UWHCA Finance Committee

February 23, 2023, 10:00 - 11:30 AM

https://uwhealth.webex.com/uwhealth/j.php?MTID=m2b535549dc550c3fe40d13131fa04e6a

Meeting Number: 2623 360 7410 // Password: 022323


**ADVANCE MEETING MATERIALS ARE POSTED FOR REFERENCE. OCCASIONALLY, THE POSTED MATERIALS DO NOT REFLECT CHANGES MADE SHORTLY BEFORE OR DURING COMMITTEE MEETINGS. THE FULL COMMITTEE MINUTES ARE THE OFFICIAL RECORD OF FINAL COMMITTEE ACTION**
I. Call to Order
   Mr. Kenneth Mount

II. Meeting Minutes - Open Session
   Mr. Kenneth Mount

III. UW Health Financial Report
   Mr. Robert Flannery, Ms. Jodi Vitello, Ms. Patti DeWane
   Presentation - UW Health Financial Results - January 31, 2023

IV. Graystone Investment Update
   Graystone Consulting: Mr. Tom Parks, Mr. Matt Conway, Ms. Kelli Schrade
   Presentation - Market Commentary

V. Closed Session
   Motion to enter into closed session pursuant to Wisconsin Statutes section 19.85(1)(e) for the discussion of the following confidential strategic matters, which for competitive reasons require a closed session: review and approval of closed session minutes; review and discussion of financial matters including UW Health’s investment portfolio and Quartz financial arrangement; and pursuant to Wisconsin Statutes section 19.85(1)(g) for obtaining legal advice relating to such matters.

VI. Adjourn
### UW Health Current Month Operating Margin – January 31, 2023

<table>
<thead>
<tr>
<th></th>
<th>UWH-Madison/ACO/Isthmus</th>
<th>UWHNI /RDI</th>
<th>Total *</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>1.9%</td>
<td>0.4%</td>
<td>1.4%</td>
</tr>
<tr>
<td>Budget</td>
<td>0.7%</td>
<td>0.2%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Prior Year</td>
<td>-13.7%</td>
<td>-0.6%</td>
<td>-11.3%</td>
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</tbody>
</table>
Summary of Enterprise-wide Month of January 31, 2023 Operating Results

<table>
<thead>
<tr>
<th></th>
<th>Actual Jan- FY23</th>
<th>Plan Jan- FY23</th>
<th>Variance vs. Plan</th>
<th>Var. %</th>
<th>Actual Jan- FY22</th>
<th>Variance vs. PY</th>
<th>Var. %</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL OPERATING REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL OPERATING REVENUES, NET</strong></td>
<td>376,475,394</td>
<td>355,136,885</td>
<td>21,338,509</td>
<td>6%</td>
<td>308,824,418</td>
<td>67,650,976</td>
<td>22%</td>
</tr>
</tbody>
</table>

| **TOTAL OPERATING EXPENSES** |                  |                |                    |          |                  |                 |          |
| **SALARIES AND BENEFITS** | 211,082,644      | 199,236,890    | 11,845,754         | 6%       | 198,323,987      | 12,758,657     | 6%       |
| **PURCHASED SERVICES AND AGENCY COSTS** | 30,003,843      | 27,406,649    | 2,597,194          | 9%       | 26,169,144       | 3,834,699     | 15%      |
| **MEDICAL MATERIALS AND SUPPLIES** | 26,249,164      | 25,687,485    | 561,679            | 2%       | 21,934,651       | 4,314,513     | 20%      |
| **PHARMACEUTICALS** | 60,345,577       | 53,286,096    | 7,059,481          | 13%      | 52,475,903       | 7,864,654     | 15%      |
| **FACILITIES AND EQUIPMENT** | 13,959,251       | 14,961,081    | (1,001,830)        | -7%      | 15,093,530       | (1,135,279)   | -8%      |
| **DEPRECIATION AND AMORTIZATION** | 13,414,348       | 14,058,693    | (644,345)          | -5%      | 10,983,317       | 2,431,032     | 22%      |
| **INTEREST EXPENSE** | 3,890,152        | 3,747,251     | 142,901            | 4%       | 3,387,459        | 502,693       | 15%      |
| **PUBLIC AID ASSESSMENT** | 5,544,037        | 5,542,700     | 1,337              | 0%       | 5,362,799        | 181,238       | 3%       |
| **OTHER EXPENSES** | 542,613          | 2,892,771     | (2,350,158)        | -81%     | 3,873,661        | (3,313,048)   | -86%     |
| **NONOPERATING EXPENSES - ACADEMIC SUPPORT** | 6,045,303        | 6,088,397     | (43,094)           | -1%      | 5,978,751        | 66,552        | 1%       |
| **TOTAL OPERATING EXPENSES** | 371,070,912      | 352,908,013   | 18,162,899         | 5%       | 343,583,202      | 27,487,710    | 8%       |

| **INCOME FROM OPERATIONS** | 5,404,482        | 2,228,872     | 3,175,610          | 142%     | (34,758,784)     | 40,163,266   | -116%    |

| **NON-OPERATING REVENUE/EXPENSES** |                  |                |                    |          |                  |                 |          |
| **NET INCREASE/DECREASE IN FAIR VALUE OF INVESTMENTS** | 74,674,841       | 175            | 74,674,666         | 42671238% | (64,716,566)     | 139,391,407   | -215%    |
| **INVESTMENT INCOME** | 4,429,615        | 4,168,540     | 261,075            | 6%       | 5,978,402        | (1,548,787)   | -26%     |
| **EQUITY INTEREST IN INCOME/LOSS OF JOINT VENTURES** | 560,346          | 1,708,267     | (1,147,921)        | -67%     | 3,083,881        | (2,523,535)   | -82%     |
| **NET INC/DEC IN FAIR VALUE OF DERIVATIVE INSTRUMENT** | (186,768)        | 0             | (186,768)          | 0%       | 391,883          | (578,651)     | -148%    |
| **OTHER, NET** | 891,317          | 872,050       | 19,267             | 2%       | (44,133)         | 1,635,450     | -220%    |
| **TOTAL OTHER NON-OPERATING REVENUES (EXPENSES), NET** | 80,369,351       | 6,749,032     | 73,620,319         | 1091%     | (56,006,533)     | 136,375,884   | -243%    |
| **REVENUES OVER EXPENSES BEFORE CAPITAL GRANTS, GIFTS & DONATIONS** | 85,773,833       | 8,977,904     | 76,795,929         | 855%      | (90,765,317)     | 176,539,150   | -195%    |
### Summary of Enterprise-wide YTD of January 31, 2023 Operating Results

<table>
<thead>
<tr>
<th></th>
<th>Actual Jan- FY23</th>
<th>Plan Jan- FY23</th>
<th>Variance vs. Plan</th>
<th>Var. % vs. Plan</th>
<th>Actual Jan- FY22</th>
<th>Variance vs. PY</th>
<th>Var. % vs. PY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL OPERATING REVENUE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL OPERATING REVENUES, NET</strong></td>
<td>2,518,916,360</td>
<td>2,470,832,699</td>
<td>48,083,661</td>
<td>2%</td>
<td>2,289,336,680</td>
<td>229,579,680</td>
<td>10%</td>
</tr>
<tr>
<td><strong>TOTAL OPERATING EXPENSES</strong></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td><strong>SALARIES AND BENEFITS</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>PURCHASED SERVICES AND AGENCY COSTS</strong></td>
<td>1,396,086,414</td>
<td>1,383,836,673</td>
<td>12,249,741</td>
<td>1%</td>
<td>1,276,633,138</td>
<td>119,453,276</td>
<td>9%</td>
</tr>
<tr>
<td><strong>MEDICAL MATERIALS AND SUPPLIES</strong></td>
<td>181,693,367</td>
<td>179,868,293</td>
<td>1,825,074</td>
<td>1%</td>
<td>171,892,471</td>
<td>9,800,896</td>
<td>6%</td>
</tr>
<tr>
<td><strong>PHARMACEUTICALS</strong></td>
<td>410,828,567</td>
<td>374,257,418</td>
<td>36,571,149</td>
<td>10%</td>
<td>372,489,480</td>
<td>38,339,087</td>
<td>10%</td>
</tr>
<tr>
<td><strong>FACILITIES AND EQUIPMENT</strong></td>
<td>91,427,537</td>
<td>107,232,837</td>
<td>(15,805,300)</td>
<td>-15%</td>
<td>99,860,355</td>
<td>(8,432,818)</td>
<td>-8%</td>
</tr>
<tr>
<td><strong>DEPRECIATION AND AMORTIZATION</strong></td>
<td>93,659,347</td>
<td>96,515,283</td>
<td>(2,855,936)</td>
<td>-3%</td>
<td>77,715,571</td>
<td>15,934,776</td>
<td>21%</td>
</tr>
<tr>
<td><strong>INTEREST EXPENSE</strong></td>
<td>27,507,727</td>
<td>26,276,484</td>
<td>1,231,243</td>
<td>5%</td>
<td>21,782,363</td>
<td>5,725,364</td>
<td>26%</td>
</tr>
<tr>
<td><strong>PUBLIC AID ASSESSMENT</strong></td>
<td>37,978,106</td>
<td>38,198,900</td>
<td>(220,794)</td>
<td>-1%</td>
<td>36,438,959</td>
<td>1,539,147</td>
<td>4%</td>
</tr>
<tr>
<td><strong>OTHER EXPENSES</strong></td>
<td>11,295,304</td>
<td>12,326,519</td>
<td>(1,031,215)</td>
<td>-8%</td>
<td>18,089,371</td>
<td>(6,794,067)</td>
<td>-38%</td>
</tr>
<tr>
<td><strong>NONOPERATING EXPENSES - ACADEMIC SUPPORT</strong></td>
<td>42,120,197</td>
<td>42,618,782</td>
<td>(498,585)</td>
<td>-1%</td>
<td>41,876,940</td>
<td>243,257</td>
<td>1%</td>
</tr>
<tr>
<td><strong>TOTAL OPERATING EXPENSES</strong></td>
<td>2,491,997,734</td>
<td>2,455,213,297</td>
<td>36,784,437</td>
<td>1%</td>
<td>2,284,491,831</td>
<td>207,505,903</td>
<td>9%</td>
</tr>
<tr>
<td><strong>INCOME FROM OPERATIONS</strong></td>
<td>26,918,626</td>
<td>15,619,402</td>
<td>11,299,224</td>
<td>72%</td>
<td>4,844,849</td>
<td>22,073,777</td>
<td>456%</td>
</tr>
<tr>
<td><strong>NON-OPERATING REVENUE/EXPENSES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>NET INCREASE/DECREASE IN FAIR VALUE OF INVESTMENTS</strong></td>
<td>85,487,336</td>
<td>1,225</td>
<td>85,486,111</td>
<td>6978458%</td>
<td>(54,697,772)</td>
<td>140,185,108</td>
<td>-256%</td>
</tr>
<tr>
<td><strong>INVESTMENT INCOME</strong></td>
<td>19,563,242</td>
<td>28,604,780</td>
<td>(9,041,538)</td>
<td>-32%</td>
<td>53,040,469</td>
<td>(33,477,227)</td>
<td>-63%</td>
</tr>
<tr>
<td><strong>EQUITY INTEREST IN INCOME/LOSS OF JOINT VENTURES</strong></td>
<td>(4,944,250)</td>
<td>11,957,869</td>
<td>(16,902,119)</td>
<td>-141%</td>
<td>17,698,689</td>
<td>(22,642,939)</td>
<td>-128%</td>
</tr>
<tr>
<td><strong>NET INC/DEC IN FAIR VALUE OF DERIVATIVE INSTRUMENT</strong></td>
<td>758,482</td>
<td>0</td>
<td>758,482</td>
<td>0%</td>
<td>1,019,406</td>
<td>(260,924)</td>
<td>-26%</td>
</tr>
<tr>
<td><strong>OTHER, NET</strong></td>
<td>7,760,563</td>
<td>7,353,251</td>
<td>407,312</td>
<td>6%</td>
<td>18,664,598</td>
<td>(10,904,035)</td>
<td>-58%</td>
</tr>
<tr>
<td><strong>TOTAL OTHER NON-OPERATING REVENUES (EXPENSES), NET</strong></td>
<td>108,625,373</td>
<td>47,917,125</td>
<td>60,708,248</td>
<td>127%</td>
<td>35,725,390</td>
<td>72,899,983</td>
<td>204%</td>
</tr>
<tr>
<td><strong>REVENUES OVER EXPENSES BEFORE CAPITAL GRANTS, GIFTS &amp; DONATIONS</strong></td>
<td>135,543,999</td>
<td>63,536,527</td>
<td>72,007,472</td>
<td>113%</td>
<td>40,570,239</td>
<td>94,973,760</td>
<td>234%</td>
</tr>
<tr>
<td></td>
<td>Favorable Direction</td>
<td>FY 23</td>
<td>S&amp;P &quot;AA-&quot; Rated (1)</td>
<td>Moodys &quot;Aa3&quot; Rated (2)</td>
<td></td>
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<tr>
<td>Operating Margin*</td>
<td>↑</td>
<td>1.1%</td>
<td>2.8%</td>
<td>3.0%</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Total Margin</td>
<td>↑</td>
<td>5.2%</td>
<td>6.8%</td>
<td>7.1%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days Cash on Hand*</td>
<td>↑</td>
<td>235</td>
<td>292</td>
<td>323</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Days in Accounts Receivable **</td>
<td>↓</td>
<td>46</td>
<td>48</td>
<td>48</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long Term Debt to Capitalization</td>
<td>↓</td>
<td>26.5%</td>
<td>25.0%</td>
<td>24.2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operating Cash Flow</td>
<td>↑</td>
<td>5.9%</td>
<td>8.2%</td>
<td>8.7%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash-to-Debt</td>
<td>↑</td>
<td>221.4%</td>
<td>263.6%</td>
<td>281.4%</td>
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</tbody>
</table>

* excludes provision for bad debt and retiree health insurance, includes academic support
** average for 12 months
(1) S&P's 2021 financial ratios based on 36 obligators rated "AA-" by S&P. Based on 2021 audited financials.
(2) Moody's 2021 financial ratios based on 29 "Aa3" rated hospitals. Based on 2021 audited financials.
Key Takeaways for January 2023

-Volumes across the JOA are strong compared to prior months. Surgeries for the month were .9% favorable to budget. ED visits across the system remain extremely high to budget YTD, but were unfavorable by 4.2% in January.

-Net revenues came in $21.3M favorable to budget. This is consistent with strong volumes we saw for the month, Quartz risk coming in favorable to budget, we re-evaluated some contractual allowance reserves, we saw strong retail pharmacy revenues and we had a more favorable payor mix for the month.

-Expense were unfavorable to budget by $18.1M. There were several factors contributing to this for January. The main contributing factors were:
  Salaries & Fringe were $11.8M unfavorable. Some of this relates to additional true-ups of leave and holiday balances.
  Pharmaceuticals were $7.1M unfavorable to budget

-On the non-operating side, we saw favorable results compared to budget, with an unrealized gain on investments of $74.7M.
Finance Committee Meeting

Open Session

Market Commentary

Graystone Consulting | February 23, 2023

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Two Year Ride: From Bull to Bust

A fourth-quarter relief rally helped lessen the sting from 2022’s double-barreled bear market.

Source: Bloomberg. Data as of December 31, 2022. For index definitions to the indices referenced in this report please visit the following: https://www.morganstanley.com/wealth-investmentsolutions/wmir-definitions

Past performance is no guarantee of future results. Estimates of future performance are based on assumptions that may not be realized. This material is not a solicitation of any offer to buy or sell any security or other financial instrument or to participate in any trading strategy. Please refer to important information, disclosures and qualifications at the end of this material. Investment and services offered through Morgan Stanley Smith Barney LLC. Member SIPC. Graystone Consulting, a business of Morgan Stanley.
A Year in Review

High Inflation + Hawkish Fed + Record Volatility + Slowing Earnings

2022 Produced 122 +/-1% Moves, Leaving Only the Tech Bubble and Financial Crisis as More Volatile Periods

Negative Real Earnings Growth Persists

The Comeback Kids: Bonds & Cash

Cash is back and Bonds rebound

Underperformance in Both Equities and Bonds Is Rare
2022 is the first year that US stocks and bonds were both down +10% in 150 years.

Fixed Income Offers Attractive Relative Yields and Valuations
10-Year Treasury Yields are now higher than S&P 500 dividend yield.

Preparing to Pivot: Morgan Stanley Anticipates Rate Reversal
Average of US and Europe Policy Rates (%)

Policy rates to pause their rise, then reverse over 2023-24

2023 Year of Yield:
“We expect 2023 to look different for the economy and markets: growth will be worse, inflation will be lower, and cross-asset returns – especially in fixed income – will look much better.”

-- Morgan Stanley Global Insight

Source: Bloomberg, NBER, Jordà-Schularick-Taylor Macrohistory Database, Morgan Stanley Research; Note: Data back to 1871. Bond return is return on long-maturity UST. As of November 9, 2022. Morgan Stanley Research forecasts
The Next American Productivity Renaissance

What’s Ahead: A unique combination of demand and supply factors emerges

Changing the Nature of Work and Housing
Remote employment is changing the nature of work and creating new value drivers for residential housing.

US Capital Spending Growth Accelerates
Capital spending has grown at the fastest pace in the roughly four decades of recorded data and almost twice that of anticipated top-line revenue growth.

Changes in Labor Force Participation
The Pandemic has led to excess retirements permanently removing between 2.5 and 3.0 million people from the workforce.

Growing Investments in Clean Energy
Reimagining global renewable energy infrastructure and related supply chains will require $10 trillion to $20 trillion of accumulated capex through 2040.

Morgan Stanley Forecasts

We remain concerned about profit resilience and the tightness of the labor market in the year ahead.

S&P 500 Earnings Estimates

<table>
<thead>
<tr>
<th>Landscape</th>
<th>Earnings</th>
<th>Price/Earnings Multiple</th>
<th>Price Target</th>
<th>Upside/Downside</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull Case</td>
<td>$251</td>
<td>16.7</td>
<td>4,200</td>
<td>7.7%</td>
</tr>
<tr>
<td>Base Case</td>
<td>$241</td>
<td>16.1</td>
<td>3,900</td>
<td>0.1%</td>
</tr>
<tr>
<td>Bear Case</td>
<td>$230</td>
<td>15.3</td>
<td>3,500</td>
<td>-10.1%</td>
</tr>
<tr>
<td>Current S&amp;P 500 Price</td>
<td></td>
<td></td>
<td>3,895</td>
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</tbody>
</table>

Estimated 2023 forward 12-month earnings are used to project a price target which takes into account MS & Co.’s 2024 base case earnings forecast of $241. Source: Bloomberg, MS & Co. Research as of Jan. 6, 2023

Morgan Stanley & Co. Forecasts (as of January 6, 2023)

<table>
<thead>
<tr>
<th>Landscape</th>
<th>REAL GDP GROWTH (%)</th>
<th>10-YR GOVT. BOND YIELD (%)</th>
<th>HEADLINE INFLATION (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2022E</td>
<td>2023E</td>
<td>2024E</td>
</tr>
<tr>
<td>Global</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>3.0</td>
<td>2.5</td>
<td>3.0</td>
</tr>
<tr>
<td>Euro Zone</td>
<td>2.0</td>
<td>0.8</td>
<td>0.9</td>
</tr>
<tr>
<td>UK</td>
<td>3.4</td>
<td>-0.2</td>
<td>1.2</td>
</tr>
<tr>
<td>Japan</td>
<td>1.1</td>
<td>1.2</td>
<td>1.6</td>
</tr>
<tr>
<td>Emerging Markets</td>
<td>3.3</td>
<td>3.9</td>
<td>4.3</td>
</tr>
<tr>
<td>China</td>
<td>2.8</td>
<td>5.4</td>
<td>5.4</td>
</tr>
</tbody>
</table>

Source: Morgan Stanley & Co. Research
Important Disclosures
Please let us know if you would like a copy of any of the referenced Morgan Stanley reports.

The views expressed herein are those of the author and do not necessarily reflect the views of Morgan Stanley Wealth Management or its affiliates. All opinions are subject to change without notice. Neither the information provided nor any opinion expressed constitutes a solicitation for the purchase or sale of any security. Past performance is no guarantee of future results.

Glossary of Terms

Active Contribution Return: The gain or loss percentage of an investment relative to the performance of the investment benchmark.

Active Exposure: The percentage difference in weight of the portfolio compared to its policy benchmark.

Active Return: Arithmetic difference between the manager’s return and the benchmark’s return over a specified time period.

Actual Correlation: A measure of the correlation (linear dependence) between two variables X and Y, with a value between +1 and -1 inclusive. This is also referred to as coefficient of correlation.

Alpha: A measure of a portfolio's time weighted return in excess of the market's return, both adjusted for risk. A positive alpha indicates that the portfolio outperformed the market on a risk-adjusted basis, and a negative alpha indicates the portfolio did worse than the market.

Best Quarter: The highest quarterly return for a certain time period.

Beta: A measure of the sensitivity of a portfolio’s time weighted return (net of fees) against that of the market. A beta greater than 1.00 indicates volatility greater than the market.

Consistency: The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. The higher the consistency figure, the more value a manager has contributed to the product's performance.

Core: Refers to an investment strategy mandate that is blend of growth and value styles without a pronounced tilt toward either style.

Cumulative Selection Return (Cumulative Return): Cumulative investment performance over a specified period of time.

Distribution Rate: The most recent distribution paid, annualized, and then divided by the current market price. Distribution rate may consist of investment income, short-term capital gains, long-term capital gains, and/or return of capital.

Down Market Capture: The ratio of average portfolio returns over the benchmark during periods of negative benchmark return. Lower values indicate better product performance.

Downside Risk: A measure similar to standard deviation, but focuses only on the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. The higher the value, the more risk the product has.

Downside Semi Deviation: A statistical calculation that measures the volatility of returns below a minimum acceptable return. This return measure isolates the negative portion of volatility: the larger the number, the greater the volatility.

Drawdown: A drawdown is the peak-to-trough decline during a specific period of an investment, fund or commodity.

Excess over Benchmark: The percentage gain or loss of an investment relative to the investment's benchmark.

Excess Return: Arithmetic difference between the manager’s return and the risk-free return over a specified time period.

Growth: A diversified investment strategy which includes investment selections that have capital appreciation as the primary goal, with little or no dividend payouts. These strategies can include reinvestment in expansion, acquisitions, and/or research and development opportunities.

Growth of Dollar: The aggregate amount an investment has gained or lost over a certain time period, also referred to as Cumulative Return, stated in terms of the amount to which an initial dollar investment would have grown over the given time period.

Investment Decision Process (IDP): A model for structuring the investment process and implementing the correct attribution methodologies. The IDP includes every decision made concerning the division of the assets under management over the various asset categories. To analyze each decision’s contribution to the total return, a modeling approach must measure the marginal value of every individual decision. In this respect, the hierarchy of the decisions becomes very important. We therefore use the IDP model, which serves as a proper foundation for registering the decisions and relating them to each other.

Information Ratio: Measured by dividing the active rate of return by the tracking error. The higher the Information Ratio, the more value-added contribution by the manager.

Jensen’s Alpha: The Jensen’s alpha measure is a risk-adjusted performance measure that represents the average return on a portfolio or investment above or below that predicted by the capital asset pricing model (CAPM) given the portfolio's or investment's beta and the average market return. This metric is commonly referred to as alpha.

Kurtosis: A statistical measure that is used to describe the distribution, or skewness, of observed data around the mean, sometimes referred to as the volatility of volatility.

Maximum Drawdown: The drawdown is defined as the percent retreatment from a fund’s peak to the fund's trough value. It is in effect from the time the fund's retrenchment begins until a new fund high is reached. The maximum drawdown encompasses both the period from the fund’s peak to the fund’s valley (length), and the time from the fund’s valley to a new fund high (recovery). It measures the largest percentage drawdown that has occurred in any fund's data record.

Modern Portfolio Theory (MPT): An investment analysis theory on how risk-averse investors can construct portfolios to optimize or maximize expected return based on a given level of market risk, emphasizing that risk is an inherent part of higher reward.

Mutual Fund (MF): An investment program funded by shareholders that trade in diversified holdings and is professionally managed.

Peer Group: A combination of funds that share the same investment style combined as a group for comparison purposes.

Peer/Plan Sponsor Universe: A combination of asset pools of total plan investments by specific sponsor and plan types for comparison purposes.

Performance Ineligible Assets: Performance returns are not calculated for certain assets because accurate valuations and transaction data for these assets are not processed or maintained by us. Common examples of
these include life insurance, some annuities and some assets held externally.

**Performance Statistics:** A generic term for various measures of investment performance measurement terms.

**Portfolio Characteristics:** A generic term for various measures of investment portfolio characteristics.

**Preferred Return:** A term used in the private equity (PE) world, and also referred to as a "Hurdle Rate." It refers to the threshold return that the limited partners of a private equity fund must receive, prior to the PE firm receiving its carried interest or "carry."

**Ratio of Cumulative Wealth:** A defined ratio of the Cumulative Return of the portfolio divided by the Cumulative Return of the benchmark for a certain time period.

**Regression Based Analysis:** A statistical process for estimating the relationships among variables. It includes many techniques for modeling and analyzing several variables, when the focus is on the relationship between a dependent variable and one or more independent variables

**Residual Correlation:** Within returns-based style analysis, residual correlation refers to the portion of a strategy’s return pattern that cannot be explained by its correlation to the asset-class benchmarks to which it is being compared.

**Return:** A rate of investment performance for the specified period.

**Rolling Percentile Ranking:** A measure of an investment portfolio’s ranking versus a peer group for a specific rolling time period (i.e. Last 3 Years, Last 5 years, etc.).

**R-Squared:** The percentage of a portfolio’s performance explained by the behavior of the appropriate benchmark. High R-Squared means a higher correlation of the portfolio’s performance to the appropriate benchmark.

**SA/CF (Separate Account/Commingled Fund):** Represents an acronym for Separate Account and Commingled Fund investment vehicles.

**Sector Benchmark:** A market index that serves as a proxy for a sector within an asset class.

**Sharpe Ratio:** Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is the absolute rate of return per unit of risk. The higher the value, the better the product’s historical risk-adjusted performance results in.

**Standard Deviation:** A statistical measure of the range of a portfolio’s performance; the variability of a return around its average return over a specified time period.

**Total Fund Benchmark:** The policy benchmark for a complete asset pool that could consist of multiple investment mandates.

**Total Fund Composite:** The aggregate of multiple portfolios within an asset pool or household.

**Tracking Error:** A measure of standard deviation for a portfolio’s investment performance, relative to the performance of an appropriate market benchmark.

**Treynor Ratio:** A ratio that divides the excess return (above the risk free rate) by the portfolio’s beta to arrive at a unified measure of risk adjusted return. It is generally used to rank portfolios, funds and benchmarks. A higher ratio is indicative of higher returns per unit of market risk. This measurement can help determine if the portfolio is reaching its goal of increasing returns while managing market risk.

**Up Market Capture:** The ratio of average portfolio returns over the benchmark during periods of positive benchmark return. Higher values indicate better product performance.

**Upside Semi Deviation:** A statistical calculation that measures the volatility of returns above an acceptable return. This return measure isolates the positive portion of volatility: the larger the number, the greater the volatility.

**Value:** A diversified investment strategy that includes investment selections which tend to trade at a lower price relative to its dividends, earnings, and sales. Common attributes are stocks that include high dividend, low price-to-book ratio, and/or low price-to-earnings ratio.

**Worst Quarter:** The lowest rolling quarterly return for a certain time period.

**Information Disclosures**

The performance data shown reflects past performance, which does not guarantee future results. Investment return and principal will fluctuate so that an investor’s shares when redeemed may be worth more or less than original cost. Please note, current performance may be higher or lower than the performance data shown. For up to date month-end performance information, please contact your Financial Advisor or visit the funds’ company website.

Investors should carefully consider the fund’s investment objectives, risks, charges and expenses before investing. The prospectus and, if available the summary prospectus, contains this and other information that should be read carefully before investing. Investors should review the information in the prospectus carefully. To obtain a prospectus, please contact your Financial Advisor or visit the funds’ company website.

Past performance is no guarantee of future results.

Investing involves market risk, including possible loss of principal. Growth investing does not guarantee a profit or eliminate risk. The stocks of these companies can have relatively high valuations. Because of these high valuations, an investment in a growth stock can be more risky than an investment in a company with more modest growth expectations. Value investing involves the risk that the market may not recognize that securities are undervalued and they may not appreciate as anticipated. Small and mid-capitalization companies may lack the financial resources, product diversification and competitive strengths of larger companies. The securities of small capitalization companies may not trade as readily as, and be subject to higher volatility than those of larger, more established companies. Bond funds and bond holdings have the same interest rate, inflation and credit risks that are associated with the underlying bonds owned by the funds. The return of principal in bond funds, and in funds with significant bond holdings, is not guaranteed. International securities’ prices may carry additional risks, including foreign economic, political, monetary and/or legal factors, changing currency exchange rates, foreign taxes and differences in financial and accounting standards. International investing may not be for everyone. These risks may be magnified in emerging markets. Alternative investments, including private equity funds, real estate funds, hedge funds, managed futures funds, and funds of hedge funds, private equity, and managed futures funds, are speculative and entail significant risks that can include losses due to leveraging or other speculative investment practices, lack of liquidity, volatility of returns, restrictions on transferring interests in a fund, potential lack of diversification, absence and/or delay of information regarding valuations and pricing, complex tax structures and delays in tax reporting, less regulation and higher fees than mutual funds and risks associated with the operations, personnel and processes of the advisor. Master Limited Partnerships (MLPs) are limited partnerships or limited liability companies that are taxed as partnerships and whose interests (limited partnership units or limited liability company units) are traded on securities exchanges like shares of common stock. Currently, most MLPs operate in the energy, natural resources or real estate.
sectors. Investments in MLP interests are subject to the risks generally applicable to companies in the energy and natural resources sectors, including commodity pricing risk, supply and demand risk, depletion risk and exploration risk; and MLP interests in the real estate sector are subject to special risks, including interest rate and property value fluctuations, as well as risks related to general and economic conditions. Because of their narrow focus, MLPs maintain exposure to price volatility of commodities and/or underlying assets and tend to be more volatile than investments that diversify across many sectors and companies. MLPs are also subject to additional risks including: investors having limited control and rights to vote on matters affecting the MLP, limited access to capital, cash flow risk, lack of liquidity, dilution risk, conflict of interests, and limited call rights related to acquisitions.

Mortgage backed securities also involve prepayment risk, in that faster or slower prepayments than expected on underlying mortgage loans can dramatically alter the yield-to-maturity of a mortgage-backed security and prepayment risk includes the possibility that a fund may invest the proceeds at generally lower interest rates.

Tax managed funds may not meet their objective of being tax-efficient.

Real estate investments are subject to special risks, including interest rate and property value fluctuations, as well as risks related to general and economic conditions. High yield fixed income securities, also known as “junk bonds”, are considered speculative, involve greater risk of default and tend to be more volatile than investment grade fixed income securities.

Credit quality is a measure of a bond issuer’s creditworthiness, or ability to repay interest and principal to bondholders in a timely manner. The credit ratings shown are based on security rating as provided by Standard & Poor’s, Moody’s and/or Fitch, as applicable. Credit ratings are issued by the rating agencies for the underlying securities in the fund and not the fund itself, and the credit quality of the securities in the fund does not represent the stability or safety of the fund. Credit ratings shown range from AAA, being the highest, to D, being the lowest based on S&P and Fitch’s classification (the equivalent of Aaa and C, respectively, by Moody(s)). Ratings of BBB or higher by S&P and Fitch (Baa or higher by Moody’s) are considered to be investment grade-quality securities. If two or more of the agencies have assigned different ratings to a security, the highest rating is applied. Securities that are not rated by all three agencies are listed as “NR”.

“Alpha tilt strategies” comprise a core holding of stocks that mimic a benchmark type index such as the S&P 500 to which additional securities are added to help tilt the fund toward potentially outperforming the market in an effort to enhance overall investment returns. Tilt strategies are subject to significant timing risk and could potentially expose investors to extended periods of underperformance.”

Custom Account Index: The Custom Account Index is an investment benchmark based on your historical target allocations and/or manager selection that you may use to evaluate the performance of your account. The Custom Account Index does take into consideration certain changes that may have occurred in your portfolio since the inception of your account, i.e., asset class and/or manager changes. However, in some circumstances, it may not be an appropriate benchmark for use with your specific account composition. For detailed report of the historical composition of this blend please contact your Financial Advisor.

Peer Groups

Peer Groups are a collection of similar investment strategies that essentially group investment products that share the same investment approach. Peer Groups are used for comparison purposes to compare and illustrate a clients investment portfolio versus its peer across various quantitative metrics like performance and risk. Peer Group comparison is conceptually another form of benchmark comparison whereby the actual investment can be ranked versus its peer across various quantitative metrics.

All Peer Group data are provided by Investment Metrics, LLC.

The URL below provides all the definitions and methodology about the various Peer Groups

https://www.invmetrics.com/style-peer-groups

Peer Group Ranking Methodology

A percentile rank denotes the value of a product in which a certain percent of observations fall within a peer group. The range of percentile rankings is between 1 and 100, where 1 represents a high statistical value and 100 represents a low statistical value.

The 30th percentile, for example, is the value in which 30% of the highest observations may be found, the 65th percentile is the value in which 65% of the highest observations may be found, and so on.

Percentile rankings are calculated based on a normalized distribution ranging from 1 to 100 for all products in each peer group, where a ranking of 1 denotes a high statistical value and a ranking of 100 denotes a low statistical value. It is important to note that the same ranking methodology applies to all statistics, implying that a ranking of 1 will always mean highest value across all statistics.

For example, consider a risk/return assessment using standard deviation as a measure of risk. A percentile ranking equal to 1 for return denotes highest return, whereas a percentile ranking of 1 for standard deviation denotes highest risk among peers.

In addition, values may be used to demonstrate quartile rankings. For example, the third quartile is also known as the 75th percentile, and the median is the 50th percentile.

Alternatives

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As fees are deducted quarterly, the compounding effect will be to increase the impact of the fees by an amount directly related to the gross account performance. For example, for an account with an initial value of $100,000 and a 2.5% annual fee, if the gross performance is 5% per year over a three year period, the compounding effect of the fees will result in a net annual compound rate of return of approximately 2.40% per year over a three year period, and the total value of the client’s portfolio at the end of the three year period would be approximately $115,762.50 without the fees and $107,372.63 with the fees.

Please see the applicable Morgan Stanley Smith Barney LLC Form ADV Part 2A for more information including a description of the fee schedule. It is available at www.morganstanley.com/ADV <http://www.morganstanley.com/ADV> or from your Financial Advisor/Private Wealth Advisor.

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