

ASRS Investment Initiatives

for implementation in 2019 and 2020 fiscal years

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Arizona State Retirement System

January 2019

Outline

- 1 Accomplishments from 2018
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- 2 Asset Classes
 - Equities
 - Interest Rate Sensitive and Credit
 - Real Estate
- 3 Liquidity and tactical flexibility
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- 4 Risk management
 - Position knowledge
 - Risk framework
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 - Availability, Integrity and Confidentiality

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Overall

- Completed new strategic asset allocation
- Began implementation plan process making explicit risk/return targets for asset classes and (when complete) total fund
- Commenced efforts to implement fund level leverage through repo facility and reconfigured equitization program consistent with new SAA
- Completed first direct investment in an operating company (MCR)
 - Hired Fried Frank and Evercore enhancing skills to participate in future direct investments
- Continued efforts to reduce fees and increase control through direct and separate account investments
 - Control features include improved liquidity, targeted investment criteria and shadow underwriting rights
- Renegotiated terms and service model with custody bank and began transition to “EAOS” model

Credit and Interest Rate Sensitive

- Continued build out of private debt program
- Completed first implementation plan for credit
- Completed first implementation plan for interest rate sensitive

Equities

- Completed implementation of factors program
- Terminated all remaining active managers
- Designed and researched alpha overlay strategy
- Completed first implementation plan
- Converted Bridgewater to S&P500 overlay and renegotiated terms

Real Estate

- Completed first direct investment in operating company
- Continued buildout of separate account program
- Planned for management continuity

Performance and attribution

- Switched to SS as performance book of record
- Implemented “top down” instead of “bottom up” return calculation method
- Implemented new composites for new SAA (including restatement of history)
- Implemented “dollar value add” approach to attribution
 - allows integration of irr based and twr based returns in same attribution
 - increases clarity of communication of relative importance of return variances

Data and security

- Commenced use of Github to provide secure storage and version control for computer code
- Hired outsource consultant to commence transition of investment data storage from “flat file” to SQL database
- Collaborate with TSD consultant for planning on cloud transition for enhanced continuous operation capability

Outcomes

- Through 9/30, returns of 8.8% exceeded the benchmark by 1.8% placing ASRS in the top decile among public funds

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Finish Alpha Overlay

- The implementation plan preliminarily defined 4 additional components of the alpha overlay
- Need to complete diligence for presentation to asset class committee
- If approved, proceed to implementation

Event Studies

- The implementation plan identified a series of potential strategies for further enhancement of internal portfolio returns
- These strategies need to be explored and validated through backtest event studies
- Do not currently have the capability to perform this work within the equity team
 - Need to enhance skills or find consultant to assist in the work

Private Equity Investment Initiatives

- Consider tighter criteria for new investments on more focused approach
- May result in more concentrated portfolios
- Consider overlay to neutralize undesired sector exposures

Currency

- Consider overlay to neutralize portfolio to ACWI currency weights

Liquidity/Rebalance

- Consider optimal approach to portfolio implementation providing liquidity on the margin through derivatives to implement portfolio weights and repositioning
- e.g. persistent short position in position in some futures might be accretive to returns and highly flexible to achieve rapid rebalance when desired
- Need to thoroughly examine across all markets

Beta market review

- Study index and enhanced index market
- Goal is to confirm internal approaches are encompassing best ideas and offer best value

Private equity tracking

- Implementing a tracking system to monitor sector, currency geography exposures in the private equity portfolio

Sec Lending optimization

- review sec lending to identify areas for improvement
- potential expansion and coordination of sec lending with liquidity initiatives

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Liquidity Coordination

- portfolio structure and sec lending configuration coordination with liquidity initiatives

Credit

- Continue buildout of credit portfolio

Monitoring

- Implement a credit portfolio monitoring system tracking positions and loan quality
- Contract has been signed with Aksia

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Investments

- Continue build out of separate account portfolio
- Continue direct investments in asset managers when available
 - Related fund management under consideration
- Implement direct investment capability in single asset ventures and directly owned property

Liquidity

- Implement rollup of real estate interests to single entity
- Creates a counterparty for direct investments
- Creates liquidity path for capital markets in debt and equity markets
- Implement credit facilities to decouple capital requirements from other ASRS investments and implement a self sustaining model

Performance measurement

- Implement data enhancements to facilitate decomposition of returns by strategy “levers”
- Possible levers include:
 - Investment structure (direct, separate account, commingled)
 - Life cycle (construction, lease up, reposition, stable)
 - Property type (apartment, office, industrial, retail, other)\
 - Geography

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SAA framework

- SAA allows up to 5% leverage at total fund level
- May be implemented with borrowed money or synthetically with derivatives
- SAA allows up to 60% leverage for credit and real estate implemented inside those portfolios (with look through to position level leverage)

Fund Level Leverage

- Investigating repo markets for short term cash borrowing
- Exploring linkage to sec lending, although finding institutional resistance because traditionally managed in different parts of banks
- Leverage can also be implemented with futures, total return swaps, etc

Asset Class leverage

- For real estate, can implement leverage at roll up portfolio level
- Decouples capital requirements of the portfolio from total fund and makes it independent
- Will explore for credit after proof of concept with real estate

Optimization of Holding Structure

- Positions can be implemented in cash and derivative markets
- Every method has an implied cost of funding
- Optimization considers the implied cost of funding in structuring portfolios
- For example, could elect to be long R2K and short SP500 futures offset with positions in cash markets as a means of enhancing returns

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Credit and Real Estate

- Already have out-source providers in place to provide this information
- RCLCO provides this information for real estate
- Hired Aksia to develop a similar system for credit

Private equity

- Plan to evaluate vendors to monitor the private equity portfolio to decompose positions

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Barra implementation

- Barra has never been fully implemented outside liquid securities
- Private holdings are represented in Barra as liquid proxies without regard to sector, strategy or geography
- Need to develop a capability (presumably outsources) to convert private market position for consumption in the Barra system

Barra evaluation

- Once we have the data is entered, evaluate system capabilities to determine utility
- Review competing to determine if something is better suited to our needs

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EAOS, Middle Office, QC

- Complete implementation of middle office functions with State Street
- Complete implementation of quality control framework
 - State street database of daily positions at account level is reconciled to composites in ASRS database
 - return calculations are replicated and validated top down and bottom up in ASRS database and compared to State
 - decomposition of returns (by levers) reconciles in dollar value space to relevant composite
 - Code for foregoing steps already written and fully automated
 - Once integrity of data established through these checks, hand off to NEPC for their review and confirmation

Performance Analytics

- Complete “lever” style analysis for all portfolios and total fund
- Complete implementation this analysis on best available daily data

SQL database

- Complete transition to SQL database for performance and accountn level holdings data
- Implement a query system in to the database
 - Select account or composite with benchmark or comparison
 - Select data range
 - Select analytical method or comparative analysis (TWR, IRR, PME or DVA)
 - Ability to define on the fly custom composites
 - Ability to grab live index data from BBG if not in policy benchmarks

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Availability

- Working with TSD on cloud implementation to transition “P drive” to cloud
- Already moved code to Github for version control and cloud storage
- Working with vendors to eliminate non-cloud software components in ASRS network architecture (issue for Barra and maybe BBG)
- Considering full virtualization of work stations
- Need mobile solutions for traveling personnel needing connectivity using personal devices

Integrity

- See quality control steps in section 5
- Implementation of these steps together with SQL implementation provides high level of confidence for data integrity
- Use of github provides version control
- Need to consider implementation of a virtual server environment for access to application code
 - Rstudio connect is a viable product but pipelines to BBG don't exist

Confidentiality

- Working to isolate IMD systems from rest of ASRS in order to implement bespoke information security
- Focus is on M&A information around direct investments
 - investigate industry practice for this type data for possible implementation by ASRS