



GLOBAL SOVEREIGN ADVISORS

Report on investments by independent investment consultant

February 1, 2020

New York, N.Y.

Houston Firefighters' Relief and Retirement Fund
Report on Investments, Compliance, Asset Allocation, Portfolio Structure,
Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

INTRODUCTION

On May 25th, 2017 the 85th Texas Legislature passed Senate Bill 2190 which became effective July 1st, 2017 and amended the Houston Firefighters' Relief and Retirement Fund's ("HFRRF" or the "Fund") governing statute found in Texas Civil Statutes §6243e.2(1). SB 2190 added §2B to HFRRF's governing statute requiring HFRRF's board to hire an independent investment consultant to conduct a review of the Fund's investments at least once every three years.

In September of 2019 HFRRF engaged Global Sovereign Advisors ("GSA") as an independent investment consultant under §2B to review and report on:

- (a) the Fund's compliance with its investment policy statement, ethics policies, including policies concerning the acceptance of gifts, and policies concerning insider trading;
- (b) the Fund's asset allocation, including a review and discussion of the various risks, objectives, and expected future cash flows;
- (c) the Fund's portfolio structure, including the Fund's need for liquidity, cash income, real return, and inflation protection and the active, passive, or index approach for different portions of the portfolio;
- (d) investment manager performance reviews and an evaluation of the processes used to retain and evaluate managers;
- (e) benchmarks used for each asset class and individual manager;
- (f) an evaluation of fees and trading costs;
- (g) an evaluation of any leverage, foreign exchange, or other hedging transaction, and;
- (h) an evaluation of investment-related disclosures in the Fund's annual reports.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

DISCLAIMER

- 1) GSA has reviewed the documentation provided to us by the Houston Firefighters' Relief and Retirement Fund for its fiscal year 2018, together with Annual Reports for fiscal years 2017, 2016 and 2015. In accordance with the agreement dated 26 September 2019. GSA was tasked with evaluating the procedures and mechanisms described in the said documents pursuant to section 2B of Tex. Rev. Civ. Ann. Article 6243e.2(1) and Tex. Gov't Code 802.109. Our analysis and commentary are based solely on the documentation provided by HFRRF which is responsible for the legitimacy, accuracy and authenticity of the materials reviewed.
- 2) Our analysis follows the order set forth in the Scope of Services.
- 3) The independent auditor McConnell & Jones, LLP gave the HFRRF a clean opinion as of 30 June 2018 and GSA has relied on this opinion. In addition, we reviewed the assumptions in the 2016 ALM study conducted by Buck Consultants, Inc.
- 4) GSA received full cooperation from the Chief Investment Officer, the Investment Compliance Officer, the Chairman of the Investment Committee and the Bank of New York Mellon, the Fund's custodian bank. We would like to thank them for their clear answers to the hundreds of questions posed during the course of this review.
- 5) The analysis contained herein satisfies GSA's obligations under its engagement with HFRRF to provide an independent investment consultant's report under §2B.
- 6) Prior to the engagement for this report and its analysis GSA did not have an existing relationship with HFRRF and does not directly or indirectly manage its investments.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT A

The Fund's compliance with its investment policy statement, ethics policies, including policies concerning the acceptance of gifts, and policies concerning insider trading.

- 1) The Fund has a dedicated Investment Compliance Officer who ensures that all relevant policies are complied with, including regular vetting of the asset allocation. The fund provided clear documentation regarding current investments, including the full agenda for the 19 November 2019 Investment Committee Meeting of the whole Board of Trustees. The documentation described monthly investment actions and private equity and/or real estate commitments taken since the previous monthly meeting. Clear charts showing the relative risk/return characteristics of the Fund were provided to the Investment Committee and the agenda included an opportunity to hear comments from the public. The monthly Investment Committee meeting is somewhat more frequent than other funds, affording enhanced oversight and dialogue among the participants. The inclusion of time during the meeting to receive comments from the general public broadens the communications, transparency and oversight of the Fund.
- 2) The Investment Compliance Officer provided to GSA a spreadsheet detailing 34 separate items monitored periodically. Compliance oversight included monthly reports to the Investment Committee covering the following topics:
 - i. Asset Allocation
 - ii. Investment Actions Taken
 - iii. Managers at a Glance summaries
 - iv. Tactical Asset Allocation Ranges
 - v. Rebalancing activities, if any, together with approvals
 - vi. Investment agreements – legal reviews/signature checks
 - vii. Certification that all actions duly reported to Investment Committee
- 3) The breadth, frequency and detail of the reports was deemed to be in keeping with industry best practices.
- 4) To demonstrate the Fund's thorough oversight, The Director of Finance & Administration provided an example where the Fund's credit card policy was violated inadvertently. We have reviewed the incident and observed that the Fund's policies were complied with. The incident was reported to the full Board and adequate actions were taken to rectify the incident to ensure full compliance with the policy.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT B

The Fund's asset allocation, including a review and discussion of the various risks, objectives and expected future cash flows.

- 1) The Investment Compliance Officer monitors the Fund's asset allocation periodically to ensure that it remains in conformity with the Investment Policy Statement (IPS). The custodian bank, BNY Mellon, produces automated reports daily, weekly and monthly to facilitate tracking of asset allocation and performance. The custodian provides a more limited monitoring of the Fund's compliance with the IPS. Every month, the Investment Committee receives an Investment Actions and Asset Allocation chart, for discussion and review. From our discussions with the Investment Compliance Officer, custodian, and Chief Investment Officer, we believe the asset allocation is given close attention. As for the ethics policies, including policies concerning insider trading, the policies appear to be appropriate and consistent with best practices.
- 2) Insurance coverage from the custodian bank covers securities and documents of value while in transit or on the premises of the bank. Assets held in private equity or real estate funds would therefore need separate coverage, usually managed by the general partners.
- 3) The CIO monitors the Fund's asset allocation daily against the custodian generated daily report, paying particularly close attention to asset allocation ranges and cash balances. The CIO can initiate asset rebalancing at any time, with the approval from the Chair as detailed in the IPS. Any portfolio rebalancing action is then reported in the Investment Actions Taken Report to the Investment Committee in the next monthly meeting.
- 4) The Fund has a detailed process to project future cash flows and the CIO is actively engaged in making sure cash is replenished in time. In addition, for Private Investments, the Fund periodically conducts a pacing study to ensure future cash flow needs (capital calls and distributions) including in stressed scenarios are quantified.
- 5) Long term risks and the Fund's risk appetite are reflected in IPS and the policy benchmark selection. The Fund reevaluates long term risks and risk appetite by conducting ALM studies periodically. Short term risks are managed by Tactical Asset Allocation within the risk tolerance, which is again reflected in IPS by tactical ranges and the risk budget.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT C

The Fund's portfolio structure, including the fund's need for liquidity, cash income, real return, and inflation protection and the active, passive or index approach for different portions of the portfolio.

- 1) HFRRF employs a prudent mix of investment approaches, with publicly traded stocks either in low cost index funds or in commingled funds with respected fund managers. Market returns are quite variable, and the overall return of the Fund has varied considerably over the years, as reproduced in the following table as of June 30, 2019

LONG-TERM RATES OF RETURN PRB-1000

Annualized Rolling Rate of Return Information

Please check the appropriate box for the methodology used to calculate the rates of return requested in the following section:

Arithmetic Mean Geometric Mean (Time-Weighted Return) Internal Rate of Return

Most Recent	1-Year Period	3-Year Period	10-Year Period	30-Year or Since Inception Period
Rolling Gross	5.66%	8.62%	9.35%	10.16%
Rolling Net	5.57%	8.51%	9.13%	

*If the system's inception date is less than 30 years from the report date, please enter the inception date:

Date of Inception (MM/DD/YYYY)	6/30/1937
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Actual Rate of Return

(Most Recent 10 Fiscal Years)

Fiscal Year End (MM/DD/YYYY)	Net Return (Percent)	Gross Return (Percent)
6/30/2010	16.98%	17.30%
6/30/2011	20.29%	20.60%
6/30/2012	1.89%	2.13%
6/30/2013	11.24%	11.51%
6/30/2014	17.53%	17.82%
6/30/2015	1.29%	1.53%
6/30/2016	-1.23%	-1.01%
6/30/2017	11.88%	12.0%
6/30/2018	8.17%	8.27%
6/30/2019	5.57%	5.66%

- 2) The structure of the portfolio exemplifies industry best practice. HFRRF deploys a variety of investment strategies ranging from active to passive depending upon the investment's place along

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

the market efficiency spectrum. At the more efficient end of the spectrum, active, liquid and efficient markets are invested in indexes where excess returns are more dependent upon asset allocation rather than upon individual stock selection. For investments in less efficient and less liquid markets (such as Emerging Markets, or Asia) the fund deploys specialized, active managers to exploit market inefficiencies. HFRRF also utilizes factor-based strategies which are excellent additional tools for active portfolio management. In the case of private markets, which are the least liquid and most inefficient markets, all investments are active, making returns highly dependent upon a manager's skill.

- 3) Note also that the Fund has an overdraft protection arrangement with the custodian bank, which has occasionally been tapped. We were advised that such cases were rare, for example when trade settlements or the timeline for instruction letters were timed too closely. Because of the satisfactory operations of the Fund over the past three years, BNY Mellon has waived overdraft charges.
- 4) Real returns are defined as nominal returns minus inflation. The mandated target return for the Fund is expressed in nominal terms. The Fund is well hedged against inflation over the long term due to its investments in growth assets globally. July 2008 MSCI research bulletin addresses the inflation hedging properties of growth assets. The theory is simple: a company's revenues and earnings would also rise with inflation over the course of time. For example, US equities, as measured by the MSCI USA, have demonstrated an average annualized return of 7.6%, compared to the annualized inflation rate (CPI-U) of around 4% a year since 1970 as of 2007. From a long-term perspective, equities may therefore be considered an inflation hedge. However, the proposition does not always hold over shorter periods of time.
- 5) The audited financial statements of the Fund break down cash income clearly in terms of interest income, dividends, income from securities lending, earnings from private equity and real estate and other income.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT D

Investment manager performance reviews and an evaluation of the processes used to retain and evaluate managers.

- 1) The Fund carefully vets managers and, on a quarterly basis, provides the Investment Committee with a report detailing each manager's investment performance and cash flow activity, including fees and expenses. Additionally, the Fund provides a report from the Trust Universe Comparisons Service, as prepared independently by Wilshire. This is in keeping with industry best practices.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT E

Benchmarks used for each asset class and individual manager.

- 1) Industry standard benchmarks are used where appropriate to gauge the performance of investment managers. The benchmark data are licensed and maintained by the independent custodian that also produces the performance reports. In certain cases, a blend of multiple benchmarks is used by the custodian to gauge the performance of a fund. For example, the KKR GCOF fund is evaluated against a 50%/50% combination of two benchmarks, the S&P LSTA benchmark and the ICE BofAML HY benchmark. The 50/50 blend was requested by the investment manager, given the scope of its investment mandate for HFRRF. Every four, or five years, as an integral part of an independently conducted ALM studies, the benchmarks are re-evaluated and HFRRF management determines whether any changes are required.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT F

An evaluation of the fees and trading costs

- 1) Costs are carefully managed by HFRRF. As reported in the fiscal year 2015 - 2018 annual reports of the Houston Firefighters' Relief and Retirement Fund, there has been a significant reduction in the percentage of fees paid to outside fund managers and to the custodian bank. Between fiscal years 2015 and 2018, fees for the management of cash and cash equivalents dropped from 11.55 bps to 8.55 bps and fixed income management fees were reduced from 19.15 bps to 16.27 bps. Even more significant cost reductions were seen in equity fund management, with domestic equity management fees falling from 44.47 bps to 11.66 bps. The most significant cost reductions were observed in international equity management fees, which fell from 36.94 bps to 5.04 bps.
- 2) Management's success in negotiating such significant cost reductions will benefit the Fund regardless of market conditions and will strengthen HFRRF's negotiating position as a fair, yet cost-conscious investor. Cost savings were also noted in the arrangements with the Fund's custodian bank, where fees were reduced from 0.87 bps to 0.53 bps between fiscal years 2015 and 2018.
- 3) The management fees in fiscal year 2015 totaled 24.64 bps for a fund of USD 3.87 Billion. Management's actions over the following three years reduced the fees to 10.28 bps, or less than half, in fiscal year 2018. In fiscal year 2019 the management fee was further reduced to 9 bps for the fund with AUM of USD 4.23 Billion.
- 4) The Fund has achieved significant cost savings in brokerage fees and management fees over the past several years, by shifting most publicly traded equity investments into index funds or commingled funds with sophisticated large-scale investment firms such as Blackrock, Schrodgers, KKR and Mellon Capital.
- 5) To reduce the fees for private equity investments, HFRRF has made earlier and larger commitments to fewer managers, allowing the Fund to qualify for volume discounts. Moreover, the Fund selects managers who use more cost-effective fee structures, for example, charging based on a "European waterfall" where the carry fee is based on total fund performance, instead of the "American waterfall" where carry fees are charged for each individual deal in a fund.
- 6) Management of the fund emphasized that their strategy is to optimize management fees on a continuous basis, balancing risk, and performance with the nature of each investment. For example, HFRRF has made it a standard practice to include most-favored nation (MFN) provisions with each contract, to ensure that HFRRF pays no more than the lowest cost investors. Another example of their cost-consciousness, for private markets, there is a clear preference for funds which charge fees on invested capital, rather than on both balances awaiting investment (committed) and invested capital. Additional cost-saving efforts include, when appropriate, participation in select co-investment strategies where management fees may be discounted and negotiated fee discounts offered to early investors.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT G

An evaluation of any leverage, foreign exchange, or other hedging transaction

- 1) The Fund does not use any fund level leverage. Individual managers and hedge funds may use options or futures for risk management, which can be viewed as leverage. The Fund does not borrow money to make investments.
- 2) The Fund itself does not engage in hedging transactions, nor does it use FX overlays or FX hedges. A few of the Private Equity and Private Real Estate funds are denominated in Euro. Carry and management fees for such funds are charged in Euro. The accounting statements and performance reports for private investments that invest globally are presented in US dollars. The balance of private investments that invest globally are USD denominated, therefore carry and management fees for such funds are charged in USD.
- 3) The Fund has allocations to hedge funds and risk parity funds, which may engage in leverage, FX transactions and hedging transactions.

Houston Firefighters' Relief and Retirement Fund

Report on Investments, Compliance, Asset Allocation, Portfolio Structure, Performance Reviews, Benchmarks, Costs, Leverage and Disclosures

REQUIREMENT H

An evaluation of investment -related disclosures in the Fund's annual reports

- 1) The current practice of HFRRF is to verify that General Partners use independent valuation agents, follow IPEV guidelines and reconcile internal valuations with external independent valuations. Each General Partnership is audited by independent auditors. The Fund does have one small legacy direct investment in Interwood amounting to approximately 8 acres of land. This direct investment has been independently appraised. The Fund follows the industry best practice of conducting independent appraisals for the direct real estate investments.
- 2) Noting the material level of real estate funds and private equity investments, GSA would recommend an independent verification of asset values every two or three years rather than always accepting the valuations stated by the General Partners. These asset classes are necessary components of any long-term pension fund particularly during this prolonged period of artificially low interest rates. The recommendation to have an independent valuation of such assets should not be construed as a criticism of the Fund for holding such investments, because we believe such long-term assets to be essential components of a diversified long-term pension portfolio. *It should be noted that GSA has been recommending the independent valuation approach to other significant pension funds, but this is not yet a widely accepted practice.*
- 3) Recent tragic flooding in Houston and prior years' drought conditions in Texas underline recent messages from the former President of the Federal Reserve Bank of Dallas and the U.S. Federal Reserve about the potentially significant impact of climate change, epidemics or other "Black Swan" occurrences on portfolio performance. It is important to analyze the potential burdens to be shouldered by the front -line rescue personnel and the taxpayers of the city, who together support the funding of the HFRRF.
- 4) Based on the most recent ALM study, conducted in 2016, the funding level was adequate, if not generous, seven years into a bull market in equities. More recent strong results have brought the fund to the record balance of \$4,397,501,729.43 (excluding 4225 Interwood North Pky, building, furniture, fixtures and equipment) as of December 31, 2019. The 2016 ALM study applied reasonable forward earnings assumptions compared with many other U.S. pension plans. However, with interest rates continuing to approach the zero lower bound and the equity market rally showing signs of fatigue, GSA believes the 7% target rate of return to be ambitious, but achievable, based on the assumption that interest rates will remain lower for longer. There is broad industry consensus that forward expected returns in all asset classes will eventually be compressed. Accordingly, the fund's policy of conducting an ALM study every 4 to 5 years is consistent with the industry best practices to evaluate target returns and recommend appropriate asset allocations to achieve them.

Houston Firefighters' Relief and Retirement Fund
**Report on Investments, Compliance, Asset Allocation, Portfolio Structure,
Performance Reviews, Benchmarks, Costs, Leverage and Disclosures**

Summary and Conclusions

The procedures and documentation provided by HFRRF evidence a systematic approach to safeguarding and increasing the value of the portfolio. Costs that can be identified in advance have been carefully whittled down where possible, with a judicious use of indexes and custodial services. Higher fee arrangements are limited to classes of investments where more active management approaches can enhance returns. HFRRF practices diligent compliance functions, employs external professionals to conduct regular external audits and engages actuaries to perform periodic ALM studies consistent with industry best practices. Overall, the closely monitored portfolio, with allocations to a prudent blend of active and passive funds, provides adequate diversification for the long term.