2019 Absolute Return Asset Class Review

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Spencer Edge, Albourne America

September 26–27, 2019

Texas Municipal Retirement System
Agenda

I. ARS Program: A Year in Review
II. ARS Portfolio & Performance
III. Market Review: Absolute Return
IV. Conclusions
Section I

ARS PROGRAM : A YEAR IN REVIEW
Comprehensive Annual Review Process

Why do we conduct annual reviews?

Per the TMRS IPS, comprehensive reviews are to be conducted and documented at least annually.

The Review Process Includes:

- Annual due diligence questionnaire, ADV and compliance, as appropriate, are reviewed
- Includes firm changes, personnel, investment strategy, style, process, and philosophy
- Compliance, operations, risk management, and performance
- Both quantitative and qualitative factors
- The review includes an onsite due diligence visit to the Manager’s office

The Annual Review process holds TMRS Staff accountable for its portfolio management process in order to preempt manager specific, strategic, or other potential problems.
ARS Program Review – Accountability in Action

What did we say we were going to do?

**Absolute Return Initiatives Accomplished: Annual Review**

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop a blueprint to implement a Direct Absolute Return Investment Program</td>
<td>✔️</td>
</tr>
<tr>
<td>Managerial prioritization, Staff experience and partner resources enabled TMRS to develop a path to ensure this outcome was accomplished</td>
<td>✔️</td>
</tr>
<tr>
<td>• Establish a due-diligence process to identify “best in class” manager opportunities</td>
<td>✔️</td>
</tr>
<tr>
<td>Sourcing, investment and operational due diligence, and leveraging Staff and partner relationships were key factors enabling the identification of opportunities</td>
<td>✔️</td>
</tr>
<tr>
<td>• Initiate &amp; execute on manager selection, negotiation, and funding while maintaining consideration of portfolio construction and diversification looking forward 2 years</td>
<td>✔️</td>
</tr>
<tr>
<td>Recommendations and approval of selected manager investments and funding are executed on a dynamic timeline taking into account anticipated portfolio diversification and market regimes</td>
<td>✔️</td>
</tr>
<tr>
<td>• Progress Direct Absolute Return Portfolio towards a state of “fully invested” while managing redemption timing, rebalancing challenges, and capacity constraints</td>
<td>✔️</td>
</tr>
<tr>
<td>Active decisions to weight managers and rebalance based on constraints are made in real time (Nov. 2016 Internal Memo)</td>
<td>✔️</td>
</tr>
<tr>
<td>• Construct and maintain the ARS Direct portfolio to accomplish TMRS’ investment objectives</td>
<td>✔️</td>
</tr>
<tr>
<td>$2.3 billion of ARS Direct capital deployed since Jan. 1, 2016. The risk/return profile of the Direct portfolio achieves TMRS investment objectives</td>
<td>✔️</td>
</tr>
<tr>
<td>• Monitor existing portfolio. Source, research, and pursue new strategies and co-invest opportunities</td>
<td>In Process</td>
</tr>
<tr>
<td>Additional strategies, including fund style co-invests, may be used to further optimize the portfolio as well as blend down fees with existing funds</td>
<td>✔️</td>
</tr>
<tr>
<td>• Finalize transition from BAAM Treaty Oak to Direct Portfolio</td>
<td>✔️</td>
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</table>
ARS Program Review – Accountability in Action

ARS Direct Funding Timeline

2016
- Total Direct Initial Subs: $990 million
- Total Additional Subs: $215 million
- Total Q4 Recommendation: $375 million
- Macro (2)
- LSE (4)
- ED (1)
- Credit (3)
- MS (1)
- RV (2)
- CTA (1)

2017
- Total Direct Initial Subs: $550 million
- Total Additional Subs: No addl. subs
- Macro (1)
- RV (2)
- MS (1)
- Macro (1)
- RV (1)

2018
- Total Direct Initial Subs: $550 million
- Total Additional Subs: No addl. subs
- Macro (1)
- RV (1)
- Credit (1)

2019
- Total Direct Initial Subs: $125 million
- Total Additional Subs: No addl. subs
- Macro (1)
- RV (1)
- Credit (1)
Funds & Capital Approved & Funded:

2015 Direct Mandates Approved: 6
2015 Capital Approved: $405 mm

2016 Direct Mandates Approved: 9
2016 Capital Approved: $658 mm
2016 Additional Subscriptions: $215 mm (5 managers)

2017 Direct Mandates Approved: 3
2017 Capital Approved: $280 mm
2017 Additional Subscriptions: $330 mm (8 managers)

2018 Direct Mandates Approved: 3
2018 Capital Approved: $550M
2018 Additional Subscriptions: none

2019 Direct Mandates Approved: 1
2019 Capital Approved: $125M
2019 Additional Subscriptions: none

Total Direct Investment Vehicles: 22
Total Direct Capital Approved: $2.6 billion
Total Direct Capital Invested: $2.3 billion
ARS Team Experience
Marc Leavitt
23 years experience
Consultant, Hedge Fund, Family Office, Endowment
MBA, Charter Alternative Investment Analyst Designation

Kevin Notaro
15 years experience
Investment Management (Fund of Hedge Funds)
Finance Major

ARS Program Review – Accountability in Action
ARS Staff Resources
ARS Program Review – Accountability in Action

Annual Review Highlights

Manager & Consultant Scorecard Summary:
All 20 manager relationships and 1 consultant relationship assessed are in satisfactory standing.

Contractual Compliance:
All managers, as appropriate, have certified compliance with relationship governing documents, including:
- Valuation policies
- Fees paid summary
- Regulatory actions
- Code of Ethics compliance

Monitoring and Review Summary:
Monthly, quarterly, and annual reviews (including annual onsite, due-diligence)

Manager Reporting: DDQ, Risk Reports, Commentary, Prime Broker & Administrator reports, Team and Portfolio Overviews, Monthly/Quarterly calls

Albourne Reports: Investment Due Diligence, Operational Due Diligence, Risk Management, Quantitative Due Diligence Summaries, Direct Portfolio level reporting and Risk Management Overviews

IPS Compliance and Monitoring at the Portfolio Level
ARS Program Review – Accountability in Action

Additional Information

ARS Team Activities

2015 Total Manager Meetings: 312
2016 Total Manager Meetings: 276
2017 Total Manager Meetings: 240
2018 Total Manager Meetings: 267
2019 Total Manager Meetings: 200*

ARS Total Manager Meetings: 1295

Credit: 216
Macro/CTA: 222
L/S Equity: 166
Relative Value: 174
Multi-Strategy: 106
Event Driven: 67
Fund of Fund: 97
Consultant: 98
Economists: 23
Other: 126

* As of August 23, 2019
IPS Compliance Review

Vehicle Concentration Guideline — TMRS is within guideline limits that no more than 35% of the total net assets of the absolute return portfolio may be invested in any one Strategy.

Closed or Open-end Vehicle Concentration Limit — TMRS is within guideline limits that no more than 20% of total ARS assets may be invested in a single private investment Vehicle.

Commingled Open-End Concentration Limit — TMRS is within guideline limits that TMRS can not represent more than 25% of total net assets of a commingled investment vehicle.

Percentage of Manager AUM Limit — TMRS does not account for more than 25% of total AUM of any contracted manager’s total AUM.
Section II

ARS PORTFOLIO & PERFORMANCE
**Absolute Return Asset Class Objectives**

IPS Stated Objective for the Absolute Return Portfolio:

“The Absolute Return portfolio is used to provide both favorable stand-alone, risk-adjusted returns as well as diversification for the overall plan.”

A primary goal of the annual review presentation is to discuss the Absolute Return portfolio and its construction relative to IPS stated performance goals & implementation objectives:

**Benchmark Performance Goals:**

- Long-term performance objective is a rate of return of 3-month LIBOR + 4%, net of investment management fees.

- The current (periods less than 5 years) strategic benchmark is the HFRI Fund of Fund Diversified Index, net of investment management fees, with similar risk relative to the benchmark.

- Additionally, as documented in the IPS, the absolute return portfolio is expected to generate returns net of all fees and expenses, in excess of their respective indices, over rolling five year investment time horizons.
Absolute Return Asset Class Objectives

The Direct Portfolio is designed to accomplish the following primary goals:

- Decrease total portfolio risk
- Potentially increase portfolio returns (Fixed Income substitute)
- Provide performance with low correlation to traditional asset classes
- Attractive risk-adjusted returns over the long-term
- Seek to generate positive returns regardless of traditional market benchmark returns
- Seek to capture Alpha: a manager’s rate of return in excess of that which can be explained by its systematic risk (represented by Beta)
Average returns (3 year rolling) have compressed post crisis when considering prevailing Libor rates.

### Historical Returns

<table>
<thead>
<tr>
<th>Time Frame</th>
<th>Average HF Returns</th>
<th>Premium Over Libor</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000–06</td>
<td>8.2%</td>
<td>4.7%</td>
</tr>
<tr>
<td>2007–09</td>
<td>2.2%</td>
<td>(0.6%)</td>
</tr>
<tr>
<td>2010–16</td>
<td>3.9%</td>
<td>3.5%</td>
</tr>
<tr>
<td>2016–19*</td>
<td>4.5%</td>
<td>2.7%</td>
</tr>
</tbody>
</table>

Source: Barclays, HFR, Bloomberg
Data thru Jul–19
Returns, on a risk-adjusted basis are in line with pre-crisis profiles. Volatility remains low while stocks and bonds are near highs.

Source: HFRI, CBOE, MSCI, FactSet, J.P. Morgan Asset Management
## Absolute Return Performance
**Period Ending July, 2019 (Net All)**

<table>
<thead>
<tr>
<th>Fund</th>
<th>MKT VALUE</th>
<th>% of Plan</th>
<th>1 Month</th>
<th>3 Months</th>
<th>YTD</th>
<th>1-YR</th>
<th>3-YR</th>
<th>ITD</th>
<th>Incept Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>TMRS - ABSOLUTE RETURN DIRECT</td>
<td>2,273,557,583</td>
<td>7.55</td>
<td>0.42</td>
<td>2.27</td>
<td>5.57</td>
<td>4.20</td>
<td>6.59</td>
<td>5.20</td>
<td>1-1-16</td>
</tr>
<tr>
<td>HFRI FOF DIVERSIFIED INDEX</td>
<td>0.33</td>
<td>1.11</td>
<td>6.43</td>
<td>1.91</td>
<td>3.75</td>
<td>2.82</td>
<td>2.18</td>
<td>1.91</td>
<td>1-1-16</td>
</tr>
<tr>
<td>Excess</td>
<td>0.09</td>
<td>1.16</td>
<td>-0.86</td>
<td>2.29</td>
<td>2.84</td>
<td>2.38</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Performance

ARS Direct: Albourne
Pro Forma Review

*Portfolio returns are Proforma from Oct 2014 thru Dec 2015, at which point TMRS ARS direct portfolio begins.
Implementation Risk Ranges Implied by IPS Asset Class Guidelines

1. Real Return range includes 0-30% limit on Inflation Linked Bonds to align with the IPS’s Asset Class Goal of CPI+4%
Sizing of managers is based on both qualitative and quantitative factors along with risk/reward profiles.
ARS portfolio has been built to be well diversified from a geographical standpoint.
88 total combined off-site days for manager due diligence and sourcing since last update.
Portfolio Managers by Location

% of Allocations to HF Managers by Domicile, Based on Investor Location

HF AUM Split by Manager HQ

- Americas: 74%
- EMEA: 50%
- APAC: 18%

% w/Plans to Increase by Region

- Americas: Increase 10%, Decrease 13%
- EMEA: Increase 20%, Decrease 13%
- APAC: Increase 39%

Source: Barclays

Americas and EMEA investors increasing exposure to APAC.
**Portfolio Exposures**

As of August 1, 2019

*Prospective portfolio exposure with full allocation to Varde Asia and Stone Oak*

**Current Allocation**
*(Strategy Exposures)*

**Prospective Allocation**
*(Strategy Exposures)*

ARS’ diversification remains balanced across strategies.
Portfolio Exposures

ARS’ diversification remains balanced across strategies.

Source: Barclays
Performance

Up/Down Capture

*October 2014 – June 2019

Source: State Street Investment Analytics
Performance/Limiting Losses

Protecting Against Equity Market Downside

Outperforming Benchmark During Down Periods

Source: State Street Investment Analytics
Performance

Importance of Building an Uncorrelated and Diversified Portfolio

Asset classes are ranked based on annual return less US headline inflation in US dollars. Green returns beat inflation, red returns trailed inflation.

<table>
<thead>
<tr>
<th>Year</th>
<th>10-Yr. US Tsy</th>
<th>MSCI EM</th>
<th>REITs</th>
<th>10-Yr. US Tsy</th>
<th>MSCI China</th>
<th>Russell 2000</th>
<th>REITs</th>
<th>MSCI Japan</th>
<th>Commodities</th>
<th>MSCI China</th>
<th>Two-Yr. US Tsy</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>MSCI China</td>
<td>Russell 2000</td>
<td>Inflation Bonds</td>
<td>MSCI Europe</td>
<td>S&amp;P 500</td>
<td>REITs</td>
<td>MSCI Japan</td>
<td>Commodities</td>
<td>MSCI China</td>
<td>Two-Yr. US Tsy</td>
<td></td>
</tr>
</tbody>
</table>
The Importance of Limiting Losses


ARS’ priority on downside protection in market pullbacks.

Based on monthly returns over the past 15 years through July 2019.

Source: JP Morgan
ARS’ diversification remains balanced across strategies.

Performance in Q4 was closely correlated to the level of Beta each strategy has to equity markets.

Strategies that tend to be uncorrelated to equity (FI RV, Macro) did protect reasonably well.
ARS’ diversification remains balanced across strategies.

Source: Boomerang Capital, Credit Suisse Hedge Indices
Portfolio Exposures

ARS’ taking advantage of synergies and investing in multiple vehicles offered by the same manager.
Co-investments have been consistently utilized by Investors who allocate large amounts of capital to Hedge Funds.
Portfolio Management Initiatives
Becoming a Strategic Partner

- More Expensive

Direct Investor
- Asset Managers
- Sophisticated Institutions

Strategic Capital
- Sophisticated Institutions
- Separate Accounts, Co-Invest, etc.

Direct Fund
- Sophisticated Institutions
- Resourced Institutions

Fund of Funds
- Resourced Institutions
- Resource Constrained Institutions

More Specialized Expertise
### Broad Sources of Risk

**Asset Class Examples**

<table>
<thead>
<tr>
<th>Primary Sources of Risk and Return (Risk Premia)</th>
<th>Gov’t Bonds</th>
<th>Core Fixed Income</th>
<th>Equity</th>
<th>Real Assets</th>
<th>Private Equity</th>
<th>Non – Core Fixed Income</th>
<th>Absolute Return Strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional</td>
<td>Interest rates</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Credit</td>
<td></td>
<td>x</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Equity</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Real Assets</td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>Alternative</td>
<td>Liquidity</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Direct Engagement</td>
<td></td>
<td>x</td>
<td>x</td>
<td>x</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Optionality</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td></td>
<td>Complexity</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
</tbody>
</table>

ARS team is looking across a multitude of investment strategies to build out the portfolio.

Source: RVK
Portfolio Line Items and Volatility

ARS portfolio is diversified, yet maintains adequate levels of risk.

Source: Aksia, data as of May 31, 2018
Section III

MARKET REVIEW: ABSOLUTE RETURN
Many investors define the economic cycle by reference to the two pillars of the macroeconomic environment: GDP and Inflation.
Where are we now?

Unfortunately the underlying market doesn’t provide us with a nicely shaped curve to tell us where we are in the cycle. Participants must look to a number of indicators to try and gauge overall conditions.

The Output Gap is a measure of how far the economy is away from a theoretical full capacity. It has recently moved above zero which usually signals we have moved into an economic stage that contains inflationary pressures.

Inflation is one of the items closely monitored by the Fed, they aim to keep inflation under control by raising the cost of credit to the system whilst not taking away from growth.
The building blocks of the TMRS Absolute Return portfolio are less susceptible to the economic cycle and will overall benefit from aspects such as rising short term rates. Managers will also look forward to an increase in the baseline volatility of financial markets as aspects of QE continue to roll back.
Activists and Long Short Equity strategies have led the way, benefiting from the sharp upward move in global equity markets YTD. However, there is significant dispersion in performance across regions, as US L/S managers have done much better than their Asian and Japanese L/S counterparts.

Trend following CTAs have reversed recent years’ underperformance, largely on the basis of directional long bond positioning. Net long positioning in US Fixed Income has been at 4-year highs, allowing CTAs to capture the sharp reduction in yields (increased prices) in bonds. Global Macro performance has been quite diverse—some outperformers were able to benefit from the bond rally, while others have maintained more RV positioning.

Quant Equity Market Neutral and Stat Arb strategies have continued to struggle in this market environment, generating lacklustre returns.
Equity beta has been very strong YTD, with Vol Carry and Carry generating more muted positive performance. Within equity premia, value has been particularly hurt carrying on what has been a multi year trend with equity performance mainly driven by growth and momentum characteristics.

Sharp rate declines have seen very strong performance in fixed income beta and trend but value, which relies on reversion to fundamental values, has performed poorly.

Credit beta is sharply higher with other premia mostly flat.

With the exception of carry, Commodity strategies are negative YTD. All FX premia are positive YTD, led by Vol Carry.
Outlook for Hedge Fund Strategies

- The broad Event Super Strategy encompasses several categories: Risk Arbitrage has reduced expectations, as spreads are tighter than they have been in years & the investible universe is narrow. Emerging Market Fixed Income has enjoyed a positive rally from the lows of 4Q 2018, fueled by the Fed’s dovish stance. In Distressed, many of the entry points created during 4Q 2018 were realized in early 2019. Valuations of distressed assets are currently fair, though not “cheap”.

- For Relative Value Credit managers, valuations have worsened since last quarter, with the high yield universe trading at slightly lower yields. Within Stat Arb, indicators for crowding are edging up, which in turn increases the unwind risk. Alpha opportunities for Structured Credit RV managers tend to exist in seasoned post-crisis issues. Opportunities in the Convertible Bond Arbitrage space have emerged in the technology, financials, and healthcare sectors, resulting from recent price dislocations. There has been a significant rotation from Europe into the US in the Fixed Income Arbitrage strategy.

- The outlook for Long/Short managers is intrinsically linked to the macroeconomic uncertainty associated with the US–China trade war. Asian markets (notably Japan) appear to have priced in much of this uncertainty, as is evident in their comparatively cheap valuations.

- The shift from a hawkish to a dovish policy stance could moderate volatility in rates and FX markets; however, increased rate of change in market outlook among both policy makers and market participants has created tradable opportunities for Macro/CTAs.
2018 to 1H 2019 – Snapshot Review

1Q – 3Q: Relatively Low Volatility

Feb-18: Sharpe reversal in risk assets flow through into some trend and quant factors

Tech Stocks: Privacy rights and growth concerns hit tech stocks, Facebook down - 18%


Crowdedness & Deleveraging: The last week of October sees significant deleveraging in Equities.

4Q: High Vol

Rates: US rates were on an upward trend for much of 2018 with a flattening curve before a rally in bonds and some steepening in Oct.

Credit in Nov, Dec-18: Having been relatively unscathed in Oct, Credit spreads move sharply wider in Nov, and Dec.

Fed Policy Reversal

Equity Jan – Jul 19: Dramatic reversal in Fed Policy results in large relief rally but re-emergence of trade fears has lead to a pull back

Tech stocks: Growth significantly underperforms value in October as Tech stocks are heavily sold.

Alternative Factors Aug 19: Hedge Fund factors have performed positively in recent market sell off

Tech Stocks: Growth significantly underperforms value in October as Tech stocks are heavily sold.

Source: Bloomberg; Albourne DyBeRS Indices. https://village-eu.albourne.com/castle/dybers
Section IV

CONCLUSIONS
Conclusions

• In the past three and a half years, TMRS Staff has focused on the implementation and execution of the strategic decision to build out a Direct Absolute Return Program.

• Despite some challenges, the Direct Portfolio is achieving return objectives, as illustrated in the IPS, both from a relative and absolute perspective.

• The Portfolio is constructed to seek attractive risk-adjusted returns over the long-term while providing performance that has low correlation to traditional asset classes.

• Global markets tend to be cyclical and diverse, with bouts of volatility disruptions. This poses both opportunities and risks for ARS’ overall investment portfolio and prospects going forward.
DISCLOSURES

TMRS periodically discloses public information that is not excepted from disclosure under Section 552.0225(b) of the Texas Public Information Act. Information provided by a manager, a Managing General Partner (GP), any of its Associates or other data provider to TMRS or a TMRS service provider, and contained in these materials (i) may have been independently produced or modified by TMRS or the TMRS service provider; (ii) has not been reviewed or approved by the manager, Managing GP or any of its Associates; and (iii) may not reflect the historical performance or asset value reflected in the manager’s, Managing GP’s or any of its Associates’ records and, therefore, should not be used for comparative purposes.