Nevada System of Higher Education

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Welcome to the Nevada System of Higher Education (NSHE) Investment Committee. We are very pleased to have you as part of the committee. Enclosed for your perusal are the following:

1. Investment Committee Orientation
    a. Mission Statement
    b. Investment Committee Membership
    c. Investment Committee Charter
    d. NSHE Finance and Administration Charter
2. Board Handbook Title 4, Chapter 10
    a. Section 5 - Endowment Fund – Statement of objectives and policies
    b. Section 6 - Operating Fund – Statement of objectives and policies
3. NSHE Operating Fund – Portfolio Estimates as of September 30, 2022
4. NSHE Endowment OCIO Update – September 30, 2022
5. Agenda of the Investment Committee on September 30, 2022
6. Agenda of the Investment Committee on March 25, 2022
7. Minutes of the Investment Committee of March 25, 2022
8. Articles on recent issues:
    a. Outsourcing Chief Investment Officer Services – A Guide to Best Practices
    b. Social-Equity-Investing
    c. The Value of ESG Data
    d. Racial Equity Investing

During the course of the year, there are usually at least two (2) Investment Committee meetings. We are looking forward to your participation and contribution.

If you have any questions or desire additional information, please feel free to call me at (775)784-3408.

Sincerely,

Andrew Clinger

Andrew Clinger
Chief Financial Officer
Nevada System of Higher Education

NSHE INVESTMENT COMMITTEE

Mission Statement

<u>Nevada System of Higher Education (NSHE) Mission Statement (Title 4, Chapter 1)</u>

The mission of the NSHE is to provide higher education to the citizens of the state at an excellent level of quality consistent with the state's resources. It accomplishes this mission by acquiring, transmitting, and preserving knowledge throughout the region, nation, and world. The System provides an educated and technically skilled citizenry for public service, economic growth and the general welfare contributes to an educated and trained workforce for industry and commerce, facilitates the individual quest for personal fulfillment, and engages in research that advances both theory and practice.

Sections 4 and 7 of Article 11 of the state constitution vests exclusive governance and administration of the System in the Board of Regents. With this constitutional authority, the Regents govern the System according to the following objectives:

a. To promote access to affordable public programs of higher education to all who can benefit from those programs.

b. To ensure that all activities demonstrate a continued quest for excellence, economy and the balancing of basic goals that the public interest requires.

c. To develop and support programs of instruction and complementary programs of basic and applied research, scholarship, and public service, which together contribute to the cultural, economic, and social development of Nevada and the nation.

To achieve these objectives, the Board of Regents seeks sufficient funding from the state and other sources to support programs of high quality. Further, it engages in appropriate planning activities to provide as many educational opportunities in as an effective, efficient and cost-effective manner as possible. To this end, it provides appropriate administration to ensure coordination and accountability and establishes an appropriate mission statement for each institution to minimize inefficiency. (B/R 9/09)

Investment Committee Membership

Voting Members:
- Amy J. Carvalho, Chair
- Laura E. Perkins, Vice Chair
- Susan Brager
- Michelee Cruz-Crawford
- Lois Tarkanian

Non-voting Members:
- Andrew Clinger, NSHE
- Mark Denzler, UNR Foundation
- Randy Garcia, UNLV Foundation

Investment Committee Charter (Title 1, Section 3)

The Investment Committee shall:

1. Formulate and recommend to the Board appropriate investment policies to govern the investment program of the NSHE;
2. Implement such recommendations deemed appropriate concerning investments of the endowment and operating pools consistent with the investment policies approved by the Board and with agreements, if any, with the investment managers of the NSHE; and

3. Review and evaluate reports from the investment managers of the NSHE concerning investments of the endowment and operating pools within the limits of the investment policies approved by the Board.

Finance and Administration Charter (Title 4, Chapter 9)

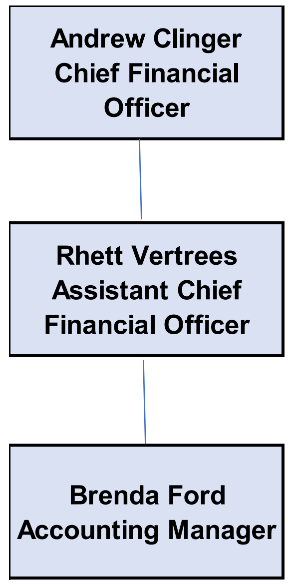
Objectives and Scope

1. Finance and Administration is a part of System Administration. The Chancellor, as Chief Executive Officer and Treasurer of the NSHE, has delegated certain of the financial duties of his or her office, as prescribed by the Board of Regents at Article VII, Section 3, of the By-Laws, to the Chief Financial Officer. The Senior Budget Officer and Director for Banking and Investments for the NSHE report to the Chief Financial Officer.
2. While the primary financial accounting and control functions are maintained at the institutional level, the System through the Chief Financial Officer is responsible for the accurate and timely development and reporting of financial information. The System will ensure the adherence of the institutions to the most recent national financial accounting standards and support continuing internal and external audit reviews of programs and funding. (B/R 10/96)

NSHE Director of Banking and Investments (Article VII, Section 3)

1. The Director of Banking and Investments for the NSHE is charged with the oversight of a system-wide cash management program and the Board of Regents' Permanent Endowment Funds. Included in the responsibilities are consolidation of the NSHE cash resources, bank relationships, and the placement of cash balances with investment managers in accordance with the Board of Regents operating fund investment policy. A primary responsibility of the Director of Banking and Investments is to preserve the liquidity and safeguard the principal of operating cash while enforcing the Board of Regents Operating Fund Investment Policies. The director will establish a process to assess the performance of investments relative to appropriate standards in both the operating and endowment funds.
2. Operating cash fund investment income is distributed to the institutions based on their respective daily cash balances. The Director of Banking and Investments therefore has responsibility for maintaining accountability for all cash balances so that each institution receives its share of the investment income. However, the institutions remain responsible for identifying their respective cash balances with the identifiable fund groups for the purpose of complying with State and federal Law requiring the distribution of investment income to these funds.
3. All investments of the Board of Regents are required to be held by one or more custodial banks. The Director of Banking and Investments reconciles and accounts for investment assets held by the Board of Regents' custodial bank that includes operating and endowment fund investments. Enforcement of donor restrictions is a matter of trust law and therefore permanent records of all Board of Regents Endowment Fund gifts must be preserved for posterity by the Office of the Director of Banking and Investment.
4. The Director of Banking and Investments assumes responsibility for custody of bond files and reporting restrictive covenants. The NSHE debt policy guidelines covering institutional loans, bonds, leases, and other debt will be administered through the Banking and Investment Office.
5. Title 4, Chapter 10, Sections 5 and 6 define the operating and endowment funds policies and procedures that are monitored by the director of Banking and Investments under the direction/oversight of the Investment Committee of the Board of Regents. (B/R 12/18)

Banking and Investing Organization Chart



Title 4, Chapter 10, Section 5.

Statement of Investment Objectives and Policies for the Endowment Fund

1. Introduction

    a. This statement of investment objectives and policies *(the "Guidelines")* governs the investment management of the Endowment Fund (the "Fund") of the NSHE *(the "System")*. These Guidelines relate to the Fund as a whole. The purpose of these Guidelines is to establish a clear understanding between all parties as to the objectives, investment policies, and goals of the Fund.

    b. The Regents are responsible for establishing the investment policies for the Fund. Accordingly, the Regents have promulgated these Guidelines pursuant to which they have established permitted asset classes, ranges, and distribution policy. The Regents will review and revise these Guidelines from time to time as appropriate.

    c. The Regents have delegated to the Investment Committee (the "Committee") the oversight of the Fund. The Chancellor and the Chief Financial Officer or designee shall serve as ex officio nonvoting members of the Committee. The Chair of each University Foundation Investment Committee or their designee shall serve as an ex officio nonvoting member of the Committee to provide advice for items involving the Endowment Fund. The Board Chair shall appoint a Chair of the Committee and may appoint one or more individuals with investment knowledge or expertise to serve as nonvoting members of the Committee. Minutes of each meeting of the Investment Committee shall be provided to the Regents for acceptance at their next meeting.

    d. The Regents have granted investment management authority of the Fund to an Outsourced Chief Investment Officer service providers (the "Fund Manager"). The Fund Manager will manage the Fund on a discretionary basis, in accordance with the guidelines listed below.

    e. No member of the Board of Regents and no voting or nonvoting member of the Committee shall accept or approve the acceptance by staff or any other person of any gift, travel expense, or other perquisite proffered by an investment manager, the value of which exceeds $25, without the advance approval of the Committee. Regents and employees of the System are also subject to the Code of Ethical Standards of the State of Nevada codified at NRS 281A.400-480 and promulgated to govern the conduct of public officers and employees, and Regents are also subject to certain additional conflict of interest provisions.

2. Objectives

    a. The long-term financial objectives of the Fund are to provide a relatively stable stream of spendable revenue that increases over time at least as fast as the general rate of inflation, as measured by the Consumer Price Index. In order to achieve this objective over the long term, the unit value of the Fund must also increase at least as fast as the rate of inflation.

b. The long-term objectives of the Fund should align with the following overall Nevada System of Higher Education goals.
   i. Increase participation in post-secondary education.
   ii. Increase student success.
   iii. Close the achievement gap among underserved student populations.
   iv. Collaboratively address the challenges of the workforce and industry education needs of Nevada.
   v. Co-develop solutions to the critical issues facing 21st century Nevada and raise the overall research profile.

c. Consistent with the exercise of fiscal prudence and to more fully reflect the highly diverse population of Nevada and the System's institutional values of inclusion, diversity, equity and access, the System seeks to achieve robust diversity within its investment program and through enhanced inclusive investment practices by its Fund Manager. Accordingly, the Fund Manager will make best efforts to hire diverse investment managers that are women, disadvantaged and minority owned.

d. To meet the long-term financial objectives, the long-term investment objective of the Fund is to achieve an average annual real total return at least equal to the contemplated distribution rate set forth in Section 3 below over ten-year periods, net of fees. It is recognized that the real return objective may be difficult to attain in every ten-year period, but the Fund will seek to achieve the objective over a series of ten-year periods. In order to achieve this objective over extended periods, endowments have had to exceed the objective substantially during some periods, such as the 1980s, in order to compensate for shortfalls during other periods, such as the 1970s. It is also recognized that given the static nature of this objective, it is not directly related to market performance; this reinforces the view that success or failure in achieving this objective should be evaluated in the context of the prevailing market environment and over the long term. The secondary objective of the fund is to outperform the Fund's custom Policy Benchmark (set forth in 5(b)(1) below) over rolling three-year periods.

e. The Fund will be invested in a manner that is expected to maximize the long-term total return with reasonable and acceptable levels of investment risk. Investment risk is defined in two ways: (1) the possibility of investments declining in value, and (2) the expected performance volatility of the investments in the portfolio. The Fund aims to achieve the stated return objective with a targeted annualized standard deviation similar to a simple blend of 70% global stocks (MSCI All Country World Index)/30% Bonds (Barclays Aggregate) portfolio over rolling five- to ten-year periods (or a full equity market cycle). Similar to the return objective, it is recognized that these objectives may be difficult to attain in every five-year period, but the Fund will seek to achieve these objectives over a series of five-year periods.

3. <u>Endowment Distribution Policy</u>

a. The distribution policy represents the guidelines and administration of the annual amount of funds which can be withdrawn from the fund and made available for distribution each year. The Regents are responsible for review of the distribution policy and approval of the distribution rate.

b. Total cumulative distributions from the Endowment Fund in each fiscal year shall not exceed 4.5 percent, subject to the restrictions herein, of the average market value for the 20 quarters ending December 31 immediately preceding such fiscal year. For example, distributions for Fiscal Year 2016-17 will be based on the fund's average ending quarterly market values for the 20 consecutive quarters ended December 31, 2015.
   i. Within the 4.5 percent distribution rate, up to 4.25 percent may be distributed for spending, and institutions with a management fee agreement may distribute a management fee of up to 1.5 percent.
   ii. Subject to Board of Regents' approval of an institution's request, an annual management fee of up to 1.5 percent of the institution's portion of the NSHE endowment pool, subject to the restrictions in Subsection i above, and calculated and distributed in the same manner as the spending, will be transmitted to that institution in consideration of additional foundation management, stewardship and development activities. Any transfer of such funds directly to the foundation for such activities is subject to the institution having an operating agreement in place between the institution and the foundation providing for adequate accounting and oversight of such funds consistent with Board of Regents' requirements specified in Title 4, Chapter 10, Section 10. After the management fee has been approved by the Board of Regents, the management fee may only be suspended or revoked by the Board of Regents:
      1) due to a material breach of the operating agreement,
      2) upon the declaration of a financial exigency by the Board of Regents, or
      3) without cause and effective June 30 upon written notice to the institution no later than March 1 of the preceding year.
   iii. Institutions will report annually the distribution allocation to the Chief Financial Officer.

c. No withdrawals from the Endowment Fund other than to fund distribution to campuses noted above and the System management fee noted in 3(f) below are permitted without the prior approval of the Regents.

d. Any withdrawal will be approved by the Chancellor, Chief Financial Officer or designee who will also specify the operating checking or money market accounts for receipt of such withdrawal. The Fund Manager will determine the source of these funds.

e. The spending policy shall be administered by the Chancellor, Chief Financial Officer or designee in accordance with the Uniform Prudent Management of Institutional Funds Act, adopted by the Regents in accordance with the authority granted to them by *Nevada Revised Statutes (NRS)* 396.380 and NRS 396.420 to control and invest the System's funds.

f. A .125 percent management fee will be imposed on the endowment pool for Board and System Administration expenses beginning July 1, 2001.

4. <u>Fund Composition and Asset Allocation</u>

a. The Fund will be managed according to Long-Term Policy asset allocation targets and ranges outlined as follows:

Allocation	Target	Policy Range
Growth	62%	50%-70%
Diversifiers	18%	5%-25%
Real Assets	10%	5%-20%
Fixed Income & Cash	10%	5%-25%

Due to the nature of the Investment Assets in which the Fund Manager invests the client portfolio, from time to time, it may be necessary for the portfolio to temporarily exceed or fall below the exposures set forth within the Policy Ranges/Investment Guidelines to facilitate efficient movement between paired transactions of Investment Assets. Such temporary deviations shall not constitute a breach of the Policy Ranges/Investment Guidelines provided that the exposure deviations are rectified within one business day.

b. Roles of Investments
   i. The purpose of Growth Assets (e.g. domestic stocks, foreign stocks, equity hedge funds, private equity, venture capital and growth-oriented debt) is to provide a stream of current income and appreciation of principal that more than offsets inflation. It is recognized that pursuit of this objective could entail the assumption of significant variability in price and returns. Return premiums may exist for investors who accept the illiquid and inefficient characteristics of the private equity market. For private investments, the performance objective is to achieve an internal rate of return over the life of the investment that is commensurate with public equity benchmarks plus a premium for illiquidity and risk.
   ii. The Diversifiers allocation (e.g. absolute return hedge funds, liquid alternatives, emerging markets debt and private diversifiers) is intended to provide equity-like returns with low equity correlation and lower levels of risk than Growth Assets. The investments are intended to help moderate the volatility of the Fund in order to provide additional year-to-year stability in Fund values.
   iii. The purpose of the Real Assets allocation (e.g. public and private investments in hard assets such as real estate, oil and gas, natural resources equities, and commodities) is to provide potential portfolio protection against the risk of unanticipated severe inflation, thus preserving the real value of the portfolio over the long term.
   iv. The Fixed Income allocation (e.g. domestic and foreign bonds and cash) is intended to: (1) provide some asset appreciation in periods of declining interest rates (especially in periods of significant equity price deflation) and (2) provide ready liquidity.

c. Tactical asset allocation decisions will be made from time to time by the Fund Manager within the parameters of this Investment Policy Statement. In addition, the Fund Manager may invest in opportunistic strategies that are generally shorter-term, tactical investments and can be allocated across the portfolio.

d. Rebalancing decisions will be made by the Fund Manager as part of ongoing monitoring of the Fund's actual asset allocation relative to the targets and ranges described in 4(a) above. For the purpose of gauging compliance with asset allocation policy ranges, Legacy Assets shall be attributed to the Fund Manager's portfolio. Rebalancing the actual allocation of the Fund to policy targets is useful for maintaining the risk profile adopted by the Committee. Contributions to and withdrawals from the Fund shall be allocated and managed in the discretion of the Fund Manager. In managing contributions to and withdrawals from the Fund, the Fund Manager will seek to adhere to the asset allocation policy and guidelines. In the event of cash contributions exceeding 10 percent of the Fund's total asset size, the Fund Manager will have six months to bring the Fund into compliance with asset allocation policy and guideline. In the event that the Fund otherwise falls outside of the ranges described in 4(a) above, the Fund Manager will communicate this breach to the Investment Committee and have a reasonable period of time to bring the Fund back into compliance with the applicable guidelines

5. Benchmarking

   a. The results of the Fund will be compared with the following benchmarks, to be evaluated over varying time horizons:
      i. Policy Benchmark – rolling three-year periods
      ii. Simple Benchmark (Risk Equivalent) – rolling five- to ten-year periods (full equity market cycle)
      iii. Long-Term Financial Objective – rolling ten-year periods

   b. Benchmark definitions:
      i. The Policy Benchmark represents a passive investment in the Long-Term Policy Target allocation described previously. The table below defines the asset class indices which are weighted by the Long-Term Target allocations at the beginning of each month. The Total Assets Policy Benchmark shall be computed as an asset-weighted blend of the respective Fund Manager Benchmarks listed below:

Allocation	Benchmark
Growth	MSCI All Country World Index (net)
Diversifiers	0.3 beta-adjusted MSCI ACWI (net)
Real Assets	Public Real Assets: One-third mix of: S&P Global Natural Resources Index/FTSE EPRA-NAREIT Developed RE Index/MSCI World Core Infrastructure Index Private Real Estate FTSE EPRA-NAREIT Developed RE Index Private Natural Resources: S&P Global Natural Resources Index
Fixed Income	Bloomberg Aggregate

Cash	90-day T-Bills

ii. The Simple (Risk Equivalent) Benchmark shall be a weighted blend of 70% MSCI All Country World Index/30% Bloomberg Barclays Aggregate Bond Index

iii. The Long-Term Objective is a static benchmark reflecting the System's long-term performance objective of total portfolio returns exceeding the sum of its distribution policy and inflation, as defined in Section 1 ("Objectives") above. Given that this static benchmark is not directly related to market performance, success or failure in achieving this goal should be evaluated in the context of the prevailing market environment over rolling ten-year periods.

6. Monitoring of Objectives and Results

a. The Fund will be monitored for consistency in each manager's investment philosophy, return relative to objectives, and investment risk. The Fund Manager will provide reports to the System as are necessary including statements detailing all activity in the accounts and quarterly performance reports. Not less than semiannually, the Fund Manager will provide to the System and the Committee Chair a written summary of overall portfolio performance and review of asset allocation in relation to the investment objectives.

b. All objectives and policies are in effect until modified by the Committee, who will review these at least annually.

c. If at any time the Fund Manager believes that any policy guideline inhibits investment performance, it is the Fund Manager's responsibility to clearly communicate this view to the Committee.

d. Effective December 1, 2016, the Fund Manager was granted full discretion to manage the Fund. Subsequent to the approval of these Guidelines of Investment Policies and Objectives, there was an implementation window of approximately four months to allow for the portfolio to transition from the pre-existing legacy investments into the Fund Manager-managed portfolio. For purposes of assessing Fund Manager performance, the System agrees that the official Fund Manager track record will begin April 1, 2017, after which the Fund Manager was responsible for the Fund's performance relative to the previously stated return and risk objectives.

7. Investment Restrictions

a. Liquidity.

i. The Fund Manager will opportunistically commit capital to illiquid private investment ("PI") strategies with the long-term target exposures in the table below, which will be built gradually over time given the nature of private investments. Private Investment structures may include fund interests acquired on a primary or secondary basis.

Long Term Targets:	
Private Growth	17%
Private Diversifiers	5%
Private Real Assets	8%
Total Private Investments	30%
Illiquidity Constraints:	
Total PI net asset value	39%
Total PI net asset value + unfunded commitments	54%

ii. The Fund Manager shall refrain from making new Private Investment commitments (1) while the Total Private Investment net asset value is greater than 1.3-times its long-term target or (2) while the Total Private Investment net asset value plus unfunded commitments is greater than 1.8-times its long-term target, both as detailed in the table above. For the purpose of gauging compliance with each of these liquidity constraints, Legacy Assets shall be attributed to the Fund Manager's portfolio.

iii. The illiquidity constraint defined above is meant to reflect the Committee's maximum tolerance for illiquidity but does not imply the intent to reach this limit. The guideline is meant to acknowledge the reality that private investment exposure could increase meaningfully beyond the target exposures in the event of severe market stress.

iv. Given the illiquid, long-term nature of Private Investment funds, the Fund Manager shall preview any planned Private Investment commitments with the System pursuant to a "negative consent" protocol, as follows:
   1. The Fund Manager shall send details of and rationale for the planned commitment to the NSHE Finance Department by email;
   2. The Finance Department shall have one week to raise questions, request a conference call to discuss the planned commitment, or instruct that a decision shall be deferred until the next regularly scheduled Committee meeting;
   3. Absent any questions or concerns raised by the Finance Department within one week of the proposal, the Fund Manager is authorized to move forward with the commitment.

b. Concentration
   i. Fund Concentration
      1. No single actively managed investment will be larger than 10% of assets.
      2. No single passively managed investment will be larger than 20% of assets.
   ii. Firm Concentration
      1. Exposure to one external investment management firm will be limited to 15% of assets.
      2. In circumstances where an external firm manages assets for the Fund on a solely passive basis, exposure to that firm will be limited to 25% of assets.

   iii. It is recognized that significant changes in investment market values could cause the portfolio to be positioned outside of these liquidity and concentration parameters. If this occurs, the Fund Manager will communicate this breach to the Investment Committee and will take action to reposition the portfolio consistent with these parameters as soon as reasonably practicable.
   iv. For the purpose of gauging compliance with these concentration limits, Legacy Assets shall be attributed to each Fund Manager's portfolio.

c. Derivatives
   i. It is understood that certain investment managers in the Fund, chiefly those generally categorized as "Marketable Alternatives," may use derivatives and leverage as part of their investment strategies. Managers using derivatives and/or leverage should have in place systems to analyze and monitor liquidity and counter party credit risk in order to minimize the risks associated with the use of derivatives.
   ii. The Fund Manager may use derivatives in the Fund to hedge investment risks or to replicate investment positions in a more efficient manner or at a lower cost than would otherwise be possible in the cash markets. Selling of uncovered options is prohibited.

d. UBTI Sensitivity
   i. The System understands that its share of any income from the Fund (and possibly the gain on the sale of all or a portion of its interest in the Fund) may constitute unrelated business taxable income ("UBTI"), as defined in the U.S. Internal Revenue Code. UBTI generally is subject to taxation at rates applicable to taxable investors.
   ii. The Fund Manager will use reasonable efforts to limit the amount of UBTI derived from investments of the Fund. However, the Fund Manager will not be prohibited from causing the Fund to make investments that generate UBTI, and the Fund likely will make such investments if the Fund Manager believes that the overall potential after-tax returns from such investments justify any potential UBTI costs attributable to such investments. The System understands and agrees that the realization of UBTI may result in additional administrative costs, including tax and accounting advice required for making the required state and federal tax filings. The System understands that since the characterization of income of the Fund derived from underlying funds as UBTI depends in part on the nature of the underlying investments made by underlying funds, the Fund will be limited in its ability to avoid UBTI.

8. <u>Roles and Responsibilities</u>

a. The Board of Regents has delegated overall oversight of the Fund to the Committee. In addition, the Board has delegated certain responsibilities for the day-to-day management of the investment program to the Fund Manager and to the Finance Department.

b. Effective and cohesive relationships between the Board of Regents, the Committee, the Finance Department and the Fund Manager are important to fulfilling the purposes of this Policy and the Fund. The major duties and responsibilities of the parties as determined by the Board are summarized as follows:

Fund Manager

- Develop and recommend policies, guidelines and benchmarks to Investment Committee for approval.
- Review at least annually these Guidelines of Investment Policies and Objectives to ensure its appropriateness in the context of macroeconomic and market environments and the System's and the Fund's financial situation.
- Implement the policy asset allocation within specified ranges approved by the Investment Committee.
- Select and terminate investment managers in accordance with these Guidelines.
- Determine the amount of assets delegated to each investment manager.
- Monitor and report to the Committee Chair and System Staff the performance of each manager, each asset class, and the total portfolio on at least a semiannual basis.
- Communicate to the Investment Committee and System Staff any significant portfolio issues that might arise.
- Administer the Fund's day-to-day investment activities including the movement of funds within the Fund as well as inflows and outflows.
- Prepare all manager documentation for execution. Track and monitor the flow of such paperwork.
- Provide documentation to support the System's audit preparation.

NSHE Investment Committee

- Provide initial input and approve investment policies, guidelines asset allocation targets/ranges and benchmarks.
- Adopt and review at least annually these Guidelines of Investment Policies and Objectives, which establishes eligible investments, asset classes, and policy allocation guidelines.
- Monitor effects of the distribution policy on the Fund and make modifications, as necessary.
- Evaluate and approve of deviations from these Guidelines of Investment Policies and Objectives deemed necessary to support the System's financial objectives.
- Evaluate the performance of the Fund Manager on a periodic basis.

NSHE Finance Department

- Manage the System's relationship with the Fund Manager;
- Manage relationships with financial, legal, tax and audit service providers;
- Authorize/sign off on cash withdrawals out of Fund;
- Work with Fund Manager and Investment Committee on investment program as needed;
- Review monthly custodian statements; and
- Maintain paperwork and manager materials to augment C|A's Audit Support Package for audit preparation.

(B/R 6/22)

Title 4, Chapter 10, Section 6.
Statement of Investment Objectives and Policies for the Operating Funds

A. Introduction

1. This statement of investment objectives and policies (the "Guidelines") governs the investment management of the Operating Funds (collectively the "Fund") of the NSHE (the "System"). These Guidelines relate to the Fund as a whole. Because the Fund is perpetual, the investment objectives and policies are based on an investment horizon greater than ten years.

2. The Regents are responsible for establishing the investment policies for the Fund. Accordingly, the Regents have promulgated these Guidelines pursuant to which they have established the permitted investment parameters and distribution policy. The Regents will review and revise these Guidelines from time to time as appropriate.

3. The Regents have delegated to the Investment Committee (the "Committee") the management of the Fund within the parameters of these Guidelines. The Committee will be comprised of four Regents appointed by the Chair of the Board of Regents. The Chancellor, the Chief Financial Officer, or designee will serve as ex officio nonvoting members of the Committee. The Chair of the Board of Regents will appoint a Chair of the Committee and may appoint one or more individuals with investment knowledge or expertise to serve as nonvoting members of the Committee. The Committee will meet at the discretion of the Committee Chair, but not less than two times during each calendar year during the first and third quarters. Minutes of each meeting of the Committee will be provided to the Regents for acceptance at their next meeting.

4. The Committee will choose an independent investment advisor to provide services it deems to be necessary or helpful, including without limitation, advice with respect to manager selection, termination, and evaluation.

5. No member of the Board of Regents and no voting or nonvoting member of the Committee will accept or approve the acceptance by staff or any other person of any gift, travel expense, or other perquisite proffered by an investment manager, the value of which exceeds $25, without the advance approval of the Committee. Regents and employees of the System are also subject to the Code of Ethical Standards of the State of Nevada promulgated to govern the conduct of public officers and employees, and Regents are also subject to certain additional conflict of interest provisions.

B. <u>Financial and Investment Objectives of Discrete Pools; Investment Policy</u>

1. The long-term objective of the Fund is to provide a relatively stable stream of revenue that equals or exceeds the general rate of inflation. The measurement of risk that will be used to determine if the long-term objective of the Fund is met with an acceptable level of risk is that the overall return of the Fund, net of fees, should equal or exceed the CPI over rolling periods of ten years.

2. The long-term objectives of the Fund should align with the following overall Nevada System of Higher Education goals.
   a. Increase participation in post-secondary education.
   b. Increase student success.
   c. Close the achievement gap among underserved student populations.
   d. Collaboratively address the challenges of the workforce and industry education needs of Nevada.
   e. Co-develop solutions to the critical issues facing 21st century Nevada and raise the overall research profile.

3. Consistent with the exercise of fiscal prudence and to more fully reflect the highly diverse population of Nevada and the System's institutional values of inclusion, diversity, equity and access, the System seeks to achieve robust diversity within its investment program and through enhanced inclusive investment practices by its Fund Manager. Accordingly, the Fund Manager will make best efforts to hire diverse investment managers that are women, disadvantaged and minority owned.

4. For purposes of investment policy, the Fund will be considered as three discrete pools of funds: a "Short-Term Pool," an "Intermediate-Term Pool," and a "Long-Term Pool."

5. The Short-Term Pool shall be funded in an amount sufficient to meet the expected daily cash requirements of the System, as determined by the NSHE Chief Financial Officer. All cash receipts will be deposited into, and all disbursements will be paid from, this Pool. The Short-Term Pool will be invested in fixed income securities generally having an average maturity of one year or less and thus are highly liquid with little risk of principal loss.

6. The Intermediate-Term Pool is intended to provide a liquid source of funds in the unlikely event the Short-Term Pool is insufficient to meet the System's cash needs and to serve as a reserve for known or contingent obligations with a payout horizon of one to several years, as determined by the NSHE Chief Financial Officer. Since the Short-Term Pool is funded at an amount sufficient to meet expected cash requirements, the Intermediate-Term Pool will be invested in fixed income securities

generally having an average maturity of three years or less in order to take advantage of the higher yields typically paid for longer maturities while still maintaining low risk of principal loss and to diversify the portfolio.

7. The Long-Term Pool includes all available funds not needed to fund the Short-Term or Intermediate-Term Pool. Because the allocation strategy results in a very low likelihood that this pool will be needed to meet cash requirements, the Long-Term Pool will be invested in securities that lower the volatility and/or enhance the investment performance of the portfolio taken as a whole, decrease market risk and to diversify. These investments may include fixed income, Treasury Inflation Protection Securities *(TIPS)*, US and international common stocks, and absolute return strategies. The Committee recognizes that certain non-US securities are not within the jurisdiction of the US courts and may result in the loss of investment monies with no avenue for redress. Strategic asset allocation targets and benchmarks within the Long-Term Pool shall be developed and recommended by the investment advisor with input from and approval by the Investment Committee.

8. The Committee will determine at least annually, with input from the NSHE Chief Financial Officer, the appropriate size of each pool within the parameters of these Guidelines.

9. The weighted-average credit quality rating of the Fund's investments will generally be at least AA or the equivalent and will never be below A as rated by one or more national credit rating agencies such as Standard & Poor's Rating Services or Moody's Investors Service.

C. <u>Manager Selection, Termination, and Guidelines</u>

1. The Committee shall select external investment managers to manage the assets of the Fund. Subject to these Guidelines, the Committee will have discretion to hire and terminate managers for any reason at any time and to allocate funds among managers. The funds may be managed in a commingled fund or in a separately managed account at the discretion of the Committee. Subject to the manager-specific guidelines referenced in Subsection C(4) and the usual standards of fiduciary prudence and responsibility, the managers will then have complete discretion over the investment of the funds in their respective accounts, including the discretion to vote proxies, the use of soft dollars and how to execute trades. Fees will be set at the time of hiring managers. The Committee may invest in indexed funds if deemed appropriate.

2. Subject to the manager-specific guidelines and the usual standards of fiduciary prudence and responsibility, the managers will then have complete discretion over the investment of the funds in their respective accounts, including the discretion to vote proxies.

3. In hiring and evaluating managers, the Committee will consider the diversification, credit quality, and duration of the portfolio and other appropriate factors.

4. System Staff will provide each manager of a separately managed account with a set of mutually agreed-upon guidelines. Such guidelines will provide that, if at any time the manager believes any policy guideline contained therein adversely affects, or has the potential to adversely affect, its investment performance or would prevent the manager from handling the System's portfolio in a manner similar to the firm's other discretionary accounts with a similar investment objective, it is the responsibility of the manager to communicate this view to the System's staff in a timely fashion. Additionally, such guidelines will require the managers to inform the System's staff promptly of any change in firm ownership or fundamental investment philosophy, any significant change in organizational structure or professional personnel, and any change in portfolio manager(s) for the System's account. The Committee acknowledges that managers of commingled funds are unable to respond to specific guidelines. System staff will maintain and review periodically descriptions of the investment policies and practices of managers of commingled funds to ensure understanding of such policies and practices and consistency with the spirit of these Guidelines. The matters reviewed will include without limitation the managers' policies and practices with respect to risk control generally and derivatives, non-dollar denominated securities, and securities lending.

5. The Committee has discretion to terminate any manager at any time if it determines, for whatever reason, that the manager is no longer appropriate for the Fund. Any decision to terminate a manager will normally be based on long-term, i.e., over a full market cycle, investment performance as well as other relevant factors. If a manager experiences an organizational change (including but not limited to loss of a key person, legal/regulatory action, etc.) that prompts the investment advisor to recommend terminating the manager before the next Committee meeting, the Committee delegates authority to the NSHE Chief Financial Officer with approval from the Chair of the Board to approve such termination, with written notice to the Committee.

D. <u>Monitoring of Objectives and Results</u>

1. The Committee will review these investment objectives and policies at least once every two years for their continued appropriateness.

2. The Committee will review the strategic allocations at least annually. At this time a modeling of investment returns will be performed to determine what expected returns the current strategy should produce.

3. At least annually, the Committee will determine if any rebalancing of actual allocations should be made. Between Committee meetings, the Committee delegates authority to the NSHE Chief Financial Officer with approval from the Chair of the Board to approve rebalancing recommendations made by the investment advisor for transactions between existing managers in the Fund, provided that the resulting asset allocation exposures fall within previously established policy ranges. No advance written notice to the Committee shall be required for such rebalancing transactions, but such rebalancing transactions shall be reported to the Committee at the subsequent Committee meeting.

4. The System's staff will obtain monthly investment performance reports from each manager. The Committee shall have prepared and shall review, at least two times per year, an investment performance report setting forth the asset allocation of the total Fund and the investment returns for individual manager accounts and for the Fund. The returns shall be calculated on a time-weighted basis net of manager fees for the most recent quarter for which data are available and any other short-term periods that the Committee may select, including fiscal-year returns when such data are available. The Committee shall select an appropriate benchmark for each manager. The Committee will use the short-term performance data to monitor the fund and the managers for consistency of investment philosophy, returns relative to objectives and investment risk. Risk will be evaluated as a function of asset concentration, exposure to extreme economic conditions and performance volatility. At least one performance report each year shall include data for such longer periods of times as are specified herein. Regular communication by the investment advisor with the managers concerning investment strategy and outlook is expected.

5. The Committee will periodically review the related services provided to the System, including securities custody, performance evaluation, and investment advisory services. Fees for these services will be explicitly stated in the contract.

E. <u>Derivatives Policy; Securities Lending; Non-Dollar Denominated Securities</u>

1. Investment managers may utilize derivative securities only in a manner consistent with the policies described below.

2. The primary intent of derivative security transactions should be to hedge risk in portfolios or to implement investment strategies more efficiently and at a lower cost than would be possible in the cash market. Derivative securities primarily include interest rate futures, options on interest rate futures, currency futures and forwards, international interest rate futures, and collateralized mortgage obligations. Derivatives will generally not be used to leverage portfolios. Derivatives-based investment strategies should not expose the portfolios to greater risk than would be typical under a strategy utilizing only cash securities. For example, derivative strategies should not be used to alter the effective duration of the portfolio beyond the appropriate ranges. The Committee may make exceptions to these general parameters in the case of particular managers or funds, provided that any exceptions pertaining to separately managed accounts will be referenced in the applicable manager specific guidelines.

3. No agreement to engage in a securities lending or directed brokerage program will be entered into without the prior approval of the Committee.

4. The policy with respect to non-dollar denominated securities will be specified in the applicable manager specific guidelines or, in the case of commingled funds, will be reviewed periodically by System staff as provided in Section 6 (c) 4.

5. The Committee expects that its investment managers will have in place processes and procedures to control and measure risk.

F. Distribution Policy

1. It is the policy of the Board of Regents to pool all NSHE cash assets for investment in accordance with guidelines stated in Section 6 of this Chapter.

2. Except as provided herein, effective July 1, 1996, the NSHE Banking and Investment Office will, on a monthly basis, make a distribution to all NSHE institutions an amount equal to a set percentage of the institutions' average daily cash balance.
   a. The allocation by the Board of Regents to the institutions is established with the understanding that each institution will assume responsibility for the cash basis payment of all expenses not provided for by the state appropriated budgets including, but not limited to, employment perquisites, interview and recruiting expenses and litigation expenses.

3. Distributions from the Fund will be made monthly at an appropriate rate as determined by the Committee. If the reserve balance in the operating pool is negative on the last day of the month, the NSHE Banking and Investment Office will not make a distribution for that month. If the reserve balance in the operating pool falls below 3% of the total operating pool on the last day of the month for three consecutive months, the NSHE Banking and Investment Office will withhold distributions until the reserve balance returns to a 3% balance. If the reserve balance in the operating pool is greater than 8% of the total operating pool on the last day of the month for three consecutive months, the NSHE Banking and Investment Office will distribute the amount of the reserve balance above 8% after making the monthly distribution. In order to minimize the potential for a shortfall relative to expectations, the Committee will establish a spending rate on a biennial basis to allow the institutions to develop their biennial budgets with greater certainty. Each semiannual period, the Committee Chair will review the rate relative to the investment outlook and current surplus or deficit to consider its continued appropriateness.

4. The distribution policy is administered by the Banking and Investment Office in accordance with the Uniform Management of Institutional Funds Act, adopted by the Regents on August 30, 1984 in accordance with the authority granted to them by *Nevada Revised Statutes* (NRS) 396.380 and NRS 396.420 to control and invest the System's funds.

5. A market fluctuation account may be established within the Fund. The account may be utilized to finance monthly distributions to NSHE institutions when the operating pool is unable to generate sufficient investment income on a temporary basis due to market downturns or other equivalent events. Funds may be deposited into the account through a transfer from the reserve balance in the operating pool or

through a portion of the monthly distribution allocated to the institutions from the operating pool. The account shall not exceed an amount equal to 10 percent of the balance of the operating pool. All funds deposited into or transferred out of the account require the approval of the Board of Regents upon recommendation of the Chancellor and the Investment Committee.

(B/R 6/22)

NEVADA SYSTEM OF HIGHER EDUCATION

DISCUSSION MATERIALS - OPERATING FUND

CAMBRIDGE ASSOCIATES

SEPTEMBER 30, 2022

NEVADA SYSTEM OF HIGHER EDUCATION

DISCUSSION MATERIALS - OPERATING FUND

SEPTEMBER 30, 2022

Wendy Walker, CFA
Ijeh Ogbechie
Lindsay Van Voorhis, CFA
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Deron Parcell
Alfonso Diaz
Katie Kuechler
Gregory Lewis

CAMBRIDGE ASSOCIATES

CAMBRIDGE ASSOCIATES

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C|A

A. EXECUTIVE SUMMARY & ACTION ITEMS

CAMBRIDGE ASSOCIATES

Updated with Supplemental Information

EXECUTIVE SUMMARY

Market & Geopolitical Update

Investor sentiment soured in second quarter, leading to steep declines across nearly all asset classes. Global equities foundered as developed and emerging stocks alike fell into bear markets. Rising interest rates and deteriorating global economic growth prospects meant growth stocks trailed value, while large caps edged small caps. Aggressive monetary tightening and high inflation pressured government bond performance, while corporates lagged on rising credit spreads. Real assets also declined, with energy commodities being the lone exception among major asset classes as oil prices continued climbing. Against this backdrop, the US dollar appreciated to a 20-year high.

Following a July market rebound, risk assets broadly retreated in August, reversing course mid-month on the growing realization that elevated interest rates may be around longer than expected. Global equities declined for the sixth time year-to-date; emerging markets advanced, topping developed markets equities—which declined—by the widest margin in two years. Global bonds experienced their third steepest monthly decline in history.

Operating Fund Performance and Asset Allocation as of August 31, 2022

For the fiscal year ended June 30, 2022, the Total Operating Fund returned -7.9%, slightly underperforming the Policy Index by 20bps. The Total Long-Term Pool returned -11.0% for the period, outperforming the Total Long-Term Pool Benchmark by 130bps. TIPS led performance on both an absolute and relative basis with a -2.9% return, outperforming its benchmark by 220 bps due to a tactical position in Short-Term TIPS.

For the calendar year to date through August 31, the Total Long-Term Pool returned -14.4%, outperforming the Total Long-Term Pool Benchmark by 30bps. The TIPS allocation continues to lead performance on both an absolute and relative basis with a -5.3% return, outperforming its benchmark by 220 bps (again due to a tactical position in Short-Term TIPS). The Total Operating Fund posted a return of -10.1% for the CYTD period, lagging the Policy Index by 90bps, due primarily to static benchmark weights that no longer reflect the System's current approach to sizing the Short-Term and Intermediate-Term Pools. On the next page we recommend updating the Total Operating Fund benchmark weights to reflect the System's current liquidity management practices.

As of August 31, 2022, adjusted for estimated performance through September 22, the Long-Term Pool still had underweights to Global ex U.S. Equity and Long-Term Bonds, offset by an overweight to TIPS, which we recommend moderating in our rebalancing recommendations on the next page.

Operating Fund Return Projections

As shown in the following pages, while the Operating Fund Policy has a 3.8% expected real compound return over the long term (i.e., 25+ years), there is a wide range of potential outcomes, particularly over shorter time periods. For example, over any given 3-year period, the Operating Fund has a 50% likelihood of a real return between 0.9% and 6.7%, with a 25% likelihood of returns either above or below this range.

In addition to the general unpredictability of short-term returns, current market valuations pose additional headwinds to investors today: Strong performance over recent years have brought assets to levels that we view as unsustainable, implying that intermediate-term returns will likely fall short of long-term expectations. In a hypothetical scenario in which all asset class valuations reverted to their historical averages over the next 10 years, we project that US Equities would return -0.4% real (far below C|A's long-term return assumption of 5.7%), and US Treasuries would return -0.9% real (similarly falling short of C|A's long-term return assumption of 2.8%). Looking across the Operating Fund, this "return to normal" thought exercise suggests a 1.2% real return over the intermediate term – which would fail to support a 2.75% payout. We also present an analysis of returns in historical market downturns, showing that the Operating Fund could experience double-digit declines in environments like the Oil Shock of the early 1970s, the Tech Bubble Burst of the early 2000s or the Global Financial Crisis of 2007-2009.

ACTION ITEMS

Rebalancing Recommendations

On the following page we include Operating Fund performance estimates for early September (-2.4%). We estimate the Reserve Account balance at approximately *negative* $40 million. The updated rebalancing table reflects the following rebalancing recommendatimons:

- $7 million addition to Vanguard Developed Markets Index
- $2 million trim from Vanguard Inflation-Protected Securities
- $5 million trim from Vanguard Short-Term Inflation-Protected Securities

Total Operating Fund Benchmark Recommendation

In early 2019, the Statement of Investment Objectives and Policies for the Operating Funds was updated so that the sizing of the Short-Term and Intermediate-Term Pools would be driven by the System's liquidity requirements as determined by the NSHE Chief Financial Officer. Previously, the two liquidity pools had a combined target weight of 40% of the Total Operating Fund, which had been determined to be much larger than the System's actual liquidity needs. The actual historical weights of the three pools are illustrated on page 20 of these materials.

We recommend updating the benchmark calculation to dynamic (actual) weights to better reflect the System's liquidity management practices adopted in 2019. As shown below, while the two approaches have had very close performance over the long term, the proposed Dynamic Index is a closer fit for Total Operating Fund results:

Annual Returns as of Aug 31, 2022 • USD	2013	2014	2015	2016	2017	2018	2019	2020	2021	YTD (8M)
Composite/Benchmarks										
Total Operating Fund	9.6	2.6	-1.0	4.3	9.9	-2.9	13.7	10.4	9.5	-10.1
Policy Index (static 60% Long-Term/10% Int-Term/30% Short-Term weights)	9.6	3.2	0.2	4.4	9.6	-2.8	13.4	9.3	8.4	-9.2
Dynamic Index (actual Long-Term/Int-Term/Short-Term weights)	9.6	3.1	-0.2	4.3	9.4	-2.9	13.8	11.0	8.8	-10.1

Annualized Returns as of Aug 31, 2022 • USD	10Y	9Y	8Y	7Y	6Y	5Y	4Y	3Y	2Y	1Y
Composite/Benchmarks										
Total Operating Fund	4.6	4.4	3.8	4.7	4.8	4.4	4.0	4.4	1.5	-8.9
Policy Index (static 60% Long-Term/10% Int-Term/30% Short-Term weights)	4.6	4.5	3.8	4.6	4.6	4.2	3.7	4.0	1.6	-8.1
Dynamic Index (actual Long-Term/Int-Term/Short-Term weights)	4.7	4.5	3.9	4.7	4.8	4.4	4.0	4.3	1.3	-9.2

C|A

NSHE Operating Fund - Rebalancing Recommendations

Updated with Supplemental Information

	Allocation as of Aug 31, 2022		9/1/2022 - 9/22/2022	Estimated Allocation as of Sep 22, 2022		Recommendations (C|A)		Pro Forma Allocation		Targets	Allowable Range
	Assets ($ mm)	Allocation (%)	Est Perf (%)	Assets ($ mm)	Allocation (%)	($ mm)	(%)	Assets ($ mm)	Allocation (%)	(%)	(%)
U.S. Equity											
Vanguard Institutional Index	161.7	30.9	-4.1%	155.1	30.8			$155.1	30.8		
Metis US Equity Index	47.3	9.0%	-4.1%	45.3	9.0%			$45.3	9.0		
Total U.S. Equity	**$209.0**	**39.9%**	**-4.1%**	**$200.5**	**39.7%**	**---**	**---**	**$200.5**	**39.7%**	**40.0%**	**33%-50%**
Global ex U.S. Equity											
Vanguard Developed Markets Index	93.6	17.9	-5.1	88.8	17.6	+7.0	1.4	$95.8	19.0		
Metis International Equity Index	41.5	7.9	-4.3	39.7	7.9			$39.7	7.9		
Total Global ex U.S. Equity	**$135.0**	**25.8%**	**-4.9%**	**$128.5**	**25.5%**	**$7.0**	**1.4%**	**$135.5**	**26.8%**	**27.0%**	**17%-30%**
Marketable Alternatives											
Farallon Capital	1.3	0.3	-0.1	1.3	0.3			$1.3	0.3		
Total Marketable Alternatives	**$1.3**	**0.3%**	**-0.1%**	**$1.3**	**0.3%**	**---**	**---**	**$1.3**	**0.3%**	**0.0%**	
TOTAL EQUITIES	**$345.4**	**66.0%**	**-4.4%**	**$330.3**	**65.5%**	**$7.0**	**1.4%**	**$337.3**	**66.9%**	**67.0%**	**50%-80%**
TIPS											
Vanguard Inflation-Protected Securities	75.2	14.4	-2.9	73.1	14.5	-2.0	-0.4	$71.1	14.1		
Vanguard Short-Term Inflation-Protected Securitie	40.5	7.7%	-1.3	40.0	7.9%	-5.0	-1.0	$35.0	6.9		
Total TIPS	**$115.8**	**22.1%**	**-2.3%**	**$113.1**	**22.4%**	**-$7.0**	**-1.4%**	**$106.1**	**21.0%**	**20.0%**	**8%-25%**
Long Term Bonds											
PIMCO Total Return	41.9	8.0	-1.9	41.1	8.2			$41.1	8.2		
Wells Capital Montgomery	20.5	3.9	-2.1	20.0	4.0	---		$20.0	4.0		
Total Long Term Bonds	**$62.4**	**11.9%**	**-2.0%**	**$61.2**	**12.1%**	**---**	**---**	**$61.2**	**12.1%**	**13.0%**	**8%-25%**
TOTAL LONG-TERM POOL	**$523.5**	**100.0%**	**-3.6%**	**$504.5**	**100.0%**	**---**		**$504.5**	**100.0%**	**100.0%**	
Estimated MTD investment gain/(decline)				***-$19.0***							
						Recommendations (NSHE Staff)					
Intermediate Term Bonds											
Access Community Investment Fund	23.3		-2.4	22.7				22.7			
WellsCap Short Duration	111.0		-1.2	109.6				109.6			
Total Intermediate Term Bonds	**$134.2**		**-1.4%**	**$132.3**		**---**		**$132.3**			
Estimated MTD investment gain/(decline)				***-$1.9***							
Short Term Bonds and Cash											
Short Term Bonds and Cash*	220.4		---	220.4				220.4			
Total Short Term Bonds and Cash	**$220.4**		**---**	**$220.4**		**---**		**$220.4**			
TOTAL OPERATING FUND	**$878.2**		**-2.4%**	**$857.3**		**---**		**$857.3**			

Note: Market values are estimated using manager preliminary or mutual fund returns or (if highlighted in peach) index proxies.
Actual client-specific returns may ultimately differ from managers' fund-level preliminary estimates. Cash accounts assume a 0% return for the period.
*Short Term Bonds and Cash estimated balances provided by System staff as of 8/31/2022.

B. MARKET UPDATE

CAMBRIDGE ASSOCIATES

Significant interest rate repricing led markets lower in August

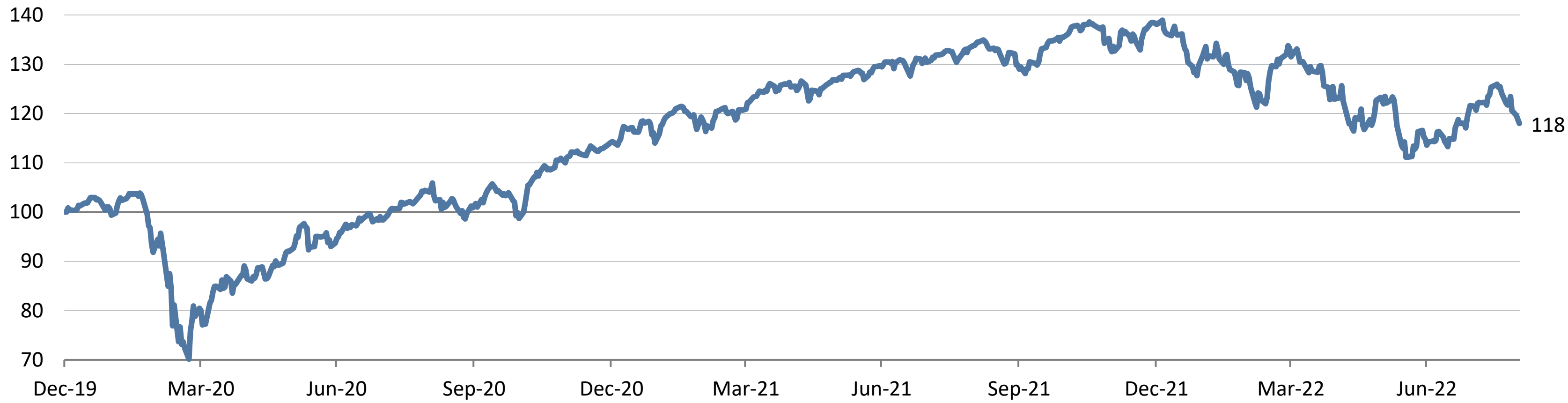
GLOBAL ASSET CLASS PERFORMANCE
As of August 31, 2022 • US Dollar • Percent (%)

Sources: Bloomberg Index Services Limited, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Notes: All data are in USD terms. The equity data are total returns net of dividend taxes of MSCI indexes. The fixed income data are total returns of Bloomberg indexes. The MSCI Global Equity REIT Index, the MSCI ACWI Commodity Producers Index, and front-month gold contracts as traded on the New York Mercantile Exchange are used to calculate real asset performances. The US Dollar Index (DXY) is used to calculate USD performances.
MMHC

Swift bounce back in global equities from their mid-June low runs out of steam

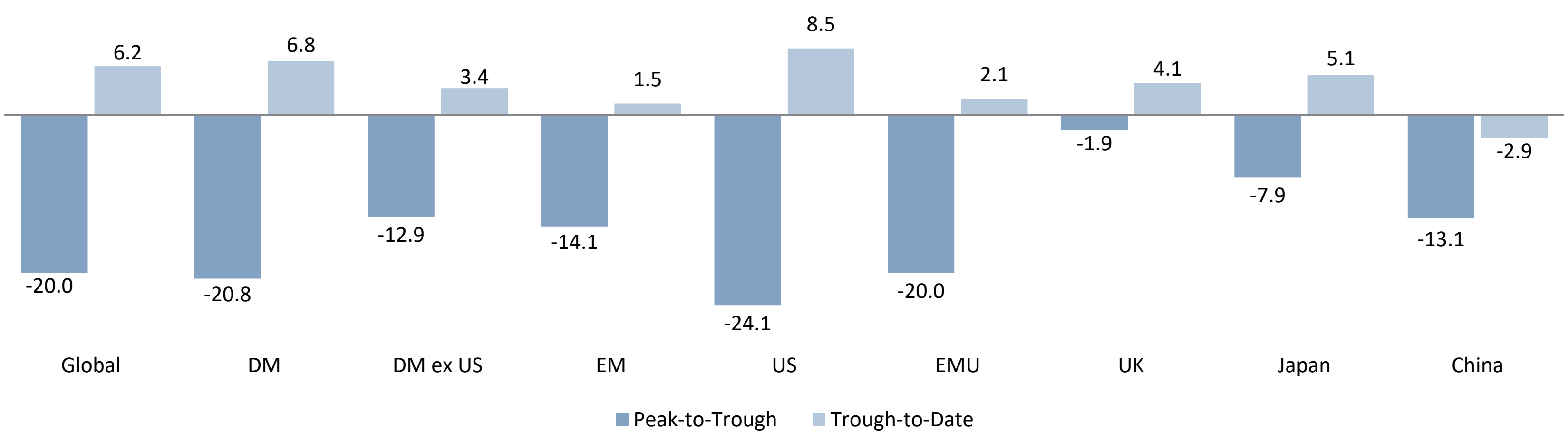
MSCI ACWI CUMULATIVE WEALTH

As of August 31, 2022 • December 31, 2019 = 100 • Local Currency



2022 REGIONAL EQUITY PERFORMANCE

As of August 31, 2022 • Local Currency



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: All data are based on total returns net of dividend taxes. Regional equity performance chart is based on the peak and trough of MSCI ACWI which occurred on January 4, 2022, and June 16, 2022, respectively.

MMHC

Markets typically bounce back quickly after recessions, but have we had a recession yet?

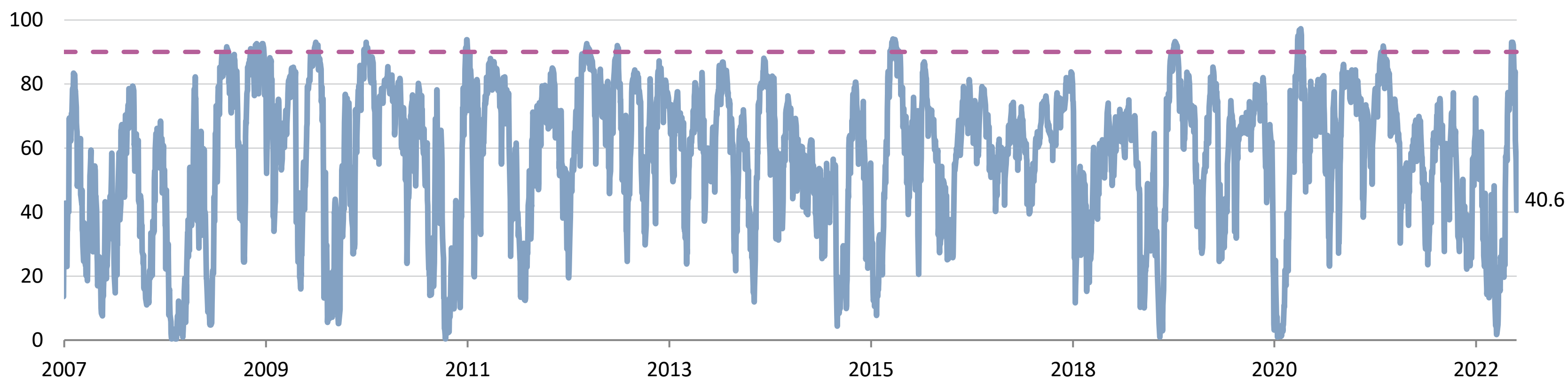
VALUATIONS AND RETURNS AROUND US RECESSIONS

1968–2022

Dates				Forward P/E				Returns 12M From Recession Start		Returns 12M From Recession End	
Market Peak	Recession Start	Recession End	Recession Length (months)	FWD P/E Peak	FWD P/E Trough	FWD P/E Change	Equity Peak-to-Trough (%)	Equity Return (%)	Fixed Income Return (%)	Equity Return (%)	Fixed Income Return (%)
Nov-68	Dec-69	Nov-70	11	--	--	--	-36	0	---	8	---
Jan-73	Nov-73	Mar-75	16	--	--	--	-48	-27	---	23	---
Feb-80	Jan-80	Jul-80	6	--	--	--	-17	13	-2	8	-13
Nov-80	Jul-81	Nov-82	16	7.7	5.0	-2.7	-27	-18	9	20	-1
Jul-90	Jul-90	Mar-91	8	11.6	9.5	-2.1	-20	9	1	8	2
Mar-00	Mar-01	Nov-01	8	23.8	18.7	-5.1	-49	-1	-2	-18	1
Oct-07	Dec-07	Jun-09	18	16.0	10.8	-5.2	-57	-38	0	12	4
Feb-20	Feb-20	Apr-20	2	18.6	15.3	-3.3	-34	29	-2	44	-4
		Mean	***10.6***	***15.5***	***11.9***	***-3.7***	***-36***	***-4***	***1***	***13***	***-2***
		Median	***9.5***	***16.0***	***10.8***	***-3.3***	***-35***	***-1***	***-1***	***10***	***0***

MARKET BREADTH SIGNALED STOCKS WERE OVERBOUGHT

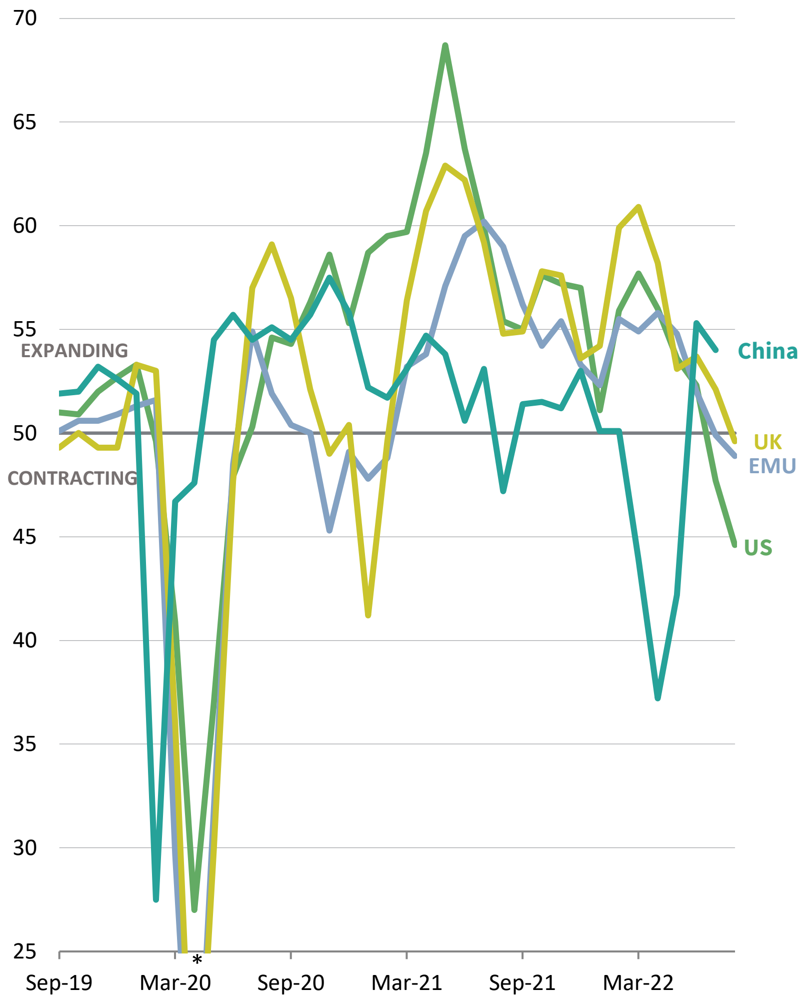
August 31, 2007 – August 31, 2022 • Percent (%)



Sources: FactSet Research Systems, Goldman Sachs Global Investment Research, National Bureau of Economic Research (NBER), and Thomson Reuters Datastream.
Notes: FWD P/E defined as the next 12-month forward looking S&P price-to-earnings ratio. Equity peak-to-recession start, and peak-to-trough based on S&P 500 peak level surrounding recession start dates. Equity and Fixed Income returns 12 months from recession start and end are cumulative based on monthly price returns based on the S&P 500 and Bloomberg Aggregate Bond Index. Market peak dates are based on daily data. Recession start dates are based on NBER monthly dates.
MMHC

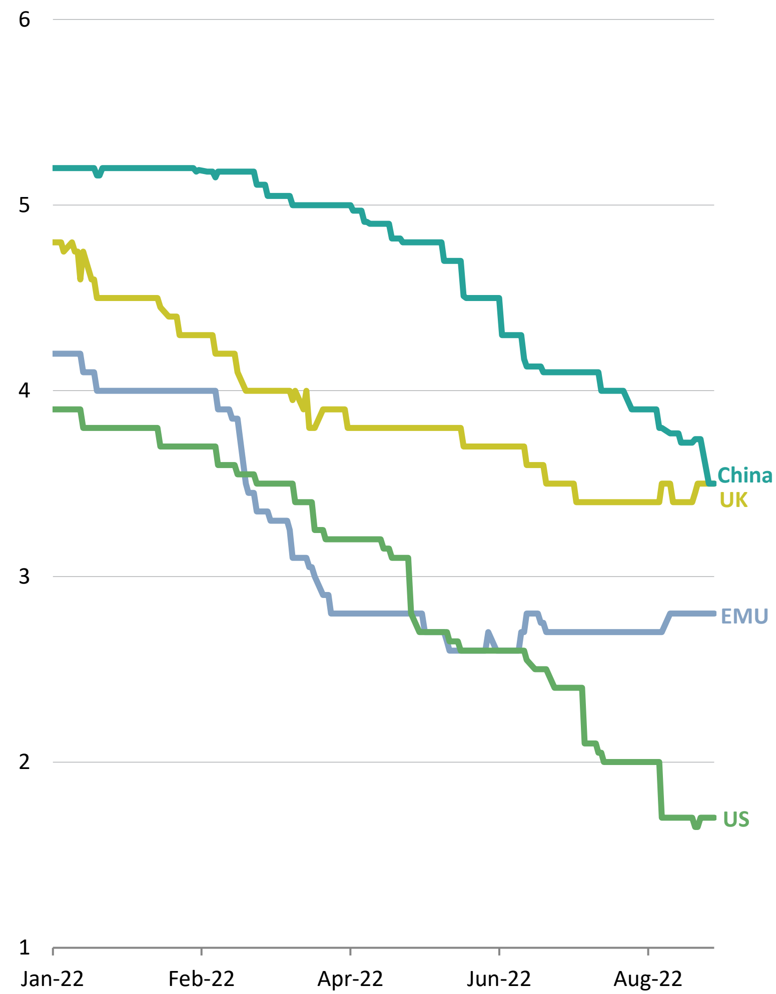
Economic growth continues to trend lower despite some positive data surprises in August

COMPOSITE PMIs
September 30, 2019 – August 31, 2022



* Chart is capped for scaling purposes.

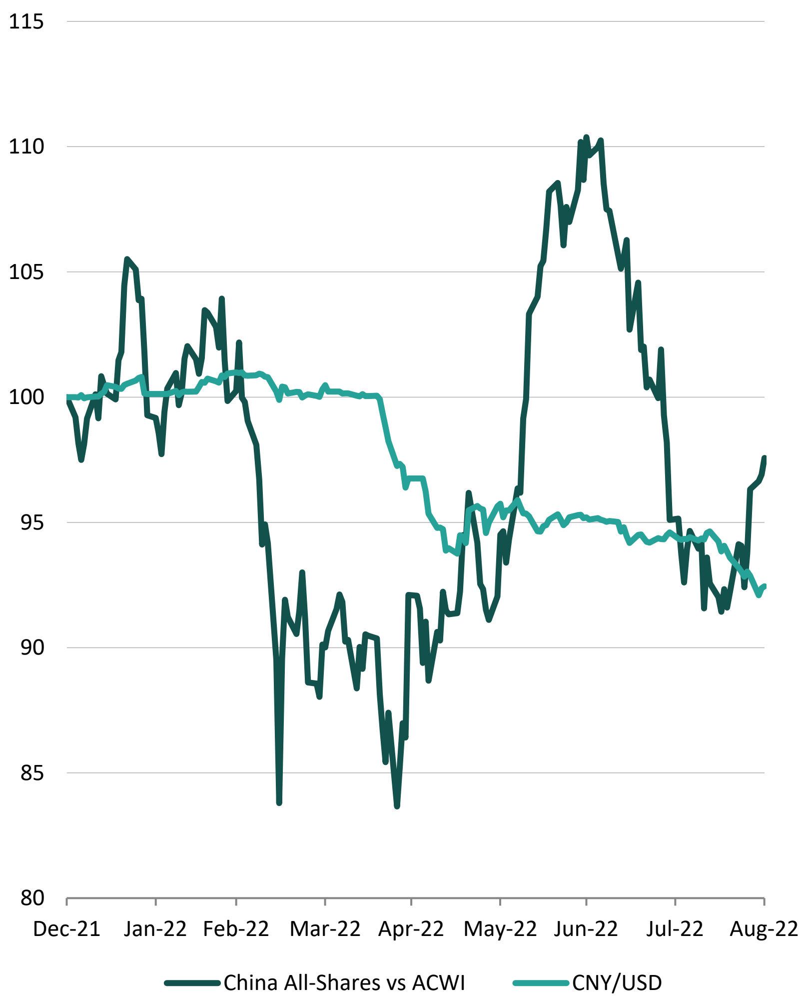
2022 CONSENSUS GDP GROWTH ESTIMATES
December 31, 2021 – August 31, 2022 • Percent (%)



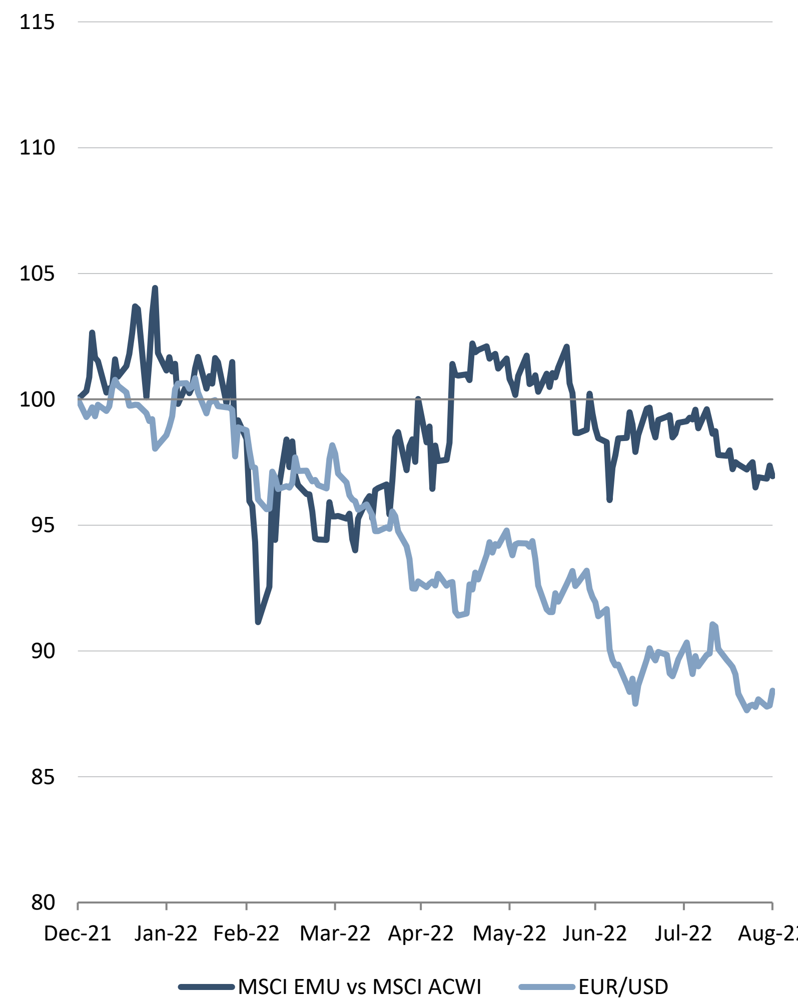
Sources: Bloomberg L.P., Markit Economics, and Thomson Reuters Datastream.
Notes: Composite PMI data are flash estimates. Data for China are as of July 31. GDP growth forecasts for 2022 are based on median estimates.
MMHC

Weaker macro data and COVID-19 policies have hurt Chinese and European assets

CHINA RELATIVE CUMULATIVE WEALTH
December 31, 2021 – August 31, 2022 • December 31, 2021 = 100 • Local Currency



EMU RELATIVE CUMULATIVE WEALTH
December 31, 2021 – August 31, 2022 • December 31, 2021 = 100 • Local Currency

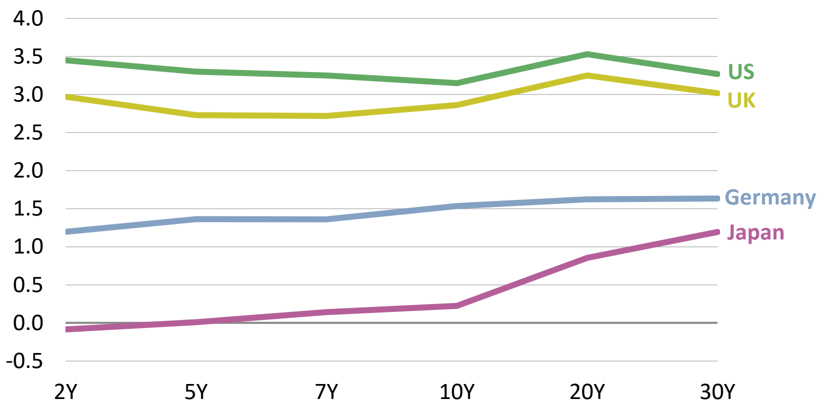


Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Note: Data are daily.
MMHC

Interest rates rose and yield curves flattened in August, as investors priced in more rate hikes

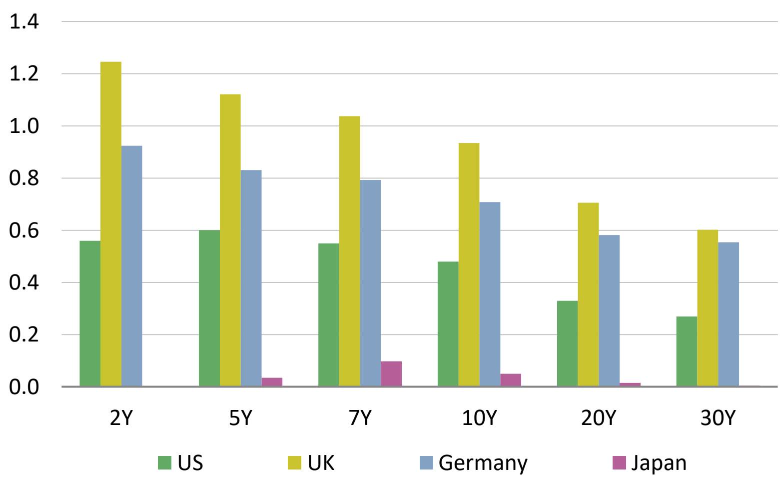
US, UK, GERMANY, AND JAPAN YIELD CURVES

As of August 31, 2022 • Percent (%)



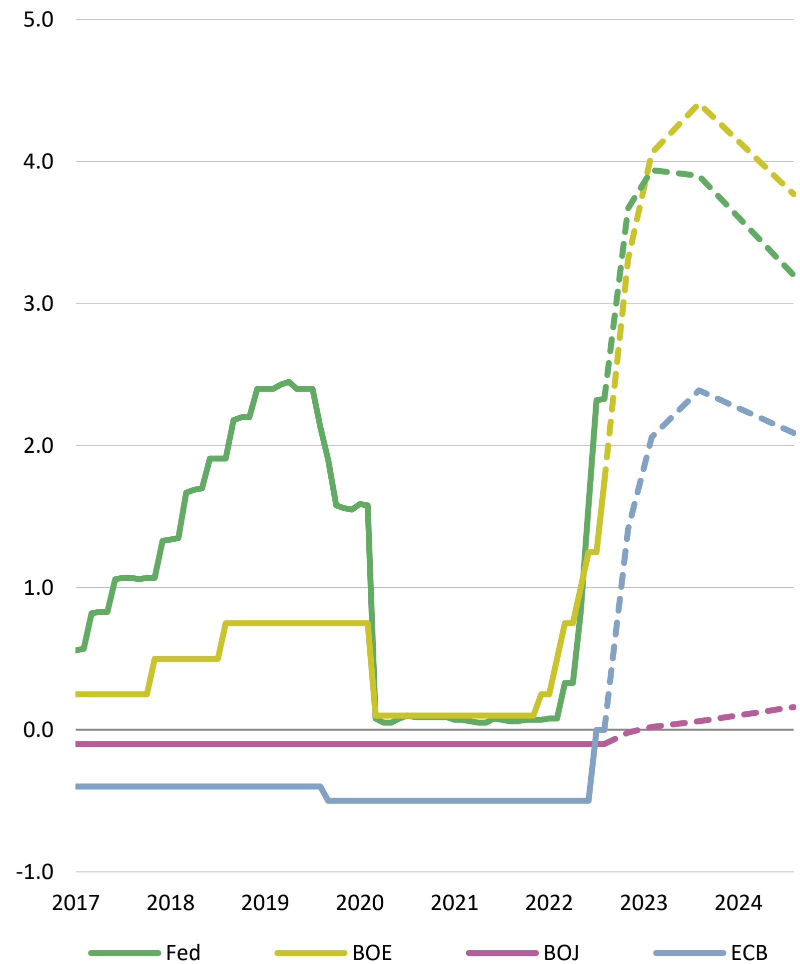
CHANGE IN YIELDS BY MATURITY DURING AUGUST

As of August 31, 2022



G4 GLOBAL POLICY RATES

January 1, 2017 – August 31, 2023 • Percent (%)

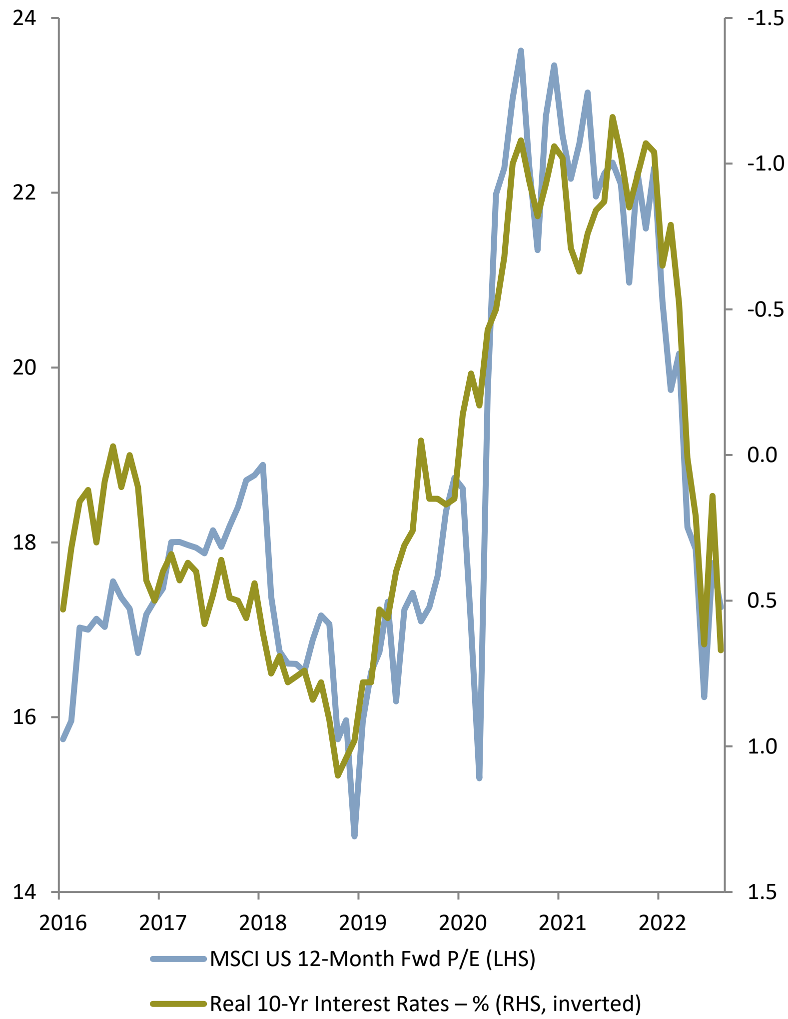


Sources: Bank of England, Bank of Japan, Bloomberg L.P., European Central Bank, Federal Reserve, and Thomson Reuters Datastream.
Notes: Policy rate data are as of Augus 31, 2022. Policy rate data are estimated after August 31, 2022, and based on market implied rates. Federal Reserve data are based on the effective Federal Funds rate.
MMHC

Rising interest rates have weighed on aggregate valuations and aided value versus growth

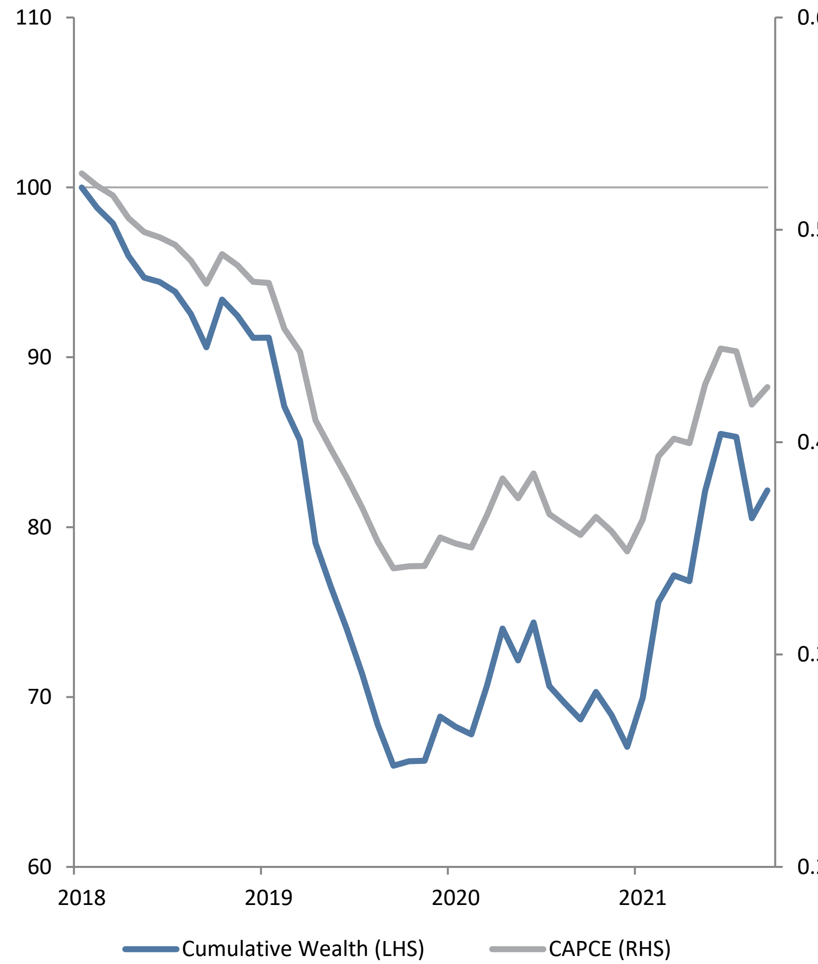
MSCI US FWD P/E VS REAL INTEREST RATES

January 31, 2016 – August 31, 2022



RELATIVE CUMULATIVE WEALTH AND CAPCE
MSCI ACWI VALUE VS GROWTH

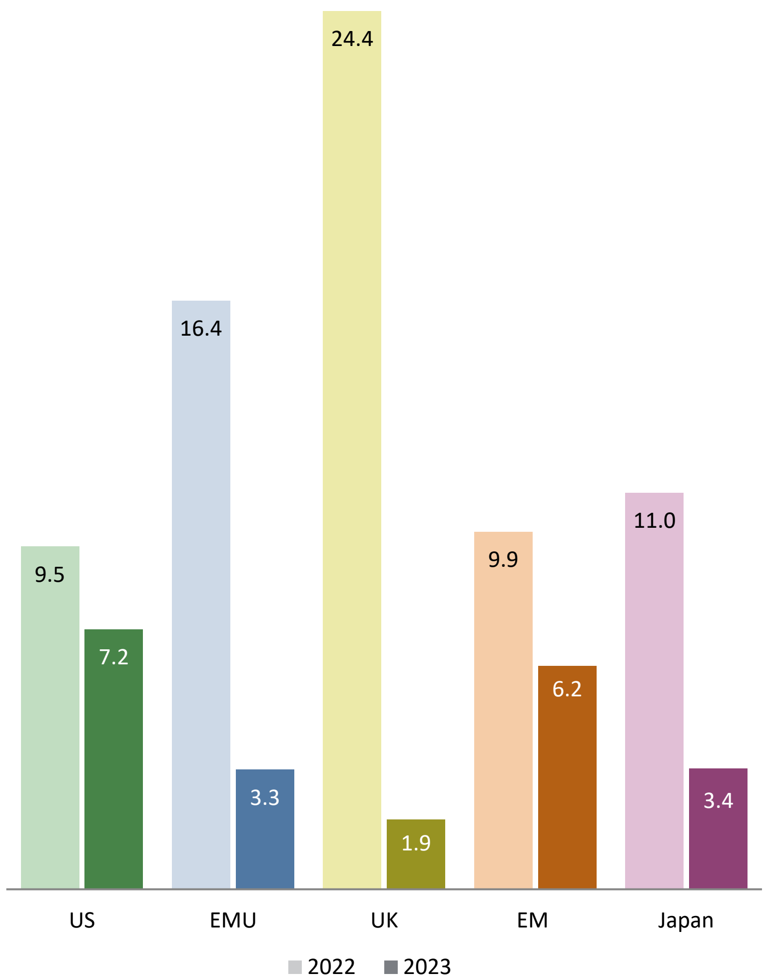
January 1, 2019 – August 31, 2022 • Local Currency • December 31, 2018 = 100



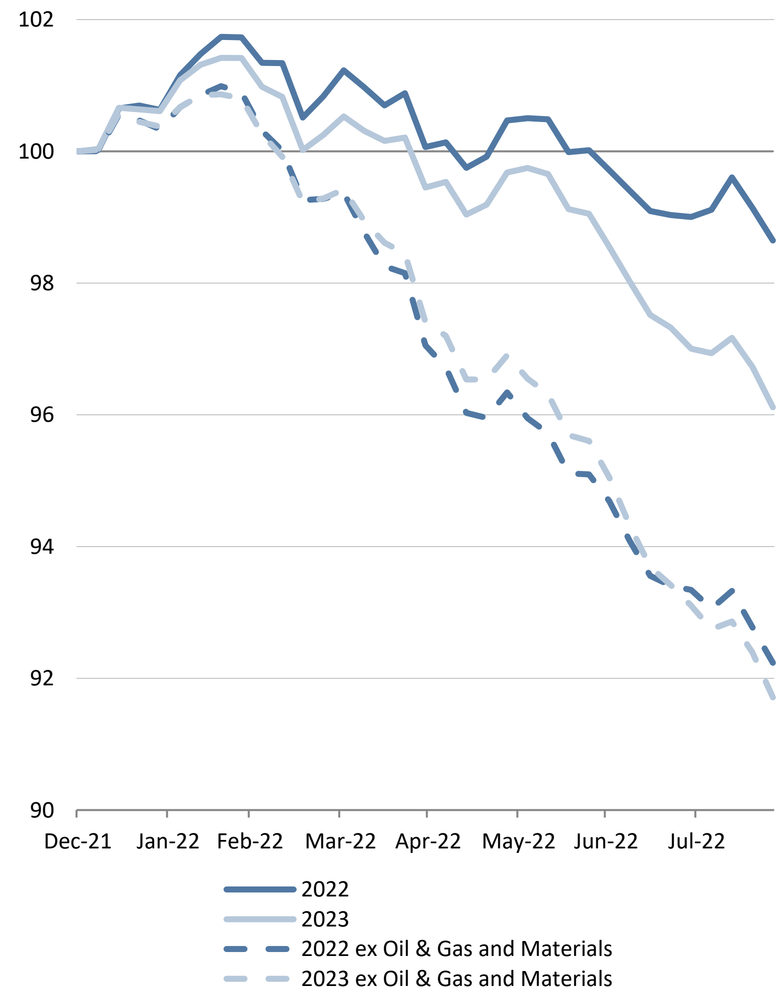
Sources: Federal Reserve, MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Notes: Real ten-year interest rates are represented by the ten-year TIPS yield. Data are monthly. Total return data are gross of dividend taxes. The cyclically adjusted price-to–cash earnings (CAPCE) ratio is calculated by dividing the inflation-adjusted index price by trailing ten-year average inflation–adjusted cash earnings. Cash earnings are defined as net income from continuing operations plus depreciation and amortization expense. MSCI does not publish cash earnings for banks and insurance companies and therefore excludes these two industry groups from index-level cash earnings.
MMHC

Negative revisions outside of commodity sectors are dragging index EPS forecasts lower

FY EPS GROWTH ESTIMATES BY REGION
As of August 31, 2022 • Percent (%)



MSCI ACWI EARNINGS GROWTH EXPECTATIONS
December 31, 2021 – August 31, 2022 • December 31, 2021 = 100



Sources: FTSE International Limited, I/B/E/S, MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
Notes: Japan FY EPS data represents earnings growth from March through the next 12-month period. EM estimate is in USD terms and reflects the impact of currency fluctuations. Regions are represented by the following indexes: S&P 500 (US), MSCI EMU (EMU), FTSE® All-Share (UK), MSCI Emerging Markets (EM), and MSCI Japan (Japan). MSCI ACWI earnings growth expectations data are weekly.
MMHC

C. PERFORMANCE & RISK/RETURN CHARACTERISTICS

CAMBRIDGE ASSOCIATES

Updated with Supplemental Information

Investment Performance by Composite

As of 8/31/2022

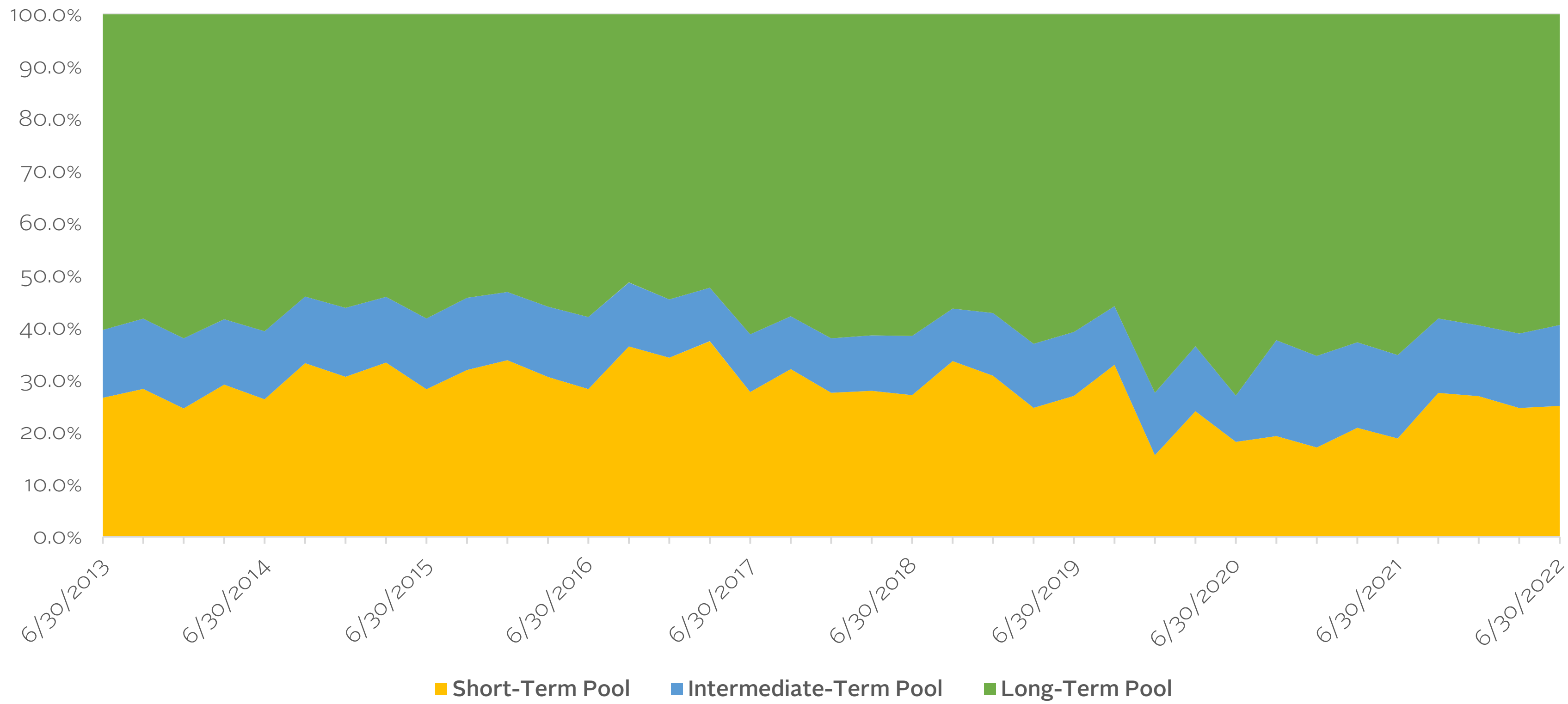
Returns (%)	INCEPTION DATE	CURRENT MARKET VALUE	MONTH TO DATE	FISCAL YEAR TO DATE JUN	CALENDAR YEAR TO DATE	ANNUALIZED TRAILING 5 YEARS	ANNUALIZED TRAILING 10 YEARS	ANNUALIZED SINCE INCEPTION
Total Operating Fund*	6/30/1996	$878,196,116	-2.8	1.1	-10.1	4.4	4.6	4.9
Total Operating Fund Dynamic Index	*6/30/1996*		*-2.6*	*1.3*	*-10.1*	*4.4*	*4.7*	*4.3*
Operating Liquidity Pools*	**6/30/1996**	**$354,667,697**	**-0.7**	**0.1**	**-1.8**	**0.7**	**0.5**	**2.4**
Intermediate-Term Bonds*	**6/30/1996**	**$134,233,719**	**-1.4**	**0.4**	**-4.4**	**0.5**	**0.8**	**3.6**
BofA ML 1-3 Yr Treasury Bond Index	*6/30/1996*		*-0.7*	*-0.4*	*-3.2*	*0.8*	*0.7*	*2.9*
Value Add			*-0.7*	*0.7*	*-1.2*	*-0.2*	*0.1*	*0.7*
Short-Term Bonds and Cash*4	**6/30/1996**	**$220,433,978**	**0.1**	**0.1**	**0.2**	**0.9**	**0.5**	**2.1**
BofA ML 91-Day Treasury Bills	*6/30/1996*		*0.2*	*0.2*	*0.4*	*1.1*	*0.7*	*2.1*
Value Add			*-0.1*	*-0.1*	*-0.1*	*-0.2*	*-0.2*	*0.0*
Total Long-Term Pool*	**6/30/1996**	**$523,528,418**	**-3.9**	**1.9**	**-14.4**	**6.1**	**7.1**	**6.6**
Long-Term Pool Benchmark[1]	*6/30/1996*		*-3.7*	*2.4*	*-14.8*	*6.0*	*7.2*	*5.8*
Value Add			*-0.2*	*-0.5*	*0.3*	*0.1*	*-0.1*	*0.8*
U.S. Equity	**6/30/2000**	**$208,998,362**	**-4.1**	**4.8**	**-16.2**	**11.9**	**13.1**	**6.9**
S&P 500 Index	*6/30/2000*		*-4.1*	*4.8*	*-16.1*	*11.8*	*13.1*	*6.6*
Value Add			*0.0*	*0.0*	*0.0*	*0.1*	*0.0*	*0.2*
Global ex U.S. Equity	**6/30/2000**	**$135,012,307**	**-5.4**	**-0.5**	**-19.8**	**2.0**	**4.9**	**3.3**
MSCI EAFE Index (N)	*6/30/2000*		*-4.7*	*0.0*	*-19.6*	*1.6*	*5.0*	*3.0*
Value Add			*-0.6*	*-0.5*	*-0.3*	*0.4*	*-0.1*	*0.2*
Marketable Alternatives*	**6/30/2000**	**$1,339,790**	**0.0**	**0.0**	**-0.7**	**-0.9**	**1.6**	**4.9**
HFRI Fund of Funds Diversified Index	*6/30/2000*		*0.7*	*1.2*	*-3.5*	*3.9*	*3.8*	*3.4*
Value Add			*-0.7*	*-1.2*	*2.8*	*-4.8*	*-2.2*	*1.5*
TIPS*	**6/30/2000**	**$115,769,097**	**-2.3**	**0.9**	**-5.3**	**3.4**	**1.9**	**5.1**
BBG US TIPS Index	*6/30/2000*		*-2.7*	*1.6*	*-7.5*	*3.2*	*1.7*	*5.0*
Value Add			*0.4*	*-0.7*	*2.2*	*0.2*	*0.1*	*0.0*
Long-Term Bonds	**6/30/1996**	**$62,408,862**	**-2.7**	**-0.5**	**-11.5**	**0.5**	**1.5**	**5.2**
BBG Aggregate Bond Index	*6/30/1996*		*-2.8*	*-0.5*	*-10.8*	*0.5*	*1.4*	*4.5*
Value Add			*0.1*	*0.0*	*-0.8*	*0.0*	*0.2*	*0.7*

C|A

Rows marked with "*" contain preliminary data.
[1] For Benchmark details, please refer to the Custom Benchmark Composition exhibit.
[4] Includes Funds Pending Placement.

Total Operating Fund Breakout

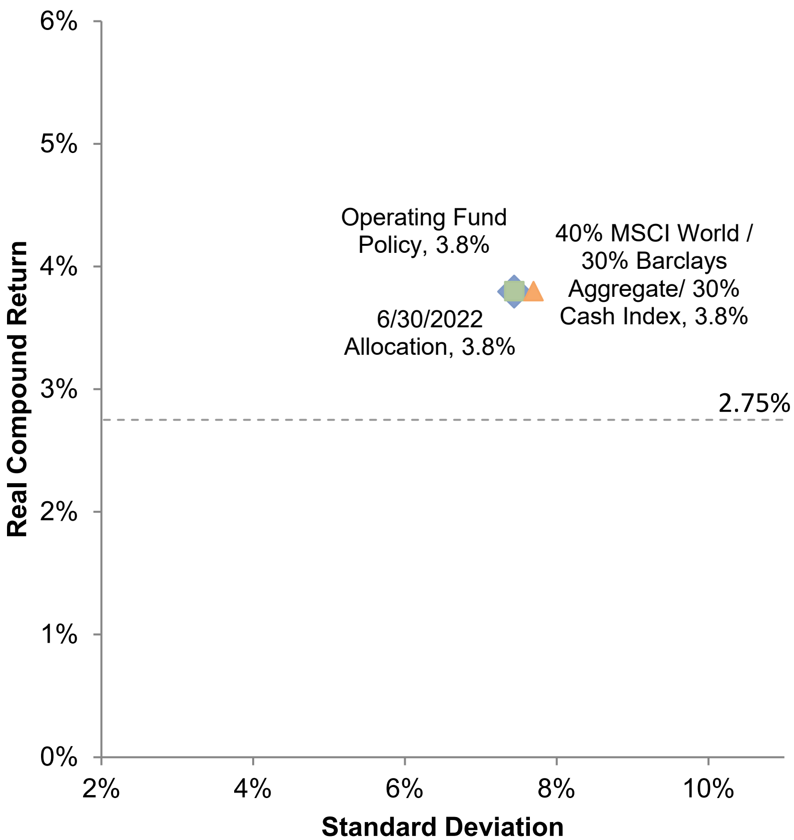
Trailing 10-Years as of 6/30/2022



Note: Total Operating Fund Portfolio comprised of Long-Term Pool, Intermediate-Term Pool, and Short-Term Pool tracked on a quarterly basis.

Operating Fund – Long-Term Risk/Return Expectations

Long-Term Real Risk/Return Projections



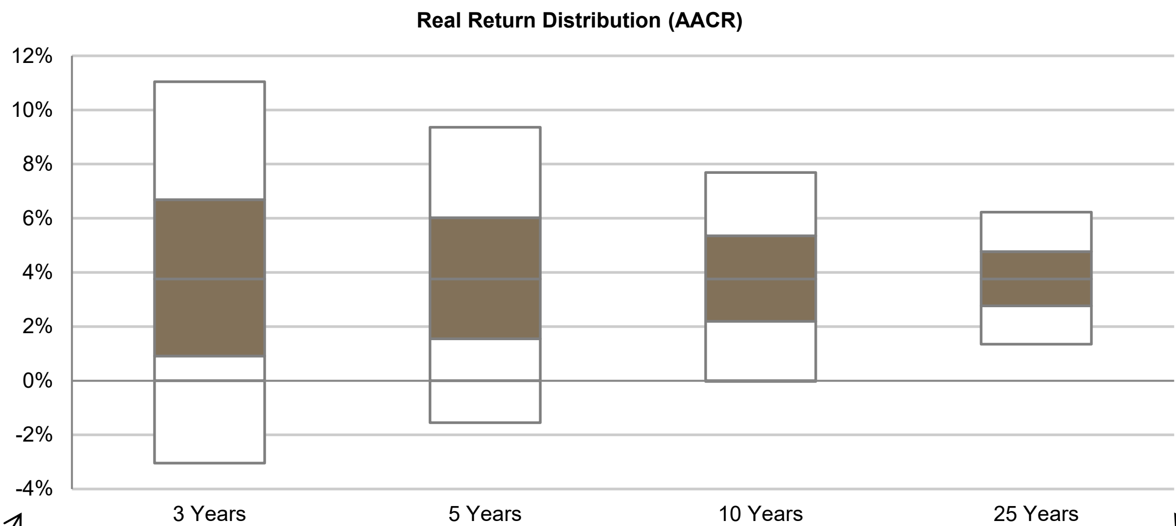
Summary Statistics – Real Returns

	6/30/2022 Allocation	Operating Fund Policy	40% MSCI World / 30% Barclays Aggregate / 30% Cash Index
Estimated Long-Term Real Compound Return	3.8%	3.8%	3.8%
Estimated Range of Returns (25th-75th %ile)	2.8% - 4.8%	2.8 - 4.8%	2.8 - 4.8%
Estimated Volatility (Standard Deviation)	7.4%	7.4%	7.7%
Estimated Beta to Global Equity	0.39	0.39	0.40
Long-Term Risk: Estimated Probability of Not Achieving 2.75% Real Compound Return Over 25 Years	24%	25%	25%
Short-Term Risk: Estimated Cumulative Decline, 2008 Financial Crisis	-20.2% -$20mm	-21.3% -$21mm	-20.1% -$20mm

C|A

Over Short-Term Periods the Operating Fund Has Meaningful Likelihood of Negative Returns

- While the Operating Fund Policy has a 3.8% expected real compound return over the long term (i.e. 25+ years), there is a wide range of potential outcomes, particularly over shorter time periods.



	3 Years	5 Years	10 Years	25 Years
5th	11.0%	9.4%	7.7%	6.2%
25th	6.7%	6.0%	5.4%	4.8%
50th	3.8%	3.8%	3.8%	3.8%
75th	0.9%	1.5%	2.2%	2.8%
95th	-3.0%	-1.6%	0.0%	1.3%

Over any given 3-year period the Operating Fund Policy has a 50% likelihood of a return between 0.9% and 6.7%

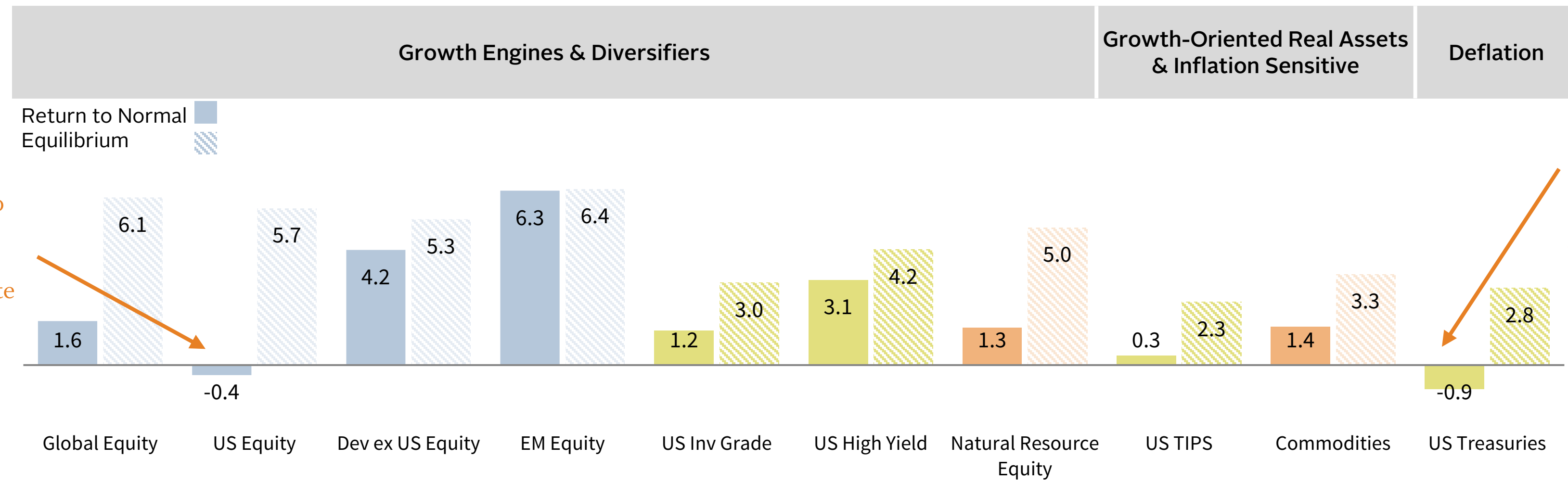
Over any given 25-year period the Long-Term Policy has a 50% likelihood of a return between 2.8% and 4.8%

The trailing 3-year/5-year returns of 4.0% & 4.5% fall in the 2nd quartile of expected returns.

Even after early 2022 market pullback, valuations still look likely to challenge intermediate-term market returns

INTERMEDIATE-TERM (10-YEAR) "RETURN TO NORMAL" SCENARIO, ASSUMING VALUATIONS NORMALIZE OVER NEXT 10 YEARS
LONG-TERM (25-PLUS YEAR) STEADY STATE "EQUILIBRIUM" ASSUMPTIONS: REAL RETURNS (ADJUSTED FOR INFLATION)
Based on Current Market Valuations as of July 31, 2022 (3.0% Inflation)

If US Equity valuations revert to long-term averages over next 10 years, they would generate a -0.4% real return

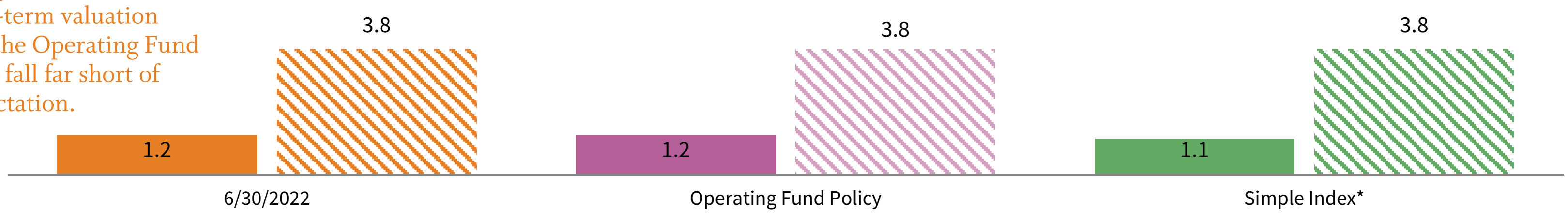


Treasury yields also suggest a negative real return if valuations revert to long-term historical averages

Comparative Return Analysis

LONG-TERM "EQUILIBRIUM" REAL RETURNS
INTERMEDIATE-TERM "RETURN TO NORMAL" REAL RETURNS
(10-Yr Horizon, 3.0% Inflation)

Under a naïve assumption that all asset classes revert to long-term valuation levels over 10 years, the Operating Fund return of 1.2% would fall far short of long-term 3.8% expectation.



Key Assumptions: Inflation: 3%; Real EPS Growth: 2% for US and Dev ex US, 3% for EMs; Ending 10-Yr US Treasury Yield: 5.0%, Ending 10-Yr US TIPS yield: 2.0%

Sources: Barclays, Cambridge Associates LLC, Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.
* 40% MSCI World / 30% Barclays Aggregate / 30% Cash

Historical Stress Scenarios

Stress Name	Dates	Length of Period (Months)	Stress Period Estimates Cumulative Returns - Real		
			6/30/22 Allocations	*Operating Fund Policy*	*Simple Index*
Oil Shock	January 1, 1973 - September 30, 1974	21	-24.6	-24.6	-26.4
Energy Crisis/Stagflation	September 1, 1979 - March 31, 1980	7	-10.0	-9.4	-11.4
Energy Crisis/Stagflation	March 1, 1980 - March 31, 1980	1	-5.1	-5.2	-5.3
Interest Rate Hikes	July 1, 1980 - September 30, 1981	15	-7.5	-6.5	-8.6
Interest Rate Hikes	August 1, 1981 - July 31, 1982	12	-2.7	-3.3	-1.5
Stock Market Crash	September 1, 1987 - November 30, 1987	3	-9.0	-9.4	-9.2
Japan Market Collapse	January 1, 1990 - September 30, 1990	9	-9.1	-9.5	-9.5
Mexican Peso Crisis	February 1, 1994 - January 31, 1995	12	-2.7	-2.6	-3.1
Russian Debt Default	August 1, 1998 - September 30, 1998	2	-3.0	-3.7	-3.0
Tech Bubble Burst	April 1, 2000 - September 30, 2002	30	-9.5	-11.7	-12.0
Credit Crisis/Great Recession	November 1, 2007 - February 28, 2009	16	-20.2	-21.3	-20.1

Operating Fund Benchmark Composition

Total Operating Fund Policy Index

	Wilshire 5000 Total Market Index	MSCI EAFE Index (N)	HFRI FOF Diversified Index	Bloomberg US TIPS Index	Bloomberg Aggregate Bond Index	ICE BofA 1-3Yr US Treasury Index	ICE BofA 91-day T-bills
Inception to 06/30/00:	X	X	X	X	50%	20%	30%
07/01/00 to 03/31/11:	15%	9%	21%	11%	7%	7%	30%
04/01/11 to Present:	24%	16%	X	12%	8%	10%	30%

Total Operating Fund Dynamic Index

	Long-Term Pool Benchmark	ICE BofA 1-3Yr US Treasury Index	ICE BofA 91-day T-bills
Inception to Present:	ACB[1]	ACB[1]	ACB[1]

Long-Term Pool Benchmark

	Wilshire 5000 Total Market Index	MSCI EAFE Index (N)	HFRI FOF Diversified Index	Bloomberg US TIPS Index	Bloomberg Aggregate Bond Index
Inception to 06/30/00:	X	X	X	X	100%
07/01/00 to 03/31/11:	23.8%	14.3%	33.3%	17.5%	11.1%
04/01/11 to Present:	40.0%	26.7%	X	20.0%	13.3%

Opportunistic Custom Benchmark

	MSCI World Index (N)	Bloomberg Aggregate Bond Index	ICE BofA 91-day T-bills
Inception to 07/31/20:	40%	30%	30%

[1] Benchmark is dynamically adjusted on a monthly basis to reflect the Average Capital Base weightings of the Long-Term Pool, Intermediate-Term Pool & Short-Term Pool.

D. OPERATING FUND STATUS

CAMBRIDGE
ASSOCIATES

NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Apr-2000 [1]	190,603,064	131,861	- 3,012,039	**- 2,880,266**	-1.51
May-2000	211,846,354	163,167	- 1,162,937	**- 3,880,036**	-1.83
Jun-2000	205,824,654	2,542,870	- 939,750	**- 2,276,916**	-1.11
Jul-2000	221,886,621	282,084	- 873,438	**- 2,868,270**	-1.29
Aug-2000	224,788,824	4,493,952	- 904,024	**721,658**	0.32
Sep-2000	210,004,756	- 1,229,654	- 1,231,755	**- 1,739,751**	-0.83
Oct-2000 [2]	207,797,786	1,506,098	- 1,164,746	**- 1,398,399**	-0.67
Nov-2000	200,269,779	- 1,984,486	- 1,141,711	**- 4,524,596**	-2.26
Dec-2000	208,182,114	2,418,755	- 1,049,935	**- 3,155,776**	-1.52
Jan-2001	217,937,307	3,123,733	- 1,167,002	**- 1,199,045**	-0.55
Feb-2001	206,043,730	- 1,074,401	- 1,194,381	**- 3,467,826**	-1.68
Mar-2001	194,803,547	- 1,391,260	- 1,114,499	**- 5,973,585**	-3.07
Apr-2001	187,311,217	3,000,904	- 1,100,876	**- 4,073,557**	-2.17
May-2001 [3]	195,326,437	1,255,172	- 1,106,330	**- 3,924,715**	-2.01
Jun-2001	181,680,689	- 742,900	- 1,102,094	**- 5,769,709**	-3.18
Jul-2001	202,347,577	1,445,927	- 847,180	**- 4,282,488**	-2.12
Aug-2001	209,448,723	- 1,130,375	- 859,295	**- 6,299,894**	-3.01
Sep-2001	222,633,859	- 2,329,410	- 902,965	**- 9,566,420**	-4.30
Oct-2001	221,768,653	1,000,136	- 829,611	**- 9,427,304**	-4.25
Nov-2001	172,568,948	2,019,519	- 813,644	**- 8,221,748**	-4.76
Dec-2001	167,605,959	329,048	- 781,211	**- 8,673,911**	-5.18
Jan-2002 [4]	202,807,058	529,077	- 740,482	**- 8,885,317**	-4.38
Feb-2002	198,414,963	574,482	- 745,550	**- 9,056,385**	-4.56
Mar-2002	187,854,679	1,267,945	- 715,383	**- 8,503,822**	-4.53
Apr-2002	194,483,372	1,031,063	- 730,349	**- 8,203,110**	-4.22
May-2002	199,428,572	1,470,532	- 739,859	**- 7,472,437**	-3.75
Jun-2002	190,274,431	- 2,383,454	- 729,181	**- 10,585,072**	-5.56
Jul-2002 [5]	164,908,334	- 3,330,103	- 585,121	**- 14,500,296**	-8.79
Aug-2002	200,314,802	- 25,511	- 591,599	**- 15,117,406**	-7.55
Sep-2002	186,307,147	- 2,456,156	- 638,849	**- 18,212,411**	-9.78
Oct-2002 [6]	187,872,082	1,902,625	- 610,407	**- 16,920,193**	-9.01
Nov-2002	199,286,311	2,082,786	- 581,252	**- 15,132,310**	-7.59
Dec-2002	197,101,437	1,301,796	- 574,879	**- 14,405,394**	-7.31
Jan-2003	216,042,889	373,621	- 630,125	**- 14,661,898**	-6.79
Feb-2003	223,873,793	913,271	- 652,965	**- 14,401,592**	-6.43
Mar-2003	227,320,382	- 504,203	- 663,018	**- 15,568,813**	-6.85
Apr-2003	225,055,464	3,621,910	- 656,412	**- 12,603,315**	-5.60
May-2003	218,291,356	6,046,346	- 636,683	**- 7,193,530**	-3.30
Jun-2003	235,523,055	1,647,556	- 686,942	**- 6,232,829**	-2.65
Jul-2003	225,061,174	- 1,305,304	- 674,445	**- 8,212,420**	-3.65
Aug-2003	241,526,531	2,223,696	- 719,494	**- 6,707,917**	-2.78
Sep-2003	284,905,882	3,067,753	- 835,773	**- 4,475,866**	-1.57
Oct-2003	284,905,882	3,463,060	- 815,074	**- 1,827,815**	-0.64
Nov-2003	267,256,457	2,085,338	- 785,343	**- 527,777**	-0.20
Dec-2003	270,053,685	3,621,731	- 792,490	**2,301,522**	0.85
Jan-2004	304,898,705	3,239,296	- 899,911	**4,641,067**	1.52
Feb-2004	306,353,392	2,786,761	- 925,891	**6,501,985**	2.12
Mar-2004	334,140,321	880,979	- 959,699	**6,423,321**	1.92
Apr-2004	323,733,799	- 3,271,914	- 935,653	**2,215,804**	0.68
May-2004	310,820,065	2,978,607	- 884,508	**4,308,156**	1.39
Jun-2004	319,089,113	1,756,998	- 924,163	**5,141,050**	1.61
Jul-2004	276,525,679	- 3,003,616	- 853,527	**1,284,158**	0.46

* Average Market Value for the month
See endnotes at the end of this exhibit

NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Aug-2004	300,350,870	1,787,372	- 878,380	**2,193,830**	0.73
Sep-2004	329,175,987	3,970,031	- 946,862	**5,217,350**	1.58
Oct-2004	325,280,731	2,674,159	- 906,294	**6,985,541**	2.15
Nov-2004	325,501,494	4,944,533	- 927,189	**11,003,523**	3.38
Dec-2004	317,086,382	6,159,801	- 863,703	**16,300,918**	5.14
Jan-2005	358,775,910	- 1,537,890	- 1,012,932	**13,752,561**	3.83
Feb-2005	368,348,060	4,214,824	- 1,034,309	**16,933,741**	4.60
Mar-2005	368,184,915	- 1,390,602	- 998,491	**14,545,251**	3.95
Apr-2005	322,747,036	- 373,270	- 997,321	**13,175,791**	4.08
May-2005	351,522,927	3,172,862	- 986,250	**15,968,809**	4.54
Jun-2005	350,676,848	1,881,696	- 980,355	**16,872,276**	4.81
Jul-2005	324,372,566	2,325,199	- 894,849	**18,303,775**	5.64
Aug-2005	336,278,510	2,577,885	- 935,037	**19,950,951**	5.93
Sep-2005	380,767,534	2,845,247	- 1,022,572	**21,774,810**	5.72
Oct-2005	382,463,815	- 2,503,281	- 1,031,408	**18,241,926**	4.77
Nov-2005	370,575,423	2,876,089	- 1,026,612	**20,092,768**	5.42
Dec-2005	362,198,735	3,886,306	- 996,500	**22,984,930**	6.35
Jan-2006	400,119,473	6,214,511	- 1,101,206	**28,104,444**	7.02
Feb-2006 [7]	363,661,874	2,407,655	- 1,158,882	**14,359,096**	3.95
Mar-2006	421,741,479	1,870,205	- 1,104,085	**14,862,142**	3.52
Apr-2006	412,409,442	4,126,708	- 1,189,962	**17,807,634**	4.32
May-2006	428,050,405	- 2,712,303	- 1,229,022	**13,874,468**	3.24
Jun-2006	397,038,132	759,423	- 1,472,632	**13,168,597**	3.32
Jul-2006	426,778,295	3,170,187	- 1,232,828	**15,016,412**	3.52
Aug-2006	446,949,399	4,809,494	- 1,280,842	**18,545,951**	4.15
Sep-2006	485,309,106	3,886,176	- 1,339,432	**21,098,900**	4.35
Oct-2006	491,077,464	5,745,522	- 1,336,522	**25,515,258**	5.20
Nov-2006	479,641,782	5,384,183	- 1,357,014	**29,564,126**	6.16
Dec-2006	469,227,138	3,423,923	- 1,349,797	**31,627,934**	6.74
Jan-2007	476,690,202	3,514,501	- 1,309,708	**33,761,919**	7.08
Feb-2007	463,957,730	1,793,443	- 1,376,674	**34,183,412**	7.37
Mar-2007	456,916,695	4,250,674	- 1,339,581	**37,099,388**	8.12
Apr-2007	447,774,841	6,834,702	- 1,300,756	**42,652,711**	9.53
May-2007	443,169,778	4,304,247	- 1,283,507	**45,557,251**	10.28
Jun-2007	429,014,210	1,318,682	- 1,276,064	**45,562,802**	10.62
Jul-2007	422,800,379	978,076	- 1,294,859	**45,256,506**	10.70
Aug-2007 [8]	463,287,774	1,141,142	- 1,327,393	**33,468,232**	7.22
Sep-2007	503,693,516	6,725,006	- 1,471,903	**38,732,523**	7.69
Oct-2007 [9]	532,953,405	8,939,371	- 1,484,274	**36,196,965**	6.79
Nov-2007	524,833,392	- 474,987	- 1,455,000	**34,269,215**	6.53
Dec-2007	488,058,329	- 163,714	- 1,438,155	**32,669,497**	6.69
Jan-2008	498,662,871	- 7,274,704	- 1,525,533	**23,871,592**	4.79
Feb-2008	522,429,681	1,770,738	- 1,538,431	**24,110,273**	4.62
Mar-2008 [10]	508,017,279	- 3,288,747	- 1,483,288	**14,100,201**	2.78
Apr-2008	480,885,277	3,415,203	- 1,461,259	**16,054,657**	3.34
May-2008	461,741,980	3,456,286	- 1,382,621	**18,150,032**	3.93
Jun-2008	429,413,850	- 8,450,547	- 1,386,824	**8,313,390**	1.94
Jul-2008	410,663,405	- 4,628,107	- 1,344,792	**2,340,375**	0.57
Aug-2008	475,058,191	- 725,811	- 1,301,470	**313,725**	0.07
Sep-2008	528,357,492	- 24,682,230	0	**- 24,368,505**	-4.61
Oct-2008	499,948,331	- 22,338,217	0	**- 46,706,721**	-9.34
Nov-2008 [10.5]	384,017,951	- 10,810,207	0	**- 62,831,615**	-16.36
Dec-2008	365,149,131	7,289,401	0	**- 55,562,986**	-15.22

* Average Market Value for the month
See endnotes at the end of this exhibit

NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Jan-2009	395,078,444	- 8,312,962	0	**- 63,898,394**	-16.17
Feb-2009	412,489,609	- 11,778,961	0	**- 75,700,296**	-18.35
Mar-2009	394,110,706	9,195,194	0	**- 66,527,948**	-16.88
Apr-2009	385,281,546	9,210,151	0	**- 57,339,861**	-14.88
May-2009	386,438,273	10,367,154	0	**- 46,963,715**	-12.15
Jun-2009	388,504,496	8,396,302	0	**- 38,691,756**	-9.96
Jul-2009	379,884,652	8,920,793	0	**- 29,791,574**	-7.84
Aug-2009	417,718,890	7,745,266	0	**- 22,211,230**	-5.32
Sep-2009	476,920,474	11,390,789	0	**- 10,848,845**	-2.27
Oct-2009	478,206,217	- 1,260,470	0	**- 12,134,968**	-2.54
Nov-2009	467,981,428	7,816,435	0	**- 4,339,904**	-0.93
Dec-2009	460,887,939	978,601	0	**- 3,386,044**	-0.73
Jan-2010	494,113,754	- 536,799	0	**- 3,954,220**	-0.80
Feb-2010	536,415,257	2,629,875	0	**- 1,350,564**	-0.25
Mar-2010	529,962,831	7,950,695	0	**6,592,916**	1.24
Apr-2010	505,028,620	3,769,231	0	**10,366,971**	2.05
May-2010	495,723,958	- 8,178,556	0	**2,164,107**	0.44
Jun-2010	483,015,094	- 3,741,998	0	**- 1,715,881**	-0.36
Jul-2010	454,152,490	8,216,789	0	**6,477,955**	1.43
Aug-2010	478,983,837	- 954,095	0	**5,493,768**	1.15
Sep-2010	531,289,764	11,065,950	0	**16,376,944**	3.08
Oct-2010	545,098,997	8,352,517	0	**24,701,594**	4.53
Nov-2010 [11]	537,632,325	- 1,485,861	0	**3,191,638**	0.59
Dec-2010	526,037,834	7,596,878	0	**10,761,836**	2.05
Jan-2011	543,100,034	4,427,520	0	**15,156,209**	2.79
Feb-2011	584,582,290	7,036,994	0	**22,226,373**	3.80
Mar-2011	602,634,879	168,183	0	**22,316,281**	3.70
Apr-2011	602,899,146	8,660,352	0	**30,976,656**	5.14
May-2011	600,527,414	- 1,003,816	0	**30,000,368**	5.00
Jun-2011	584,153,071	- 2,244,871	0	**27,687,521**	4.74
Jul-2011	553,620,075	383,544	- 909,098	**27,161,999**	4.91
Aug-2011	550,357,944	- 11,607,805	- 902,641	**14,651,568**	2.66
Sep-2011	580,320,257	- 16,972,235	- 1,011,187	**- 3,331,839**	-0.57
Oct-2011	616,014,627	19,660,977	- 1,022,377	**15,306,775**	2.48
Nov-2011	614,641,484	- 2,138,517	- 1,051,805	**12,116,473**	1.97
Dec-2011	570,282,703	1,812,147	- 1,017,403	**12,758,773**	2.24
Jan-2012	588,887,714	12,029,128	- 1,001,701	**23,759,216**	4.03
Feb-2012	640,696,614	10,597,480	- 1,075,899	**33,258,187**	5.19
Mar-2012 [12]	665,476,106	6,211,504	- 1,076,596	**8,322,216**	1.25
Apr-2012	675,583,556	- 46,605	- 1,088,493	**7,168,811**	1.06
May-2012	650,891,109	- 14,138,289	- 1,072,313	**- 8,061,857**	-1.24
Jun-2012	651,130,437	10,716,945	- 1,037,938	**1,471,157**	0.23
Jul-2012	646,978,870	5,879,922	- 998,094	**6,258,602**	0.97
Aug-2012	649,388,408	7,839,154	- 970,634	**13,104,020**	2.02
Sep-2012	696,232,882	8,049,795	- 1,050,089	**21,081,049**	3.03
Oct-2012	710,358,991	- 1,197,576	- 1,067,091	**18,810,096**	2.65
Nov-2012	691,059,345	5,398,282	- 1,042,304	**23,118,256**	3.35
Dec-2012	676,084,453	5,351,934	- 1,023,111	**27,408,223**	4.05
Jan-2013	698,562,775	12,404,710	- 1,017,830	**38,765,511**	5.55
Feb-2013	734,583,537	2,136,815	- 1,110,373	**39,781,379**	5.42
Mar-2013	741,356,785	7,909,680	- 1,118,897	**46,560,042**	6.28
Apr-2013 [13]	746,499,564	8,176,059	- 1,098,001	**33,597,353**	4.50
May-2013	749,121,650	- 232,068	- 1,086,419	**32,122,561**	4.29

* Average Market Value for the month
See endnotes at the end of this exhibit

NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Jun-2013	730,655,804	- 11,399,623	- 1,070,174	**18,372,158**	2.51
Jul-2013	699,864,927	17,517,869	- 995,266	**35,972,372**	5.14
Aug-2013	722,698,696	- 10,850,330	- 1,017,100	**24,104,402**	3.34
Sep-2013 [14]	757,589,559	16,932,055	- 1,113,457	**24,944,753**	3.29
Oct-2013	773,300,230	13,389,288	- 1,110,570	**37,198,388**	4.81
Nov-2013	782,311,772	7,133,796	- 1,126,357	**43,114,980**	5.51
Dec-2013	766,348,636	3,839,932	- 1,096,572	**45,808,074**	5.98
Jan-2014	794,356,651	- 10,323,902	- 1,103,315	**34,364,198**	4.33
Feb-2014	832,429,376	17,369,351	- 1,199,782	**50,609,052**	6.08
Mar-2014 [15]	827,743,406	658,708	- 1,232,998	**29,973,696**	3.62
Apr-2014	811,778,308	5,011,098	- 1,192,620	**33,733,052**	4.16
May-2014	802,766,371	9,865,028	- 1,167,436	**42,329,115**	5.27
Jun-2014	796,867,536	5,137,303	- 1,132,848	**44,988,631**	5.65
Jul-2014	769,443,193	- 7,085,988	- 1,088,507	**37,893,670**	4.92
Aug-2014	768,458,918	9,717,438	- 1,074,041	**46,500,161**	6.05
Sep-2014	799,195,918	- 12,343,439	- 1,174,737	**32,956,777**	4.12
Oct-2014	809,138,417	3,728,437	- 1,179,110	**35,489,183**	4.39
Nov-2014	803,360,295	7,715,321	- 1,179,110	**42,007,603**	5.23
Dec-2014	787,894,117	- 8,447,678	- 1,162,452	**32,373,324**	4.11
Jan-2015	817,081,803	- 76,950	- 1,146,238	**31,126,582**	3.81
Feb-2015	861,706,208	14,825,760	- 1,173,599	**44,758,231**	5.19
Mar-2015	846,665,997	- 6,106,183	- 1,266,477	**37,276,172**	4.40
Apr-2015	816,988,387	8,550,962	- 1,236,365	**44,571,763**	5.46
May-2015	800,253,288	878,840	- 1,180,152	**44,251,472**	5.53
Jun-2015	775,206,818	- 8,971,779	- 2,277,378	**32,851,768**	4.24
Jul-2015	741,262,295	3,882,734	0	**36,716,269**	4.95
Aug-2015	730,652,584	- 21,602,156	- 1,044,825	**14,046,895**	1.92
Sep-2015	743,692,218	- 9,918,574	- 1,053,121	**2,945,392**	0.40
Oct-2015	763,715,634	22,165,405	- 1,145,809	**23,945,040**	3.14
Nov-2015	773,032,685	- 1,931,303	- 1,153,337	**20,734,926**	2.68
Dec-2015	757,261,248	- 6,511,571	- 1,159,535	**12,989,860**	1.72
Jan-2016	753,972,401	- 11,441,815	- 1,155,539	**370,580**	0.05
Feb-2016	790,998,777	- 681,126	- 1,124,930	**- 1,455,417**	-0.18
Mar-2016	797,575,047	21,771,860	- 1,224,413	**18,964,772**	2.38
Apr-2016	766,518,822	3,441,429	- 1,170,933	**21,216,478**	2.77
May-2016	757,996,550	701,573	- 1,125,582	**20,774,029**	2.74
Jun-2016	755,484,888	3,775,103	- 1,098,587	**23,146,343**	3.06
Jul-2016	733,302,986	11,461,092	- 1,059,136	**33,491,949**	4.57
Aug-2016 [16]	766,724,276	- 2,118,513	- 1,045,608	**25,041,315**	3.27
Sep-2016	842,005,030	5,780,022	- 1,194,237	**29,752,500**	3.53
Oct-2016	862,418,660	- 6,852,761	- 1,202,643	**21,682,310**	2.51
Nov-2016	845,771,679	- 741,201	- 1,181,669	**19,718,479**	2.33
Dec-2016	817,936,437	6,570,718	- 1,128,775	**25,086,318**	3.07
Jan-2017	830,799,148	9,054,706	- 1,084,201	**32,985,285**	3.97
Feb-2017	880,425,266	10,058,347	- 1,242,283	**41,938,224**	4.76
Mar-2017	893,424,246	3,300,433	- 1,232,302	**43,973,971**	4.92
Apr-2017	887,806,037	7,463,148	- 1,217,247	**50,184,988**	5.65
May-2017	887,269,645	8,464,067	- 1,198,145	**57,369,255**	6.47
Jun-2017	847,739,260	675,163	- 1,143,788	**55,459,088**	6.54
Jul-2017	813,856,671	10,359,659	- 1,076,066	**65,797,343**	8.08
Aug-2017	839,204,422	2,535,845	- 1,066,881	**67,230,046**	8.01
Sep-2017	881,692,900	5,616,527	- 1,202,797	**71,754,200**	8.14
Oct-2017	901,627,087	6,727,263	- 1,229,105	**77,279,939**	8.57

* Average Market Value for the month
See endnotes at the end of this exhibit

NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Nov-2017	897,702,172	7,822,907	- 1,153,420	**83,851,878**	9.34
Dec-2017	855,516,473	5,905,871	- 1,073,414	**88,582,274**	10.35
Jan-2018 [17]	870,092,454	18,446,268	- 1,084,399	**80,652,619**	9.27
Feb-2018	895,531,308	- 16,708,736	- 1,163,952	**62,862,530**	7.02
Mar-2018	866,802,937	- 5,188,184	- 1,208,065	**56,484,006**	6.52
Apr-2018	869,750,629	1,383,567	- 1,207,801	**56,632,529**	6.51
May-2018	868,282,529	4,480,231	- 1,010,580	**59,885,226**	6.90
Jun-2018	828,275,019	504,749	- 1,105,523	**58,061,099**	7.01
Jul-2018 [18]	781,211,535	11,568,283	- 1,004,059	**44,605,676**	5.71
Aug-2018	810,642,123	4,837,891	- 1,076,126	**48,410,834**	5.97
Sep-2018	879,381,343	- 14,451	- 1,137,144	**47,294,965**	5.38
Oct-2018	843,212,368	- 27,059,717	- 1,137,144	**18,072,015**	2.14
Nov-2018	762,699,933	6,136,519	- 1,136,756	**23,111,191**	3.03
Dec-2018	752,705,668	- 20,825,049	- 1,078,367	**1,167,391**	0.16
Jan-2019 [19]	753,528,570	23,632,965	- 1,096,327	**23,296,550**	3.09
Feb-2019	754,807,467	9,824,828	- 1,452,664	**31,564,140**	4.18
Mar-2019	761,309,536	9,279,311	- 1,515,302	**38,857,044**	5.10
Apr-2019	764,955,436	11,312,489	- 1,614,169	**48,487,968**	6.34
May-2019	774,616,352	- 13,890,657	- 1,571,635	**32,952,377**	4.25
Jun-2019	746,443,912	21,045,778	- 1,567,035	**52,205,793**	6.99
Jul-2019	720,007,773	381,944	- 1,395,492	**51,172,462**	7.11
Aug-2019	785,158,884	- 779,722	- 1,450,754	**48,914,638**	6.23
Sep-2019	846,535,697	6,233,348	- 1,617,017	**53,507,273**	6.32
Oct-2019	856,744,736	8,834,730	- 1,693,946	**60,625,110**	7.08
Nov-2019	850,439,695	10,005,189	- 1,662,312	**68,946,980**	8.11
Dec-2019	806,757,327	12,830,074	- 1,577,866	**80,177,860**	9.94
Jan-2020	891,688,604	- 67,519	- 1,500,526	**78,625,336**	8.82
Feb-2020	922,289,270	- 26,731,149	- 1,768,312	**50,103,331**	5.43
Mar-2020	811,327,908	- 52,289,889	- 1,670,447	**- 3,927,762**	-0.48
Apr-2020	775,956,294	37,779,458	- 1,594,553	**32,236,898**	4.15
May-2020	762,669,298	18,944,864	- 1,504,025	**49,410,102**	6.48
Jun-2020	739,239,986	11,363,713	- 1,436,870	**59,317,547**	8.02
Jul-2020	715,432,013	13,526,497	- 1,367,936	**71,458,484**	9.99
Aug-2020	750,071,933	24,059,497	- 1,362,878	**94,131,414**	12.55
Sep-2020 [20]	783,127,870	- 4,553,776	- 1,506,452	**16,589,199**	2.12
Oct-2020	752,504,883	- 10,598,354	- 1,648,426	**4,321,690**	0.57
Nov-2020	770,414,379	40,817,346	- 1,674,331	**43,446,992**	5.64
Dec-2020	800,821,461	17,596,818	- 1,661,247	**59,314,129**	7.41
Jan-2021	801,989,497	- 3,592,874	- 1,620,479	**54,077,946**	6.74
Feb-2021	811,299,798	6,713,929	- 1,713,862	**59,057,334**	7.28
Mar-2021	839,464,763	13,248,129	- 1,778,902	**70,506,600**	8.40
Apr-2021	867,572,029	18,665,949	- 1,764,575	**87,388,466**	10.07
May-2021	867,559,211	8,709,068	- 1,748,219	**94,327,700**	10.87
Jun-2021	850,146,946	4,366,402	- 1,744,947	**96,682,304**	11.37
Jul-2021	846,055,682	9,850,417	- 1,696,940	**104,816,309**	12.39
Aug-2021	901,931,433	9,401,085	- 1,730,758	**112,458,814**	12.47
Sep-2021	968,136,826	- 18,290,298	- 1,812,661	**79,271,334**	8.19
Oct-2021	984,247,430	19,911,506	- 1,996,177	**78,208,255**	7.95
Nov-2021	944,077,590	- 5,851,187	- 1,961,147	**70,375,029**	7.45
Dec-2021	959,607,403	17,310,812	- 1,908,942	**85,755,161**	8.94
Jan-2022	1,011,622,318	- 24,280,980	- 1,903,980	**59,545,381**	5.89
Feb-2022	974,461,174	- 11,541,309	- 1,992,047	**45,938,564**	4.71
Mar-2022	922,855,315	2,729,592	- 2,048,720	**46,603,144**	5.05

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NEVADA SYSTEM OF HIGHER EDUCATION
RESERVE ACCOUNT ANALYSIS
April 2000 - July 2022

	Operating Fund Market Value*	Investment Income Earned	Investment Income Distributed	Reserve Account Ending Balance	Reserve/(Deficit) as % of Total Operating Fund
Apr-2022	876,338,530	- 40,563,162	- 2,066,983	**3,962,090**	0.45
May-2022	801,574,962	6,736,026	- 2,038,768	**8,448,237**	1.05
Jun-2022	748,819,988	- 37,445,974	0	**- 28,941,893**	-3.87
Jul-2022	741,544,311	32,094,620	0	**3,238,566**	0.44

ENDNOTES

[1] New Board policy to distribute 5.0% of the average cash balance was approved at the March 2000 Investment Committee meeting, and made retroactive to January 2000. A special cash distribution was made in April to adjust the year to date campus investment income allocation.

[2] Annual distribution rate increased to 6.2%.

[3] Annual distribution rate cut to 5.0%, effective July 2001.

[4] Annual distribution rate cut to 4.0%, effective January 1, 2002.

[5] Annual distribution rate cut to 3.5%, effective July 1, 2002.

[6] At the Oct 2002 mtg, the Committee established a "trigger" point for the Operating Fund. The distribution rate would be automatically reduced to 1.8%

should the reserve account deficit exceed $20M.

[7] Includes a $15.0 mm distribution to the iNtegrate project.

[8] Includes a distribution of $10.0 mm to the campuses, $1.5 mm to Health Science, and $107,000 to WNC for Athletic Fee Waiver.

[9] Includes a distribution of $10.0 mm to the campuses.

[10] Includes a distribution of $5.2 mm to integrate.

[10.5] Includes a distribution of $5.0 mm to the campuses.

[11] Includes a distribution of $20.0 mm to the iNtegrate project, as approved by the Investment Committee at the December 2010 meeting.

[12] At the March 2012 meeting, the committee approved to decrease the Reserve Account by $30.0 mm for reallocation into the Market Fluctuation account.

[13] Includes a further decrease of the Reserve Account of $20.0 mm for reallocation into the Market Fluctuation account.

[14] Includes a distribution of $15.0 mm to address formula implementation and budgetary items otherwise foregone or delayed without this funding.

[15] Includes a distribution of $20.0 mm to the iNtegrate project.

[16] Includes a distribution of $5.0 mm for campus initiatives such as the medical education transition in Las Vegas, program start-up and other budgetary opportunities.

[17] Includes a special distribution of $25.0 mm to the campuses.

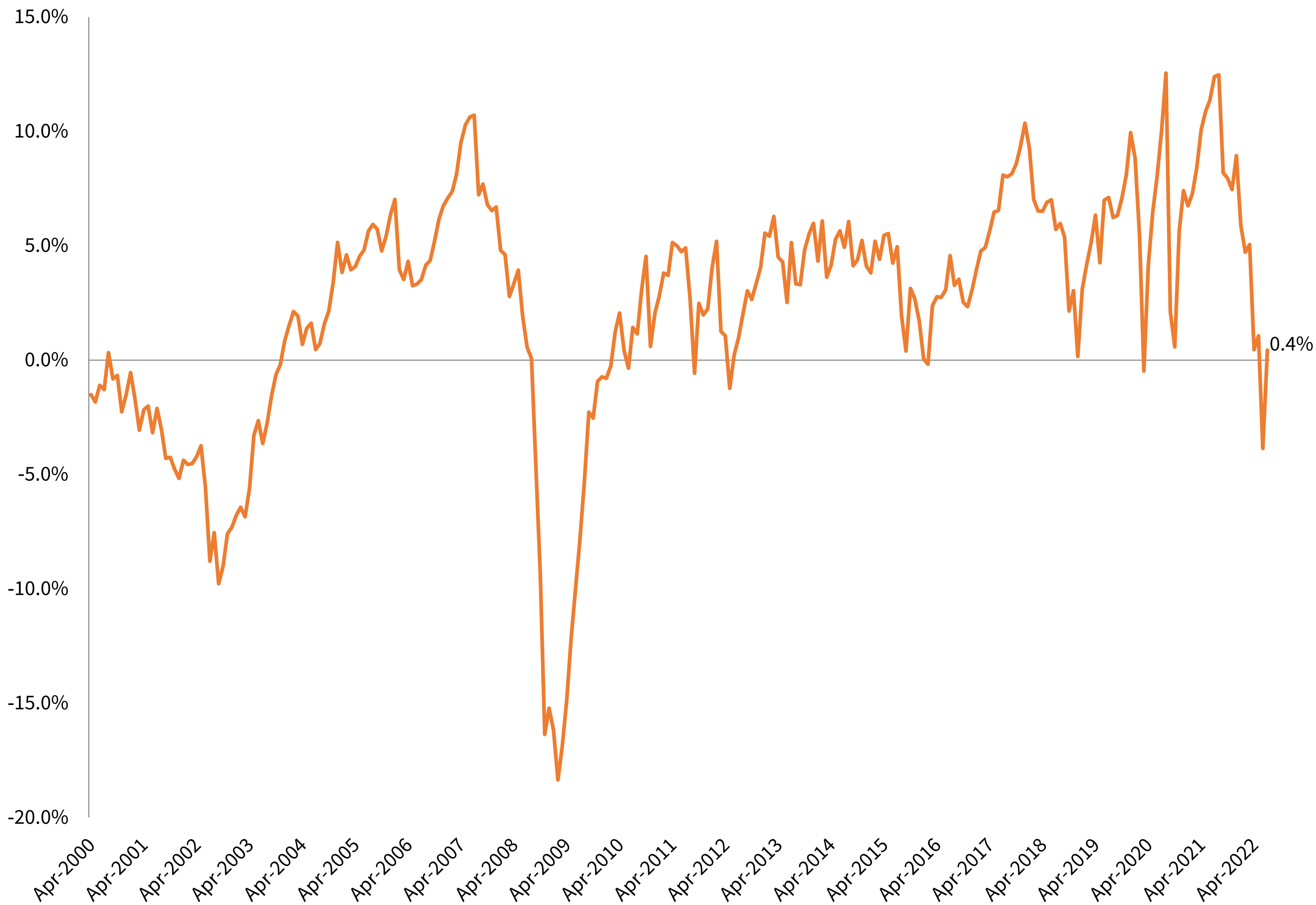
[18] Includes a special distribution of $25.0 mm to the campuses.

[19] At the November 2018 meeting, the Committee increased the annual distribution rate from 2.0% to 2.75%.

[20] At a special meeting on 8/21/20 the BOR approved a special distribution of $73.0 mm to the campuses.

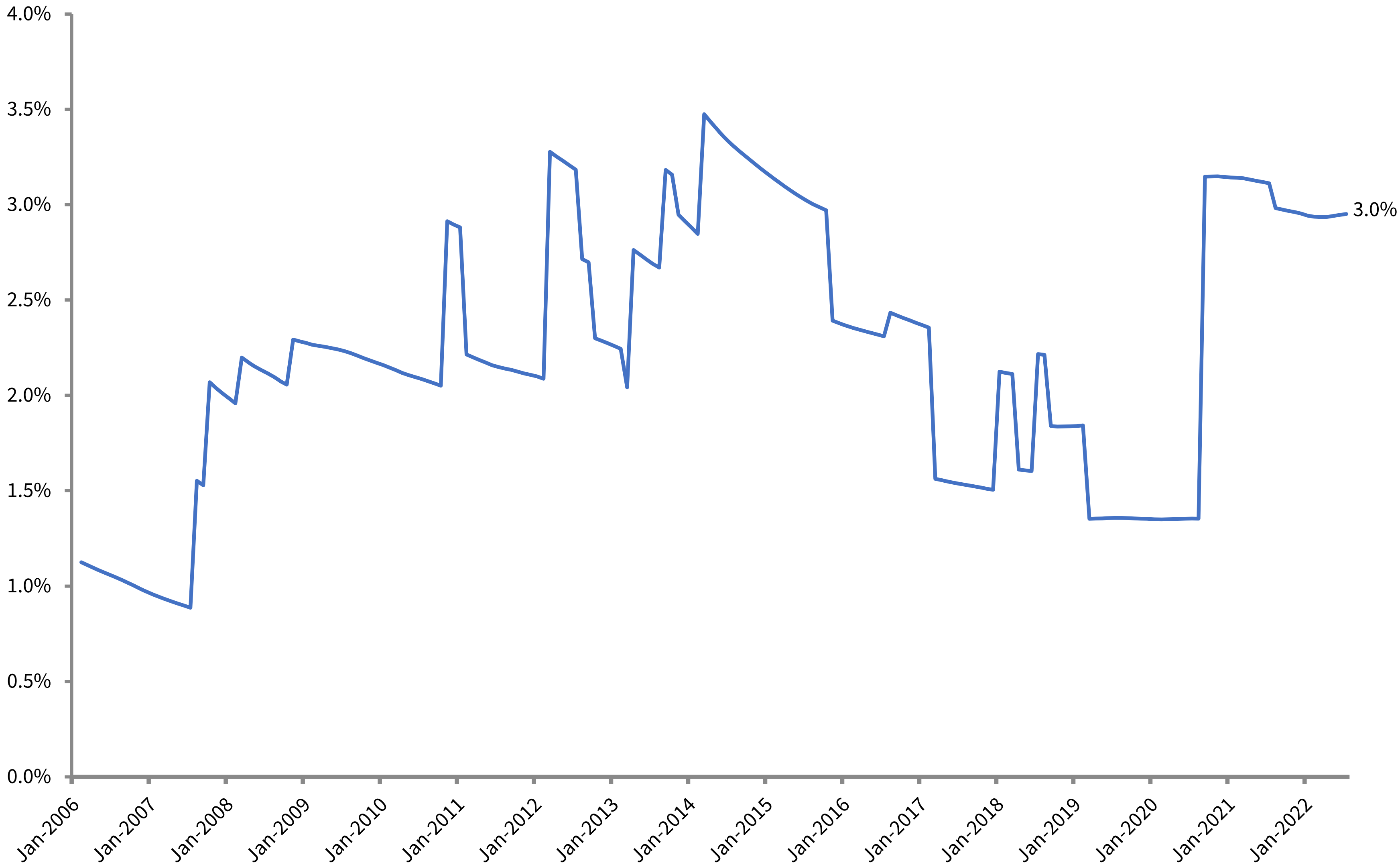
* Average Market Value for the month
See endnotes at the end of this exhibit

Reserve/(Deficit) as % of Total Operating Pool



Note: Data as of 7/31/2022.

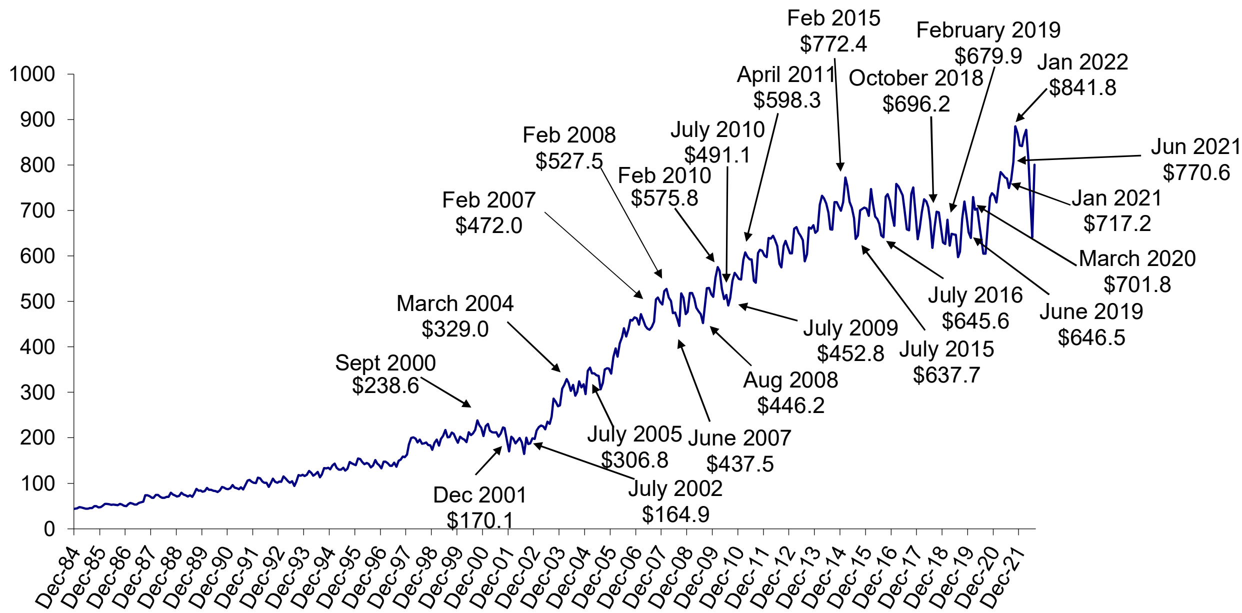
5-Yr Special Distribution as % of 5-Yr Average Market Value



Note: Data as of 7/31/2022.

NEVADA SYSTEM OF HIGHER EDUCATION
OPERATING FUND AVERAGE DAILY CASH BALANCES

Operating Fund Average Daily Cash Balances
January 1985 through July 2022



	$ (mm)	Date
Largest Monthly Decline	-86.8	July 2018
Largest Quarterly Decline	-236.9	Fourth Quarter 2017
Largest Peak to Valley	**-134.7**	**February 2015 - July 2015**

NEVADA SYSTEM OF HIGHER EDUCATION

DISCUSSION MATERIALS - ENDOWMENT OCIO UPDATE

CAMBRIDGE ASSOCIATES

SEPTEMBER 30, 2022

NEVADA SYSTEM OF HIGHER EDUCATION

DISCUSSION MATERIALS – ENDOWMENT OCIO UPDATE

SEPTEMBER 30, 2022

Wendy Walker, CFA
Ijeh Ogbechie
Lindsay Van Voorhis, CFA
David Breiner
Deron Parcell
Alfonso Diaz

CAMBRIDGE ASSOCIATES

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Table of Contents

2. ENDOWMENT OCIO UPDATE

CAMBRIDGE
ASSOCIATES

Updated with Supplemental Information

Endowment OCIO Update – Executive Summary

A. Performance:

- For the FYE 6/30/2022, the Total Endowment returned a *preliminary* -6.6%, outperforming the Policy Benchmark by 190bps. (Private Investments are as of 3/31/2022, due to the manager reporting lag, and we expect C|A and Legacy Assets performance to come down slightly after Private Investments results are finalized). The breakdown by sleeve is as follows:
  - -6.8% - Cambridge Associates (outperforming the benchmark by 320 bps)
  - +8.3% - Legacy Assets (outperforming the benchmark by 480 bps)

- For the calendar year to date through 8/31/2022, the Total Endowment returned a *preliminary* -10.3%, 30 bps behind the Policy Benchmark.

- Over the full OCIO track record from April 1, 2017 (start of formal track record) through March 31, 2022 (lagged to include most recent Private Investment results), the Total Endowment has returned 9.5% annualized, outperforming the Policy Benchmark by 90 basis points.
  - C|A Managed Assets returned 10.1% over the OCIO track record, outperforming the policy benchmark by 130 bps
  - Legacy Assets (representing illiquid pre-OCIO investments recommended by C|A) returned 18.2 %, outperforming their benchmark by 990 bps over the full OCIO track record.

- As requested at the March Investment Committee meeting, we review benchmarking approaches for the Endowment and Operating Pool. We provide detail on the Policy Benchmark, which is a blend of standard market indices representing portfolio exposures, weighted at long-term strategic policy targets. We are comfortable with the current benchmarks and recommend no changes.

- Per the Endowment's Investment Policy Statement, it is important to *monitor* returns on an ongoing basis and *evaluate* portfolio returns and risk over time periods that are suitably long for the long-term investment strategy of this perpetual pool. The Total Endowment 10-year return stands at 7.1%, 30bps ahead of the Policy Benchmark.

C|A

Endowment OCIO Update – Executive Summary *(cont'd)*

B. Asset Allocation and Guideline Compliance:

- The Total Endowment is in compliance with all investment guidelines and restrictions.
- As of June 30, we estimate that CA Managed Assets had <0.1% exposure remaining in Russian equities via one manager, which has made a commitment to exit all Russian positions as market liquidity permits.

C. Risk/Return Characteristics – C|A Portfolio:

- Relative to a 70/30 Simple Index, the C|A Policy Targets approved by the Investment Committee in December 2016 are expected to show slightly lower volatility and sensitivity to equity beta. Although the C|A Policy Benchmark would be expected to experience meaningful short-term declines in stress environments, it is expected to materially reduce the long-term risk of failing to keep pace with the Endowment payout while maintaining purchasing power in inflation-adjusted terms.

D. C|A Diversifiers and Private Investments:

- The C|A hedge fund portfolio is well diversified across 15 managers.
- We have committed $46.8 million to 36 Private Investments funds as we build toward the long-term policy targets approved by the Investment Committee in December 2016. The Total Managed PI return of 28.8% since inception has strongly outperformed the public market equivalent return of 11.9% over that time period.

E. **Legacy Assets:** Since inception through 3/31/22, NSHE's Legacy Private Investments program has returned 12.8%, outperforming public markets by 580 basis points. The Legacy Private Natural Resources funds have been particularly strong, with a 25.0% return since inception (15.0 percentage points ahead of public natural resource equities).

2. ENDOWMENT OCIO UPDATE
A. PERFORMANCE

CAMBRIDGE ASSOCIATES

Updated with Supplemental Information

8/31/2022 Performance

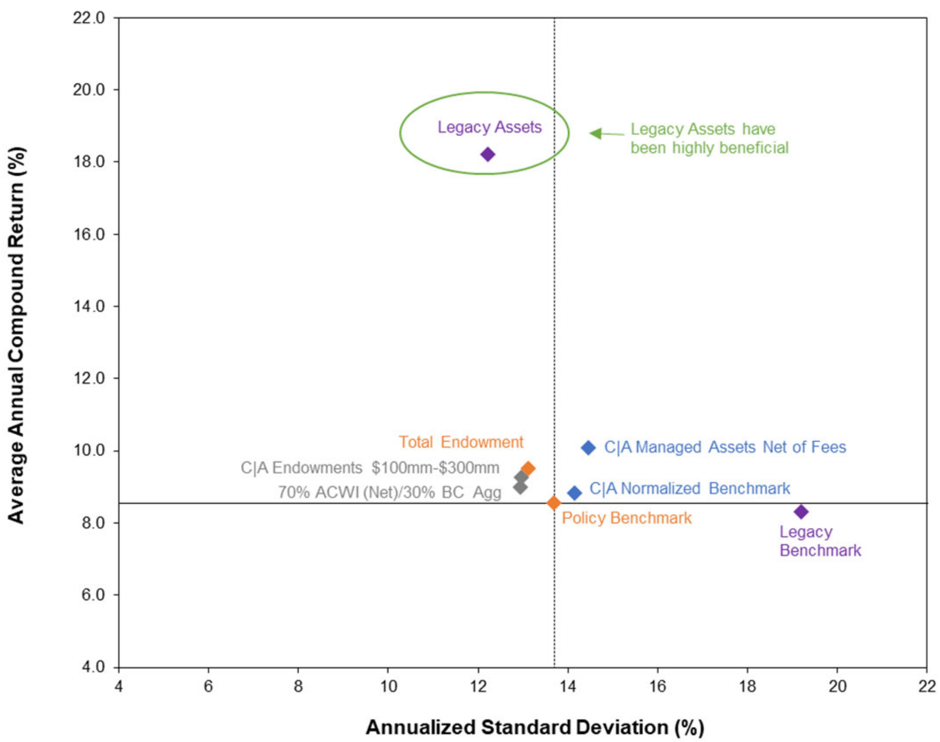
Returns (%)	INCEPTION DATE	CURRENT MARKET VALUE	MONTH TO DATE	FISCAL YEAR TO DATE JUN	CALENDAR YEAR TO DATE	ANNUALIZED TRAILING 10 YEARS	ANNUALIZED SINCE 03/31/17	ANNUALIZED SINCE INCEPTION
Total Endowment*	6/30/1984	$299,667,574	-1.9	0.9	-10.3	6.9	7.3	9.6
Policy Benchmark[2]	*6/30/1984*		*-2.2*	*1.5*	*-10.0*	*6.6*	*6.3*	*9.3*
Total C|A Managed Assets Net of Fees*	**11/30/2016**	**$298,425,415**	**-2.0**	**0.8**	**-12.7**	**---**	**7.5**	**8.3**
C|A Normalized Benchmark[2]	*11/30/2016*		*-2.2*	*1.6*	*-12.4*	---	*6.0*	---
Value Add			*0.3*	*-0.7*	*-0.3*	---	*1.5*	---
Legacy Private Equity*[1]	**7/01/2022**	**$10,296,477**	---	---	---	---	---	---
Legacy Venture Capital*	**7/01/2022**	**$26,333,153**	---	---	---	---	---	---
Legacy Natural Resources*	**7/01/2022**	**$8,969,560**	---	---	---	---	---	---
Total Non-C|A OCIO Assets*	**11/15/1998**	**$1,238,007**	**0.0**	**0.1**	**-0.8**	**9.4**	**8.6**	**10.8**
Total Russell Managed Assets*[12]	1/31/2017	$1,238,007	0.0	0.1	-2.8	---	5.4	5.7
Russell Normalized Benchmark[2]	*1/31/2017*		*0.0*	*0.1*	*-2.8*	---	*7.0*	*7.4*
Value Add			*0.0*	*0.0*	*0.0*	---	*-1.6*	*-1.6*

Rows marked with "*" contain preliminary data.
[1] Performance and market values are as of 3/31/22,(with 1 fund/1% of PI NAV as of 12/31/21) all adjusted with cash flows through the current period.
[2] For Benchmark details, please refer to the Custom Benchmark Compositions exhibit.
[12] Market value and performance is preliminary. Data has been rolled forward pending manager statement.

C|A

C|A Managed Assets has outperformed benchmark by 1.3% annualized over full OCIO track record

Trailing 5 Years • Apr 1, 2017 *(start of formal track record)* - Mar 31, 2022 *(lagged to include most recent Private Investment results)*



	Average Annual Compound Return (%)	Annualized Standard Deviation (%)	Sharpe Ratio[1]
Total Endowment	9.5	13.1	0.64
Policy Benchmark	8.6	13.7	0.54
Total C|A Managed Assets Net of Fees	10.1	14.5	0.62
C|A Normalized Benchmark	8.8	14.2	0.54
Legacy Assets	18.2	12.2	1.40
Legacy Benchmark	8.3	19.2	0.37
C|A Endowments $100mm-$300m[2]	9.3	13.0	0.68
70% MSCI ACWI (Net)/30% Barclays Agg	9.0	13.0	0.61

1. Sharpe Ratio: to calculate this number, subtract the average T-Bill return (risk free rate) from the manager's average return then divide by the manager's standard deviation. The amount of return over the risk-free rate that can be expected for each unit of risk accepted.
2. From 4/1/2017 to 3/30/2022, C|A Endowments $100-$300mm include 82-109 institutions over time. Data is as of 3/31/22.
Note: Based on quarterly data to incorporate peer data and Private Investments. With only 12 data points, standard deviation and Sharpe metrics have statistical limitations.

Value-add has been driven by manager selection

Fiscal Year Ended 6/30/22
(Preliminary -- Private Investments as of 3/31/2022)

12 months ending June 30, 2022 • USD

Value-add has been driven by manager selection

Trailing 5-years ended March 31, 2022
(Lagged to reflect most recent Private Investment results)

5 Years ending March 31, 2022 • USD

Top/Bottom Contributors (bps at Total Portfolio level)	
Private Growth	+116
Marketable Alternatives	+42
US Equity	+30
Public Real Assets	-9
Fixed Income	-9
Global Equity	-25

Benchmarking Review

- As requested at the March Investment Committee meeting, we review benchmarks for the Endowment and Operating Pool. As described on the following slide, the Endowment Investment Policy Statement memorializes several benchmarks assessing different measures of performance and risk over varying time periods relevant to the long-term investment strategy of this perpetual pool.
- Of the three benchmarks, the Policy Benchmark is a blend of standard market indices representing portfolio exposures, weighted at long-term strategic policy targets:
  - Traditional asset classes are most straightforward: the **Public Equity** allocation is benchmarked against the MSCI All Country World Index (the global opportunity set) while **Fixed Income** is benchmarked against the Bloomberg Aggregate Index (a domestic index encompassing US government bonds, investment-grade corporate bonds & securitized credit). The Operating Fund is comprised exclusively of Public Equity and US Fixed Income, so its Policy Benchmark is quite simple.
  - Other Endowment asset classes are benchmarked against their closest relevant public market indices (which have the benefits of being simple, transparent and passively investable):
    - While we benchmark individual **Private Investment** (PI) funds against peer medians (as shown on page 33 of these materials), the PI components of the Endowment Policy Benchmark consist of the closest relevant public market proxies, which represent both the opportunity cost and the source of funding for the PI allocations:
      - *Private Equity/Venture Capital* – MSCI All Country World Index (global public equities)
      - *Private Real Estate* – FTSE EPRA/NAREIT Developed Real Estate Index (global real estate securities)
      - *Private Natural Resources* - S&P Global Natural Resources Index (global energy, metals/mining and agriculture equities)
    - The **Diversifiers** allocation (primarily hedge funds) is benchmarked against a blend of 30% global public equities/70% T-bills, representing the targeted risk profile/factor exposure of the allocation, thereby isolating the value added beyond what could be attributable to public equity market exposure.
    - We employ a "basket approach" to implementing *and* benchmarking the inflation-sensitive **Public Real Assets** allocation, currently split equally across (1) global natural resource equities (energy, metals/mining & ag), (2) global real estate securities and (3) global listed infrastructure.
- We are comfortable with the current benchmarks and recommend no changes.

C|A

Monitor Performance Regularly, while <u>Evaluating</u> over Relevant Time Periods

Per Investment Policy Statement, several benchmarks assess different measures of performance and risk over varying time periods relevant to the long-term investment strategy of this perpetual pool

	Benchmark	Description	Question Answered	Expectation	Evaluation Period
1	**Policy Benchmark**	Weighted blend of benchmarks for each role in portfolio category	Have manager selection and tactical asset allocation been additive relative to the strategic target policy?	Outperform with comparable volatility	Rolling 3-year periods
2	**Simple Risk-Equivalent Benchmark** 70% MSCI ACWI Index (net) / 30% Bloomberg Aggregate	Weighted blend of global equities (MSCI All Country World Index) and U.S. fixed income (Bloomberg Barclays Aggregate Bond Index)	Have asset allocation and implementation been additive relative to simple, passive alternatives; has risk profile been consistent with expectations?	Outperform with equal or less volatility	Rolling 5- to 10-year periods *(full equity market cycle)*
3	**Long-Term Objective** All-in Distribution Policy (4.625%) + Inflation (CPI-U)	Static benchmark not directly related to market performance	Is the portfolio meeting NSHE's financial objectives to support a 4.625% payout and maintain purchasing power?	Outperform	Rolling 10-year periods

C|A

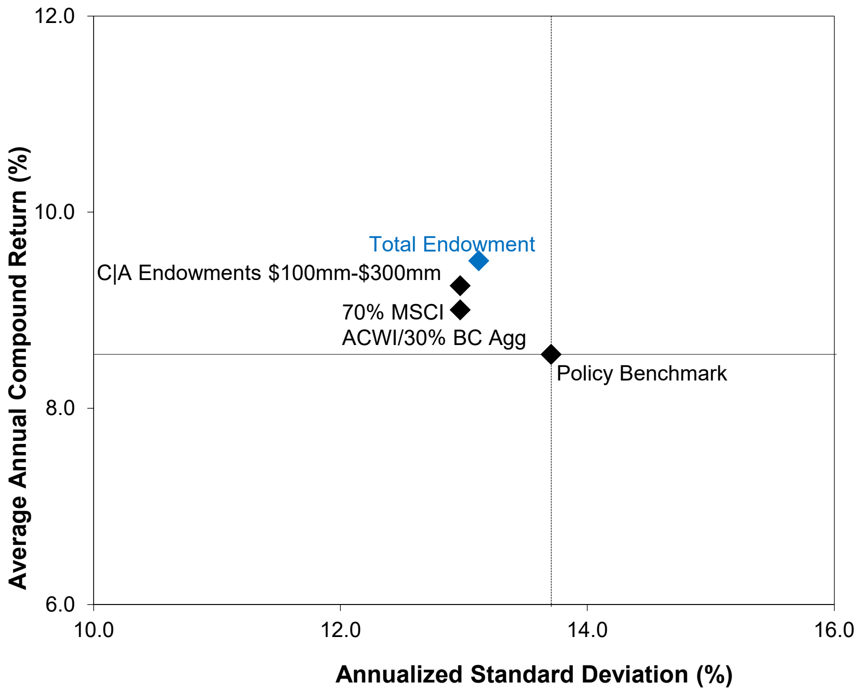
NSHE Endowment Policy Benchmark

Roles	Long-Term Target	Asset Class	Benchmark Index
Growth	62%	US Equity Global Equity Int'l Developed Equity Emerging Markets Equity Private Equity/Venture Capital	MSCI ACWI Index (net)
Diversifiers	18%	Public Diversifiers Private Diversifiers	30% MSCI ACWI (net) / 70% 91-Day T-Bills
Real Assets	10%	Public Real Assets	33% S&P Global Natural Resources Index / 33% FTSE EPRA/NAREIT Developed Real Estate Index / 33% MSCI World Core Infrastructure Index
		Private Real Estate	FTSE EPRA/NAREIT Developed Real Estate Index
		Private Natural Resources	S&P Global Natural Resources Index
Fixed Income & Cash	10%	Fixed Income	Bloomberg Aggregate
		Cash	91-Day T-Bills

Risk/Return Analyses

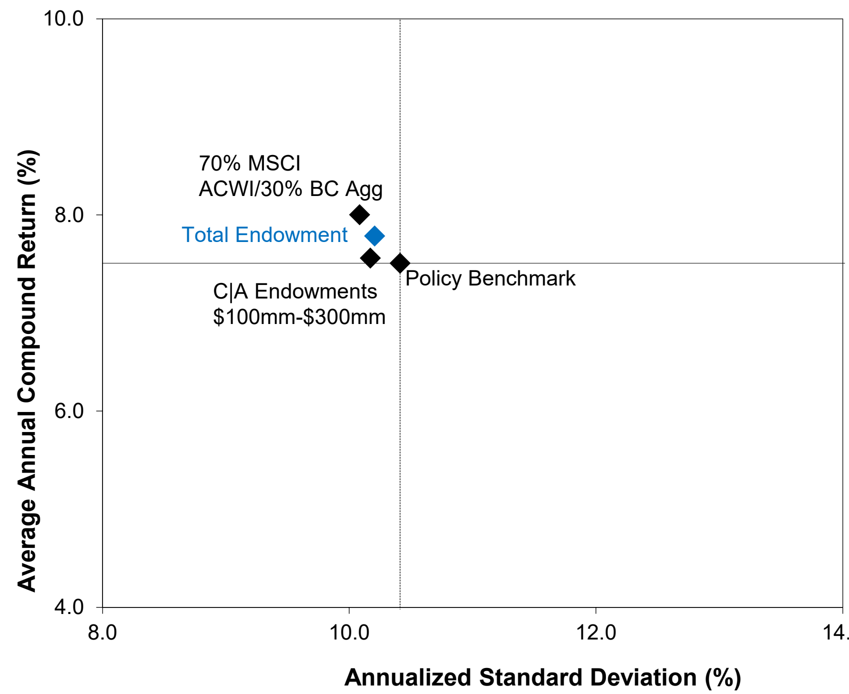
As of March 31, 2022 – lagged to include most recent Private Investments results

Trailing 5Y – April 01, 2017 – March 31, 2022



	Average Annual Compound Return (%)	Annualized Standard Deviation (%)	Sharpe Ratio[1]
Total Endowment	9.5	13.1	0.64
Policy Benchmark	8.6	13.7	0.54
C|A Endowments $100mm-$300m[2]	9.3	13.0	0.68
70% MSCI ACWI/30% BC Agg	9.0	13.0	0.61

Trailing 10Y – April 01, 2012 – March 31, 2022



	Average Annual Compound Return (%)	Annualized Standard Deviation (%)	Sharpe Ratio[1]
Total Endowment	7.8	10.2	0.70
Policy Benchmark	7.5	10.4	0.66
C|A Endowments $100mm-$300m[2]	7.6	10.2	0.72
70% MSCI ACWI/30% BC Agg	8.0	10.1	0.73

C|A

[1] Sharpe Ratio: to calculate this number, subtract the average T-Bill return (risk free rate) from the manager's average return then divide by the manager's standard deviation. The amount of return over the risk-free rate that can be expected for each unit of risk accepted.
[2] From 4/1/2012 to 3/31/2022, C|A Endowments $100-$300mm include 67-109 institutions over time. Data is as of 3/31/22.

Policy Benchmark Analysis: Rolling 3-Year Average Annualized Compound Returns

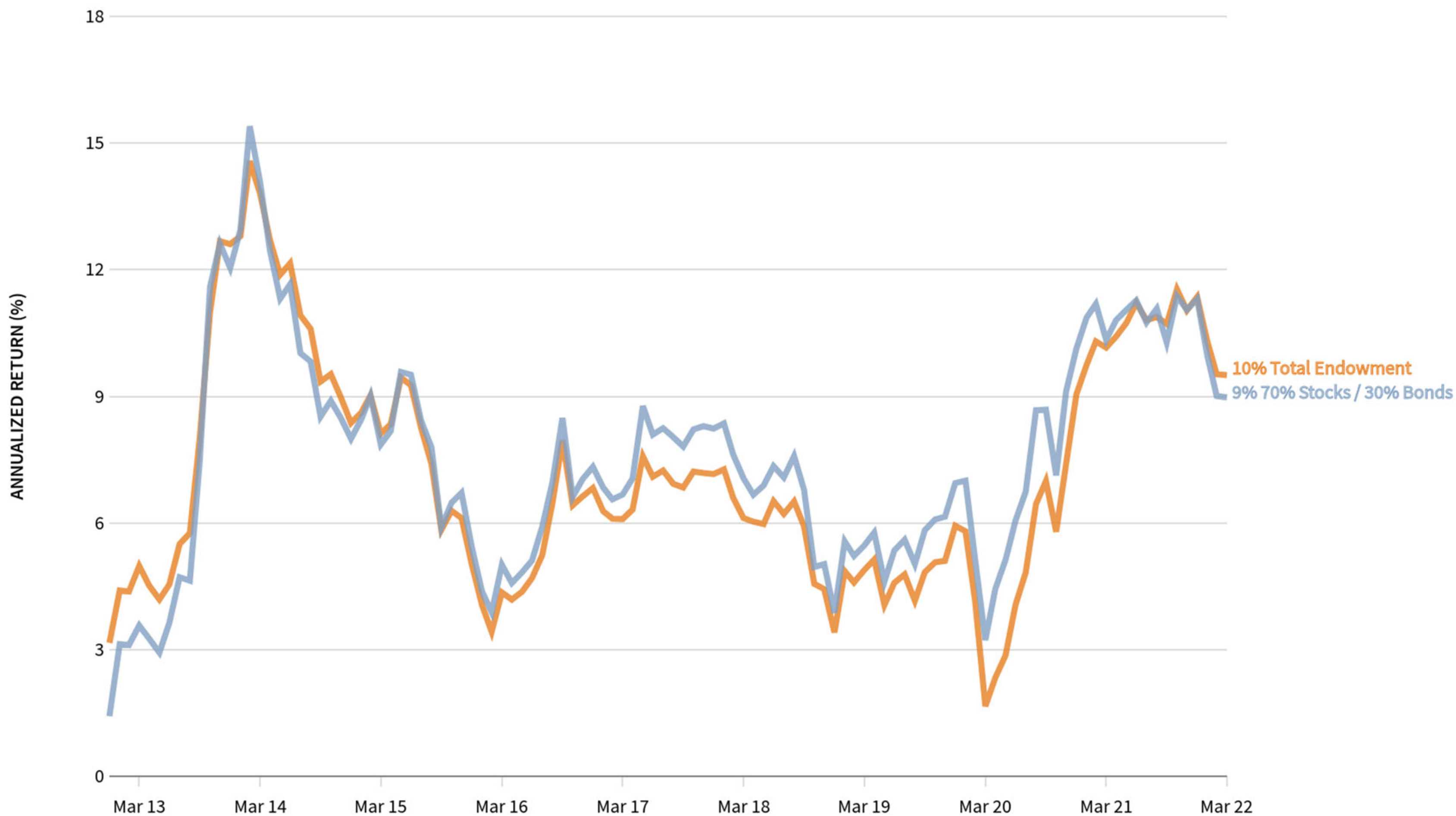
As of March 31, 2022 – *lagged to include most recent Private Investment results*

Rolling 3 Years • Jan 1, 2008 – Mar 31, 2022 • USD

Simple Benchmark Analysis: Rolling 5-Year Average Annualized Compound Returns

As of March 31, 2022 – *lagged to include most recent Private Investment results*

Rolling 5 Years • Jan 1, 2008 - Mar 31, 2022 • USD



Long-Term Financial Objective: Rolling 10-Year Average Annualized Compound Returns

As of March 31, 2022 – *lagged to include most recent Private Investment results*

Rolling 10 Years • Jan 1, 1994 - Mar 31, 2022 • USD

2. ENDOWMENT OCIO UPDATE
B. ASSET ALLOCATION AND GUIDELINE COMPLIANCE

CAMBRIDGE ASSOCIATES

Total Endowment Asset Allocation Is Well Within Policy Ranges

Portfolio Role	06/30/2022 Asset Allocation	Total Endowment Long-Term Policy Targets	Total Endowment Allowable Range
Growth	**57.8%**	**61.5%**	**50% - 70%**
Public Growth	50.5%	48.0%	
Private Growth	7.3%	13.5%	
Diversifiers	**21.1%**	**15.0%**	**5% - 25%**
Liquid Diversifiers (liquidity w/in 3 years)	19.0%	12.5%	
Private Diversifiers	2.1%	2.5%	
Real Assets	**9.0%**	**11.0%**	**5% - 20%**
Public Real Assets	6.6%	4.5%	
Private Real Assets	2.4%	6.5%	
Fixed Income & Cash	**12.1%**	**12.5%**	**5% - 25%**
Fixed Income	10.4%	12.5%	
Cash	1.6%	0.0%	

Endowment Liquidity Is Well Within Guidelines

Endowment Portfolio Liquidity Summary
Market values estimated as of 7/31/2022, pro forma for pending C|A transactions

			Dollar Liquidity					
Managers	7/31/2022 MV ($ mm)	Exit Terms	Daily	Weekly/ Monthly	Quarterly	Semiannual/ Annual	Biennial	Illiquid
U.S. Equity	***51.4***		***6.1***	***30.2***	***15.1***			
C|A U.S. Equity	51.4	Daily; monthly; quarterly	6.1	20.2	15.1			
Global Equity	***29.1***		***0.0***	***29.1***				
C|A Global Equity	29.1	Daily; monthly	0.0	29.1				
International Developed Equity	***28.5***		***4.4***	***24.1***				
C|A International Developed Equity	28.5	Daily; monthly	4.4	24.1				
Emerging Markets Equity	***18.0***		***5.8***	***9.5***		***2.7***		
C|A Emerging Markets Equity	18.0	Daily; weekly; monthly; quarterly (2 year initial lock-up)	5.8	9.5		2.7		
Diversifiers	***53.4***		***0.0***	***4.9***	***28.9***	***12.2***	***2.2***	***5.1***
C|A Marketable Alternatives	47.4	Daily; monthly; quarterly; semi-annual; annual; biennial; illiquid	0.0	4.7	28.2	12.2	2.2	4.9
Farallon Capital Illiquid Sidepocket**	0.1	Illiquid						0.1
*Russell Hedge Funds**	*0.9*			*0.2*	*0.7*			
Private Growth	***56.0***	***Illiquid***						***56.0***
Managed Private Equity/Growth	6.3	Illiquid						6.3
Managed Venture Capital	12.8	Illiquid						12.8
Legacy Private Equity**	10.6	Illiquid						10.6
Legacy Venture Capital**	26.3	Illiquid						26.3
Real Assets	***31.8***		***16.8***	***0.0***	***0.0***			***15.1***
C|A Real Assets	22.9	Daily; monthly; illiquid	16.8	0.0				6.1
Legacy Private Natural Resources**	9.0	Illiquid						9.0
Fixed Income	***25.5***		***22.3***		***3.2***			
C|A Fixed Income	25.5	Daily	22.3					
Cash and Cash Equivalents	***4.1***	***Daily***	***4.1***					
TOTAL ASSETS	**297.8**		**59.5**	**97.8**	**47.2**	**14.9**	**2.2**	**76.2**
PERCENT OF TOTAL ASSETS	**100%**		**20%**	**33%**	**16%**	**5%**	**1%**	**26%**

Liquidity Guidelines - C|A Managed Assets: *No new commitments while:*	**Guideline Compliance?**
(1) Private Investment NAV > 39%	Yes
(2) Private Investment NAV + Unfunded Commitments > 54%	Yes

** Italicized assets are excluded from C/A mandate.*
** Legacy assets are excluded from OCIO performance but are considered for purposes of asset allocation & guideline compliance.

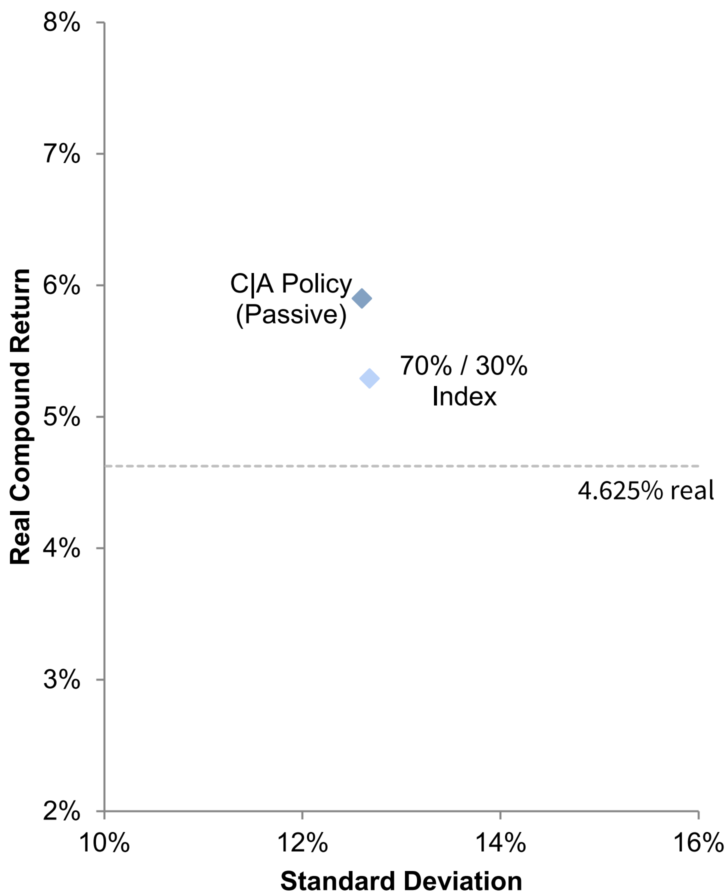
C|A

2. ENDOWMENT OCIO UPDATE
C. RISK/RETURN CHARACTERISTICS – C|A PORTFOLIO

CAMBRIDGE ASSOCIATES

C|A Portfolio – Long-Term Risk/Return Expectations

Long-Term Real Risk/Return Projections



Summary Statistics – Real Returns

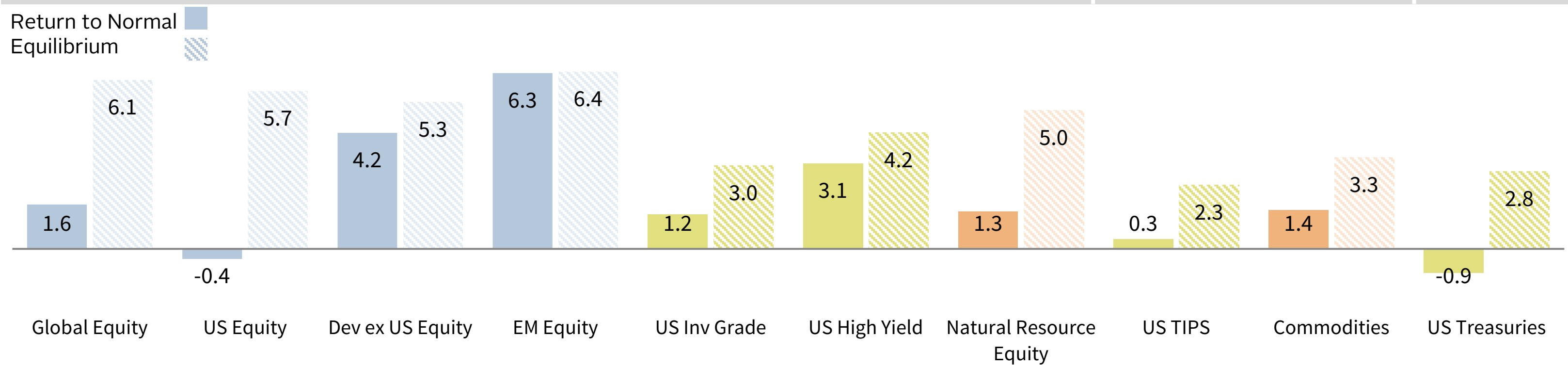
	C|A Policy (Passive)	70% / 30% Index
Estimated Long-Term Real Compound Return	5.9%	5.3%
Estimated Range of Returns (25th-75th %ile)	3.7 - 7.1%	3.6 - 7.0%
Estimated Volatility (Standard Deviation)	12.6%	12.7%
Estimated Beta to Global Equity	0.68	0.70
Long-Term Risk: Estimated Probability of Not Achieving 4.625% Real Compound Return Over 25 Years	39%	43%
Short-Term Risk: Estimated Cumulative Decline, 2008 Financial Crisis	-34%	-37%

* Assumes no positive or negative alpha from active management.
Notes: Decline statistics use real cumulative asset class returns from November 1, 2007 to February 28, 2009.

Even after 2022 market pullback, valuations still look likely to challenge intermediate-term market returns

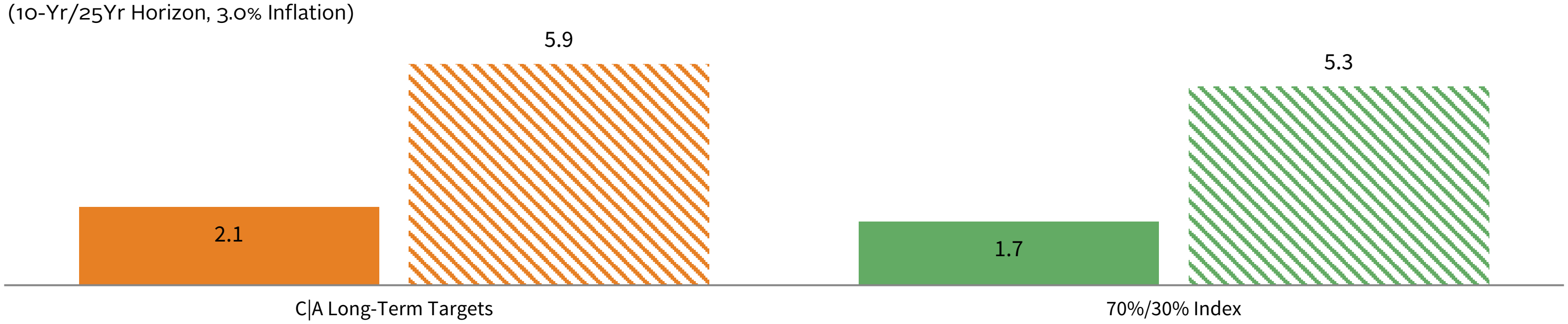
INTERMEDIATE-TERM (10-YEAR) "RETURN TO NORMAL" SCENARIO, ASSUMING VALUATIONS NORMALIZE OVER NEXT 10 YEARS
LONG-TERM (25-PLUS YEAR) STEADY STATE "EQUILIBRIUM" ASSUMPTIONS: REAL RETURNS (ADJUSTED FOR INFLATION)
Based on Current Market Valuations as of July 31, 2022 (3.0% Inflation)

Growth Engines & Diversifiers	Growth-Oriented Real Assets & Inflation Sensitive	Deflation



Comparative Return Analysis

LONG-TERM "EQUILIBRIUM" REAL RETURNS
INTERMEDIATE-TERM "RETURN TO NORMAL" REAL RETURNS
(10-Yr/25Yr Horizon, 3.0% Inflation)



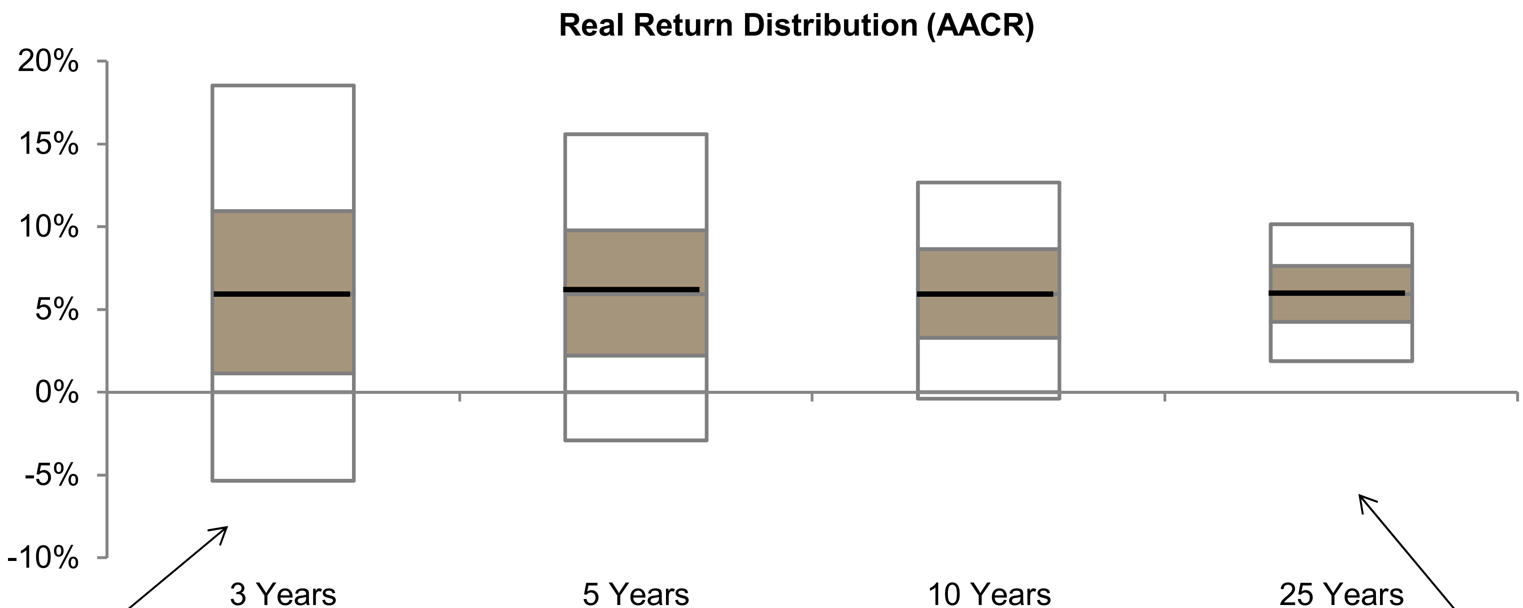
Key Assumptions: Inflation: 3%; Real EPS Growth: 2% for US and Dev ex US, 3% for EMs; Ending 10-Yr US Treasury Yield: 5.0%, Ending 10-Yr US TIPS yield: 2.0%

Sources: Barclays, Cambridge Associates LLC, Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Short-Term Expected Returns Have a Significantly Wider Range than Long-Term Expectations

While the C|A Policy Benchmark has a 5.9% expected real compound return over the long term (i.e. 25+ years), there is a wide range of potential outcomes, particularly over shorter time periods.

Real Return Expectations



Over any given 3-year period the C|A Policy Benchmark has a 50% likelihood of a return between 1.2% and 10.9%

	3 Years	5 Years	10 Years	25 Years
5th	*18.5%*	*15.6%*	*12.7%*	*10.1%*
25th	10.9%	9.8%	8.6%	7.6%
50th	5.9%	5.9%	5.9%	5.9%
75th	1.2%	2.2%	3.3%	4.2%
95th	*-5.3%*	*-2.9%*	*-0.4%*	*1.9%*

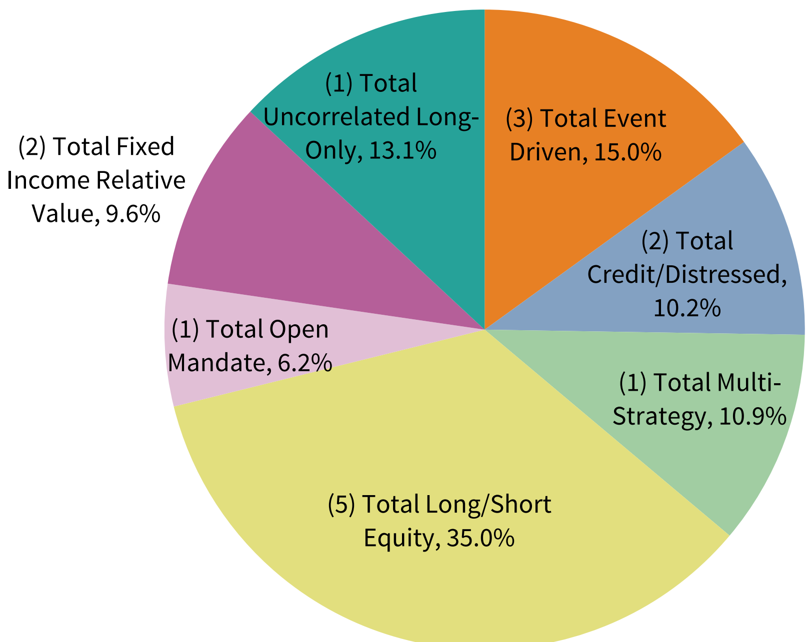
Over any given 25-year period the C|A Policy Benchmark has a 50% likelihood of a return between 4.2% and 7.6%

2. ENDOWMENT OCIO UPDATE
D. C|A DIVERSIFIERS & PRIVATE INVESTMENTS

CAMBRIDGE ASSOCIATES

C|A Diversifiers Program Snapshot

Manager Percentages of Total Hedge Funds as of June 30, 2022



Event-Driven

- Goal is to profit from mispricings in the capital structures of companies subject to corporate events
  - Buying stock in acquisition targets, shorting acquirers
  - Other events: spin-offs, divestitures, reorganization, and restructuring

Credit / Distressed

- Goal is to identify credit opportunities
  - Invest long and short in bonds, loans, credit default swaps and other credit markets.
  - Stressed and distressed debt, capital structure arbitrage, post-reorg equities.

Multi-Strategy

- Goal is to generate meaningful alpha through a variety of trading strategies

Long/Short Equity

- Goal is to limit exposure to “beta” and add meaningful “alpha”
  - Short positions to generate returns (alpha) and reduce market risk (beta)
  - Fundamental analysis identifies attractive companies (alpha)

Open Mandate

- Flexible mandate that targets the most attractive return opportunistically across capital markets, geographies, and strategies

Fixed Income Relative Value

- Goal is to generate uncorrelated returns from price inconsistencies among related government bond and rates markets and instruments. Trade strategies implemented through cash bonds, futures and swaps instruments.

Uncorrelated Long-Only

- Goal is to provide uncorrelated returns and inflation sensitivity through exposure to the California Carbon Allowance Market

Note: Percentages may not add to 100% due to rounding

Private Investment Snapshot

	Current Allocation ($mm) as of July 31, 2022[1]						Target Commitment by Strategy ($mm)			
	NAV		Unfunded		Total		Annual Targets	Annual Range	2022 Actual Commitments	LT Targets
	($)	(%)	($)	(%)	($)	(%)	($)	($)	($)	(%)
Venture / Growth Capital	39.1	12.8%	6.1	2.0%	45.2	14.8%	4.0	$0 - $8	4.2	7.0%
Private Equity / Distressed	15.9	5.2%	7.9	2.6%	23.8	7.8%	7.0	$0 - $10	5.0	10.0%
Total VC & PE	**$55.0**	**18.0%**	**$14.0**	**4.6%**	**$69.0**	**22.6%**	**$11.0**	**$0 - $18**	**$9.2**	**17.0%**
Total Private Diversifiers	**$4.9**	**1.6%**	**$8.7**	**2.8%**	**$13.6**	**4.5%**	**$4.0**	**$0 - $7**	**$2.0**	**5.0%**
Private Real Estate	2.3	0.8%	4.8	1.6%	7.1	2.3%	3.0	$0 - $6	---	4.0%
Private Natural Resources	12.9	4.2%	3.6	1.2%	16.5	5.4%	3.0	$0 - $6	---	4.0%
Total Private RE & NR	**$15.2**	**5.0%**	**$8.4**	**2.8%**	**$23.6**	**7.7%**	**$6.0**	**$0 - $12**	**$0.0**	**8.0%**
Total	**$75.1**	**24.6%**	**$31.1**	**10.2%**	**$106.2**	**34.8%**	**$21.0**	**$0 - $37**	**$11.2**	**30.0%**

[1] Current allocation based on net asset values (NAV) and Total Endowment market value of $305.4 million as of 7/31/22.

Asset Class	2018 (C|A Capital)		2019 (C|A Capital)		2020 (C|A Capital)		2021 (C|A Capital)		2022 (C|A Capital)	
	Number of Funds	Commit. Amt. ($mm)	Number of Funds	Commit. Amt. ($mm)	Number of Funds	Commit. Amt. ($mm)	Number of Funds	Commit. Amt. ($mm)	Number of Funds	Commit. Amt. ($mm)
Venture / Growth Capital										
Sub-Total	1	$1.0	1	$1.0	0	---	3	$4.0	4	$4.2
Private Equity / Distressed										
Sub-Total	0	---	4	$5.1	0	---	1	$1.0	2	$5.0
Total VC & PE	1	$1.0	5	$6.1	0	---	4	$5.0	6	$9.2
Private Diversifiers										
Total Private Diversifiers	3	$3.0	0	---	1	$2.5	2	$4.0	1	$2.0
Private Real Estate										
Private RE Sub-Total	1	$1.0	1	$1.0	0	---	3	$4.0	0	---
Private Natural Resources										
Private NR Sub-Total	1	$1.0	1	$1.0	0	---	1	$1.0	0	---
Total Private RE & NR	2	$2.0	2	$2.0	0	---	4	$5.0	0	---
Total Privates	6	$6.0	7	$8.1	1	$2.5	10	$14.0	7	$11.2

FUNDING STATUS & PERFORMANCE OVERVIEW

As of March 31, 2022, Nevada System of Higher Education had committed $126.4 million to 52 private investment partnerships, of which $96.3 million had been drawn down. Distributions of $108.5 million at market value, or 112.7% of paid-in capital, had been received. The total program return of 13.3% is net of fees, expenses, and carried interest associated with each partnership and is weighted according to the amount that has been drawn down from each partnership as of March 31, 2022.

Changes to the portfolio included the initial drawdowns for Atalaya Special Opportunities Fund VIII LP and Peppertree Capital Fund IX QP, LP. In the period following March 31, 2022, Nevada System of Higher Education made an additional commitment to NFX Capital Fund II, LP ($0.4 million).

Legacy PI have outperformed public markets by 580 bps

Reporting Currency: U.S. Dollars ($), in millions

Asset Classes	Commitment(s)	Paid-In Capital	Unfunded Commitment(s)	Distributions at Market	Current Net Asset Value (NAV)	Total Value/ Paid In Multiple	Asset Class IRR	mPME IRR
Legacy Private Equity	**46.0**	**41.5**	**3.8**	**61.4**	**10.8**	**1.7**	**11.5%**	**5.8%**
Legacy Venture Capital	**17.6**	**17.1**	**0.5**	**16.6**	**26.6**	**2.5**	**10.0%**	**7.9%**
Legacy Private Natural Resources	**14.0**	**13.0**	**0.9**	**18.2**	**9.2**	**2.1**	**25.0%**	**10.0%**
TOTAL LEGACY	**77.6**	**71.6**	**5.3**	**96.2**	**46.6**	**2.0**	**12.8%**	**7.0%**
Managed Private Equity/Distressed	**9.1**	**6.0**	**4.1**	**4.8**	**5.1**	**1.7**	**34.5%**	**14.5%**
Managed Venture Capital	**10.2**	**4.6**	**5.6**	**0.8**	**12.1**	**2.8**	**75.2%**	**10.8%**
Managed Private Diversifiers	**14.4**	**7.5**	**8.7**	**4.5**	**4.2**	**1.2**	**10.1%**	**5.2%**
Managed Private Natural Resources	**6.0**	**3.9**	**2.7**	**0.9**	**3.6**	**1.1**	**8.0%**	**23.1%**
Managed Real Estate	**7.0**	**2.8**	**4.8**	**1.3**	**2.2**	**1.2**	**12.7%**	**7.4%**
TOTAL MANAGED	**46.8**	**24.8**	**25.9**	**12.3**	**27.2**	**1.6**	**28.8%**	**11.9%**
TOTAL PORTFOLIO	**124.4**	**96.3**	**31.1**	**108.5**	**73.8**	**1.9**	**13.3%**	**7.3%**

Paid-In Capital: Capital paid in to the partnership, which includes fees and capital for investments.
Distributions at Market: Capital distributed to an investor from the partnership.
Current Net Asset Value (NAV): The residual value of an investor's interest, which is reported by the partnership in its financial statements.
IRR: The investor's return on its investment in the partnership, net of fees, expenses, and carried interest received by the general partners.
Total Value: Total value is calculated by adding the NAV and Distributions at Market.

C|A Managed PI have outperformed public markets by 1690 bps

2. ENDOWMENT OCIO UPDATE
E. LEGACY ASSETS

CAMBRIDGE ASSOCIATES

Legacy PI Program Returned 12.8% Annualized Since Inception (vs. 7.0% for public markets)

Multi-year performance detail as of 3/31/2022

Reporting Currency: U.S. Dollars ($)

Private Investments Partnerships	Vintage Year	IRR (%)[1] Current Quarter	1 Year	3 Years	5 Years	10 Years	Inception to Date
Legacy Private Equity							
Drum Capital Management SS Partners II, L.P.	2006	9.4	34.3	20.3	9.6	8.3	8.2
Dover Street VIII, L.P.	2012	-0.8	4.9	12.7	15.1	---	19.4
Blackstone Strategic Partners VI, L.P.	2014	-3.0	20.2	7.5	7.9	---	14.1
Dover Street IX, L.P.	2016	-1.1	18.0	23.8	26.1	---	27.8
Total Legacy Private Equity		**2.9**	**22.4**	**17.2**	**13.1**	**11.5**	**11.5**
mPME Benchmark: MSCI World Index (Net)		***-5.2***	***11.3***	***15.3***	***12.4***	***10.5***	***5.8***
Legacy Venture Capital							
Endowment Venture Partners IV, L.P.	1998	-0.5	-1.2	-24.5	7.1	4.9	1.5
Endowment Venture Partners V, L.P.	2000	-14.4	-18.1	-3.5	-3.6	-2.8	-0.2
Commonfund Capital Venture Partners X, L.P.	2012	-6.2	26.7	31.3	29.6	---	25.2
Commonfund Capital Venture Partners XI, L.P.	2015	-5.7	24.3	39.6	36.7	---	33.6
Total Legacy Venture Capital		**-6.0**	**25.2**	**34.3**	**31.5**	**23.3**	**10.0**
mPME Benchmark: Russell 2000® Index		***-7.5***	***-5.4***	***12.3***	***9.9***	***10.6***	***7.9***
Legacy Private Natural Resources							
Commonfund Capital Natural Resources IX, L.P.	2012	14.2	28.4	4.2	5.5	---	6.2
Commonfund Capital Natural Resources X	2015	12.3	26.9	6.3	11.1	---	13.5
Total Legacy Private Natural Resources		**13.3**	**27.7**	**5.1**	**7.4**	**10.1**	**25.0**
mPME Benchmark: S&P North American Natural Resources Sector Index		***29.4***	***51.4***	***15.6***	***9.1***	***7.4***	***10.0***
TOTAL LEGACY		**-0.7**	**25.0**	**22.6**	**19.7**	**15.1**	**12.8**
mPME Benchmark: Subtotal Blend of Above		**1.9**	**11.7**	**14.1**	**10.6**	**10.0**	**7.0**

NSHE's Total Legacy Assets have delivered 5.8% excess return over public market equivalents

C|A

Note: Reporting is in U.S. Dollars ($).
[1] IRR calculations are based on a stream of quarterly cash flows; including NAV, paid-in capital, and distributions. The multi-year return calculation assumes the starting period NAV is the first contribution in the stream of cash flows used to calculate the IRR. Liquidated investments are only included in the total returns for each asset class and` the total portfolio.

Legacy PI Program Has Meaningfully Outperformed Public Markets

Funding status and performance summary:
Inception through 03/31/2022

- **Notable contributors:** Commonfund Venture X and XI, Dover Street IX, Endowment Energy IV
- **Notable detractors:** Endowment Venture IV and V, Commonfund Natural Resources IX

Reporting Currency: U.S. Dollars ($)

		Cash Flow & Valuation						Multiples					IRR		
Private Investments Partnerships	Vintage Year	Commit-ment	Paid-In Capital	Unfunded Commit-ment	Distributions at Market	Current Net Asset Value (NAV)	Total Value Creation[11]	Distributed / Paid In[2] Fund	Distributed / Paid In[2] CA[4]	Total Value / Paid In[2] Fund	Total Value / Paid In[2] CA[4]	Fund Quartile Rank	Fund IRR[3]	CA Median[4]	Fund Quartile Rank
Legacy Private Equity															
Dover Street IV, L.P.	1999	8,000,000	7,560,000	0	10,532,539	0	2,972,539	1.39	1.42	1.39	1.42	NA	8.6%	11.4%	NA
Endowment Private Equity Partners IV, L.P.	2000	5,000,000	4,880,000	0	10,261,639	0	5,381,639	2.10	1.86	2.10	1.89	2	16.8%	14.9% [5,9]	2
Commonfund International Partners IV, L.P.	2001	4,000,000	3,912,000	0	7,215,395	0	3,303,395	1.84	1.75	1.84	1.81	2	12.9%	14.8% [6,9]	3
Commonfund Private Equity Partners V, L.P.	2002	4,000,000	3,860,000	0	6,951,781	0	3,091,781	1.80	1.77	1.80	1.77	2	10.8%	12.3% [5,9]	3
Drum Capital Management SS Partners II, L.P.	2006	10,000,000	9,112,118	887,881	11,889,622	4,711,827	7,489,331	1.30	1.44	1.82	1.50	2	8.2%	9.0% [7,9]	3
Dover Street VIII, L.P.	2012	5,000,000	4,600,000	400,000	6,878,175	906,808	3,184,983	1.50	1.19	1.69	1.61	2	19.4%	13.4%	1
Blackstone Strategic Partners VI, L.P.	2014	5,000,000	3,330,786	1,723,563	3,889,435	1,236,612	1,795,261	1.17	1.19	1.54	1.63	4	14.1%	16.2%	3
Dover Street IX, L.P.	*2016*	*5,000,000*	*4,200,000*	*800,000*	*3,738,563*	*3,911,758*	*3,450,321*	*0.89*	*0.74*	*1.82*	*1.78*	*2*	*27.8%*	*19.4%*	*1*
Total Legacy Private Equity		**46,000,000**	**41,454,904**	**3,811,444**	**61,357,149**	**10,767,005**	**30,669,250**	**1.48**	**1.43**	**1.74**	**1.64**		**11.5%**	**13.1%** [10]	
mPME Benchmark: MSCI World Index (Net)								***1.13***		***1.34***			***5.8%*** [12]		
Legacy Venture Capital															
Endowment Venture Partners IV, L.P.	1998	5,000,000	4,912,500	87,500	5,390,621	32,192	510,313	1.10	0.85	1.10	0.86	2	1.5%	-1.7% [9]	2
Endowment Venture Partners V, L.P.	2000	2,640,000	2,571,881	68,119	2,456,699	70,359	-44,823	0.96	0.94	0.98	0.98	2	-0.2%	-0.2% [9]	3
Commonfund Capital Venture Partners X, L.P.	2012	5,000,000	4,837,500	162,500	6,352,661	12,966,409	14,481,570	1.31	0.90	3.99	2.70	2	25.2%	20.5% [9]	2
Commonfund Capital Venture Partners XI, L.P.	2015	5,000,000	4,797,500	202,500	2,425,543	13,558,575	11,186,618	0.51	0.35	3.33	2.52	2	33.6%	23.9% [8,9]	2
Total Legacy Venture Capital		**17,640,000**	**17,119,381**	**520,619**	**16,625,524**	**26,627,535**	**26,133,678**	**0.97**	**0.74**	**2.53**	**1.86**		**10.0%**	**12.0%** [10]	
mPME Benchmark: Russell 2000® Index								***0.92***		***1.64***			***7.9%*** [12]		
Legacy Private Natural Resources															
Endowment Energy Partners IV, L.P.	1997	4,000,000	3,910,228	0	14,825,504	0	10,915,276	3.79	2.14	3.79	2.20	1	25.7%	19.1% [9]	2
Commonfund Capital Natural Resources IX, L.P.	2012	5,000,000	4,677,500	322,500	1,858,204	4,550,643	1,731,347	0.40	0.45	1.37	1.07	2	6.2%	1.4% [9]	2
Commonfund Capital Natural Resources X	2015	5,000,000	4,400,000	600,000	1,559,229	4,633,217	1,792,446	0.35	0.43	1.41	1.31	2	13.5%	8.3% [9]	1
Total Legacy Private Natural Resources		**14,000,000**	**12,987,728**	**922,500**	**18,242,937**	**9,183,860**	**14,439,069**	**1.40**	**0.95**	**2.11**	**1.49**		**25.0%**	**9.1%** [10]	
mPME Benchmark: S&P North American Natural Resources Sector Index								***0.76***		***1.45***			***10.0%*** [12]		
TOTAL LEGACY		**77,640,000**	**71,562,013**	**5,254,563**	**96,225,610**	**46,578,400**	**71,241,997**	**1.34**	**1.18**	**2.00**	**1.66**		**12.8%**	**12.1%** [10]	
mPME Benchmark: Subtotal Blend of Above								**1.02**		**1.43**			**7.0%** [12]		

NSHE's Legacy Private Equity has delivered 5.7% excess return over public equities

NSHE's Legacy Private Natural Resources have delivered 15.0% excess return over public natural resources equities.

Legacy Assets Summary

As of March 31, 2022
(lagged to reflect most recent Private Investments Results)

Fund	Vintage Year	Current Net Asset Value (NAV) ($mm)	% of Total Endowment	Manager	Strategy/Portfolio Description
Legacy Private Equity					
Dover Street VIII	2011	0.9	0.3%	HarbourVest Partners LLC	**Global secondaries manager** that will pursue three types of private equity/venture capital secondary transactions: - LP Interest: HarbourVest purchases one or more interests in existing private equity and venture capital funds from an institutional investor. - Synthetic: HarbourVest purchases a portfolio of direct company interests typically from a bank or large corporation. At purchase, the portfolio's management team usually agrees to continue managing the portfolio independent from its former employer. - Structured: HarbourVest purchases a large LP interest portfolio and sets up a structure such as a joint venture to accommodate the seller's liquidity needs.
Dover Street IX	2015	3.9	1.2%		
Drum Capital Management Special Situations Partners II	2006	4.7	1.4%	Drum Capital Management LLC	**Fund of Funds manager** focused on distressed debt, turnarounds, and restructuring partnerships. As of 3/31/18, SSP was invested with about two-thirds of the portfolio in 11 partnerships across various US & European strategies (e.g., control, trading, turnarounds, arbitrage) and almost a third in three co-investments. In December 2018, the manager's second 1-year extension of the Partnership is scheduled to end, and the fund will enter the orderly liquidation period pursuant to its Limited Partnership Agreement.
Strategic Partners VI	2013	1.2	0.4%	The Blackstone Group	**Secondaries manager** that purchases primarily North American/European leveraged buyout funds that are 75% to 85% funded at purchase. The manager will also purchase LP interests in mezzanine, venture capital, fund of funds, and real assets funds.
Legacy Venture Capital					
Endowment Venture Partners IV	1998	0.0	0.0%	Commonfund Capital Inc.	**Venture Capital Fund of Funds manager** that commits capital to a diverse set of venture capital and growth funds, mostly in China, Europe, Israel, and India. These investments range from early-stage funds to later-stage funds.
Endowment Venture Partners V	2000	0.1	0.0%		
Commonfund Capital Vanture Partners X	2012	13.0	4.0%		
Commonfund Capital Venture Partners XI	2014	13.6	4.1%		
Legacy Private Natural Resources					
Commonfund Capital Natural Resources IX	2011	4.6	1.4%	Commonfund Capital Inc.	**Natural Resources Fund of Funds manager** that focuses on a diversified group of natural resources-focused private equity funds in North America. A portion of investments are held in the gas and oil sector while also including other sectors such as clean energy, agriculture, and timber. A majority of investments are seen in primary commitments with secondary and direct coinvestments taking a smaller role.
Commonfund Capital Natural Resources X	2014	4.6	1.4%		
Legacy Liquidating Positions					
Farallon Capital Sidepocket	2012	0.1	0.0%	Farallon Capital Management	Special Situations account established prior to 2010 holding liquidating assets in real estate (75%) and illiquid equity/debt (25%)

PORTFOLIO PERFORMANCE NOTES

[1] In the period following March 31, 2022, Nevada System of Higher Education made an additional commitment to NFX Capital Fund II, LP ($0.4 million).

[2] The Distributed / Paid In Multiple is calculated by dividing the total distributions from the fund by the total paid into the fund. The Total Value / Paid In Multiple is calculated by dividing the sum of the remaining investment NAV and total distributions from the fund by the total paid into the fund.

[3] Fund internal rate of return includes the cash-on-cash return net of fees, expenses, and carried interest, as well as the net asset value of Nevada System of Higher Education's interest in the partnership.

[4] CA vintage year benchmarks are as of March 31, 2022. All benchmarks are in U.S. Dollars and are considered final. The Legacy Private Equity asset class utilizes the Secondary Funds benchmark. The Legacy Private Natural Resources asset class utilizes the Natural Resources benchmark. The Legacy Venture Capital asset class utilizes the U.S. Venture Capital benchmark. The Managed Private Diversifiers asset class utilizes the Private Credit benchmark. The Managed Private Equity / Distressed asset class utilizes the Private Equity benchmark. The Managed Private Natural Resources asset class utilizes Natural Resources benchmark. The Managed Real Estate asset class utilizes the Real Estate benchmark. The Managed Venture Capital Asset Class utilizes the U.S. Venture Capital benchmark.

[5] Fund utilizes the U.S. Private Equity benchmark.

[6] Fund utilizes the Ex U.S. Private Equity and Venture Capital benchmark.

[7] Fund utilizes the Distressed Securities benchmark.

[8] Fund utilizes the Venture Capital benchmark.

[9] CA Median comparisons reflect the median of the pooled benchmarks for the vintage year of the three respective fund and two subsequent vintage years, based on the assumption that a fund of funds would typically make commitments over three years.

[10] Cambridge Associates' asset class and portfolio benchmark medians are calculated using the middle breakpoint fund in each asset class vintage year, and are weighted by member's paid-in capital to each asset class and vintage year.

[11] Total Value Creation is equal to: [(Distributions at Market) + (Current Net Asset Value) - (Paid-In Capital)].

[12] The mPME IRR evaluates what Nevada System of Higher Education's return would have been if the dollars invested in private funds had been deployed in a public market index. The mPME calculation assumes that a public index's shares are purchased and sold according to the cash flow stream of the private portfolio, with distributions calculated in the same proportion as the private portfolio's. The mPME NAV (the value of the shares held by the public equivalent) is a function of mPME cash flows and public index returns. All mPME values are as of March 31, 2022, and are calculated using U.S. Dollars.

[13] Fund utilizes the Ex U.S. Private Equity benchmark.

[14] Fund utilizes the Secondary Funds benchmark.

[15] Fund utilizes the Infrastructure benchmark.

[16] Fund data is rolled forward with cash flows.

Funds with NA (not applicable) are too young to have produced meaningful returns or have not yet commenced operations. Benchmarks with NA (not applicable) have an insufficient number of funds in the vintage year sample to produce a meaningful return.

Italicized funds have an inception date that is fewer than 6 years from the report date. Analysis and comparison of these partnerships' returns to benchmark statistics may not be meaningful.

Fund vintage year is determined based on the fund’s first cash flow, defined as the year of the fund’s first drawdown or capital call from its investors. In instances where a fund has not yet called capital, the vintage year shown is based on the legal inception date as noted in the fund’s closing documents and financial statements.

END NOTES

JUNE 30, 2022

Due to the nature of Exchange Traded Funds (ETFs), passive index funds, and futures, options and other derivatives, these investments/contracts are not subject to the same monitoring or due diligence requirement as active managers. A list of investments in this portfolio that are excluded from monitoring can be provided upon request.

1. Performance and market values are as of 03/31/2022 (with 10 funds/6% of PI NAV as of 12/31/21), all adjusted with cash flows through the current period.
2. For benchmark details, please refer to the Custom Benchmark Compositions exhibit.
3. From 01/31/88 to 01/31/01 benchmark consists of the MSCI ACWI (G). Prior to 01/31/88 benchmark consists of the MSCI World Index (N).
4. Performance, when denoted as preliminary (*) for this manager, utilizes a gross return figure.
5. Prior to 02/01/01, benchmark consists of MSCI Emerging Markets Index.
6. Prior to 04/01/19 this benchmark consisted of 100% CSI 300 Index.
7. From 12/01/16 to present the benchmark consists of the lagged 0.3 beta-adjusted MSCI ACWI (N). Prior to 12/01/16 benchmark consists of HFRI Fund of Funds Diversified Index.
8. For benchmark details, please refer to the Custom Benchmark Compositions exhibit. Benchmark composition did not match the Benchmark Composition sheet on previous reports. This has since been revised.
9. Benchmark since 06/30/18. The previous benchmark was FTSE Developed Core Infrastructure 50/50 Hedged Index.
10. Market Value is preliminary and consists of $112k from Bertram Growth Capital III, L.P, $187k from Athanor International Fund redemption, and $66k from Parametric Global NR.
11. Market value and performance is preliminary.
12. Legacy benchmark lag date has been adjusted to align with Private Investment data as of 12/31/21.
13. Farallon Capital fully redeemed on 12/31/12. Market value represents illiquid Special Situations Account.

BENCHMARK END NOTES

JUNE 30, 2022

Policy Benchmark

	C|A Normalized Benchmark	Russell Normalized Benchmark	Wilshire 5000 Total Market Index	MSCI EAFE Index (N)	MSCI ACWI ex U.S. Index (N)	MSCI Emerging Markets Index (G)	MSCI Emerging Markets Index (N)	Adjusted MSCI ACWI (N)[2]	CA Global Private Equity & Venture Capital Benchmark	HFRI FOF Diversified Index	0.3 beta-adjusted MSCI ACWI (N)
Inception to 03/31/96:	X	X	60%	10%	X	X	X	X	X	X	X
04/01/96 to 09/30/99:	X	X	45%	15%	X	5%	X	X	X	X	X
10/01/99 to 06/30/00:	X	X	42%	15%	X	5%	X	X	X	8%	X
07/01/00 to 03/31/06:	X	X	42%	10%	X	X	3%	X	X	12%	X
04/01/06 to 06/30/13:	X	X	38%	X	17%	X	X	X	X	12%	X
07/01/13 to 11/30/16:	X	X	24%	16%	X	X	8%	X	10%	14%	X
12/01/16 to Present:	ACB[4]	ACB[4]	X	X	X	X	X	ACB[4]	X	X	ACB[4]

	FTSE NAREIT All Equity REITs Index	FTSE EPRA NAREIT Global RE Index	BBG Barc U.S. TIPS Index	Wilshire DIH Benchmark	S&P NA Natural Resources Index	S&P GSCI	Alerian MLP Index	CA Private Natural Resources Benchmark	BBG Barc Government / Credt Bond Index	BBG Barc Aggregate Bond Index	JP Morgan Global Govt Bond Index	Citigroup 3-Month T- Bill Index
Inception to 03/31/96:	X	X	X	X	X	X	X	X	30%	X	X	X
04/01/96 to 09/30/99:	5%	X	X	X	X	X	X	X	X	30%	X	X
10/01/99 to 06/30/00:	5%	X	X	X	X	X	X	X	X	25%	X	X
07/01/00 to 03/31/06:	5%	X	5%	X	X	X	X	X	X	23%	X	X
04/01/06 to 06/30/13:	3%	X	X	7%	X	X	X	X	X	23%	X	X
07/01/13 to 11/30/16:	X	2%	X	X	5%	X	X	1%	X	14%	2%	4%
12/01/16 to Present:	X	X	X	X	ACB[4]	X	X	X	X	X	X	ACB[4]

C|A Normalized Benchmark

	Adjusted MSCI ACWI (N) [1][2]	Adjusted Diversifiers Benchmark[1][7]	Adjusted Real Assets Benchmark [1][3]	BBG Barc Aggregate Bond Index [1]
12/01/16 to Present:	62%	18%	10%	10%

Russell Normalized Benchmark

	MAC + Custom Benchmark [1][5]	Bloomberg Barclays US 1-3M T-Bill index [1]	LIBOR + 4% [1]	0.3 beta-adjusted MSCI ACWI (N) [1]	NCREIF[6]	BBG Barc Aggregate Bond Index	BBG Barc 3M USD LIBOR Cash Index[1]	Actual Portfolio Returns During Portfolio Liquidation Period
01/05/17 to 01/31/17:	73%	12%	X	X	X	10%	5%	X
02/01/17 to 03/31/17	73%	X	12%	X	X	10%	5%	X
04/01/17 to 09/30/20:	68%	X	12%	X	5%	10%	5%	X
10/01/20 to 11/30/2021:	68%	X	X	12%	5%	10%	5%	X
12/01/2021 to Present	X	X	X	X	X	X	X	100%

(1) Adjusted by 50% of Legacy Assets per Section 5.4.d of NSHE IPS.
(2) Adjusted Managed Growth Benchmark consists of two parts: (1) MSCI All Country World Index (N) weighted by the actual Public Growth allocation & (2) MSCI All Country World Index (N) weighted by the actual Private Growth allocation (updated on a lagged quarterly basis to match Private Investments reporting), this has been historically done.
(3) Adjusted Managed Real Assets Benchmark consists of three parts: (1) C|A Managed Real Assets benchmark weighted by the actual Public Real Assets allocation, (2) FTSE EPRA-NAREIT Developed RE Index (N) weighted by the actual Private Real Estate allocation & (3) S&P Global Natural Resources Index (N) weighted by the actual Private Natural Resources allocation (with 2 & 3 updated on a lagged quarterly basis to match Private Investments reporting).
(4) Benchmark is dynamically adjusted on a monthly basis to reflect the Average Capital Base weightings of C|A Managed Assets, Russell Assets and Legacy Assets.
(5) Benchmark consists of a custom blend of the Russell Global Index (N) 50% Hedged, Bloomberg Commodity Index, FTSE EPRA/NAREIT Developed RE Index (N), S&P Global Infrastructure Index (N), BofAML Developed HY Constrained Bond Index USD Hedged, JP EMBI Diversified Index, and BBG Barc US 1-3 month Treasury Bill Index provided by Russell Investments.
(6) NCREIF Fund Index Open-End Diversified Core Equity-Equal Weight-Endowment & Foundation Eligible (NFI-ODCE-EQ-E&F).
(7) Adjusted Managed Diversifiers Benchmark consists of two parts: (1) 0.3 Beta-Adjusted MSCI ACWI (N) weighted by the actual Public Diversifiers allocation & (2) MSCI All Country World Index (N) weighted by the actual Private Growth allocation (updated on a lagged quarterly basis to match Private Investments reporting), this has been historically done.

BENCHMARK END NOTES

JUNE 30, 2022

C|A Managed Diversifiers Benchmark[7]

	HFRI FOF Diversified Index	0.3 beta- adjusted MSCI ACWI (N)
Inception to 11/30/16:	100%	X
12/01/16 to Present:	X	100%

C|A Managed Real Assets Benchmark[3]

	FTSE NAREIT All Equity REITs Index	Wellington DIH Benchmark	S&P NA Natural Resources Index	S&P Global Natural Resources Index	FTSE EPRA NAREIT Global RE Index	S&P GSCI	Alerian MLP Index	MSCI World Core Infrastructure Index
Inception to 11/30/04:	100%	X	X	X	X	X	X	X
12/01/04 to 03/31/06:	65%	35%	X	X	X	X	X	X
04/01/06 to 06/30/13:	30%	70%	X	X	X	X	X	X
07/01/13 to 11/30/16:	X	X	70%	X	30%	X	X	X
12/01/16 to 09/30/20:	X	X	25%	X	25%	25%	25%	X
10/01/20 to Present:	X	X	X	33%	33%	X	X	33%

C|A Managed Fixed Income Benchmark

	BBG Barc Aggregate Bond Index	JP Morgan Global Government Bond Index	Citigroup 3 - Month T-Bill Index
Inception to 06/30/13:	100%	X	X
07/01/13 to 11/30/16:	70%	10%	20%
12/01/16 to Present:	100%	X	X

Legacy Benchmark

	MSCI ACWI (N	S&P NA Natural Resources Index	0.3 beta-adjusted MSCI ACWI (N)	91-Day T-Bill Index
Inception to Present:	ACB	ACB	ACB	ACB

(3) Adjusted Managed Real Assets Benchmark consists of three parts: (1) C|A Managed Real Assets benchmark weighted by the actual Public Real Assets allocation, (2) FTSE EPRA-NAREIT Developed RE Index (N) weighted by the actual Private Real Estate allocation & (3) S&P Global Natural Resources Index (N) weighted by the actual Private Natural Resources allocation (with 2 & 3 updated on a lagged quarterly basis to match Private Investments reporting).
(7) Adjusted Managed Diversifiers Benchmark consists of two parts: (1) 0.3 Beta-Adjusted MSCI ACWI (N) weighted by the actual Public Diversifiers allocation & (2) MSCI All Country World Index (N) weighted by the actual Private Growth allocation (updated on a lagged quarterly basis to match Private Investments reporting), this has been historically done.

3. ANNUAL SPENDING REVIEW

CAMBRIDGE ASSOCIATES

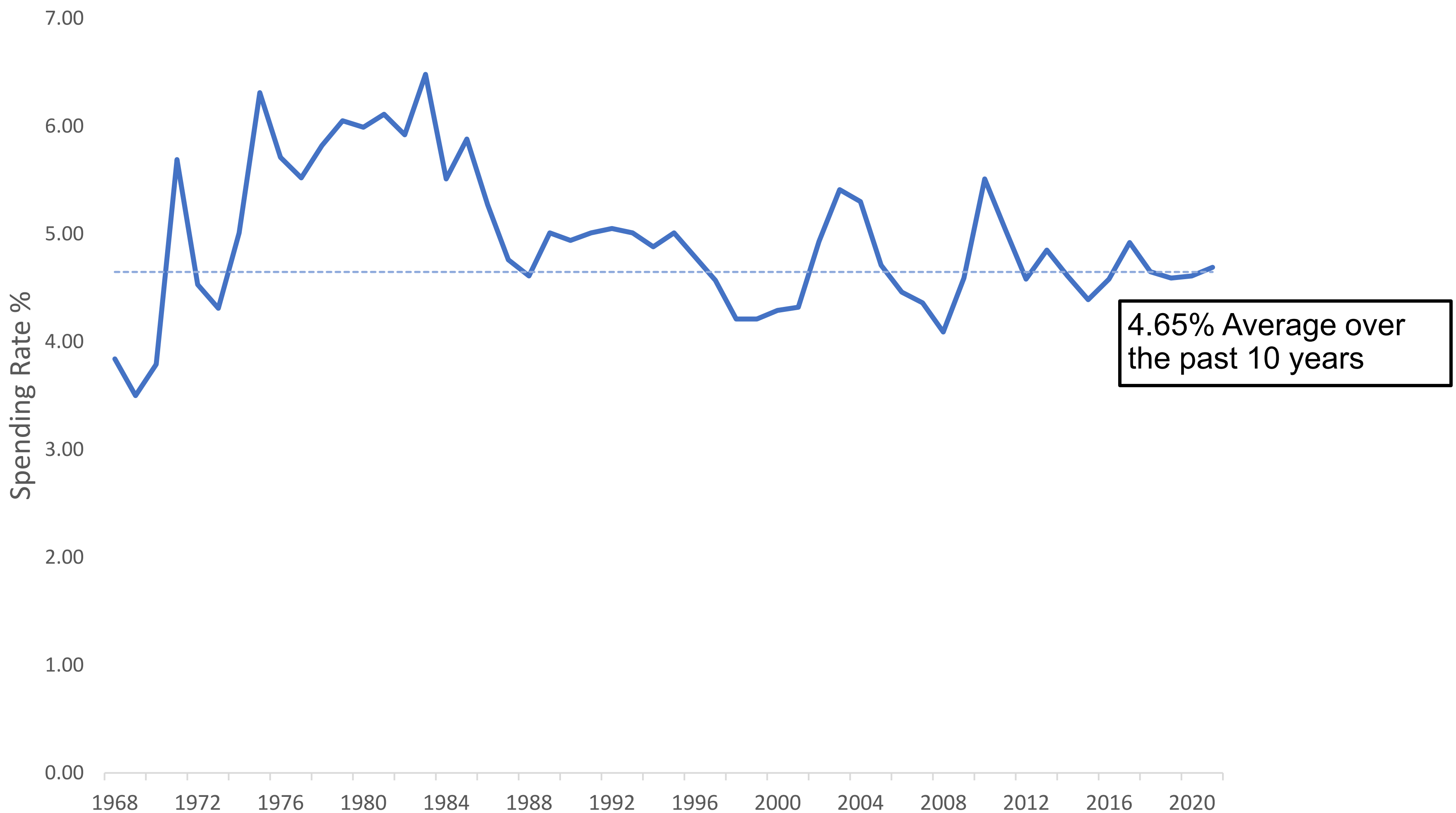
Annual Spending Policy Review – Overview

- At the heart of endowment investment planning is the attempt to mediate among the following **conflicting objectives**:
  - **Maximize long-term total return**
  - **Maximize annual spending** from the fund
  - **Preserve the real value** (purchasing power) of the fund's principal and of its spending distributions over the long term
  - Maximize the **stability and predictability of spending distributions**. In other words, minimize year-to-year volatility of the spending stream or spending shortfall risk.
- This leads to the following quandaries:
  - The **higher the spending rate**, the **lower the growth rate of the spending amount** for any given level of return
  - **Investment returns are inherently volatile, while program expense growth is relatively stable.**
- This section presents comparative data on the spending rates of peer endowments. This is meant to be informative, not prescriptive; we find that clients consider this a helpful reference point, but we recognize that needs and resources differ among institutions.
  - Endowment spending rates have fluctuated over time but have been relatively stable at around 5% over the last ten years.
  - A fiscal year 2021 survey of colleges & universities reveals more decreases than increases in the target rate over the past five years.

For Perspective, What Do Peers Spend?

Historical Endowment Spending Rates

1968–2022

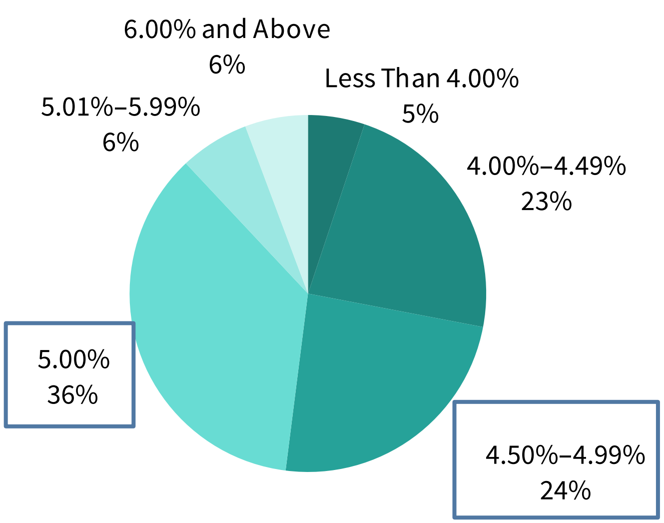


Source: Cambridge Associates LLC, as of 3/31/2022.
Note: Data represent the median spending rate of our total endowment universe.

Spending Rates – Peer Comparisons

- The vast majority of institutions have target spending rates of 4% to 5%; NSHE's current all-in distribution rate of 4.625% is in line with that of other similarly sized institutions as well as other educational institutions.

Target Spending Rates Used in Spending Calculation: All Institutions
n = 175



By Asset Size

	Less Than 4.00%	4.00%–4.49%	4.50%–4.99%	5.00%	5.01%–5.99%	6.00% and Above
Less Than $200M	5%	20%	25%	39%	2%	9%
n	*2*	*9*	*11*	*17*	*1*	*4*
$200M–$500M	8%	13%	24%	34%	11%	11%
n	*3*	*5*	*9*	*13*	*4*	*4*
$500M–$1B	7%	29%	14%	39%	7%	4%
n	*2*	*8*	*4*	*11*	*2*	*1*
$1B–$3B	3%	30%	30%	30%	3%	3%
n	*1*	*10*	*10*	*10*	*1*	*1*
More Than $3B	3%	25%	25%	38%	9%	–
n	*1*	*8*	*8*	*12*	*3*	

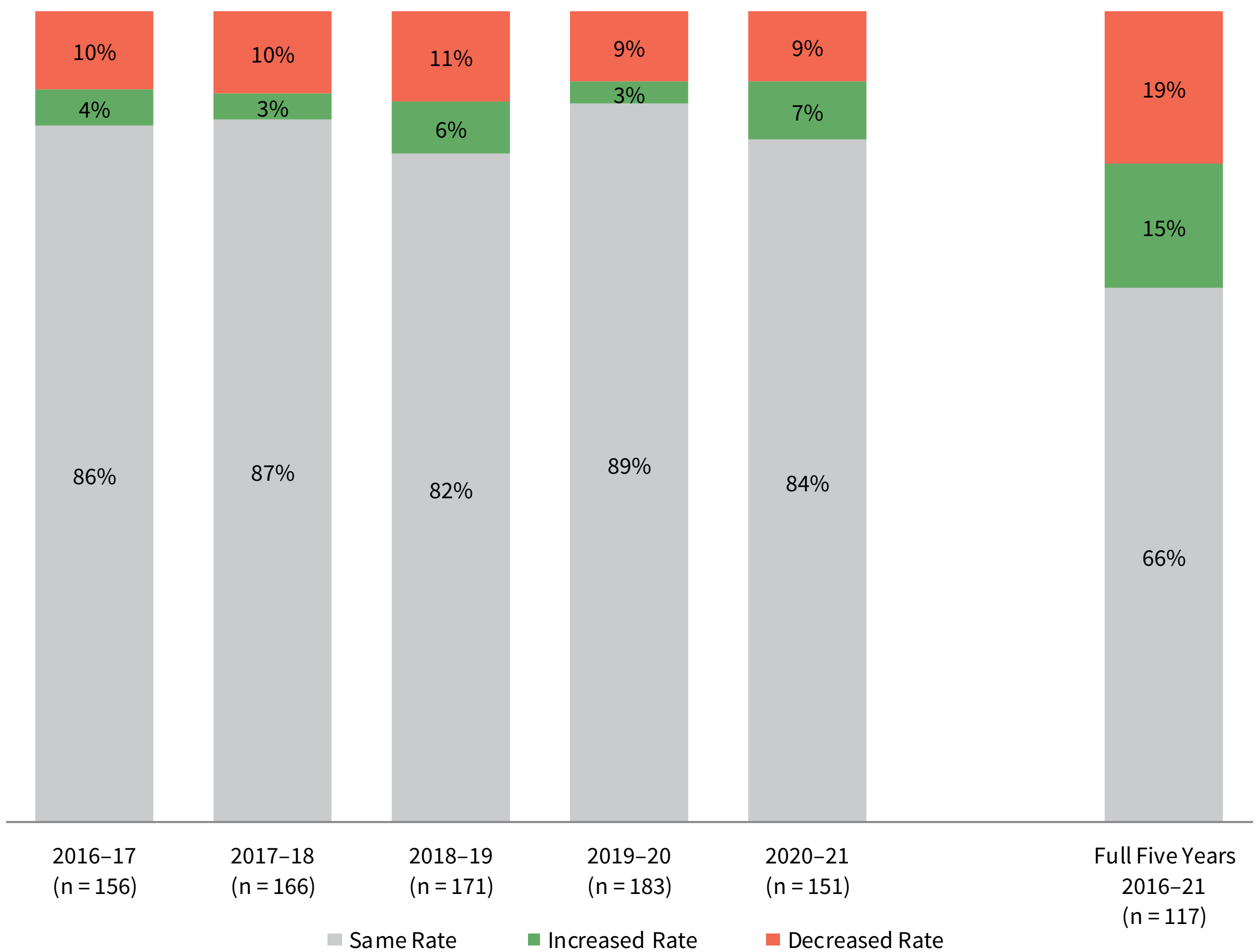
By Institution Type

	Less Than 4.00%	4.00%–4.49%	4.50%–4.99%	5.00%	5.01%–5.99%	6.00% and Above
Colleges & Universities	4%	26%	24%	32%	7%	7%
n	*4*	*27*	*24*	*33*	*7*	*7*
Independent Schools	–	31%	62%	8%	–	–
n		*4*	*8*	*1*		
Cultural & Environmental	6%	9%	16%	53%	13%	3%
n	*2*	*3*	*5*	*17*	*4*	*1*
Healthcare	–	27%	18%	36%	–	18%
n		*3*	*2*	*4*		*2*
Other Nonprofits	18%	18%	18%	47%	–	–
n	*3*	*3*	*3*	*8*		

Source: Spending policy data as reported to Cambridge Associates LLC., as of 6/30/2021.
Notes: Market value–based spending policies base spending on a pre-specified percentage of a moving average of market values. Chart reflects data for the 243 institutions that provided detailed data on their target spending rate. If a range was provided, the target spending rate was calculated using the midpoint of the range.

Most peers have maintained target spending rate in recent years, but decreases have outpaced increases

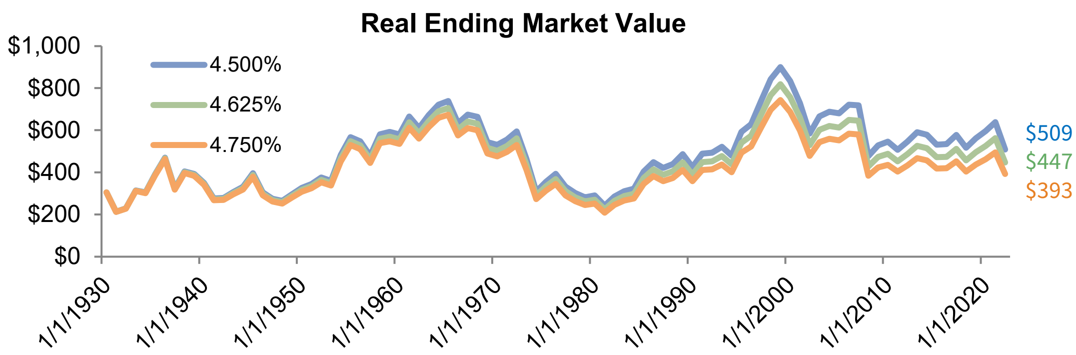
INSTITUTIONS CHANGING TARGET RATES IN MARKET VALUE–BASED SPENDING POLICIES

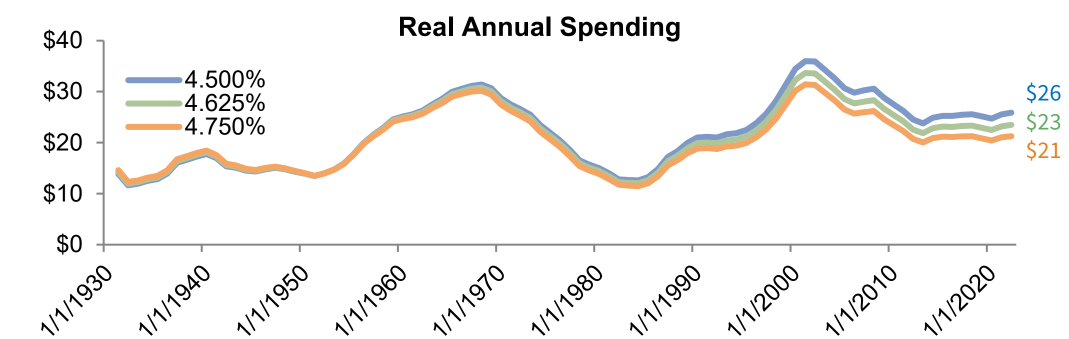


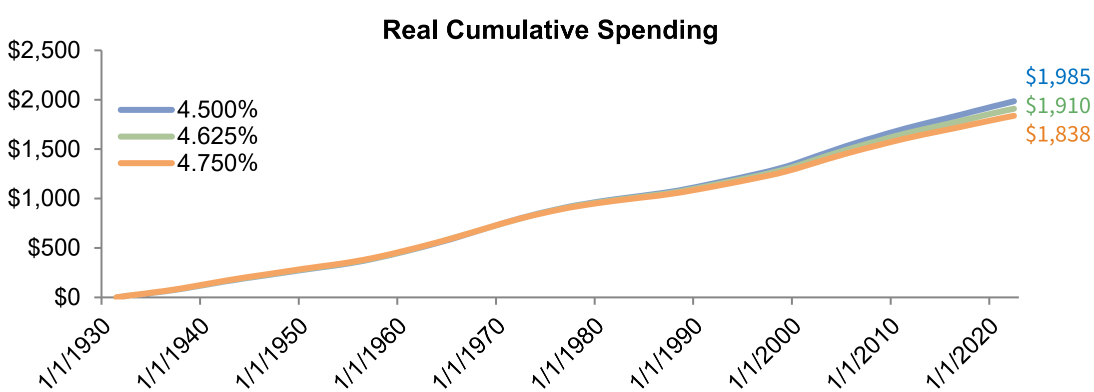
Source: Spending policy data as reported to Cambridge Associates LLC., as of 6/30/2021.
Notes: Market value–based spending policies base spending on a pre-specified percentage of a moving average of market values. Chart reflects data for the institutions using a market value–based spending policy that provided the target rate used in their spending calculation. If a range was provided, the target spending rate was calculated using the midpoint of the range.

Balancing Current / Future Spending: A Historical Perspective

January 1, 1930 – June 30, 2022







- Spending rates have an impact on the ability to maintain purchasing power. Historically, spending rates of 5% or below have maintained endowment corpii over the long term (albeit with a few challenging shorter-term periods).
- Over time, a lower spending rate results in more dollars available to spend (in real terms). For example, if NSHE had started with a $298 million endowment in 1930 (adjusted for inflation over the past 90 years), a 4.625% spending rate would result in an annual distribution amount of $23 million in 2022 in today's dollars – or ~$2 million more than if a 4.75% spending rate had been applied over that time period.

Sources: BofA Merrill Lynch, Citigroup Global Markets, Federal Reserve, Global Financial Data, Inc., Standard and Poor's, and U.S. Department of Labor - Bureau of Labor Statistics.
Notes: Prior to June 30, 1984 portfolio return assumes a 75% allocation to stocks and 25% allocation to bonds since 1930, rebalanced quarterly and spends a given percentage of the portfolio's 5-year trailing average market value. U.S. common equity series consists of Standard & Poor's 500 Index (1900 to date). The long-term bonds series is composed of Citigroup AAA/AA Corporate (High-Grade) Bond Index from 1930 to date. From June 30, 1984 to present, returns represent the Nevada System of Higher Education Endowment Fund's real returns (adjusted using the CPI-U).

BOARD OF REGENTS* and its
INVESTMENT COMMITTEE
NEVADA SYSTEM OF HIGHER EDUCATION
System Administration, Las Vegas
4300 South Maryland Parkway, Board Room
Friday, September 30, 2022, 10:00 a.m.

Video or Telephone Conference Connection from the Meeting Site to:
System Administration, Reno
2601 Enterprise Road, Conference Room
and
Great Basin College, Elko
1500 College Parkway, Berg Hall Conference Room

A video conference connection will be made from the meeting site to the Reno System Administration Building, Conference Room, at 2601 Enterprise Road, Reno, Nevada, and to Great Basin College, Berg Hall Conference Room, at 1500 College Parkway, Elko, Nevada. In the event the video conference connection is not functioning, a teleconference connection will be made available.

Members of the Board and/or the public may attend the meeting and provide testimony or public comment at these sites. Public comment may also be submitted via the online public comment form (http://nshe.nevada.edu/public-comment/) or voicemail (702-800-4705 or 775-300-7661). Written comments will no longer be read into the record and voicemails will not be played for broadcast, but both will be included in the permanent meeting record.

Members of the public wishing to view the meeting may do so via live stream (http://nshe.nevada.edu/live/)

BOARD ROLL CALL:	Mrs. Cathy McAdoo, Chair	_______
	Ms. Amy J. Carvalho, Vice Chair	_______
	Mr. Joseph C. Arrascada	_______
	Mr. Patrick J. Boylan	_______
	Mr. Byron Brooks	_______
	Dr. Patrick R. Carter	_______
	Mrs. Carol Del Carlo	_______
	Dr. Mark W. Doubrava	_______
	Dr. Jason Geddes	_______
	Mr. Donald Sylvantee McMichael Sr.	_______
	Mr. John T. Moran	_______
	Ms. Laura E. Perkins	_______
	Dr. Lois Tarkanian	_______
COMMITTEE ROLL CALL:	Mr. John T. Moran, Chair	_______
	Mr. Joseph C. Arrascada, Vice Chair	_______
	Mr. Patrick J. Boylan	_______
	Mr. Byron Brooks	_______
	Dr. Patrick R. Carter	_______
	Ms. Amy J. Carvalho	_______
ADVISORY MEMBERS ROLL CALL:	Mr. Randy Garcia, UNLV Foundation	_______
	Mr. Mark Denzler, UNR Foundation	_______

In addition to the Investment Committee, this meeting is noticed as a meeting of the Board of Regents to allow other Regents who may wish to attend to participate.

IMPORTANT INFORMATION ABOUT THE AGENDA AND PUBLIC MEETING

NOTE: Below is an agenda of all items scheduled to be considered. Notification is hereby provided that items on the agenda may be taken out of the order presented, including moving an item to a different day if the meeting is noticed for more than one day, two or more agenda items may be combined for consideration, and an agenda item may be removed from the agenda or discussion relating to an item on the agenda may be delayed at any time.

In accordance with the Board of Regents' Bylaws, Title 1, Article V, Section 18, items voted on may be the subject of a motion to reconsider at this meeting. A motion to reconsider an item may be made at any time before adjournment of this meeting. Similarly, if an item is tabled at any time during the meeting, it may, by proper motion and vote, be taken from the table and thereafter be the subject of consideration and action at any time before adjournment of this meeting.

*The Board's Committee meetings take place in accordance with the agendas published for those Committees. Regents who are not members of the Committees may attend the Committee meetings and participate in the discussion of Committee agenda items. However, action items will only be voted on by the members of each Committee, unless a Regent is temporarily made a member of that Committee under Board of Regents' Bylaws, Title 1, Article VI, Section 6. The full Board of Regents will consider Committee action items in accordance with the Board of Regents' agenda published for the current or for a subsequent meeting.

In accordance with the Board of Regents' Bylaws, Title 1, Article V, Section 12, a quorum may be gained by telephonic, video, or electronic transmission provided that notice to that effect has been given.

Some agenda items are noted as having accompanying reference material. Reference material may be accessed on the electronic version of the agenda by clicking the reference link associated with a particular item. The agenda and associated reference material may also be accessed on the Internet by visiting the Board of Regents' website at:

https://nshe.nevada.edu/leadership-policy/board-of-regents/meeting-agendas/

Many public libraries have publicly accessible computer terminals. Copies of the reference material and any additional support materials that are submitted to the Board of Regents' Office and then distributed to the members of the Board of Regents after the posting of this agenda but before the meeting, will be made available as follows: 1. Copies of any such materials are available at the Board of Regents' Office at 2601 Enterprise Road, Reno, Nevada and the Board of Regents' Office at 4300 South Maryland Parkway, Las Vegas, Nevada. A copy may be requested by calling Winter Lipson at (702) 889-8426; 2. Copies of any such materials will also be available at the meeting site.

Reasonable efforts will be made to assist and accommodate physically disabled persons attending the meeting. Please call the Board office at (775) 784-4958 in advance so that arrangements may be made.

1. PUBLIC COMMENT **INFORMATION ONLY**

Public comment will be taken during this agenda item. No action may be taken on a matter raised under this item until the matter is included on an agenda as an item on which action may be taken. Comments will be limited to three (3) minutes per person. Persons making comment will be asked to begin by stating their name for the record and to spell their last name. The Committee Chair may elect to allow additional public comment on a specific agenda item when that agenda item is being considered.

In accordance with Attorney General Opinion No. 00-047, as restated in the Attorney General's Open Meeting Law Manual, the Committee Chair may prohibit comment if the content of that comment is a topic that is not relevant to, or within the authority of, the Board of Regents, or if the content is willfully disruptive of the meeting by being irrelevant, repetitious, slanderous, offensive, inflammatory, irrational or amounting to personal attacks or interfering with the rights of other speakers.

2. MINUTES **FOR POSSIBLE ACTION**

The Committee will consider approval of the minutes from the March 25, 2022, meeting. *(Ref. INV-2)*

ESTIMATED TIME: *5 mins.*

3. CHAIR'S REPORT **INFORMATION ONLY**

Chair John T. Moran will provide general remarks to the Committee members.

ESTIMATED TIME: *5 mins.*

4. INVESTMENT COMMITTEE ORIENTATION AND DUTIES **INFORMATION ONLY**

Chief Financial Officer Andrew Clinger will provide the Committee with relevant background material and an overview of the duties of the Nevada System of Higher Education in relation to governance and oversight of its investment activities. *(Ref. INV-4)*

ESTIMATED TIME: *10 mins.*

5. OPERATING POOL PERFORMANCE DISCUSSION AND RECOMMENDATIONS **FOR POSSIBLE ACTION**

Staff from Cambridge Associates and System Administration will present a report on asset allocation and investment returns for the Pooled Operating Fund as of August 31, 2022. The Committee may take action on the Pooled Operating Fund recommendations presented by Cambridge Associates. *(Ref. INV-5)*

ESTIMATED TIME: *20 mins.*

6. ENDOWMENT POOL PERFORMANCE, CAMBRIDGE ASSOCIATES **INFORMATION ONLY**

Staff from Cambridge Associates will present a report on asset allocation and investment returns for the Pooled Endowment Fund as of August 31, 2022. *(Ref. INV-6)*

ESTIMATED TIME: *20 mins.*

7. ENDOWMENT POOL PERFORMANCE COMPARISON, NSHE/UNLV/UNR **INFORMATION ONLY**

Staff from Cambridge Associates and System Administration will present a comparison report of the endowment pool performance for the Nevada System of Higher Education, University of Nevada, Las Vegas and University of Nevada, Reno as of March 31, 2022. *(Ref. INV-7)*

ESTIMATED TIME: *10 mins.*

8. NEW BUSINESS **INFORMATION ONLY**

Items for consideration at future meetings may be suggested. Any discussion of an item under "New Business" is limited to description and clarification of the subject matter of the item, which may include the reasons for the request, and no substantive discussion may occur at this meeting on new business items in accordance with the Nevada Open Meeting Law (NRS 241.010 *et seq*.).

ESTIMATED TIME: *5 mins.*

9. PUBLIC COMMENT **INFORMATION ONLY**

Public comment will be taken during this agenda item. No action may be taken on a matter raised under this item until the matter is included on an agenda as an item on which action may be taken. Comments will be limited to three (3) minutes per person. Persons making comment will be asked to begin by stating their name for the record and to spell their last name. The Committee Chair may elect to allow additional public comment on a specific agenda item when that agenda item is being considered.

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POSTED ON THE NEVADA SYSTEM OF HIGHER EDUCATION WEBSITE (http://system.nevada.edu/) AND ON THE NEVADA PUBLIC NOTICE WEBSITE PURSUANT TO NRS 232.2175 (http://notice.nv.gov/) AT THE SYSTEM ADMINISTRATION BUILDINGS AND E-MAILED FOR POSTING AT THE EIGHT NSHE INSTITUTIONS:

CSN, Building D, 1st Floor, 6375 W. Charleston Boulevard, Las Vegas, NV 89146
DRI, Maxey Building, 2215 Raggio Parkway, Reno, NV 89512
DRI, Southern Nevada Science Center, 755 E. Flamingo Road, Las Vegas, NV 89119
GBC, Berg Hall, 1500 College Parkway, Elko, NV 89801
NSC, Rogers Student Center, 1st Floor, 1300 Nevada State Drive, Henderson, NV 89002
TMCC, Red Mountain Building (RDMT 200), 7000 Dandini Boulevard, Reno, NV 89512
UNLV, Flora Dungan Humanities Building (FDH), 4505 Maryland Pkwy, Las Vegas, NV 89154
UNR, Clark Administration, University of Nevada, Reno, Reno, NV 89557
WNC, Bristlecone Building Lobby, 2201 W. College Parkway, Carson City, NV 89703
System Administration, 4300 South Maryland Parkway, Las Vegas, NV 89119
System Administration, 2601 Enterprise Road, Reno, NV 89512

BOARD OF REGENTS* and its
INVESTMENT COMMITTEE
NEVADA SYSTEM OF HIGHER EDUCATION
System Administration, Las Vegas
4300 South Maryland Parkway, Board Room
Friday, March 25, 2022, 10:00 a.m.

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BOARD ROLL CALL:	Mrs. Cathy McAdoo, Chair	_______
	Dr. Patrick R. Carter, Vice Chair	_______
	Mr. Joseph C. Arrascada	_______
	Mr. Patrick J. Boylan	_______
	Mr. Byron Brooks	_______
	Ms. Amy J. Carvalho	_______
	Mrs. Carol Del Carlo	_______
	Dr. Mark W. Doubrava	_______
	Dr. Jason Geddes	_______
	Mr. Donald Sylvantee McMichael Sr.	_______
	Mr. John T. Moran	_______
	Ms. Laura E. Perkins	_______
	Dr. Lois Tarkanian	_______

COMMITTEE ROLL CALL:	Dr. Mark W. Doubrava, Chair	_______
	Dr. Jason Geddes, Vice Chair	_______
	Mr. Joseph C. Arrascada	_______
	Ms. Laura E. Perkins	_______
	Dr. Lois Tarkanian	_______

ADVISORY MEMBERS ROLL CALL:	Mr. Randy Garcia, UNLV Foundation	_______
	Mr. Dean Byrne, UNR Foundation	_______

In addition to the Investment Committee, this meeting is noticed as a meeting of the Board of Regents to allow other Regents who may wish to attend to participate.

IMPORTANT INFORMATION ABOUT THE AGENDA AND PUBLIC MEETING

NOTE: Below is an agenda of all items scheduled to be considered. Notification is hereby provided that items on the agenda may be taken out of the order presented, including moving an item to a different day if the meeting is noticed for more than one day, two or more agenda items may be combined for consideration, and an agenda item may be removed from the agenda or discussion relating to an item on the agenda may be delayed at any time.

In accordance with the Board of Regents' Bylaws, Title 1, Article V, Section 18, items voted on may be the subject of a motion to reconsider at this meeting. A motion to reconsider an item may be made at any time before adjournment of this meeting. Similarly, if an item is tabled at any time during the meeting, it may, by proper motion and vote, be taken from the table and thereafter be the subject of consideration and action at any time before adjournment of this meeting.

*The Board's Committee meetings take place in accordance with the agendas published for those Committees. Regents who are not members of the Committees may attend the Committee meetings and participate in the discussion of Committee agenda items. However, action items will only be voted on by the members of each Committee, unless a Regent is temporarily made a member of that Committee under Board of Regents' Bylaws, Title 1, Article VI, Section 6. The full Board of Regents will consider Committee action items in accordance with the Board of Regents' agenda published for the current or for a subsequent meeting.

In accordance with the Board of Regents' Bylaws, Title 1, Article V, Section 12, a quorum may be gained by telephonic, video, or electronic transmission provided that notice to that effect has been given.

Some agenda items are noted as having accompanying reference material. Reference material may be accessed on the electronic version of the agenda by clicking the reference link associated with a particular item. The agenda and associated reference material may also be accessed on the Internet by visiting the Board of Regents' website at:

https://nshe.nevada.edu/leadership-policy/board-of-regents/meeting-agendas/

Many public libraries have publicly accessible computer terminals. Copies of the reference material and any additional support materials that are submitted to the Board of Regents' Office and then distributed to the members of the Board of Regents after the posting of this agenda but before the meeting, will be made available as follows: 1. Copies of any such materials are available at the Board of Regents' Office at 2601 Enterprise Road, Reno, Nevada and the Board of Regents' Office at 4300 South Maryland Parkway, Las Vegas, Nevada. A copy may be requested by calling Winter Lipson at (702) 889-8426; 2. Copies of any such materials will also be available at the meeting site.

Reasonable efforts will be made to assist and accommodate physically disabled persons attending the meeting. Please call the Board office at (775) 784-4958 in advance so that arrangements may be made.

1. PUBLIC COMMENT **INFORMATION ONLY**

Public comment will be taken during this agenda item. No action may be taken on a matter raised under this item until the matter is included on an agenda as an item on which action may be taken. Comments will be limited to three minutes per person. Persons making comment will be asked to begin by stating their name for the record and to spell their last name. The Committee Chair may elect to allow additional public comment on a specific agenda item when that agenda item is being considered.

In accordance with Attorney General Opinion No. 00-047, as restated in the Attorney General's Open Meeting Law Manual, the Committee Chair may prohibit comment if the content of that comment is a topic that is not relevant to, or within the authority of, the Board of Regents, or if the content is willfully disruptive of the meeting by being irrelevant, repetitious, slanderous, offensive, inflammatory, irrational or amounting to personal attacks or interfering with the rights of other speakers.

2. MINUTES **FOR POSSIBLE ACTION**

The Committee will consider approval of the minutes from the September 30, 2021, meeting. *(Ref. INV-2)*

ESTIMATED TIME: *5 mins.*

3. CHAIR'S REPORT **INFORMATION ONLY**

Chair Mark W. Doubrava will provide general remarks to the Committee members.

ESTIMATED TIME: *5 mins.*

4. OPERATING POOL PERFORMANCE DISCUSSION AND RECOMMENDATIONS **FOR POSSIBLE ACTION**

Staff from Cambridge Associates and System Administration will present a report on asset allocation and investment returns for the Pooled Operating Fund as of January 31, 2022. The Committee may take action on the Pooled Operating Fund recommendations presented by Cambridge Associates. *(Ref. INV-4)*

ESTIMATED TIME: *20 mins.*

5. ENDOWMENT POOL PERFORMANCE, CAMBRIDGE ASSOCIATES — **INFORMATION ONLY**

Staff from Cambridge Associates will present a report on asset allocation and investment returns for the Pooled Endowment Fund as of January 31, 2022. *(Ref. INV-5)*

ESTIMATED TIME: *20 mins.*

6. ANNUAL REVIEW OF INVESTMENT POOLS — **FOR POSSIBLE ACTION**

NSHE staff will provide an update on the status of the investment pools and request approval to reallocate up to $150 million from the short-term pool into the long-term pool. *(Ref. INV-6)*

ESTIMATED TIME: *15 mins.*

7. MANAGEMENT OF INVESTMENT PORTFOLIOS — **INFORMATION ONLY**

Chief Financial Officer Andrew Clinger will present an update on the management of the NSHE investment portfolios. *(Ref. INV-7)*

ESTIMATED TIME: *15 mins.*

8. *HANDBOOK* REVISION, STATEMENT OF INVESTMENT OBJECTIVES AND POLICIES FOR THE OPERATING FUNDS — **FOR POSSIBLE ACTION**

Chief Financial Officer Andrew Clinger will request approval of proposed changes to the Statement of Investment Objectives and Policies for the Operating Funds *(Title 4, Chapter 10, Section 6)*. *(Ref. INV-8)*

ESTIMATED TIME: *5 mins.*

9. *HANDBOOK* REVISION, STATEMENT OF INVESTMENT OBJECTIVES AND POLICIES FOR THE ENDOWMENT FUND — **FOR POSSIBLE ACTION**

Chief Financial Officer Andrew Clinger will request approval of proposed changes to the Statement of Investment Objectives and Policies for the Endowment Fund *(Title 4, Chapter 10, Section 5)*. *(Ref. INV-9)*

ESTIMATED TIME: *5 mins.*

10. NEW BUSINESS **INFORMATION ONLY**

Items for consideration at future meetings may be suggested. Any discussion of an item under "New Business" is limited to description and clarification of the subject matter of the item, which may include the reasons for the request, and no substantive discussion may occur at this meeting on new business items in accordance with the Nevada Open Meeting Law (NRS 241.010 *et seq*.).

ESTIMATED TIME: *5 mins.*

11. PUBLIC COMMENT **INFORMATION ONLY**

Public comment will be taken during this agenda item. No action may be taken on a matter raised under this item until the matter is included on an agenda as an item on which action may be taken. Comments will be limited to three minutes per person. Persons making comment will be asked to begin by stating their name for the record and to spell their last name. The Committee Chair may elect to allow additional public comment on a specific agenda item when that agenda item is being considered.

In accordance with Attorney General Opinion No. 00-047, as restated in the Attorney General's Open Meeting Law Manual, the Committee Chair may prohibit comment if the content of that comment is a topic that is not relevant to, or within the authority of, the Board of Regents, or if the content is willfully disruptive of the meeting by being irrelevant, repetitious, slanderous, offensive, inflammatory, irrational or amounting to personal attacks or interfering with the rights of other speakers.

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CSN, Building D, 1st Floor, 6375 W. Charleston Boulevard, Las Vegas, NV 89146
DRI, Maxey Building, 2215 Raggio Parkway, Reno, NV 89512
DRI, Southern Nevada Science Center, 755 E. Flamingo Road, Las Vegas, NV 89119
GBC, Berg Hall, 1500 College Parkway, Elko, NV 89801
NSC, Rogers Student Center, 1st Floor, 1300 Nevada State Drive, Henderson, NV 89002
TMCC, Red Mountain Building (RDMT 200), 7000 Dandini Boulevard, Reno, NV 89512
UNLV, Flora Dungan Humanities Building (FDH), 4505 Maryland Pkwy, Las Vegas, NV 89154
UNR, Clark Administration, University of Nevada, Reno, Reno, NV 89557
WNC, Bristlecone Building Lobby, 2201 W. College Parkway, Carson City, NV 89703
System Administration, 4300 South Maryland Parkway, Las Vegas, NV 89119
System Administration, 2601 Enterprise Road, Reno, NV 89512

BOARD OF REGENTS and its
INVESTMENT COMMITTEE
NEVADA SYSTEM OF HIGHER EDUCATION
System Administration, Las Vegas
4300 South Maryland Parkway, Board Room
Friday, March 25, 2022

Video Conference Connection from the Meeting Site to:
System Administration, Reno
2601 Enterprise Road, Conference Room
and
Great Basin College, Elko
1500 College Parkway, Berg Hall Conference Room

Members Present:	Dr. Mark W. Doubrava, Chair Dr. Jason Geddes, Vice Chair Mr. Joseph C. Arrascada Ms. Laura E. Perkins Dr. Lois Tarkanian
Other Regents Present:	Mrs. Cathy McAdoo, Board Chair Dr. Patrick R. Carter, Board Vice Chair Mr. Patrick J. Boylan Mrs. Carol Del Carlo Mr. Donald Sylvantee McMichael Sr.
Members Present:	<u>Advisory Members</u> Mr. Randy Garcia, UNLV Foundation Mr. Mark Denzler, UNR Foundation
Others Present:	Mr. Andrew Clinger, Chief Financial Officer Ms. Keri D. Nikolajewski, Interim Chief of Staff to the Board Ms. Yvonne Nevarez-Goodson, Deputy General Counsel Mr. Rhett Vertrees, Assistant Chief Financial Officer Mr. Tillery Williams, Senior Fiscal and Policy Analyst Dr. Karin M. Hilgersom, TMCC President Dr. J. Kyle Dalpe, WNC Interim President

Chair Mark W. Doubrava called the meeting to order at 10:00 a.m. with all Regents' Committee members present.

1. <u>Information Only-Public Comment</u> – None.

2. Approved-Minutes – The Committee recommended approval of the minutes from the September 30, 2021, meeting *(Ref. INV-2 on file in the Board office)*.

Regent Arrascada moved approval of the minutes from the September 30, 2021, meeting. Regent Perkins seconded. Motion carried.

3. Information Only-Chair's Report – Chair Mark W. Doubrava discussed the importance of the Investment Committee, especially due to the current global conflicts.

4. Approved-Operating Pool Performance Discussion and Recommendations – Staff from Cambridge Associates and System Administration presented a report on asset allocation and investment returns for the Pooled Operating Fund as of January 31, 2022. The Committee recommended approval of the following Pooled Operating Fund recommendations presented by Cambridge Associates: 1) Rebalancing Global ex U.S. Equity closer to policy target: $10 million addition to Vanguard Developed Markets Index; 2) Trim U.S. Equity to rebalance toward policy targets: $5 million trim from Vanguard Institutional Index; and 3) Trim Long-Term Bonds to support rebalancing of Global ex U.S. Equity: $2.5 million trim from PIMCO Total Return and $2.5 million trim from Wells Capital Montgomery *(Ref. INV-4 on file in the Board office)*.

Mr. Andrew Clinger, Chief Financial Officer, provided remarks on the Operating Pool Performance recommendations and introduced Ms. Wendy Walker, Cambridge Associates.

Regent Perkins asked when the benchmarks were examined last and when should they be adjusted next, specifically in relation to the current market. Ms. Walker answered with regard to the Operating Pool, the benchmarks have been static for a long time and 2011 is the last time the benchmarks were changed; however, it is presented to the Committee at every meeting and since the strategy of the Operating Pool has been consistent since 2011, no recommendations have been made to change the policy targets and benchmarks. For the Endowment Pool, the long-term strategic policy was re-examined in 2016 and there have been two modest changes to the policy targets and benchmarks in 2019 and 2020. The last time the Statement of Investment Policies was reviewed by the Committee and voted on was in fall 2021 and the benchmarks did not change at that time since there was no shift in the policy.

Ms. Walker provided a report which included: market and geopolitical update – Russian invasion of Ukraine takes toll on markets in February 2022; Operating Fund Performance and Asset Allocation; Operating Fund return projections; and the NSHE Operating Fund rebalancing recommendations.

4. Approved-Operating Pool Performance Discussion and Recommendations – *(continued)*

In response to a question from Chair Doubrava, Chief Financial Officer Clinger stated that the staff approves of the recommendations as presented by Cambridge Associates.

Regent Perkins moved approval of the Pooled Operating Fund recommendations as presented by Cambridge Associates. Vice Chair Geddes seconded. Motion carried.

5. Information Only-Endowment Pool Performance, Cambridge Associates – Staff from Cambridge Associates presented a report on asset allocation and investment returns for the Pooled Endowment Fund as of January 31, 2022 *(Ref. INV-5 on file in the Board Office)*.

Mr. Ijeh Ogbechie, Cambridge Associates, provided an update on the Endowment OCIO which included: performance, asset allocation and guideline compliance; risk/return characteristics; diversifiers and private investments; and Legacy assets.

Regent Arrascada, Regent Perkins, Chief Financial Officer Clinger, UNLV Foundation Member Randy Garcia, UNR Foundation Member Mark Denzler, Ms. Walker and Mr. Ogbechie addressed and discussed the following topics: the total Cambridge Associates managed assets net of fees in regard to Legacy Private Growth and Legacy Private Natural Resources; comparison of the NSHE universities' endowments performances from fall 2021 to the present (Chief Financial Officer Clinger will collect the information from both universities and send it to the Committee ahead of the next meeting); and having future reports presented to the Committee in a PowerPoint format.

Ms. Walker provided an overview of the asset allocation for the Endowment which included: the total Endowment asset allocation is well within policy ranges; asset allocation over time; and the Endowment liquidity is well within guidelines.

Vice Chair Geddes inquired about any existing NSHE investments in Russia and Belarus and if the Board should consider divestment of those if applicable. Ms. Walker answered that there is a 0.3 percent exposure to Russian equities since the major index provider removed Russia from the indexes and trading has effectively stopped, most managers have written those positions down to zero. Also, many managers have announced plans to exit Russian equities as soon as liquidity permits. For the NSHE Endowment Fund there is very small exposure to Russian equities and zero exposure in the Operating Fund.

6. Approved-Annual Review of Investment Pools – NSHE staff provided an update on the status of the investment pools and the Committee recommended approval of reallocating up to $150 million from the short-term pool into the long-term pool *(Ref. INV-6 on file in the Board office)*.

Chief Financial Officer Clinger provided an overview of the investment pools which included: short-term cash as of March 10, 2022; intermediate term as of January 31, 2022; long-term equities as of January 31, 2022; long-term TIPS as of January 31, 2022; and long-term bonds as of January 31, 2022.

Vice Chair Geddes, Regent Perkins and Chief Financial Officer Clinger addressed and discussed the following topics: the intermediate and short-term pools being viewed in fixed dollar amounts which is based on projections of the cash flow needs of the System; allocations in the long-term pool based on percentages; and the financial advantages in allocating funds to the long-term pool.

Board Vice Chair Cater expressed his appreciation for the report.

Regent Perkins moved approval of reallocating up to $150 million from the short-term pool into the long-term pool. Vice Chair Geddes seconded. Motion carried.

7. Information Only-Management of Investment Portfolios – Chief Financial Officer Andrew Clinger presented an update on the management of the NSHE investment portfolios *(Ref. INV-7 on file in the Board office)*.

Chief Financial Officer Clinger provided information and a timeline of the actions that ultimately guided the Committee's decision to implement Cambridge Associates as the sole provider of the OCIO services, and the actions taken by Chief Financial Officer Clinger and supporting staff since the September 30, 2021, meeting.

Chair Doubrava thanked staff and Board Vice Chair Carter for their work on this.

8. Approved-*Handbook* Revision, Statement of Investment Objectives and Policies for the Operating Funds – The Committee recommended approval of proposed changes to the Statement of Investment Objectives and Policies for the Operating Funds *(Title 4, Chapter 10, Section 6) (Ref. INV-8 on file in the Board office)*.

Chief Financial Officer Clinger provided a brief overview of the proposal which included certain responsibilities moving from the Committee to System staff, as well as timing of certain action items.

Vice Chair Geddes moved approval of the proposed changes to the Statement of Investment Objectives and Policies for the

8. Approved-*Handbook* Revision, Statement of Investment Objectives and Policies for the Operating Funds – *(continued)*

Operating Funds. Regent Arrascada seconded. Motion carried.

9. Approved-*Handbook* Revision, Statement of Investment Objectives and Policies for the Endowment Fund – The Committee recommended approval of proposed changes to the Statement of Investment Objectives and Policies for the Endowment Fund *(Title 4, Chapter 10, Section 5) (Ref. INV-9 on file in the Board office)*.

Chief Financial Officer Clinger provided a brief overview of the proposal which included the removal of references to a second OCIO (Russell Investments).

Regent Perkins moved approval of the proposed changes to the Statement of Investment Objectives and Policies for the Endowment Fund. Regent Tarkanian seconded. Motion carried.

10. Information Only-New Business – Vice Chair Geddes requested an update on any Russian investments pertaining to the NSHE Endowment and Operating Funds.

Regent Perkins requested a re-examination of benchmarks to see if adjustments are necessary.

11. Information Only-Public Comment – Mr. Garcia requested more information on the System cash needs and drawdowns. Chief Financial Officer Clinger said he will send that information and have a discussion with Mr. Garcia offline.

The meeting adjourned at 10:57 a.m.

Prepared by: Winter M.N. Lipson
Special Assistant and Coordinator to the Board of Regents

Submitted for approval by: Robert G. Kilroy
Chief of Staff & Special Counsel to the Board of Regents

Approved by the Board of Regents at its November 30-December 2, 2022, meeting.

Outsourcing Chief Investment Officer Services: A Guide to Best Practices

The Institutional Shift to OCIOs

Not so long ago, it was the norm for boards of mid-sized institutions such as foundations/endowments and non-profit health care and religious organizations to have in-house investment management including staff, possibly a chief investment officer (CIO), and a board committee in conjunction with a non-discretionary consultant run their investment programs.

Today, outsourced CIOs (OCIOs) have become common at such organizations. Joining the national trend toward business outsourcing in general, particularly among organizations not large enough to have sufficient economy of scale to justify the costs of running an in-house asset-management operation, these institutions have been increasingly delegating investment operations by contracting with asset management firms offering OCIO services. The impetus for this trend began with the financial crisis of 2008-09, which revealed a lack of resilience in institutional portfolios, bringing new scrutiny to the costs and performance of in-house CIOs and non-discretionary consultants. That, coupled with the increasingly complex fiduciary obligations of boards, has prompted many small to midsize organizations to hire, or at least consider, an OCIO.

In the years since the crisis, it has become increasingly clear to many boards and their investment committees that they have been paying top dollar for inferior or, at best, index-matching performance. Some in-house CIOs have suffered from group-think and have lacked the flexibility needed to address the rapidly changing investment landscape, and the costs of maintaining an in-house finance office have lowered net returns.

The institutional financial industry's move to OCIOs is accelerating. Assets managed by OCIOs increased by approximately 29% per year for the 2007-2016 timeframe. As of November 2016, OCIOs managed some $1.4 trillion, and that figure grows by the day.

The challenge of selecting the right OCIO contractor is becoming more labor intensive because of the explosive growth in the number of firms offering these services. A leading executive recruiter estimates that 74 firms were competing in this space in late-2016, up from a handful several years earlier. Some of these new suitors are highly qualified, skilled firms or individuals who bring strong track records to the job to deliver optimal results. Unfortunately, many of those offering OCIO services are unqualified or underqualified, and may have conflicts of interest that make them unsuitable to serve a particular institution, if any.

The gold rush to offer OCIO services has encouraged the entry into the field of asset managers and advisors of various stripes with disparate backgrounds that are, in some cases, incongruous with the demands of OCIO duties. These firms — some of them qualified and suitable for the OCIO mission, some not — run the gamut of the financial services industry, from large wirehouses, index-maintenance firms and multi-office national consultancies (some of which historically have not been known for asset management rigors) to various RIAs and one-person shops made up of CIOs displaced by this very trend.

As in any competitive specialty in the financial service industry, much of the intense marketing of OCIO services in recent years has involved selling a concept buttressed by claims of differentiation that carry varying degrees of accuracy. Yet as fiduciaries, boards must take care to verify the reality of what they are buying — knowing what questions to ask and what information to demand regarding best-practices adherence and performance data. To do this, they need to become familiar with the marketing-versusreality practices in this emerging sector.

This can be a Herculean challenge for board members and staff already heavily burdened by the operational and policy duties of running their organizations. Moreover, even for those who can find the time, the universe of OCIO providers is so large, varied and expanding that the task becomes all the more daunting.

To make such engagements meaningful and productive, institutional boards must recognize the imperative for oversight of future or existing OCIOs. Typically, institutions are far more focused on simplifying the investment process than on finding a proper steward to oversee their total investment management program.

Many boards need consultants who can act as a trusted advisor in their search for an OCIO, and, on an ongoing basis, to represent their interests in all facets of investment management execution, including negotiating fees and acting steadfastly as their voice at the table in all aspects involving service providers.

Potential Benefits of Outsourcing

Bringing on an OCIO can carry myriad benefits for boards. This move can mean a shift to improved and more varied investment management expertise, bringing significant increases in short- and long-term net returns to fund programs and liabilities while fortifying risk management. By hiring the right OCIO and providing the right kind of oversight, boards can derive these benefits to reach their investment goals while reducing fees and expenses.

Moreover, a successful OCIO program can free boards and investment committees from the headaches associated with managing in-house investment offices — HR issues, expanding budgets, day-to-day management (as opposed to oversight) — giving them more time to deal with the policy matters that represent the raison d'être of the institution. Hence, for some boards, a well-crafted, well-overseen, well-monitored OCIO program can redirect an investment management program to the purpose for which it was originally conceived: a means to an end rather than an end in itself.

However, setting up an effective OCIO program that's aligned with the organization's goals and finding the right contractor are complex undertakings. These tasks require specialized knowledge and expertise, including a true understanding of client needs and mission, a familiarity with the viable structural models, performance assessment skills to assure accountability and an understanding of the range of professionals seeking OCIO business and their limitations.

Vetting OCIO Candidates and Assuring Effective Oversight

Key criteria for a successful OCIO search and engagement include:

1. **Fit with the organization.** Even if the qualifications of the candidate are impeccable, finding the right fit is paramount. In most cases, midsize institutions and organizations ($50 million to $1 billion in investable assets) should select for consideration candidate firms of proportionate size to their own. Firms that are too small might lack the necessary experience and breadth of expertise the organization requires. On the other hand, if a board of a midsize organization engages a financial services giant, it could be relegated to second-fiddle status — or even 32nd-fiddle status.

   Though some board members may view a large OCIO firm as being desirable from a brand-name point of view, this can be problematic for smaller organizations. Large vendors tend to assign smaller clients to the ministrations of junior staffers rather than the firm's more experienced professionals. Moreover, large firms typically have substantial turnover in the junior ranks, sometimes creating a lack of continuity for clients who need ready access to advisors intimately familiar with their needs on an ongoing basis.

Large firms, even those that purport to be "independent," often have a built-in bias toward placing managed money in proprietary products (internal funds), the pursuit of undisclosed soft-dollar payments and a susceptibility to the influence of other business lines of the company or parent company when making investment allocation decisions, to name a few. Such scenarios may call into question an OCIO's objectivity as an appropriate and faithful steward of client assets.

Further, there is the problem of asymmetric information. Asset management moves undertaken by the big investment houses to serve their equally large institutional clients can work to the detriment of the portfolios of small and midsize institutions. Customization is a concern as well. Board investment committees often hear a lot about customized solutions from big asset managers, but may actually receive a one-size-fits-all solution, albeit with a bit of tweaking and rewriting of boilerplate.Keep in mind that discretion comes in many flavors, so it's important for boards to determine exactly what they are getting from an OCIO, large or small, and how well the OCIO's experience and services fit with the organization's needs and expectations.

2. **Flexibility of providers.** As when entering into any business relationship, engineering contingencies for an exit strategy is essential. An OCIO's proposed allocation to illiquid investments deserves much scrutiny from the board. From the outset, boards should be vigilant to identify and avoid candidates who might bring about a scenario in which their organization could be blocked from ready access to assets—and thus be reluctant or unable to fire a possibly under-performing OCIO. To be proactive in this regard, boards should be sure to ask about the use of illiquid investments in any proposed program. OCIO firms often claim that they use illiquid investments to boost performance, of course. Yet the real motivation for this may be to lock in long-term revenue streams or make them opaque, given that some illiquid assets are notoriously difficult to value, especially in the absence of recent arms-length transactions. By corollary, organizations should be watchful for contract clauses that affect illiquid assets upon an OCIO's termination.

3. **Proof of performance.** Each candidate must present specific evidence of a clear value-add for the hiring organization, along with proof of a successful track record. This would likely include detailed insights regarding appropriate manager-selection criteria, a proposed custom basis for tactical asset allocation, and information on any associated services the firms may offer. Boards often encounter roadblocks in attempting to assess performance records of OCIO candidates. All too often, when boards ask for this data, OCIO candidates might say it isn't available or that it would be meaningless because all of their investment management is "custom" based on each client's investment policy statement. There is a common refrain that every client is unique, so the summary data they might provide could not possibly be pertinent or applicable. They might say there is no point in presenting performance results, citing the lack of uniformity in client risk profiles as a key reason. Yet this data can be segregated by client type and/or provided as a universe.

   Here are some items boards should keep in mind when seeking and considering performance data from OCIO candidates:

   - Ask candidates to show the percentage of their clients that beat their custom benchmarks, over 1, 3, 5 and 10 years.
   - Be sure to compare net, not gross, returns. Make sure performance is actual, not backtested or simulated.
   - Beware of cherry picking. Is the data from all of or most of the candidate's clients, not just from a select few? If there are no laggards in the group presented, this may be a red flag for low credibility.
   - Ask for historical average returns by institution size, asset class and type of organization or institution.
   - Determine whether results have been audited by an independent performance verification firm.
   - Each candidate firm should be required to proffer a fully defensible investment management thesis showing their services have added value regarding strategic/tactical asset allocation, active manager selection, cost management and other critical areas of return generation. From this and the full range of the candidate's credentials, hiring organizations can then define the candidates' expertise.

4. **Pricing and fees.** Boards should ask for a detailed schedule of the candidate's costs and fees, including ancillary fees. Boards should be wary of broad ranges and prefer specifics tied to the amount of their organization's investable assets. Insist on the separation of the candidate's specific fees from any other underlying charges.

   Boards should drill down on the pricing metrics to learn whether fees are affected by asset allocation choices and, if so, exactly how. If proprietary products are being used, does this pricing differ? To get a complete picture of the fees that would come with a candidate's administration, request detailed information on the pricing of any subadvisors they would be likely to use or have used in the past.

5. **Monitoring.** Identifying conflicts of interest is paramount—before and after engagement. Before engaging an OCIO, boards should make a thorough effort to identify all potential conflicts, starting with a request to disclose all lines of business, partnerships and affiliations. Some boards assume that they can easily manage conflicts or adjust their judgments of OCIOs to protect against any negative effects, but they may overestimate the ease with which they can identify conflicts, considering the tendencies for incomplete or misleading disclosures by candidates. Fundamental conflicts that would interfere with an OCIO's motivation to pursue the best possible returns should disqualify them, no matter what assurances or correcting mechanisms they propose. After engagement, the effort to identify, evaluate and monitor conflicts should continue, in keeping with the board's fiduciary duties. Monitoring should also include setting and controlling benchmarks, and establishing objective reporting functions to measure performance against these benchmarks.

   Monitoring regarding adherence to benchmarks must begin with a comprehensive plan for setting ones that are appropriate for the organization's goals and risk tolerance, and controlling them. Monitoring controls should also continuously evaluate compliance with asset allocations and investment policy statements.

The Role of Consultants to Oversee OCIO Programs

The pressure on boards, as fiduciaries, to responsibly exercise their legally required duty of care to choose wisely — in the best interests of their constituents — is tremendous. If they make the wrong choice, they can expose themselves and their constituents to poor overall management, short-term disruption if boards discover and correct their error in choosing the wrong service provider or, even more vexing, the effects of not discovering that error: long-term underperformance that carries the sting of unfulfilled potential for those whose wealth is being managed or who are the institution's ultimate beneficiaries.

For these reasons and others, some institutions are turning to consultants to:

- Evaluate and determine the benefits of outsourcing investment operations as they relate to their individual circumstances.
- Perform a cost-benefit analysis based on contingencies of realistic potential for improved net returns.
- Serve as the client's guide to the universe of service providers, selecting the most appropriate candidates to recommend.
- Prepare institutions for an OCIO by helping investment committee members determine the investment structure that best meets the organization's needs, the underlying strategy to achieve objectives, and policies to ensure that a disciplined process is implemented and maintained.
- Support clients in managing OCIO relationships via monitoring, benchmarking and reporting to improve and sustain portfolio performance and keep OCIOs accountable.
- Successfully negotiate appropriate fees for the program

Boards must keep in mind that more and more consulting firms, motivated by the rising stream of revenue from OCIO services, are converting from non-discretionary (non-investing) to discretionary (investing) services. This presents a dilemma. Truly objective, independent consultants in this field draw the line at actually providing investment management services. Rather, they serve as a check on those who do.

When evaluating such consultants, boards should ask: If these firms are essentially now asset managers themselves, just what is their actual consulting role (if any)? How can their advice be relied upon? Who will oversee their performance? How can they be held accountable?

A skilled, knowledgeable consultant who is truly objective can pilot institutions safely through the tricky waters of this nascent specialty, providing board education as needed and helping them position for solid ROI relative to appropriate risk levels. To the extent that such consultants have the knowledge necessary to successfully negotiate appropriate fees with OCIO candidates, their services can be paid for by this negotiating advantage alone; the amount of the discount on OCIO services obtained can often be greater than the consultant's fees.

Consultants, who must have a broad and deep understanding of the industry to serve clients properly, should start by evaluating clients' portfolios and investment management operations, determining the benefits of outsourcing as they relate to their particular circumstances, and providing insights into the different OCIO service models. In cases where OCIOs are already in place, asset owners need to assess the effectiveness of these existing structures. Some institutions use multiple OCIOs, a practice that is not generally recommended unless they are handling disparate assets divided up for different specialties. In such cases, of course, there is no actual chief of investment operations, so a consultant should monitor the group holistically. In cases where there is substantial overlap between the types of assets being managed by different players, consolidation under a single OCIO may be in order.

Another key role for consultants is the managing and execution of the process of issuing and evaluating requests for proposals. To identify OCIO candidates for clients, consultants should develop, introduce and manage a blind and hence truly objective RFP process to identify high-conviction managers — those for whom the consultant objectively develops a high conviction regarding performance and fit regarding the client. Too frequently, board-led RFPs are produced with a candidate in mind, thus negating the board's fiduciary responsibility to identify the optimal candidate(s) among the field. This process includes development and refinement of an RFP recipient list, a step that can be assisted by a consultant who maintains an up-to-date comprehensive database of service providers, applying across-the-board gauges for responses that use comparable measures for responses to enable precise apples-to-apples comparisons and quantification of the expected value-add of each candidate.

By developing a relationship with the right consultant — one that endures from incremental success in reaching objectives and consistent rendering of superior service — institutions can assure the sustainability of an effective OCIO program that begins with thorough vetting of service providers followed by ongoing monitoring of their execution and crystal-clear, analytically-driven reporting to the client organization. Institutions will then be positioned to derive the benefits of outsourcing this critical role, growing assets and benefitting constituents for the long run with processes that reduce portfolio risk rather than increase it.

SOCIAL EQUITY INVESTING

RIGHTING INSTITUTIONAL WRONGS

CAMBRIDGE ASSOCIATES

Many institutional investors have long sought to promote social equity through grant making and other philanthropic endeavors. With the field of impact investing maturing, these institutions are now increasingly seeking investment solutions to accomplish the same goal. Yet this effort raises important questions: What is social equity investing? What does it look like in practice? And how do social equity investments fit in a portfolio?

In this paper we review the current state of social equity in the United States, highlight eight core social equity issue areas, and discuss the lessons we've learned in constructing portfolios with these investments. We define social equity investing as investments to promote equal opportunity and access for all, regardless of background, but we understand that many investors have different definitions.[1] While investors need to be mindful of risks, we believe that investments can be made to promote a social equity impact agenda across the portfolio.[2]

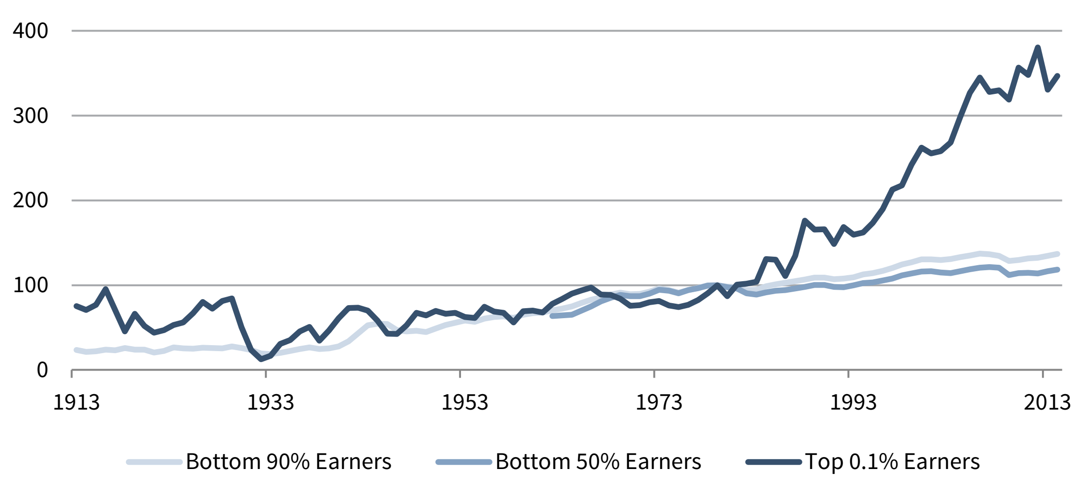
The State of Social Equity in the United States

The United States continues to experience high levels of inequality in income, access, and opportunity. The Economic Policy Institute found that real wages for most US workers have seen minimal change since the 1970s, while wages for the top 0.1% have nearly quintupled (Figure 1) Also, data from The Brookings Institution indicate that the chances of economic mobility are decreasing, with one study finding that, while nine out of 10 children born in 1940 had higher earnings at age 30 than their parents at the same age, for those born in 1980, the number dropped to one in two.

1 A definition we like is: social equity investing seeks to promote fair treatment and equality of opportunity and access for all in areas such as civil rights, freedom of speech, education, financial systems, healthy/safe communities, etc., regardless of a person's background (e.g., race, ethnicity, gender, sexual orientation, and/or socioeconomic status).

2 For more information on impact investing, please see the following Cambridge Associates' publications: Impact Investing: A Framework for Decision Making, Impact Investing Benchmarks (Venture Capital and Private Equity & Real Assets), and Navigating the "Alphabet Soup" of Mission-Related Investing.

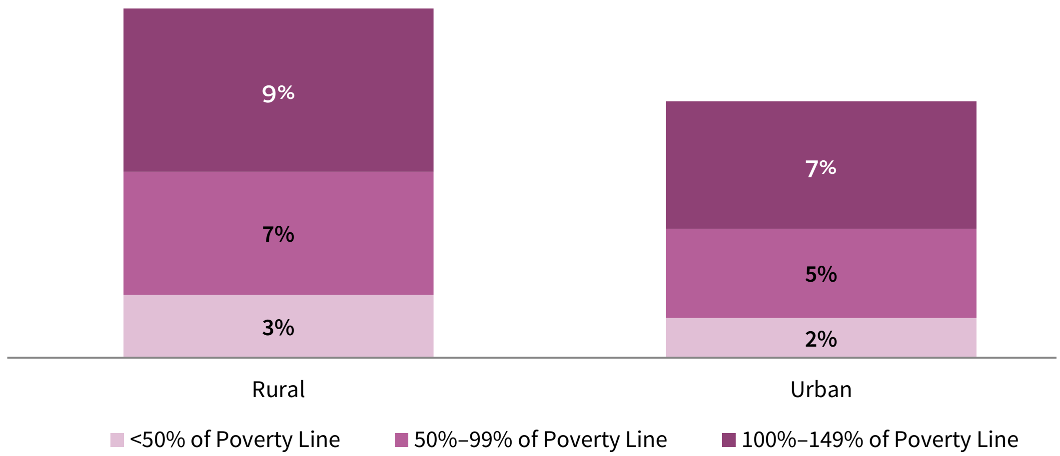
FIGURE 1 REAL WAGE GROWTH FOR US WORKERS
1913–2014



Source: Economic Policy Institute.

People living in the United States also face disparities in access to education, health care, and even civil rights. Data suggest that income profiles are correlated with many of these access inequities, with lower income populations having less access. Other demographic information, such as zip code, gender, race, and sexual orientation, correlates with inequality as well. For example, a study by the Center for Disease Control and Prevention found that people living in rural America are more likely to die from preventable diseases compared to their urban counterparts. They also face higher levels of poverty compared to their urban counterparts (Figure 2).

FIGURE 2 PERCENT OF US WORKERS IN POVERTY
2016



Source: US Census Bureau, *2016 Current Population Survey.*
Note: Figure includes US householders aged 25–54 that worked at least part of the year in 2015 and by poverty threshold.

Economists argue these issues create economic risks for our society. A 2017 article from the World Economic Forum noted that inequality may threaten "the very foundation of economic growth," particularly if that growth is not inclusive. At the same time, there is real economic opportunity to be gained from creating more inclusive economies. The Center for American Progress estimates that if the racial education achievement gap were closed, the US economy would be nearly $2.3 trillion larger in 2050.

LANGUAGE MATTERS

As we engaged with practitioners and other experts, we heard different perspectives on how they defined social equity investing. Some highlight education, others healthcare, and still others, the environment. We also heard strong preferences for the best terminology to employ, particularly when it came to "social justice" versus "social equity."

These differences point to the need for greater precision when we talk about social equity. As the Grantmakers for Southern Progress put it, "a singular way of talking about the work will not resonate with the diversity of audiences" engaged in it! However, the potential for different perspectives should be recognized and investors should seek to ensure they are effectively communicating their social equity aims.

Understanding Social Equity Issue Areas

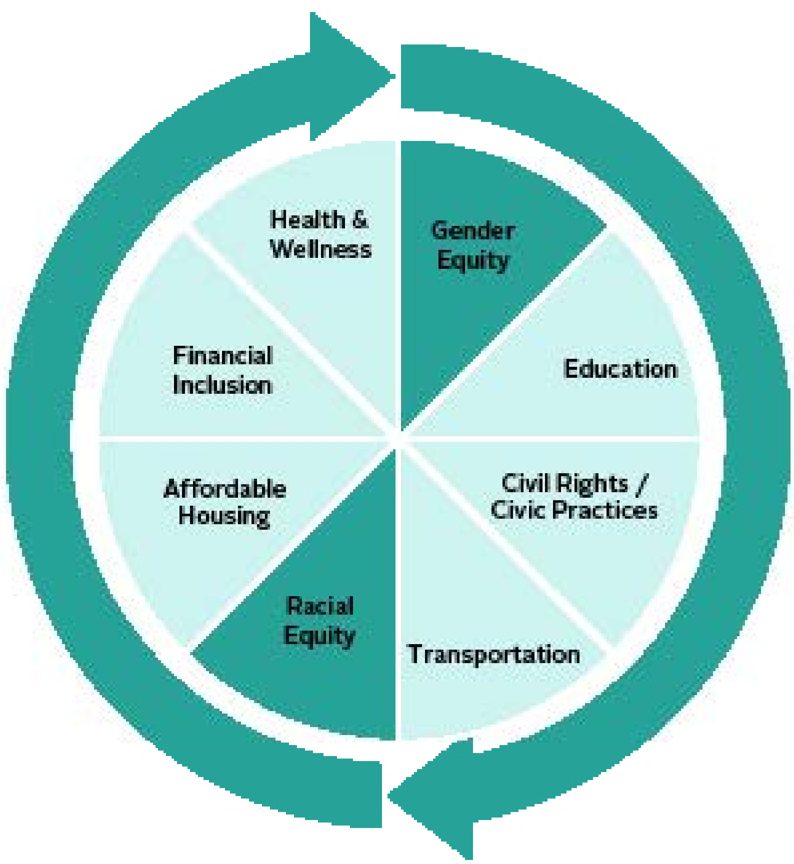
We highlight eight social equity issue areas in Figure 3 that we view as core to creating a socially equitable society: gender equity, education, civil rights/civic practices, transportation, racial equity, affordable housing, financial inclusion, and health & wellness.[3] Most social equity issue areas are investable, but a few currently do not lend themselves to traditional portfolio structures at this time and are likely best accessed through public policy or philanthropic efforts.

Although we present the issue areas as distinct, investors should keep in mind that in practice, the themes are interrelated. Research on the social determinants of health shows that access and quality of health care is often entangled with education, the environment, and economic stability. Therefore, investors seeking to improve health issues must recognize that other factors will influence outcomes.

To highlight another example, in education, children's academic success depends on their classroom experience as well as on reliable transportation, stable housing, and access to nutritious food. Consequently, communities often require a robust set of solutions aimed at tackling the myriad pain points, rather than a silver bullet. Practitioners are advised to understand the broader landscape of issues that lay before them, and the need to take these multiple issue areas into account to create comprehensive, sustainable, and truly transformative solutions.

3 Please see the Appendix for more detail on investing in social equity issue areas.

FIGURE 3 EIGHT CORE SOCIAL EQUITY ISSUE AREAS

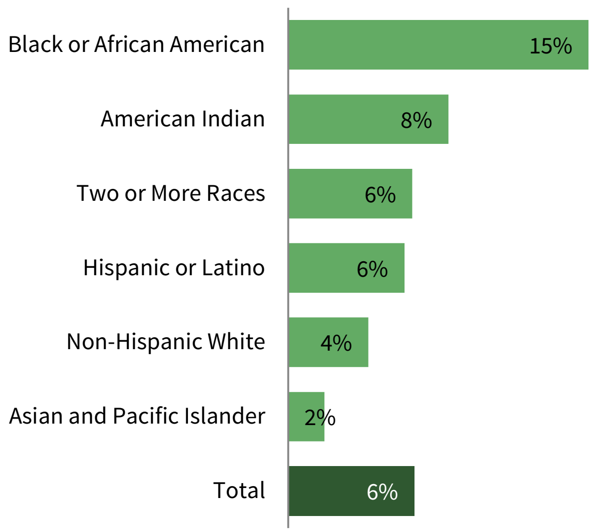


Source: Cambridge Associates LLC.

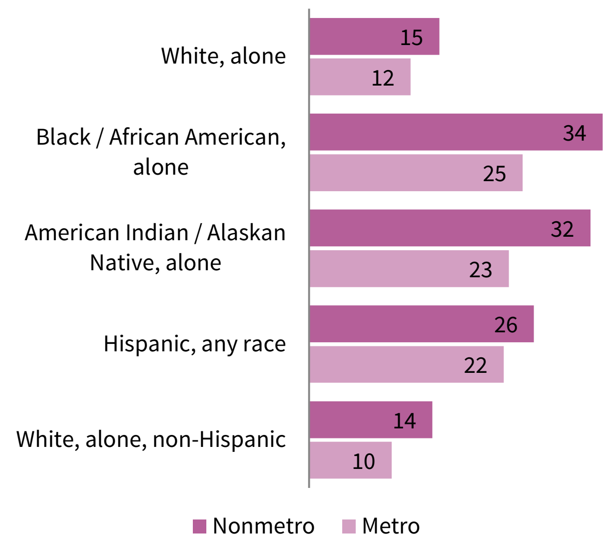
This dynamic is perhaps nowhere more apparent than in advancing racial equity. The legacies of racism and racial barriers are deep and complex, and data indicate that inequities across almost nearly any topic—education, health care, financial inclusion—tend to be more pronounced for people of color (Figure 4). In effect, investing to advance racial equity demands particular attention and understanding of the interconnectedness of the underlying themes within social equity.

FIGURE 4 RACIAL INEQUALITY IN THE UNITED STATES

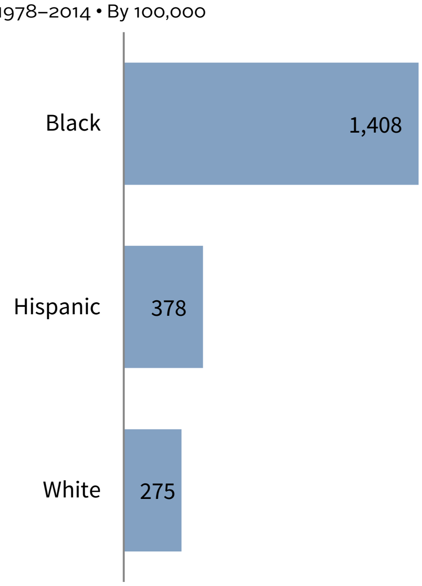
EDUCATION: Children Suspended from School (%)
2011–12



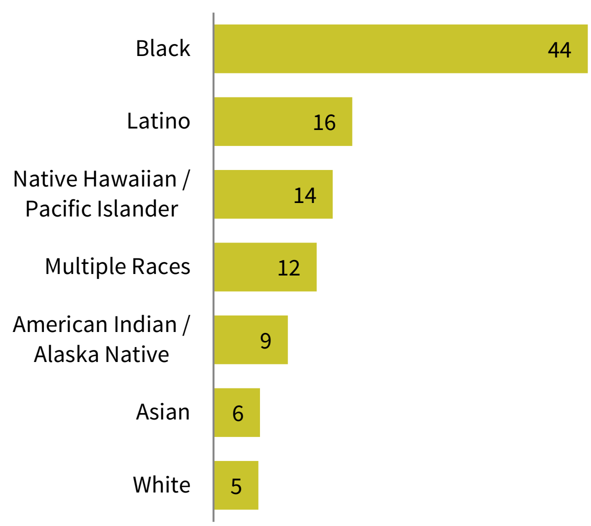
POVERTY: Poverty Rates by Percent Poor
2015



CRIMINAL JUSTICE: Average US Incarceration Rates
1978–2014 • By 100,000



HEALTH: Rates of New HIV Diagnoses
As of November 2016 • By 100,000



Sources: Centers for Disease Control and Prevention; Kids Count Data Center; US Census Bureau; and United States Department of Justice, Office of Justice Programs, Bureau of Justice Statistics, National Prisoner Statistics, 1978–2014.

Successful capital deployment to support communities of color also requires an understanding of the economic viability of those markets. Fortunately, institutions are seeking to better understand these dynamics. The Selig Center for Economic Growth found that racial minority groups represent the fastest gains of buying power within the United States. It estimated that the combined buying power of blacks, Asians, and Native Americans in 2016 was $2.2 trillion, a 138% gain since 2000. The study also estimated that the buying power of Hispanics increased by 181% to $1.4 trillion. In contrast, the buying power of white consumers only increased by 79% during this same period.

In addition to the economic upside of investments within communities of color, research has also uncovered that there are real costs to bear by not addressing racial inequities. In 2018, the WK Kellogg Foundation argued that raising the average incomes of people of color to the average incomes of white people would generate an additional $1 trillion in earnings. The same organization also estimated that racial disparities in health access in the United States represent $93 billion in excess medical care costs and $42 billion in lost productivity. These figures are expected to rise if the health disparities continue, as the United States becomes increasingly diverse.

Given the complexity of racial equity, impact investors can find quite a few approaches to address the opportunity. Our view is that strategies focused on racial equity can be bifurcated into two areas. The first is increasing capital access & allocation, which seeks to increase capital flows to communities of color and address the historic and continued capital gap for those communities. The second is improving business lines & practices, which seeks to ensure that existing businesses, products/services, and policies are positively supporting communities of color. In practice, these themes are likely to overlap (Figure 5).

FIGURE 5 TWO AREAS OF RACIAL EQUITY INVESTING

	CAPITAL ACCESS & ALLOCATION			BUSINESS LINES & PRACTICES	
INVESTMENT FOCUS	Investment Managers / Firms	Entrepreneurs	Communities	Products & services	Culture & workplace practices
ASSET CLASS IMPLEMENTATION OPTIONS	Opportunities across asset classes	Most opportunities within the private portfolio	Most opportunities within the private portfolio	Opportunities in private venture / equity & in public & private debt	Opportunities across asset classes
INVESTMENT OPPORTUNITY EXAMPLE	Public equity firm led by an African-American woman	Early-stage venture capital strategy focused on Hispanic / Latino entrepreneurs	Real estate strategy focused on community development in communities of color	Debt product that brings capital to small business owners, with an emphasis on racial minorities	Public equity strategy that engages with companies on diversity practices & policies as part of their shareholder engagement program

Source: Cambridge Associates LLC.

Strategies focused on capital access and allocation tend to deploy capital in support of investment managers, entrepreneurs, and communities of color. Examples include tilting the manager roster toward firms that are owned and/or led by people of color, investing in a venture strategy with a particular focus on diverse entrepreneurs, or investments in critical consumer services related to health, wellness, and food systems. Notably, the types of entities supported tend to be quite varied, with only some focused on mission-aligned businesses.

Investors can support business lines and practices that benefit racially diverse populations across two primary channels: developing beneficial products and services and promoting cultures that have a positive impact on racially diverse populations. Examples include a venture capital strategy that backs start-ups that create affordable and accessible financial tools, with a focus on serving communities of color, and a private strategy that engages with its investments on having better practices and policies around diverse individuals and communities. Impact investors, via early-stage venture capital investments, can also encourage both investment managers and company leadership to entrench these practices of equity and inclusion into the fabric of the company from the earliest stage, with a goal to drive lasting change as the company moves toward a public offering.

As investors embed racial equity investments into their portfolios via the two channels described above, we encourage investors to consider four factors as they source and diligence investments. These key considerations for racial equity investing include:

- **INTERNAL CULTURE:** Has the manager adopted the same principle it espouses? Does the organization have programs/policies around diversity, equity, and inclusion?
- **CULTURAL COMPETENCY:** Does the manager have the cultural know-how and acumen to address the needs of racially diverse communities?
- **CONNECTIVITY WITH COMMUNITY:** Are impact investors involving the community directly in the investment/decision making process and leveraging the expertise and voices of community stakeholders? If not, is that something they have expressed a willingness to consider?[4]
- **RISK MITIGATION:** Are there any risks communities might bear that could run counter to an investor's intended impact goals as a result of the strategy employed and if so, what steps can the manager and/or investor take to address them?

Given the broad swath of strategies, it's difficult to generalize investment characteristics, such as vehicle types offered and stated return targets. Investments will vary greatly depending on an investor's goals. We expect that the growing prominence and focus on racial equity investing will yield a more robust opportunity set, resulting from both new entrants and existing players pivoting toward the opportunity.

4 For more details and guidance on engaging the beneficiaries in the investment process, please see Katherine Pease, "In Pursuit of Deeper Impact: Mobilizing Capital for Social Equity," KP Advisors, 2016.

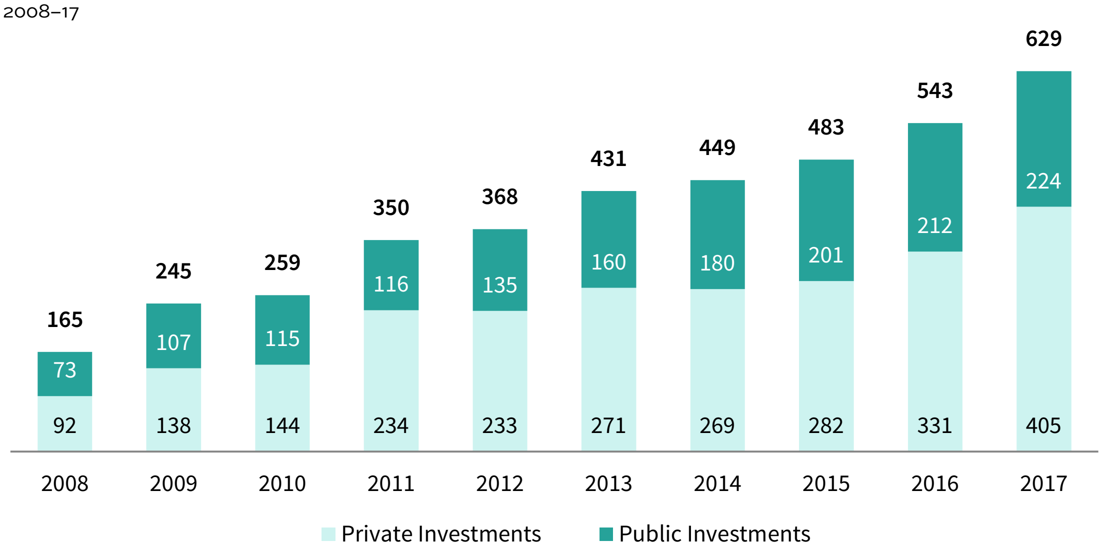
Putting it Into Practice

Institutional investors focused on impact inevitably ask themselves how do we maximize the impact of our investments? Unfortunately, not all investments align perfectly with an investor's impact goal. We tend to think about the varying levels of alignment between investment strategies and impact goals as taking one of three forms—the impact is either focused, holistic, or neutral. Some investors might use just one strategy, or a combination of all three in their efforts to seek greater social equity impact alignment as the investment universe develops.

FOCUSED IMPACT: These strategies align closely with an investor's impact goals. Investors expect these strategies to generate measurable impacts and outcomes; investments are available across the return spectrum. Although the investment landscape is constantly evolving, opportunities for focused impact strategies are most frequently found in private markets, with some opportunities within public and private debt. Program-Related Investments (PRIs) are another long-standing, focused impact tool, with a range of structures available, from cash deposits and loan guarantees to catalytic funds and direct equity/debt investments. This flexible use of capital can offer greater opportunities for innovation and has been an effective way for many in advancing their social equity agenda.

HOLISTIC IMPACT: These strategies align with impact goals to a lesser degree than focused impact strategies and opportunities exist in all asset classes. In practice, however, we see investors employ this approach primarily in the public markets, where we have seen tremendous growth in the number of managers incorporating ESG factors across asset classes (Figure 6). Further, investors have the opportunity to engage managers to consider more specific social impact objectives as they assess various companies.

FIGURE 6 MANAGERS INCORPORATING ESG IN PRIVATE AND PUBLIC INVESTMENTS
2008–17



Source: Cambridge Associates LLC.
Notes: These numbers reflect the managers in our database that have been identified by Cambridge Associates as actively integrating ESG and/or impact as a core and material part of their investment strategy. The identification process is systematic, but subject to judgement. Specific composition of managers may vary each year as firms consolidate, close, or shift their approach. The methodology for identifying managers may change over time to reflect market conditions and best practices.

NEUTRAL IMPACT: These strategies seek to avoid conflict with an investor's impact goals. An example could be a passive screened public equity strategy that avoids firearms, predatory lending, and for-profit prisons. Notably, though some investors may view this choice somewhat neutrally by not wanting to profit from a certain industry, others may view this method as a powerful tool to signify their opposition. Investors can apply this lens across the portfolio, with minimal expected effect on portfolio construction and investment returns.

Investors should also note that certain investments might *detract* from their overall social equity impact aims. Managers may have an implicit bias against diverse people, or they may invest in businesses that negatively impact marginalized communities. These impact "risks" are present across asset classes. We encourage investors to be diligent and dig into underlying holdings and portfolio companies to ensure that the portfolio is not acting against its stated impact objectives.

When building a portfolio with a social equity lens, investors should remember that there is no "one size fits all" approach. Due to portfolio construction constraints, not all solutions or structures will be applicable or relevant for all investors. This is OK. Investors should be aware of the opportunities and limitations of their own capital pools, and take that into account as they seek to create solutions.

Conclusion

Social equity investing offers investors the opportunity to align their portfolios with their impact goals and advance solutions to some of the most pressing social issues of our time. Social equity investors can address a myriad of thematic issues such as education, health, race, or gender. We hope investors can leverage the examples provided in this report to activate their portfolios for social equity impact. To be sure, the need is great and the time is now. As the impact investing space continues to mature, we expect the opportunity set of investable strategies will grow. We encourage investors to share knowledge to support the growth of social equity investing, so together we can build a more equitable society. ■

Erin Harkless, Senior Investment Director
Ashley Cohen, Senior Investment Associate

Other contributors include Tom Mitchell and Danielle Reed.

APPENDIX DETAILED SOCIAL EQUITY ISSUE MAP

IMPACT THESIS	KEY STATS	INVESTMENT CONTEXT
GENDER EQUITY		
▪ Women continue to face barriers to success and remain underrepresented and underserved, economically and socially	**32:** Female CEOs among the Fortune 500 **$0.79:** Amount women earn relative to every $1 men earn	✓ Public Equities ✓ Private Equity ✓ Private Debt ✓ PRI
EDUCATION		
▪ Education can help individuals achieve social and economic mobility, yet access and outcomes remain dependent on one's background and demographics ▪ Greater access can ensure more equal opportunities and outcomes among communities	**26s:** Every 26 seconds a US high school students drops out of school **65%:** Fourth graders not proficient in reading	✓ Private Equity ✓ Private Debt ✓ PRI
CIVIL RIGHTS / CIVIC PRACTICES		
▪ Legal systems wield immense power (e.g., housing policies, policies for the formerly incarcerated, immigration reform, tax laws), yet not everyone has equal representation, particularly true within underserved and diverse communities	**23.6%:** Voter turnout difference between the richest quintile and the poorest quintile in the US **6.1M:** Americans that cannot vote due to a felony conviction	Limited Opportunity (potentially accessible through grant making, programmatic activities, and policy advocacy)
TRANSPORTATION		
▪ Improved transportation services could enhance access to employment and other resources, and create growth opportunities for businesses ▪ Particular need among minorities and limited income populations, where usage and reliance on public transportation tends to be greatest	**28%:** Amount of income that low income individuals spend on transportation vs the 10% spent by rich individuals **30%:** Jobs the typical metropolitan resident can reach via transit in 90 minutes	Limited Opportunity ✓ Private Infrastructure ✓ PRI
RACIAL EQUITY		
▪ Race and ethnicity continue to influence access, opportunity, and treatment; social equity solutions must address the structural barriers that create unfair outcomes among people of different racial backgrounds	**2.5%:** Black children raised in the bottom fifth income distribution that ended up rising to the top, vs 11% for white children **$37k:** Black median household income vs $63,000 for whites	✓ Public Equities ✓ Private Equity ✓ Private Debt ✓ PRI

APPENDIX DETAILED SOCIAL EQUITY ISSUE MAP (continued)

IMPACT THESIS	KEY STATS	INVESTMENT CONTEXT
AFFORDABLE HOUSING		
▪ Affordable housing often serves as the first step in accessing other basic needs (e.g., health, safety) and enables individuals to achieve social mobility (e.g., employment, education)	**35:** Affordable and available units for every 100 extremely low income households **2.3M:** Evictions in the United States in 2016; one in every four minutes	✓ Private Equity ✓ Private Debt ✓ PRI
FINANCIAL INCLUSION		
▪ Many remain locked out of the benefits of the financial system (e.g., savings accounts, credit, low cost borrowing) ▪ Expansion of these resources could save communities money, time, and stress and ensure they can prosper	**63%:** Americans that can't cover a $500 surprise expense **57%:** US consumers (~138 million adults) that are "financially unhealthy"	✓ Private Equity ✓ Private Debt ✓ Public Debt ✓ PRI
HEALTH & WELLNESS		
▪ Access to health and wellness services, particularly at reasonable costs, are highly variant among different social groups and good health is vital to economic and social stability ▪ Vulnerable populations (e.g., minorities, the elderly, etc.) tend to be disproportionately impacted by these issues	**27.3M:** People in the US who lacked health insurance coverage in 2016 **60%:** Americans living with at least one chronic condition; 42% have more than one	✓ Public Equities ✓ Private Equity ✓ PRI

Sources: The Brookings Institution, Annie E. Casey Foundation, CNN, *Fortune*, *The Huffington Post*, National Low Income Housing Coalition, National Public Radio, Politico, RAND Corporation, The Sentencing Project, US Census Bureau, US Department of Education, and US Federal Reserve.

The Value of ESG Data:
Early Evidence for Emerging Markets Equities

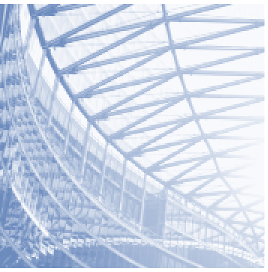
Our examination of incorporation of environmental, social, and governance factors into the stock selection process for two major MSCI indexes finds evidence that ESG factors added value in emerging markets equities but not developed markets equities

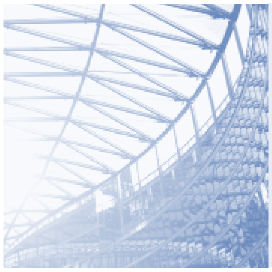
- Examination of the first three years data for the new MSCI Emerging Markets ESG Index provides early but consistent evidence that ESG–based stock selection can add value after accounting for the impact of other factors such as style, country, and sector exposure. Analysis of available ESG data for the preceding six and half years broadly indicates the same.
- For the nearly six-year period that could be examined for developed markets, MSCI World ESG slightly underperformed MSCI World, much of which was attributable to poor selection of US stocks.
- Given these findings, investors evaluating managers would do well to focus on understanding if and how the manager incorporates ESG factors, for what reason and how consistently, and whether ESG-based stock selection has added value to their funds.

Since our 2010 report examining environmental, social, and governance (ESG) factors in investing and encouraging investors with interest in ESG factors to assess whether their interest arises from ethics, performance, or both,[1] many more investors have begun to consider ESG and sustainability factors as part of their investment process. As of April 2015, the United Nations Principles for Responsible Investment (UNPRI) had 1,380 signatories, both asset managers and asset owners, nearly double the amount from 2010.

CA research publications aim to present you with insights from a variety of different viewpoints. The views of our Chief Investment Strategist can be found each quarter in *VantagePoint*.

[1] Kyle Johnson, "Environmental, Social, and Governance (ESG) Integration: For Performance, For Ethics, or for Both?," Cambridge Associates Research Report, 2010.





A 2015 report by Oxford University and the ESG-focused manager Arabesque Partners[2] reviewed over 200 academic studies on sustainability to assess the impact of sustainable practices on business and investments. In 88% of 51 studies focused on operational performance, solid ESG practices resulted in superior operational performance of companies, and in 80% of 41 studies focused on financial market performance, companies' stock price performance was positively correlated to good sustainability practices.

Yet other research has shown that while some ESG issues may be material for investment performance, many others are not.[3] This brings into question the value of broader ESG indicators for selecting stocks versus more specific data on the ESG pillars—for example, data on various governance issues are generally considered to be more material to investment performance, and are more widely used even by investors that don't consider themselves "ESG" focused. Adoption of environmental and social factors is less mainstream. When looking at broad ESG factors, some studies conclude they must be used in more nuanced ways to add value or combined with other investment metrics. For example, focusing on ESG "momentum" by buying companies showing improvement in ESG ratings has improved performance relative to focusing on the rating itself,[4] while, as one might expect, combining ESG data with standard financial metrics has shown more positive results than using ESG data on a standalone basis.[5]

Further, often due to ESG data availability, many studies only examine recent periods, where the equity styles that have outperformed (e.g., quality-focused growth) are those that selection based on positive ESG factors would tend to tilt toward and the sectors that have underperformed (e.g., energy and materials) are those that selection based on positive ESG factors would typically tilt away from. ESG-based stock selection can also introduce a size or geographic bias relative to more standard exposure. In other words, some would argue that after accounting for other factors, the underlying contribution of ESG data to investment outperformance is marginal, and the highest returns ultimately go to those unencumbered by sustainability or other ESG constraints. Assessing this argument has been difficult to date as few studies look at the contribution to performance of the various factors.

[2] Gordon L. Clark, Andreas Feiner, and Michael Viehs, "From the Stockholder to the Stakeholder: How Sustainability Can Drive Financial Outperformance," University of Oxford and Arabesque Partners, March 2015.

[3] See, for example, Mozaffar Khan, George Serafeim, and Aaron Yoon, "Corporate Sustainability: First Evidence on Materiality," *The Accounting Review*, March 9, 2015, as well as Seb Beloe, "What Do ESG Ratings Actually Tell Us?," *Responsible Investor*, April 27, 2016.

[4] Zoltán Nagy, Altaf Kassam, and Linda-Eling Lee, "Can ESG Add Alpha? An Analysis of ESG Tilt and Momentum Strategies," MSCI ESG Research, June 2015.

[5] See, for example, Natalie A. Trunow and Joshua Linder, "Perspectives on ESG Integration in Equity Investing: An Opportunity to Enhance Long-Term, Risk-Adjusted Investment Performance," Calvert Investments, 2015. Specifically in emerging markets, a 2015 study from Case Business School and Alquity Investment Management backtested performance of a selection of emerging markets stocks chosen partly on ESG grounds. However, the selection was also based on other significant metrics (size, financial metrics) and no attribution analysis was performed on returns to split out the ESG contribution. One financial screen, ROE above 10% for each of the past 5 years, introduces a substantial non-cyclical and pro-quality tilt, helpful over the 2010–15 period examined. See R. Lampyl, N. Bardoscia and J. Munge "Does ESG Enhance Returns in Emerging & Frontier Markets?," Alquity Investment Management Limited White Paper, October 2015.

Thus, the aim of this paper is to specifically look at the contribution to performance of ESG-based stock selection. We examine the MSCI World Index and MSCI Emerging Markets Index ("World" or "EM") two widely used benchmarks[6] that each have an ESG-focused version (MSCI World ESG Index, or "World ESG," and MSCI Emerging Markets ESG Index, or "EM ESG"). Data are available from late 2010 in the former case and mid-2013 in the latter case. Recognizing the short period of our analysis, we believe our findings are interesting nonetheless.

In summary, our analysis finds that the method employed for selecting stocks from MSCI World on ESG factors has had little effect on performance over the nearly six-year period for which data are available. In emerging markets, we observe a substantial effect for the first three years of the ESG-focused version of this index. We extend our analysis by looking at the years prior to the index launch when MSCI was building out ESG ratings for emerging markets. Although coverage is limited, we find evidence that ESG ratings were a strong source of stock-specific alpha during most of this earlier six and half year period as well.

After providing some background on these indexes, we delve into the analysis, looking at how much of the ESG index excess returns are explained by style, sector, country, and currency exposure versus ESG-based stock selection. For emerging markets, we also examine the value of the more limited ESG data before the live index. Finally, we advance some hypotheses for why ESG selection factors have mattered more for emerging markets in the period we analyze and briefly discuss the active manager experience.

[6] The MSCI Emerging Markets Index represents a free float–adjusted market capitalization index that is designed to measure equity market performance of emerging markets. As of October 2016, the MSCI Emerging Markets Index includes 23 emerging markets country indexes: Brazil, Chile, China, Colombia, Czech Republic, Egypt, Greece, Hungary, India, Indonesia, Korea, Malaysia, Mexico, Peru, Philippines, Poland, Qatar, Russia, South Africa, Taiwan, Thailand, Turkey, and United Arab Emirates. The MSCI World Index represents a free float–adjusted, market capitalization–weighted index that is designed to measure the equity market performance of developed markets. As of October 2016, it includes 23 developed market country indexes: Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Hong Kong, Ireland, Israel, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States.

Construction of the MSCI ESG Indexes

MSCI's Global Sustainability Indexes, of which the MSCI Emerging Markets ESG Index and MSCI World ESG Index are a part, are constructed by including companies with the highest broad ESG ratings representing a target of 50% of the market capitalization in each sector of the parent standard index. Detailed methodology is laid out in MSCI's November 2014 "Global Sustainability Indexes Methodology" report, but the key point is that by aiming to take the best 50% from each sector, sector weights do not diverge materially from the parent, although the ESG index can be underweight a sector when too few companies are eligible for inclusion.[7] MSCI's construction methodology is a key differentiator compared to other investment universes influenced by ESG factors.

MSCI assigns companies an ESG rating (formerly known as an intangible value assessment or IVA rating) from AAA to CCC, relative to industry peers. The ratings aim for complete coverage of the MSCI All Country World Index (the combination of MSCI World and MSCI EM), though immaterial gaps can exist when new securities are introduced.[8] To be eligible for inclusion in one of the ESG indexes, companies must have a rating above B to join the index and above CCC to remain in the index. Additionally, the indexes use MSCI Impact Monitor controversy scores—which identify companies involved in serious environmental, social, or governance controversies on a scale of zero to ten, with zero being the worst—to screen out the worst ESG controversies. Companies must have an Impact Monitor score above two to join the index and above one to remain in the index. Companies that are eligible based on their ESG rating and Impact Monitor score are then included in the ESG indexes based on a ranking of ESG quality that starts with the best[9], with weight based on free-float-adjusted market capitalization, until the target weight (50% of parent weight) is achieved in each sector.

MSCI's ESG indexes are therefore based on a very broad measure of ESG quality. Figure 1 shows the broad range of 37 key issues used to create the MSCI ESG ratings, weighted for each industry based on materiality. The ratings use over a thousand data points, and consider both exposures to these key issues and how companies are managing each material issue.[10]

The MSCI World ESG Index launched October 1, 2007. On September 1, 2010, the FTSE KLD indexes transitioned into the MSCI World ESG Index. As a result of the integration of these datasets, the performance attribution analysis for MSCI World ESG that we show later in this paper covers the period October 2010 to June 2016, the longest available consistent dataset.

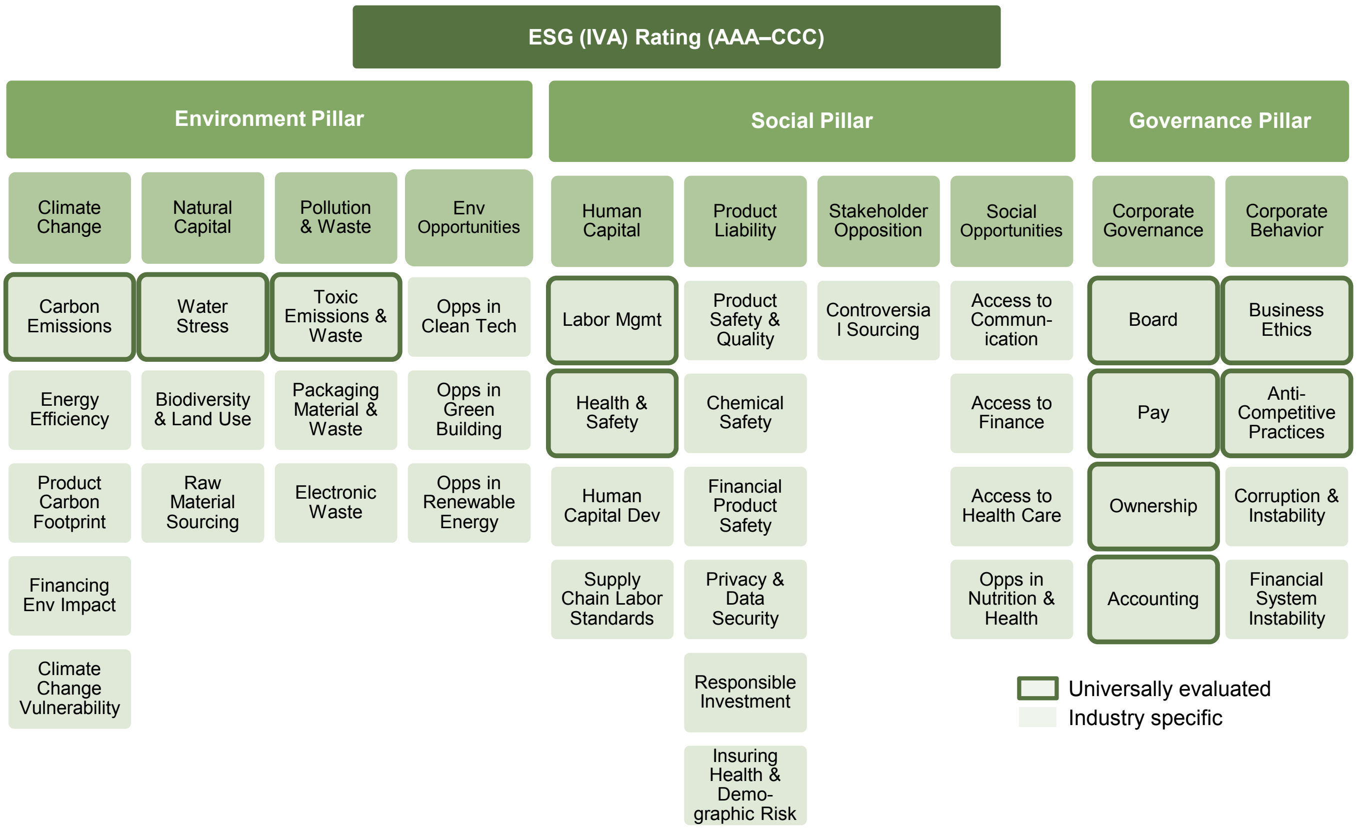
[7] Sector matching is done for the underlying regional indexes that make up the World and Emerging Markets indexes. For example, MSCI World ESG is an aggregation of MSCI Canada ESG, MSCI Europe and Middle East ESG, MSCI Pacific ESG, and MSCI US ESG, where each of these regional indexes targets 50% of the market cap of each sector of the regional parent index. For this reason, regional weights do not diverge materially either.

[8] According to MSCI, gaps in coverage are typically below 10 of the 2,500 stocks in MSCI ACWI. Any stock without an ESG rating is not eligible for the MSCI ESG indexes.

[9] MSCI selects from eligible ranked universe of securities based on ESG ratings in descending order specifically as follows: top 35% of ESG ratings, then AAA and AA securities in top 50%, then current index constituents in the top 65%, then remaining eligible universe.

[10] Further detail on MSCI's ESG ratings methodology can be found on their website at www.msci.com/documents/1296102/1636401/MSCI_ESG_Ratings.pdf.

Figure 1. Structure of ESG Ratings Methodology



Source: MSCI ESG Research. MSCI data provided "as is" without any express or implied warranties. Reproduced by permission.

The MSCI EM ESG Index launched June 6, 2013. At launch, MSCI made available data back to October 2007 for the index. However, over this earlier period, MSCI had ESG ratings available for only a partial set of companies in the parent MSCI EM index, as coverage was ramped up over 2012 to launch the index in mid-2013 with more complete coverage. To create the back-test to 2007, MSCI took the constituents as of the launch date, chosen based on 2013 ESG ratings, froze them, and brought them back to 2007. This introduces significant hindsight bias into the pre-launch data, so although data for this fixed set of constituents are available (and show substantial outperformance by the EM ESG index of the parent), we will only analyze the live data in this paper. To augment the short period, we have conducted analysis on the 2007–13 period using only those stocks for which ESG ratings were available.

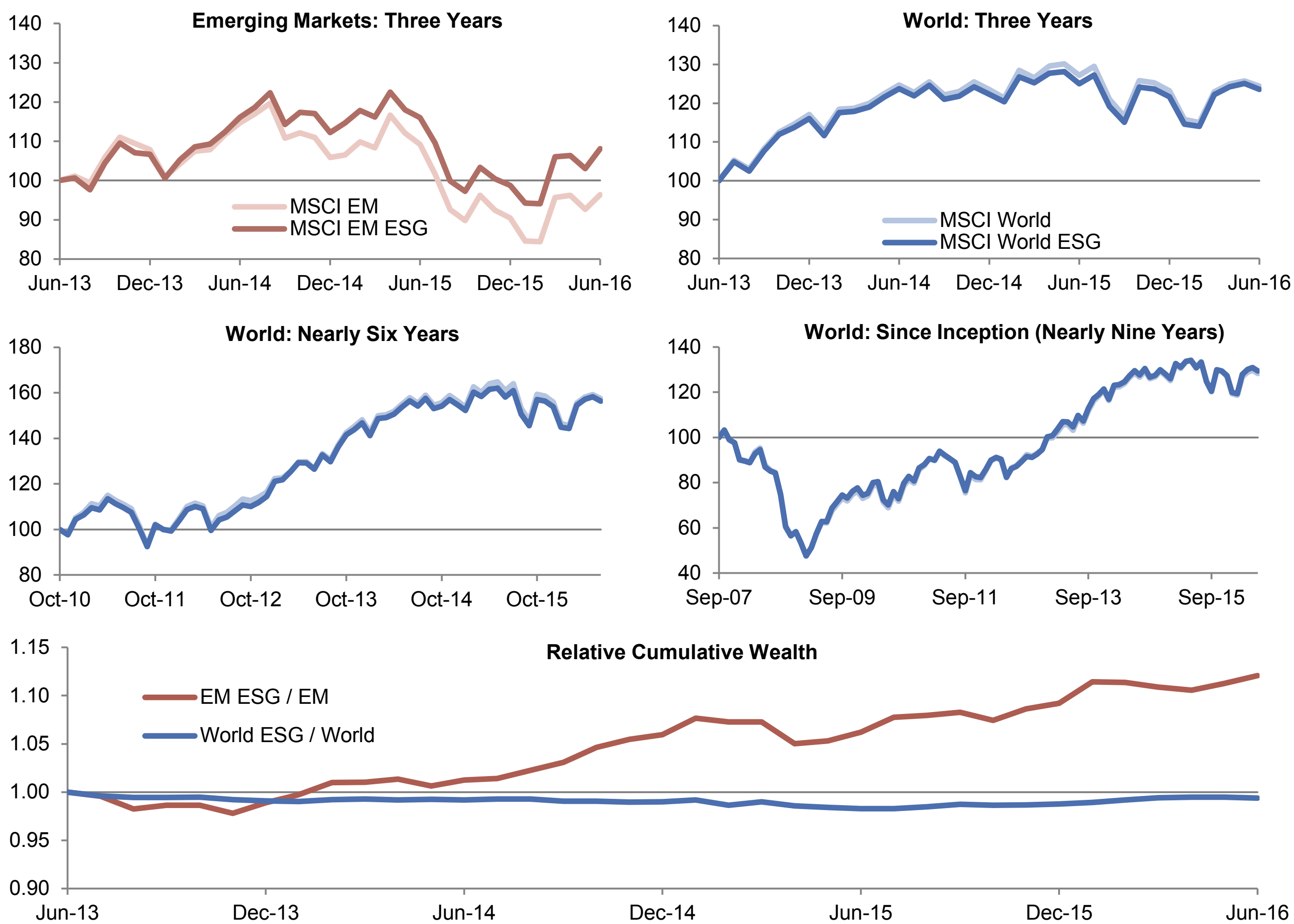
Performance of the MSCI ESG Indexes

From the launch of the live index in June 2013 through June 2016, the MSCI EM ESG Index has outperformed the EM parent index by a cumulative 12% on a total return US dollar basis, while the MSCI World ESG Index shows barely any divergence from its parent index over this period, over the nearly six-year period we will use for our attribution analysis, or over the period since its own launch on October 1, 2007 (Figure 2).

The outperformance generated by the MSCI EM ESG relative to its parent has been remarkably consistent (Figure 2) over the three years data are available, during a volatile, but ultimately sideways period, for emerging markets in dollar terms.[11] Meanwhile, the MSCI World ESG Index has been remarkably static versus its parent.

[11] In local currency terms, the MSCI EM Index has returned 12% from June 2013 to June 2016.

Figure 2. Cumulative Wealth of the MSCI World and Emerging Markets Indexes and the ESG Versions
As of June 30, 2016 • USD Terms



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Comparing the MSCI EM ESG Index and the Parent Index

What explains the outperformance of the MSCI EM ESG Index over its parent index? As mentioned in the introduction, selection based on ESG quality may favor particular styles, often quality and growth over value, or disproportionately avoid certain sectors, including materials and energy, though as discussed sector deviations are relatively controlled in this index. If ESG ratings are only a proxy for these factors, the backdrop over the last three years has been very favorable in emerging markets, and ESG selection factors themselves would be a less significant source of investment outperformance. We tested this by conducting an attribution analysis for the period July 2013 to June 2016.[12]

The analysis shows that style and sector factors have indeed contributed to outperformance of the EM ESG Index versus its parent over this period, with sector contributing more (Figure 3). However, 54% of the ESG index's excess return over its parent is attributable to stock-specific sources: 199 basis points (bps) of the 367 bps annualized outperformance. In other words, the selection of stocks in emerging markets based on a broad measure of ESG quality has meaningfully contributed to the index's outperformance over the three-year time period available for analysis. Further, this stock-specific contribution has been consistent (Figure 4) in a period when emerging markets were quite volatile. The stock-specific factors only contributed 35% of the active risk for this index over the period alongside nearly half the active return. Thus on a risk-adjusted basis, the value of ESG-based stock selection was even greater.

Figure 3. Performance Attribution: Contribution to the MSCI EM ESG Index Excess Return

July 31, 2013 – June 30, 2016 • US Dollar

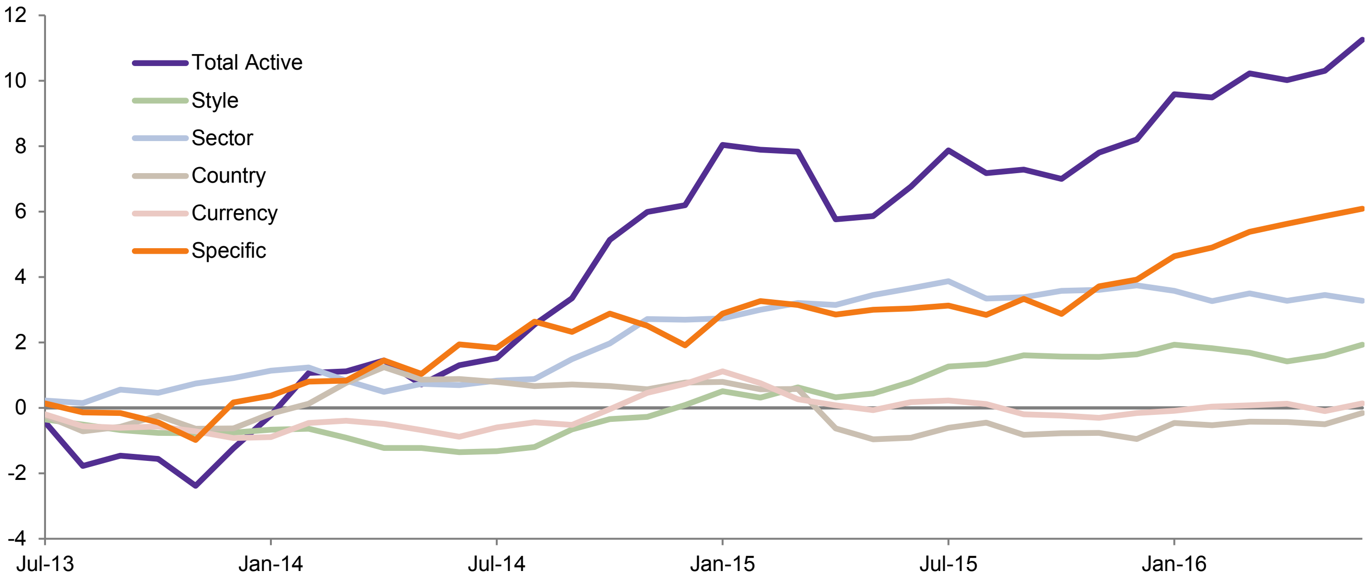
Source of Return	Active Return (%)	Active Risk Contribution (%)
Style	0.63	0.56
Sector	1.07	0.33
Country	-0.05	0.64
Currency	0.04	0.40
Specific	1.99	1.06
Total Active	**3.67**	**2.99**

Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: The total active return is the annualized arithmetic excess return of MSCI EM ESG over the standard index.

Taking a closer look at the contribution of style factors (which contributed 63 bps of the 367 bp annualized excess return), the momentum factor had the largest impact at 37 bps annually, and was a substantial overweight relative to the parent index, at 13% (Figure 5). Residual volatility and liquidity factors, meaningful underweights, contributed 21 bps and 11 bps, respectively. More broadly, the EM ESG Index has been overweight quality, and we observe that the "quality family" of style factors, which includes higher profitability, lower earnings variability, higher investment and earnings quality, higher growth, and lower leverage, had an overall positive effect on performance.

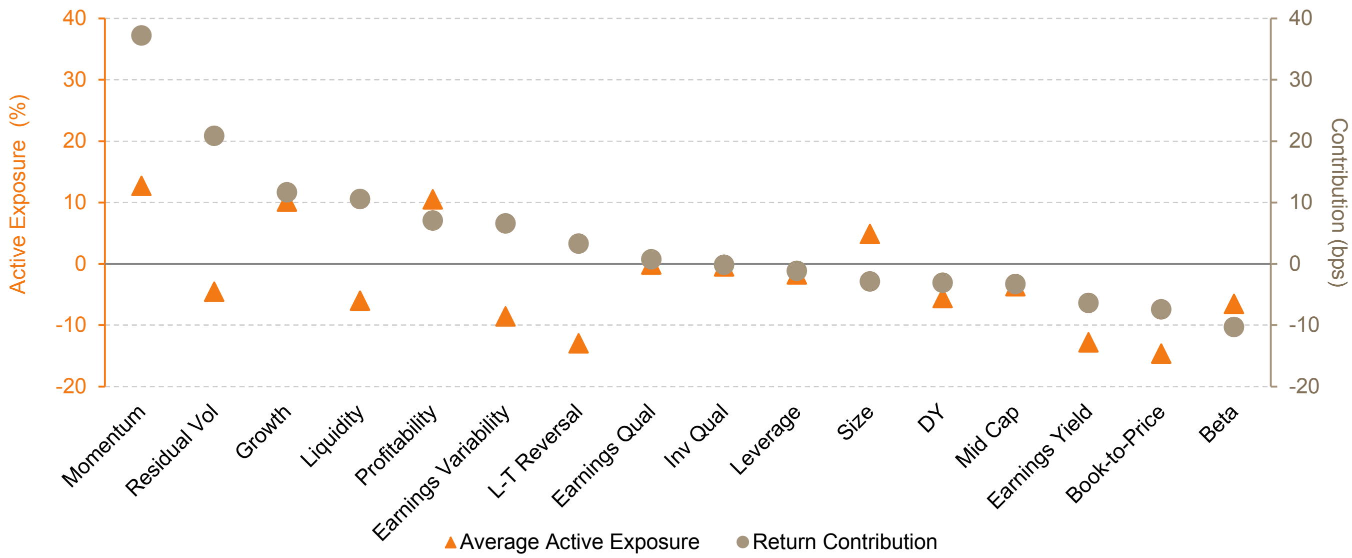
[12] This analysis starts in July 2013, as that is the first month of live attribution data following the index launch on June 6, 2013. Further, our attribution uses arithmetic rather than geometric returns as that is what was available from MSCI's risk model. Arithmetic calculations are simple averages that do not account for the compounding nature of returns, and in the case of the emerging markets ESG index, the arithmetic return understates the compound performance of the index over the full period. All analysis utilized MSCI's gross benchmarks, in USD terms.

Figure 4. Excess Return of the MSCI Emerging Markets ESG Index by Source Over Time
July 31, 2013 – June 30, 2016 • Percent (%)



Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: Returns shown are derived from the arithmetic excess return of the MSCI Emerging Markets ESG Index over the standard index.

Figure 5. MSCI Emerging Markets ESG Index: Active Exposure and Excess Return Contribution by Style Factor
July 31, 2013 – June 30, 2016

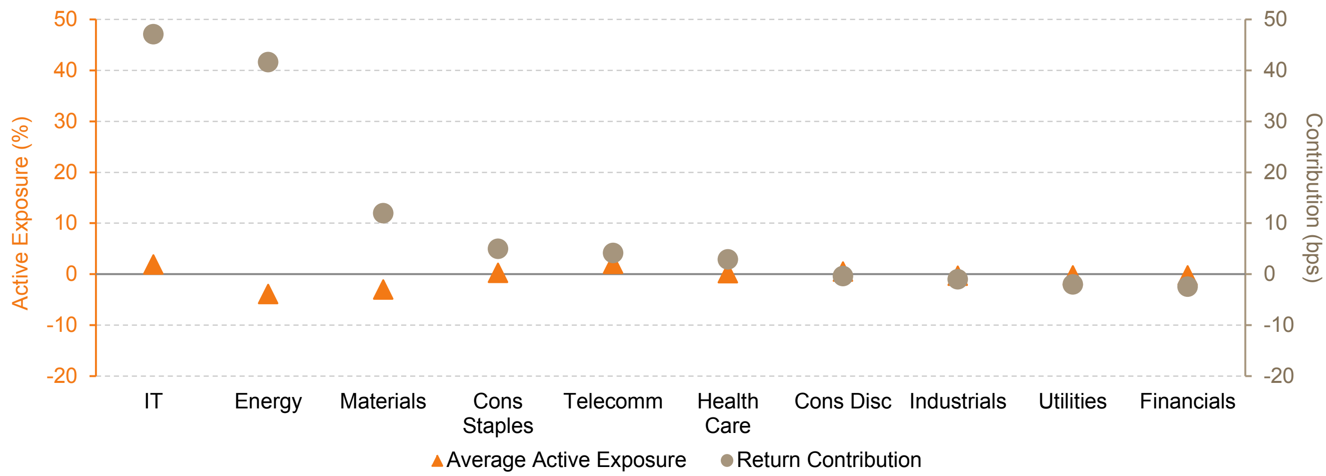


Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Notes: Active exposure is relative to the MSCI Emerging Markets Index. Contribution of each style factor to the overall style active return is derived from arithmetic excess returns.

While the ESG index methodology limits the sector impact by closely tracking the parent index sector weights, index stability rules allow modest deviations to the target of 50% of parent index sector market capitalization; a modest average overweight to information technology in the EM ESG Index relative to the parent significantly contributed to the excess return (47 bps of the 107 bp overall sector contribution), as shown in Figure 6. As noted, when too few companies are eligible for inclusion in the ESG index, sector holdings can go below the targeted 50%. This has been the case in the energy and materials sectors, where lower average weightings over the period have benefited the ESG index.

The energy and materials sectors have underperformed substantially over the period examined, and their weights have consequently declined in the parent index. Has the ESG index's rebalancing process "locked in" outperformance versus the parent index? In a scenario where the ESG index holdings in a sector have met the targeted "best" 50% of the parent index, but the "poorer quality" other half have fallen much more (as was the case for energy and materials), this 50% weight would move up, and then the ESG index would remove some sector constituents at the annual rebalance to get back down to 50%. It would effectively "sell out" rather than "wipe out" of energy and materials stocks to some degree during the declines seen over recent years, locking in outperformance. That the ESG index was on average 4% underweight in energy and 3% in materials tells us this has not had a substantial effect, and we are capturing the impact of these weights in our sector-level attribution. All other sector active weights and contributions were modest. The overall contribution of active country and currency exposures to the ESG index relative return was a negligible -5 bps and 4 bps.

Figure 6. MSCI Emerging Markets ESG Index: Active Exposure and Excess Return Contribution by Sector
July 31, 2013 – June 30, 2016



Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Notes: Active exposure is relative to the MSCI Emering Markets Index. Contribution of each sector to the overall sector active return is derived from arithmetic excess returns.

Examining EM ESG Ratings Data Pre-Index

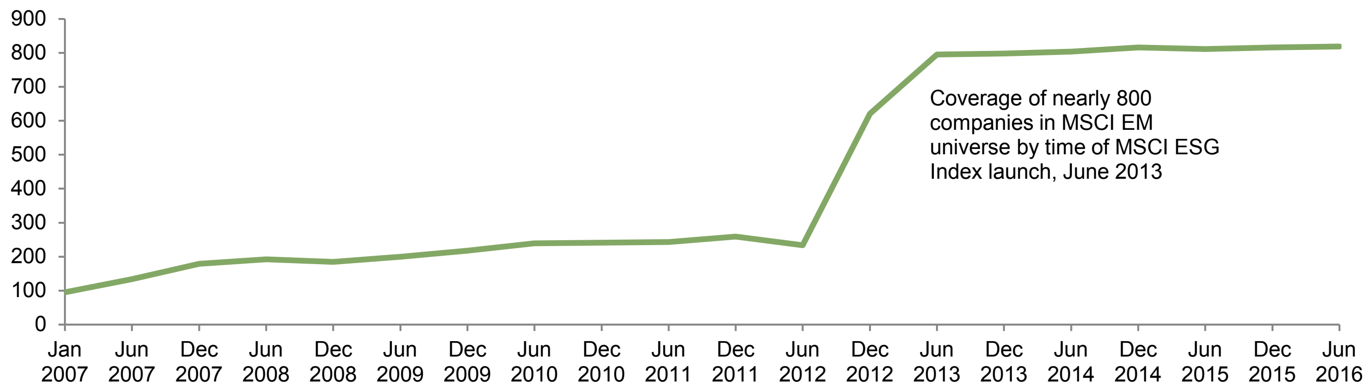
While three years is too short a period by far to draw firm conclusions, the strong impact of selection on ESG ratings in emerging markets is interesting. MSCI did have ratings available for select EM companies prior to the launch of the index in 2013, so we have reviewed this dataset to see whether stock-specific value add from selecting based on ESG ratings can been seen for a longer period. From 2007 to 2011, the number of companies with ratings doubled, but was still quite low (Figure 7). Coverage really started to increase over 2012 in time for the launch of the EM ESG Index in June 2013. Overall, this is an interesting period since underlying disclosure of ESG data by emerging markets companies, on which these ratings rely, was also improving, while still lagging the situation in developed countries.[13]

[13] See, for example, Andrea van Dijk, Lotte Griek, and Chloe Jansen, "Bridging the Gaps: Effectively Addressing ESG Risks in Emerging Markets," Sustainalytics, June 2012. Also see The USSIF Foundation, "Lessons Learned: The Emerging Markets Disclosure Project, 2008–2012," 2012.

To conduct this analysis, we took the rated companies in each month from January 2007 and split them in half to compare the best rated half versus the worst rated half. This is a simple equally weighted analysis of two groups that do not overlap (best half versus worst half), with semi-annual rebalancing of the constituents to include any newly rated companies and update any ratings changes. This is not a replication of the ESG index methodology, and we do not compare the performance of either "half" versus the EM parent index, as there is some selection bias based on the order in which MSCI built up coverage. For example, larger companies and larger sectors were generally tackled first, creating significant early differences in coverage by sector and country.

Our analysis begins with less than 50 companies in each half, given the 95 rated companies in January 2007, and grows to almost 400 companies in each half with 795 rated companies in June 2013. We performed the same attribution

Figure 7. Number of EM Companies Assigned ESG Ratings by MSCI
January 31, 2007 – June 30, 2016



Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: After January 2007, MSCI provided coverage data for June and December of each year.

analysis done for the live EM ESG Index data to assess the stock-specific contribution to the performance of the best half versus the worst half over the 2007–13 period. Since the two halves never overlap, active risk is not relevant and has not been analyzed.

Overall, we observe 267 bps of annualized outperformance by the better half based on ESG ratings (Figure 8). As was the case in our analysis of the EM ESG Index, style and sector factors have contributed to outperformance but 235 bps, or 88%, of the excess return is attributable to stock specific sources. This stock-specific contribution has been reasonably consistent over the period, although it did not add value in the first year, when data coverage was extremely limited, or during the period from March 2011 to May 2012 (Figure 9). Given our simple equal weighting methodology and a small dataset that grows over time, the country and currency[14] factors are far more volatile in this analysis than in our analysis of the EM ESG Index.

[14] Our decision to use equal weighting lends integrity to the stock-specific impact of ESG selection as coverage was built up, which is the key factor we wish to examine. The mutually exclusive nature of the two halves being compared will also lead to volatility in other factors.

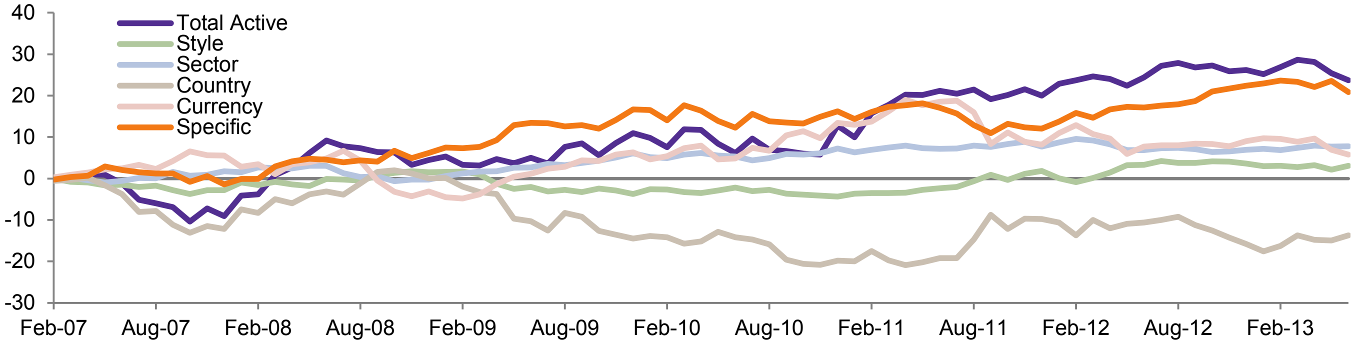
As noted, there are limitations to this earlier dataset and simple analysis, but the findings are nonetheless interesting since they support the findings of our study of the live ESG index—that stock selection based on ESG quality added alpha and the majority of this was due to stock-specific sources. Combining our study of the live ESG index with this earlier data suggests that ESG-based stock selection has added value over an eight and a half year period from 2008 onward.

Figure 8. Performance Attribution: Contribution to Excess Return of Best Half vs Worst Half of EM ESG-Rated Companies
February 28, 2007 – June 30, 2013

Source of Return	Active Return (%)
Style	0.34
Sector	0.87
Country	-1.54
Currency	0.65
Specific	2.35
Total Active	2.67

Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: The total active return is the annualized arithmetic excess return of best half of ESG ratings versus the worst half.

Figure 9. Excess Return for the Best Half of ESG Ratings versus the Worst Half
February 28, 2007 – June 30, 2013 • Percent (%)



Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: Returns shown are derived from the arithmetic excess return of the best half of ESG rated companies in a given month versus the worst half.

Comparing the MSCI World ESG Index and the Parent Index

Unlike in emerging markets, the developed markets ESG index did not post materially better performance than its parent (refer to Figure 2). The MSCI World ESG Index has outperformed the MSCI World Index by just 10 bps on an annualized basis in US dollar terms since inception in 2007. Over the shorter October 2010 to June 2016 for which we have attribution data[15] and analyze in this section, the MSCI World ESG index actually underperformed the parent index by 14 bps annually in arithmetic terms.[16] Over either time period the key point is that the World ESG index and its parent barely diverged. What explains this?

Our analysis shows that the stock-specific (ESG selection effect) contribution for developed markets was negative, detracting 54 bps from the excess return on an annualized basis (Figure 10). Furthermore, the stock-specific contribution has been generally getting worse over the nearly six-year period analyzed (Figure 11).[17] Stock-specific factors are also contributing proportionally more to active risk, in contrast to the three years of emerging markets data.

Figure 10. Performance Attribution: Contribution to MSCI World ESG Index Excess Return
October 31, 2010 – June 30, 2016

Source of Return	Active Return (%)	Active Risk Contribution (%)
Style	0.28	0.21
Sector	0.17	0.08
Country	0.06	0.06
Currency	-0.12	-0.04
Specific	-0.54	0.67
Total Active	**-0.14**	**0.98**

Source: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Note: The total active return is the annualized arithmetic excess return of MSCI EM ESG over the standard index.

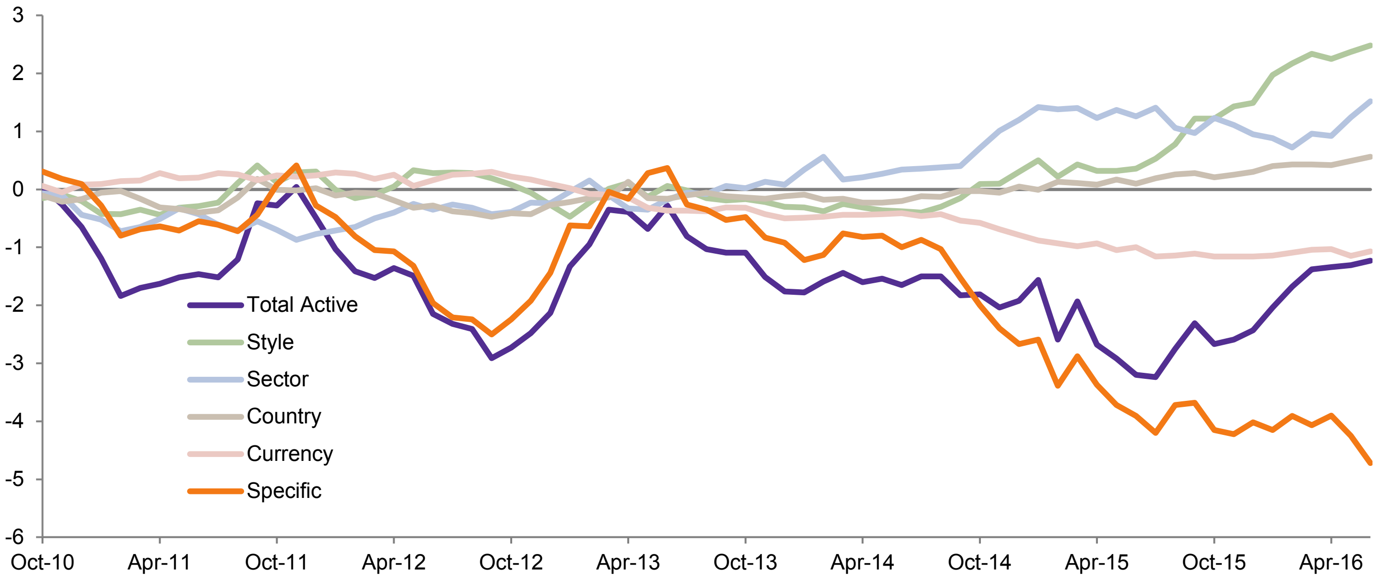
Delving into the style factors (which contributed 28 bps to the annualized excess return), residual volatility contributed most significantly (25 bps) and was a meaningful underweight (Figure 12). Other deviations in exposure had generally small contributions. On a sector basis (17 bp contribution to excess return), despite zero active exposure on average over the period, variances over time modestly added value in materials (14 bps) and a few other sectors, while a small overweight in the industrials sector detracted (Figure 13).

In aggregate, the country factor contributed a very small amount to the World ESG Index excess return (6 bps). However, examining World ESG Index exposure on a country-by-country basis, an interesting picture emerges. The ESG index was on average modestly underweight (1%) to US stocks in this period, exposure which detracted 6 bps from performance, while a 1% overweight to Japanese stocks contributed 10 bps (Figure 14).

[15] As discussed, MSCI's acquisition of the FTSE KLD indexes in 2010 changed the MSCI World Index sufficiently that the dataset prior to 2010 isn't comparable to the post-2010 data for purposes of attribution.
[16] For direct comparison, for the even shorter July 2013 to June 2016 period analyzed for the emerging markets dataset, the MSCI World ESG Index shows nearly exactly the same modest underperformance relative to its parent, at 19 bps annually in arithmetic terms. As in emerging markets, all analysis is on USD returns.
[17] And over the period that coincides with the live data for emerging markets, developed markets showed an even more negative stock-specific (ESG selection effect) contribution, 113 bps on an annualized basis.

Figure 11. Excess Return of the MSCI World ESG Index vs MSCI World Index by Source Over Time

October 31, 2010 – June 30, 2016 • Percent (%)

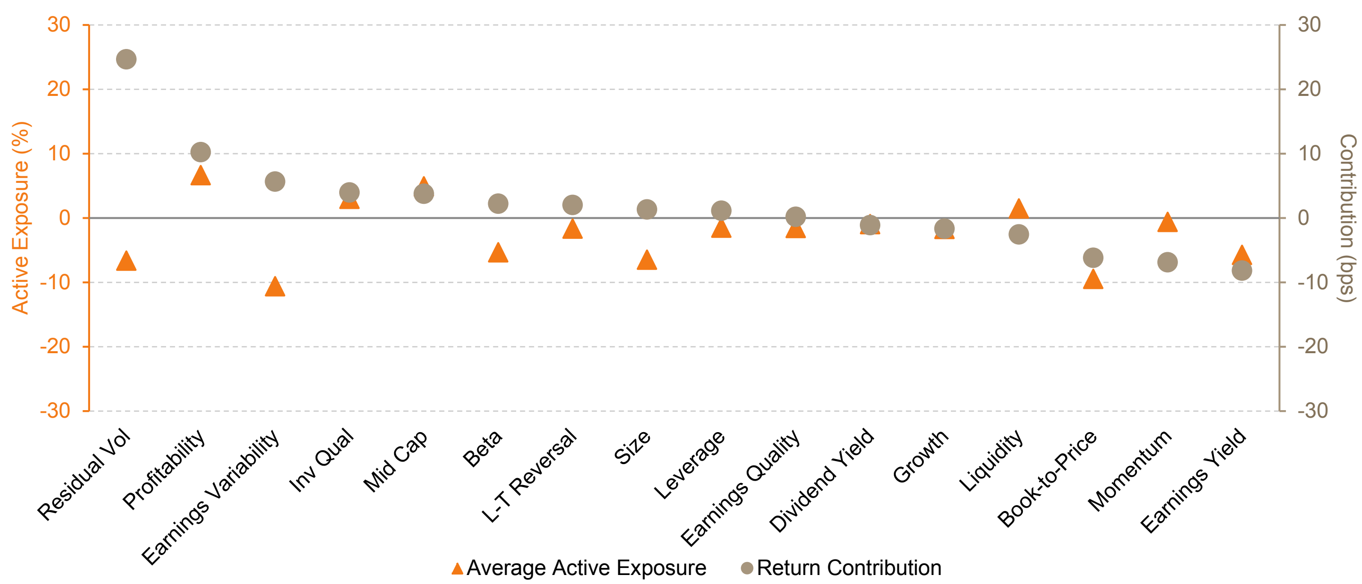


Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.

Notes: Data represents cumulative returns. Returns shown are derived from the arithmetic excess return of the MSCI World ESG Index over the standard index.

Figure 12. MSCI World ESG Index: Active Exposure and Excess Return Contribution by Style Factor

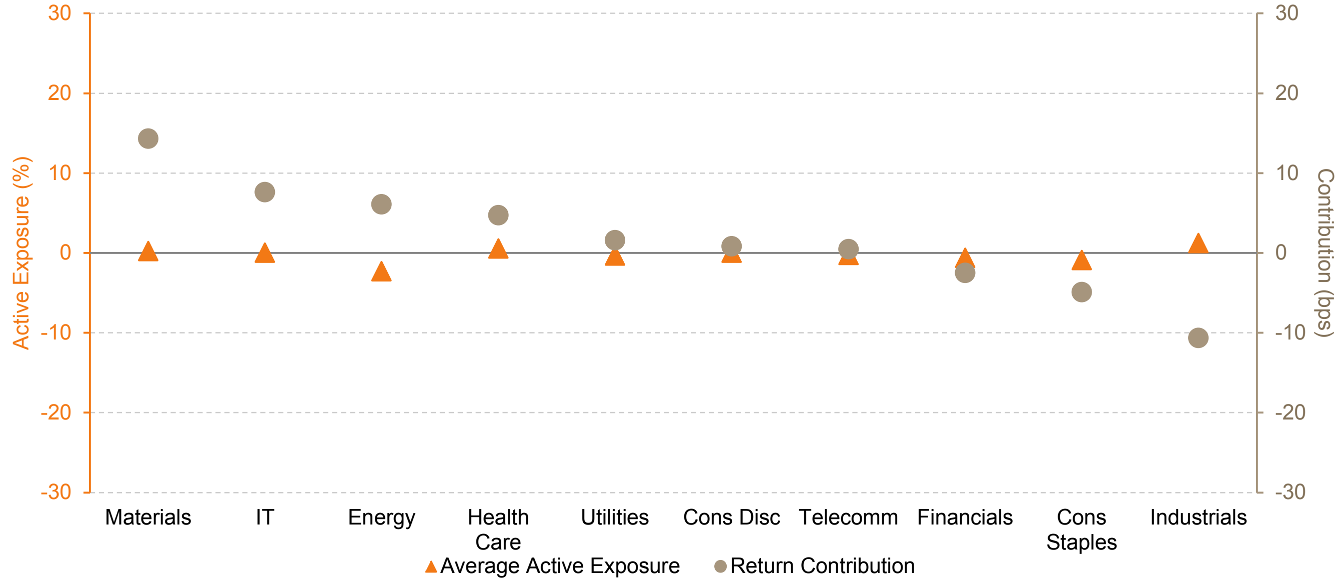
October 31, 2010 – June 30, 2016



Source: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.

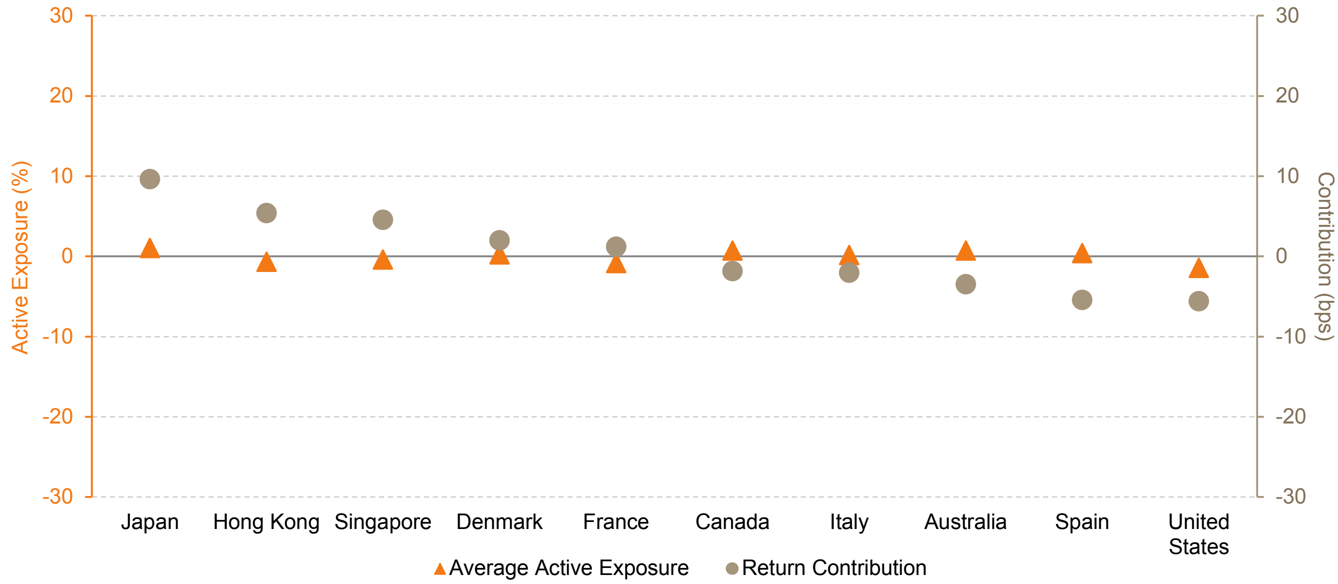
Notes: Active exposure is relative to the MSCI World Index. Contribution of each style factor to the overall style active return is derived from arithmetic excess returns.

Figure 13. MSCI World ESG Index: Active Exposure and Excess Return Contribution by Sector
October 31, 2010 – June 30, 2016



Sources: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Notes: Active exposure is relative to the MSCI World Index. Contribution of each sector to the overall sector active return is derived from arithmetic excess returns.

Figure 14. MSCI World ESG Index: Active Exposure and Excess Return Contribution by Country
October 31, 2010 – June 30, 2016



Source: MSCI ESG Research and Applied Research. MSCI data provided "as is" without any express or implied warranties.
Notes: Active exposure is relative to the MSCI World Index. Contribution of each country to the overall country active return is derived from arithmetic excess returns.

The Stock Specific Contribution: Understanding the Importance of ESG Factors

Emerging Markets. Over half the outperformance of the MSCI EM ESG Index over its parent index in the three-year period of live data examined came from stock-specific factors, i.e., the ESG-based stock selection. Why was incorporating ESG data into index stock selection so significant in emerging markets? It stands to reason that in a market where underlying ESG risks are higher[18] that the emergence of new robust datasets represents an important tool in the stock selection process. Breaking out the impact of the three environmental, social, and governance dimensions is beyond the scope of this analysis, but we would hypothesize that governance quality, which is highly variable in emerging markets, is a key factor.

In particular, state-owned enterprises (SOEs) are prevalent in emerging markets, especially in the energy, financial, materials, and telecom sectors, and according to Goldman Sachs represented 28% of the parent MSCI EM benchmark in June 2016.[19] ESG ratings have often been relatively low for large SOEs, often due to issues in the governance pillar (Figure 1), as studies have highlighted.[20] SOEs are influenced by interests beyond generating profits for shareholders, which can negatively impact operational aspects of the business. The same accusation has also been made for some family-owned businesses, which are also common in emerging markets.

[18] See discussion in Andrea van Dijk, Lotte Griek and Chloe Jansen, "Bridging the Gaps: Effectively Addressing ESG Risks in Emerging Markets," Sustainalytics, June, 2012.
[19] Prashant Kemka and Katie Koch, "EM Equities: Beware of the Benchmark," *Financial Times*, July 7, 2016.
[20] For more on this, see David Robinett, "Held by the Visible Hand: The Challenge of State-Owned Enterprise Corporate Governance for Emerging Markets," World Bank, May 1, 2006, as well as Jeremy Schwartz and Tripp Zimmerman, "Emerging Markets and State-Owned Enterprises," WisdomTree Press, December 2014.

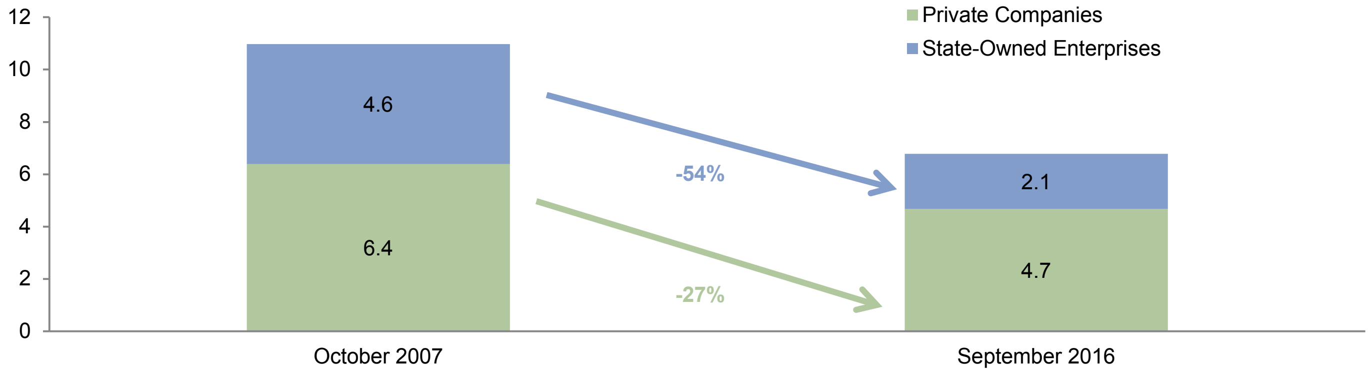
Poor ESG scores for SOEs are reflected in the EM ESG Index, which is heavily underweight SOEs. Of the largest 40 companies in the parent EM index, based on average weight over the July 2013 June 2016 period analyzed, 13 are SOEs. The EM ESG index had zero weights in 11 of them, and in nearly three-quarters of these cases not holding the stock was a positive stock-specific contribution to outperformance by the EM ESG Index. In the two other cases where the EM ESG Index was overweight relative to the parent index, this was a poor decision, as both detracted from relative performance on a stock-specific basis.

There is evidence that this SOE issue has been significant over longer periods as well, with SOEs lagging private sector stocks by 40% over the last five years (to June 2016), based on a Goldman Sachs analysis.[21] Analysis by Morgan Stanley has shown that the failure of market values to recover to peaks seen before the global financial crisis is disproportionately due to poor performance of SOE stocks which overall still trade below half of their peak value (Figure 15). Concerns over SOEs have seemingly been around for so long, one wonders how they could not already be amply discounted by markets, but the ESG ratings process has clearly been effective in identifying underperforming companies here.

Although our analysis has found a significant contribution from ESG stock-specific selection, emerging markets are still a young and developing asset class. The period examined coincides with a general underperformance by more cyclical and value companies in emerging markets. If we had the data to examine another period, the benefits of ESG data may not have

[21] Prashant Kemka and Katie Koch, "EM Equities: Beware of the Benchmark," *Financial Times*, July 7, 2016.

Figure 15. State and Private Sector Market Value in Emerging Markets Equities
October 2007 versus September 2016 • US Dollar (trillions)



Source: Morgan Stanley Investment Management Emerging Markets Equity team.
Notes: State-owned enterprises defined as companies with 30% or more government control. Emerging markets company dataset not limited to those in MSCI index.

been as pronounced. Certainly in the early years of EM equity indexes, SOEs were a key point of access and performed more strongly. And of course proximity to government may pump up stocks for long periods of time—the case of Petrobras, with serious ESG issues described in the sidebar, is a good example. Had the ESG index existed in the first decade of the 2000s, index performance relative to the parent may not have been quite as good.

Developed Markets. What's behind the negative contribution of stock-specific factors in the MSCI World ESG Index? The key observation is that ESG-based stock selection added value outside the United States, but detracted value in the choice of US stocks over the nearly six years we examined.[22] This stock selection problem within the United States was a much more significant detractor than the negligible negative impact from the modest US country underweight shown in Figure 14.

Some research on ESG ratings has highlighted lower levels of disclosure for key ESG information for American versus European companies.[23] This could make it harder for ratings to differentiate and accurately reflect underlying ESG quality. It is interesting to observe that while disclosure levels are also relatively poor for emerging markets companies, dispersion of ESG performance is also greater.[24] This may help explain the greater apparent link between ESG ratings and stock-specific performance for emerging versus American stocks.

Indeed, in our analysis the ESG quality selection process struggled with US stocks. In particular, some mega-cap US companies that performed well in recent years were excluded from the ESG index, significantly harming relative performance. Over the nearly six year period we analyzed, no fewer than nine of the ten biggest stock-specific detractors to the relative performance of the MSCI World ESG Index versus its parent were

[22] Over the period of our analysis, all three of the non-US regional ESG indexes that make up MSCI World ESG (Canada, Europe and Middle East, and Pacific) outperformed their parent indexes, while the MSCI US ESG Index underperformed its parent. This poor performance from the MSCI US ESG Index is meaningful given the 59% weighting to the United States in the MSCI World ESG Index at the end of the period examined.

[23] Seb Beloe, "What Do ESG Ratings Actually Tell Us?," *Responsible Investor*, April 27, 2016.
[24] See discussion in Andrea van Dijk, Lotte Griek and Chloe Jansen, "Bridging the Gaps: Effectively Addressing ESG Risks in Emerging Markets," Sustainalytics, June, 2012.

The Rise and Fall of Petrobras

The ongoing corruption scandal at Petrobras—with its storyline of yachts, helicopters, bricks of illicit cash, and lavish gifts—has the feel of a Brazilian "telenovela" from the famous Globo TV studios, just an hour's drive west from the state-owned oil giant's downtown headquarters through the Rio traffic. Like the massive Maracanã 2014 World Cup football stadium and the 2016 Rio Olympic Park, which could both be seen on this journey, Petrobras represented the hype that surrounded the BRIC economies during the China-fueled commodity boom.

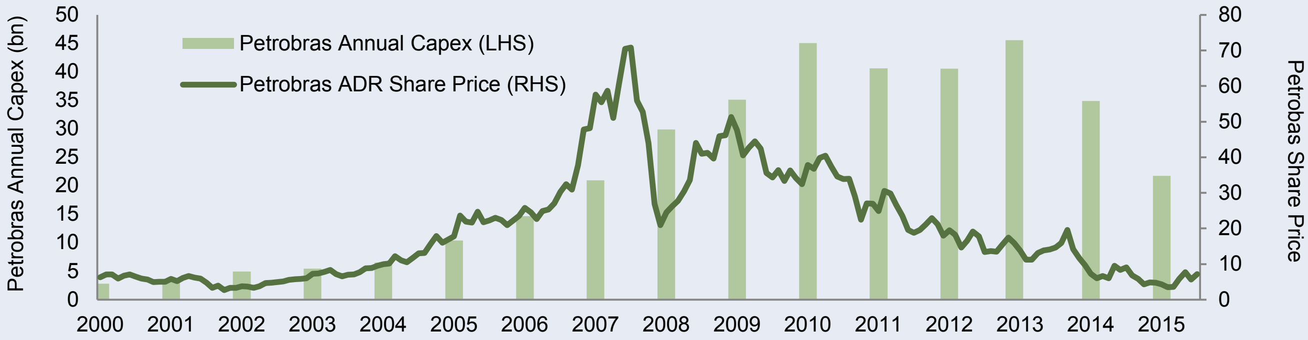
Petrobras made plans to invest substantial amounts of money in both the development of massive deep offshore "sub-salt" oil deposits discovered in 2006 that were targeted to double Brazil's oil output, and similarly ambitious downstream refining projects to serve Brazil's booming economy. This growth alongside high oil prices was well received, and by early 2008, the market capitalization of Petrobras approached $300 billion, representing over $70 per share for New York–listed American Depositary Receipts (ADRs), a 26-fold rise from 2002 lows. Petrobras had become one of the world's most valuable half dozen companies and alone represented 10% of Brazil's GDP. Even after the 2008–09 global financial crisis, Petrobras raised $70 billion in 2010 by issuing new shares to fund its investments.

Fast forward to 2016: the same New York–listed shares have traded as low as $2.90, and $124 billion of Petrobras's outstanding debt is now junk-rated. Shareholders and lenders may well be wondering where the almost unbelievable $360 billion of total capital expenditure spent over the last 15 years has gone (see figure below). The story is still unfolding, but the investigation has uncovered bribes estimated at $3 billion from a cartel of companies that were shared by Petrobras officials and politicians in exchange for collusion in overcharging Petrobras in virtually every aspect of this investment boom, from oil rigs to refineries. These are likely just the tip of the iceberg in a story of true capital indiscipline. For example, Comperj, an unfinished refinery and petrochemical project in Rio state, was originally slated to cost $6.1 billion. A state audit has since put the cost at $50 billion, citing cost overruns, delays, and poor management at the now derelict site. Staking hundreds of billions of dollars to developing new oil reservoirs found at the limits of drilling technology underneath nearly three miles of sea, rock, and salt layers, when oil prices have fallen over 75% since the middle of 2014, may just be bad luck.

With the clarity of hindsight, it is easy to say that amid both sky high oil prices and a booming Brazilian economy, substantial governance issues at Petrobras were overlooked by many investors. Back when oil was trading at $140 a barrel, state ownership could be seen as a positive given it led to Petrobras being awarded some of the largest offshore oil finds ever discovered. Further, due to its sheer size in and positive contribution to the index in the years prior to 2008, not owning Petrobras was as significant an occupational hazard for emerging markets fund managers as owning it has been subsequently!

Petrobras Annual Capex and ADR Share Price

December 31, 2010 – June 30, 2016 • USD Terms



Source: Bloomberg L.P.

US stocks. Four of these stocks (Amazon, Apple, Facebook, and Home Depot) were completely excluded from the ESG index during the entire period, while one (Walt Disney) was underweight on average. The other four US stocks on the top detractors list were overweights selected by the ESG index that underperformed.

This issue continues in the dataset beyond the bottom ten, with 70% of the worst 40 stock-specific detractors to the MSCI World ESG Index's relative performance relating to different weightings in US companies. The clear majority of these are MSCI World Index stocks wholly absent from the ESG Index over the whole period (0% average weight), or underweight on average. Put simply, investors liked some large-cap multinational US stocks more than the ESG ratings system did, and both the resulting US underweight, and poor US stock selection, harmed performance.

In contrast, US stocks are underrepresented in the top stock-specific contributors to the MSCI World ESG Index excess return, with only four in the top ten. Canadian pharmaceutical copmpany Valeant was the largest stock-specific relative contributor to the MSCI World ESG Index performance, likely surprising to those following recent events given the pharmaceutical stock's 92% collapse from September 2015 to June 2016. This is a successful case of ESG factors screening out "bad actors" (as well as some fortunate timing in index rebalancing): the company's MSCI ESG rating was downgraded to CCC in May 2015, making it ineligible for the ESG index, and it was removed in the next quarterly review (August 2015), meaning the index benefited from the previous run up and sold out before the sharp declines. The downgrade was based on a broad range of ESG concerns and was made roughly four months before the stock started to collapse amid a raft of drug pricing and accounting controversies.

While the MSCI World ESG Index has struggled to outperform its parent in the nearly six-year period we examined, a separate 2015 study by MSCI[25] looked at a slightly longer period from February 2007 to March 2015, and showed that the same ESG ratings dataset can add value when used in a more nuanced way than the indexing methodology. A much more concentrated portfolio of 100 well-rated stocks, using a risk model to optimize weights, found a 43 bp contribution from stock-specific factors to an overall 106 bp annualized outperformance of MSCI World. The report also analyzed performance for a momentum approach to ESG—buying companies showing improvement in ratings rather than just focusing on the ratings themselves. Backing up findings of previous studies,[26] this analysis, which overweighted companies in developed markets that improved their ESG rating over the prior 12 months, found a 132 bp contribution from stock-specific factors to an overall 223 bp annualized outperformance of MSCI World. However, both strategies had much more total active risk than what we found in our analysis of the index data, and this larger active risk was largely stock specific.

[25] Zoltan Nagy, Altaf Kassam, and Linda-Eling Lee, "Can ESG Add Alpha? An Analysis of ESG Tilt and Momentum Strategies," MSCI ESG Research, June 2015.
[26] Natalie A. Trunow and Joshua Linder, "Perspectives on ESG Integration in Equity Investing: An Opportunity to Enhance Long-Term, Risk-Adjusted Investment Performance," Calvert Investment, 2015, as well as Zoltan Nagy, Douglas Cogan, and Dan Sinnreich, "Optimizing Environmental, Social, and Governance Factors in Portfolio Construction: An Analysis of Three ESG-tilted Strategies," MSCI ESG Research, December 2012.

The Active Manager Experience

Emerging Markets. The positive results of ESG-based stock selection highlight how important evaluating ESG quality of companies could be to active management in emerging markets. There are still relatively few explicitly ESG labeled active emerging market equity funds, though we have seen some interesting new launches in recent years. We note that most have handsomely outperformed the MSCI EM Index since their inception, including those with longer track records than the MSCI EM ESG Index, up to seven years, showing the experience in active management has backed up the findings of this paper. Beyond these funds, in our conversations with managers, a growing number of mainstream managers profess to inclusion of ESG factors in their process and are placing more emphasis here, although the products may not have an ESG "label." Quality of governance has long been acknowledged as a key investment criterion for many active managers. Given the findings of this paper, and the growing availability and improving quality of emerging markets ESG information from MSCI as well as other providers, this is encouraging. However, we have observed huge variations in the depth of application and, as ever, manager selection is critical.

We acknowledge that consistent integration of ESG factors has been challenging given the relative lack of good data until recently. Certainly some of the lower ESG-rated EM companies today would have in the past been major beneficiaries of the more cyclical and value-based bull market periods in emerging markets. Further, as discussed in the sidebar, proximity to government was rationally often seen as a positive if it led to favorable treatment in the awarding of licenses or other business assets when prices and growth rates were booming. The same could be said of aggressive but ultimately unsustainable poor environmental and social business practices.

Developed Markets. Within developed markets, investors have a broader array of active ESG-focused and labeled strategies to choose from, and unlike the MSCI World ESG Index, many of these managers have outperformed MSCI World in recent years. The opportunity set covers generalist managers with a strong ESG focus, through to more specialized thematic sustainability strategies such as targeting resource efficiency and environmental markets. There are of course many ways to integrate ESG analysis beyond the MSCI dataset, and many developed markets equity managers, including quantitative managers, are making increasingly sophisticated use of ESG data alongside more conventional financial data. Many have asset allocations that are meaningfully different from the standard MSCI World Index, and being underweight to materials and energy has supported these managers in recent years. The improving quality and breadth of ESG data (beyond just MSCI ESG data) provides another key tool for thoughtful managers in this space to make individual judgments of materiality.

Conclusion

Our analysis of the MSCI index reveals that stock selection based on aggregate measures of corporate ESG quality significantly contributed to improving performance over the last three years for emerging markets equities. Stock-specific factors resulting from selection based purely on ESG scoring measures accounted for 199 bps out of 367 bps of annualized outperformance of the MSCI Emerging Markets ESG Index compared to the standard MSCI Emerging Markets Index. Additionally, while earlier ESG ratings data were not comprehensive, our analysis indicates that companies with higher ESG ratings outperformed overall in the preceding six-and-a-half years as well, with most of this outperformance again attributable to stock-specific factors. Overall, ESG data has made a strong contribution to the set of tools for investors in this asset class since it became available.

The data for developed markets have been more mixed, largely due to ESG ratings being a poor indicator of stock performance for US large-cap companies. Consideration of ESG quality can still add value in developed markets with the correct application, which may need to be more nuanced than using ratings in isolation.

ESG data for emerging markets has become more detailed and comprehensive in recent years. Investors in emerging markets equities often focus on commodity prices, currency, and macroeconomic factors, as well as domestic consumption trends for consumer goods and services, when making decisions about investments, and may have underestimated the value of now widely available information on the ESG strength of corporates in emerging markets.

Given these findings, investors evaluating managers would do well to focus on understanding if and how the manager incorporates ESG factors, for what reason and how consistently, and whether ESG-based stock selection has added value to their funds. ■

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RACIAL EQUITY INVESTING: THE TIME IS NOW

Liqian Ma
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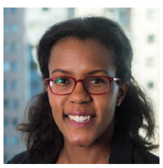

Erin Harkless
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As we all grapple with the COVID-19 pandemic alongside widespread protests after the deaths of George Floyd and others, many asset owners are trying to determine how they can activate their investment portfolios to advance racial and social equity more broadly. In 2018, we reviewed the state of social equity investing, with a focus on racial equity investing.[1] The themes we highlighted then are even more relevant today. In this paper, we discuss the renewed sense of urgency around racial equity investing and put forward three actions investors can take to address the inequities inherent in our society.

Why Now?

The legacies of systemic racism and racial barriers are deep and complex across the world. Data highlight that inequities across many areas, whether it be education, healthcare, criminal justice, or financial inclusion, are more pronounced for people of color and those from minority backgrounds. The COVID-19 crisis has brought this fact into starker view. The unemployment rate for black Americans stood at 16.8% in May 2020 (versus 12.4% for whites), and historically, black Americans have recovered more slowly than other racial or ethnic groups from recessions, which has exacerbated the impact of job losses on the black community. Black and Latinx Americans have also been hit by the effects of the disease more profoundly, an outcome driven in part by long-standing imbalances in access to quality healthcare.

Inequities throughout the criminal justice system have underpinned the protests and calls for change in the United States and across the world. In the United States, sentencing policies and implicit racial bias contribute to systemic disparities; African Americans are more likely to be arrested than white Americans and when convicted, face harsher sentences. For African Americans, the negative impact of a criminal record is twice as large than for other groups. The effects of incarceration are long lasting, setting up a path to diminished job prospects and earnings potential that ravages a community.

1 Please see Ashley Cohen and Erin Harkless, "Social Equity Investing: Righting Institutional Wrongs," Cambridge Associates LLC, 2018.

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These racial inequities are also manifested in the asset management industry, particularly when we consider how implicit bias impacts the investment decision-making and capital allocation processes. In venture capital (VC), only 6% of investment partners are black or Latinx and 1% of VC-backed start-ups have a black founder, highlighting the limited diversity in the industry. According to a Stanford research study, evidence of racial bias has also been found in the investment decisions of asset allocators that have trouble assessing the competence of racially diverse teams. These biases are believed to impact how investors evaluate fund managers and compound the lack of capital flowing to minority investors.

What Can You Do?

Investors should take three key steps in their investment practices and portfolios to help address racial inequities: (1) make racial equity an investment priority and codify it in the investment policy; (2) start allocating capital to racial equity investments; and (3) put racial equity at the center of the investment selection process. These actions are no doubt insufficient to fully overcome the challenges facing the investment industry specifically and society at large, but we believe if these steps are widely adopted, they could help reduce some of the imbalances that permeate investment programs.

#1 Make Racial Equity an Investment Priority and Codify it in the Investment Policy

For all forms of impact investing, we encourage investors to define three pillars of strategy before they implement impact investments: purpose, priorities, and principles.[2] All investors benefit from unified decisions regarding values and goals and that should be paramount when embracing a new investment theme. This is equally true for investments aimed at racial equity and will help to ensure a strong directional platform for ongoing investment decisions.

Start conversations at the investment committee level on racial equity and establish a plan to learn more. This strategy could involve bringing in external advisors with necessary expertise or leveraging the knowledge of peer networks that are already actively engaging with racial equity investments. Families and foundations should also consider their broader philanthropic and programmatic activities and how these investments may complement or even enhance efforts to address racial inequality that are already underway. Finally, once investors reach a decision on how they will tackle racial equity investments, they should codify these principles and priorities in the investment policy statement and communicate these preferences to advisors and investment managers.

2 Please see Rebecca Carland and Erin Harkless, "The Foundation of Good Governance for Family Impact Investors: Removing Obstacles and Charting a Path to Action," Cambridge Associates LLC, 2016.

#2 Start Allocating Capital to Racial Equity Investments

There are myriad approaches investors can take to invest capital with a racial equity lens. We encourage investors to focus on two related areas that could have the greatest impact. The first is increasing capital access by allocating to racially diverse managers and/or those managers that back diverse founders and management teams. The second is intentionally seeking managers that invest in businesses with products and services that benefit and empower communities of color. The former aims to address the historic and continued capital gap facing minority-owned businesses, entrepreneurs, and managers. The latter seeks to ensure that products, services, and policies are positively supporting and creating opportunities in these communities (i.e., a manager that invests in healthcare access businesses that disproportionately benefit minority communities).

As investors begin to deploy capital across one of these areas (or both—in practice, we have found they often overlap and intersect depending on the investment opportunity), it is important to dig deep and tease out the specific type of impact each investor is seeking with the investment.

For example, in the United States, investors can focus on deploying capital to investment firms or managers that are owned and/or led by African Americans. We recommend a 33% hurdle to define a diverse firm or team and encourage investors to consider both ownership and leadership of firms/strategies when allocating capital. These opportunities exist across asset classes and thus could be activated throughout the entire portfolio.

Beyond just having a policy to support diverse managers, investors might be well served to articulate further the specific goal they aim to achieve. Is it supporting new, emerging managers in the earliest stages, investing in an established, long-standing, diverse-owned fund manager to create more growth within those firms, allocating capital to an African American portfolio manager within a larger asset management organization, or potentially a mix of all three? Each of these approaches could serve the priority of driving capital towards African American investment managers, creating greater wealth and opportunity in the community, but if the goal is to catalyze and support emerging talent, an investment in a firm or strategy earlier in its life cycle could be more catalytic and bolster the pipeline of talent within the investment management industry.

#3 Put Racial Equity at the Center of the Investment Selection Process

We encourage investors to consider the following points as they engage with their investment managers throughout the investment due diligence and ongoing monitoring processes. This list is not exhaustive, but a starting point for questions asset owners and staff members can ask of their investment managers and advisors; careful analysis of the responses to these questions can help ensure investments are supportive of minority communities and not exacerbating the very issues the investor seeks to address.

- ☑ **CULTURE.** What is your policy on diversity, equity and inclusion? Beyond the policy itself, what steps does the firm take to adhere to these commitments in their operational and investment practices? How does the firm systematically address implicit bias in decision-making in both investment and management contexts?
- ☑ **COMPETENCY.** Do you have the cultural competency to address the needs of racially diverse communities? What evidence can you offer that the solutions or products you are providing are grounded in the reality and needs of the community?
- ☑ **COMMUNITY.** How are the needs of the community you want to impact considered in the investment decision-making process?

Racial equity investing offers investors an opportunity to advance solutions to what we believe is one of the most pressing social issues facing countries around the world. The time to address structural racism around the world is now. We encourage investors to share their knowledge and experiences to support the growth of racial equity investing so we can promote a more equitable society together. ■

Wendy Walker, Jasmine Richards, Sarah Hoyt, and Annachiara Marcandalli also contributed to this publication.