## AGENDA

## RETIREMENT BOARD MEETING

REGULAR MEETING
July 22, 2020, 9:00 a.m.

The Board of Retirement meeting will be accessible telephonically at +1 (408) 650-3123, access code 776-418-773 due to the Contra Costa County and State of California Coronavirus (COVID-19) Shelter In Place Orders, and as permitted by Executive Order N-29-20 issued on March 17, 2020.

Persons who wish to make public comment may submit their comment to publiccomment@cccera.org on the day of the meeting, either before or during the meeting. Public comments are limited to any item of interest to the public that is within the subject matter jurisdiction of the Board of Retirement. (Gov't Code Section 54954.3(a).) All comments submitted will be included in the record of the meeting. The comments will be read into the record at the meeting, subject to a three-minute time limit per comment.

THE RETIREMENT BOARD MAY DISCUSS AND TAKE ACTION ON THE FOLLOWING:

1. Pledge of Allegiance.

2. Roll Call.

3. Accept comments from the public.

4. Approve minutes from the June 24, 2020 meeting.

***CLOSED SESSION***

5. The Board will go in to closed session pursuant to Govt. Code Section 54956.9(d)(2) to confer with legal counsel regarding potential litigation (one case).

***OPEN SESSION***

6. Appoint audit committee members.

The Retirement Board will provide reasonable accommodations for persons with disabilities planning to attend Board meetings who contact the Retirement Office at least 24 hours before a meeting.

7. Review of report on Growth Sub-portfolio, including managers.

8. Presentation from Research Affiliates.

9. Consider and take possible action to adopt Board of Retirement Resolution No. 2020-2, Investment Asset Allocation Targets and Ranges.

10. Consider authorizing the attendance of Board:
    a. NASRA Annual Conference, August 3-12, 2020, Virtual Program.

11. Miscellaneous
    a. Staff Report
    b. Outside Professionals' Report
    c. Trustees' comments

Meeting Date
07/22/20
Agenda Item
#4

Contra Costa County Employees' Retirement Association

**MINUTES**

**RETIREMENT BOARD MEETING MINUTES**

REGULAR MEETING
June 24, 2020
9:00 a.m.

The Board of Retirement meeting will be accessible telephonically at (646) 749-3122, access code 774-966-077 due to the Contra Costa County and State of California Coronavirus (COVID-19) Shelter In Place Orders, and as permitted by Executive Order N-29-20 issued on March 17, 2020.

Present: Candace Andersen, Donald Finley, Scott Gordon, Jerry Holcombe, Louie Kroll, Jay Kwon, David MacDonald, John Phillips, William Pigeon, Mike Sloan, Todd Smithey and Russell Watts (by roll call)

Absent: None

Staff: Gail Strohl, Chief Executive Officer; Christina Dunn, Deputy Chief Executive Officer; Timothy Price, Chief Investment Officer; Karen Levy, General Counsel; Wrally Dutkiewicz, Compliance Officer; Anne Sommers, Administrative/HR Manager; Henry Gudino, Accounting Manager; Tim Hoppe, Retirement Services Manager; and Jasmine Lee, Member Services Manager

| Outside Professional Support: | Representing: |
|---|---|
| Andrew Paulden | Brown Armstrong |
| Brooke Baird | Brown Armstrong |
| Christopher Fikes | Segal |
| Sue Ziegler | Segal |

1. **Pledge of Allegiance**

   The Board, staff and audience joined in the *Pledge of Allegiance.*

2. **Accept comments from the public**

   No member of the public offered comment.

**3. Approval of minutes**

It was **M/S/C** to approve the minutes of the May 27, 2020 meeting. (Yes: Andersen, Gordon, Holcombe, Kroll, MacDonald, Phillips, Pigeon, Smithey and Watts)

**4. Presentations from Brown Armstrong on the audit of the December 31, 2019 financial statements** – Andrew Paulden and Brooke Baird

Paulden and Baird presented the audit of the December 31, 2019 financial statements and were pleased to report that there were no internal control weaknesses and they have issued an unmodified opinion, which is the highest opinion.

**5. Update on Pension Administration System Project**

a. Update from staff

Strohl discussed the pension administration system project.

b. Presentation from Segal - Christopher Fikes, Sue Ziegler

Fikes and Ziegler provided an update on the Pension Administration Project.

**6. Consider and take possible action to issue a Request for Proposal for a Pension Administration System vendor**

It was **M/S/C** to issue a Request for Proposal for a Pension Administration System vendor with the proviso that a draft RFP be made available to Board members who wish to see it prior to it being finalized and issued. (Yes: Andersen, Gordon, Holcombe, Kroll, MacDonald, Pigeon, Phillips, Smithey and Watts)

**7. Consider and take possible action to issue a Request for Proposal for Data Cleansing Services**

It was **M/S/C** to issue a Request for Proposal for Data Cleansing Services. (Yes: Andersen, Gordon, Holcombe, Kroll, MacDonald, Pigeon, Phillips, Smithey and Watts)

**8. Presentation of annual investment funding plan**

Price presented the 2020 Annual Investment Funding Plan.

**9. Miscellaneous**

(a) Staff Report –

Strohl reported the CCCERA office remains closed to members; the phone lines continue to be open on a limited basis; CCCERA continues to work on a plan to open the office back safely; the CAFR is included in this agenda packet and the PAFR, an abbreviated version of the CAFR, will also be mailed out to members and to the Board at the end of July.

Dunn reported the summer newsletter was mailed to all members; staff produced the second video for the website which provides information about CCCERA and the benefits provided; the June 25th Pre-Retirement Workshop was postponed.

(b) Outside Professionals' Report -

None

(c) Trustees' comments –

Kroll asked if there is a way the retiree groups can be have a presentation during the virtual workshop. Dunn stated that they are working on it.

Sloan reported he was thoroughly impressed with the CAFR and thanked Strohl and staff for doing an outstanding job on it.

Smithey reminded everyone there is an Audit Committee meeting following the meeting.

Pigeon reported he is applying for the Alternate Safety seat on the Board.

The Board discussed having video meetings in future.

It was **M/S/C** to adjourn the meeting. (Yes: Andersen, Gordon, Holcombe, Kroll, MacDonald, Phillips, Pigeon, Smithey and Watts)

| | |
|---|---|
| Todd Smithey, Chairman | David MacDonald, Secretary |

Meeting Date
07/22/20
Agenda Item
#7

Contra Costa County Employees' Retirement Association

**MEMORANDUM**

Date: July 22, 2020
To: CCCERA Board of Retirement
From: Timothy Price, Chief Investment Officer
Subject: Annual Review of Growth Sub-Portfolio

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**Overview**

Every year, I review each of the three functional sub-portfolios (liquidity, diversifying and growth) in detail with the Board. Today's review focuses on the Growth sub-portfolio. I will review the critical role of Growth in CCCERA's portfolio, composition of the program, performance of the allocation as well as the underlying constituents and finally review of recent changes to the allocation.

We will conclude with a discussion featuring Rob Arnott, Chairman of Research Affiliates. Research Affiliates is the sub-advisor for the PIMCO RAE Emerging Markets Fund in which CCCERA Invests. Value investing has underperformed growth for an extended period and suffered a greater decline in the first half of 2020 than growth-oriented strategies. Rob will share his assessment of why value investing has lagged and his outlook for how we should assess the prospects of value investing.

**PIMCO RAE**

PIMCO RAE Emerging Markets is a recent investment for CCCERA, funded in January 2017. Since the inception of the CCCERA investment through June 30, 2020, the strategy has returned -3.0% (net of fees, annualized) relative to 4.4% for the MSCI Emerging Market Index and -1.0% for the MSCI Emerging Market Value Index. The PIMCO RAE Emerging Market fund follows a quantitative strategy that emphasizes a value investing. This portfolio follows a fundamental indexing approach (ranking companies by metrics other than market capitalization), resulting in a diversified, low turnover portfolio. This portfolio tends to underperform in momentum driven markets.

*Meeting Date*
***07/22/20***
*Agenda Item*
***#7***

Contra Costa County Employees' Retirement Association

Timothy Price, CFA

Chief Investment Officer

# Growth Sub-portfolio Review

July 22, 2020

# CCCERA Growth Goals

- Capture global economic and earnings growth
- Adjust allocations based upon asset class valuations
- Remain invested long term to capture full opportunity set

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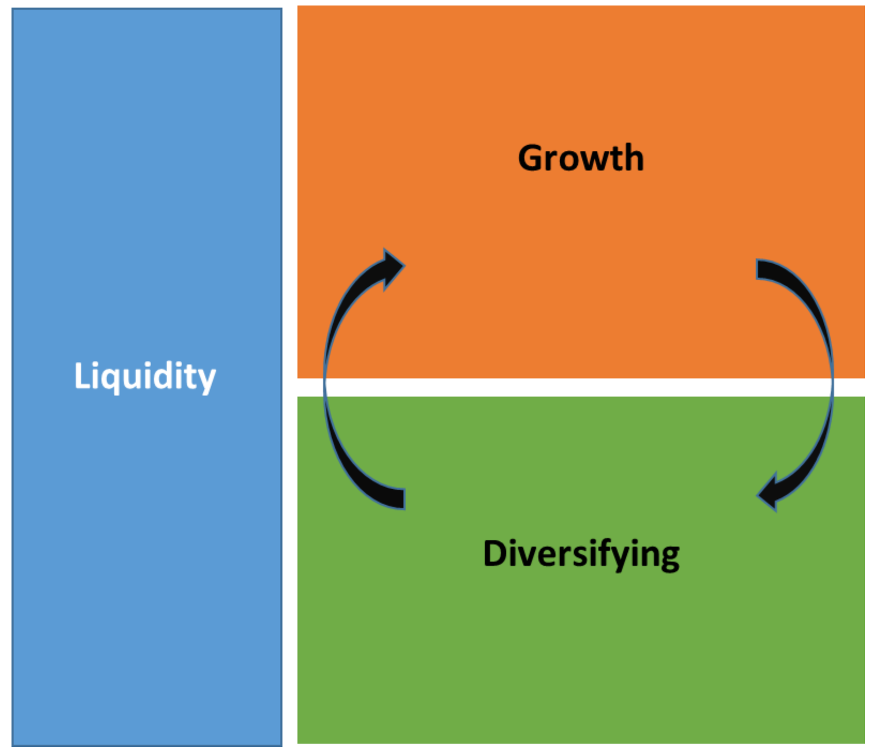
# Role of Growth in CCCERA Portfolio

- Provide truly long term capital appreciation

- Expected to be the dominant engine to fund **future** benefit payments



# Current Asset Allocation

| Asset Class | Allocation as of 5/31/20 | Current Target Allocation |
|---|---|---|
| Domestic Equity | 10.7% | 10% |
| International Equity | 10.3% | 10% |
| Global Equity | 10.1% | 8% |
| Emerging Markets Equity | 6.7% | 8% |
| Private Equity | 11.8% | 11% |
| Private Credit | 7.0% | 5% |
| Real Estate | 8.0% | 9% |
| Risk Parity | 4.9% | 5% |
| High Yield | 2.2% | 2% |

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# CCCERA Performance

## As of May 31, 2020 (net of fees)

| Asset Class | 1 Year | 3 Years | 5 Years | 10 Years |
|---|---|---|---|---|
| Growth | 4.1% | 5.5% | 6.0% | - |
| Domestic Equity | 6.4% | 7.5% | 7.3% | 12.3% |
| International Equity | -3.9% | 0.1% | 0.8% | 5.2% |
| Global Equity | 1.3% | 7.8% | 7.5% | 9.4% |
| Emerging Markets Equity | -15.2% | -3.4% | - | - |
| Private Equity | 7.8% | 8.5% | 9.0% | 10.3% |
| Private Credit | 10.4% | 6.9% | 8.2% | 11.5% |
| Real Estate | -0.4% | 6.5% | 7.0% | 10.9% |
| High Yield | 1.4% | 2.2% | 3.2% | 6.1% |

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# Public vs. Private Markets

- **Volatility:** While the public markets peaked, dropped and rebound, we have seen only moderate valuation adjustments in the private markets to date
- **Visibility:** We expect to start seeing write downs in private credit, private equity and private real estate filter in over the next two quarters
- **Follow Up:** While this presentation focuses on the public markets, we will have dedicated sessions on private credit and private equity later this year

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# Recap of 2020: S&P 500 Levels

- **Strong Start:** S&P peaked in mid-February, up nearly 5% on the year
- **Unprecedented decline:** In 23 days, S&P drops 34% from 3,386 to 2,237
- **Unprecedented recovery:** 11 weeks after the March 23rd trough, the S&P fully recovers to 2019 year-end levels with a 3,232 print on June 8th. This was a 43% increase off the lows
- **Volatility elevated:** VIX peaked at 89, now at 30, roughly double the 2019 average

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# S&P 500 Performance


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# Market Drivers

- **COVID-19.** Markets focused on case loads & deaths. S&P drops 7.6% on surge in deaths in Italy on 3/9
- **Monetary stimulus.** Fed zero interest rate policy (ZIRP), Reserve ratio
- **Fiscal stimulus.** Cares Act supports businesses and households
- **Increase in money supply.** 15% increase in US money supply
- **Fundamental data.** Jobs, PMI, capacity utilization, consumer spending
- **COVID-19 care.** Drug companies pursuit of improved testing/treatment and vaccine development

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# Recap of 2020 – Market Drivers

| Date | S&P | Change | News |
|---|---|---|---|
| 3/9/2020 | 2,746.6 | -7.6% | Trading halt, deaths in Italy soar |
| 3/13/2020 | 2,711.0 | 9.3% | Fed cuts policy rate to zero |
| 3/16/2020 | 2,386.1 | -12.0% | Bay Area shelter in place, US school closures |
| 3/24/2020 | 2,447.3 | 9.4% | Fed launches bond purchasing programs |
| 4/1/2020 | 2,470.5 | -4.4% | Oil hits $20/bbl on Russia/Saudi Feud |
| 4/6/2020 | 2,663.7 | 7.0% | Spain & Italy report fewest deaths in 2 weeks |
| 4/21/2020 | 2,736.6 | -3.1% | Oil hits $11/bbl |
| 6/5/2020 | 3,193.9 | 2.6% | Surprise jobs report: +2.5MM vs survey -7.5MM |
| 6/11/2020 | 3,002.1 | -5.9% | 20 states report COVID-19 case spikes |

Source: Bloomberg

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# Differentiated Market Outcomes - Performance

| Index | 12/31/2019 | Today | YTD |
|---|---|---|---|
| MSCI World | 2,358.47 | 2,264.29 | -4.0% |
| S&P 500 | 3,230.78 | 3,176.80 | -1.7% |
| S&P Value | 6,481.05 | 5,546.92 | -14.4% |
| S&P Growth | 5,000.85 | 5,584.03 | 11.7% |
| NASDAQ | 8,972.60 | 10,485.78 | 16.9% |
| Euro Stoxx | 3,745.15 | 3,323.18 | -11.3% |
| CSI 300 (China, Shanghai) | 28,189.75 | 25,975.66 | -7.9% |
| Hang Seng (China, Hong Kong) | 4,096.58 | 4,698.13 | 14.7% |

Source: Bloomberg

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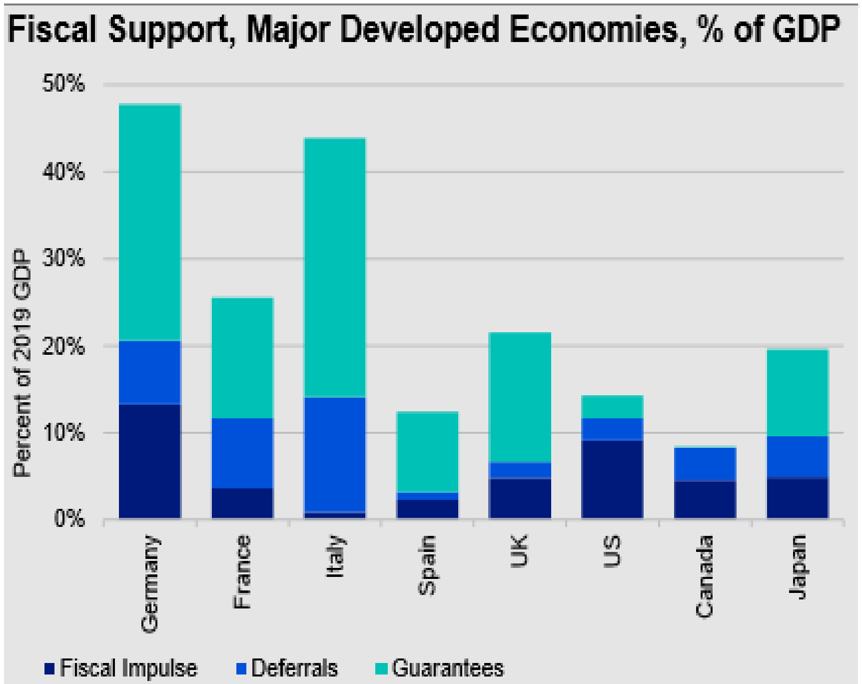
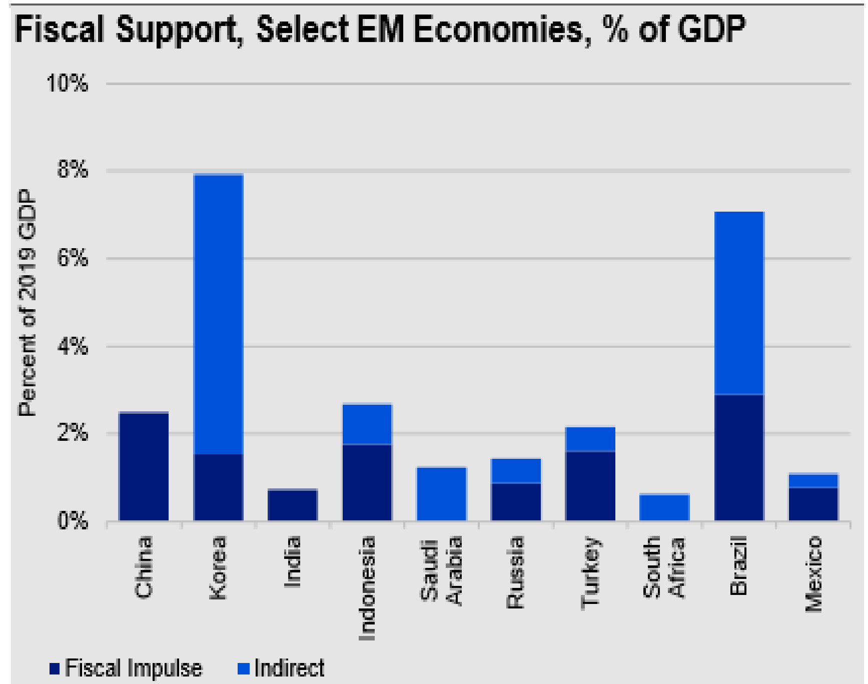
# Differentiated Market Outcomes - Drivers

- **Regional policy response.** Market performance impacted by differences in monetary/fiscal response
- **Regional stringency index.** Index reflects "stringency" of COVID-19 regulatory activity restrictions such as shelter-in-place and mandatory masks
- **Factors.** Growth vs. Value

# Differentiated Market Outcomes - Drivers

## Fiscal Stimulus Strong in Developed Economies, EM Lags

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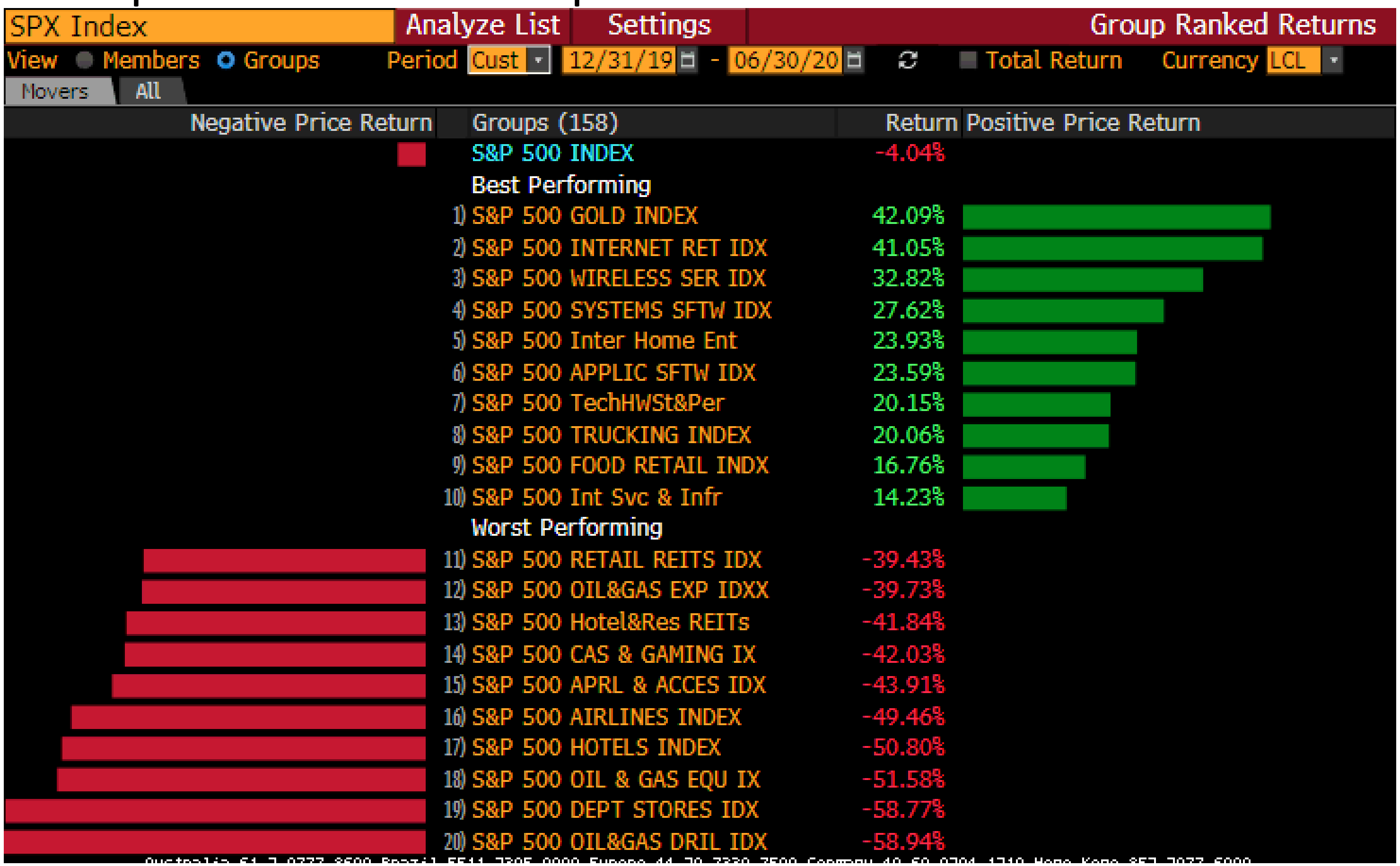
# Differentiated Market Outcomes - Drivers

Wide dispersion between capital- and labor-intensive industries

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# Monetary Policy Decouples Economy from Market

- **Weak economy.** 47.2 million Americans out of work
- **Relatively strong consumer.** Consumer spending rebounded in from -12.6% in April to +8.2% in May thanks to fiscal response
- **Market forward looking.** Investors looking for a 90% economic recovery by YE2021, full recovery by 2022
- **Substantial monetary action.** Lower rates and Quantitative Easing support markets indirectly and directly. In a downturn, increases in money supply fuel financial assets. Lower rates expand P/E multiples.

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# CCCERA Rebalancing

**Additions to Global Equities.** In April and again in May the Investment Office added $50MM each of two equity managers – Artisan Global and First Eagle. Performance detailed below.

| **Manager** ***($ in MMs)*** | **Action Date** | **Beg Bal** | **Addition** | **6/30/20** | **Return*** |
|---|---|---|---|---|---|
| MSCI ACWI | 4/13/2020 | | | | **13.2%** |
| Artisan | 4/13/2020 | 367.3 | 50.0 | 511.1 | 22.5% |
| First Eagle | 5/7/2020 | 342.7 | 50.0 | 414.0 | 5.4% |
| Total | 4/13/2020 | 754.8 | 100.0 | 925.1 | **22.6%** |

*Return from respective action date through 06/30/2020.

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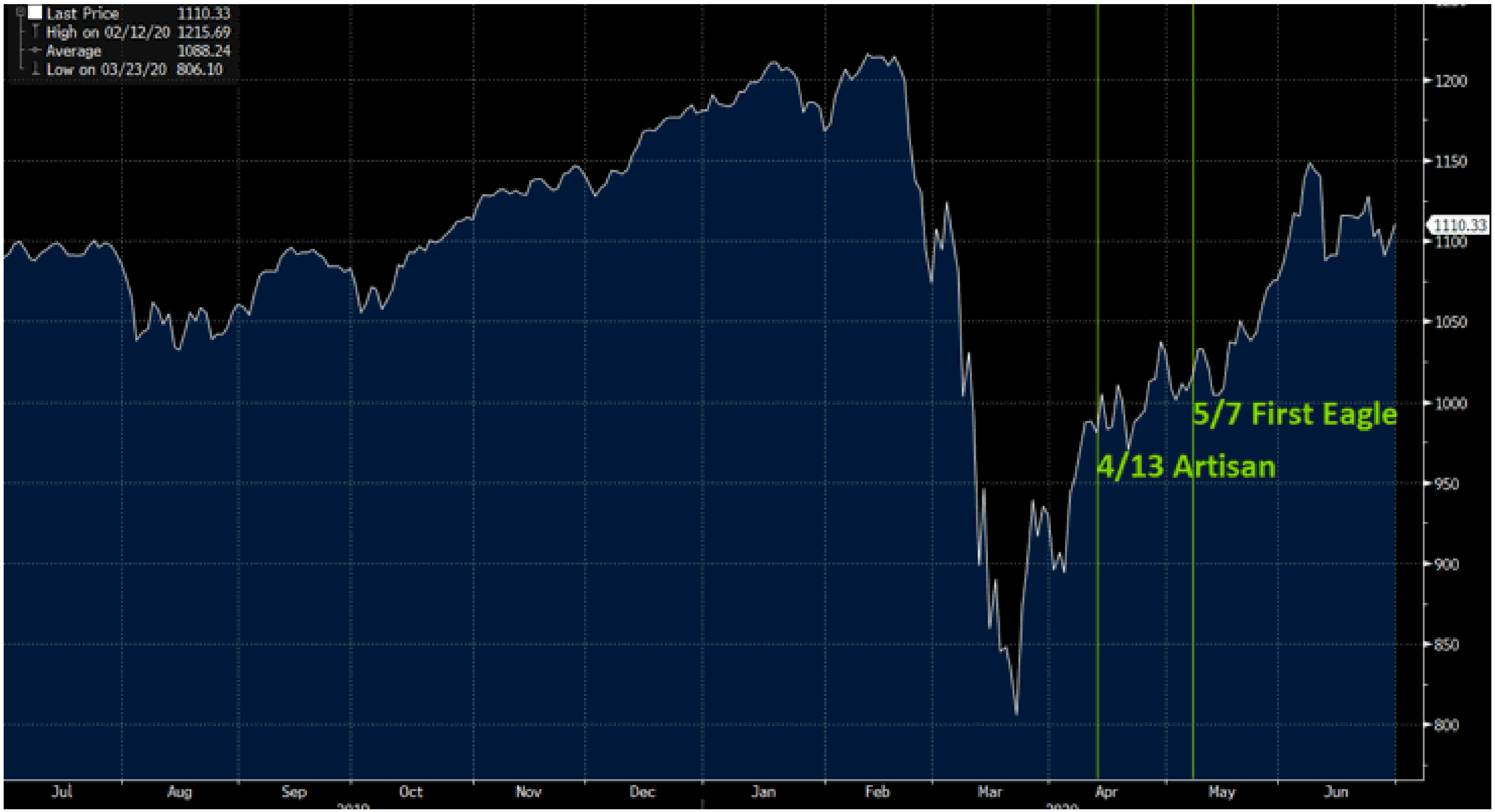
# MSCI ACWI – Global Equities

Vertical lines next to fund names indicate purchase dates



# Outlook

- **Fed committed to lower rates.** "we are not even thinking about thinking about raising rates" Negative real rates impact asset valuation
- **Disinflation.** Deflationary pressure typical of a downturn will prove a challenge for the Fed; thus, rates will be lower for longer
- **Financial repression.** Investors' reach for yield will increase risk seeking
- **Deglobalization.** Corporate winners and losers, potential for cost push inflation
- **Second wave.** Higher probability in the US given state-by-state approach
- **Political.** Uncertainty surrounding US Presidential election
- **Trade.** US China trade tensions persist

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# Zero Interest Rate Policy (ZIRP)


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# ZIRP: Negative Real Interest Rates

- Real Rates are Negative due to ZIRP
  - Recall Treasury Rates less Inflation = Real Rates
- Assets are discounted by rates, rates are a primary driver of equity multiples
- As rates decline multiples and asset prices increase
- Low rates exacerbate “yield scarcity”
- The current yield curve and rates environment increases prices of all assets and in turn reduces future returns

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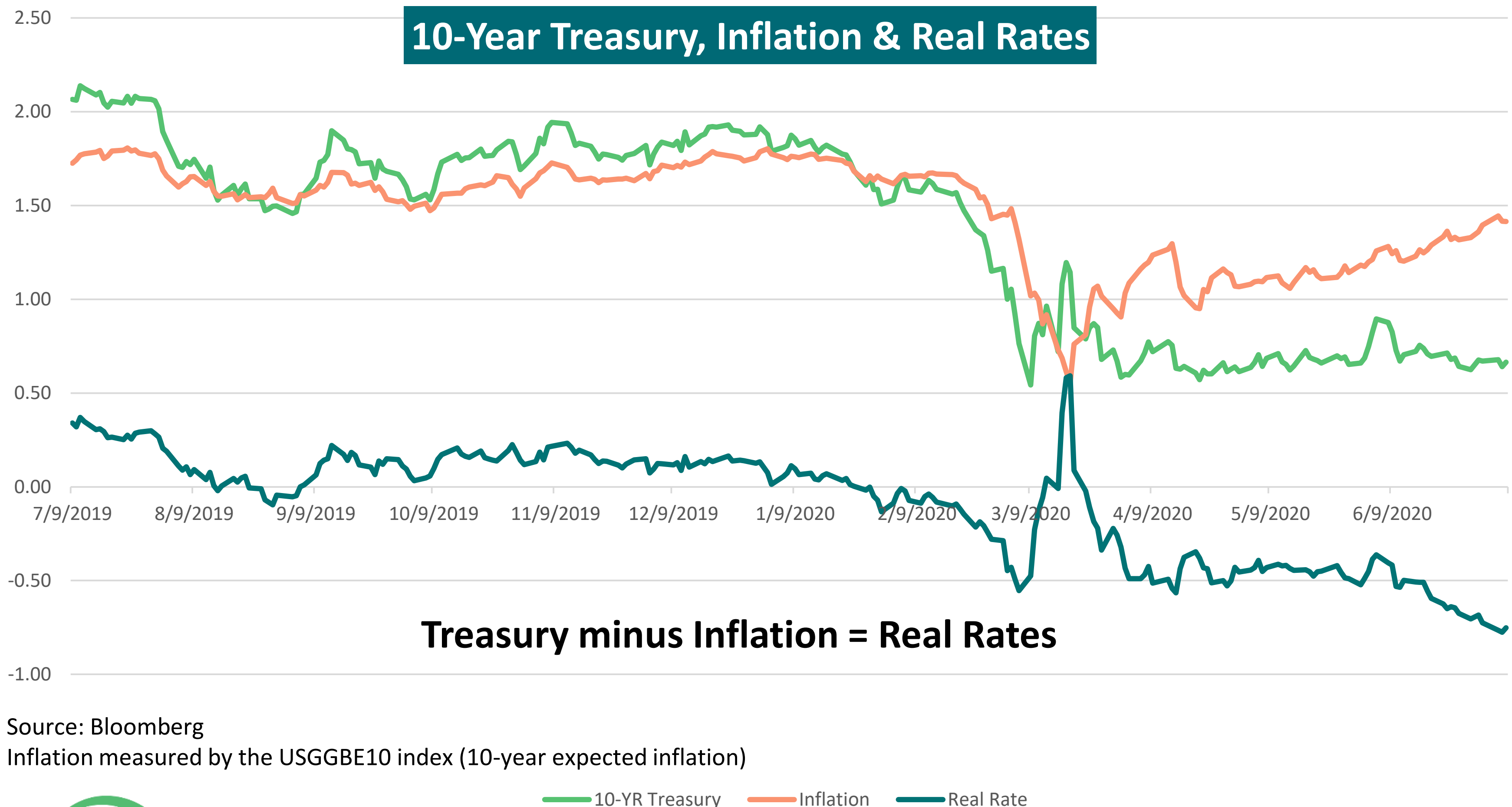
# ZIRP: Negative Real Interest Rates




Source: Bloomberg
Inflation measured by the USGGBE10 index (10-year expected inflation)

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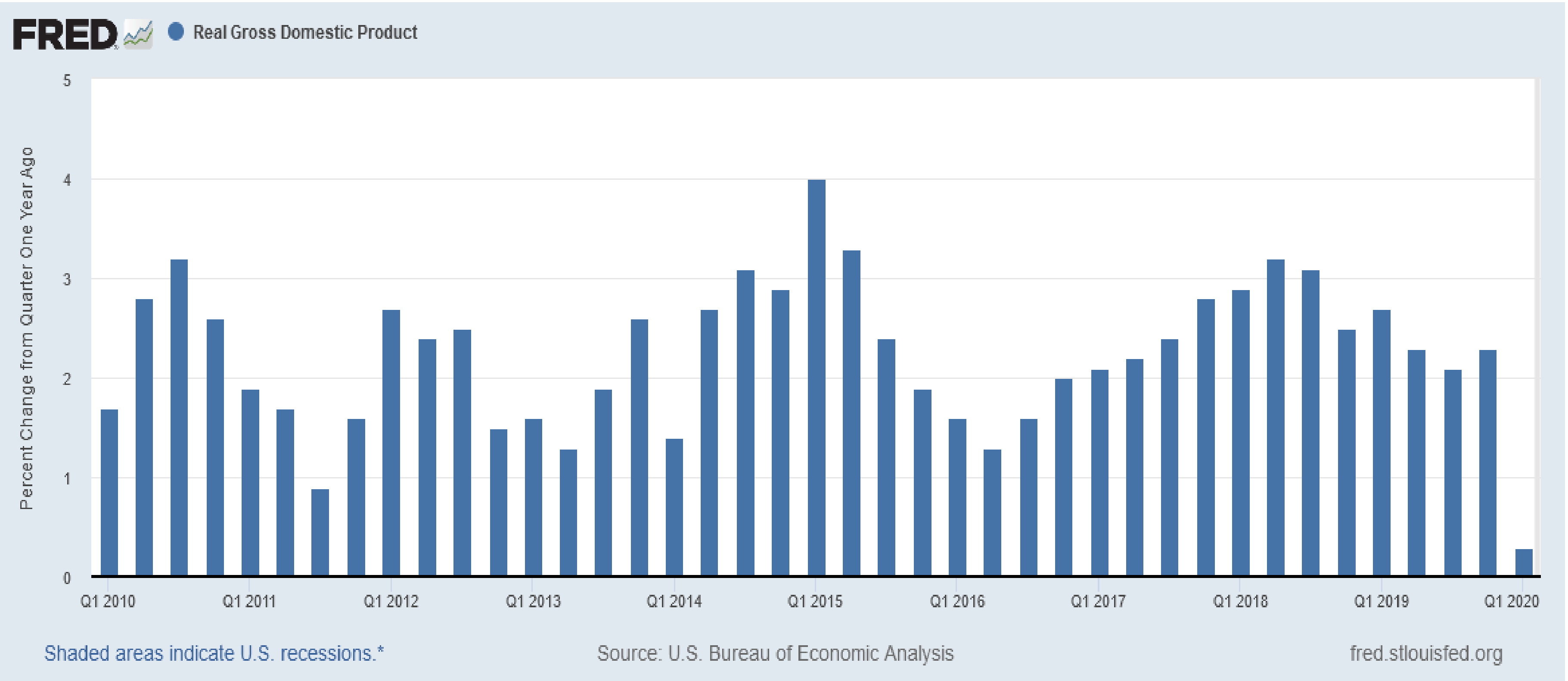
# US GDP Growth

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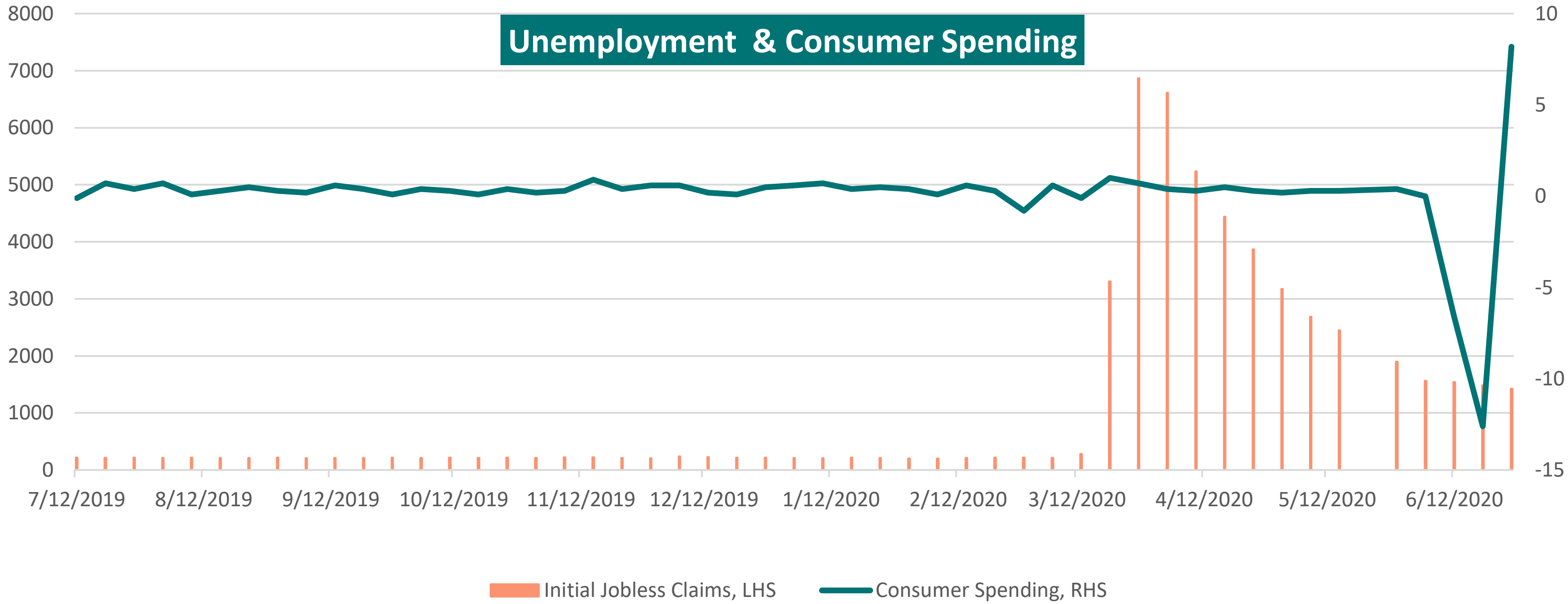
# US Jobless Claims Up – Consumer Spending Up?

## Cares Act Supports Households & Businesses

- Initial Jobless Claims, left hand scale, peaked at close to 7mm and have continued in the 1-2MM range per week
- Consumer spending, right hand scale, initially declined 12.6% in early June before recovering to +8.2% later that same month

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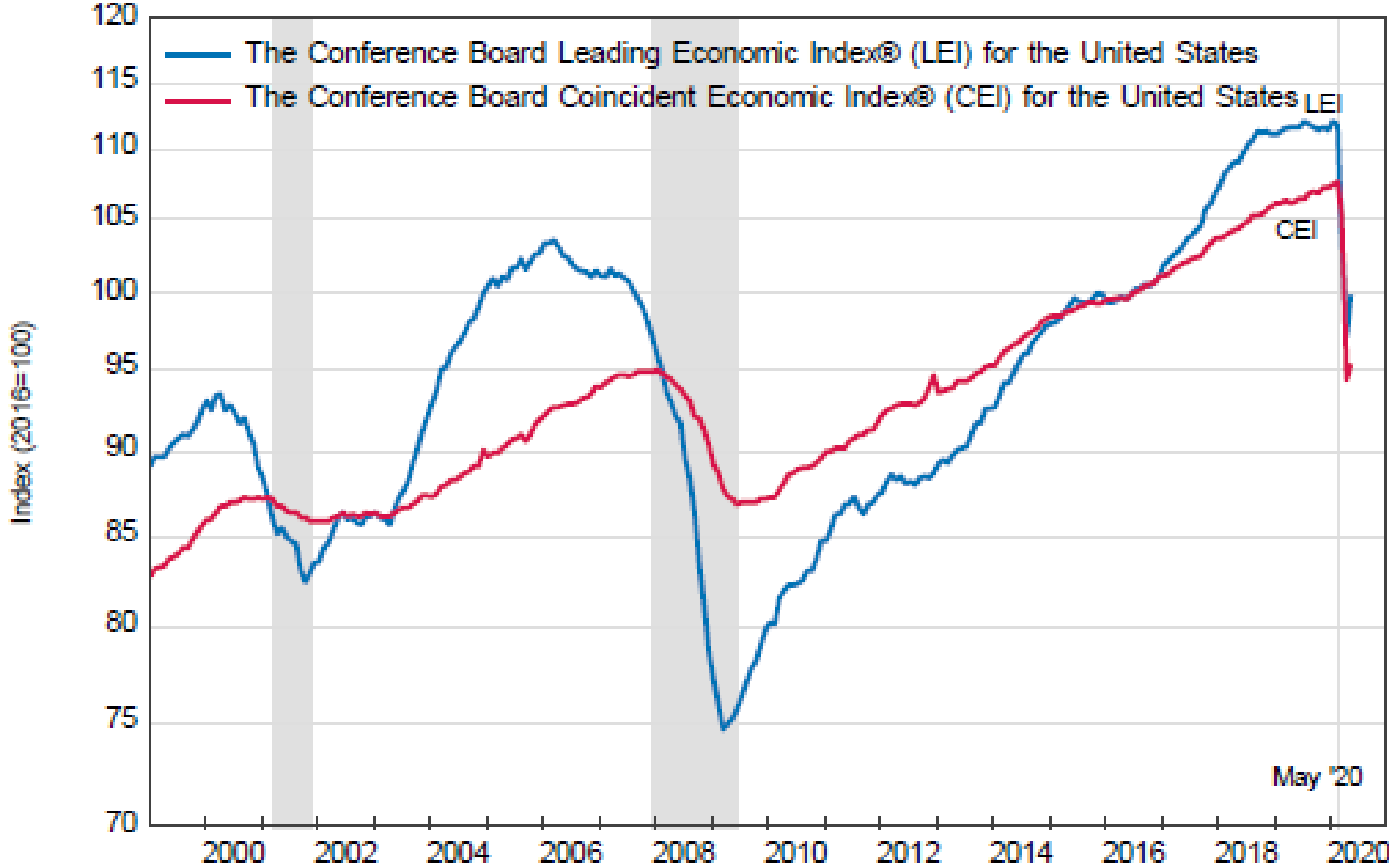
# Conference Board Indicators

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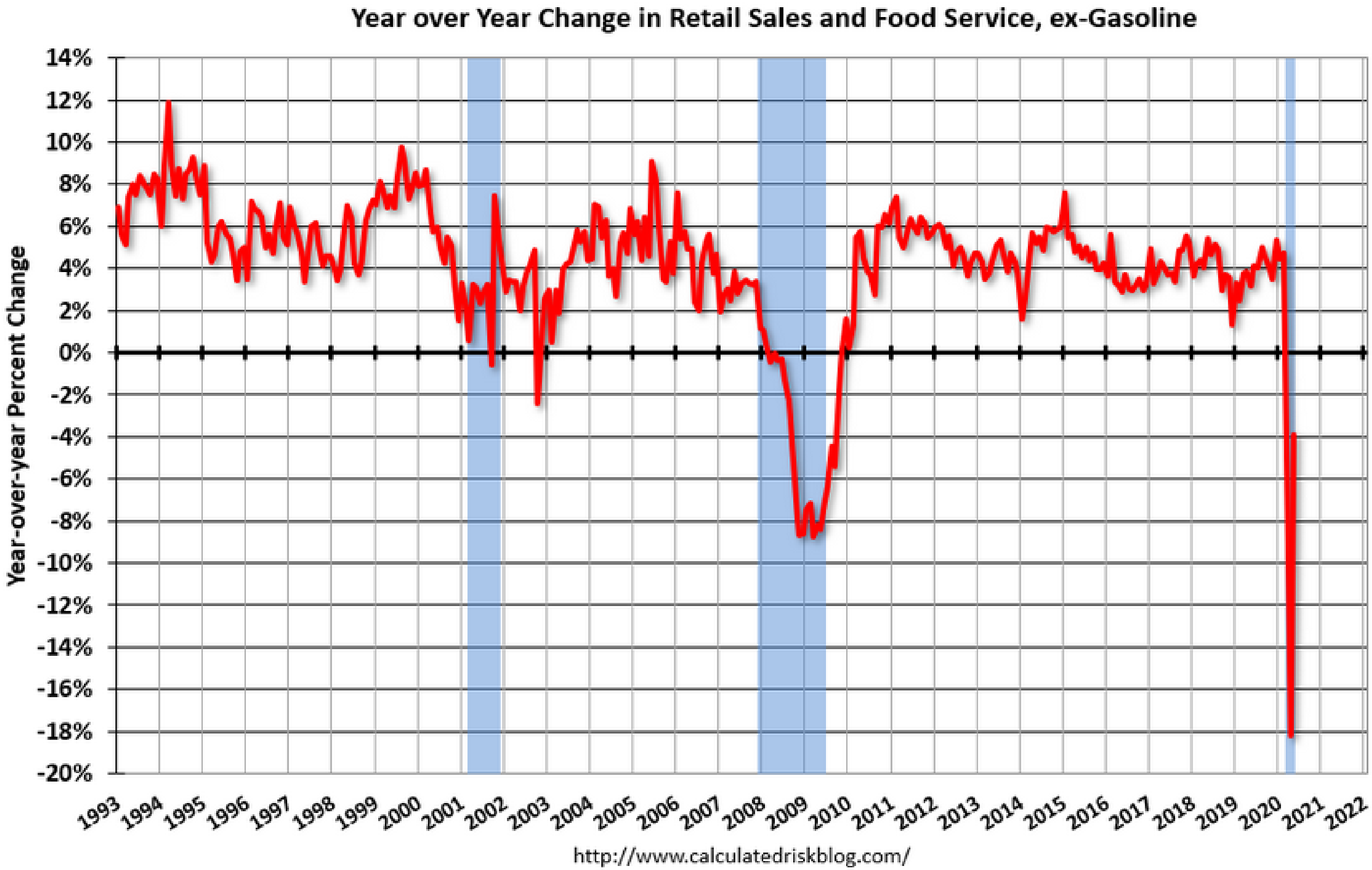
# US Retail Sales

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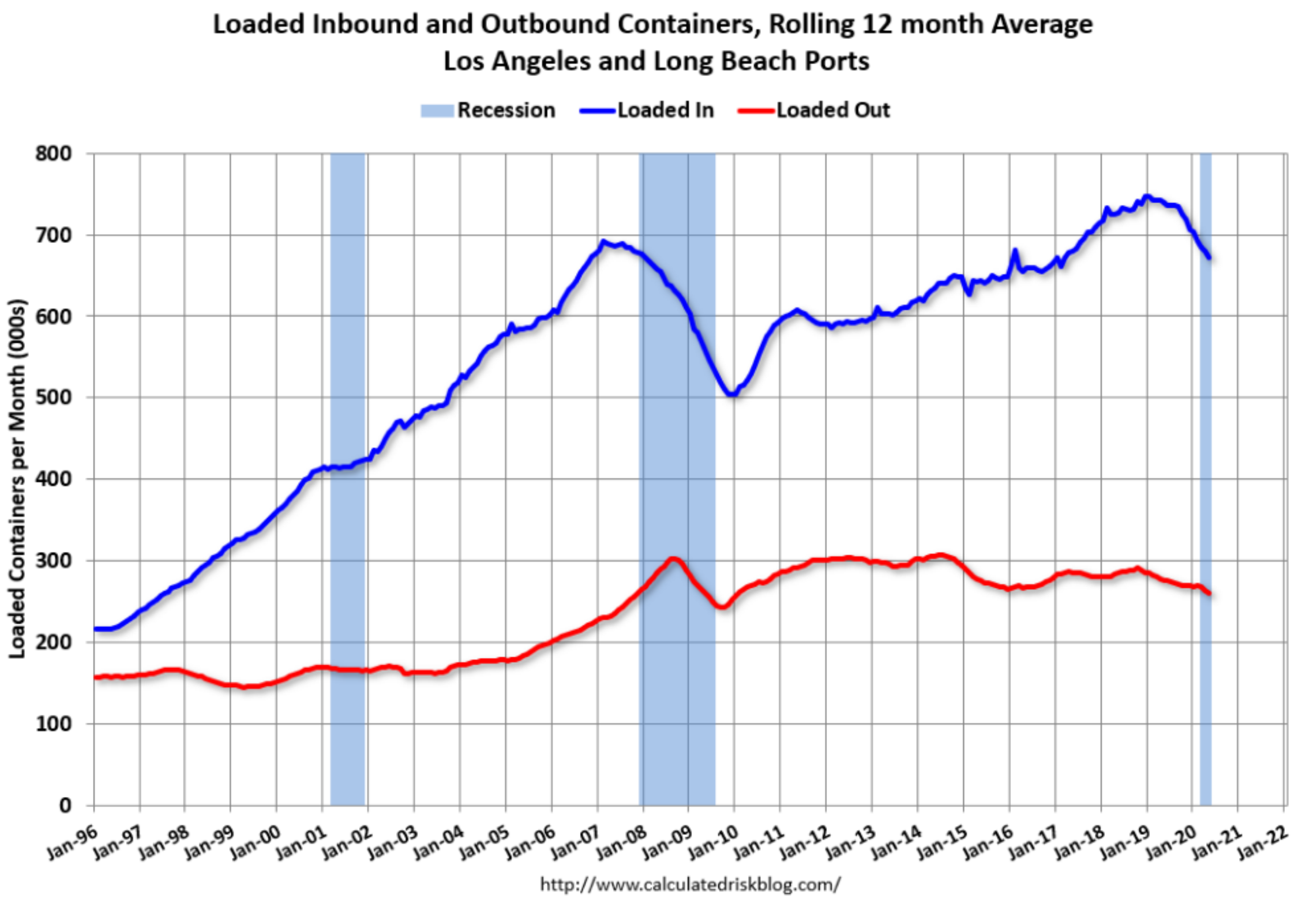
# Shipping Stats: Port of Long Beach

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# Investment Manager Discussion

- Investment manager discussion
  - Rob Arnott, Chairman, Research Affiliates
- Agenda
  - Overview of team, strategy, and role at CCCERA
  - Discussion of value investing and changing dynamics
  - Q&A from Trustees

Meeting Date
07/22/20
Agenda Item
#8

# Recent Market Tumult & the Prognosis for Value Investing

Rob Arnott, Chairman

research affiliates™

# Value & Other Factors in Recessions & Recoveries

# Post 1970 Recessions Accompanied by Bear Markets

| Bear Market | Fiscal Tightening/ Vietnam War | Nifty Fifty/ Oil Crisis | Iran Oil Crisis / Monetary Policy Tightening | Monetary Policy Tightening | Tech Bubble Crash | Global Financial Crisis |
|---|---|---|---|---|---|---|
| Bear Market Period | 12/1968 - 6/1970 | 11/1972 - 9/1974 | 12/1980 - 7/1982 | 7/1990 - 10/1990 | 4/2000 - 9/2002 | 10/2007 - 2/2009 |
| Cause of Recession | Shock to Fundamentals | Bubble/Shock to Fundamentals | Shock to Fundamentals | Shock to Fundamentals | Bubble | Shock to Fundamentals |
| GDP Decline | -0.6% | -3.2% | -2.7% | -1.4% | -0.3% | -5.1% |
| Valuation Dispersion Relative to Average | 1.0 | 1.3 | 0.8 | 1.0 | 2.2 | 0.7 |
| Historical Percentile of the Ratio | 60% | 86% | 18% | 63% | 98% | 7% |

- **Recessionary periods with significantly wider than average valuation dispersion are classified as bubbles.**

*Source: Research Affiliates, based on data from CRSP, Compustat Wikipediea and Ken French Data Library.*

# Value & Market Performance in Downturns & Recoveries
# United States, 1968 - 2019

| | Bear Market | Number of Positive Outcomes | Average: | Average When Bubble | Average When Shock to Fundamentals Only |
|---|---|---|---|---|---|
| During Bear Market | Cap Cumulative Return | 0 out of 6 | **-32.2%** | *-41.4%* | *-27.5%* |
| | P/B Based Value Cumulative Return | 2 out of 6 | **-23.8%** | *-12.6%* | *-29.3%* |
| | Composite Value Cumulative Return | 2 out of 6 | **-18.5%** | *-2.7%* | *-26.4%* |
| | *P/B Based Value Excess Return* | *3 out of 6* | ***8.4%*** | ***28.8%*** | ***-1.8%*** |
| | *Composite Value Excess Return* | *3 out of 6* | ***13.7%*** | ***38.7%*** | ***1.2%*** |
| Subsequent Two Years | Cap Cumulative Return | 6 out of 6 | **61.4%** | ***60.9%*** | ***61.7%*** |
| | P/B Based Value Cumulative Return | 6 out of 6 | **85.6%** | ***86.5%*** | ***85.1%*** |
| | Composite Value Cumulative Return | 6 out of 6 | **85.1%** | ***84.6%*** | ***85.4%*** |
| | *P/B Based Value Excess Return* | *5 out of 6* | ***24.2%*** | ***25.5%*** | ***23.5%*** |
| | *Composite Value Excess Return* | *5 out of 6* | ***23.7%*** | ***23.7%*** | ***23.7%*** |
| Full Period | Cap Cumulative Return | 4 out of 6 | **8.2%** | ***-5.2%*** | ***15.0%*** |
| | P/B Based Value Cumulative Return | 4 out of 6 | **38.5%** | ***59.5%*** | ***27.9%*** |
| | Composite Value Cumulative Return | 4 out of 6 | **45.7%** | ***73.4%*** | ***31.8%*** |
| | *P/B Based Value Excess Return* | *4 out of 6* | ***30.2%*** | ***64.8%*** | ***13.0%*** |
| | *Composite Value Excess Return* | *5 out of 6* | ***37.4%*** | ***78.6%*** | ***16.9%*** |

- **Value does better during bear markets when preceded by a bubble.**
  - Performs on par with the market during a shock to fundamentals alone.
- **Value outperforms significantly during recoveries in either scenario.**

*Source: Research Affiliates, based on data from Factset, CRSP and Compustat. P/B Based Value represents the long only portion of the Fama-French Value Factor. Composite Value uses a similar methodology but selects by a composite of P/B, P/E, P/D and P/S.*

# Value Outperforms When Bubbles Burst

### Examples from the Technology Bubble

| Company | Company Examples | Price/5Yr Avg. Earnings Ratio | | | Cumulative Performance | | |
|---|---|---|---|---|---|---|---|
| | | 31-Mar-2000 | 30-Sep-2002 | 30-Sep-2004 | Mar-2000 - Sep-2002 | Sep-2002 - Sep-2004 | Full Period |
| Value | International Paper Company | 34.7 | 10.8 | 13.0 | -16.7% | 27.4% | 6.2% |
| | Citigroup Inc. | 33.2 | 14.8 | 16.3 | -26.9% | 57.4% | 15.0% |
| | Honeywell International Inc. | 27.5 | 13.3 | 35.0 | -56.8% | 74.5% | -24.7% |
| | *Average:* | *31.8* | *12.9* | *21.5* | *-33.5%* | *53.1%* | *-1.1%* |
| Growth | Cisco Systems, Inc. | 403.6 | 63.0 | 66.1 | -86.4% | 72.7% | -76.6% |
| | Oracle Corporation | 261.0 | 22.9 | 25.1 | -58.8% | 27.9% | -47.3% |
| | Intel Corporation | 80.1 | 15.1 | 24.7 | -78.8% | 45.8% | -69.1% |
| | *Average:* | *248.2* | *33.7* | *38.6* | *-74.7%* | *48.8%* | *-64.3%* |
| | **Market** | **21.8** | **17.8** | **21.6** | **-44.0%** | **42.5%** | **-20.1%** |

- **Value holds much better when growth bubbles burst.**
- **At market troughs value is cheap, while growth trades at average or above average multiples.**

*Source: Research Affiliates, based on data from Factset. For illustrative purposes only. The table displays sample examples of growth and value stocks selected from the Russell 1000 Growth and Russell 1000 Value indices.*

# Value is Priced Attractively at Market Troughs

## Examples from the Global Financial Crisis

| Company | Company Examples | Price/5Yr Avg. Earnings Ratio | | | Cumulative Performance | | |
|---|---|---|---|---|---|---|---|
| | | 28-Sep-2007 | 27-Feb-2009 | 28-Feb-2011 | Sep-2007 - Feb-2009 | Feb-2009 - Feb-2011 | Full Period |
| Value | Bank of America Corp | 13.3 | 1.2 | 9.2 | -91.4% | 264.6% | -68.6% |
| | General Electric Company | 25.0 | 4.7 | 13.0 | -77.5% | 159.8% | -41.5% |
| | Chevron Corporation | 19.0 | 7.4 | 12.1 | -32.1% | 83.8% | 24.9% |
| | *Average:* | *19.1* | *4.4* | *11.4* | *-67.0%* | *169.4%* | *-28.4%* |
| Growth | Medtronic Plc | 34.8 | 14.9 | 17.3 | -46.4% | 41.3% | -24.3% |
| | Cisco Systems, Inc. | 47.2 | 14.1 | 15.8 | -56.0% | 27.4% | -44.0% |
| | Adobe Inc. | 56.3 | 14.6 | 29.6 | -61.7% | 106.6% | -21.0% |
| | *Average:* | *46.1* | *14.5* | *20.9* | *-54.7%* | *58.4%* | *-29.8%* |
| | **Market** | **23.4** | **10.6** | **17.9** | **-50.3%** | **91.9%** | **-4.6%** |

- **Fundamental shocks create opportunities amid the fear.**
- **At market troughs value is priced at a bargain, while growth trades at average or above average multiples.**

*Source: Research Affiliates, based on data from Factset. For illustrative purposes only. The table displays sample examples of growth and value stocks selected from the Russell 1000 Growth and Russell 1000 Value indices.*

# Where Are We Today?

**Examples from The Great Lockdown**

| Company | Company Examples | Price/5Yr Avg. Earnings Ratio | | Cumulative Performance |
|---|---|---|---|---|
| | | 19-Feb-2020 | 31-Mar-2020 | 19-Feb-2020 - 31-Mar-2020 |
| Value | Citigroup Inc. | 17.9 | 9.6 | -46.0% |
| | Exxon Mobil Corporation | 16.2 | 10.2 | -37.1% |
| | United Airlines Holdings, Inc. | 7.5 | 3.0 | -60.3% |
| | *Average:* | *13.9* | *7.6* | *-47.8%* |
| Growth | Amazon.com, Inc. | 195.7 | 175.8 | -10.2% |
| | Facebook | 45.0 | 34.5 | -23.3% |
| | Netflix | 220.1 | 214.0 | -2.8% |
| | *Average:* | *153.6* | *141.5* | *-12.1%* |
| | **Market** | **28.6** | **21.8** | **-24.3%** |

- **Value stocks are currently trading at bargain multiples...**
  - **Especially relative to growth…**
- **Unless earnings are permanently impaired**

*Source: Research Affiliates, based on data from Factset. For illustrative purposes only. The table displays sample examples of growth and value stocks selected from the Russell 1000 Growth and Russell 1000 Value indices.*

# Other Systematic Strategies in Downturns & Recoveries
# United States, 1968 - 2019

| | Bear Market | Number of Positive Outcomes | Average: | Average When Bubble | Average When Shock to Fundamentals Only |
|---|---|---|---|---|---|
| During Bear Market | Cap Cumulative Return | 0 out of 6 | **-32.2%** | *-41.4%* | *-27.5%* |
| | Low Volatility | 2 out of 6 | **-16.2%** | *-17.9%* | *-15.4%* |
| | Quality | 0 out of 6 | **-29.4%** | *-28.4%* | *-29.9%* |
| | Momentum | 0 out of 6 | **-34.3%** | *-41.7%* | *-30.6%* |
| | Size | 0 out of 6 | **-34.9%** | *-35.6%* | *-34.5%* |
| | *Low Volatility Excess Return* | *6 out of 6* | ***15.9%*** | *23.5%* | *12.1%* |
| | *Quality Excess Return* | *3 out of 6* | ***2.8%*** | *13.0%* | *-2.3%* |
| | *Momentum Excess Return* | *3 out of 6* | ***-2.2%*** | *-0.3%* | *-3.1%* |
| | *Size Excess Return* | *2 out of 6* | ***-2.7%*** | *5.8%* | *-7.0%* |
| Subsequent Two Years | Cap Cumulative Return | 6 out of 6 | **61.4%** | *60.9%* | *61.7%* |
| | Low Volatility | 6 out of 6 | **54.3%** | *61.3%* | *50.8%* |
| | Quality | 6 out of 6 | **83.9%** | *82.6%* | *84.5%* |
| | Momentum | 6 out of 6 | **57.8%** | *52.2%* | *60.6%* |
| | Size | 6 out of 6 | **83.7%** | *87.4%* | *81.8%* |
| | *Low Volatility Excess Return* | *2 out of 6* | ***-7.1%*** | *0.4%* | *-10.9%* |
| | *Quality Excess Return* | *6 out of 6* | ***22.4%*** | *21.7%* | *22.8%* |
| | *Momentum Excess Return* | *2 out of 6* | ***-3.6%*** | *-8.8%* | *-1.1%* |
| | *Size Excess Return* | *6 out of 6* | ***22.3%*** | *26.5%* | *20.2%* |
| Full Period | Cap Cumulative Return | 4 out of 6 | **8.2%** | *-5.2%* | *15.0%* |
| | Low Volatility | 6 out of 6 | **27.6%** | *28.4%* | *27.2%* |
| | Quality | 6 out of 6 | **27.1%** | *28.0%* | *26.7%* |
| | Momentum | 4 out of 6 | **3.4%** | *-10.6%* | *10.4%* |
| | Size | 5 out of 6 | **16.6%** | *17.9%* | *15.9%* |
| | *Low Volatility Excess Return* | *5 out of 6* | ***19.5%*** | *33.6%* | *12.4%* |
| | *Quality Excess Return* | *5 out of 6* | ***18.9%*** | *33.0%* | *11.9%* |
| | *Momentum Excess Return* | *1 out of 6* | ***-4.8%*** | *-5.3%* | *-4.5%* |
| | *Size Excess Return* | *5 out of 6* | ***8.5%*** | *23.2%* | *1.2%* |

- **Low Volatility –** Provides downside protection, underperforms coming off market troughs.
- **Quality –** On par with market in downturns, outperforms significantly in recoveries.
- **Momentum** – Struggles in times of high market volatility, lags the market in both downturns and recoveries.
- **Size** – Underperforms in market downturns, outperforms significantly in recoveries.

*Source: Research Affiliates, based on data from Factset, CRSP and Compustat. Low Volatility represents the average of a simulated low volatility (1/vol) and minimum variance strategy. Quality represents the average of a quality strategy ranked by high profitability and a quality strategy ranked by conservative investment. Momentum is the average of a strategy ranked by standard momentum and one ranked by Sharpe ratio momentum. Size represents the average of a strategy ranked by small cap and an equal weight strategy.*

# Great Lockdown – Unique Opportunity for Value

- **Before recession periods valuation dispersion was at the 96.7th percentile – these were bubbles.**

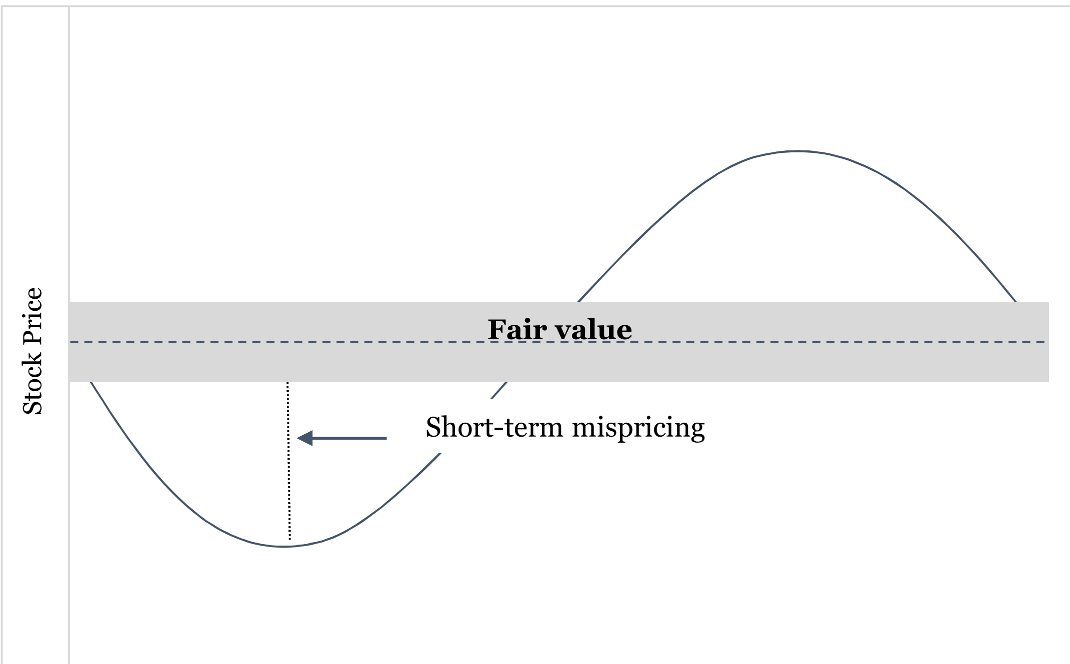
- **The Great Lockdown is one of the largest shocks to fundamentals since WW2 – generally bad news for value.**

- **The Great Lockdown did cause a bubble burst but now valuation dispersion is at the 100th percentile – we have never seen value so unloved!**

*For illustrative purposes only.*

# RAE's Value-oriented Investment Philosophy

**"The largest and most persistent active investment opportunity is long-horizon mean reversion."**
**– Research Affiliates**




In the short term stock prices **deviate from "fair value" but** over time **revert back** towards it

Investors can profit from this mean reverting pattern, by **systematically trading against the market**

This involves **buying stocks that have underperformed** (hence becoming cheaper and better value), while **selling those that are popular** (and hence expensive and over-priced)

SOURCE: Research Affiliates

The terms "cheap" and "rich" as used herein generally refer to a security or asset class that is deemed to be substantially under- or overpriced compared to both its historical average as well as to the investment manager's future expectations. There is no guarantee of future results or that a security's valuation will ensure a profit or protect against a loss.

# A Systematic, Contrarian Approach To Equity Investing

## PIMCO RAE methodology

### 1

**Select stocks from starting universe using signals that historically indicate higher expected returns**

1. Value
2. Quality
3. Momentum

**RAE Score**

### 2

**Weight stocks by RAE Score and fundamental measure of company size**

1. Sales
2. Cash flow
3. Dividends
4. Book Value

### 3

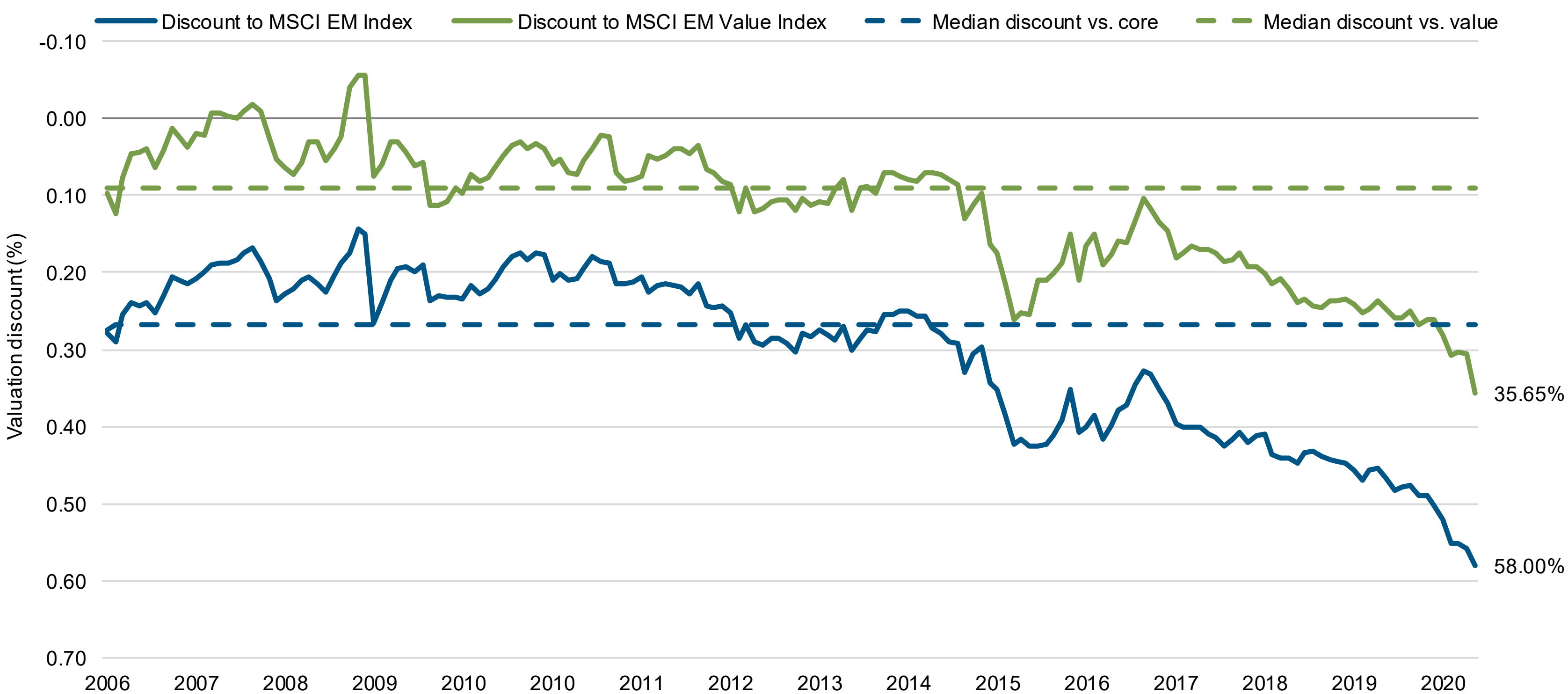
**Rebalance the portfolio back to model weights, contra-trading against recent price movements**

**Quarterly Rebalance**

*Source: Research Affiliates*

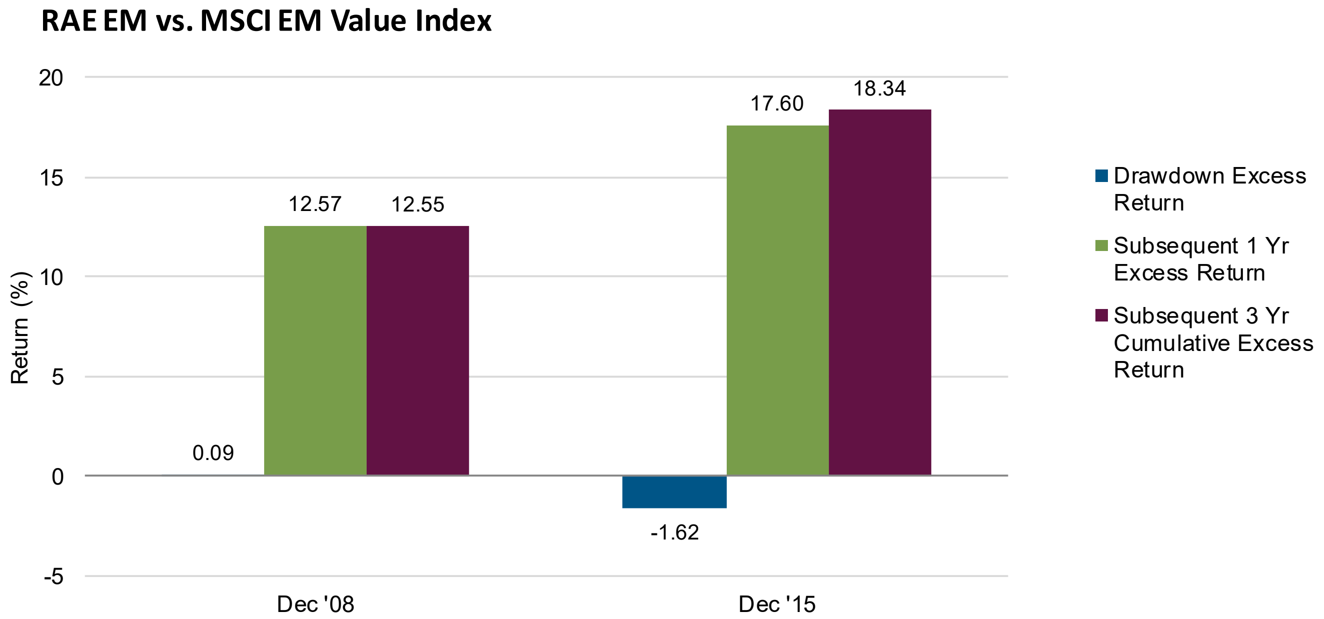
# RAE Systematically Trades Against Price Movements, Deepening Its Discount To The Market When Value Is Cheapest

## Example: RAE EM Representative Account: Aggregate valuation discount*




As of 30 June 2020
*Average valuation discount based on price-earnings, price-sales, price-cash flow, price-dividends, price-book since representative account inception.
The above information is based on a representative account. An investor should refer to the PIMCO RAE Emerging Markets Composite GIPS Report included in the Appendix. GIPS® is a registered trademark owned by CFA Institute.
Refer to Appendix for additional performance and fee, chart, investment strategy, representative account and risk information

# Following The Last Recession In 2008, Rae's Contrarian Approach Delivered Meaningful Alpha




| Portfolio's valuation vs. value | RAE EM |
| --- | --- |
| 12/31/2007 | 0.86% |
| 12/31/2008 | 5.48% |
| 6/30/2020 | 35.65% |

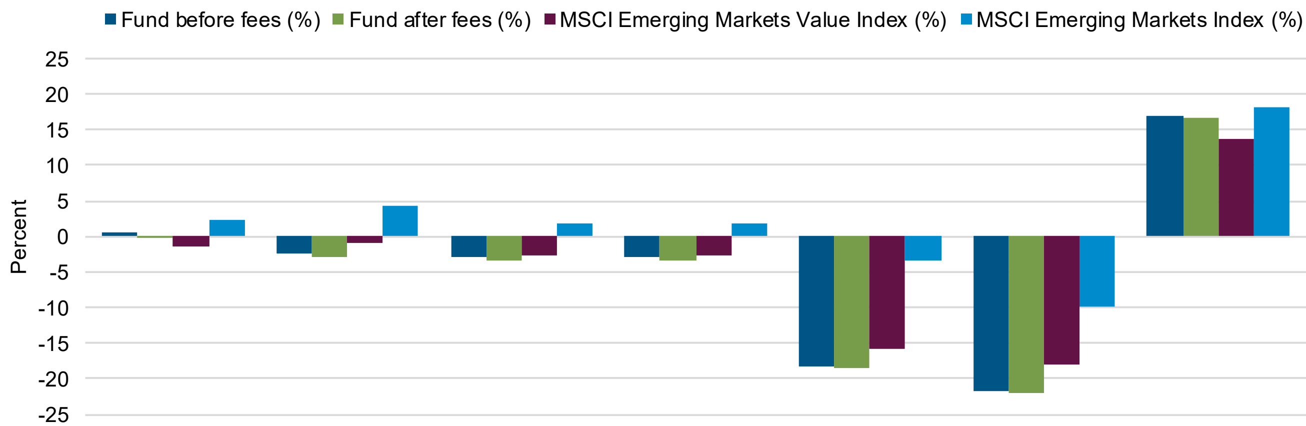
**Portfolio trading at a:**

**Discount**

**Premium**

As of 30 June 2020
SOURCE: PIMCO
Performance is shown for a representative account before fees. Portfolio's discount value is calculated using price-to-cash-flow, price-to-book, price-to-earnings, and price-to-yield ratios. RAE EM vs. MSCI EM Value
The RAE Emerging markets data above is based on a representative account. An investor should refer to the PIMCO RAE Emerging Markets Composite GIPS Report included in the Appendix. GIPS® is a registered trademark owned by CFA Institute.
Refer to Appendix for additional performance and fee, chart, investment strategy, representative account and risk information

# PIMCO RAE Emerging Markets LLC Performance



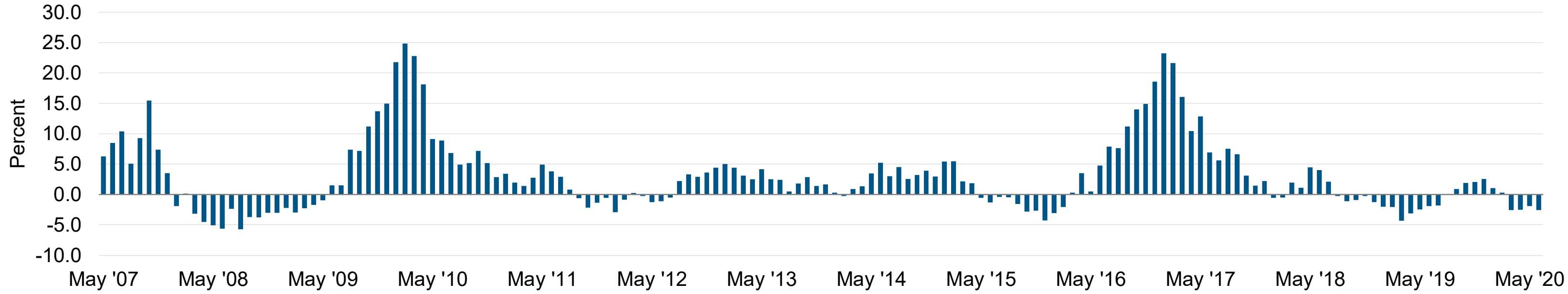

| Peformance | S.I.* | S.I.** | 5 YRS | 3 YRS | 12-mo | 6-mo | 3-mo |
|---|---|---|---|---|---|---|---|
| **Fund before fees (%)** | 0.48 | -2.45 | -2.99 | -2.99 | -18.16 | -21.80 | 16.85 |
| **Fund after fees (%)** | -0.03 | -2.96 | -3.50 | -3.50 | -18.58 | -22.00 | 16.69 |
| **MSCI Emerging Markets Value Index (%)** | -1.30 | -0.97 | -2.64 | -2.64 | -15.74 | -18.05 | 13.83 |
| **MSCI Emerging Markets Index (%)** | 2.28 | 4.36 | 1.90 | 1.90 | -3.39 | -9.78 | 18.08 |
| ***After fees alpha vs value (bps)*** | *127* | *-199* | *-86* | *-86* | *-284* | *-395* | *286* |
| ***After fees alpha vs core (bps)*** | *-231* | *-732* | *-540* | *-540* | *-1,519* | *-1,222* | *-139* |

As of 30 June 2020
*Since PIMCO inception, 29 May 2015
**Since CCCERA inception, 28 February 2017
**Past performance is not a guarantee or a reliable indicator of future results.**
All periods longer than one year are annualized
Benchmark: MSCI Emerging Markets Index
Refer to Appendix for additional performance and fee, investment strategy and risk information

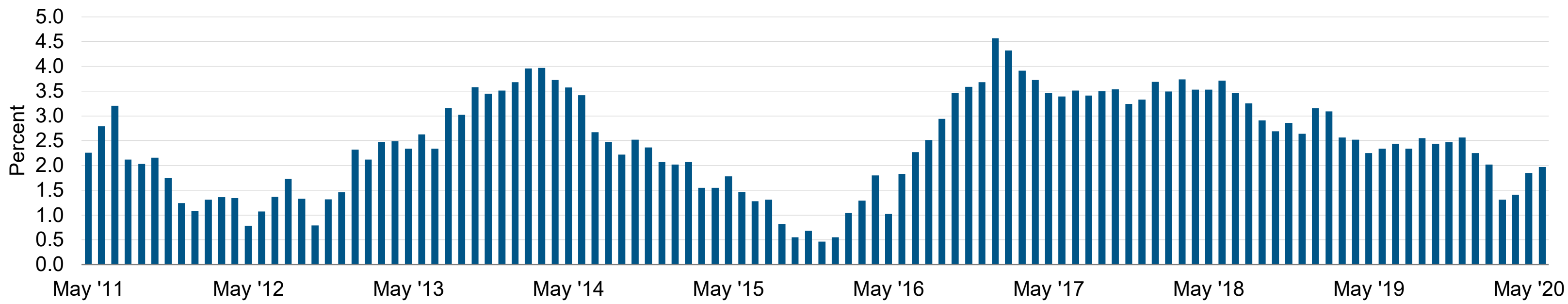
# While Performance Can Be Cyclical Over The Short Term, RAE Has Delivered Consistent Outperformance Over Longer Time Horizons

RAE Emerging Markets Representative Account

**RAE EM rolling 1-year monthly excess return vs MSCI EM Value**




**RAE EM rolling 5-year monthly excess return vs MSCI EM Value**

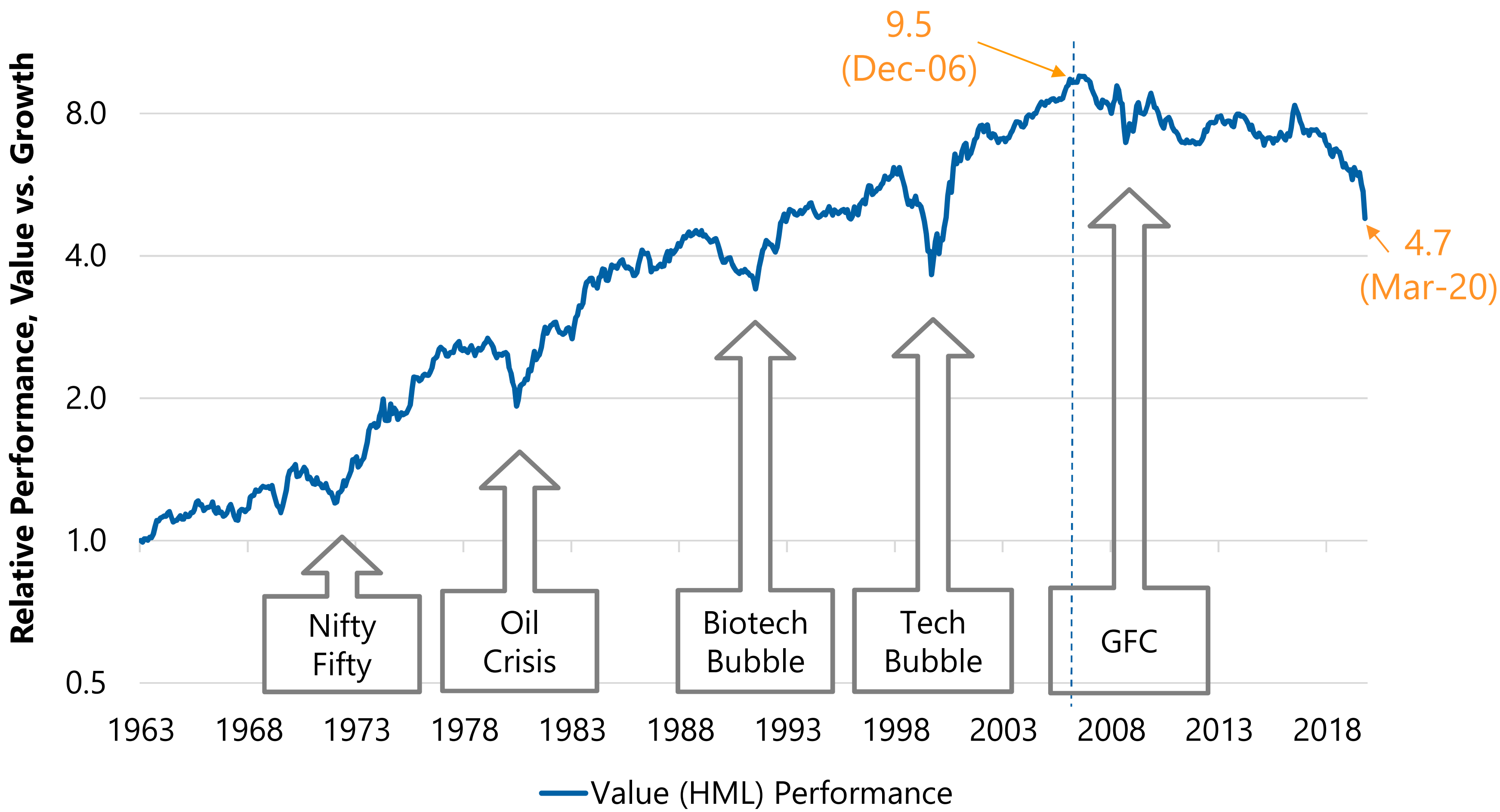



As of 30 June 2020
SOURCE: PIMCO
Before fees
The above information is based on a representative account. An investor should refer to the PIMCO RAE Emerging Markets Composite GIPS Report included in the Appendix. GIPS® is a registered trademark owned by CFA Institute.
Refer to Appendix for additional performance and fee, chart, investment strategy, representative account and risk information

# Q&A?

# The Prognosis for Value Investing

# Value Has Underperformed since 2006

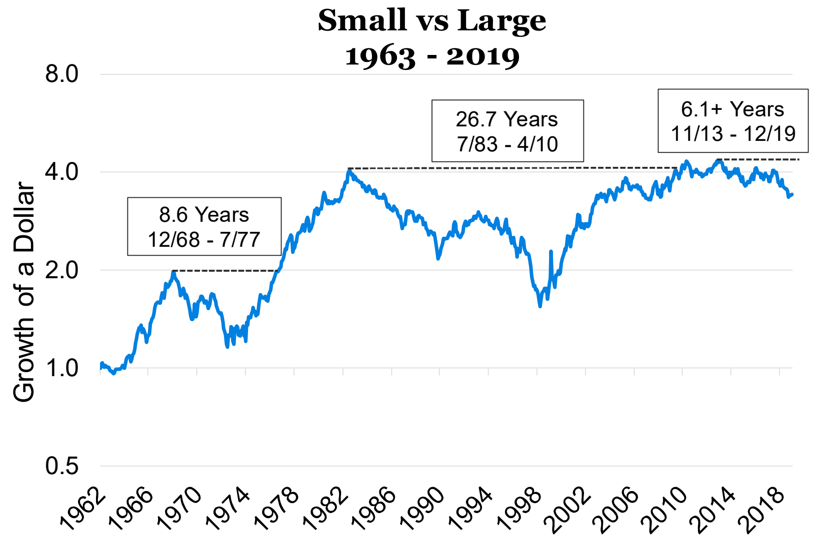


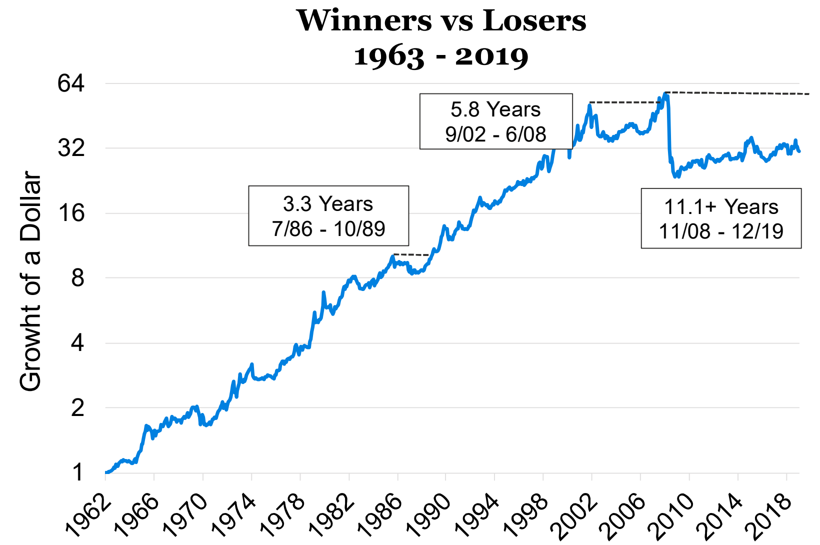

**In this computation with monthly rebalancing into HML, value most recently peaked at the end of December 2006.**

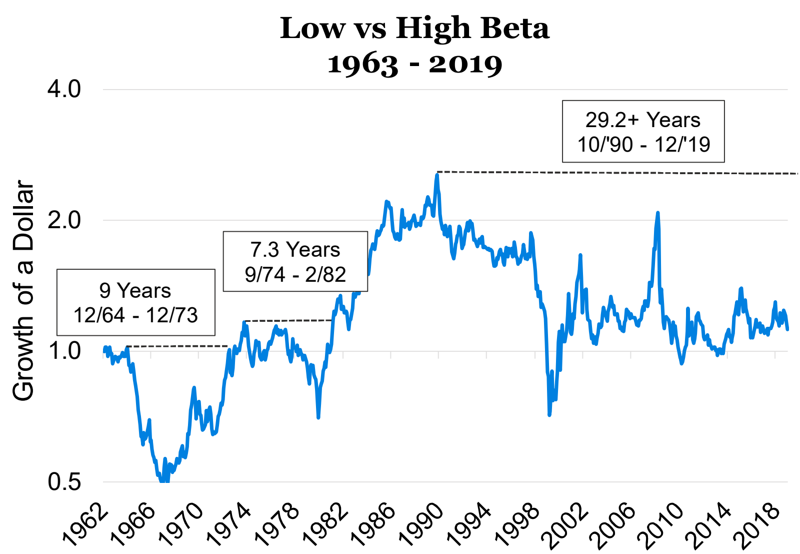
*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*

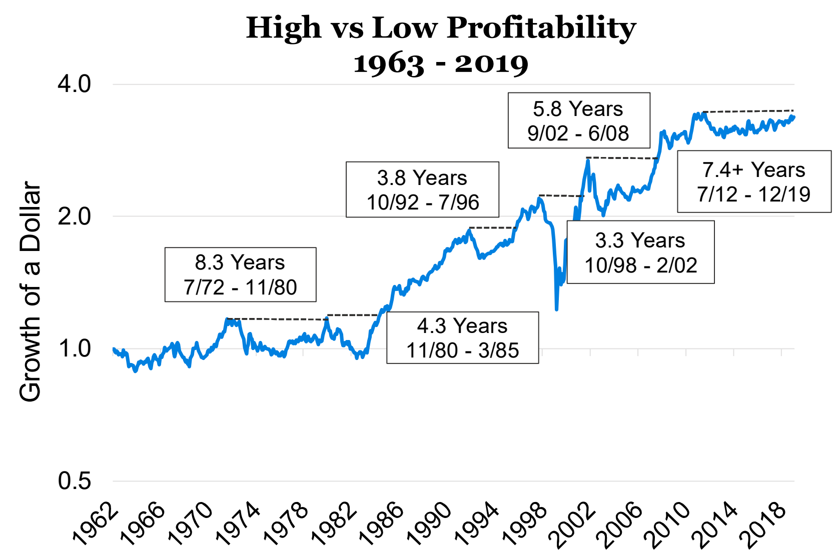
*HML is high (value) minus low (growth) long-short portfolio balanced by size around the median by the NYSE market capitalization.*

# Value is Not Unique … All Factors Have Long Dry Spells




Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, January 1963 – December 2019. The graph represents the growth in a dollar invested in each of the corresponding US long-short factor portfolios. All factor portfolios rank the U.S. universe by factor score and goes long the top 30% by factor score/short the bottom 30% by factor score. Small vs. Large is defined using market capitalization, winners vs. losers is defined by the last 12 months return excluding most recent month, low vs. high beta is defined by 12 month daily beta and high vs. low profitability is defined by operating profitability.

# Common Narratives on Value's Death

1. **Crowded trade (maybe even arbitraged away)?**
   - Permanently narrow valuation spread
2. **Different economic regime?**
   - Growth permanently more profitable vs. value
3. **Different interest rate regime?**
   - Growth benefits more from low rates than value
4. **Less relative mean reversion?**
   - Lower rate of price mean reversion
5. **Is value mismeasured?**
   - Potential to fix mismeasurement of intangibles
6. **Value has lagged because it has become cheaper?**
   - Relative valuations would explain the underperformance

*Value is structurally impaired*

*Value suffered from temporary setback*

# Diagnosing Value

# Value Is One of the Strongest Factors, United States, Jul 1963–Mar 2020

| Factor | Year of Discovery | Average Return | Standard Deviation | *t* -value | CAPM Alpha | *t* -value |
|---|---|---|---|---|---|---|
| Market | 1964 | 6.1 | 15.3 | 3.01 | | |
| **Value** | **1977/90** | **3.2** | **9.8** | **2.50** | **4.1** | **3.23** |
| Size | 1975 | 2.1 | 10.3 | 1.52 | 0.9 | 0.65 |
| Operating profitability | 2013 | 2.8 | 7.7 | 2.72 | 3.5 | 3.49 |
| Investment | 2003 | 2.6 | 6.4 | 3.03 | 3.5 | 4.33 |
| Momentum | 1989 | 7.9 | 14.5 | 4.09 | 8.8 | 4.58 |
| Low beta | 1966 | 0.6 | 15.3 | 0.29 | 5.0 | 3.54 |

*Note: Returns are arithmetic returns.*

- **Examine HML — 30% lowest P/B (value) vs. 30% highest P/B (growth) long/short performance (balanced by size).**
- **Asness, Moskowitz, and Pedersen (2013)**
  - Value effect is pervasive across geographies and asset classes.
- **Beck, Hsu, Kalesnik, and Kostka (2016)**
  - Value effect is robust to perturbation across definitions.

*Source: Arnott, Harvey, Kalesnik and Linnainmaa (2019).*

# Value's Longest and Deepest Drawdown

**In terms of its depth, the most recent drawdown of value counts as the deepest ever, using data from July 1963.**

**In terms of length, it is by far the longest drawdown.**

**Value vs. Growth Worst Drawdowns, United States, Jul 1963–Mar 2020**

| | | Dates | | | | |
|---|---|---|---|---|---|---|
| Rank | Event | Start Date | Bottom | End Date | Length in Years | Drawdown |
| *Deepest Drawdowns* | | | | | | |
| 1 | Current | 2006/12 | 2020/03 | | 13.3 | -50.0% |
| 2 | Tech Bubble | 1998/08 | 2000/02 | 2001/02 | 2.8 | -40.7% |
| 3 | Iran Oil Crisis | 1979/07 | 1980/11 | 1982/02 | 2.5 | –28.6% |
| *Longest-Lasting Drawdowns* | | | | | | |
| 1 | Current | 2006/12 | 2020/03 | | 13.3 | –50.0% |
| 2 | Biotech Bubble | 1989/03 | 1991/12 | 1993/02 | 3.8 | –25.3% |
| 3 | Nifty Fifty | 1970/08 | 1972/06 | 1973/04 | 2.6 | –17.3% |

**But value is prone to drawdowns and prolonged periods of underperformance**

**How exceptional is this protracted drawdown?**

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*

# Estimated Probability of a Drawdown

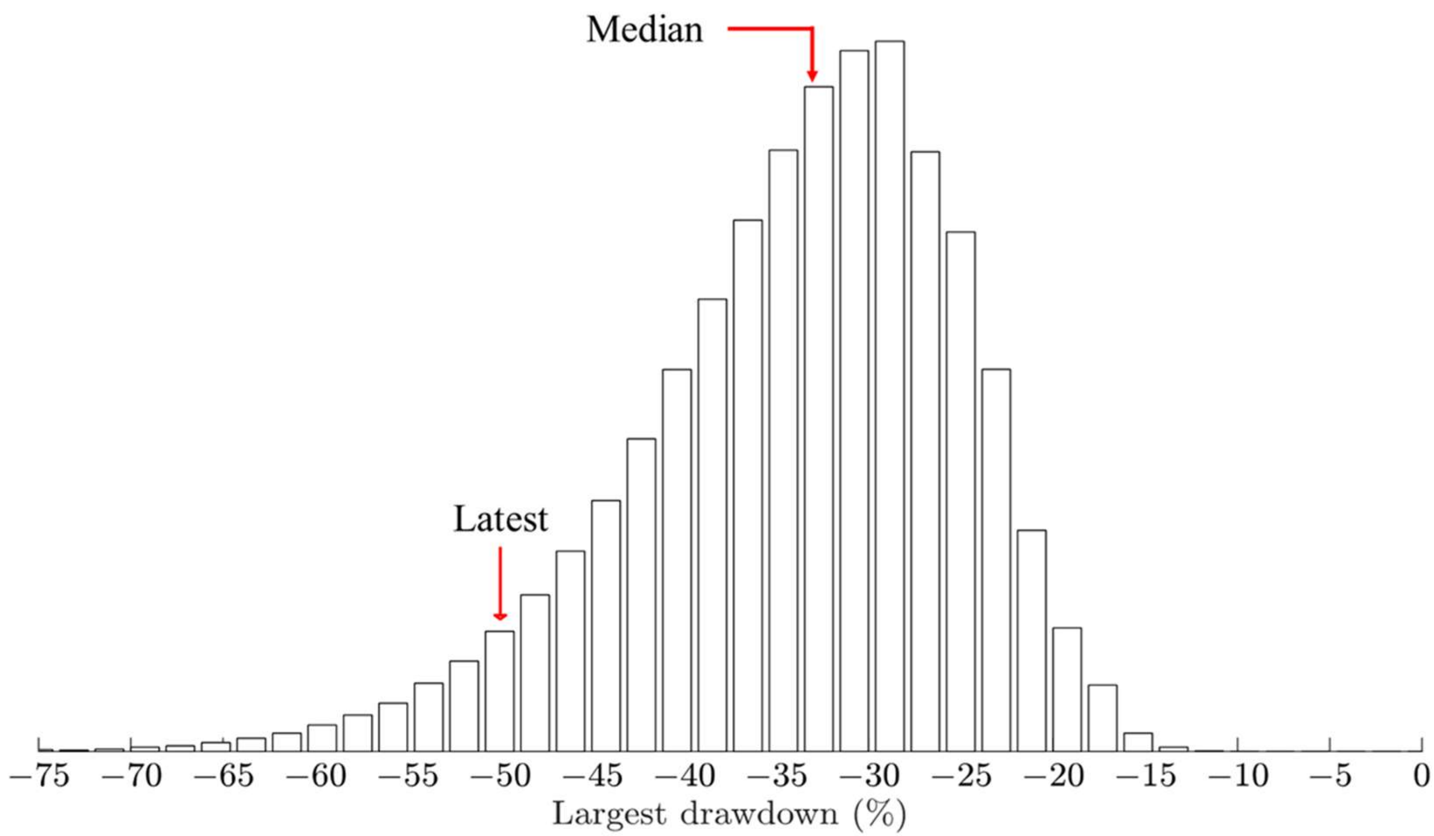
**Use the “Alice in Factorland” bootstrapping methodology to assess the likelihood of the drawdown that started in 2007.**

- Take the long/short return sample period up to December 2006.
- Draw returns from this sample in six-month blocks.
- Create a sample that matches the length of the actual total sample from July 1963 through March 2020.
- For each simulated sample, record the size of the largest drawdown.
- Draw 1,000,000 simulated samples.

*For illustrative purposes only.*

# Likelihood of Value's Recent Drawdown Is Low but Not Implausible

**Histogram of worst drawdowns over 56¾ years, based on 1,000,000 alternative histories: 5.2% are worst than the recent 50.0% drawdown**




*Source: Research Affiliates, LLC, using CRSP/Compustat data.*

*Note: We generate 1,000,000 alternative histories by bootstrapping July 1963 through December 2006 value vs. growth returns. We use a circular block bootstrap with six-month blocks. Each simulated sample is 56 years and nine months long to match the length of the actual history from July 1963 through March 2020 sample. We compute the size of the largest drawdown in each simulated sample. The bars in the histogram show how many of the 1,000,000 simulated 56¾-year "alternative histories" fell in a given range. Value, for example, lost 28.0% between September 1999 and February 2000. When this six-month period is drawn in a simulation, it guarantees that the largest drawdown in the simulation is at least 28%. Fully 5% of the 1,000,000 samples delivered a largest-ever drawdown that was even larger than the 50.0% drawdown that we've just experienced.*

# The Components of the Value Engine

# Value Engine Components

**Three components**

- Migration reliably favors value
- Profitability reliably favors growth

*Difference is Structural alpha*

- Revaluation (value spread between value and growth stocks)

# Migration Rates, Pre-2007

| Jul, 1963 - Dec, 2006 | | Portfolio next year | | | | | |
|---|---|---|---|---|---|---|---|
| Current portfolio | | Small | | | Big | | |
| | | Growth | Neutral | Value | Growth | Neutral | Value |
| Small | Growth | 69% | 23% | 4% | 4% | 0% | 0% |
| | Neutral | 15% | 57% | 24% | 1% | 2% | 0% |
| | Value | 3% | 18% | 77% | 0% | 1% | 1% |
| Big | Growth | 6% | 2% | 0% | 78% | 13% | 0% |
| | Neutral | 1% | 4% | 2% | 12% | 69% | 11% |
| | Value | 0% | 1% | 6% | 1% | 24% | 68% |

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*

# Migration Rates

| Jul, 1963 - Dec, 2006 | | Portfolio next year | | | | | |
|---|---|---|---|---|---|---|---|
| Current portfolio | | Small | | | Big | | |
| | | Growth | Neutral | Value | Growth | Neutral | Value |
| Small | Growth | 69% | 23% | 4% | 4% | 0% | 0% |
| | Neutral | 15% | 57% | 24% | 1% | 2% | 0% |
| | Value | 3% | 18% | 77% | 0% | 1% | 1% |
| Big | Growth | 6% | 2% | 0% | 78% | 13% | 0% |
| | Neutral | 1% | 4% | 2% | 12% | 69% | 11% |
| | Value | 0% | 1% | 6% | 1% | 24% | 68% |

| Jan, 2007 - Mar, 2020 | | Portfolio next year | | | | | |
|---|---|---|---|---|---|---|---|
| Current portfolio | | Small | | | Big | | |
| | | Growth | Neutral | Value | Growth | Neutral | Value |
| Small | Growth | 67% | 23% | 4% | 5% | 0% | 0% |
| | Neutral | 13% | 60% | 24% | 1% | 2% | 0% |
| | Value | 2% | 17% | 79% | 0% | 1% | 1% |
| Big | Growth | 4% | 2% | 0% | 82% | 12% | 0% |
| | Neutral | 1% | 5% | 2% | 14% | 68% | 11% |
| | Value | 0% | 1% | 9% | 1% | 23% | 66% |

**Migration rates barely changed, some rising, some falling, but only a little.**

**This time is not different.**

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*

# Profitability Differences

| | ROE | | Sales Growth | |
|---|---|---|---|---|
| | Pre-2007 | Post-2007 | Pre-2007 | Post-2007 |
| **Growth** | 17% | 16% | 14% | 8% |
| **Neutral** | 11% | 9% | 9% | 5% |
| **Value** | 6% | 4% | 6% | 2% |
| **Value Minus Growth** | -11% | -12% | -8% | -6% |

- **Profitability and growth differences pre- and post-2007 are very similar.**
- **If anything growth is less profitable and slower growing than pre-2007**
- **This time does not appear to be different.**

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-June 2019.*

# The Impact of Revaluation

# Portfolio Alpha Decomposition

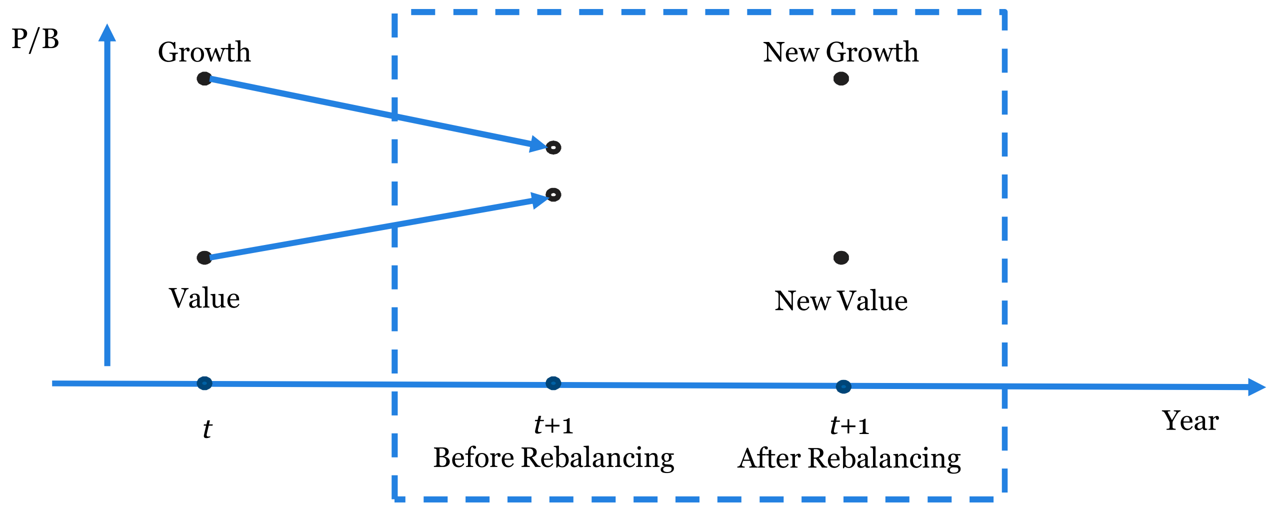
- **Fama and French (2002) and Arnott and Bernstein (2002)**

$$\textit{Portfolio Alpha} \approx \underbrace{\textit{Return Due to Change in Relative Valuation}}_{\text{“Revaluation Alpha”}} + \underbrace{\textit{Valuation-Adjusted Alpha}}_{\text{“Structural Alpha”}}$$

- **Alpha due to a change in relative valuation**
- **Structural alpha: Migration + Profitability differences**

*Source: Arnott, Robert D., and Peter L. Bernstein. 2002. “What Risk Premium is ‘Normal’?” Financial Analysts Journal, vol. 58, no. 2 (March/April):64–85 and Fama, Eugene F., and Kenneth R. French. 2002. “The Equity Premium.” Journal of Finance, vol. 57, no. 2. (April):637–659.*

# How Migration Drives the Alpha for the Value Factor

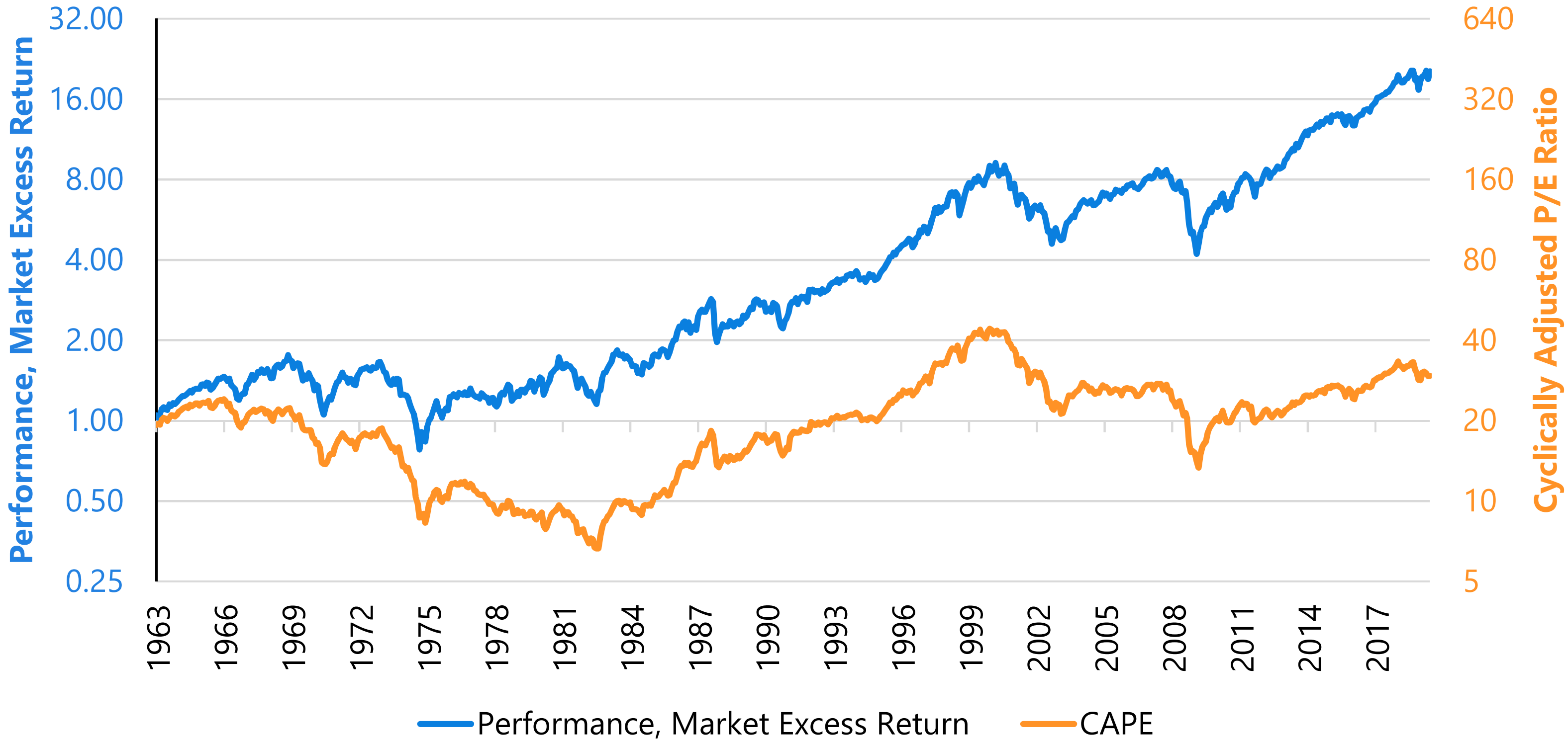



**Fama and French (2007) — A large share of the value premium comes from:**

- Value stocks rising into the neutral and growth portfolios, each replaced with another deep value stock.
- Growth stocks falling into the neutral and value portfolios, each replaced with a new high-flier.

*For illustrative purposes only.*

# Valuation Cycle for the Market

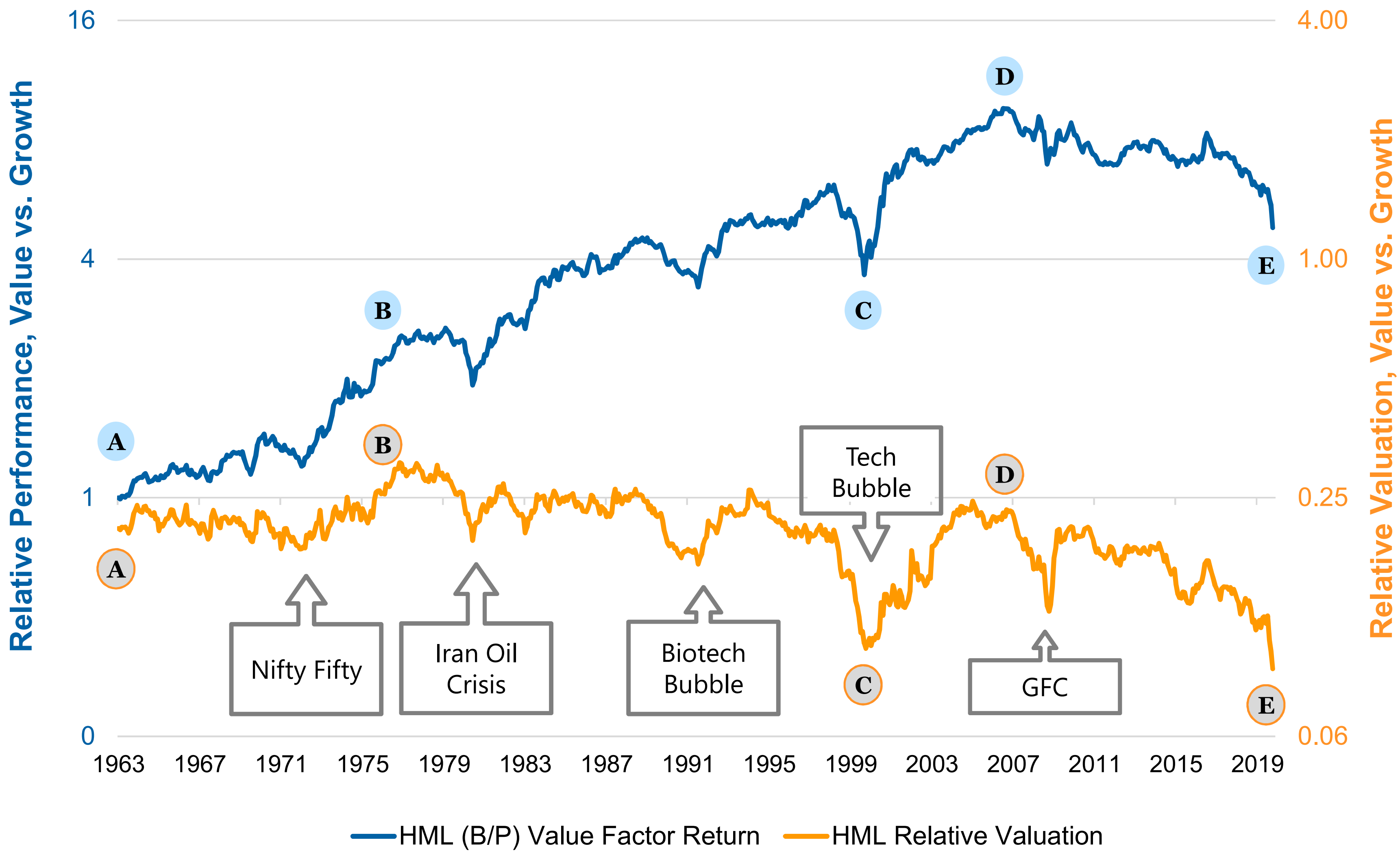



**Fama and French (2002) and Arnott and Bernstein (2002)**

$$\textit{HML Portfolio Return} \approx \underbrace{\textit{Return Due to Change in Valuation}}_{\textit{“Revaluation Return”}} + \underbrace{\textit{Valuation-Adjusted Return}}_{\textit{“Structural Return”}}$$

*Source: Arnott, Robert D., and Peter L. Bernstein. 2002. “What Risk Premium is ‘Normal’?” Financial Analysts Journal, vol. 58, no. 2 (March/April):64–85 and Fama, Eugene F., and Kenneth R. French. 2002. “The Equity Premium.” Journal of Finance, vol. 57, no. 2. (April):637–659.*

# Valuation Cycle for HML: Value vs. Growth




*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*
*Point A represents the starting point of analysis.*
*Point B represents the discovery of the value premium by Basu.*
*Point C represents the crash of the tech bubble.*
*Point D represents the Global Financial Crisis.*
*Point E is the ending point.*

# Pre-2007 & Post 2007 Sample

**Value Return Decomposition, United States, Jul 1963–Dec 2006**

| Size | Valuation | Total Return | Revaluation Alpha | Structural Alpha | = Profitability | + Migration |
|---|---|---|---|---|---|---|
| Small | Growth | 8.4% | 1.2% | 7.2% | 17.9% | -10.8% |
| | Neutral | 14.4% | 1.3% | 13.1% | 9.1% | 4.0% |
| | Value | 16.8% | 1.3% | 15.5% | 0.3% | 15.3% |
| | *Value – Growth* | *8.5%* | *0.1%* | *8.4%* | *-17.7%* | *26.0%* |
| Big | Growth | 9.3% | 1.2% | 8.2% | 15.2% | -7.0% |
| | Neutral | 11.1% | 1.0% | 10.1% | 10.7% | -0.5% |
| | Value | 13.2% | 1.4% | 11.7% | 6.4% | 5.4% |
| | *Value – Growth* | *3.8%* | *0.3%* | *3.5%* | *-8.8%* | *12.4%* |
| **Average** | **HML** | **6.1%** | **0.2%** | **6.0%** | **-13.2%** | **19.2%** |

**Value Return Decomposition, United States, Dec 2006–Mar 2020**

| Size | Valuation | Total Return | Revaluation Alpha | Structural Alpha | = Profitability | + Migration |
|---|---|---|---|---|---|---|
| Small | *Value – Growth* | *-4.1%* | *-4.5%* | *0.4%* | *-22.8%* | *23.2%* |
| Big | Value – Growth | *-6.8%* | *-8.6%* | *1.8%* | *-9.0%* | *10.8%* |
| **Average** | **HML** | **-5.4%** | **-6.6%** | **1.1%** | **-15.9%** | **17.0%** |

*Note: Returns are log-returns.*

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*

# Mismeasurement of Value

# The World Has Changed

**We have moved away from a manufacturing economy to a service-based economy.**

**Company Capital**

**Tangible Capital**
- Physical capital
- Cash and other equity

**Intangible Capital**
- Patents
- Knowledge
- Brand
- External network
- Human capital

*Largely Ignored by Book Value*

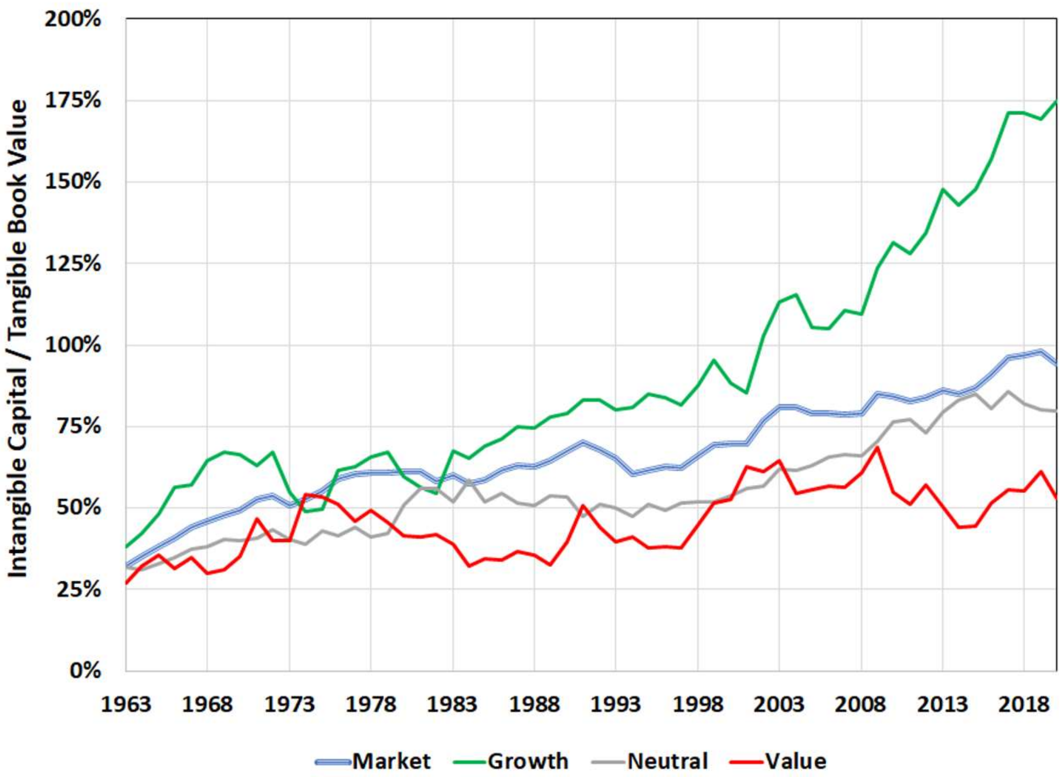
**Following Peters and Taylor (2017)*, we construct a measure of intangible capital:**

– Instead of P/B, use the total *q* — the firm's total market value (book value of debt plus market value of equity) divided by the sums of intangible (previously defined) and physical capital (book value of assets).

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*
*We use Peters and Taylor (2017) in how we capitalize R&D and SG&A. In their research for measuring tangible capital, they use plant, property and equipment, whereas we use book value of equity.*

# Has Value been Mismeasured? Book Value Excludes Half of Average Company's Capital

**Ratio of Intangible Capital to Tangible Book Value in Total Company Capital, United States, Jul 1963–Mar 2020**



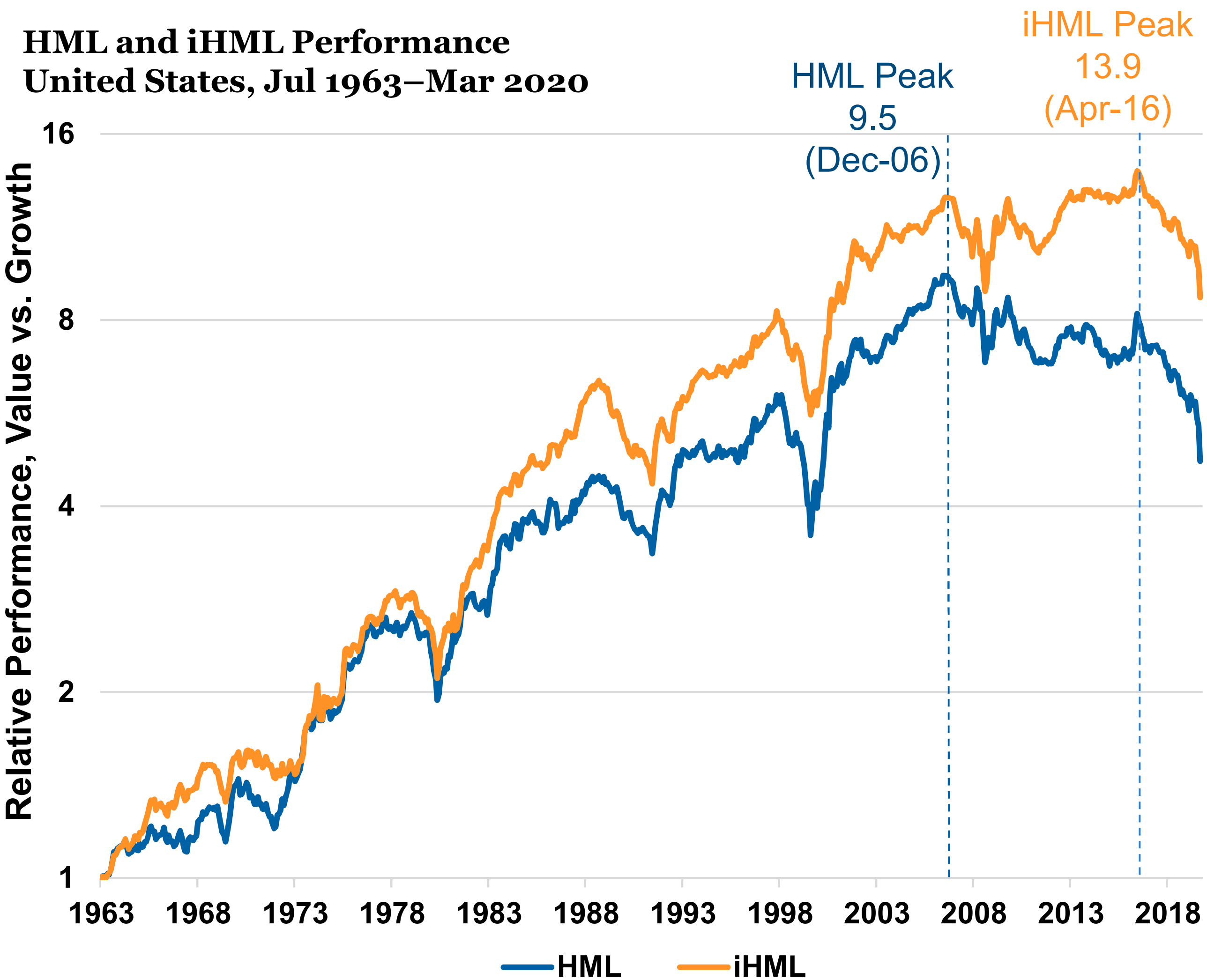

**For the market in general, book value misses roughly half of the average company's capital today.**

- For the average **value** company, book value misses more than **1/3** of the company's total capital which is represented by intangibles.
- For the average **growth** company, book value misses nearly **2/3** of the company's total capital which is represented by intangibles.

*Source: Research Affiliates, LLC, using CRSP/Compustat and Peters-Taylor data.*

# Including Intangibles in the Definition of Value May Help Protect Long-Run Structural Alpha

**HML and iHML Performance**
**United States, Jul 1963–Mar 2020**




- Value is currently more expensive than it looks.
  - Excludes some value stocks with minimal intangibles.
- Growth is currently cheaper than it looks.
  - Excludes some growth stocks with large intangibles.

*Source: Research Affiliates, LLC, using CRSP/Compustat and Peters-Taylor data.*

# Changes in Relative Valuation Hold True for Alternative Definitions of Value

**Performance of Alternative Value Definitions, United States, July 1963 – Mar 2020**

| | Jun 1963–Dec 2006 | | Jan 2007 – Mar 2020 | | Jun 1963 – Mar 2020 | | Historical Percentile Rank | |
|---|---|---|---|---|---|---|---|---|
| | Average | t-stat | Average | t-stat | Average | t-stat | June 2007 | Mar 2020 |
| HML, Book-to-Price | 5.7% | 3.88 | -4.7% | -1.75 | 3.2% | 2.50 | 22% | 100% |
| HML, Small-Cap | 7.5% | 4.35 | -3.9% | -1.44 | 4.9% | 3.29 | 52% | 99% |
| HML, Large-Cap | 3.8% | 2.47 | -5.6% | -1.71 | 1.6% | 1.14 | 13% | 98% |
| Value-to-Neutral | 2.4% | 3.43 | -2.1% | -1.17 | 1.3% | 1.95 | 48% | 96% |
| Neutral-to-Growth | 3.3% | 2.73 | -2.6% | -1.88 | 1.9% | 1.94 | 13% | 99% |
| iHML, iBook-to-Price | 6.2% | 4.78 | -2.3% | -0.88 | 4.2% | 3.61 | 41% | 97% |
| Earnings-to-Price | 5.3% | 3.09 | -1.7% | -0.73 | 3.6% | 2.55 | 40% | 90% |
| Sales-to-Price | 5.8% | 4.01 | -1.0% | -0.48 | 4.2% | 3.47 | 22% | 98% |
| Dividends-to-Price | 1.5% | 1.02 | -2.7% | -1.08 | 0.5% | 0.43 | 80% | 55% |
| Composite | 4.9% | 3.87 | -3.1% | -1.16 | 3.0% | 2.07 | 40% | 95% |

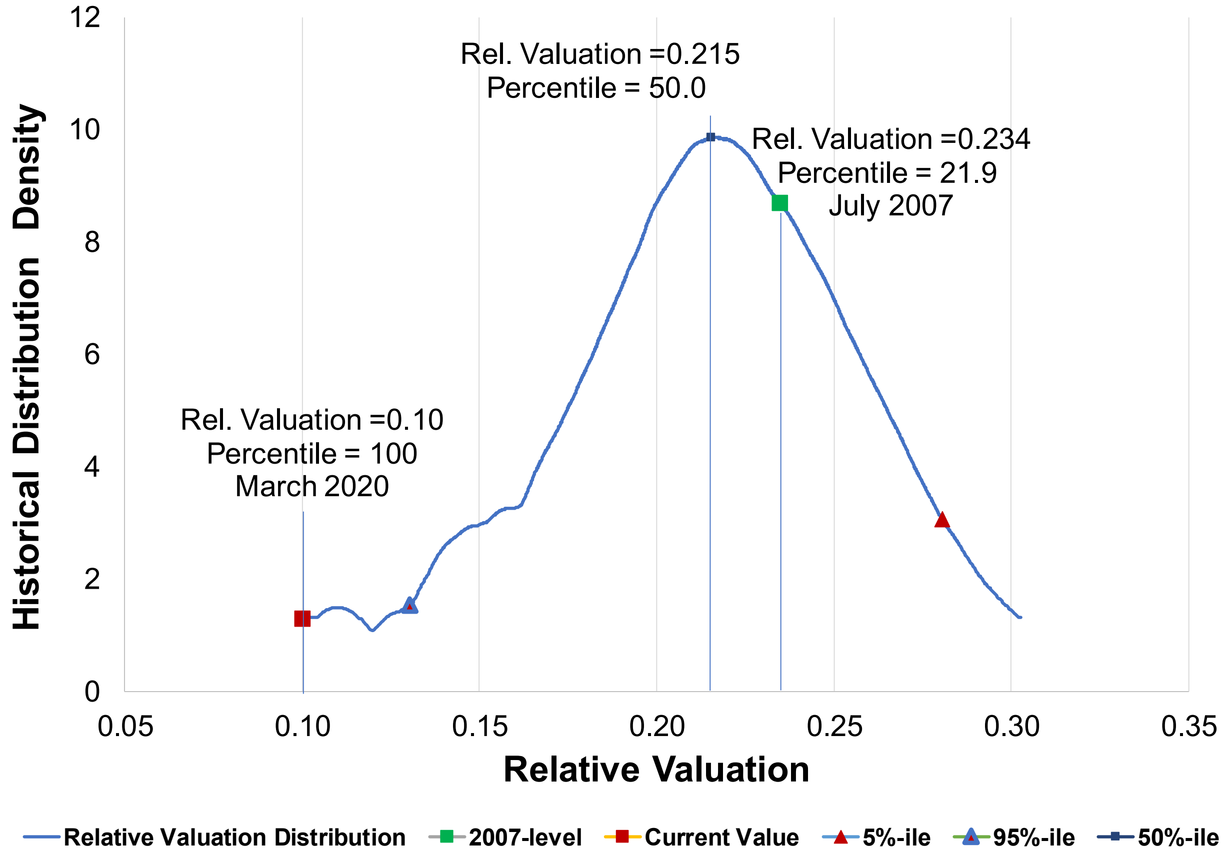
*Note: Returns are arithmetic returns.*

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020.*
*Note: Neutral in the value-to-neutral and neutral-to-growth definitions is the 40% of neutral stocks by P/B ratios. Similar to HML both of these definitions are balanced by size. In the portfolios defined by earnings-to-price, sales-to-price, and dividends-to-price ratios we follow the HML convention but with the difference that, instead of P/B, we use the corresponding ratios to form the portfolios. Composite uses the average of the normalized book value, five-year averages of earnings, sales, and dividends divided by the company market capitalization. For the dividends-to-price ratio–based portfolio we exclude the nondividend-paying stocks as the first step of portfolio formation to avoid classifying nondividend-paying stocks as growth stocks. We use five-year averages to make the portfolio definitions less sensitive to cyclical peaks and troughs. We measure the valuations percentiles in June 2007 and June 2019 using the same ratio that we use to form the portfolios. With the earnings-to-price and composite measures, we convert each measure to a percentile rank based on its location in the full-sample distribution.*

# The Outlook for Value

# Percentiles

- **We began the drawdown in 2007, in the top quartile of past relative valuation levels.**
- **Today we are at the 100th percentile.**
- **Using our regression approach, we can examine some what-if scenarios.**




*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020. Estimated information provided for illustrative purposes only.*

# Percentiles

**Even if we stay in the 100th percentile, the contribution of migration + profitability generates a 4.9% outperformance of value relative to growth.**

**Forward-Looking Expected Returns Conditional: Scenario Analysis**

| Directional Change | Scenario End Point | Relative Valuation | Log-Relative Valuation Z-score | Historical Percentile Rank | Return |
|---|---|---|---|---|---|
| Expanding Relative Valuations | Zero Premium | 0.094 | -3.94 | Beyond 100% | 0.0% |
| *No Change* | *Stay at 100%-ile* | *0.100* | *–3.63* | *100.0%* | *4.9%* |
| Contracting Relative Valuations | Move to 95%-ile | 0.135 | –2.16 | 95.0% | 28.7% |
| | Move to 90%-ile | 0.154 | –1.55 | 90.0% | 38.6% |
| | Move to 50%-ile | 0.215 | –0.10 | 50.0% | 65.2% |

*Note: Returns are log-returns.*

*Source: Research Affiliates, LLC, using CRSP and Compustat data. United States, July 1963-March 2020. Estimated information provided for illustrative purposes only.*

# Conclusions

**Value engine is (surprisingly) quite healthy**

- Rates of migration on par with history.
- Differences in profitability on par with history.
- BUT, the correct definition of value is in flux!

**Post-2007 return are more than 100% attributable to revaluation**

- Starting valuation — richest quartile pricing for HML value relative to growth.
- Ending valuation — cheapest percentile ever for HML value relative to growth.
- Other definitions of “value” show a similar pattern. Value is now very, very cheap.

**Three caveats:**

1. Percentile analysis is based on historical distribution (things could get worse).
2. Returns are noisy. We argue that much of the recent performance of value can be attributed to bad luck—there could be additional bad luck.
3. “It’s different this time.” With the global economy basically shut down, will dividends, earnings, even sales, return to past norms anytime soon?

**Nevertheless, anytime you are in the extreme tail of the distribution, expected returns are high.**

# Thank you

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# Appendix

**IMPORTANT INFORMATION REGARDING PIMCO RAE EMERGING MARKETS STRATEGY**

**PERFORMANCE AND FEE**

**Past performance is not a guarantee or a reliable indicator of future results**. Gross returns do not reflect the deduction of investment advisory fees (for Pacific Investment Management Company LLC described in Part 2 of its Form ADV) in the case of both separate investment accounts and mutual funds; but they do reflect commissions, other expenses (except custody), and reinvestment of earnings. Such fees that a client may incur in the management of their investment advisory account may reduce the client's return. For example, over a five-year period, annual advisory fees of 0.425% would reduce compounding at 10% annually from 61.05% before fees to 57.96% after fees. The "net of fees' performance figures reflect reinvestment of earnings and dividends and the deduction of investment advisory fees and brokerage commissions but, typically, do not reflect the deduction of custodial fees. All periods longer than one year are annualized. Separate account clients may elect to include PIMCO sector funds in their portfolio; sector funds may be subject to additional terms and fees. For a copy of net of fees performance, unless included otherwise, please contact your PIMCO representative.

**CHART**

Performance results for certain charts and graphs may be limited by date ranges specified on those charts and graphs; different time periods may produce different results.

**COMPOSITE**

Composite performance is preliminary until the 12th business day of the month.

**INDEX**

It is not possible to invest directly in an unmanaged index.

**INVESTMENT STRATEGY**

There is no guarantee that these investment strategies will work under all market conditions or are appropriate for all investors and each investor should evaluate their ability to invest long-term, especially during periods of downturn in the market. No representation is being made that any account, product, or strategy will or is likely to achieve profits, losses, or results similar to those shown.

**REPRESENTATIVE ACCOUNT**

This account was chosen because it is the largest or considered the most representative of the strategy's track record. No guarantee is being made that the structure or actual account holdings of any account will be the same or that similar returns will be achieved.

**IMPORTANT INFORMATION REGARDING PIMCO RAE EM LLC**

**Past performance is not a guarantee or a reliable indicator of future results.** The Fund's fees are discussed within the Private Placement Memorandum (PPM).

The information contained herein is being furnished solely for the purpose of giving you a preliminary indication of the strategy and structure of the Fund and is not to be used for any other purpose or made available to anyone not directly concerned with your evaluation of a potential investment in the Fund. The summary of the structure and other information for the Fund mentioned in this presentation are not and do not purport to be complete, and are qualified by and will be subject to the Documents (defined below).

Any investment decision with respect to the Fund must be based solely on the Fund's private placement memorandum (the "Memorandum"), limited partnership agreement, subscription agreement and other definitive fund governing documents (the "Documents"), which shall govern in the event of any conflict with the information contained herein. **You must rely only on the information in the Documents in making any decision to invest in the Fund.**

This summary is for informational purposes only, and does not constitute an offer to sell, or a solicitation of an offer to buy, interests in the Fund or to participate in any trading strategy. In the event that an offer were to be made, any such offer would be made only after a prospective purchaser has had the opportunity to conduct its own independent evaluation of the Fund and has received all information required to make its own investment decision, including a copy of the Documents, which will contain material information not included herein and to which prospective purchasers are referred. No person has been authorized to give any information or to make any representation with respect to the Fund other than those contained in this summary and, if given or made, such information or representations must not be relied upon as having been authorized. This material is not intended to provide, and should not be relied on for, accounting, legal, investment, tax or other advice. Each prospective investor should consult its own counsel, accountant, or tax or business adviser as to legal, accounting, regulatory, tax and related matters, as well as economic risks and merits, concerning the possibility of making an investment in the Fund.

# Appendix

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It is not possible to invest directly in an unmanaged index.

## RAE Emerging Markets Composite

| | Composite Return (%) Before Fees | Composite Return (%) After Fees | Benchmark Return (%)* | Composite Dispersion Before Fees | Composite 3-Yr Std Dev Before Fees | Benchmark 3-Yr Std Dev | Number of Portfolios | Composite Assets (USD) Millions | Total Firm Assets (USD) Billions |
|---|---|---|---|---|---|---|---|---|---|
| 2019 | 14.60 | 13.80 | 11.96 | N/A | 14.92 | 13.70 | Five or Fewer | 4,055.6 | 1,899.1 |
| 2018 | -12.02 | -12.62 | -10.74 | N/A | 17.87 | 15.07 | Five or Fewer | 2,744.9 | 1,664.6 |
| 2017 | 30.20 | 29.31 | 28.07 | N/A | 19.17 | 16.59 | Five or Fewer | 2,792.6 | 1,755.7 |
| 2016 | 33.62 | 32.71 | 14.90 | N/A | 20.17 | 17.55 | Five or Fewer | 1,806.9 | 1,467.0 |
| 2015 | -22.93 | -23.30 | -18.57 | N/A | 16.36 | 15.17 | Five or Fewer | 375.4 | 1,435.0 |
| 2014 | -1.02 | -1.39 | -4.08 | N/A | 16.79 | 16.12 | Five or Fewer | 944.7 | N/A |
| 2013 | -3.74 | -4.12 | -5.11 | N/A | 19.63 | 19.27 | Five or Fewer | 748.0 | N/A |
| 2012 | 20.09 | 19.59 | 15.87 | N/A | 21.86 | 21.49 | Five or Fewer | 562.6 | N/A |
| 2011 | -18.62 | -19.01 | -17.86 | N/A | 28.13 | 25.94 | Five or Fewer | 173.7 | N/A |
| 2010 | 21.11 | 20.34 | 18.41 | N/A | 34.99 | 32.25 | Five or Fewer | 135.7 | N/A |

| PIMCO RAE Emerging Markets Separate Account Fee Schedule: | |
|---|---|
| First $50 Million | 0.500% |
| Next $50 Million | 0.450% |
| Thereafter | 0.400% |

* MSCI Emerging Markets Value Index

The composite creation date is May 2015

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PIMCO claims compliance with the Global Investment Performance Standards (GIPS®) and has prepared and presented this report in compliance with the GIPS standards. PIMCO has been independently verified for the period January 1987 through December 2019. Verification assesses whether (1) the firm has complied with all the composite construction requirements of the GIPS standards on a firm-wide basis and (2) the firm's policies and procedures are designed to calculate and present performance in compliance with the GIPS standards. The PIMCO RAE Emerging Markets Composite has been examined for the period January 2015 through December 2018. The verification and performance examination reports are available upon request. GIPS® is a registered trademark owned by CFA Institute. CFA Institute does not endorse or promote this organization, nor does it warrant the accuracy or quality of the content contained herein.

The PIMCO RAE Emerging Markets Composite includes all discretionary, USD-based accounts managed to the PIMCO RAE Emerging Markets strategy. The PIMCO RAE Emerging Markets strategy is a systematic active emerging markets value strategy designed to outperform the MSCI Emerging Markets Value Index. Unlike traditional active equity approaches, the strategy selects stocks based on fundamental measures of company size such as sales, cash flows, dividends and book value. The strategy then refines these weights by incorporating active insights into quality, momentum, size and style. The strategy seeks to capitalize on market inefficiencies by systematically buying low and selling high, with the goal of outperforming the MSCI Emerging Markets Value Index over time. Research Affiliates, LLC serves as the subadvisor for this strategy since inception. Portfolios in the composite may include institutional accounts or pooled vehicles. Prior to June 2015, the minimum account size for inclusion in the composite was $3 million.

The MSCI Emerging Markets Value Index captures large and mid-cap securities exhibiting overall value style characteristics across select emerging markets countries. The value investment style characteristics for index construction of the MSCI Emerging Markets Value Index are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

Valuations are computed and performance is reported in U.S. dollars. Returns are presented gross and net of management fees and include the reinvestment of all income. Net results reflect the deduction of actual management fees and, in some instances, custodial and administrative fees. Actual fees incurred by client accounts may vary. When applicable, composite performance is net of any actual withholding tax paid and not reclaimable. Index returns are net of withholding tax.

Composite dispersion presented is the equal-weighted standard deviation of annual returns for all portfolios in the composite for the full year. Dispersion is not statistically meaningful for periods shorter than a year or for years in which five or fewer portfolios were included for the full year. The three-year annualized ex-post standard deviation measures the variability of the composite and the benchmark returns over the preceding 36-month period. The three-year annualized ex-post standard deviation is not presented if 36 monthly returns are not available. A complete list of composite descriptions and policies for valuing portfolios, calculating performance, and preparing compliant presentations are available upon request.

Though not typically utilized extensively by this strategy, derivatives may be used in a non-leveraged manner as substitutes for physical securities. Use of these instruments may involve certain costs and risks such as liquidity, interest rate, market, credit, management and the risk that a position could not be closed when most advantageous. Investing in derivatives could lose more than the amount invested.

Performance presented prior to June 2015 represents the historical track record of the subadvisor and should not be interpreted as the actual historical performance of PIMCO. PIMCO has adhered to the performance record portability requirements outlined in the GIPS standards in regard to the presentation and linking of this performance track record. Total firm assets are not presented prior to 2015 because the composite assets prior to June 2015 were not managed by PIMCO and are not included in firm assets.

**Past performance is not a guarantee or a reliable indicator of future results.**

Meeting Date
07/22/20
Agenda Item
#9

Contra Costa County Employees' Retirement Association

# MEMORANDUM

Date: July 22, 2020

To: CCCERA Board of Retirement

From: Timothy Price, Chief Investment Officer

Subject: Investment Asset Allocation Resolution 2020-2

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***Overview***

In the Investment Policy Statement adopted by the Board on April 24, 2019, a process is outlined to make annual adjustments to the target asset allocation and express in the form of investment resolutions adopted by the Board. On June 24 CCCERA Investment Staff discussed the size of the required Liquidity sub-portfolio funding for a new "Year 4" tranche. This will result in a recommended 1% increase to the Liquidity sub-portfolio, a 0.5% increase in the Growth sub-portfolio and an offsetting 1.5% decrease in the Diversifying sub-portfolio.

BOR Resolution 2020-2 encompasses the Board discussion at the June 24, 2020 meeting. Implementation of BOR Resolution 2020-2 will occur during the annual funding plan in late July and early August of 2020.

***Recommendation***

Consider and take possible action to adopt BOR Resolution 2020-2, Investment Asset Allocation Targets and Ranges.

**BOR Resolution. No. 2020-2**

# RESOLUTION OF THE BOARD OF RETIREMENT
# CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

## INVESTMENT ASSET ALLOCATION TARGETS AND RANGES

WHEREAS, Article XVI, §17 of the Constitution of the State of California vests the Board of Retirement (Board) with "plenary authority and fiduciary responsibility for the investment of moneys and the administration of the system"; and

WHEREAS, the Board has exclusive control of the investment of CCCERA and may, in its discretion and subject to applicable law, invest, or delegate the authority to invest, the assets of the fund through the purchase, holding or sale or any form or type of investment, financial instrument, or financial transaction when prudent in the informed decision of the board, pursuant to the County Employees Retirement Law of 1937 (CERL), Government Code Section 31595; and

WHEREAS, the Board has adopted an Investment Policy Statement ("IPS"), pursuant to which the Board is to periodically set, review and revise its asset allocation targets.

NOW, THEREFORE BE IT RESOLVED that it shall be the policy of CCCERA to invest assets in the following manner:

**Asset Allocation**

Section 6.B of the Investment Policy Statement ("IPS"), adopted April 24, 2019, provides that "annually the Board shall review the relative size and composition of [the] sub-portfolios and revise them as necessary through Investment Resolutions." During this annual review, the CIO will recommend the targets, weightings, and the rationale for any deviation to an under-weight or over- weight across the asset allocation. The Board will consider and take action to adopt or revise asset allocation targets. Under the direction of the Board of Retirement, investment staff will administer the asset allocation per the Board's action.

As of 2020 the long-term asset allocation targets determined by the Board are as follows:

| | Long Term | Current Target |
|---|---|---|
| Liquidity: | 24% | 25.0% |
| Growth: | 66% | 68.5% |
| Diversifying: | 10% | 6.5% |

The Liquidity sub-portfolio will have a target allocation of 25% once the annual funding has been completed. Over the course of the following 12 months, the Liquidity sub-portfolio will be used to pay benefits and expenses. As a result, and aside from market fluctuations, the funds in the Liquidity sub-portfolio will decline from the targeted allocation and, therefore, the relative allocations to the Growth and Diversifying sub-portfolios will increase proportionately.

| Sub-Portfolio Strategy | Current Target | Range |
|---|---|---|
| **Growth** | **68.5%** | **60-80%** |
| Jackson Square | 2.0% | |
| Boston Partners | 2.0% | |
| Emerald | 1.5% | |
| Ceredex | 1.5% | |
| BlackRock Index Fund | 2.0% | |
| Pyrford | 5.0% | |
| William Blair | 5.0% | |
| Artisan | 4.0% | |
| First Eagle | 4.0% | |
| TT Emerging Markets | 4.0% | |
| PIMCO/RAE Emerging Markets | 4.0% | |
| Adelante | 1.0% | |
| Allianz | 1.5% | |
| Private Real Estate | 8.0% | |
| Private Equity | 11.0% | |
| Private Credit | 7.0% | |
| Risk Parity | 5.0% | |
| | | |
| **Liquidity** | **25.0%** | **16-28%** |
| Insight | 13.0% | |
| DFA | 6.0% | |
| Sit | 6.0% | |
| | | |
| **Risk Diversifying** | **6.5%** | **0-10%** |
| AFL-CIO HIT | 3.0% | |
| Parametric Defensive Equity | 2.0% | |
| Acadian MAARS | 1.5% | |
| | | |
| **Total** | **100.0%** | |

THIS RESOLUTION WAS ADOPTED BY THE AFFIRMATIVE VOTE OF THE BOARD OF RETIREMENT OF THE CONTRA COSTA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION THIS _____ DAY OF _______, 2020.

AYES:
NOES:
ABSTAIN:
ABSENT:

______________________________________________________________________

| | |
|---|---|
| Todd Smithey | Attest: |
| Chairperson of the Board of Retirement | David J. MacDonald |
| | Secretary of the Board of Retirement |

Meeting Date
07/22/20
Agenda Item
#10a.

NASRA

# NASRA Annual Conference Frequently Asked Questions

## Registration

### Who may attend?

The Annual Conference is open to NASRA members in good standing. They may elect to bring staff members, trustees, or colleagues from their firm.

### What are the registration fees?

System Members, Staff and Trustees and Education Alliance Members: $395 per person
Premium and Associate Members: $395 per person

### How do I register a Trustee from my retirement system?

A trustee is a "guest" who pays the full registration fee. When a member registers, he/she can also add the trustee.

### Can I register someone else?

Yes, as long as you can login to NASRA.org, you may register multiple individuals and then indicate that you are not attending on the final screen.

## Member Guests

### Since the NASRA annual conference is virtual this year, the only "guests" attending would be system staff or associate colleagues.

If you have registered and paid to attend and later decide to add a colleague, please contact Mary Hiatte at mary@nasra.org for an additional invoice.

Once you register, you cannot edit your answers to the custom questions on the registration form; however, if you notify NASRA of your change of plans, we can do it for you, and it will assist us in keeping a more accurate headcount.

### If I need to split my payment to pay for colleagues separately, what do I do?

Register yourself and your colleagues. Then select payment by invoice (not credit card).

After registering, click on **My Invoices** to see your outstanding conference payment. You can divide the total to pay for colleagues separately via credit card online or by calling (859) 276-4612 or by check(s) to the address on the invoice.

## Associate Members' Questions

### How many members from my firm can attend the conference?

Premium Associate Members may bring up to seven people to the conference. Regular Associate firms may have up to five people attend.

### Is there an exhibit area?

At NASRA's Virtual Annual Meeting & Expo Hall, commercial members will have the opportunity to gain industry intelligence and insight and learn from the leaders who are moving their organizations forward, as well as provide a virtual 'booth' where pension professionals can view your products and service offerings. Discover how you might support the efforts of pension systems to stay on pace with an everchanging pension industry landscape. This is a new offering for this virtual event, free with conference registration! NASRA is diligently working on finalizing the new Premium and Regular Associate Member opportunities for the 2020 NASRA Virtual Annual Conference experience. NASRA will be providing additional information to our commercial members in the coming weeks.

## Cancellation policy

Cancellations must be submitted in writing to administration@nasra.org for reimbursement accordingly:

- July 17: full refund
- July 18 to July 31:  50 percent of the registration fee
- August 1 and after: no refund

***CONTINUITY IN CHANGING TIMES!*** Moving forward effectively to serve our stakeholders—the 15 million working and 11 million retired employees of state and local government, the thousands of public employers, and the millions who rely on the services they provide—requires a focused approach, attention to detail and a dedication to management that is second to none.

Join us for the 66th NASRA Annual Conference to learn, share, and network -- ***Continuity in Changing Times*** to make a difference in the public retirement community.

Please be sure to read through all instructions when registering. For any questions, contact Mary Hiatte via e-mail or call 202.624.1418.

***Monday through Friday, August 3-7***
NASRA will host a series of small format directors-only highly interactive workshops organized by NASRA region, led by our Regional Vice Presidents and focused on important issues of the day facing the states. ***Look for more information coming soon to the state directors for these meetings.***

***Friday, August 7***
***Senior Staff Workshop*** - NASRA will host a virtual Senior Staff Workshop designed by senior pension system staff, for senior pension system staff. More detail on time and content will be distributed in the coming weeks.

## *FIRST GENERAL SESSION*

***Monday, August 10***
***11:30 am - 4:00 pm EDT / 8:30 am - 1:00 pm PDT***

***Keynote Address, Economic Outlook - Anirban Basu, The Sage Group.*** Anirban is a popular and well-regarded speaker who, capitalizing on his appearance last year at NASRA's conference, will provide a baseline perspective of what has changed and where we are going in this current economic environment.

***Actuarial Interactive Roundtable*** - Join actuarial professionals and directors as they review the newest developments regarding valuations, disclosures and more.

***Investment Panel*** - Listen to investment professionals discuss the market today and what to expect in the coming years.

***Virtual Roll Call of the States, Part 1*** - The core of the annual conference--adapted to the virtual environment. Watch our system directors as they review the significant happenings at their fund and what may be happening in the future.

## *SECOND GENERAL SESSION*

***Tuesday, August 11***
***11:30 am - 4:00 pm EDT / 8:30 am - 1:00 pm PDT***

***Keynote Address, 2020 Election Cycle - Tamara Keith, NPR White House Correspondent.*** A familiar voice to NPR listeners, Tamara Keith is a White House correspondent and co-host of the NPR Politics Podcast, the most listened-to podcast during the 2016 presidential campaign. Ms. Keith is also a member of the "Politics Monday" team on PBS NewsHour, providing regular analysis, commentary and well-honed insights on President Trump, Congress and the inner-workings of Washington politics.

***Interactive Roundtable*** - Join industry leaders discussing administrative considerations related to remote workforces from an audit and IT security perspective.

***Staff Reports - Federal Relations - Jeannine Raymond, NASRA Federal Relations Director.*** Jeannine will review the federal and regulatory issues NASRA follows, monitors, influences and more on behalf of NASRA members.

***Roll Call of the States, Part 2*** - A continuation of the reports from state directors on issues affecting their pension system.

## *THIRD GENERAL SESSION*

***Wednesday, August 12***
***11:30 am - 4:00 pm EDT / 8:30 am - 1:00 pm PDT***

***Staff Report, Research and Education*** - Keith Brainard, Research Director and Alex Brown, Research Manager - NASRA staff review the overarching trends in public pensions, state changes and more and update membership on the results of the Public Fund Survey.

***Interactive Roundtable*** - Investments, revenue and more in a COVID and Post-COVID world. An interactive discussion lead by industry experts providing opportunity to comment, share and debate fiscal trends in government.

***Operations Panel*** - Panel discussion on information systems technology and security. Listen to industry leaders speak to technology management, including new system implementation.

***Roll Call of the States, Part 3*** - The conclusion of this hallmark session for 2020.

**Registration Pricing**

**System Members and Education Alliance Members: $395 per person**
**Associates and Premium Associates: $395 per person**