



Investment Policy Statement (IPS)

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PURPOSE

The purpose of this Investment Policy Statement (IPS) is to set forth the investment, beliefs, goals & objectives, constraints and establish the guidelines for the development and implementation of the ASRS strategic and tactical asset allocation policy.

The ASRS recognizes that a well-articulated investment policy is important to the long-term success of achieving the ASRS investment objectives. As such, the ASRS has developed this IPS with the following goals in mind:

- To clearly and explicitly establish the objectives and parameters that govern the investments of the ASRS' assets;
- To establish a target asset allocation that is long-term in nature but dynamic to allow the ASRS to take advantage of market opportunities which is expected to achieve its investment rate of return objectives;
- To help protect the financial health of the ASRS through the implementation of this policy statement;
- To establish a framework for monitoring investment activity, and promote effective communication between the Board, Staff, and other involved parties.

INVESTMENT GOALS & OBJECTIVES

The ASRS has established a set of Investment Goals and Objectives that describe the macro-level expected outcomes that the ASRS seeks to achieve.

GOALS:

1. Maximizes Fund Rates of Return for Acceptable Levels of Fund Risk.

This goal has an asset oriented focus. Here, the returns generated or earned by the investment Fund should be considered in conjunction with the risk or volatility that the Fund will support, where risk is essentially the possibility of a change in the value of the ASRS Fund attributed to changes in economic conditions, interest rates, dividend policy and other variables in any given year.

2. Achieves 75th Percentile Rates of Return Compared to Peers.

This goal compares the performance of ASRS' aggregate investment portfolio to other public pension funds with over \$1 billion of assets under management. Though ASRS' asset allocation policy will differ from other public pension funds given its risk return profile and investment beliefs, it is common practice to compare returns between comparable public pension funds.

3. Achieves Long-term Fund Rates of Return Equal to or Greater than the Actuarial Assumed Interest Rate.

This goal has a liability oriented focus. Here, the returns generated or earned by the investment Fund should be considered in conjunction with the actuarial assumed interest rate, where this interest rate is essentially an estimate of the long-term average of the combination of expected inflation rates and expected real rates of return. The actuarial assumed interest rate is also the discount rate used to calculate the present value of liabilities.

4. Achieves Long-term Economic and Actuarial Funded Statuses of 100 percent.

This goal has a funded-status oriented focus. Here, the structuring of the investment Fund should be considered in conjunction with the level, volatility, and direction of the economic and actuarial funded status of the Fund. Although both actuarial and economic funded status levels are valuable for discussion and decision-making, economic-funded status is more reflective of financial condition and long-term policy implications. Economic-funded status is defined as the actual or market value of investments as a percentage of the actual or market value of liabilities and excludes such accounting constructs as smoothing and amortization.

5. Mitigates Contribution Rate Volatility.

This goal has a contribution-rate orientation focus. Here, the structuring of the investment Fund should be considered in conjunction with the level, volatility, and direction of the contribution rates that will need to be paid by both employees and employers in the Fund. In general, lower levels and volatility in contribution rates are preferred.

Collectively, the above goals¹ incorporate the following elements that are important for a fund's comprehensive investment structure:

1. Complementary use of absolute and relative rates-of-return perspectives.
2. Complementary use of asset-only and asset-liability perspectives.
3. Complementary use of economic and actuarial perspectives.

OBJECTIVES:

Total Fund Performance

1. Develop, approve and implement an Asset Allocation program that is expected to achieve a 20-year rolling average annual rate of return at or above the actuarial assumed rate.
2. Achieve 1-year and 3-year rolling annual total fund net rates of return equal to or greater than the return of the ASRS asset allocation policy (SAAP) Benchmark.

Asset Class Performance

3. Achieve 1-year and 3-year rolling annual net rates of return for ASRS strategic asset classes that are equal to or greater than their respective strategic asset class benchmarks.

Cash Flow Performance

4. Ensure sufficient monies are available to meet pension benefits, health insurance, member refunds, administrative payments, and other cash-flow requirements.

Refer to the ASRS Strategic Plan.

¹ Though important, Safety of Principal is not denoted as a separate goal, given its incorporation in other goals and the general acceptability of Modern Portfolio Theory. Liquidity of the Fund is also not denoted separately as it is a normal investment operating function and acts more as a constraint than an investment goal.

INVESTMENT BELIEFS

Frame of Reference

The following Investment Beliefs have been established to ensure the development of congruent and synergistic investment strategies, and to ensure the effective and efficient allocation of resources. These Investment Beliefs determine the general paradigm within which investment strategies are developed, investment ideas are reviewed, and investment decisions are implemented.

Modifications to these Investment Beliefs will occur if experiential, academic, conceptual, and/or practical perspectives suggest that a superior belief system exists.

Investment Beliefs

1. **Asset Class Decisions are Key:** In general, decisions with respect to which asset classes and sub-asset classes to invest in, and the allocations to these asset classes and sub-asset classes, have a greater impact on total fund investment returns than decisions in which specific securities to invest.
2. **Theories and Concepts Must be Sound:** Over longer periods of time, investment outcomes (e.g. rates of return, volatility) conform to logical theories and concepts. Significant deviations (e.g. internet bubble, pre-subprime erosion of risk premiums) from theoretically and conceptually sound investment constructs are usually not sustainable and are typically self-reverting.
3. **House Capital Market Views Are Imperative:** The development and articulation of sound *House Views* (e.g. views on interest rates, corporate spreads, asset valuations) will ensure consistency among investment decisions, clarity of investment direction, baselines for debates, and conformity of understanding.
4. **Investment Strategies Must be Forward Looking:** Investment strategies will be developed based on forward-looking insights, rather than simply on successful strategies of the past.

Asset class valuations and security valuations are significantly affected by endogenous outcomes (e.g. earnings, GDP growth rates, competitive barriers) that are probabilistic, and these outcomes are typically well analyzed by the investment industry.

Asset class valuations and security valuations are also significantly affected by random outcomes (e.g. natural disasters, certain supply & demand shocks) that are virtually unpredictable, and these outcomes are typically not analyzed directly by the investment industry.

Asset class valuations and security valuations are also significantly affected by exogenous outcomes (e.g. foreign policies, global cultural interactions) that can possibly be modeled, and these outcomes are typically not analyzed by the investment industry.

5. **Public Markets are Generally Informationally Efficient:**

Asset Class Valuations

Asset class valuations (e.g. stock market levels versus interest rate levels) are often in equilibrium with one another, but anomalous situations do occur which result in disequilibria between asset class valuations. These disequilibria offer valuable investment opportunities which we will proactively seek and capitalize on.

Security Valuations

Security valuations (e.g. IBM versus Cisco) are often in equilibrium with one another, but private markets and anomalous public market situations do occur which result in disequilibria between

security valuations. These disequilibria offer valuable investment opportunities which we will pro-actively seek and capitalize on.

The extent of informational efficiency varies across asset classes.

Private markets offer significant opportunities for asset mispricing and manager excellence which we will pro-actively seek and capitalize on.

6. **Market Frictions are Highly Relevant:** Market frictions (e.g. management fees, carried interest, revenue sharing, expenses, costs, transaction spreads, market impacts, taxes, commissions) can be significantly detrimental to investment performance and as a result transactions will be initiated only to the extent there is a strong level of conviction that they will result in increased investment returns or decreased risks net of all market frictions.

7. **Internal Investment Professionals are the Foundation of a Successful Investment Program:** In-house investment management capability engaged in direct portfolio management results in superior investment decision-making.

In-house investment management pro-actively monitors capital markets in order to determine mispricing opportunities & allocate capital and will successfully increase risk adjusted returns.

In-house investment professionals are more closely aligned with, and have a better understanding of, the purpose and risk & reward tolerance of the ASRS than external parties.

In-house investment professionals will impact direct investment negotiations, better align economic interests, and influence investment industry conditions (e.g. private deal structures, fee levels, introduction of innovative products & strategies).

8. **External Investment Management is Beneficial:** External investment organizations can often offer greater expertise, resources, and/or flexibility than internal personnel for various investment strategies.

9. **Investment Consultants:** Investment consultants will be effectively utilized in the following four general categories, and utilization of consultants will be focused on situations where there is a demonstrable need in at least one of the four areas:

- Independence: When oversight or controls should be enhanced
- Perspective: When internal perspectives are not broad enough
- Special Skills: When internal skills are not deep enough
- Resource Allocation: When IMD's resources can be enhanced.

10. **Trustee Expertise:** Trustees often have expertise in various areas of investment management, and this expertise should be utilized while ensuring separation between Board oversight and staff management.

Refer to IMD Investment Beliefs.

INVESTMENT CONSIDERATIONS

1. Arizona State Statutes

ASRS investments may be limited by Arizona Revised Statutes. To ensure compliance, checks and balances have been established which both reside within and external to the ASRS Investment Management Division. Reporting processes are implemented and, as appropriate, disseminated to the Director, Board Committees, and Board.

2. Time Horizon

The ASRS is managed on a going-concern basis. The following timeframes are utilized for portfolio construction decisions and contribution rate determination:

Portfolio Construction Decisions:

*Strategic asset allocations focus on medium term (3-5 years) capital market expectations, subject to the constraint of meeting the long-term assumed actuarial rate based on long-term (30 year) Capital Market Assumptions.

*Tactical deviation decisions are based on shorter term (less than 3-5years) capital market expectations.

Contribution Rate Determination:

*Liabilities are discounted based upon long-term (30 year) capital market expectations.

*Contribution rates are set based upon longer-term (currently 10 year) investment valuation smoothing periods, and longer-term (currently 30 years 'closed') deficit/surplus amortization periods.

The impact on contribution rates of any realized short-term volatility of returns will be mitigated through actuarial time-series diversification (smoothing & amortizing), rather than by lowering short-term expected return volatility at the expense of lower expected returns (and therefore higher aggregate contribution rates).

Contribution rates are the *realized cash flow* financial outputs, and based upon the above, they are relatively insensitive to shorter-term portfolio volatilities. This enables the ASRS to combine the traditional cross-sectional diversification benefits of a large employee pooled plan with time-series diversification benefits of a multi-generational plan, resulting in higher expected short-term return volatility which enables higher expected long-term returns.

3. Liquidity and Cash-Flow

The ASRS maintains a long-term investment horizon; however, managing short-term liquidity and cash-flow is paramount to ensure that pension obligations, health insurance, member refunds, administrative payments and other cash-flow requirements are made. This requires Investment Management and Financial Services Divisions to anticipate internal and external cash-flow needs, and to efficiently manage transactions in order to mitigate the costs of ensuring adequate liquidity.

RISK MANAGEMENT, MONITORING AND REPORTING

The ASRS applies a risk management framework for identifying, managing and reporting on ASRS Investments. These include, but are not limited to, operational risk (e.g., internal and external portfolio(s) guideline compliance, cash management, securities lending, IMD business continuity, etc.) and investment risk (e.g., deviations from target allocation, manager oversight, performance measurement/attribution, ability to achieve investment objectives, etc.).

In conjunction with the agency risk management program, appropriate steps are taken to provide reasonable assurance to Executive Management and the Board that investment management programs are designed, implemented and maintained to achieve investment goals and objectives as referenced in the ASRS Strategic Plan.

Responsibilities reside with the ASRS investment staff, custody bank, general consultant, project consultants, investment managers, and ASRS Internal Audit.

Reporting periodicity and the level of investment information dissemination vary depending upon target audience. Daily report generation and investment monitoring reside with the custody bank and IMD/Internal Audit; Quarterly/Annual aggregate, portfolio positions, and asset class performance are reported to the IC/Board.

The use of leverage is defined in the applicable ASRS investment documentation. For separate account public market investments (internally or externally managed portfolios), authorization to permit or not permit leverage is explicitly denoted in the managers' Letter of Direction and Clarification; monitoring is conducted by IMD and ASRS consultants. For commingled public and private markets investments, authorization to permit or not permit leverage is explicitly denoted in the managers' contracts or partner agreements; monitoring is conducted by the designated partnership agreement external auditor and, as applicable, reviewed at limited partnership advisory meetings.

The use of derivatives is defined in the applicable ASRS investment documentation. For separate account public market investments (internally or externally managed portfolios), authorization to permit or not permit derivatives is explicitly denoted in the managers' Letter of Direction and Clarification; monitoring is conducted by IMD and ASRS consultants. For commingled public and private markets investments, authorization to permit or not permit derivatives is explicitly denoted in the managers' contracts or partner agreements; monitoring is conducted by the designated partnership agreement external auditor and, as applicable, reviewed at limited partnership advisory meetings.

The management of currency exposure is defined in the applicable ASRS investment documentation. For separate account public market investments (internally or externally managed portfolios), authorization to permit or not permit currency hedging is explicitly denoted in the managers' Letter of Direction and Clarification; monitoring is conducted by IMD and ASRS consultants. For commingled public and private markets investments, authorization to permit or not permit currency hedging is explicitly denoted in the managers' contracts or partner agreements; monitoring is conducted by the designated partnership agreement external auditor and, as applicable, reviewed at limited partnership advisory meetings.

ASSET ALLOCATION

As part of strategic asset allocation development, the ASRS asset mix will reflect investments in strategic and tactical asset classes and strategies whose collective risk/return profile are anticipated to achieve its long-term investment rate of return goals and objectives.

The ASRS employs a dynamic strategic asset allocation study approach whose initiation and periodicity will primarily be a function of market dynamics. The strategic asset allocation is used to determine the

long-term policy asset weights. Investment opportunities and asset classes are constantly evolving and developing, such that they may become attractive and suitable for institutional investment portfolios before the next scheduled policy review. Therefore, asset allocation reviews in addition to periodic studies are conducted as warranted or triennially, whichever is shorter.

The strategic asset allocation study may include, but not be limited to, the following:

- Discussion and analysis of existing and evolving asset classes and investment strategies.
- Evaluation of expected sources of investment returns, risk and diversification (quantitatively/qualitatively).
- Reviewing investment industry developments (academic and pragmatic).
- Utilization of quantitative tools (e.g., efficient frontier mean-variance optimization, risk budgeting) and evaluation of multiple scenarios.
- Reviewing and engaging discussions regarding capital market assumptions.
- Reviewing asset allocation policies from other public and non-public entities.

Refer to the ASRS Strategic Asset Allocation Policy (SAAP) Schematic

REBALANCING

The ASRS has established and maintains an asset class rebalancing policy(s) which encompasses the guidelines and processes for identifying and determining potential courses of action precipitated by the ASRS asset class over/under weight deviations relative to its broad strategic asset allocation policy (SAAP), ASRS cash-flow needs and/or to take tactical positions between and within SAAP asset classes.

The frequency and magnitude of portfolio rebalancing is determined by the Investment Rebalancing Committee consisting of the Director, CIO, and IMD Asset Class Portfolio Managers. The CIO reports asset class rebalancing activities to the Director and, through the Director, to the Investment Committee and full Board.

Refer to the Strategic Investment Policy – Rebalancing

VOTING OF PORTFOLIO PROXIES

The ASRS votes its ownership interest with an objective of maximizing the present value of its investment. Proxy voting for the ASRS internally-managed equity (“E”) portfolios and those assigned to external U.S. and non-U.S. equity managers shall not be influenced or directed by political or social prerogatives that may diminish or impair the economic value of an investment.

The ASRS currently engages Institutional Shareholder Services (ISS) and employs its research and voting guidelines for the voting of proxies for the “E” portfolios. This process is not applicable to ASRS externally-managed equity portfolios.

The ASRS external equity managers use their discretion to vote their portfolio proxies; voting records are monitored for consistency with both the individual external manager’s voting policy and the ISS proxy voting policy. External equity manager voting records found to be inconsistent with or different from the ISS proxy voting policy are researched and documented. IMD retains the right to direct external equity managers’ voting on any issue(s) if doing so is deemed beneficial to the Fund.

SECURITIES LITIGATION

The ASRS monitors and participates in securities litigations when appropriate to protect the ASRS interests. From time to time, class action lawsuits are brought against companies, their directors, and/or their officers, as well as third parties such as the companies' independent public accountants, for alleged violations of federal and state securities laws relating to various disclosure obligations and breaches of fiduciary or other duties. As a shareholder or bondholder, the ASRS may join or initiate a securities class action or pursue a private action when securities fraud and other acts of wrongdoing have taken place.

Monitoring and reporting is carried out by the ASRS contracted outside counsel who may make recommendations to the ASRS and depending on the merits of the recommendation are discussed by the Securities Litigations Oversight Committee (SLOC). In the event the SLOC recommends the ASRS consider pursuing lead plaintiff or private action, Board approval is required before such action can be taken.

Refer to the Strategic Investment Policy – Securities Litigation

SECURITIES LENDING

The ASRS is allowed to lend securities with either the custody bank or tri-party in a separate account or commingled security lending structure. The CIO and Director will determine the ASRS securities lending program parameters (risk profile, aggregate lending balance, types of securities on loan, collateral requirements, etc.). The ASRS securities lending program primarily focuses on identifying loan intrinsic value.

MANAGEMENT OF INVESTMENT MANAGEMENT FEES (COST)

The ASRS strives to maintain an efficient and relatively low aggregate investment management fee structure. The ASRS internally-manage public market portfolios are managed to provide beta-like market returns with low management fees (approx.. 1 bps); external public and private portfolios are anticipated to generally provide alpha, take active risk and enable the ASRS the ability to access market capital opportunities which may not be available through ASRS internal investment program.

To the extent possible, the ASRS negotiates and monitors investment fees for external public and private investment managers. For external public equity managers, securities-level transaction(s) cost analyses will be evaluated by IMD staff. Those managers whose transaction costs appear high relative to the market in which they trade or who use soft dollars may be subject to participation to the ASRS commission recapture program.

The ASRS IMD staff will oversee public manager portfolio transitions, e.g., securities from one public manager to another. These transactions may be executed on a security-level basis by either IMD staff or through an intermediary who may possess skills and/or can execute transactions on a more effective cost basis. Pre- and post-transaction cost analyses (commission, trading costs, market impact, etc.) are evaluated by the IMD staff.

ROLES & RESPONSIBILITIES

The ASRS Board governance structure provides the Investment Committee (IC) with general investment oversight responsibilities. In addition, the Directors Asset Class Committees implement Board policies and provide detail oversight of the ASRS investments. Specific duties of the IC and Asset Class Committees are outlined in the ASRS Board Governance Policy Handbook.

Refer to the ASRS Board Governance Policy Handbook