PARAMETRIC

Memorandum

To:	Board of Trustees of the Oakland Police and Fire Retirement System
From:	Parametric Portfolio Associates
Date:	November 13, 2020
RE:	Parametric Research Affiliates Systematic Alternative Risk Premia Strategy ("SARP") Performance in 2020

The underperformance of SARP in 2020 was driven primarily by its poor performance in the first quarter of the year. SARP entered 2020 on a strong note, having delivered strong performance of 15.2% for the 2019 calendar year. Among other positions, its exposures to begin the year included net-long positions in energy commodities and equities. Unfortunately, the market events that subsequently unfolded in the first quarter of 2020 presented extremely challenging headwinds for the strategy, which finished Q1 with a -38.3% return. Two exogenous shocks – the worldwide coronavirus outbreak and the breakdown of OPEC negotiations between Saudi Arabia and Russia – contributed to one of the fastest bear markets in history. The S&P 500 Index fell 34% over the course of only 23 trading days and the CBOE VIX Index rose nearly 500%, from 14.4 on February 19th, the start of the sell-off, to 82.7 on March 16th, a record high. In the quarter, oil prices fell by nearly 67% and recorded the fastest drop on record. US Treasury yields fell to as low as 0.54% (10-year Treasury yield) on March 9th driven by a flight to quality and deleveraging, only to rise to 1.19% eight business days later. The speed and severity of the downturn in global markets impacted asset prices around the world and left few places to hide.

SARP's underperformance was influenced by two broad themes; the first was a loss of the diversification benefit of the 13 factor sleeves that make up our portfolio and historically had low cross-correlations to each other. Equity beta within many of these intuitively unrelated factors was elevated relative to long-term averages and when coupled with the timing and severity of the Q1 market shocks, led to higher-than-average downside performance during the extremely fast bear market environment. The second theme was the speed of the global sell-off, which was a particular challenge to SARP's lower turnover, monthly reconstitution process. SARP is designed to exploit longer-term factor risk premia, as we have not found empirical evidence that more frequent reconstitutions help deliver better risk-adjusted returns. Over the short-term, this means that SARP's process may suffer when markets experience sudden and sharp directional changes, such as those we saw in late February and March 2020.

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In 2019, Parametric and Research Affiliates had begun research projects to address "correction environments" which were known to be potentially challenging. After a vigorous and thorough research and due diligence review process, enhancements to the SARP model were approved by the investment committee in January 2020. These enhancements were designed to moderate asset class beta, including equity beta, and introduce a more dynamic approach to the trend sleeves to improve returns around market turning points. After approval by the investment committee, the process began to incorporate them into the strategy's quantitative algorithm code which unfortunately was not completed until mid-March, at which point the enhancements were implemented into the portfolio. Unfortunately, the model enhancements were incorporated after the market shocks and much of the strategy's underperformance had taken place.

In late March, the equity markets began a significant rally which caused the strategy to lag further due to the new model's lower equity beta position. The equity rebound continued through the second quarter, with the S&P 500 experiencing one of its largest rallies in its history and finishing with its best quarterly return since 1998 (+20.5). SARP returned -4.83% in Q2, with equities being the primary driver of the underperformance.