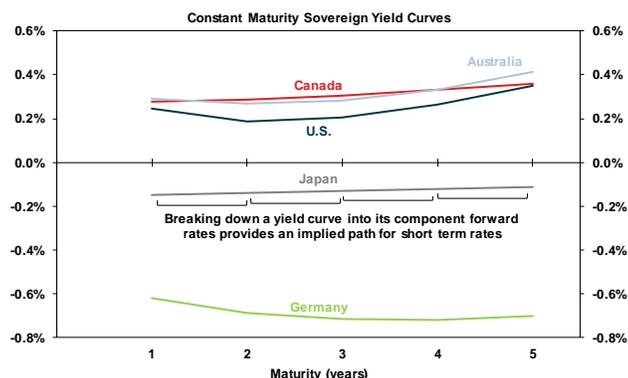
EAFE and EM region and sub-region figures are measured using their respective MSCI index country weights.

For illustrative purposes only, subject to change, and no guarantee of the future.

2. Risk-Free Rates

The basis of our risk-free rate forecast is twofold. On the one hand, we anchor our expectations on current market-implied rates. For this, we make the simplifying assumption that short-term government rates will evolve according to each country's yield curve (Chart 7).

7 Forecasting risk-free rates using yield curves...

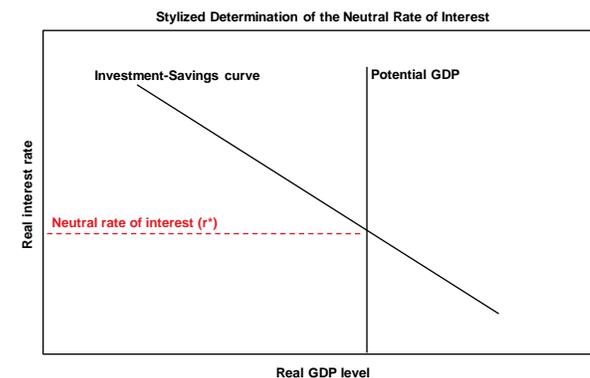


CIO Office (Data via Refinitiv).

Data as of June 30, 2020



8 ... and an estimate of r^* over the next five years



CIO Office



Using each country's estimated real potential growth as a proxy for the neutral rate of interest over the next five years² (Table 1, previous page) we calculate an average short-term real risk-free rate. From there, we add inflation. Our final estimate for the expected risk-free rate is the arithmetic mean between this measure and the market-implied one.

Although sound in theory, this method introduces certain biases in our forecast. For example, it is well known that longer-term rates tend to be greater than shorter-term rates (i.e., a term premium exists¹). As such, a second measure, based on neutral interest-rate targeting (commonly referred to as r^*), is introduced to help shrink such bias.

Simply put, r^* is the theoretical real short-term interest rate which should prevail when inflation is stable, and the economy is in equilibrium (Chart 8). Central banks use this rate as a guide for monetary policy decisions. We take advantage of this fact by assuming that over a five-year cycle, on average, policy makers will attempt to steer their target overnight rate toward the neutral rate, thereby allowing us to estimate a risk-free rate over the period.

Unsurprisingly, our forecasts for risk-free rates remain low across the board, especially so for Germany and Japan (0.2% and 0.1%, respectively) as both countries remain in negative-yield territory (Table 2). However, as COVID-related recessionary pressures subside over the next 12 to 18 months, the subsequent economic rebound is likely to push many central bankers to consider rate hikes – especially should inflation rise dramatically above target thresholds. This should, in turn, raise short-term sovereign yields in affected countries.

Table 2 Expected Risk-Free Rates, next five years (local currencies, annualized rate)

Country	Market-implied rate	r^* trend targeting			Expected risk-free rate
	Nominal	Real	+ Inflation	= Nominal	
United States	0.4%	0.8%	2.0%	2.8%	1.6%
Canada	0.4%	0.6%	2.0%	2.6%	1.5%
Germany	-0.7%	-0.4%	2.0%	1.6%	0.4%
Japan	-0.1%	0.0%	1.1%	1.2%	0.5%
Australia	0.4%	0.6%	2.5%	3.1%	1.7%

CIO office (data via Refinitiv).

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Inflation forecasts from Oxford Economics.

Expected returns are for illustrative purposes only, are subject to change, and are no guarantee of the future.

¹ Adrian, Crump, and Moench. 2013. "Pricing the Term Structure with Linear Regression"

² Holston, Laubach, and Williams (2017) show that r^* and real potential growth generally move in tandem

3. Government Bonds

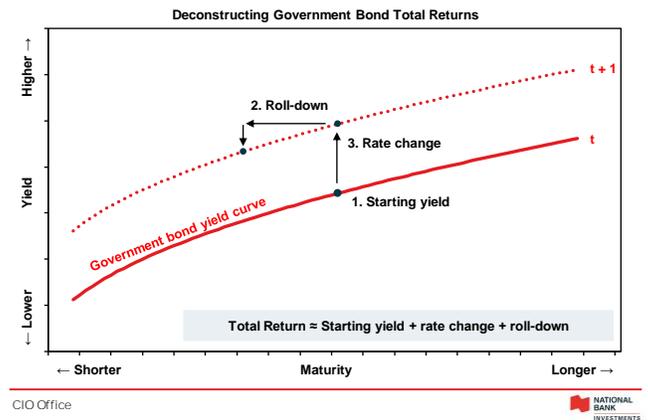
We deconstruct bond returns into different components to isolate the yield (the income part), the effect of roll-down, and duration risk on valuations (the capital appreciation part) (Chart 9):

1. Starting yield. The total return of a bond has always been strongly anchored near its starting yield (Chart 10).
2. Roll-down. The roll-down effect represents the capital appreciation gained from the aging of the bond along its yield curve. An upward (downward) sloping curve would generate positive (negative) returns.
3. Rate change. In the short run, because of duration risk, rising (falling) yields would likely lead to important capital losses (gains) and dominate bond returns. We proxy capital gains (losses) as duration multiplied by the projected fall (increase) in yields annualized over five years. The change in yield is estimated by taking the difference between current and anticipated risk-free rates³ as found in Table 2 in the previous section.

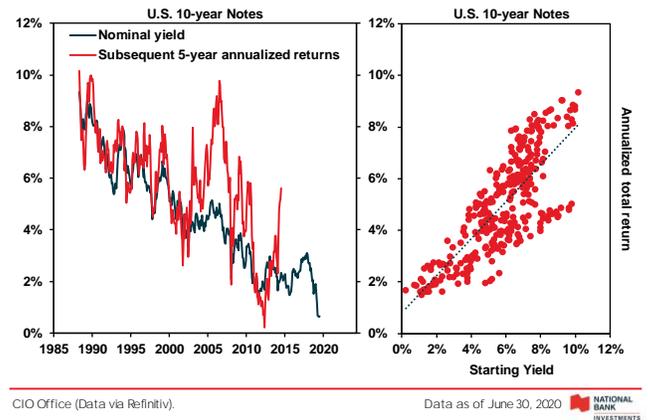
For U.S. 10-year bonds, starting from a yield of 0.7% at the end of June 2020 and adjusting for the impact of roll-down (+0.6%) and the pro-rated effect of rising yields over the next five years (-1.4%), we get an expected annualized total return of -0.2% in nominal terms and -1.8% in real terms (Table 3). As we expect the short-term risk-free rate to average 1.4% over the same period, this means the negative term premium currently observable should continue to hold in the near future.

By applying the same methodology to other regions, we find that real bond returns in local currency terms are negative everywhere. With a negative starting yield and a likely pick-up in inflation, European bonds offer the poorest expected returns over the next five years. As for

9 Components of a bond's total return



10 Starting yields are a strong anchor for total returns



Canada, returns should resemble those of the United States.

Table 3 Government Bonds, five-year total expected returns (local currencies, annualized rate)

10-year Treasury notes	Income + Capital appreciation =		Total return			
	Starting yield	Roll-down + Rate change	Nominal	- Inflation	=	Real
United States	0.7%	0.6%	-0.6%	1.6%		-2.2%
Canada	0.5%	0.4%	-0.9%	1.5%		-2.4%
Germany	-0.5%	0.4%	-1.9%	1.4%		-3.4%
Japan	0.0%	0.4%	-0.6%	0.2%		-0.8%
Australia	0.9%	0.5%	-0.1%	1.5%		-1.6%

CIO office (data via Refinitiv).

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Inflation forecasts from Oxford Economics.

Expected returns are for illustrative purposes only, are subject to change, and are no guarantee of the future.

³ Implicit in this assumption is a parallel shift in the current yield curve.

4. Bond Indices

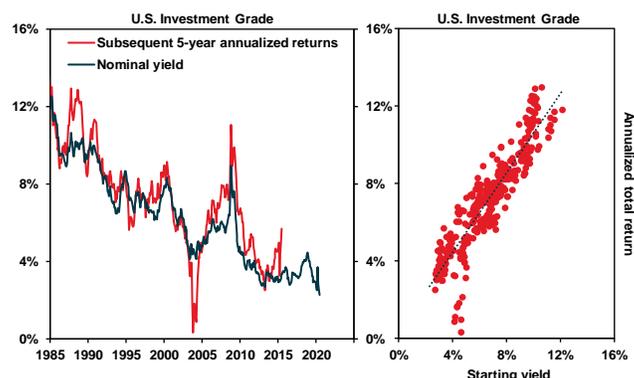
We establish our forecasts for bond and credit indices by adjusting the income and the capital appreciation part of our building block methodology for government bonds as follows:

1. **Income.** We start by adjusting the yield of each index to match its correct location along the sovereign yield curve. Additional income can be found in credit spreads, which compensate investors for taking on greater risk (Chart 11). To capture the potential impact of downgrades in credit ratings (bond migration) and/or expected default losses, we apply a haircut⁴ to spreads.
2. **Capital appreciation.** We adjust our Treasury roll-down estimates to account for the impact of the credit spread curve. We then adjust for changes in nominal yields (duration risk) and the impact of spread deviations from long-term trends.

We anticipate U.S. Investment Grade (IG) to return about 2.5%, on average, over the next five years (Table 4). This is more than the 0.4% expected return for Treasuries over the same period, as IG credit spreads have narrowed from their recent high but remain above average.

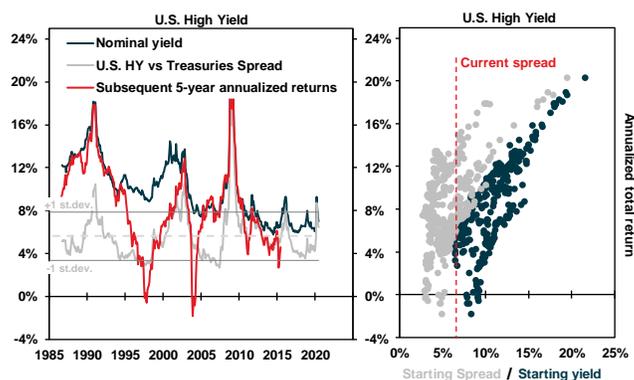
For High-Yield (HY) bonds, despite anticipated defaults due to the impact of lockdowns on the economy, spreads to the Treasury benchmark (at 646 bps at the end of June) should continue to narrow over the next few years, leaving the asset class in a sweet spot in terms of average expected returns (Chart 12).

11 IG total returns depend significantly on starting yields...



CIO Office (Data via Refinitiv). Data as of June 30, 2020. NATIONAL BANK INVESTMENTS

12 ... while starting spreads can also play a large role



CIO Office (Data via Refinitiv). Data as of June 30, 2020. NATIONAL BANK INVESTMENTS

Table 4 Bond indices, five-year total expected returns (local currencies, annualized rate)

Index	Income			Capital appreciation			Total return		
	Duration matched govies	Credit spreads	Migration & default	Combined roll-down	Interest rate change	Spreads valuation	Nominal	- Inflation	= Real
BoAML (USD)									
Treasury Master	0.5%	0.0%	0.0%	0.5%	-1.4%	0.5%	0.1%	1.6%	-1.5%
IG Master	0.5%	1.7%	-0.6%	1.5%	-1.6%	0.6%	2.2%	1.6%	0.6%
HY Master	0.2%	6.8%	-4.0%	-	-0.8%	0.9%	3.0%	1.6%	1.4%
FTSE (CAD)									
Universe	0.4%	0.9%	0.0%	0.4%	-1.6%	0.5%	0.6%	1.5%	-0.9%
Government	0.5%	0.6%	0.0%	0.4%	-1.7%	0.5%	0.3%	1.5%	-1.2%
Corporate	0.4%	1.7%	-0.3%	0.2%	-1.3%	0.6%	1.3%	1.5%	-0.1%

CIO office (data via Refinitiv).

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Inflation forecasts from Oxford Economics.

Expected returns are for illustrative purposes only, are subject to change, and are no guarantee of future performance.

⁴ We find that since 1985, credit spreads in U.S. IG and HY explain 65% and 35%, respectively, of their historical credit premium.

5. Equity indices

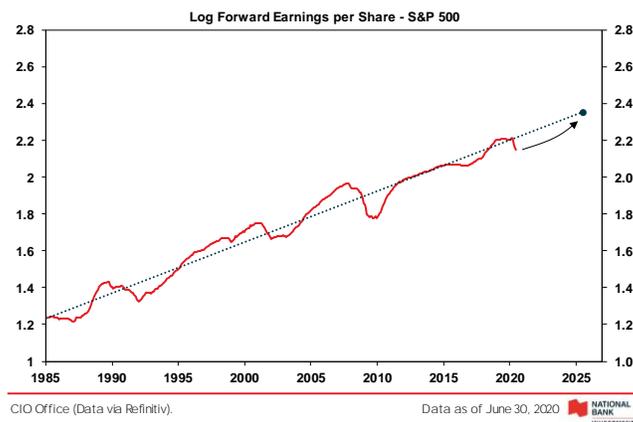
For equities, our approach to forecasting long-term returns is based on the dividend discount model (DDM) which states that future prices are the sum of the dividend yield, the expected growth in earnings per share, and the expected change in valuations:

1. Dividend yield. We proxy the future dividend yield as a simple average of the past five years.
2. Earnings. Our estimates for earnings growth are threefold. First, we look at the historical average growth in earnings per share (EPS). Second, we compare the current EPS against its historical trend to determine a likely mean-reverting path (Chart 13). Finally, we establish forward-looking estimates based on real GDP per capita – which tend to be more stable and closely related to EPS forecasts. We equally weight each measure and annualize returns over five years.
3. Valuation changes. As price-to-earnings ratios (P/E) tend to be mean-reverting, we adjust⁵ our forecasts lower (higher) when values are above (below) historical averages.

On that basis, we find that returns for U.S. large-cap equities should be around 7.4% (at an annualized rate) over the next five years (Table 5). Although this is much lower than the rate of appreciation of the average past five years, the expected equity risk premium over bonds is likely to be much higher than its long-term mean (see next section for more details).

For U.S. small caps, the higher historical growth and current below-trend levels of EPS combine for an average expected return a touch below 9% for the next five years.

13 Below trend EPS suggests room for upside



In Canada, with a higher dividend yield and cheaper valuations, the total return for Canadian large-cap equities could average more than 9% until mid-2025. This is in sharp contrast with the past five years when the TSX underperformed its U.S. counterpart steadily, except in 2016.

Total returns for EAFE equities should also be around 9.2%, with a higher dividend yield and cheaper valuations offsetting weaker growth. Due to their higher growth potential and fair valuations, EM equities should outperform developed markets in nominal local currency terms.

Table 5 Equity indices, five-year total expected returns (local currencies, annualized rate)

Index	Income +		Capital Appreciation			Total Return		
	Div. Yield	(EPS Growth + EPS reversion + GDP growth)/3	Revaluations	=	Real	+ Inflation	Nominal	
S&P 500	2.4%	4.2%	8.4%	2.5%	-1.8%	5.6%	1.6%	7.3%
S&P 600	2.4%	5.9%	11.4%	3.0%	-2.1%	7.0%	1.6%	8.7%
S&P/TSX	3.1%	2.7%	11.9%	3.8%	-1.4%	7.8%	1.5%	9.3%
MSCI EAFE	3.4%	1.3%	12.7%	4.3%	-1.5%	8.0%	1.0%	9.0%
MSCI EM	2.9%	-0.6%	20.9%	5.9%	-1.3%	10.4%	2.6%	13.0%

CIO office (data via Refinitiv).

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EPS growth is an average of the trailing twelve month figure from I/B/E/S over the past 15 years, adjusted for inflation.

Inflation and real GDP per capita growth forecasts via Oxford Economics (scalar of 1.2 for US small caps to account for beta differences).

Expected returns are for illustrative purposes only, are subject to change, and are no guarantee of the future.

⁵ In particular, we assume that P/E ratios mean-revert following an exponential decay process with a half life of 10 years. By opting for this method, as opposed to a simpler straight-line mean-reversion process,

the impact of revaluations on total returns when valuations are particularly stretched are amplified relative to times when valuations are in line with historical norms.

6. Historical Risk Premiums

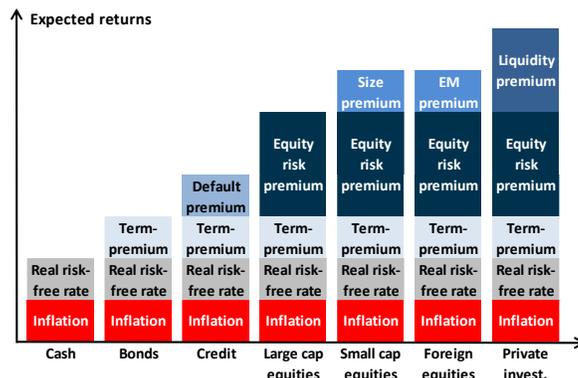
Based on data from Ibbotson/Morningstar covering multiple economic cycles, we first analyze long-term annualized returns for most major U.S. asset classes. The nominal returns are then adjusted for inflation to obtain the true measure of purchasing power over time (Table 6).

Premiums are excess returns demanded by investors for holding risky assets instead of cash (Chart 14 for concept and Chart 15 for historical series). For fixed-income securities, they pertain to the curve structure and credit-default risks. For large-cap stocks, the equity risk premium (ERP) compensates investors for estimation errors linked to future economic growth, profit margins, dividends, valuations, share buybacks, and the cost of equity capital, among other things. Additional risk can be found in smaller capitalizations as the potential for estimation errors increases. Investors should be compensated for holding emerging-market assets, which lack governance and bear higher political risks. Illiquidity may be an issue for non-listed markets, such as private equity, infrastructure, and real estate.

Based on our valuation-adjusted expected returns for U.S. bonds, credit, large-, and small-cap equities, we find that the respective term, default, equity, and size premiums will change significantly over the next five years.

In short, as we expect the cash rate and bond yields to rise gradually over the forecast horizon, the term premium will turn negative, in contrast with the generous payoff long-term sovereign debt has paid out over the last five years. As we are set to begin a new business cycle, IG credit should fare much better. Thanks in large part to an historically low discount rate, the U.S. large-cap equity risk premium should be much higher than historical norms. Despite expensive valuations, U.S. small-cap equities could turn the page on years of

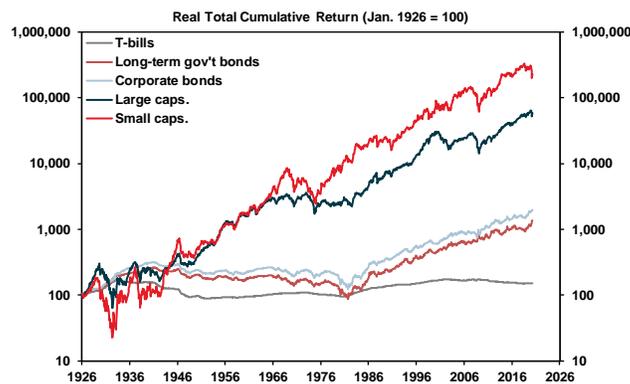
14 Investors must be compensated...



CIO Office



15 ... for taking risks over time



CIO Office (Data via Ibbotson).

Data as of June 30, 2020



relative underperformance and bring the size premium back into the spotlight.

Table 6 Historical returns, volatility and risk premiums (since 1926)

U.S. Asset classes	Volatility	Nominal returns	Real returns	Sharpe ratio	Risk premiums	Full period	Last five years	Next five years
Inflation	1.8%	2.9%	---	---				
3-month T-bills (risk-free rate)	0.9%	3.3%	0.4%	---				
Long-term Treasuries	8.5%	5.7%	2.8%	0.28	Term	2.3%	7.2%	-1.8%
Long-term corps (IG)	7.5%	6.2%	3.2%	0.38	Default	0.4%	0.9%	2.8%
Large cap equities	18.7%	10.1%	7.1%	0.36	Equity	4.3%	2.3%	7.9%
Small cap equities	28.2%	11.6%	8.6%	0.29	Size	1.5%	-8.8%	1.4%

CIO office (data via Refinitiv, Morningstar/Ibbotson).

2020-06-30

Annualized volatility is measured using monthly returns from Jan. 1926 to July 2020.

The term premium is the excess return over the risk-free rate; the default and equity premiums are excess returns over long-term bonds; the size premium is excess return over large cap equities.

For illustrative purposes only, subject to change, and no guarantee of the future.

7. Capital Allocation Line

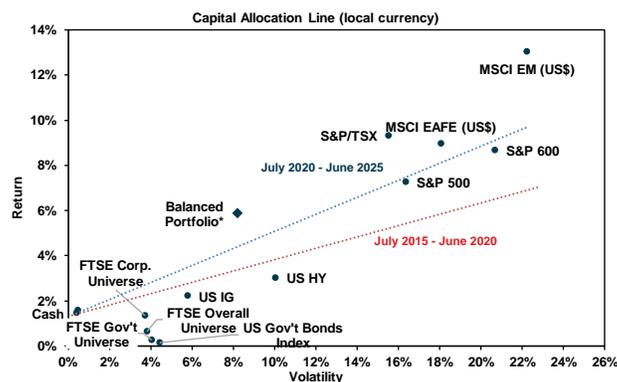
Here, we determine volatility and asset correlations for all asset classes under study to come up with the optimal Capital Allocation Line.

Because volatility is mean-reverting, we find the historical average to be the most representative of what the years to come should look like. As such, we derive correlations between assets based on the last 20 years of data available (Table 7) and estimate future volatility using the same historical window. We then compare the next five years with the last five in terms of returns, volatility and risk/reward ratio.

Putting it all together (Chart 16), we find that the optimal capital asset line for the next five years has slightly steepened, owing in large part to lower expected returns for fixed-income products, but also higher potential within the equity space.

Chart 16 also highlights the benefits of a balanced portfolio. Often dubbed “the only free lunch” in capital markets, diversification across investments in the form of a balanced portfolio would allow an investor to sit comfortably above the CAL. As expected, such a portfolio also has a higher Sharpe ratio than any individual asset class under study.

16 A risk-adjusted outperformance is likely for equities



CIO Office (Data via Refinitiv). * Balanced portfolio composed of 25% FTSE Overall Universe, 10% U.S. Investment Grade, 5% U.S. High Yield, 2% S&P 500, 21% S&P/TSX, 12% MSCI EAFE, 6% MSCI EM. Data as of June 30, 2020 NATIONAL BANK INVESTMENTS

Table 7 Correlation Matrix (local currencies)

Index	Std. Dev.	CAD Cash Rate	USD Cash Rate	FTSE Corp. Universe	FTSE Overall Universe	FTSE Gov't Universe	US Gov't Bonds Index	Can. LT Gov't Bonds	US IG	US LT Gov't Bonds	CAD.USD	US HY	S&P/TSX	S&P 500	MSCI EAFE (US\$)	S&P 600	MSCI EM (US\$)
CAD Cash Rate	0.4%		0.9	(0.1)	0.1	0.2	0.5	0.4	(0.2)	0.5	(0.4)	(0.4)	(0.4)	(0.4)	(0.5)	(0.5)	(0.4)
USD Cash Rate	0.5%	0.8		(0.1)	0.1	0.1	0.4	0.3	(0.2)	0.4	(0.2)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)	(0.4)
FTSE Corp. Universe	3.7%	(0.0)	(0.1)		0.9	0.8	0.2	0.5	0.8	0.2	0.1	0.6	0.5	0.4	0.4	0.3	0.3
FTSE Overall Universe	3.8%	0.1	(0.0)	0.9		1.0	0.6	0.8	0.7	0.6	(0.2)	0.2	0.2	0.1	0.1	0.0	0.1
FTSE Gov't Universe	4.0%	0.1	0.0	0.8	1.0		0.7	0.9	0.5	0.6	(0.2)	0.1	0.1	(0.0)	(0.1)	(0.1)	(0.0)
US Gov't Bonds Index	4.4%	0.2	0.2	0.5	0.7	0.8		0.8	0.2	1.0	(0.2)	(0.3)	(0.3)	(0.4)	(0.4)	(0.5)	(0.3)
Can. LT Gov't Bonds	5.5%	0.1	0.1	0.7	0.9	0.9	0.9		0.2	0.8	(0.4)	(0.3)	(0.2)	(0.4)	(0.4)	(0.4)	(0.3)
US IG	5.8%	(0.1)	(0.1)	0.8	0.7	0.6	0.5	0.5		0.2	0.4	0.8	0.6	0.6	0.6	0.5	0.5
US LT Gov't Bonds	7.3%	0.1	0.1	0.5	0.7	0.8	1.0	0.9	0.5		(0.2)	(0.3)	(0.4)	(0.5)	(0.4)	(0.5)	(0.3)
CAD.USD	8.4%	(0.0)	0.0	0.0	(0.1)	(0.2)	(0.1)	(0.3)	0.3	(0.2)		0.6	0.5	0.5	0.6	0.5	0.6
US HY	10.0%	(0.2)	(0.2)	0.4	0.1	0.0	(0.2)	(0.1)	0.6	(0.2)	0.5		0.8	0.8	0.8	0.8	0.8
S&P/TSX	15.5%	(0.1)	(0.1)	0.2	0.0	(0.1)	(0.3)	(0.2)	0.4	(0.3)	0.5	0.7		0.9	0.8	0.9	0.7
S&P 500	16.3%	(0.2)	(0.2)	0.1	(0.1)	(0.1)	(0.3)	(0.3)	0.3	(0.3)	0.5	0.7	0.8		0.9	0.9	0.8
MSCI EAFE (US\$)	18.1%	(0.1)	(0.1)	0.1	(0.0)	(0.1)	(0.3)	(0.3)	0.4	(0.3)	0.6	0.7	0.8	0.9		0.8	0.9
S&P 600	20.7%	(0.2)	(0.2)	0.1	(0.1)	(0.2)	(0.4)	(0.3)	0.3	(0.4)	0.5	0.7	0.8	0.9	0.8		0.7
MSCI EM (US\$)	22.2%	(0.1)	(0.1)	0.2	(0.0)	(0.1)	(0.2)	(0.2)	0.4	(0.2)	0.6	0.7	0.8	0.8	0.9	0.7	

Correl. of monthly returns over the last 20 years.

Correl. of monthly returns over the last 5 years.

CIO office (data via Refinitiv).

Annualized standard deviation is measured using monthly returns over the past twenty years.

2020-06-30

Conclusion

Like any forecast, long-term expectations are inherently subject to important uncertainties. Because of this, point estimates must be taken with a grain of salt. There is great value, however, in producing such forecasts, especially given the building-block approach we've adopted.

Since each subsequent asset class return expectations depend in part on a previous asset class, we can be certain of the coherence and comparability across our forecasts. Thanks to this, relative measures such as differences in risk-adjusted returns become especially valuable. While a specific forecast may be off one way or the other due simply to idiosyncratic shocks, the performance spread between them is likely to remain relatively stable. Put simply, while it may be hard to say whether the S&P 500 will return 7%, 8%, or some other figure over the next five years, we can certainly be rather confident that it will outperform its safer counterparts such as U.S. IG or U.S. HY – both on an absolute basis and a risk-adjusted basis.

This year was no exception to the rule. Based on our methodology and hypothesis, we find that of all asset

classes, safe-haven fixed-income products are the most richly priced at present, and average real returns should be negative for the next five years. For this reason, we continue to see more potential in stocks.

Because valuations for U.S. large-cap equities are elevated on absolute and relative terms, leadership should switch into other regions, with emerging markets seemingly in a sweet spot valuation-wise. Canadian equities also look poised to reverse their underperformance of the last ten years, although this purely arithmetic conclusion does not take into account their heavy weighting in energy companies, which are likely to remain under pressure over the period. U.S. small caps could rebound reviving the size premium.

All in all, average expected returns for a Canadian balanced portfolio (60% stocks/40% bonds) shouldn't be higher than 6% (C\$) with annualized volatility of no more than 8.2%, a result similar to that of the past five years. Once again, this highlights that diversification is key, as a balanced portfolio should deliver the best risk-adjusted performance across all asset classes under study.

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