Agenda
Investment Advisory Council (IAC)

Tuesday, September 13, 2022, 10:00 A.M.*

Hermitage Room, First Floor
1801 Hermitage Blvd., Tallahassee, FL 32308

10:00 – 10:30 A.M.	**1.**	**SBA Governance/Role & Fiduciary Duties of the IAC** *(See Attachment 1)*	*Maureen Hazen,* *General Counsel*
10:30 – 11:30 A.M.	**2.**	**Background on the Asset Liability Study** *(See Attachment 2)*	*Phil Kivarkis,* *Katie Comstock,* *Aon*
11:30 – 12:00 P.M.	**3.**	**Pension Plan Contribution Discussion/Assumptions Conference** *(See Attachment 3)*	*Matt Larrabee* *Milliman*
12:00 – 1:00 P.M.		**Break for Lunch**	
1:00 – 1:05 P.M.	**4.**	**Welcome/Call to Order/ Approval of Minutes** *(See Attachments 4A – 4B)* ***(Action Required)***	*Tere Canida, Chair*
1:05 – 1:15 P.M.	**5.**	**Opening Remarks/Reports** *(See Attachments 5A – 5E)*	*Lamar Taylor,* *Interim Executive Director & CIO*
1:15 – 3:15 P.M.	**6.**	**Asset Liability Review** *(See Attachment 6)*	*Phil Kivarkis,* *Aon*
3:15 – 3:45 P.M.	**7A.**	**Global Equity Asset Class Review** *(See Attachment 7A)*	*Tim Taylor, SIO,* *Global Equity* *Meghan Brown,* *Senior Portfolio Manager* *Denise Hale,* *Director of Reporting & Analytics*
3:45 – 4:00 P.M.	**7B.**	**Global Equity Asset Class Structural Review** *(See Attachment 7B)*	*John Pirone,* *Weston Lewis,* *Callan*
4:00 – 4:10 P.M.	**8.**	**Review of the Florida Retirement System Pension Plan Investment Policy Statement** *(See Attachments 8A-8B)* **Action Required**	*Lamar Taylor,* *Interim Executive Director & CIO*
4:10 – 4:20 P.M.	**9.**	**Review of the Corporate Governance Proxy Voting**	*Lamar Taylor,*

		Guidelines *(See Attachment 9)* **Action Required**	*Interim Executive Director & CIO*
4:20 – 4:30 P.M.	**10.**	**Asset Class SIO Updates** *(See Attachments 10A-10F)*	*Katy Wojciechowski, SIO* *Fixed Income* *Steve Spook, SIO* *Real Estate* *John Bradley, SIO* *Private Equity* *Trent Webster, SIO* *Strategic Investments* *Dan Beard* *Chief Defined Contributions Programs* *Mike McCauley, Senior Officer* *Investment Programs & Governance*
4:30 – 4:45 P.M.	**11.**	**Major Mandate Performance Review** *(See Attachment 11)*	*Katie Comstock,* *Aon*
4:45 – 4:55 P.M.	**12.**	**IAC Compensation Subcommittee Update** *(See Attachment 12)*	*Tere Canida, Chair*
4:55 – 5:00 P.M.	**13.**	**Audience Comments/2022 Meeting Dates/ Closing Remarks/Adjourn** *(See Attachment 13)*	*Tere Canida, Chair*

**All agenda items and times are subject to change.*

Office of the General Counsel

SBA Governance/Role & Fiduciary Duties of the IAC

Maureen M. Hazen, General Counsel

SBA FLORIDA STATE BOARD OF ADMINISTRATION

What is the Role & Purpose of the IAC?

Simple Answer:

- **TO ASSIST THE TRUSTEES IN COMPLYING WITH THEIR FIDUCIARY DUTIES BY SERVING AS ONE CRITICAL PART OF THE SBA'S OVERALL GOVERNANCE**

SBA FLORIDA
STATE BOARD OF ADMINISTRATION

Office of the General Counsel

SBA Governing Authority

- “The Trustees of the State Board of Administration composed of the Governor as chair, the Chief Financial Officer and the Attorney General, shall invest all of the Funds of the System Trust Fund . . . and all other funds specifically required by law to be invested by the board pursuant to ss. 215.44-215.53 to the fullest extent that is consistent with cash requirements, trust agreement and investment objectives of the fund.” §215.44(1), Fla. Stat.

- This statute obligates the Trustees to invest not only the funds of the Pension Plan but also the Investment Plan, Florida PRIME, the Cat Fund and other governmental funds.

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Assets Under Management (as of August 22, 2022)

Pension Plan :	$186.248 Billion
Investment Plan:	$13.457 Billion
Florida Prime:	$18.937 Billion
CAT Fund:	$12.444 Billion
SBA Total:	$235.264 Billion

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SBA Governing Authority

- **Fiduciary Status and Standard of Care - Fla. Stat. § 215.47:**
  - Investments made by the SBA shall be "designed to **maximize the financial return** to the fund consistent with the **risks incumbent** in each investment"
  - Investments shall be "designed to preserve an appropriate **diversification** of the portfolio"
  - SBA shall "discharge its duties with respect to a plan **solely in the interest of its participants and beneficiaries"**

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Trustee Resolution – Adopted August 23, 2022

- Directed the SBA to initiate the process of updating the Investment Policy Statement of the Pension Plan to provide:

(a) The evaluation by the SBA of an investment must be based only on pecuniary factors. "Pecuniary factor" means a factor that the SBA prudently determines is expected to have a material effect on the risk and/or return of an investment based on appropriate investment horizons consistent with the fund's investment objectives and funding policy. Pecuniary factors do not include the consideration of the furtherance of social, political or ideological interests.

(b) The SBA may not subordinate the interests of the participants and beneficiaries to other objectives and may not sacrifice investment return or take on additional investment risk to promote non-pecuniary factors. The weight given to any pecuniary factor by the board should appropriately reflect a prudent assessment of its impact on risk and returns.

(c) In case of a conflict with this section and any other provision of Florida law, Florida law shall prevail.

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SBA Governing Authority

- SBA, in performing its investment duties, "shall comply with the fiduciary standards set forth in the Employee Retirement Income Security Act of 1974 at 29 U.S.C. s. 1104(a)(1)(A) through (C)."
  - **Exclusive purpose** (loyalty) – ERISA § 404(a)(1)(A)
  - **Prudence** – ERISA § 404(a)(1)(B)
  - **Diversification** – ERISA § 404(a)(1)(C)
- In case of conflict with other laws, this subsection prevails.
- **HIGHEST STANDARD OF CARE KNOWN TO THE LAW**

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What does this mean?

- The Governor, CFO and Attorney General owe a fiduciary duty – the highest standard of care under the law – in managing over $235.264 Billion of "other people's money."

How do they ensure compliance with this duty?

- Operates as a Policy Board and not an Operational Board with no role in day-to-day, individual investment decisions.
- THROUGH GOVERNANCE and the IAC is one critical part of that governance.

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What is the SBA?

- The SBA is a constitutional entity sui generis (of its own kind) originally created in Article IX, Section 16 of the Florida Constitution of 1885[1].
- Article IV, Section 4(e) of the Florida Constitution of 1968, designates the Governor, as chair, the CFO and the Attorney General as members of the SBA … with reference to the 1885 Constitution[2].
- This means the SBA is not part of the Executive Branch of Government.
- This also means that the Trustees of the SBA can only be changed by the people of the State of Florida through a Constitutional amendment.
- However, almost all of the SBA's authority and duties are imposed by the Florida Statutes – i.e., by the Florida Legislature.

[1] Subsequently replaced by Article XII, Section 9(c)(2), Florida Constitution of 1968 and then Article IV, Section 4(e).
[2] Article IV, Section 4(e) was added to the Constitution as part of the reorganization of the Florida Cabinet.

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SBA Governance - Framework

- Internal – Executive Director & CIO and SBA Staff
- External – IAC
- External – Investment Consultants, Investment Managers, Other Specialty Consultants & Subject Matter Experts (e.g. Legal, Accounting, IT, Internal Audit)
- External – Audit Committee and External Auditors – Financial Statement Audits, Auditor General, OPPAGA, Special Project Audits

SBA FLORIDA STATE BOARD OF ADMINISTRATION

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SBA Internal Staff: Executive Director

- §215.441, Fla. Stat., provides for the appointment of an Executive Director by the Trustees.

- As authorized by §215.52, the Trustees have adopted Rule 19-3.016 and 19-3.0161, F.A.C. which provide a fairly broad delegation of authority to the Executive Director with respect to most investment and operational decisions of the SBA.

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SBA Internal Staff: Executive Director

19-3.016 Executive Director.

The Executive Director, who shall act as the Board's chief administrative and investment officer, shall be selected by and serve at the pleasure of the Board. The Board has hereby delegated authority to act in the following areas to the Executive Director or his or her designee:

(1) To negotiate, enter into, execute, amend and terminate purchases, contracts, leases, lease-purchases, licenses and agreements relating to real, personal and mixed property, services, commodities and capital outlay items required for the day-to-day operations of the Board.

(2) To negotiate, enter into, execute, amend and terminate contracts, agreements, license applications, account opening or maintenance documents, and all related documents as necessary and/or appropriate to carry out the administrative, investment and debt functions of the Board.

(3) To control and disburse funds to carry out the constitutional and statutory duties of the Board.

(4) Make final decisions on all personnel matters, including discipline, involving Board employees.

(5) To transfer funds between categories of approved funds provided no category is increased or decreased by more than five percent of the total approved budget by all action taken.

(6) To transfer funds between object codes of a category of approved funds without limitation.

(7) To add, delete, reclassify and transfer authorized salaried positions so long as the total approved and budgeted positions are not exceeded.

(8) Authorize and pay travel expenses and per diem under Section 112.061, F.S. Authorize and pay membership dues under Section 216.345, F.S., when such membership is essential to the statutory duties and responsibilities of the Board or, with respect to constitutional duties and responsibilities of the Board, when such membership is essential to the constitutional duties and responsibilities of the Board.

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SBA Internal Staff: Executive Director

(9) To act as custodian of the records and property of the Board.

(10) To act as agent for service of process, as representative to organizations in which the Board is a member or officer and as official liaison with agencies or other bodies of the State, other states, the Federal Government and the public.

(11) To immediately bring to the Board, in writing, and secure the Board's approval of any proposed legal action to be taken by or on behalf of the Board, except in defense of litigation instituted against the Board. However, where the emergent nature of a matter requires immediate action and it is not possible to present the matter to a regular or special meeting of the Board, then the Executive Director may take appropriate legal action subject to ratification at the next regular or special meeting of the Board.

(12)(a) To issue declaratory statements pursuant to Section 120.565, F.S.;

(b) To review and execute, or to delegate the authority to review and execute, all final orders issued pursuant to Section 120.569 and 120.57, F.S.;

(c) To grant variances and waivers from rules pursuant to Section 120.542, F.S.;

(d) To initiate all rule development.

(e) To adopt, implement, modify and terminate internal procedures, policies and guidelines.

(13) To perform or facilitate such other functions as may be necessary or appropriate to supervise, direct, conduct and administer the day-to-day duties of the State Board of Administration as authorized by law or by rules and policies adopted by the Board.

(14) The Executive Director shall keep each member of the Board advised of controversial or major policy issues arising in the State Board of Administration and shall place such matters upon its agenda when directed by any member of the Board.

(15) The management and the execution of the investment and debt responsibilities of the Board shall be under the direction and supervision of the Executive Director, subject to such limitations and restrictions as may be prescribed by the Board.

(16) To authorize and designate futures and options markets as authorized in Section 215.47, F.S.

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SBA Internal Staff: Executive Director

(17) To assess and collect fees for authorized services provided by the Board for certain services performed for any agency, judicial branch or fund and to deposit the fees in and to expend funds from the Administrative Expense Trust Fund. The services for which fees may be assessed and collected include but are not limited to the following:

(a) Processing of interest rate waiver applications.

(b) Collecting of undistributed account balances.

(c) Escrow restructuring.

(d) Reproduction fees.

(e) Fees paid for the services of General Counsel relating to private non-trust related entities.

(f) Equitable surcharges on investment earnings.

(g) Administration and legal work fees.

(h) These fees may be deposited in the Administrative Expense Trust Fund and expended only for lawful purposes of the Board.

Rulemaking Authority 215.52, 215.62(5), 215.835, 215.84(5), 216.345(3), 218.412 FS. Law Implemented 112.061, 215.44(2)(b), 215.441, 215.515, 215.69, 215.84, 216.345(2), 218.409(7) FS. History–New 7-13-75, Amended 4-10-84, 12-25-85, Formerly 19-3.16, Amended 12-11-89, 10-21-90, 6-4-91, 6-16-94, 10-15-13.

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SBA Internal Staff: Executive Director

19-3.0161 Investment Responsibilities of the Executive Director.

The Executive Director has the responsibility and authority to organize and manage the ongoing investment activities of the Board. The Executive Director is responsible for implementing approved investment objectives, policies and strategies. All Investment Policy Statements shall be submitted to the Board for approval. The Executive Director shall periodically review such policy statements and shall submit proposed Investment Policy Statement revisions to the Investment Advisory Council for review. The Executive Director's management of the funds may include tactical changes in particular portfolio holdings in accordance with approved policies. The intent is to provide the Executive Director with sufficient authority and operating flexibility to make prudent and professional investment decisions in response to changing market and economic conditions, and otherwise to ensure that the Board fulfills its fiduciary duties.

Rulemaking Authority 120.53(1), 215.52 FS. Law Implemented 215.44, 215.45, 215.47, 215.475, 215.52 FS. History–New 12-25-85, Formerly 19-3.161, Amended 12-18-88, 10-15-13.

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SBA Internal Staff

- Investment Policy & Asset Allocation
- Asset Classes – Fixed Income, Global Equity, Real Estate, Private Equity & Strategic Investments
- Investment Programs & Governance
- Defined Contribution Program
- Florida Hurricane Catastrophe Fund
- Deputy Executive Director
- General Counsel
- Chief Financial Officer/Chief Operating Offer
    - Accounting
    - Financial Operations
    - Information Technology
    - Information Security
    - Vendor Management
    - Human Resources
- Risk Management & Compliance (2nd line of defense)
- Office of Internal Audit (3rd line of defense)

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Office of the General Counsel

SBA Audit Function:

- The SBA is required to create **Audit Committee** to assist the SBA in fulfilling its oversight responsibilities. Fla. Stat. § 215.44(2)(c)
  - Purpose: To "serve as an independent and objective party to monitor processes for financial reporting, internal controls and risk assessment, audit processes, and compliance with laws, rules, and regulations." *Id.*
  - Audit Committee "shall direct the efforts of the board's independent external auditors and the board's internal audit staff." *Id.*
  - Audit Committee must report to the SBA and the Executive Director at least quarterly. *Id.*

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SBA Audit Function:

- The SBA must produce **annual financial statements** for the Florida Retirement System (i.e., Pension Plan and Investment Plan) Fla. Stat. § 215.44(2)(d).
  - Financial statements must be audited by a commercial, independent third-party audit firm. *Id.*
  - Financial statements must be reported to the Legislature. *Id.*

- OPPAGA is required to examine the SBA's management of investments every two years. Fla. Stat. § 215.44(6).

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Additional Reporting

- §215.44(e), Fla. Stat., requires that the Trustees meet quarterly and receive reports from the Audit Committee, IAC, Inspector General, General Counsel, Executive Director and such other persons or entities as the Trustees may require about the financial status, operations and investment activities of the SBA.

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Who has a Fiduciary Duty at the SBA?

At the SBA, fiduciaries include:

- Board of Trustees (Governor, Chief Financial Officer, & Attorney General)
- Certain SBA staff members*
- Investment Advisory Council members
- Investment advisors or managers hired by the SBA
- Most consultants hired by the SBA
- Custodians

*However, under the SBA's Code of Conduct, the SBA expects all SBA employees to adhere to this duty as a condition of employment.

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<u>Role of the IAC</u>

- IAC members are appointed by the Trustees (and confirmed by the Senate) to serve as a resource to the Trustees (§215.444(2), Fla. Stat.).

- Members are required to possess special knowledge, experience and familiarity with portfolio management, institutional investments and fiduciary responsibilities. *Id.*

- In carrying out their duties, IAC members must make recommendations **"consistent with the fiduciary standards applicable to the board."** §215.444(3), Fla. Stat.

- Important to note that the IAC is an <u>advisory</u> body and not an <u>oversight</u> body like the Audit Committee.

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Office of the General Counsel

IAC: Duties

- Review investments and make recommendations to the SBA regarding investment policy, strategy and procedures. §215.444(1), Fla. Stat.

- Meet with the staff of the SBA at least quarterly and provide a quarterly report directly to the Trustees. *Id.*

- Undergo regular fiduciary training as required by the SBA and complete an annual conflict disclosure statement. §215.444(3), Fla. Stat.

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Office of the General Counsel

IAC: Duties

- Review the Executive Director's recommended changes to the Investment Policy Statements of the Pension Plan and Investment Plan and present the results of such review to the board prior to the board's final approval. §215.475(2) and §121.4501(14), Fla. Stat.

- The IAC may create subcommittees as necessary to carry out its duties and responsibilities - i.e., the Compensation Subcommittee. §215.444(4), Fla. Stat.

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IAC Fiduciary Duties - Generally

- Three essential fiduciary duties:
    - DUTY OF PRUDENCE
    - DUTY OF LOYALTY
    - DUTY TO DIVERSIFY
- Highest standard of conduct known to law
- Fiduciary is held to a standard stricter than the morals of the marketplace – i.e., no "business judgment" rule.

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Duty of Prudence

- A fiduciary must act "with the care, skill, prudence, and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of like character and with like aims" ERISA § 404(a)(1)(B).

- Two Components – Substantive Prudence and Procedural Prudence.

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<u>Substantive Prudence</u>

- Refers to the *merits* of the investment decision.

- A fiduciary making a decision must act as a **prudent expert** would under similar circumstances, taking into account all relevant substantive factors, as they appeared **at the time of the decision**.

- Acting with a good heart but an empty head will not suffice.

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Satisfying the Duty of Substantive Prudence with respect to Investment Decisions: Basic Considerations

- Role of investment within plan’s entire portfolio
- Reasonable design of portfolio
- Favorable risk of loss, and opportunity for gain
- Diversification of portfolio
- Liquidity and cash flow issues
- Projected return of investment

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<u>Procedural Prudence</u>

- Refers to the *course of action* by which a prudent fiduciary makes investment decisions ("due diligence")
  - Ascertain the relevant facts
  - Investigate other options
  - Obtain expert advice, if needed or appropriate

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IAC Fiduciary Duties: Procedural Prudence

- In the past fiduciary counsel has opined about procedural prudence for the IAC.
- Fiduciary counsel opined:
    - Fiduciary law does not require the SBA to retain separate consultants or experts for the IAC in addition to the ones retained by the SBA.
    - It is consistent with the IAC's fiduciary responsibility for the IAC to rely on consultants and experts retained by the SBA.
    - The IAC's reliance on the consultants and experts retained by the SBA is consistent with industry best practices.

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IAC Fiduciary Duty - Duty of Loyalty

- ERISA § 404(a)(1)(A):
  - Fiduciaries must act “solely in the interest of the participants and beneficiaries and—

  (A) for the exclusive purpose of:

    (i) providing benefits to participants and their beneficiaries; and

    (ii) defraying reasonable expenses of administering the plan.”

- While performing trust business, fiduciaries may wear only one “hat” – fiduciaries may not also wear a second hat.

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Duty of Loyalty

- Any decision to invest must be exclusively grounded in economic considerations.

- Duty of loyalty, however, prohibits fiduciaries from making investment decisions based solely or primarily on non-economic or other collateral considerations.

- Any investment is not appropriate if the investment:
  - provides the plan with less return, in comparison to the risk involved, than comparable investments

  – or –
  - involves a greater risk to the security of plan assets than another investment course of action offering similar return.

- A fiduciary may consider other factors when choosing between two investments of equal risk and return, such as social principles, the "everything being equal test."

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Duty of Loyalty

Divestment – Florida Law

- Statutory Limitations – Cuba; Venezuela; Sudan/Iran.

- Florida Attorney General has taken the view that, "until legislatively determined otherwise, . . . adoption by the State Board of Administration of a divestiture rule based on ethical ideals or principles would not appear authorized in light of the Board's statutory duties[.]" Fla. A.G. Op. 1985-30 (Apr. 17, 1985) (discussing divestment from South Africa).

- Rather, the Legislature has instructed the SBA to select its investments based on "**yield, risk, and diversification**[.]" *Id*.; *see also* Fla. A.G. Op. 1997-29 (May 27, 1997) (discussing divestment from tobacco companies).

- However, SBA may divest where it finds it ***prudent*** to do so, *i.e.*, because the investments are in a politically unstable region (*see* Fla. A.G. Op. 1985-30), or because litigation and market volatility make the investments risky (*see* Fla. A.G. Op. 1997-29).

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Duty of Diversification

- ERISA § 404(a)(1)(C):
  - A fiduciary must "diversify the investments of the plan so as to minimize the risk of large losses, unless under the circumstances it is clearly prudent not to do so."

- The SBA also may only invest in accordance with the investment authority (and limitations and percentages thereon) set forth in § 215.47, Fla. Stat.

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Tax Status of Plans

- Federal Internal Revenue Code:
  - Required to be administered as a qualified plan under federal tax law
  - Must comply with the so-called "exclusive benefit rule"
  - Must not engage in a "prohibited transaction" that would result in a substantial diversion of trust assets
- This has important individual income tax consequences for members of the FRS.

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IAC: Ethics Requirements

- An IAC member (or any business organization or affiliate thereof) that is owned or employed by such member may not directly or indirectly contract with or provide investment services to the SBA during service on the IAC or for a period of 2 years thereafter. §215.4754, Fla. Stat.

- §112.313, Fla Stat., sets forth the Standards of Conduct for Public Officers and includes limitations on a public officer doing business with an agency of which he/she is an officer.

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Fiduciary Duties – FRS Investment Plan

- **Application of Fiduciary Duties Under Statute and Policy Statement**
- The SBA oversees:
  - Selection of Investments (including Bundled Providers when extra value would be added)
  - Third Party Administrator and Custodial Services
  - Educational Services
  - Participant Information Services (including delivery of prospectuses and fund profiles)

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Fiduciary Standard

- As with the Pension Plan, Fla. Stat. § 121.4501(15)(a) incorporates the following fiduciary requirements for the Investment Plan:
  - Loyalty
  - Prudence (Substantive & Procedural)
  - Diversification

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FRS Investment Plan: Benefits

- Benefits shall be provided in accordance with Code § 401(a). Fla. Stat. § 121.4501(7).
- "Benefits shall accrue in individual accounts that are participant-directed, portable, and funded by employer contributions and earnings thereon." *Id*.

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FRS Investment Plan: ERISA § 404(c)

- Intended to meet the requirements of an ERISA § 404(c) plan in which **participants exercise control** over their own accounts. Fla. Stat. § 121.4501(15)(b).

- Requires an "ERISA section 404(c) plan" to provide a participant or beneficiary an opportunity to:
  - Exercise control over assets in his or her individual account, and
  - Choose, from a "broad range of investment alternatives," the manner in which some or all of the assets in his or her account are invested.

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Requirements of Fla. Stat. § 121.4501

- Fla. Stat. § 121.4501(9)(b)(1) provides additional instruction to the Board regarding selection of investment options in accordance with 404(c):
  - The Investment Plan "must offer a diversified mix of low-cost investment products that span the risk-return spectrum and may include a guaranteed account as well as investment products, such as individually allocated guaranteed and variable annuities, which... combine the ability to accumulate investment returns with the option of receiving lifetime income consistent with the long-term retirement security of a pension plan and similar to the lifetime-income benefit provided by the Florida Retirement System."

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Selection of Investment Providers

- The SBA must develop policies and procedures for selecting, evaluating, and monitoring the performance of approved providers and investment products. Fla. Stat. § 121.4501(9)(a)

- The SBA may determine how many investment products to offer. *Id*.

- The SBA shall review and manage all educational materials, contract terms, fee schedules, and other aspects of the approved provider relationships to ensure that no provider is unduly favored or penalized by virtue of its status within the plan. *Id*.

- Investment providers must offer the Plan the best terms offered to any other customer. *Id*. § 121.4501(9)(e)

- The SBA must regularly review the performance of investment providers and products. *Id*. § 121.4501(9)(f)

- When it determines that doing so would afford extra value to participants, the SBA shall select one or more bundled providers. Fla. Stat. § 121.4501(9)(a)

FRS Investment Plan: Educational Component

- The SBA must select and contract with . . . organizations to provide educational services. These services must be designed by SBA and DMS/the Division of Retirement ("DOR") to assist employers, members and beneficiaries to ensure compliance with ERISA s. 404(c) and to assist employees in their choice of pension plan or investment plan alternatives. §121.4501(8)(b), Fla. Stat.

- Education services include disseminating educational materials; providing retirement planning education; explaining the pension plan and the investment plan; and offering financial planning guidance on matters such as investment diversification, risks and costs and asset allocation. *Id.*

- This education component must provide members with impartial and balanced information about plan choices. §121.4501(10), Fla. Stat.

Development of Investment Policy Statement

- The Trustees have the statutory authority and obligation to approve the Investment Policy Statement ("IPS") for both the Pension Plan and the Investment Plan. This is consistent with its role as a policymaking board. *See* §215.475 and §121.4501(14)(a), Fla. Stat.

- For the Pension Plan: The SBA may not make any investment that is not consistent with the IPS. The IPS must include "the investment objectives . . .; permitted types of securities . .. ; and evaluation criteria necessary to measure the investment performance". §215.475, Fla. Stat.

- For the Investment Plan: investment products and approved providers must conform with the IPS for the Investment Plan. The IPS must include "investment objectives . . ., manager selection and monitoring guidelines, and performance measurement criteria." §121.4501(14)(a), Fla. Stat.

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Development of Investment Policy Statement

- For both Plans:
  - The Executive Director may from time-to-time present recommended changes to the IPS to the Trustees for approval.
  - Prior to the Executive Director presenting recommended changes to the Trustees, the Executive Director must present the changes to the IAC for review.
  - The IAC then must present the results of its review to the Trustees prior to the Trustee's final approval.
- See § 215.475 and §121.4501(14), Fla. Stat.

SBA FLORIDA STATE BOARD OF ADMINISTRATION

AON

Background Material for Asset-Liability Study

Florida State Board of Administration (SBA)

September 13, 2022

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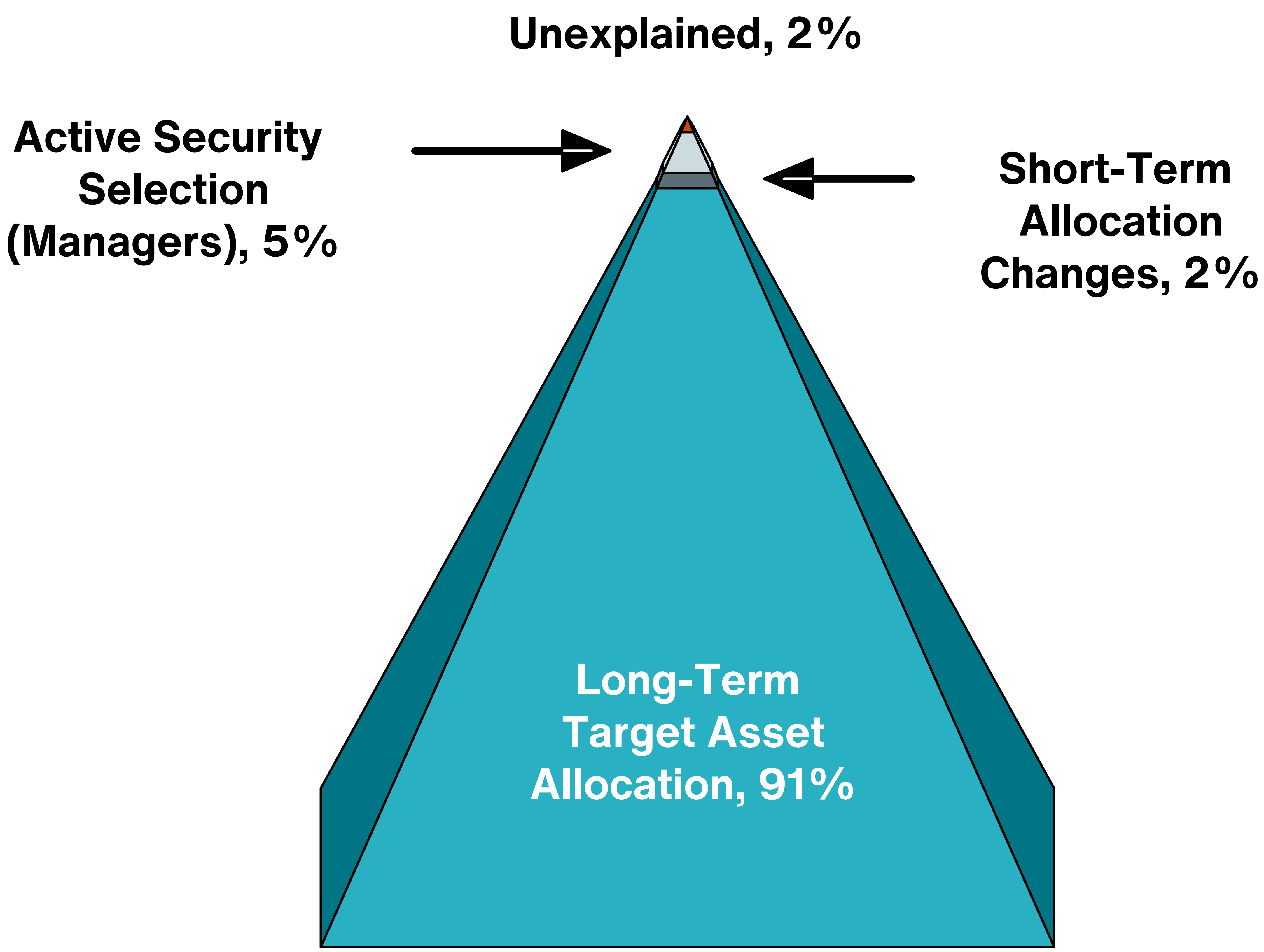
Purpose

Purpose

Background on How SBA Sets the Long-Term Target Asset Allocation

Policy Drives Results

- Long-term asset allocation (i.e., which asset classes to use and in what percent) explains more than 90% of the difference in returns between institutional funds
- Selecting investments that are appropriately diversified and consider the liability of the investment program is paramount



The chart outlines research done by Brinson, Singer and Beebower in their 1991 research paper "Determinants of Portfolio Performance II: An Update" outlines that 91% of the difference in returns among investors is driven by differences in the long-term target asset allocation.

Investment Strategy Cycle

Start With an Asset-Liability Study, Focus on Implementation Next, Then Review

Asset-Liability Study: Return-Seeking vs. Risk-Reducing Exposure

- Primary driver of long-term success
- Important to set strategy in the context of plan liabilities
- The SBA has an **81%** return-seeking allocation posture

Asset Allocation Review: Asset Class Utilization

- Translate results of the asset-liability study into an actionable strategic asset allocation
- Current return-seeking asset classes include public equity, private equity, real estate, and strategic investments
- Current risk-reducing assets include cash and intermediate duration fixed income

Structure Review: Structure of Asset Classes

- Assure implementation conforms with stated objectives and risk tolerance
  - Risk-focused approach
  - Efficient, cost effective implementation

Ongoing Review: Performance as planned; no surprises

- Proactive assessment of portfolio and risks
- Related oversight functions: proxy voting, etc.

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Assumptions

- Aon's Capital Market Assumptions
- SBA Approach

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Aon's Capital Market Assumptions

Section 2: Assumptions

Aon's Capital Market Assumptions
Background

- Long-term (10- and 30-year forecasts) forward-looking assumptions (asset class geometric return, volatility, and correlations)
- Building Block approach, primarily based on consensus expectations and market-based inputs
- Best estimates of annualized returns (50/50 better or worse)
- Market returns: no active management value added (except for certain assets classes, such as hedge funds)
- Net of investment fees
- Updated quarterly
- We show Aon's long-term (i.e., 30-year) capital market assumptions throughout this material

Aon’s Capital Market Assumption Framework

Building Block Approach

Expected return estimates for equity and fixed income are developed using a building block approach

- Expected returns based on observable information in the equity and fixed income markets and consensus estimates for major economic and capital market inputs, such as earnings and inflation
- Where necessary, judgment-based modifications are made to these inputs

Return assumptions for other asset classes are based on historical results, current market characteristics, and professional judgment from our specialist research teams

Example: Public Equities

INCOME (Earnings Yield x Sustainable Payout Ratio)	+	**GROWTH** (Real EPS Growth)	+	**INFLATION**	=	**TOTAL** (Equity Return)
Earnings yield moves directly with market; Sustainable payout ratio is a constant and based on Aon’s assumptions		Based on Aon’s in-house trend analysis, I/B/E/S estimates and Consensus Economics		Based on consensus forecasts; Primary source is Consensus Economics		FORWARD LOOKING ASSUMPTION

Benchmarking Our Assumptions vs. Peers

2021 Horizon Survey Results

What is the Horizon Survey?

Since 2010, Horizon Actuarial Services, LLC has conducted a capital market assumption survey of investment firms to aid in determining reasonable assumptions for a pension plan's expected return on assets

- While Aon does not seek to change our approach based on how we stack up to peers, it is a helpful double-check to make sure we are not too far off from others in the industry

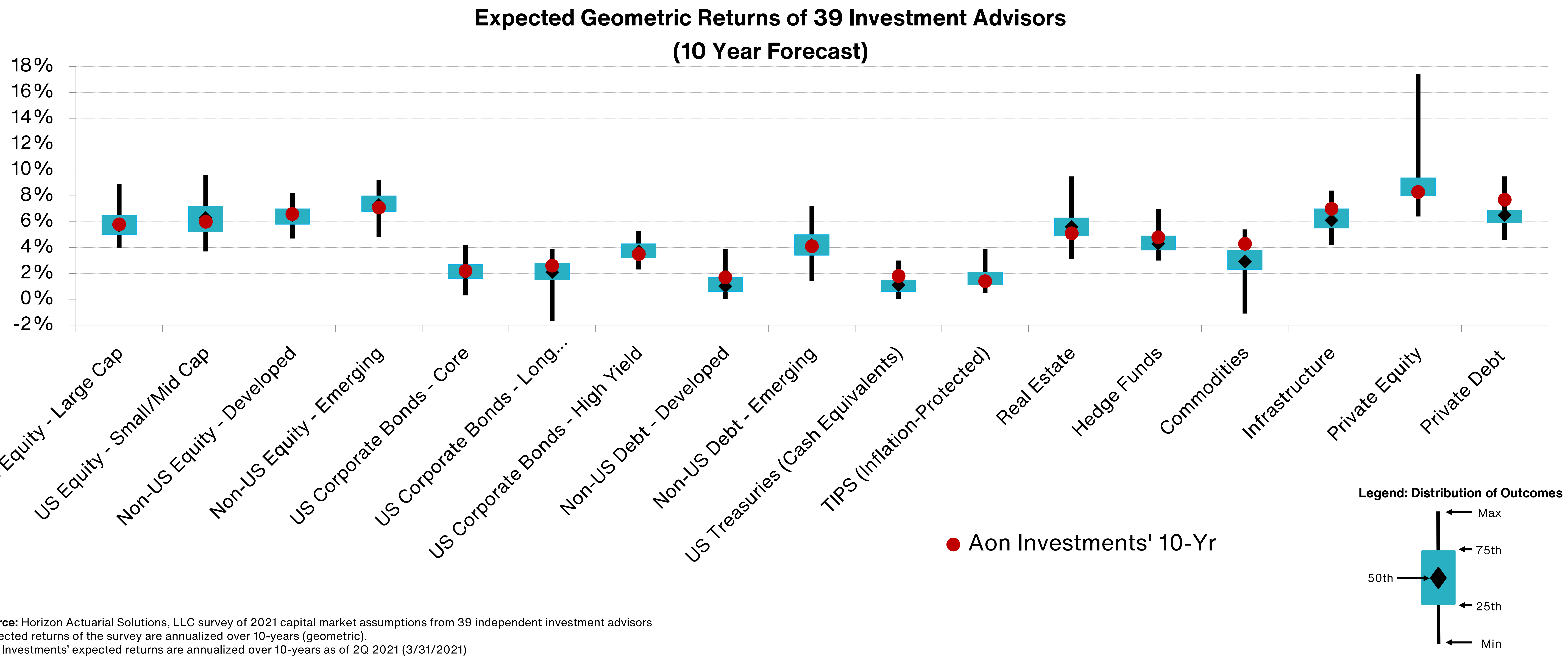
How does Aon compare to the 2021 survey results?

Aon Investments' 2021 10-year forecast assumptions (as of March 31, 2021)

- ***Equities:*** approximately middle of the pack for U.S. and Non-U.S. equities
- ***Fixed Income:*** approximately middle of the pack relative to the survey's median level; higher for U.S. Treasuries
- ***Alternatives:*** approximately middle of the pack relative to the survey's median level; higher for Commodities and Private Debt

Aon Investments' Capital Market Assumptions vs. Horizon Survey

10-Year Forecast



Source: Horizon Actuarial Solutions, LLC survey of 2021 capital market assumptions from 39 independent investment advisors
Expected returns of the survey are annualized over 10-years (geometric).
Aon Investments' expected returns are annualized over 10-years as of 2Q 2021 (3/31/2021)

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SBA Approach

Section 2: Assumptions

Overview

The SBA approach averages the global equity risk premiums[1] from three investment advisors (Aon Investments, Mercer, and Wilshire)

Building block approach is used

- Price inflation and fixed income returns reflect market conditions and yields
- For all other asset classes (“risk assets”), a risk premium is added to fixed income returns

Average risk premium is used to scale Aon Investments’ expected returns for the “risk assets”

The difference between Aon Investments’ equity risk premium and the average equity risk premium is added to all of the “risk asset” capital market assumptions from Aon Investments to normalize the expected returns

[1] Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

Equity Risk Premium

The SBA averages the global equity risk premiums[1] from three consulting firms[2] and then uses that average risk premium to scale Aon Investments' expected returns for the "risk assets"

2022 Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return) = 3.30%

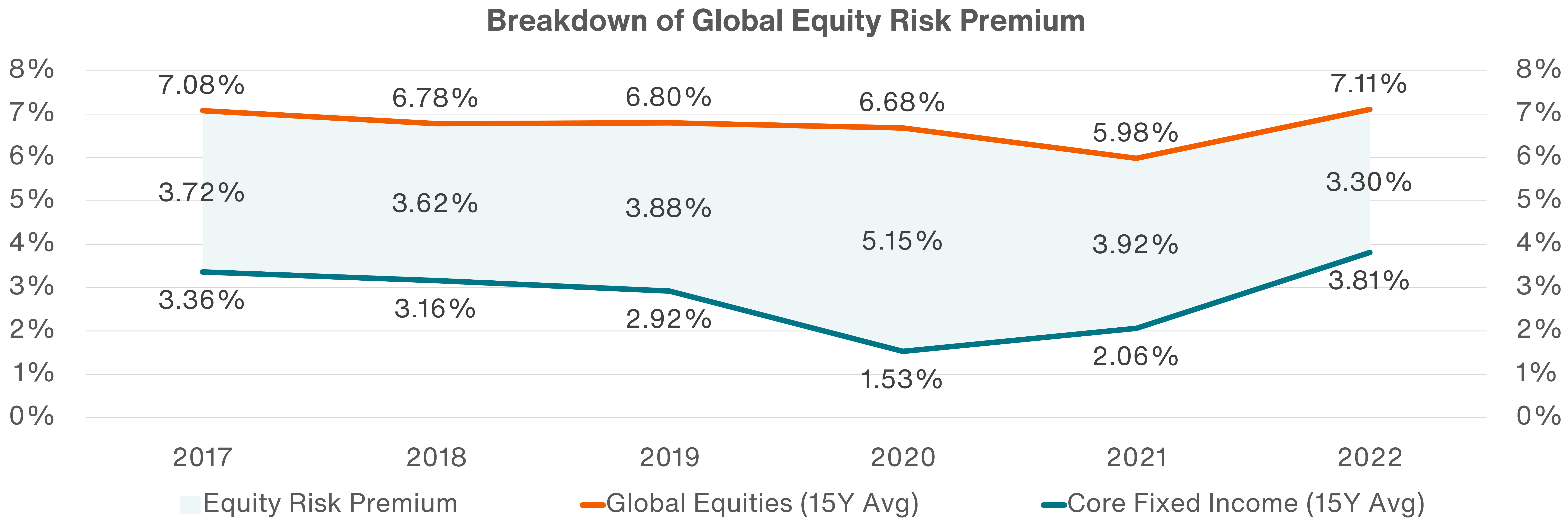
	Aon Investments	Mercer	Wilshire	Callan[2]	Average
2022 Assumptions (15-year geometric average expected returns)					
- As of Date	June 2022	July 2022	June 2022		
- Global Equity	7.75%	6.97%	6.60%	N/A	7.11%
- Core U.S. Bonds	3.80%	3.57%	4.05%	N/A	3.81%
- Global Equity Risk Premium	3.95%	3.40%	2.55%	N/A	**3.30%**
2021 Global Equity Risk Premium	4.55%	3.67%	3.55%	N/A	3.92%
Change 2022 vs. 2021	-0.60%	-0.27%	-1.00%	N/A	-0.62%
Prior Years:					
- 2020	5.50%	4.77%	5.20%	N/A	5.15%
- 2019	4.55%	3.70%	3.40%	N/A	3.88%
- 2018	4.10%	3.53%	2.90%	3.93%	3.62%

[1] Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk.
[2] Callan was previously included in the averaging but removed starting in 2019 because its capital market assumption date did not coincide with the same timeframe as the other consultants and the asset-liability study; Callan only updates their capital market assumptions once a year while the other consultants update quarterly
Calculations may not sum to total due to rounding

Breakdown of Equity Risk Premium Assumption

The decrease in the 2022 equity risk premium[1] was driven by the increase in projected fixed income returns outpacing the increase in projected equity returns

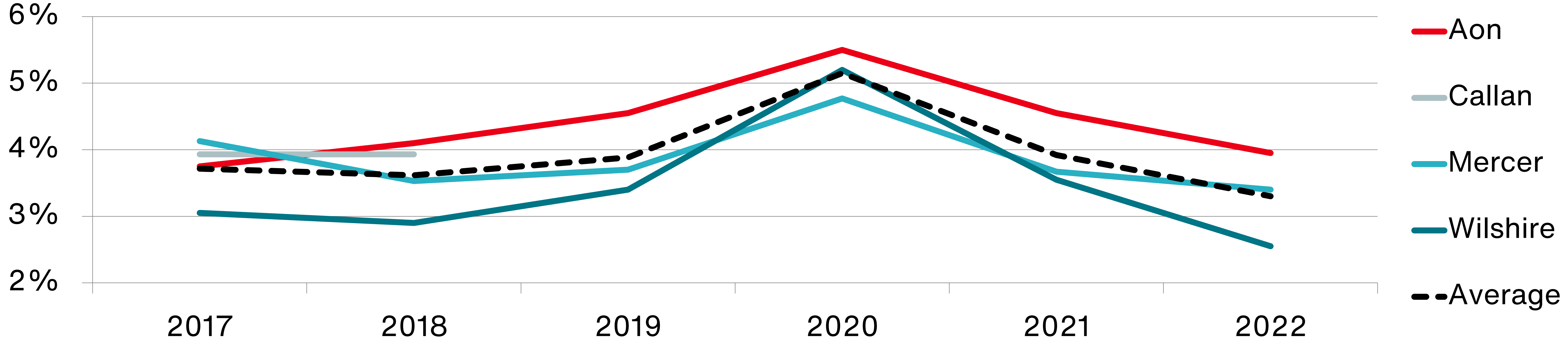
- Below is a 6-year historical look at the breakdown of the global equity risk premium



[1] Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

Historical Equity Risk Premium Assumption

Average Global Equity Risk Premium = Average (Global Equity Return – U.S. Bond Return)



Equity Risk Premium[1]	Asset-Liability Study					
	2017	2018	2019	2020	2021	2022
Aon	3.75%	4.10%	4.55%	5.50%	4.55%	3.95%
Callan	3.93%	3.93%	N/A	N/A	N/A	N/A
Mercer	4.13%	3.53%	3.70%	4.77%	3.67%	3.40%
Wilshire	3.05%	2.90%	3.40%	5.20%	3.55%	2.55%
Average	3.72%	3.62%	3.88%	5.15%	3.92%	3.30%

Aon Investments' capital market assumptions for risk assets will be scaled by **-65bps** in the 2022 asset-liability study

[1] Equity Risk Premium is defined as the excess return earned over bonds that compensates investors for taking on higher risk; all returns are 15-year geometric average (compounded) expected returns

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Asset-Liability Study

- Background
- Illustrative Projection Analysis

Background

Section 3: Asset-Liability Study

Asset-Liability Management Overview
What is an Asset-Liability Study?

What?
A comprehensive toolkit for making decisions on a fund's asset allocation and investment risk that align with the liabilities those funds support

Why?
Aon believes optimal decisions regarding pension plan management are made when they are based on a clear understanding of the assets and liabilities and how they interact

When?
Aon suggests conducting asset-liability studies every 3 to 5 years depending on client specifics, or more frequently should circumstances dictate

How?
Identify future trends in the financial health of the fund based on economic uncertainties that may not be evident from an actuarial valuation

Ultimate Retirement Benefit Cost Equation

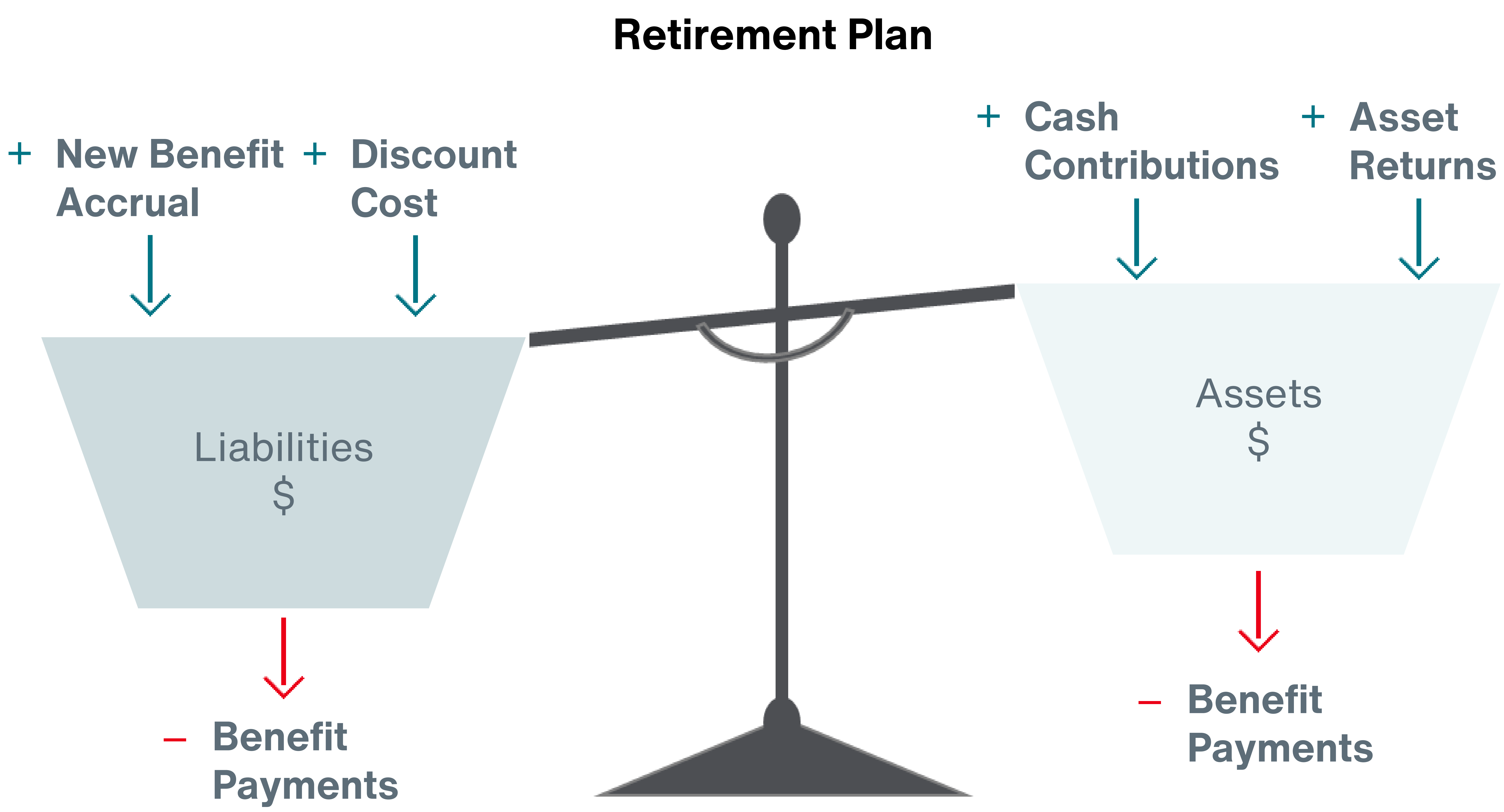
The cost ultimately borne by the Plan will be represented by the financing equation shown below:

(Ultimate Plan Cost) = (Benefits Paid *plus* Administrative Expenses *less* Investment Returns *less* Employee Contributions)

The asset-liability study will study the variability of future investment returns on the Plan financials

- Higher than expected returns will result in lower future Plan costs
- Lower than expected returns will result in higher future Plan costs

Balance of Liabilities and Assets



Key Takeaways:

Plan Liabilities will grow in two ways:

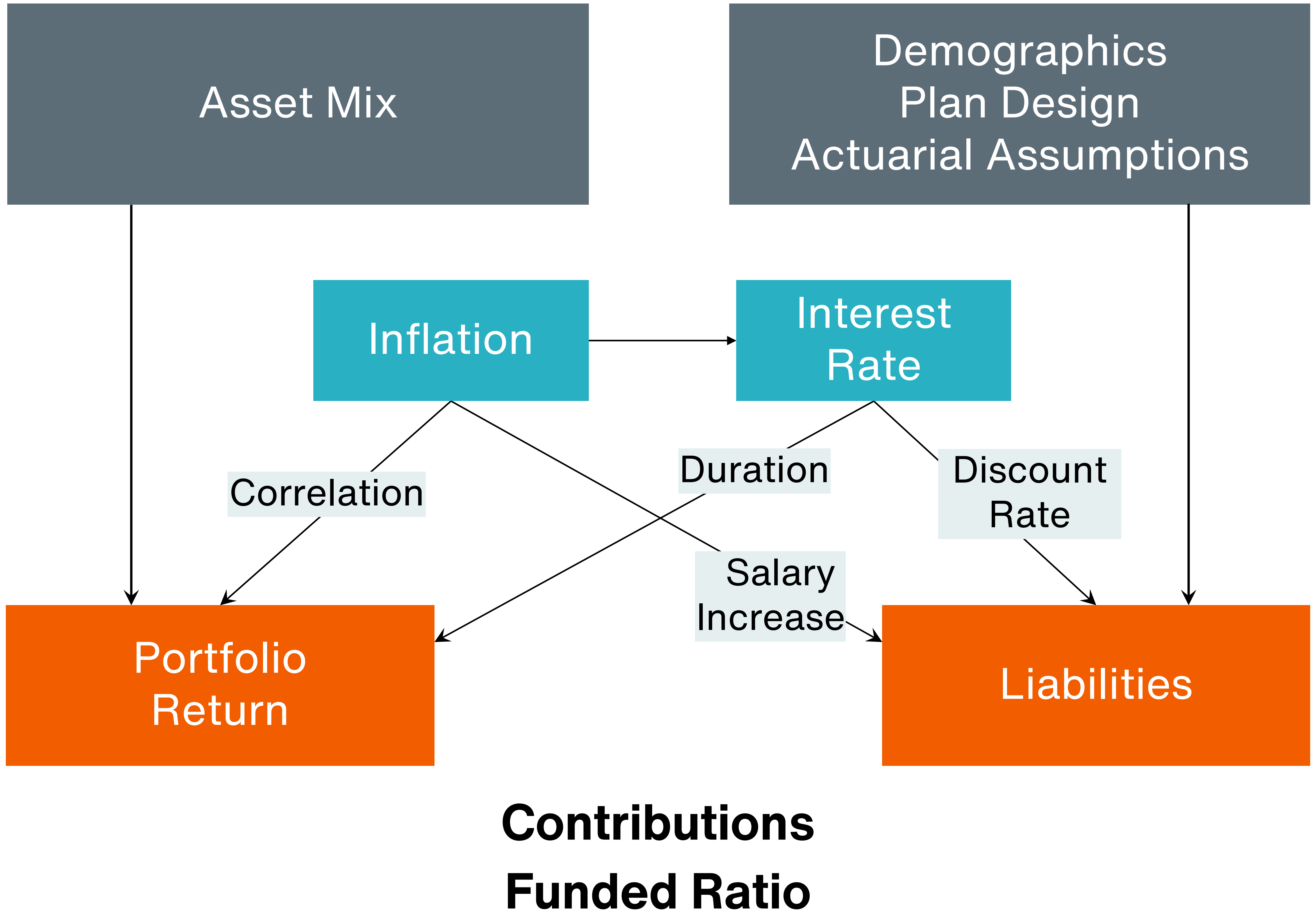
- New benefit accruals (or Normal Cost)
- One less year of interest discounting (or Discount Cost)

Assets will grow in two ways:

- Cash Contributions to the Plan
- Asset Returns

Both liabilities and assets will be reduced by benefits paid to participants

Mechanics of Asset-Liability Modeling Process



Key Features

Asset and liability modeling integrated in single platform

Integrates impact of key economic variables

- Flexibility in modeling parameters and output to client preferences

Stochastic and deterministic modeling performed

Risk and Return in an Asset-Liability Context

Traditional:

Return = Investment performance

Risk = Annual volatility of investment gains and losses (e.g., weak/negative capital market returns)

Asset-Liability:

Return = Potential cost reduction or funded status improvement under average economic conditions

Risk = During the worst economic conditions, contributions needs to increase or funded status declines (e.g., stocks decline, inflation/deflation shocks and/or interest rates decline)

Key Factors Affecting the Risk/Reward Trade-off

The key take-away from the asset-liability study is the allocation between equity (“return-seeking”) vs. fixed income (“risk-reducing”)

Major factors affecting the ultimate mix are:

Time horizon (or amortization period of unfunded liability) to fund the liability: a longer time horizon supports more risk taking

Characteristics of plan participants: a growing population of active participants supports more risk taking; a mature population with significant retirees might need a more conservative policy

Funded status: a less funded plan can utilize additional returns from equity investments

Nature of plan benefits: a pension with sensitivity to wage inflation growth can benefit from equities in the long-term; an increased need in liquidity due to significant benefit payments in the near future can have a more conservative policy

Limitations of Asset-Liability Modeling

Asset-liability studies are best-suited to determine the optimal mix of return-seeking (e.g., equity) and risk-reducing (e.g., fixed income) assets for the retirement fund

- Asset mix is the single most important investment decision for the plan sponsor
- Studies have found that more than 90% of the variability of a portfolio's return is determined by the asset allocation
- Decisions regarding how to divide allocations among various sub-categories are less important in an asset-liability context and can be addressed in the implementation phase, following the asset-liability study

Asset-liability modeling can capture the likelihood of a strategy meeting the objectives

- It does not 'predict' the future, i.e., we cannot say which of the economic scenarios will actually occur
- The results depend on the assumptions underlying the model and the structure of the model itself

There are elements that cannot be modeled and must be thought of in addition to the results of any analysis:

- E.g., idiosyncratic manager risk, liquidity requirements
- Black swans

Illustrative Projection Analysis

Section 3: Asset-Liability Study

Hurdle Rate Analysis

What is the Asset Hurdle Rate?

Asset Hurdle Rate is the required rate of asset growth needed to keep pace with the growth of the Plan liabilities

- Assets must grow at this rate or more in order to maintain or reduce a potential funding shortfall
- **Formula = (Normal Cost + Discount Cost) / Funded Ratio**

Assets can grow in two ways:

- Investment returns
- Funding contributions

Asset hurdle rates are expected to decline as the funded status increases

How Does the Asset Hurdle Rate Inform Future Projections?

Short-term funded ratio progress can be estimated from the asset hurdle rate analysis

- If investment returns + contributions exceed the asset hurdle rate, funded ratio can expect to grow
- If investment return + contributions fall short of the asset hurdle rate, funded ratio can expect to diminish

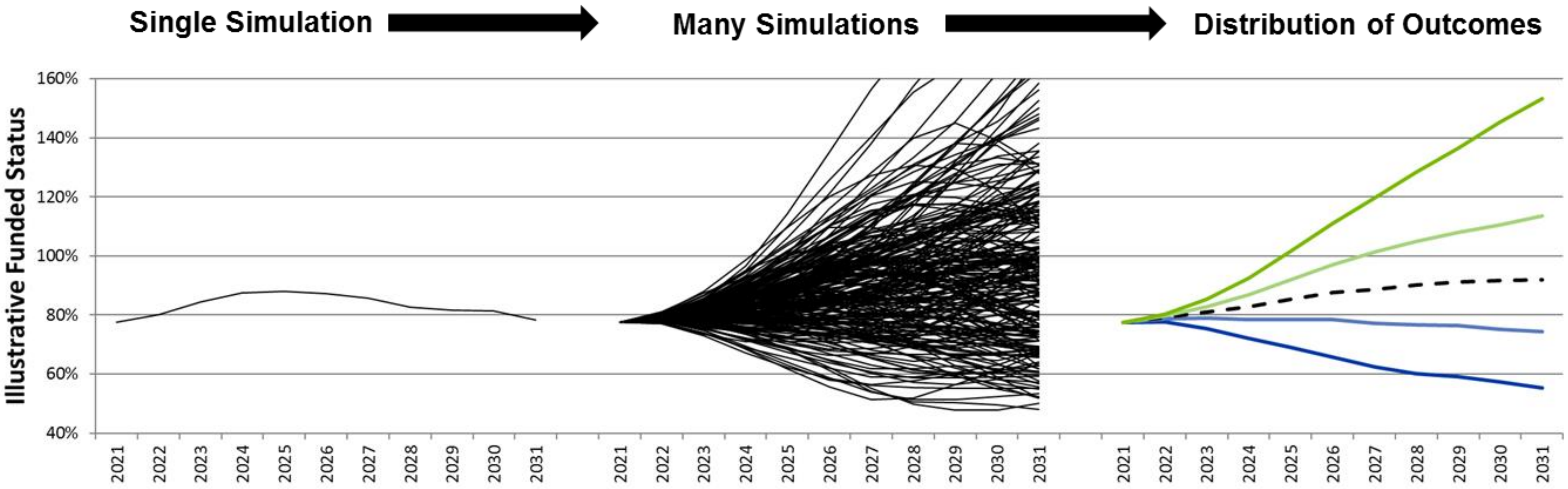
Asset-Liability Simulation Overview

Thousands of simulations plotted in one graph would be impossible to interpret

Instead, we rank the simulations at each point over the future

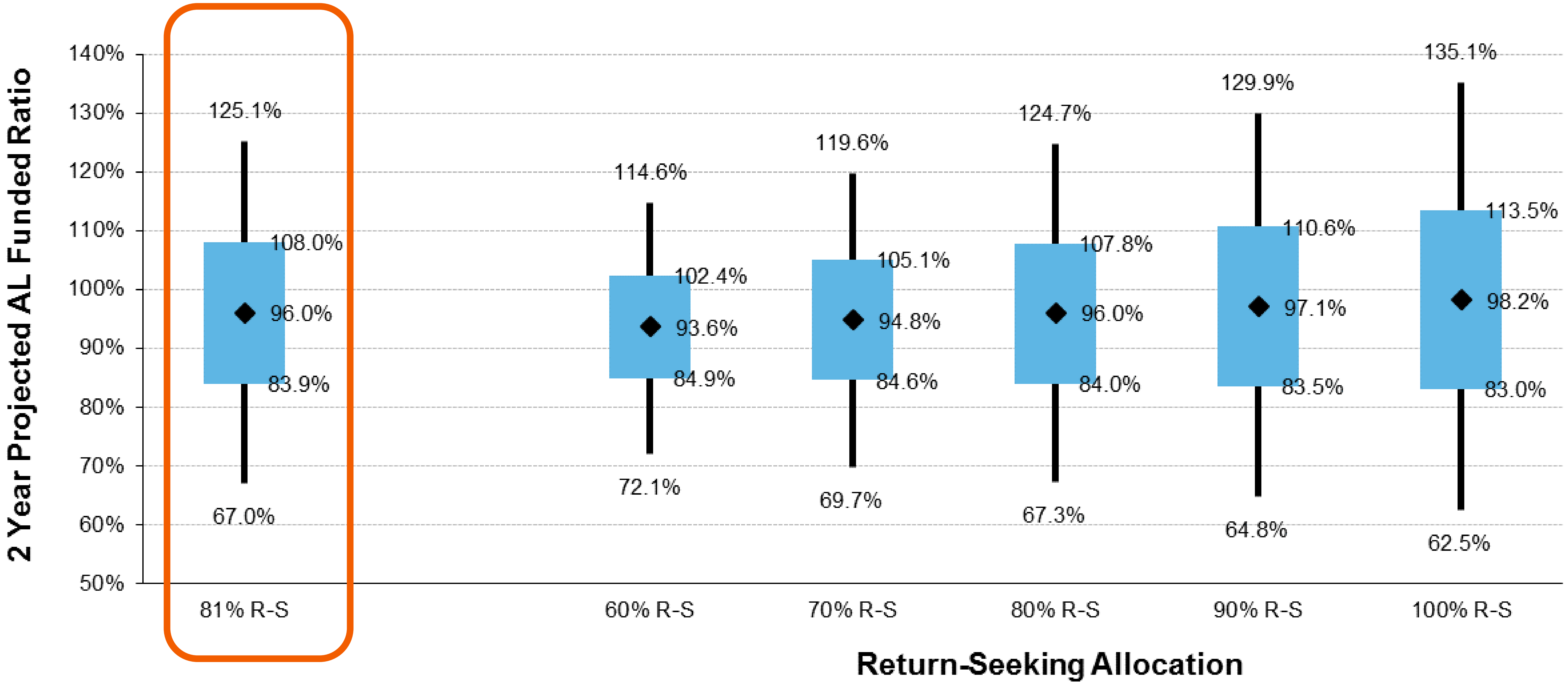
This produces a distribution of outcomes illustrating the degree of uncertainty of a plan's financial position over the projection period

Different investment strategies will produce different distributions of outcomes



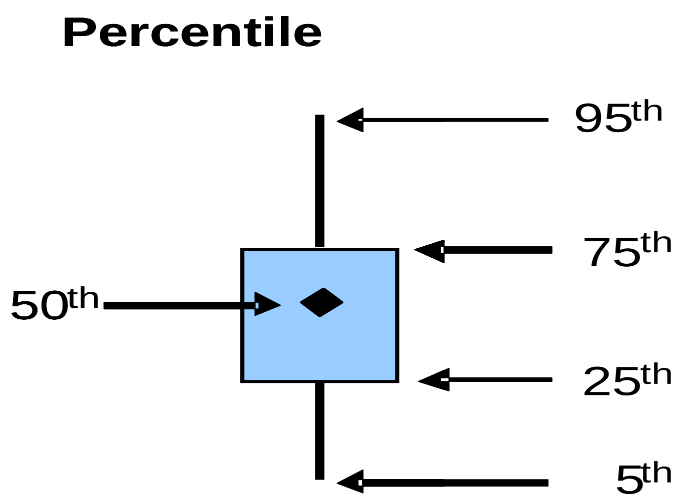
Illustrative Projection Analysis

Short-Term Funded Ratio Projections (From 2021 Asset-Liability Study)



Key Takeaways:

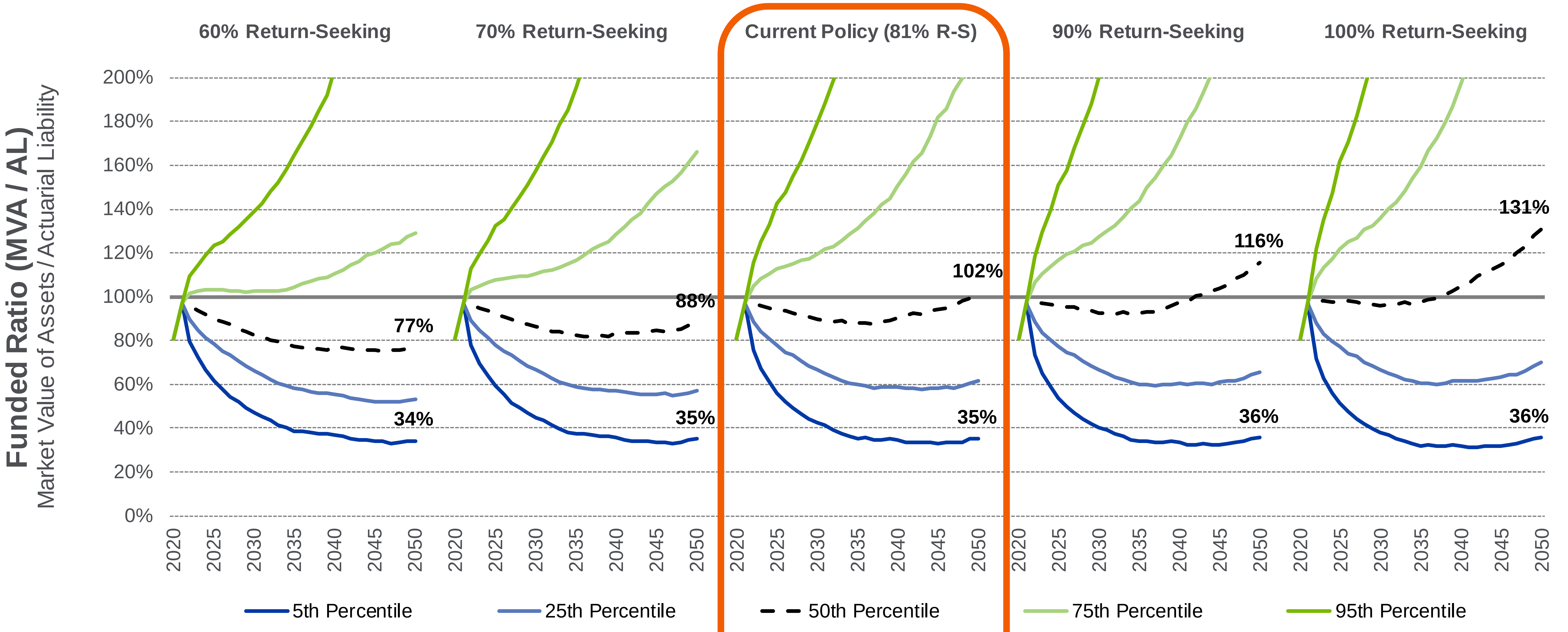
- Higher risk portfolios are projected to have more both more upside and downside potential over a short time horizon (2 years in this exhibit)
- Similarly, lower risk portfolios will have a narrower range of potential outcomes



* Projections assume constant 7.00% discount rate for pension liabilities for all investment policies studied

Illustrative Projection Analysis

Long-Term Funded Ratio Projections (From 2021 Asset-Liability Study)



Strategy	60% Return-Seeking			70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking			100% Return-Seeking		
Year	2030	2040	2050	2030	2040	2050	2030	2040	2050	2030	2040	2050	2030	2040	2050
5th Percentile	47%	37%	34%	45%	36%	35%	43%	34%	35%	40%	33%	36%	38%	32%	36%
25th Percentile	66%	55%	53%	66%	57%	57%	66%	59%	62%	66%	61%	65%	67%	62%	70%
50th Percentile	83%	77%	77%	86%	83%	88%	90%	91%	102%	93%	97%	116%	96%	105%	131%
75th Percentile	103%	111%	129%	110%	128%	166%	119%	150%	>200%	127%	172%	>200%	136%	198%	>200%
95th Percentile	139%	>200%	>200%	158%	>200%	>200%	179%	>200%	>200%	200%	>200%	>200%	>200%	>200%	>200%

* Projections assume constant 7.00% discount rate for pension liabilities for all investment policies studied

Key Takeaways:

- Under the Current Policy (81% R-S), the funded ratio is expected to increase with FYE 2021 performance, then decline in the near-term before increasing later at the end of the period in the central expectation (50th percentile outcome)
- Higher return-seeking allocations will increase the central trendline of funded ratio, albeit with greater downside risk
- Downside risk (5th percentile outcomes) illustrates a small likelihood of significant funded ratio deterioration over the projection period

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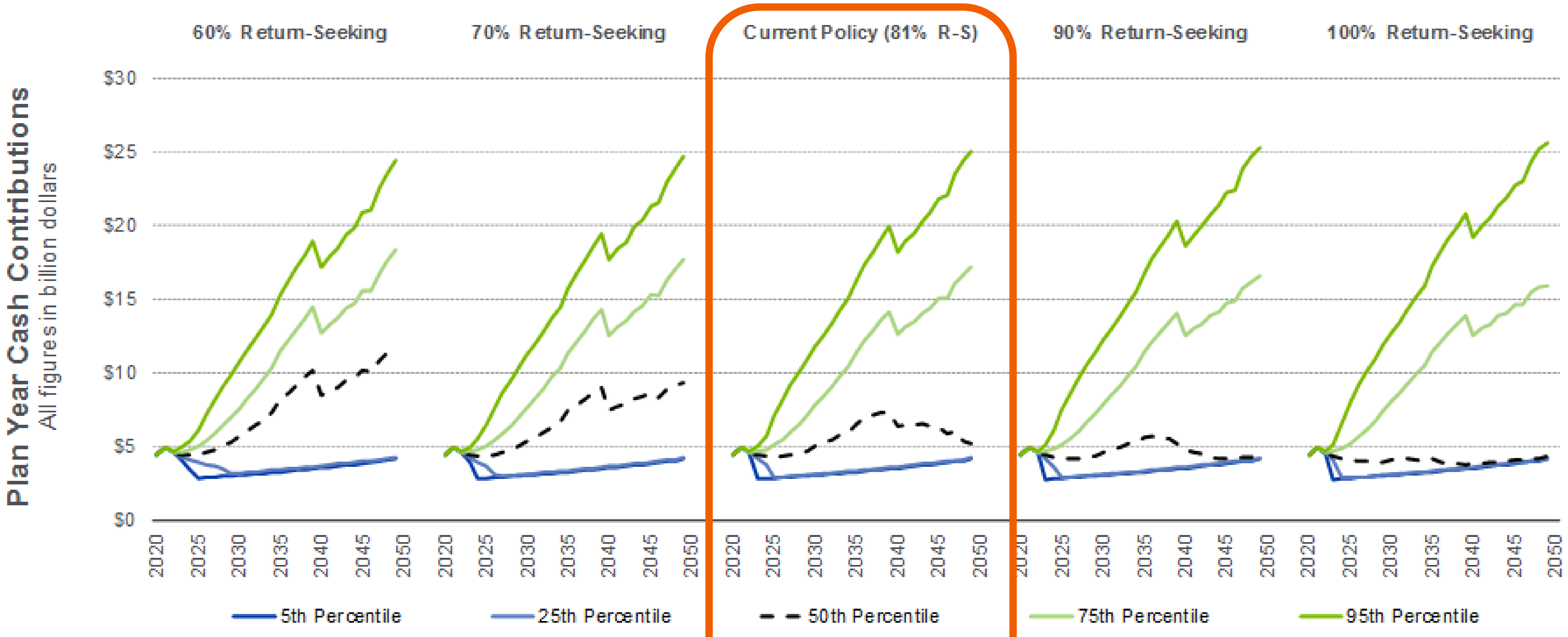
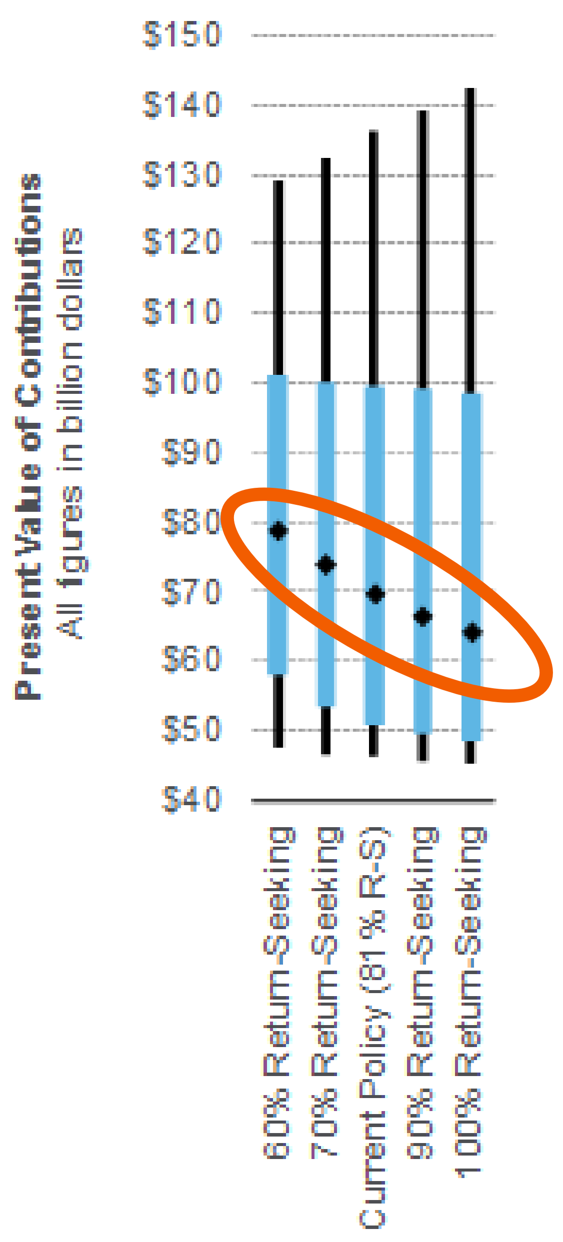
Illustrative Projection Analysis

Total Contribution Projections (From 2021 Asset-Liability Study)

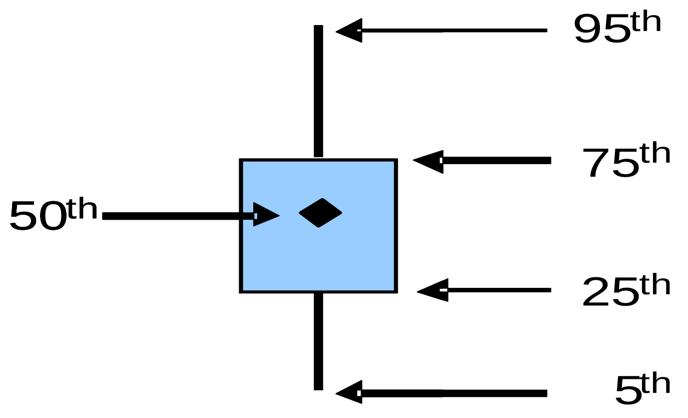


Strategy	60% Return-Seeking			70% Return-Seeking			Current Policy (81% R-S)			90% Return-Seeking			100% Return-Seeking		
Year	2029	2039	2049	2029	2039	2049	2029	2039	2049	2029	2039	2049	2029	2039	2049
5th Percentile	$3.0	$3.5	$4.2	$3.0	$3.5	$4.2	$3.0	$3.5	$4.2	$3.0	$3.5	$4.1	$3.0	$3.5	$4.1
25th Percentile	$3.2	$3.6	$4.3	$3.1	$3.6	$4.3	$3.1	$3.6	$4.2	$3.1	$3.6	$4.2	$3.0	$3.5	$4.2
50th Percentile	$5.3	$10.2	$12.0	$5.0	$9.0	$9.3	$4.7	$7.3	$5.1	$4.4	$5.2	$4.4	$4.0	$3.8	$4.3
75th Percentile	$6.9	$14.5	$18.4	$7.0	$14.3	$17.7	$7.1	$14.2	$17.2	$7.2	$14.0	$16.6	$7.4	$13.9	$15.9
95th Percentile	$9.8	$19.0	$24.4	$10.3	$19.4	$24.7	$10.9	$19.9	$25.0	$11.3	$20.3	$25.2	$11.9	$20.8	$25.6

* Projections assume constant 7.00% discount rate for pension liabilities for all investment policies studied



Percentile



Key Takeaways:

- Total contribution amounts are expected to decline initially before increasing over the next two decades and finally decrease once amortization bases are fully recognized
- Higher return-seeking allocations will reduce the expected (50th percentile) outcome but with a wider range of outcomes

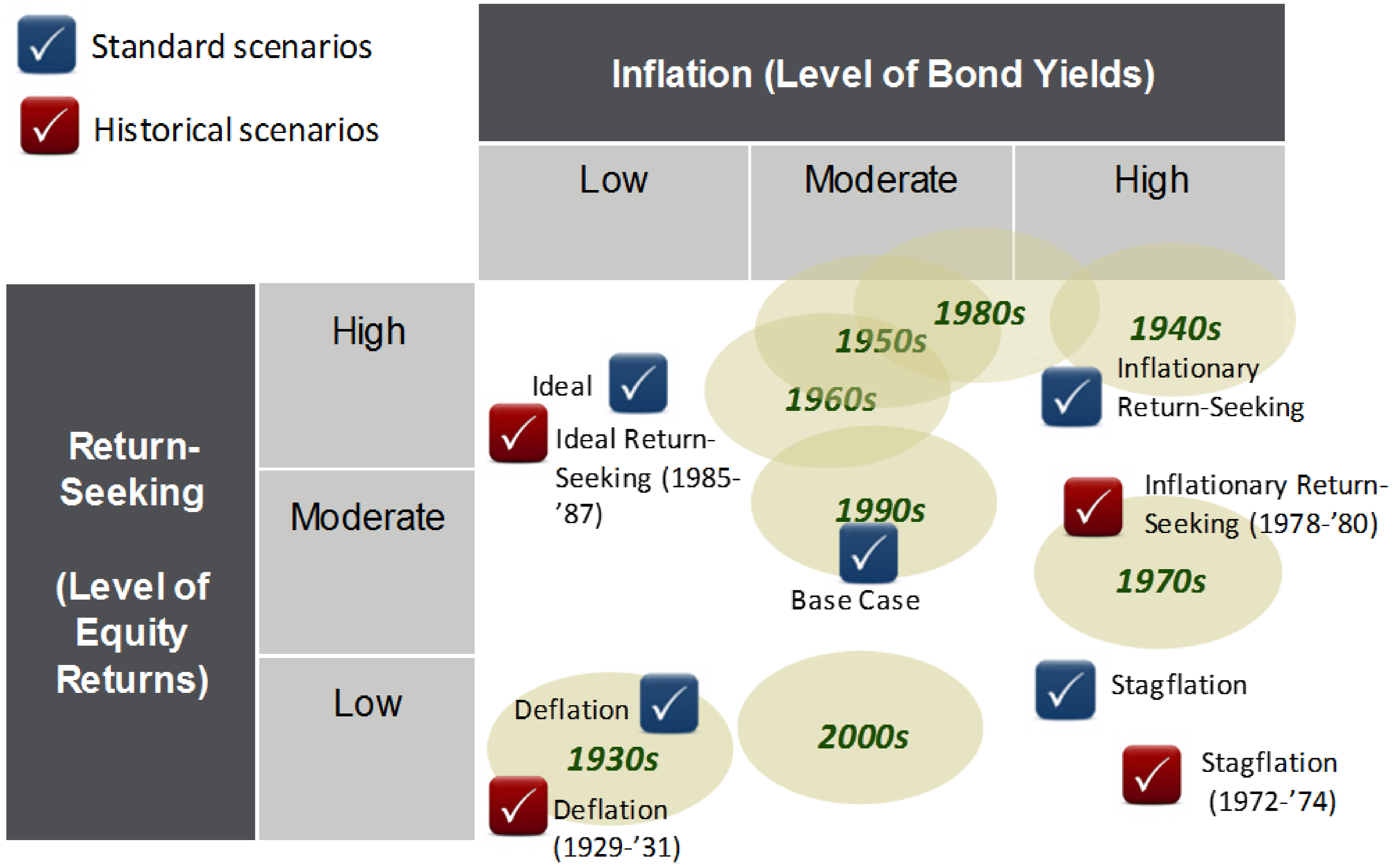
Inflation Impact

As part of our 5,000 economic simulations, we will group our analysis into buckets, as shown on the right, presenting results that show varying levels of:

- Inflation
- Equity returns

Typical outcomes when studying the inflationary impact include the following:

- Growth scenarios are expected to be the driving force behind funded ratio projections
- Higher inflation scenarios are assumed to perform better than low inflation due to the projected impact on payroll – the source of funding plan benefits



Liquidity Analysis
Background

Florida Retirement System's (FRS) liquidity analysis will be performed under its Current Policy (81% R-S) portfolio

- Intended as a stress-testing model, incorporating the profile of the liabilities as well as expected future contributions
- Uses different scenarios for economic environments and other relevant events
- Shows how the portfolio's liquidity profile could evolve with a given investment strategy

We categorized investments by liquidity into five buckets

Liquid (Risk-Reducing Assets): less than 3 months needed for return of capital (e.g. publicly traded securities)

Liquid (Return-Seeking Assets): less than 3 months needed for return of capital (e.g. publicly traded securities)

Quasi-Liquid: Typical lock-up of 3–12 months. Conservatively, we assumed a 1-year lock-up in most economic environments, 2 years in a Recession scenario, and 3 years in a Dark Skies scenario (e.g. many hedge funds, open-end real assets)

Illiquid: Potential lock-up of 5–10 years, depending on economic environment (e.g. closed-end real assets)

Illiquid: Potential lock-up of 10+ years (e.g. typical private equity)

This is intended to be a conservative approximation of the actual liquidity properties of the assets

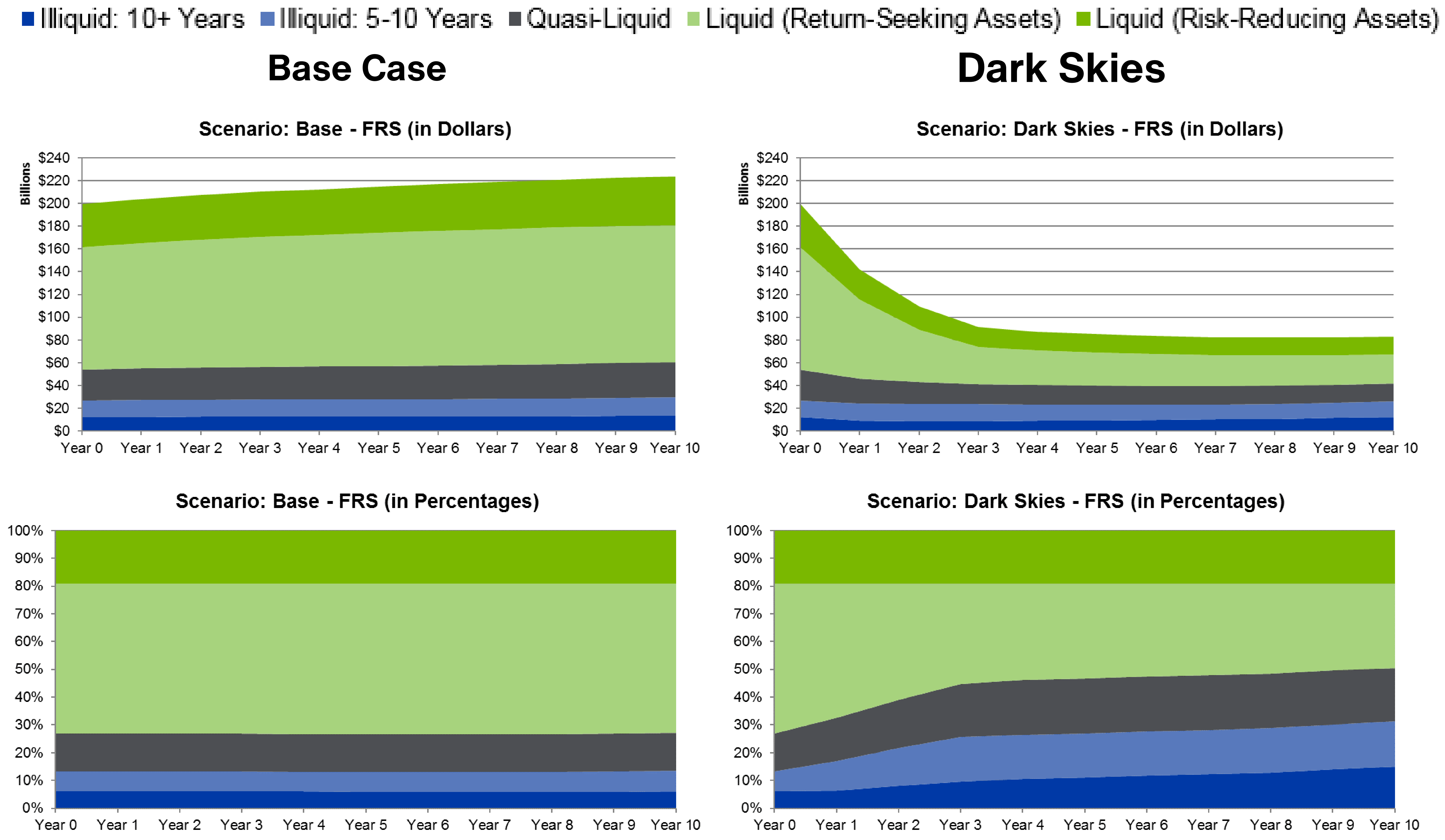
Illustrative Projection Analysis

Liquidity Analysis (From 2021 Asset-Liability Study)

Longer time horizons incentivize higher levels of risk and alternative assets can play a key role in the portfolio construction

The question becomes **"What level of alternative assets is too much?"**

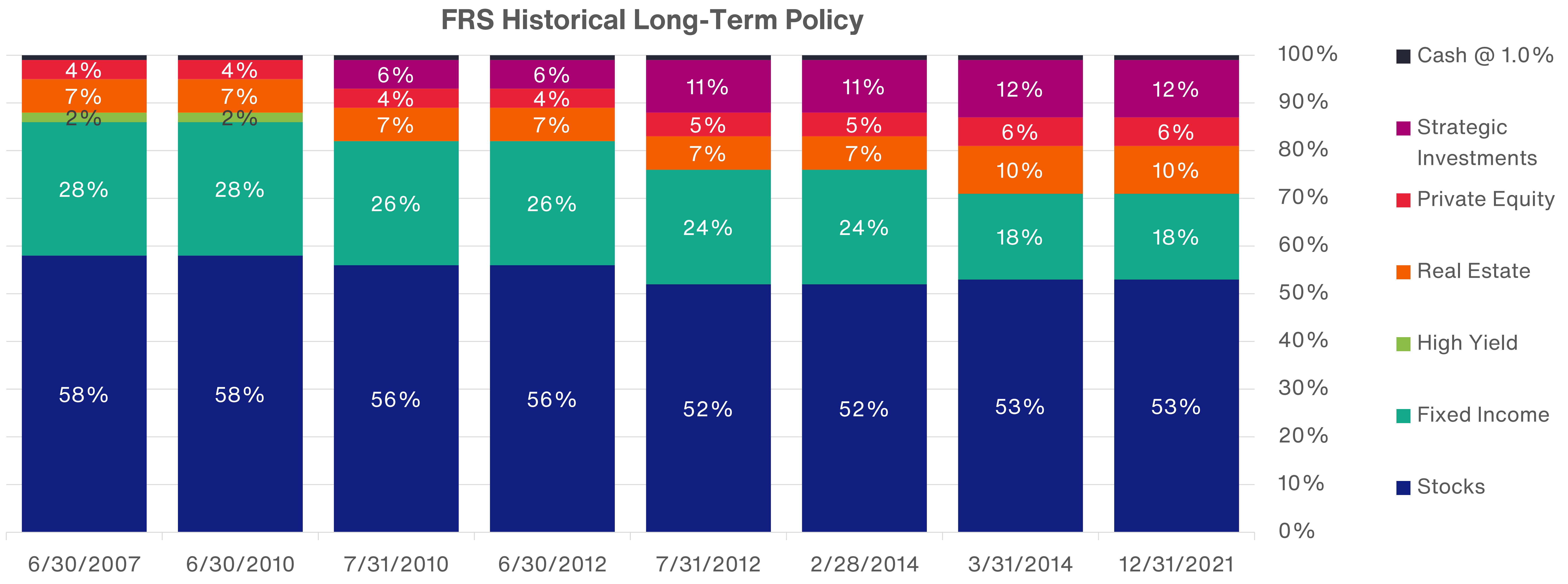
- As alternative assets have various degrees of lock-ups or illiquidity, it is important to understand how much the portfolio could evolve in the future under different economic conditions and whether there is appropriate liquidity within the Plan



Note: Year 0 represents a starting point of June 30, 2021

FRS' Historical Long-Term Policy Changes

- Over the last 15 years, the FRS has reduced its allocation to risk-reducing assets (U.S. Fixed Income and cash)
- Changes born from asset-liability analysis and evaluation of long-term risk/reward trade-offs
- Return-seeking assets also became more diversified, which has been beneficial in growing assets and mitigating varying investment risks



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Next Steps

Next Steps

2022 Asset-Liability Results will be presented later today

- Current portfolio has 81% allocated to return-seeking assets with 19% to risk-reducing assets
- Asset-Liability study will highlight the trade-offs of changing the Plan's risk posture on expected and downside funded ratio and contributions outcomes, as well as review the liquidity tolerance of the Plan

Asset Allocation Study to be presented next quarter

- Asset Allocation Study assists in determining the appropriate composition of return-seeking and risk-reducing allocations
- Seek to maximize the risk/reward trade-offs while accounting for implementation considerations
- Seek to incorporate the ongoing Strategic Investments structural review as well as current and potential statutory limitations

5

Appendix

- Glossary of Terms
- 2021 Horizon Survey Results
- How Do Public Pensions Impact Credit Ratings?

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Glossary of Terms

Section 5: Appendix

Glossary of Terms

AVA – Actuarial value of assets (i.e., incorporates smoothing of gains and losses)

Asset Growth Rate or "Hurdle Rate" – The required rate of growth of the assets (through both contributions and investment returns) to keep pace with the growth of the liability

Current Frontier – Uses SBA's mix of asset classes within the return-seeking allocation, then dials the return-seeking allocation up and down from 0% to 100% to illustrate forecasted returns at various return-seeking / safety asset mixes

Economic Cost – Present value of forecasted future contributions + present value of funding shortfall/(surplus) at the end of the projection period

Liability Growth Rate – The projected growth of the liability over the coming year as measured by the sum of the normal cost (new benefit accruals) and interest cost (one less year of discounting at the time value of money)

MVA – Market value of assets (i.e., un-smoothed/economic reality)

Return-Seeking Assets ("R-S") – All non "safety" assets

Safety Assets – Assets where the primary function is risk control/downside mitigation.

Target Asset Allocation – The allocation of assets between return-seeking assets and safety assets

2021 Horizon Survey Results

Section 5: Appendix

2021 Horizon Survey Results

Aon Investments vs. Peers (2021 Horizon Survey) | 10-Year Forecast

	Horizon Survey		Aon Investments		Difference	
	10 Year Horizon		10 Year Forecasts		Aon Investments – Horizon Survey	
Asset Class	**Expected Return**	**Expected Risk**	**Expected Return**	**Expected Risk**	**Expected Return**	**Expected Risk**
US Equity - Large Cap	5.7%	16.4%	5.8%	17.0%	0.1%	0.6%
US Equity - Small/Mid Cap	6.3%	20.2%	6.0%	23.0%	-0.3%	2.8%
Non-US Equity - Developed	6.5%	18.3%	6.6%	20.0%	0.1%	1.7%
Non-US Equity - Emerging	7.3%	24.3%	7.1%	27.0%	-0.2%	2.7%
US Fixed Income - Core	2.0%	5.5%	2.2%	4.0%	0.2%	-1.5%
US Fixed Income - Long Duration Corp	2.1%	10.4%	2.6%	9.0%	0.5%	-1.4%
US Fixed Income - High Yield	3.7%	9.9%	3.5%	12.0%	-0.2%	2.1%
Non-US Fixed Income - Developed	1.0%	7.2%	1.7%	5.5%	0.7%	-1.7%
Non-US Fixed Income - Emerging	4.2%	11.3%	4.1%	13.0%	-0.1%	1.7%
Treasuries (Cash Equivalents)	1.1%	1.3%	1.8%	1.5%	0.7%	0.2%
TIPS (Inflation-Protected)	1.4%	5.6%	1.4%	3.5%	0.0%	-2.1%
Real Estate	5.6%	17.6%	5.1%	15.0%	-0.5%	-2.6%
Hedge Funds	4.3%	8.1%	4.8%	9.0%	0.5%	0.9%
Commodities	2.9%	17.3%	4.3%	17.0%	1.4%	-0.3%
Infrastructure	6.1%	17.0%	7.0%	14.5%	0.9%	-2.5%
Private Equity	8.3%	22.3%	8.3%	25.0%	0.0%	2.8%
Private Debt	6.5%	11.4%	7.7%	16.5%	1.2%	5.1%
Inflation	2.0%	2.1%	2.1%	1.0%	0.1%	-1.1%

Notes (Horizon Survey):

Source: Horizon Actuarial survey of 2021 capital market assumptions from 39 independent investment advisors

Expected returns are median annualized (geometric).

Notes (Aon Investments' Forecasts):

Aon Investments' Forecasts are for Q2 2021

- US Equity - Small/Mid Cap forecasts represents Aon Investments' forecasts for US Small Cap
- US Fixed Income - Long Duration forecasts represents Aon Investments' forecasts for Long Duration Credit
- Non-US Fixed Income - Developed forecasts represents Aon Investments' forecasts for Non-US Fixed Income - Developed (50% Hedged)
- Non-US Fixed Income - Emerging forecasts represents Aon Investments' forecasts for Emerging Market Bonds - Sovereign USD
- Real Estate forecasts represents Aon Investments' forecasts for Core Real Estate
- Hedge Fund forecasts represents Aon Investments' forecasts for Direct Hedge Funds (Universe)

2021 Horizon Survey Results
Leading Methodologies & Reasons for Differences

Leading Methodologies

Building Block

Global Capital Asset Pricing Model (Global CAPM)

Surveys

Historical data (as a guide to future)

Black-Litterman (combination of building block and CAPM)

Reasons for Differences

Methodology

Time Horizon

Arithmetic vs. Geometric forecasts*

Alpha (active management)*

Inflation

Investment Fees*

Asset class definition

* While some firms in the Horizon survey responded with arithmetic forecasts, the results have been converted to geometric forecasts for comparison purposes. Additionally, the return expectations included in the Horizon survey are generally market returns that do not reflect active management. Returns for asset classes where passive investments are not available (e.g., hedge funds and private equity) are net of fees.

How Do Public Pensions Impact Credit Ratings?

Section 5: Appendix

How Do Public Pensions Impact Credit Ratings?

Summary and Conclusions

Pension Impact on Credit Ratings

Pension plans have a direct impact on the ultimate state or local credit rating

Rating agencies are not just looking at where public pension plans stand today; they are looking at the expected future trajectory of the plan based on how it is managed

Credit Ratings and Borrowing Costs

Taxpayers in lower credit rated jurisdictions are paying higher borrowing costs and could save money through healthier pension plan management

Call To Action

The Big Three (Fitch, Moody's and S&P) value selecting appropriate actuarial assumptions, avoiding excessive risk taking, and developing an adequate funding policy

While debt priorities and revenue framework to service such debt will vary on a case-by-case basis, every jurisdiction has the ability to thoughtfully develop a funding policy and set appropriate assumptions

These initial steps will help pension stakeholders better understand the true economic costs, improve the funding outlook for public pensions, and potentially reduce borrowing costs and further taxpayer burden

How Do Public Pensions Impact Credit Ratings?

Call to Action: Plan Sponsors Have the Ability to Impact Credit Rating

Below are three specific actions plan sponsors can take today to directly improve the impact a pension plan will have on the credit rating of its locality:

Action	Considerations
1. Conduct an actuarial assumption audit Review reasonability of key assumptions: • Salary scale, Mortality, Retirement rates, Turnover rates	• Assumptions set to plan-specific expectations will lead to lower contribution volatility • Aggressive assumptions may provide short-term relief but may have long-term consequences
2. Consider adjustments to expected return assumption Adjustments should be in line with forward-looking expectations for asset returns	• Contributing an actuarial amount? – Yes: Failing to achieve target returns will necessitate increases in future contributions and make what was intended to be a smooth, budget-friendly progression of contribution increases far more volatile – No: The funding gap will widen and become highly volatile as contribution policy will not add enough dollars to replenish losses
3. Review the plan’s funding policy Look far enough into the future to identify potential pain points	• Conduct “read water”/hurdle rate analysis to ensure short-term contributions are sufficient to keep pace with growth of plan liabilities • Consider asset-liability study to understand range of potential future outcomes rather than a single deterministic scenario

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Florida Retirement System

Investment Advisory Council
Overview of FRS Actuarial Work, Including Development of Proposed Blended Statutory Rates

Matt Larrabee, FSA, EA, MAAA

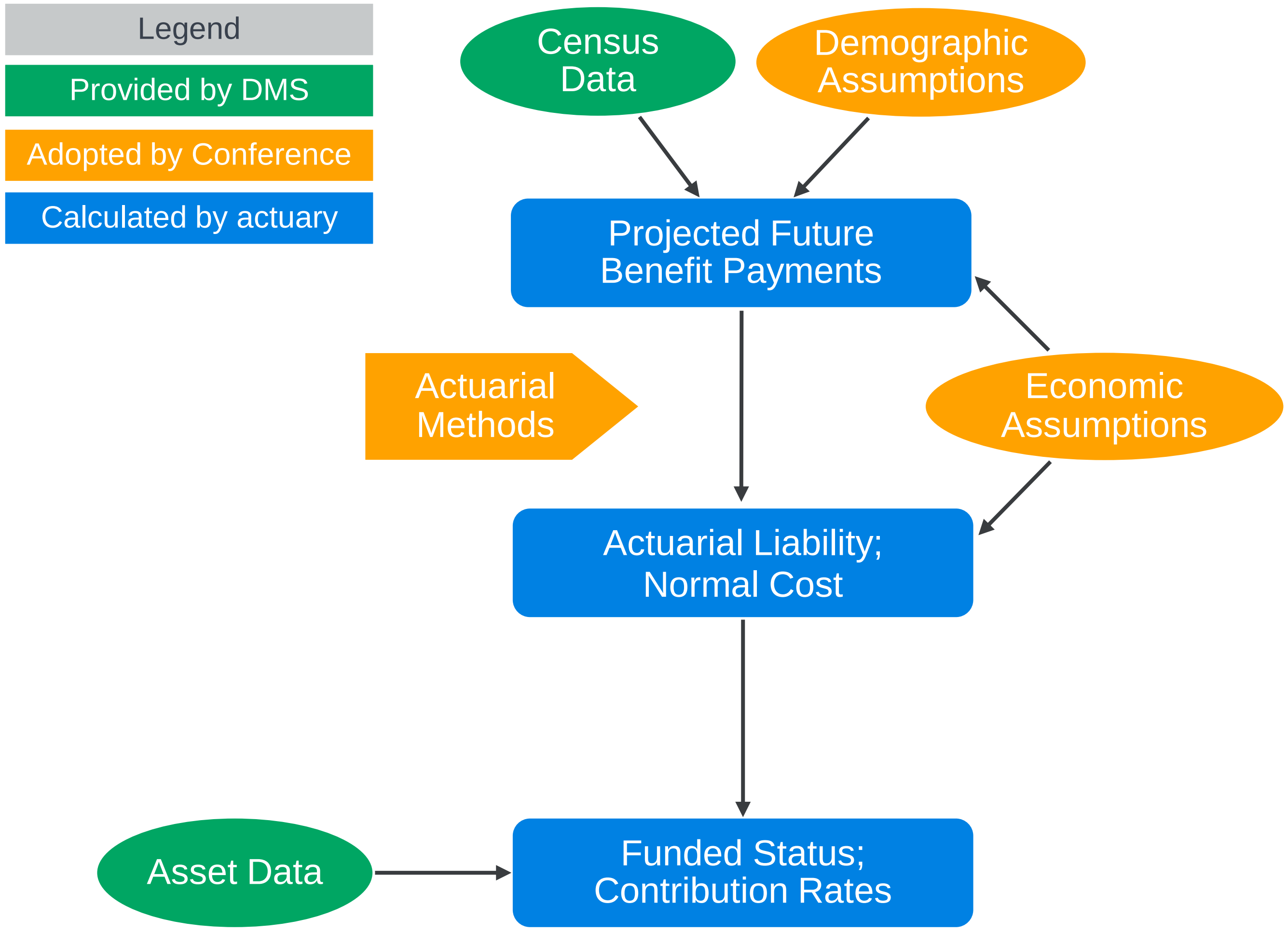
SEPTEMBER 13, 2022

Agenda

- Overview of Milliman's annual actuarial valuation work
- Calculation of blended actuarially determined contribution (ADC) rates for employers
- Investment return and inflation assumptions for the actuarial valuation

Actuarial Valuation Process

- Demographic assumptions, census data, and benefit provisions determine projected annual future benefit payments
- Methods and economic assumptions affect funded status and contribution rates calculations
- Assumption Conference Meeting: Discuss preliminary actuarial valuation results, select assumptions and methods for use in annual system funding actuarial valuation
- By December 1: Finalize actuarial valuation, including actuarially determined contribution (ADC) rates



Overview of Two Actuarial Valuations Conducted Annually

Two FRS Pension Plan actuarial valuations are conducted annually in parallel to:

- Calculate funded status and develop actuarially calculated contribution rates (funding valuation)
- Satisfy GASB financial reporting requirements (accounting valuation)

Data

Assumptions

Methods

Provisions

Projected benefit payments

Funded status

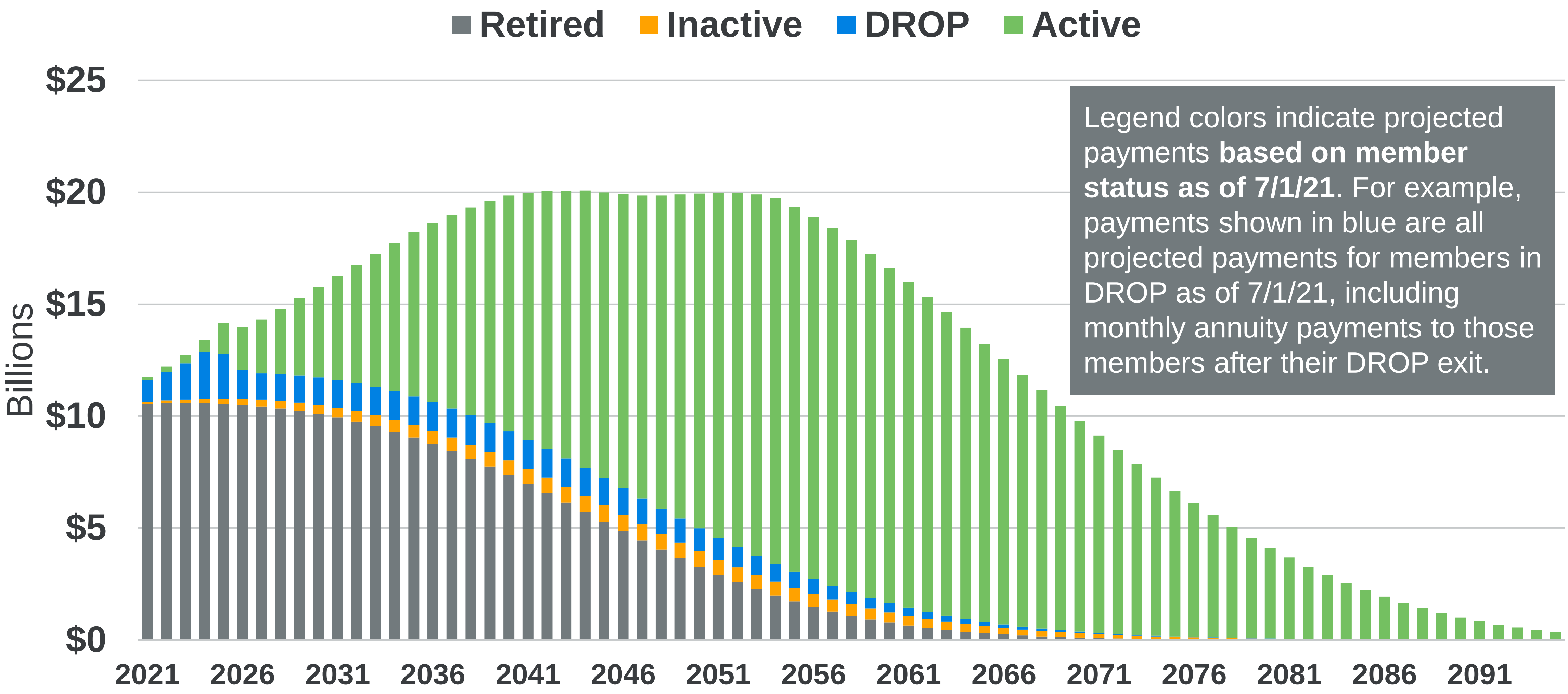
Actuarially determined contribution (ADC) rates

GASB financial reporting

Projected Benefit Payments

- Projected benefit payments are calculated annually using:
  - Active and retiree census data provided annually by the DMS Division of Retirement
  - Demographic assumptions
    - Life expectancy (i.e., mortality)
    - Likelihood and timing of immediate unreduced retirement or DROP entry
    - Likelihood of termination of employment prior to unreduced retirement eligibility
    - Annual salary increase assumption for individual members
    - Incidence of disability
- Demographic assumptions are typically formally reviewed in detail every five years as part of an **actuarial experience study** (last experience study review was in 2019)

Projected Pension Plan Benefit Payments – 2021 Valuation



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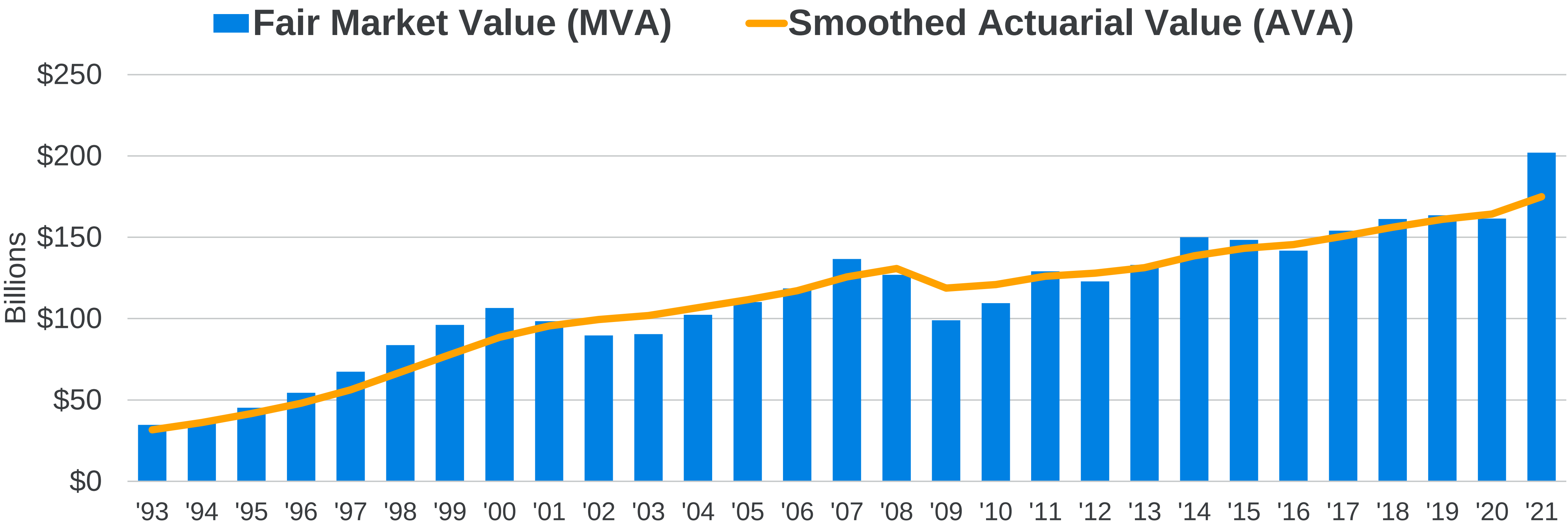
Calculation of Actuarial Valuation Results

- Projected year-by-year benefit payments are converted to a present value projected cost of total benefits for current system members using the **investment return assumption** as the discount rate
  - The present value is allocated between past (**Actuarial Liability**) and projected future service (**Normal Cost**) via the **actuarial cost allocation method**
- This will establish the “2022 Preliminary” funding valuation results using:
  - Actual 2021-22 investment returns, followed by the application of statutory asset smoothing
  - Member demographic census data as of July 2022
  - Methods and assumptions as adopted by the 2021 FRS Actuarial Assumption Conference, based in part on the 2019 Experience Study
    - An experience study is conducted every five years

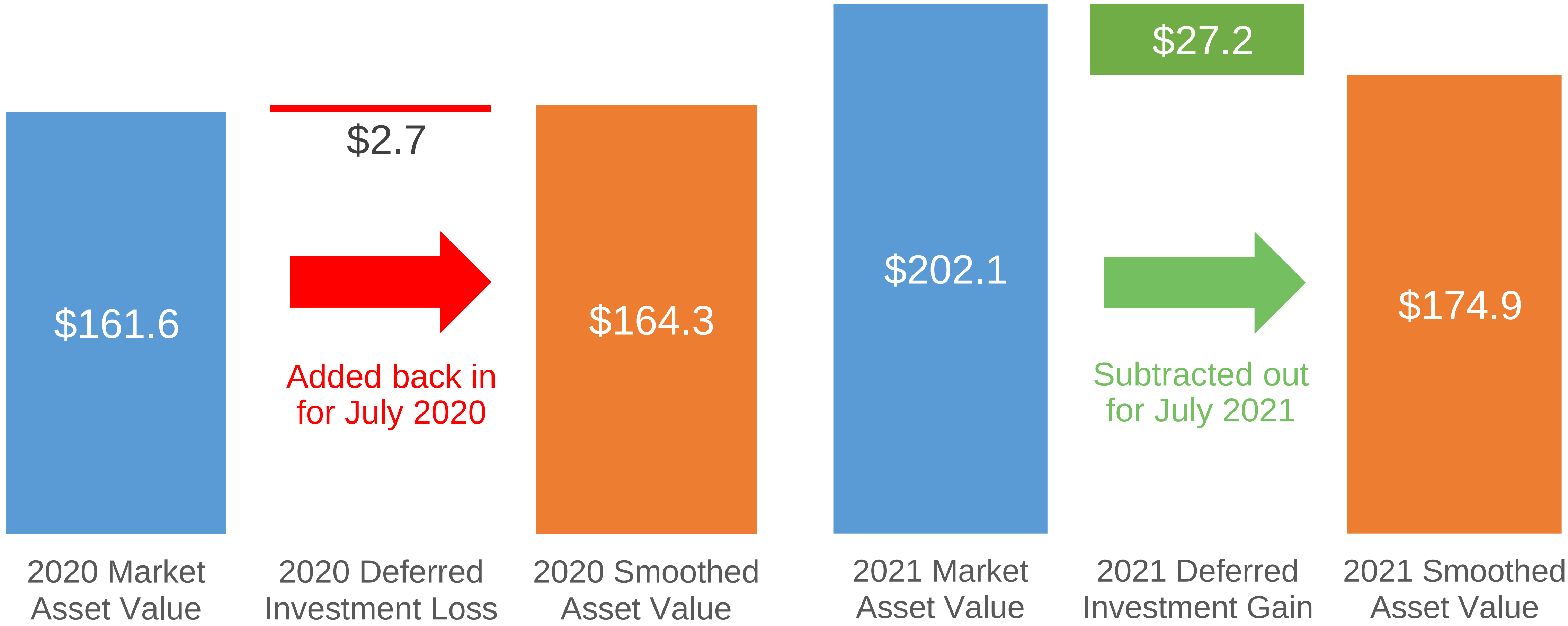
Market Value and Actuarial Value of Assets



- Market value of assets (MVA) was **$27.2 billion above** the smoothed Actuarial Value of Assets (AVA) at July 2021. That **deferred investment gain** will serve as a buffer to either avoid or significantly **mitigate contribution rate increases for the 2023-2024 plan year** due to 2021-2022 plan year investment performance. The 2022 valuation will calculate 2023-2024 actuarially determined contribution rates.

Fair Market and Smoothed Asset Measures for 2020 & 2021

(Amounts in billions)



- The **smoothed asset value** is used to set actuarially determined contribution (ADC) rates

Actuarially Determined Contribution (ADC) Rate Components

- Actuarially determined contribution rates have two components:
  - **Normal Cost Rate**
    - Cost assigned by the allocation method to benefits earned in the current year
  - **Unfunded Actuarial Liability (UAL) Rate**
    - Rate calculated to amortize UAL in a systematic manner over a specified time period if future experience follows assumptions
- To calculate the UAL Rate, an additional assumption and an additional method are needed
  - For amortizations calculated as a level percentage of projected payroll, the system's **general wage increase** assumption affects the rate
  - In addition, the length of the **amortization period** affects the rate

Other Key Actuarial Methods

- **20-year amortization** of unfunded actuarial liability (UAL) over a closed period, as a level percent of projected payroll, of previously unanticipated UAL changes arising since the prior actuarial valuation
  - First adopted in 2021
    - When adopted in 2021, all tranches with remaining amortization periods of 20+ years were shortened to a remaining amortization period of 20 years
  - This approach avoids periods of net negative amortization for each tranche of the UAL rate calculation structure
- Individual **Entry Age Normal** (Individual EAN) actuarial cost allocation method
  - First adopted in 2019
  - This method sets the normal cost rate as the theoretical level percent of payroll contribution needed during each member's full career to fully fund that member's projected cost of total benefits if experience matches all assumptions. As such, Tier I members have higher normal cost rates than Tier II members.
  - This cost allocation method is mandated for GASB financial reporting calculations

Pension Plan UAL and Funded Status at Last Two Valuations

	July 2020 Final (7.0% return assumption)	July 2021 Final (6.8% return assumption)
Actuarial Liability (AL)	$ 200.3	$ 209.6
Actuarial Value of Assets (AVA)	164.3	174.9
Unfunded Actuarial Liability (UAL)	**$ 36.0**	**$ 34.7**
Funded Status	**82.0%**	**83.4%**

(Amounts in $ billions)

- On a market value of assets basis, July 2021 unfunded liability was **$2.7 billion** and funded status was **98.6%**
- The Market Value of Assets was **$27.2 billion above AVA** as of July 2021. In response to actual 2021-2022 investment performance, that **deferred July 2021 investment gain** will partially or fully mitigate any potential:
  - UAL increase as of July 2022
  - Funded status decrease as of July 2022
  - Employer contribution rate increases for the 2023-2024 plan year (those rates are set by the 2022 valuation)

Calculating Blended Proposed Statutory Contribution Rates

Pension Plan-Specific Cost Rates
(Vary annually due to returns, assumptions, methods)

Payroll-weighted blending of plan-specific cost rates

Blended Proposed Statutory Employer Contribution Rates
(Calculated annually; charged on all payroll; differ by membership class but are uniform for both plans)

Investment Plan-Specific Cost Rates
(Set by statute; more stable year to year)

Blended Proposed Statutory Rates at 6.8% Assumed Return

- Pension Plan-specific (PP) contribution rates are blended with Investment Plan-specific (IP) contribution rates to create blended PP/IP proposed statutory employer rates
- Statutory Investment Plan rates increased by 3% of pay due to legislation enacted in 2022

Payroll-Weighted Average of Contribution Rates Across All Membership Classes	Final 2022-23 Rates (July 2021 Valuation; 6.80% Return Assumption)		
	Normal Cost Rate	UAL Rate	Total Rate
FRS Pension Plan (PP) composite employer rate	7.77%	7.33%	15.10%
FRS Investment Plan (IP) composite employer rate	7.64%	0.00%	7.64%
Blended PP / IP composite employer rate	**7.74%**	**5.80%**	**13.54%**
Employee contribution rate			3.00%
Composite blended employer plus employee rate			16.54%

2021 Outlooks Presented at 2021 Assumption Conference

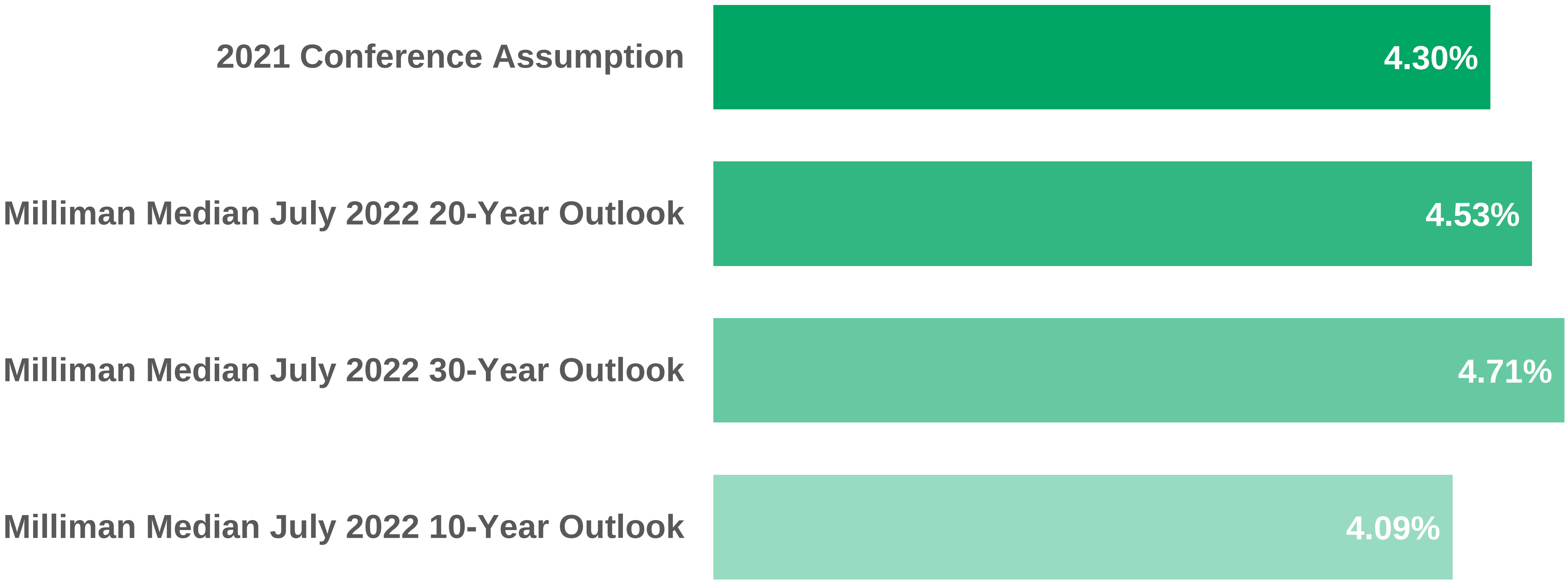
- Aon's "SBA Approach" outlook model from its August 2021 asset-liability study that blends the global equity risk premiums of three large investment consultancies: **6.13%** median return
  - Reflected Aon's outlook for inflation of 2.1% as of August 2021
  - Inferred: Aon median real (in excess of inflation) return outlook of **3.95%** as of August 2021
- Milliman 30-year outlook model of **6.67%** median return as of July 2021
  - Used the Conference's most recently adopted inflation assumption of **2.4%**
  - Inferred: Milliman 30-year median real return outlook of **4.17%** as of July 2021
    - The default inflation assumption in Milliman's 30-year outlook model at that time was 2.3%

Components of 2021 Conference's Return Assumption

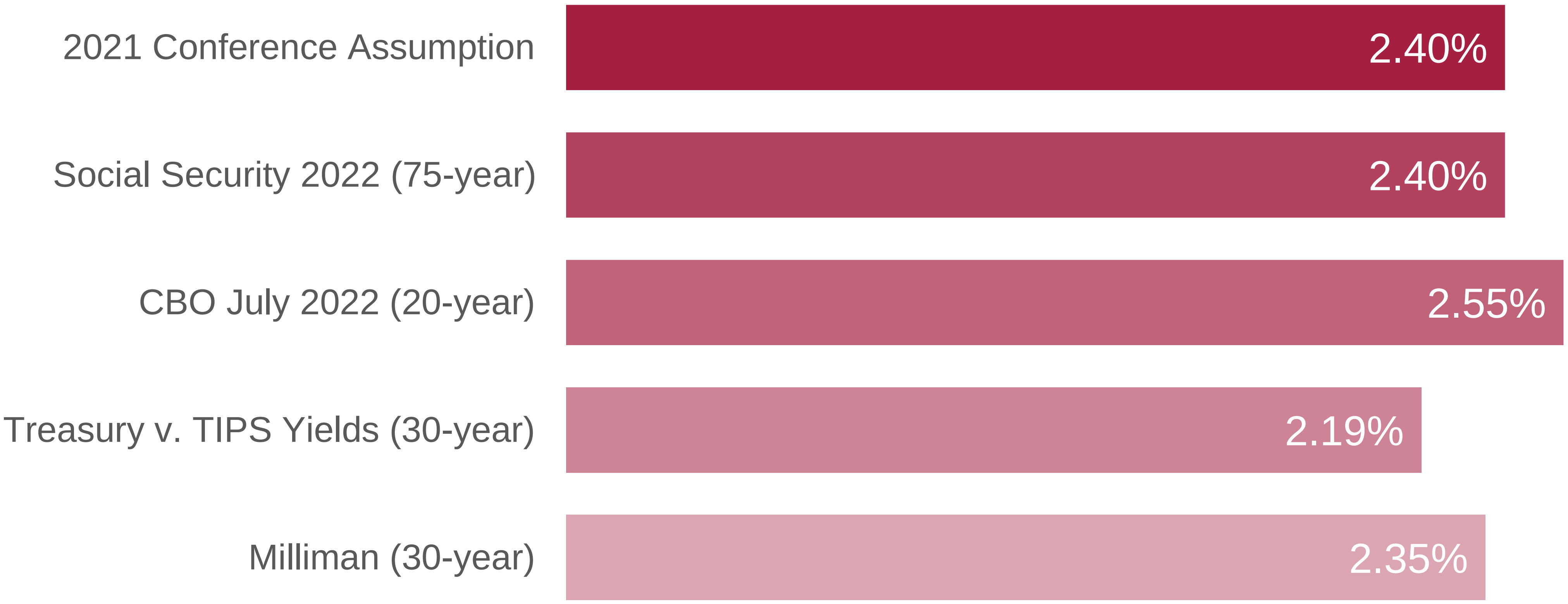
- The 2021 Conference selected inflation (2.4%) and investment return (6.8%) assumptions
- From that, the 2021 Conference's implied real return assumption can be inferred for the governing mathematical formula:

$$(1 + \text{Investment Return}) = (1 + \text{Inflation}) \times (1 + \text{Real Return})$$

Real Return Assumption – Includes July 2022 Outlooks



Inflation Assumption - Includes July 2022 Outlooks



What Are FRS's Jumbo Peer Systems Doing?

Assumptions in 2010

Current Assumptions

Source: NASRA Public Fund Survey (July 2022)

Appendix

Asset Smoothing

- Contribution rates established annually based on the reported unfunded actuarial liability (UAL)
  - UAL compares Actuarial Liability against a smoothed asset measure (AVA)
- The Actuarial Value of Assets (AVA) measure used by FRS to calculate UAL is specified by statute, and employs an "asset smoothing" technique
  - The mandated method annually recognizes 20% of investment return deviations from assumption
- The statutory calculation approach includes a "corridor" to ensure smoothed assets vary no more than 20% from fair market value
- The objective of asset smoothing is to keep long-term contribution levels appropriately linked to actual investment performance, and to have year-to-year contribution rate changes be less volatile and more predictable
- Five-year smoothing method recognizes heavy losses gradually following times of unfavorable asset performance
- The smoothing is symmetrical, so that any large investment gains are also not "felt" all at once, but instead serve as a cushion against potential future unfavorable asset performance

Certification

This presentation provides a discussion of actuarial assumptions and methods, along with summarizing key results of an actuarial valuation of the Florida Retirement System (“FRS” or “the System”) as of July 1, 2021. The reliance document is Milliman’s formal July 1, 2021 Actuarial Valuation Report, which is incorporated into this presentation by reference.

In preparing this presentation, we relied, without audit, on information (some oral and some in writing) supplied by Division of Retirement (“Division”) staff. This information includes, but is not limited to, statutory provisions, employee data, and financial information. We found this information to be reasonably consistent and comparable with information used for other purposes. The valuation results depend on the integrity of this information. If any of this information is inaccurate or incomplete our results may be different and our calculations may need to be revised.

Summarized results were determined on the basis of actuarial assumptions and methods as adopted by the 2021 FRS Actuarial Assumption Conference. At the time of their review and adoption, in my professional opinion those assumptions were individually reasonable (taking into account the experience of the System and reasonable expectations); and offered a reasonable estimate of anticipated future experience affecting the System.

Future actuarial measurements may differ significantly from the current measurements presented in this presentation due to such factors as the following: plan experience differing from that anticipated by the economic or demographic assumptions; changes in economic or demographic assumptions; increases or decreases expected as part of the natural operation of the methodology used for these measurements (such as the end of an amortization period or additional cost or contribution requirements based on the plan's funded status); and changes in plan provisions or applicable law. Due to the limited scope of our assignment, we did not perform an analysis of the potential range of future measurements. The FRS Actuarial Assumption Conference has the final decision regarding the selection of assumptions for System funding calculations.

Certification

Computations presented in this presentation are for purposes of summarizing System funded status as of a specific valuation date and actuarially determined contribution rates as of a specific plan year. Computations prepared for other purposes may differ. The calculations in the presentation have been made on a basis consistent with our understanding of the System's funding requirements and goals. The calculations in this presentation have been made on a basis consistent with our understanding of the plan provisions described in the appendix of our formal actuarial valuation report as of July 1, 2021. Determinations for purposes other than meeting these requirements may be significantly different from the results contained in this presentation. Accordingly, additional determinations may be needed for other purposes.

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On the basis of the foregoing, I hereby certify that, to the best of my knowledge and belief, this presentation has been prepared in accordance with generally recognized and accepted actuarial principles and practices. I am a member of the American Academy of Actuaries and meet the Qualification Standards to render the actuarial opinion contained herein.

Actuarial Basis

Data

We have based our calculations on demographic member census data as of July 1, 2021 as supplied by the Division of Retirement ("Division"). That data is summarized in our formal actuarial valuation report for funding purposes as of July 1, 2021. Assets as of June 30, 2021, were based on values provided by the Division.

Assumptions

Assumptions are as detailed in the July 1, 2021 Actuarial Valuation Report for funding purposes

Methods / Policies

Actuarial Cost Method: Individual Entry Age Normal, as initially adopted by the 2019 FRS Actuarial Assumption Conference and most recently adopted by the 2021 FRS Actuarial Assumption Conference

UAL Amortization: Newly arising UAL each plan year is amortized as a level percentage of projected payroll over a closed 20-year period, and all amortization bases with remaining amortization periods longer than 20 years were reamortized to a remaining amortization period of 20 years as part of the 2021 actuarial valuation methodology.

Actuarial Value of Assets: A smoothed asset value specified by Florida Statutes that annually recognizes 20% of deviations in investment performance from the long-term assumption systematically over time. The statutory calculation approach includes a "corridor" to ensure smoothed assets vary no more than 20% from fair market value.

Provisions

Pension Plan provisions valued are as summarized in the July 1, 2021 Actuarial Valuation Report for system funding purposes.

Disclaimer

This presentation discusses actuarial assumptions prior to the 2022 FRS Actuarial Assumption Conference or completion of the July 1, 2022 Actuarial Valuation Report. Because these are preliminary informational discussions, Milliman does not make any representation or warranty regarding the contents of the presentation. Milliman advises any reader not to take any action in reliance on anything contained in this presentation. All results from this presentation are subject to revision or correction prior to the release of the final July 1, 2022 Actuarial Valuation Report, and such changes or corrections may be material.