



Rate of Return and Discount Rate Assumptions for Public Pension Plans

Prof. Laura Kalambokidis
State Economist, MMB
Professor of Applied Economics, University of Minnesota
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Expected Rate of Return Assumptions for Public Pensions

Expected rate of return assumptions are needed to compare the current value of pension assets with future pension liability.

Used for Two Purposes:

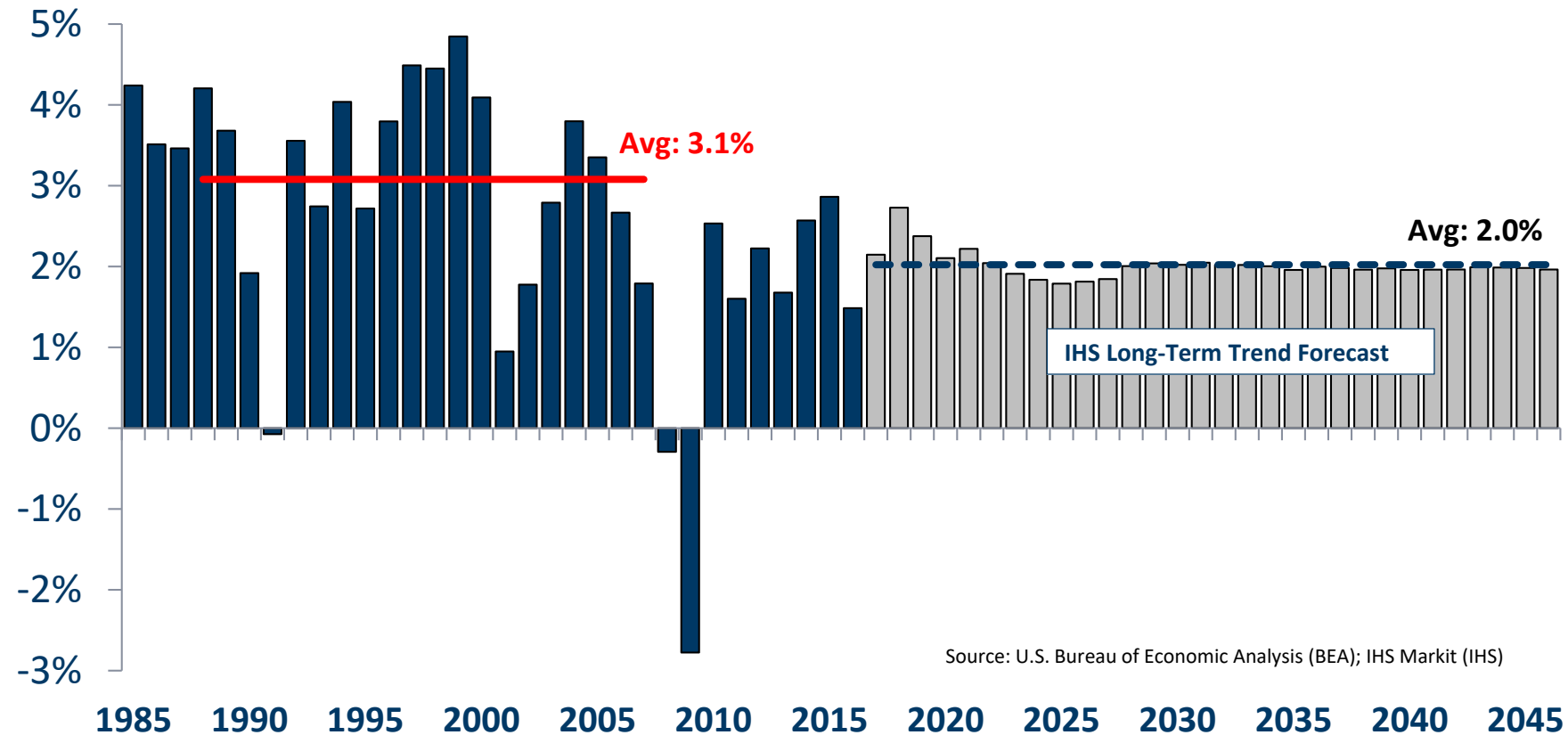
1. Project the future returns on pension fund assets.
2. Adjust future pension liabilities to present-day value.
 - Obtaining present-day value requires discounting future pension benefit payments by an interest rate.
 - Provides consistent value comparisons of benefit payments that don't necessarily occur at the same time.

Future Economic Performance Affects the Expected Rate of Return

- Looking ahead:
 - Population is aging
 - Labor force growth is slowing
 - Federal fiscal risks are ongoing
- Means:
 - Slower expected economic growth
 - Lower expected returns on financial assets
 - More uncertainty about the future
- In other words, past performance does not guarantee future results.

U.S. Real GDP growth is expected to average just 2.0% per year over the next 30 years, well below the 3.1% 20yr average prior to the recession.

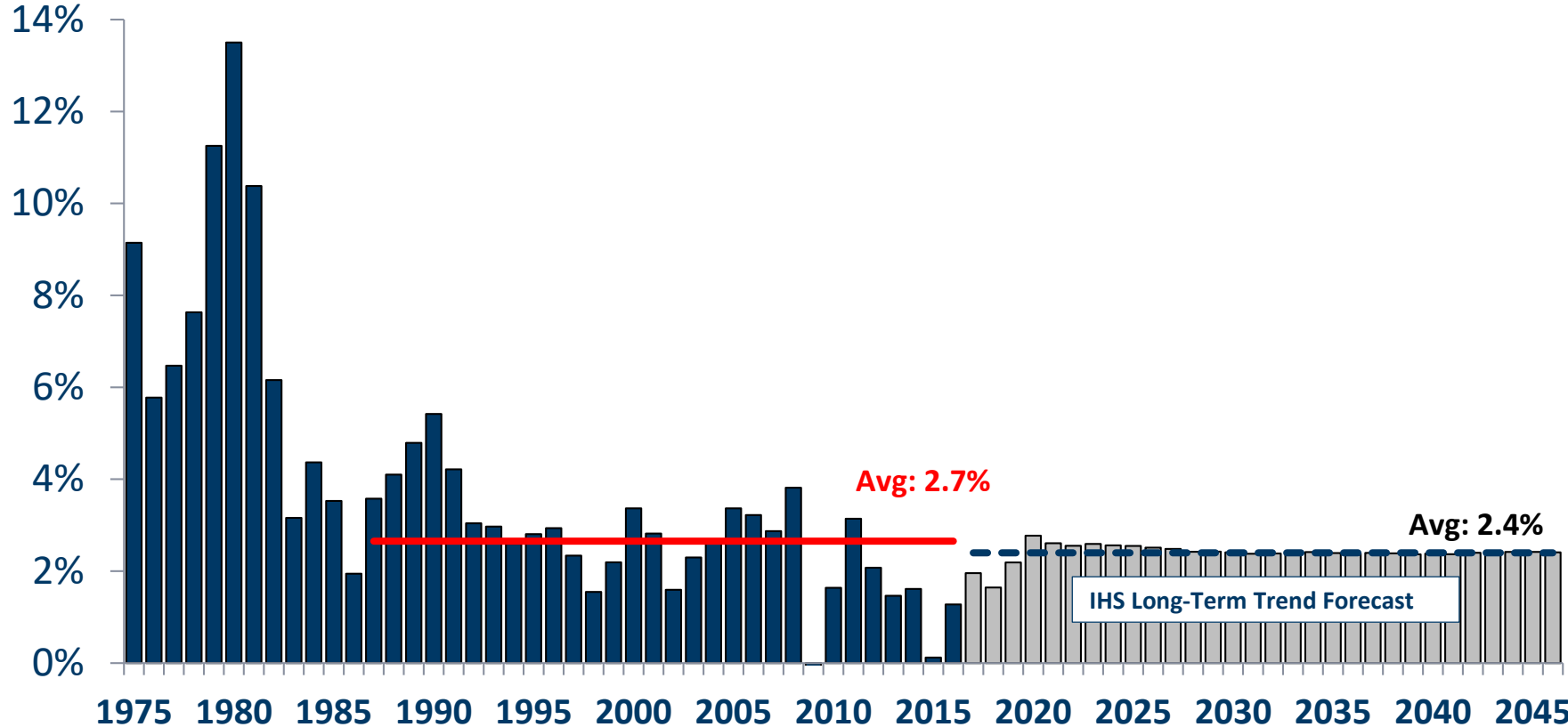
Annual Percent Change
in U.S. Real GDP



Source: U.S. Bureau of Economic Analysis (BEA); IHS Markit (IHS)

CPI inflation is expected to average 2.4% annual growth over the next 30 years, somewhat less than the 2.7% avg between 1987-2016.

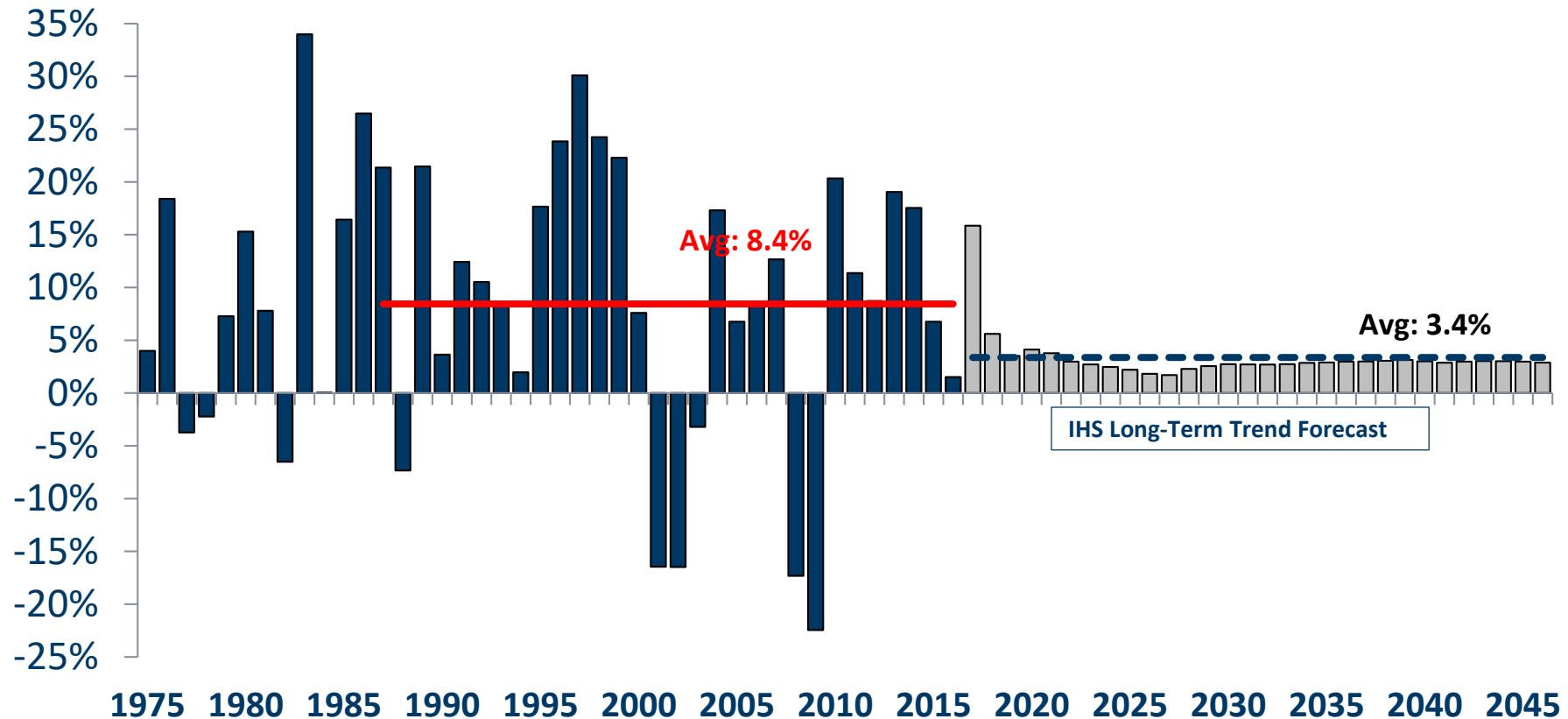
Percent Change in Consumer Price Index (CPI)



Source: U.S. Bureau of Labor Statistics (BLS); IHS Markit (IHS)

S&P 500 index is expected to average 3.4% annual growth over the next 30 years, considerably less than the 8.4% avg between 1987-2016.

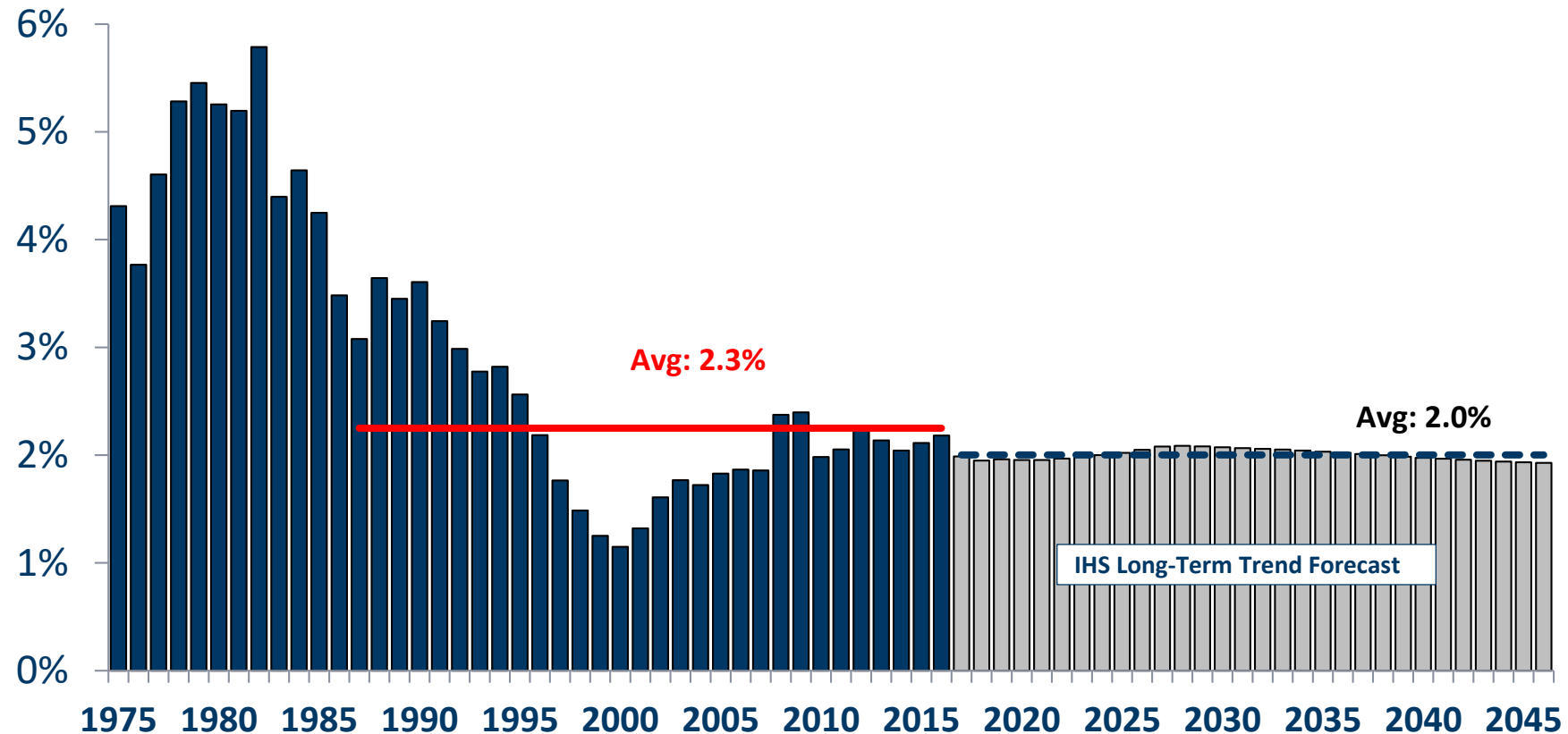
Percent Change in S&P 500 index



Source: IHS Markits (IHS)

Yield on S&P 500 is expected to average 2.0% annually over the next 30 years, slightly less than the 2.3% avg between 1987-2016.

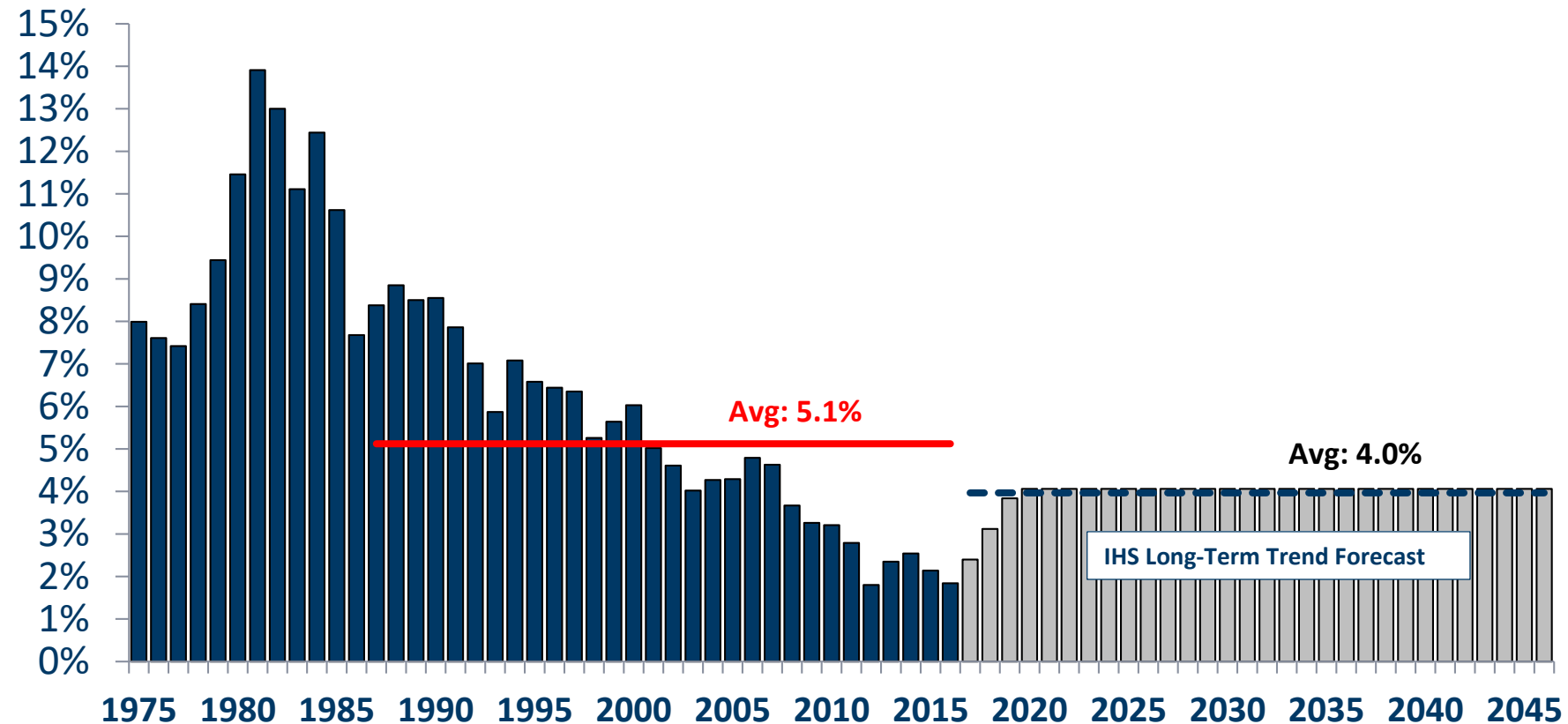
Yield on S&P 500 index



Source: IHS Markit (IHS)

Yield on 10-yr Treasury Bonds is expected to average 4.0% annually over the next 30 years, less than the 5.1% avg between 1987-2016.

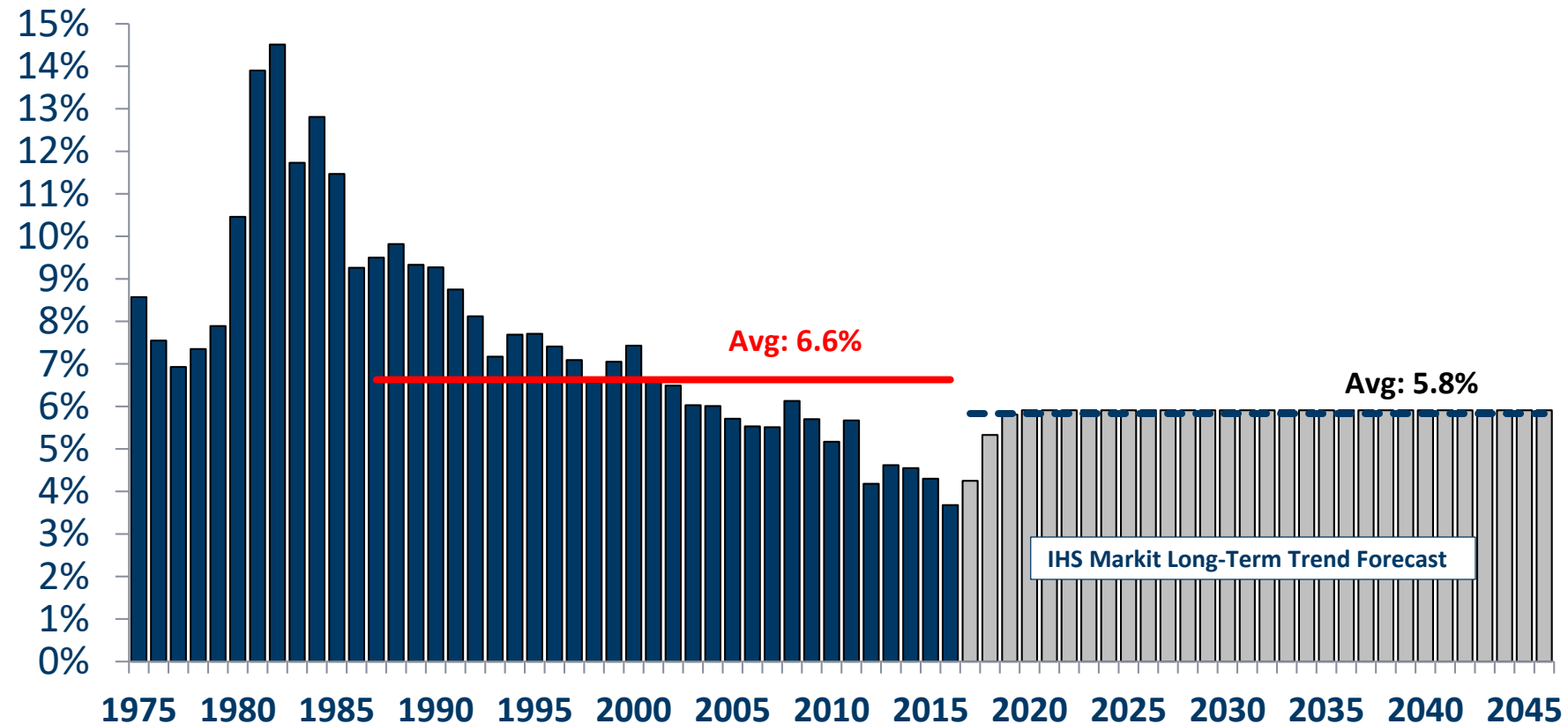
Yield on 10-yr T-Bonds



Source: IHS Markit (IHS)

Yield on Aaa Municipal Bonds is expected to average 5.8% annually over the next 30 years, less than the 6.6% avg between 1987-2016.

Yield on Aaa Muni-Bonds



Source: IHS Markit (IHS)

Economic Approach to Valuing Future Pension Liabilities

- Recognize that future investment returns may be lower and more uncertain than past returns.
- Account for the different risks associated with investment returns and benefit payments.
- Recognize that future investment returns may be more uncertain than benefit payments (or benefit payments may be more certain than investment returns).
- Consequently, discount by a market rate that reflects the risk characteristics of the obligations.

“While economists are famous for disagreeing with each other on virtually every other conceivable issue, when it comes to this one there is no professional disagreement: The only appropriate way to calculate the present value of a very-low-risk liability is to use a very-low-risk discount rate.”

Donald Kohn (2008)

Then-Federal Reserve Board Vice-Chairman

Impact of Discount Rate Assumption

- Discount rate reflects the risk to receiving future benefit payments.
 - Pension payments guaranteed → low-risk rate
 - Pension payments not guaranteed → higher-risk rate
- Holding everything else constant, reported unfunded liability will vary with the discount rate.
 - Lower discount rate → unfunded liability higher
 - Higher discount rate → unfunded liability lower
- Getting the discount rate wrong has consequences.
 - Too low → overstate liabilities → unnecessary costs today
 - Too high → understate liabilities → pushes costs to future generations

Summary

- Future investment returns may be lower and more uncertain than past returns, suggesting caution when assuming a rate of return.
- Common view in economics and finance suggests discounting pension obligations with a rate that reflects the risk characteristics of those obligations.

Prof. Laura Kalambokidis

Laura.Kalambokidis@state.mn.us

kalam002@umn.edu

651.201.8019