BNY

Above the Noise

10-YEAR CAPITAL MARKET ASSUMPTIONS

INVESTMENT INSTITUTE

OVERVIEW

Annually, the BNY Investment Institute develops capital market assumptions for approximately 50 asset classes spanning global markets. The assumptions are based on a 10-year investment horizon and are available in terms of the U.S. dollar, British pound, Japanese yen, and euro. Our assumptions are meant to guide investors in developing long-term strategic asset allocations.

KEY TAKEAWAYS

- We believe businesses that integrate artificial intelligence (AI) early are more likely to increase their profitability through higher worker productivity. Our assumptions reflect higher earnings growth in U.S. equity markets as the U.S. is likely to be the most rapid adopter of innovative AI technology.
- We forecast U.S. Treasury bills to earn a 1.1% real return over the next decade, while U.S. Treasury markets are projected to achieve 2.2%.
- Market fluctuations seen from 2022 through 2024 underscore the importance of diversified portfolios in withstanding market volatility. We believe alternatives may offer more diversification if the correlation between stocks and bonds remains elevated.

EXHIBIT 1

2025 vs 2024
Capital Market Return Assumptions

		Expected Return 2025	Expected Return 2024	Standard Deviation 2025	
EQUITY	We anticipate a modest improvement in equity earnings growth as the adoption of AI enhances worker productivity and improves corporate profitability.	7.5%	7.4%	16.2%	U.S. Equity
		6.7%	6.3%	16.3%	Non-U.S. Developed
		7.7%	7.3%	18.7%	Emerging Markets
FIXED INCOME	The current level of yields, combined with the global trajectory of monetary policy, enhances the attractiveness of fixed income markets at this entry point.	4.8%	4.8%	5.1%	U.S. Aggregate
		6.0%	5.8%	8.4%	U.S. High Yield
		3.2%	2.5%	8.3%	Global Agg. Ex-U.S.
		4.0%	2.9%	9.0%	EM Local Currency
ALTERNATIVES	Alternative asset class expected returns are in line with publicly traded markets on a risk-adjusted basis with additional return opportunities for alpha and compensation for illiquidity.	4.5%	5.0%	4.6%	Absolute Return
		5.3%	5.5%	6.3%	Hedge Funds
		9.7%	8.8%	20.1%	U.S. Private Equity

Source: BNY Mellon Advisors, Inc. (BNY Advisors) as of November 2024.

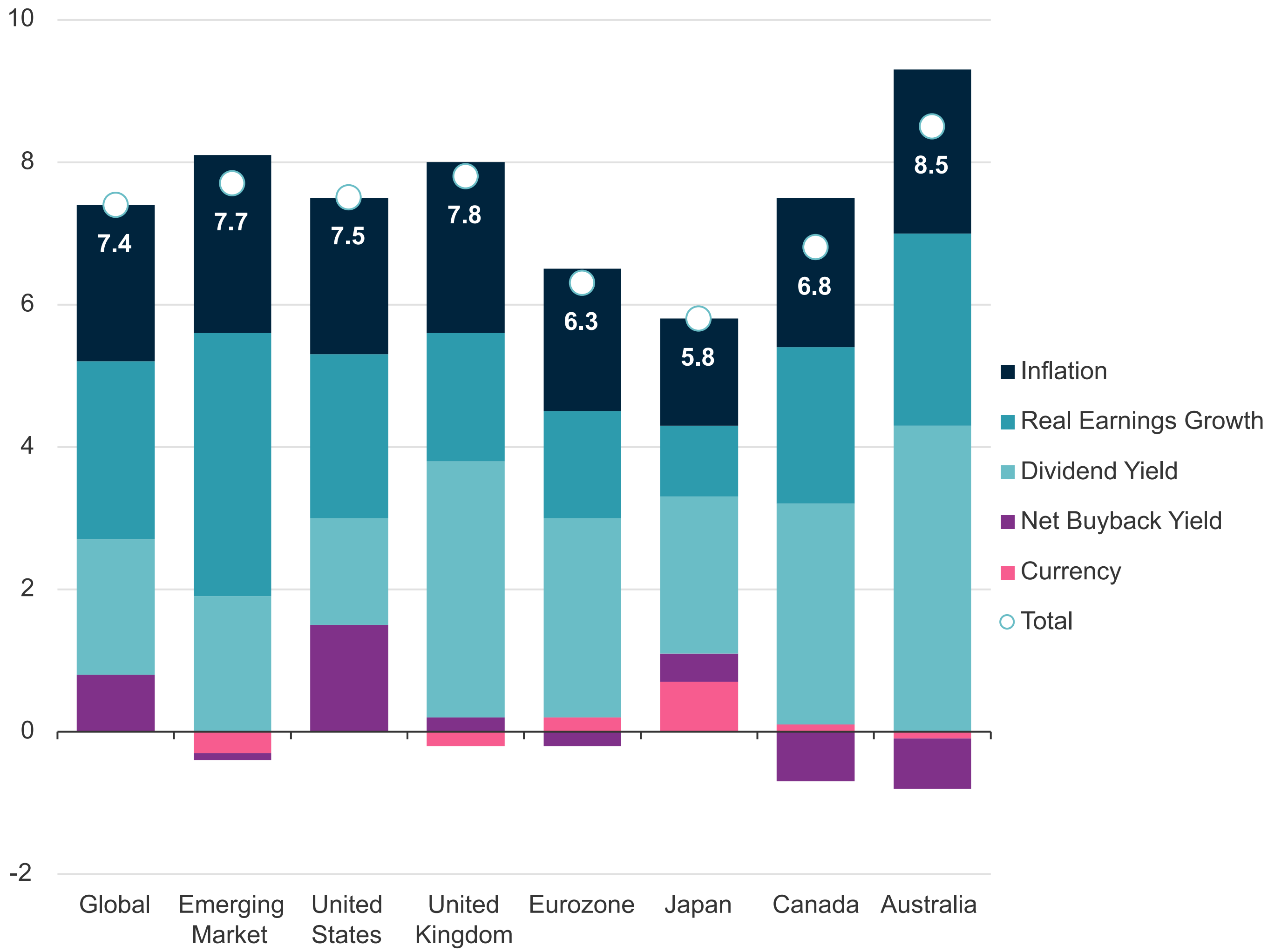
EQUITY

We expect the productivity benefits of AI to boost equity earnings globally. In our view, the U.S. is well positioned for AI-driven growth due to its investment in AI infrastructure, large share of cognitive labor, favorable regulations, and concentration of firms with dominant positions in the AI ecosystem.

We also think developed markets outside the U.S. will experience enhanced revenue growth, albeit to a lesser extent, as lower infrastructure investment and regulatory hurdles may impede adoption. Conversely, we see slower AI adoption in emerging markets as its higher proportion of the world's physical labor limits potential productivity growth.

EXHIBIT 2:

10-Year Equity Market Expected Returns (Unhedged U.S. dollar)



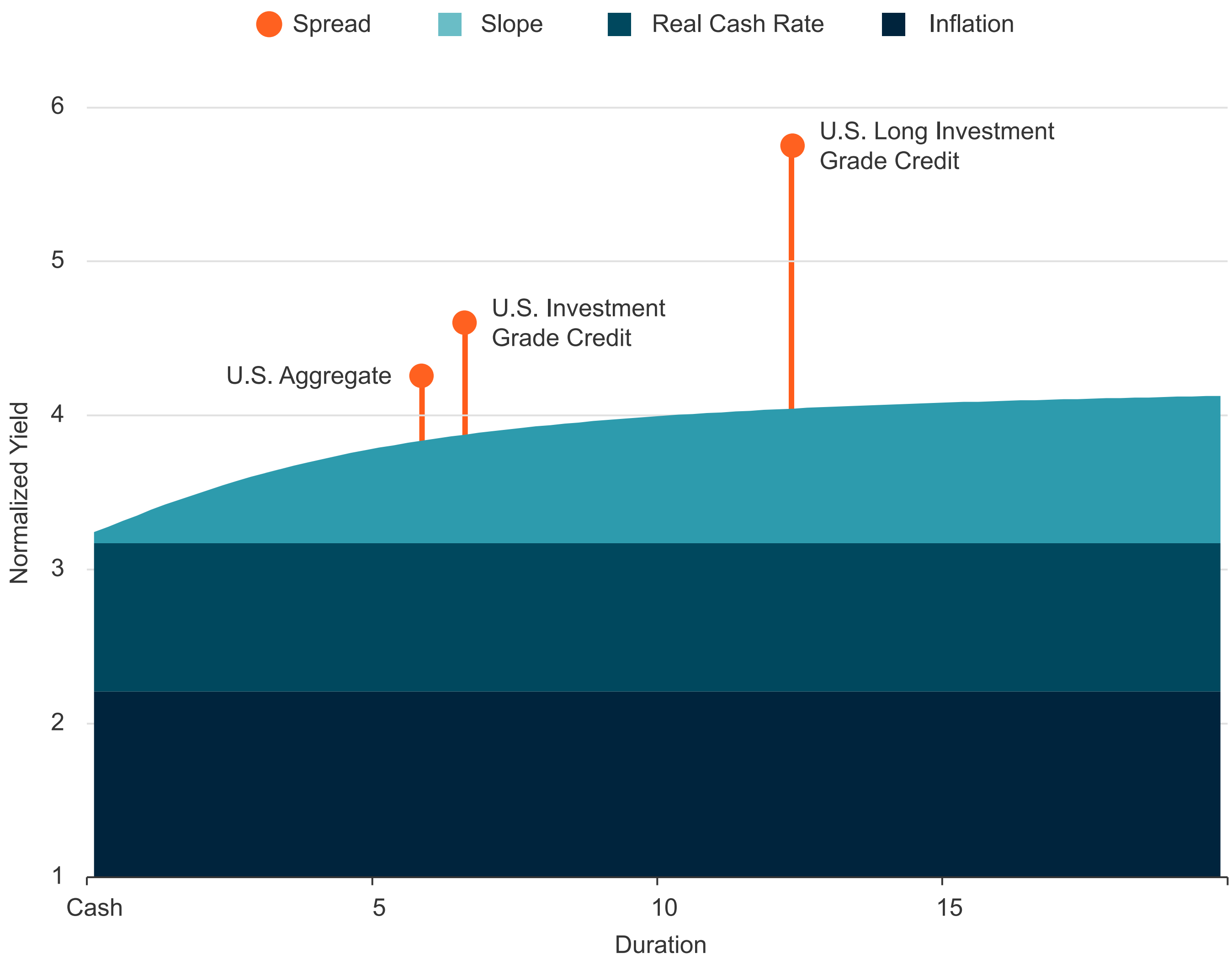
Source: BNY Advisors as of November 2024. Chart is for illustrative purposes only. Asset class returns are not reflective of anticipated returns for associated indexes.

FIXED INCOME

Globally, fixed income returns remain high supported by current yields. Within the United States, our projection of an easing cycle benefits long-duration Treasuries, although this is modestly offset by a steepening in the yield curve. Credit sectors benefit less from a steepening yield curve due to shorter duration and projections for widening credit spreads. Outside of the United States, we expect lower returns driven by lower yields and mixed valuation impacts, which for instance benefit UK gilts and weigh on Japanese government bonds.

EXHIBIT 3:

United States Long-Term Yield Projections



Source: BNY Advisors as of November 2024. Chart is for illustrative purposes only.

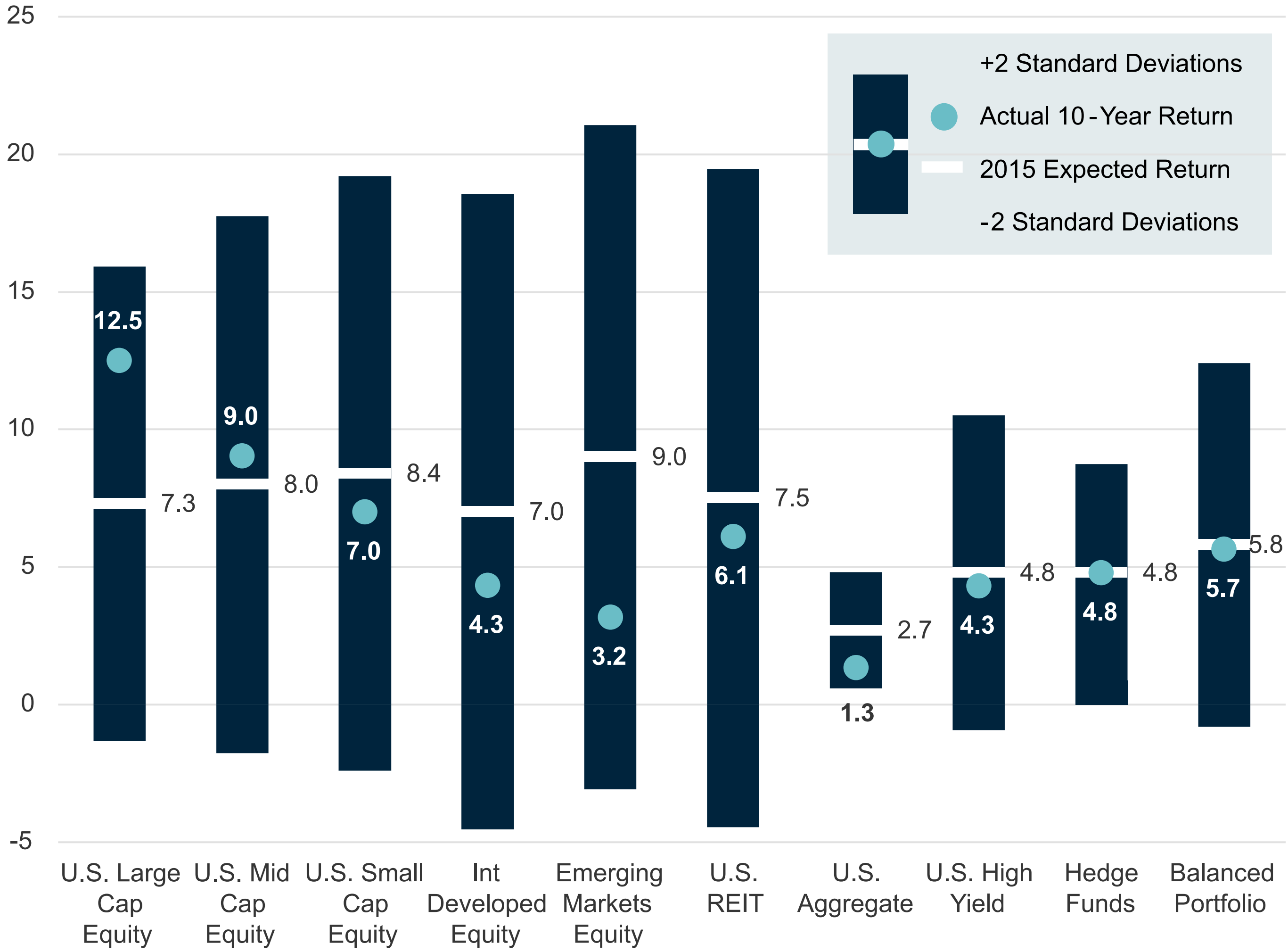
TIME-TESTED APPROACH

Our estimates for what investors would earn in a balanced portfolio were virtually spot on.

For years, BNY has developed capital market assumptions to assist our clients in designing their long-term asset allocations. We believe it is essential to compare forward-looking return expectations against actual market returns. We consistently review and assess the accuracy of our assumptions to refine and enhance our methodology. Evaluating our 10-year assumptions from 2015 reveals that our expectations for U.S. large cap equities were too low, while mid and small cap equities were approximately in line. Projections for international and emerging market equities were overly optimistic, and fixed income expectations were slightly too high. Importantly, our estimates for what investors would earn in a balanced portfolio were virtually spot on.

EXHIBIT 4:

2015 Capital Market Assumptions versus Actual 10-Year Returns



Source: BNY Advisors, Bloomberg. Data as of June 30, 2024. Note: Balanced Portfolio represents a hypothetical portfolio with weights of 20% U.S. Large Cap Equity, 7% U.S. Mid Cap Equity, 3% U.S. Small Cap Equity, 16% International Developed Equity, 7% Emerging Market Equity, 2% U.S. REIT, 25% U.S. Aggregate Fixed Income, 5% U.S. High Yield, and 15% Hedge Funds. Asset class returns are not reflective of anticipated returns for associated indexes. **Past performance is no guarantee of future results.**

Glossary

Correlation: A statistical measure that expresses the extent to which two variables move in relation to each other.

Credit Spread: The difference in yield between a Treasury security and a corporate bond of the same maturity.

Currency: Currencies can decline in value relative to a local currency, or, in the case of hedged positions, the local currency can decline relative to the currency being hedged.

Dividend Yield: A financial ratio that measures the number of dividends paid in proportion to the stock price.

Duration: A measure of a bond's interest rate sensitivity expressed in years. The higher the number, the greater the potential for volatility as interest rates change.

Inflation: As measured by the Consumer Price Index (CPI), is a general increase in the prices of goods and services in an economy over a period.

Net Buyback Yield: A financial ratio that measures the net amount of share repurchases minus share issuances, expressed as a percentage of market capitalization.

Normalized Yield or Spread: The average level of a parameter which we assume will prevail after a period of normalization.

Real Cash Rate: The nominal interest rate adjusted for inflation.

Real Earnings Growth: Referring to the change, or growth of, equity market earnings net of inflation over a period.

Slope: Measures a yield curve's steepness and is defined as the difference between the yield of a 10-year Treasury bond and a 3-month Treasury bond.

Spread: The difference between the yield of a risky bond and the yield of a risk-free security with equal duration.

Standard Deviation: A statistical measure that expresses how dispersed data is in relation to the mean; it can also be used interchangeably with volatility.

Yield Curve: Yield curve shows the yield on bonds over different maturities.

Disclosure

CAPITAL MARKET ASSUMPTIONS

The capital market assumptions are BNY Advisors' estimates based upon historical market performance and the current market environment. References to future expected returns are not promises of actual returns that may be realized and should not be relied upon. Actual returns may vary significantly. In addition, the historical returns used as a basis for this analysis are based on information gathered by BNY or from third party sources and have not been independently verified.

The forecasts contained herein are for illustrative purposes only and are not guarantees of performance. The forecasts have inherent limitations because they are not based on actual transactions. The forecast are based upon historical returns of the selected investments and subjective estimates and assumptions about circumstances and events that may not have taken place and may never do so.

Some of the factors that could impact these forecasts include, but are not limited to:

- General economic conditions
- Financial market performance
- Interest rate levels
- Changes to current laws or regulations, and
- Future geopolitical conditions

Asset class returns are not reflective of anticipated returns for associated indexes.

The results do not represent, and are not necessarily indicative of, the results that may be achieved in the future.

Robust Strategic Asset Allocation (RSAA) is a framework for classifying the market environment with a combination of macroeconomic and market indicators with judgement. BNY Advisors has defined historical regimes for the period starting in May 1973.

The asset classes referenced in our capital market assumptions are represented by broad-based indices which have been selected because they are well known and are easily recognizable by investors. Indices have limitations because indices have volatility and other material characteristics that may differ from an actual portfolio. For example, investments made for a portfolio may differ significantly in terms of security holdings, industry weightings and asset allocation from those of the index. Also, the indices noted in this presentation are unmanaged, are not available for direct investment, and are not subject to management fees, transaction costs or other types of expenses that a portfolio may incur. Finally, the performance of the indices reflects reinvestment of dividends and, where applicable, capital gain distributions. Therefore, investors should carefully consider these limitations and differences when evaluating the index performance.

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RISKS

All investments involve risk including loss of principal. Certain investments involve greater or unique risks that should be considered along with the objectives, fees, and expenses before investing.

Asset allocation and diversification cannot assure a profit or protect against loss.

Equities are subject to market, market sector, market liquidity, issuer, and investment style risks to varying degrees. Investing in foreign denominated and/or domiciled securities involves special risks, including changes in currency exchange rates, political, economic, and social instability, limited company information, differing auditing and legal standards, and less market liquidity. These risks generally are greater with emerging market countries. Risks of investing in real estate securities are similar to those associated with direct investments in real estate, including falling property values due to increasing vacancies or declining rents resulting from economic, legal, political or technological developments, lack of liquidity, limited diversification and sensitivity to certain economic factors such as interest rate changes and market recessions.

Currencies are subject to the risk that those currencies will decline in value relative to a local currency, or, in the case of hedged positions, that the local currency will decline relative to the currency being hedged. Each of these risks could increase the fund's volatility.

Bonds are subject to interest-rate, credit, liquidity, call and market risks, to varying degrees. Generally, all other factors being equal, bond prices are inversely related to interest-rate changes and rate increases can cause price declines. The use of derivatives involves risks different from, or possibly greater than, the risks associated with investing directly in the underlying assets.

Derivatives can be highly volatile, illiquid, and difficult to value and there is the risk that changes in the value of a derivative held by the portfolio will not correlate with the underlying instruments or the portfolio's other investments. Investing in **foreign-denominated and/or domiciled securities** involves special risks, including changes in currency exchange rates, political, economic, and social instability, limited company information, differing auditing and legal standards, and less market liquidity. These risks generally are greater with Emerging Markets USD Aggregate Index (Emerging Markets Bonds) emerging market countries

High yield bonds involve increased credit and liquidity risk than higher-rated bonds and are considered speculative in terms of the issuer's ability to pay interest and repay principal on a timely basis.

Mortgage-backed securities: Ginnie Maes and other securities backed by the full faith and credit of the United States are guaranteed only as to the timely payment of interest and principal when held to maturity. The market prices for such securities are not guaranteed and will fluctuate. Privately issued mortgage-related securities also are subject to credit risks associated with the underlying mortgage properties. These securities may be more volatile and less liquid than more traditional, government-backed debt securities. Municipal income may be subject to state and local taxes. Some income may be subject to the federal alternative minimum tax for certain investors. Capital gains, if any, are taxable.

Asset class comparisons such as comparing equities to bonds have limitations because different asset classes may have characteristics that materially differ from each other. Because of these differences, comparisons should not be relied upon solely as a measure when evaluating an investment for any particular portfolio. Comparisons are provided for illustrative purposes only. Although stocks have greater potential for growth than bonds, they also have much higher levels of risk. With stocks, the prices can rise and fall for a variety of reasons, including factors outside of the company's control. Bonds may be considered relatively safer. Because they're a debt security, they function as an IOU. The company pays interest to the bondholder, and once the bond matures, the bondholder receives the principal bank. Bonds aren't completely risk-free; there is the possibility of the issuer defaulting on its bonds, and if sold prior to maturity the market value may be higher or lower than the purchase value. But compared to stocks, historically there's been less volatility.

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