



## S&P 500 & Sectors: Price-to-Economic Book Value Looks Cheaper But Still Not Cheap

This report analyzes<sup>1,2</sup> the trailing price-to-economic book value ([PEBV](#)) ratio for the S&P 500 and each of its sectors based on financial filings through the first quarter of 2022.

The trailing PEBV ratio compares the S&P 500's expected future profits (as reflected in its price) to its economic book value as of 5/16/22. The S&P 500's PEBV ratio of 1.2 implies the profits ([NOPAT](#)) of the S&P 500 will increase 20% from trailing-twelve-month (TTM) through 1Q22 levels.

Last quarter's analysis of the PEBV for the S&P 500 and each sector is [here](#). You can find the same analysis on other key metrics [here](#).

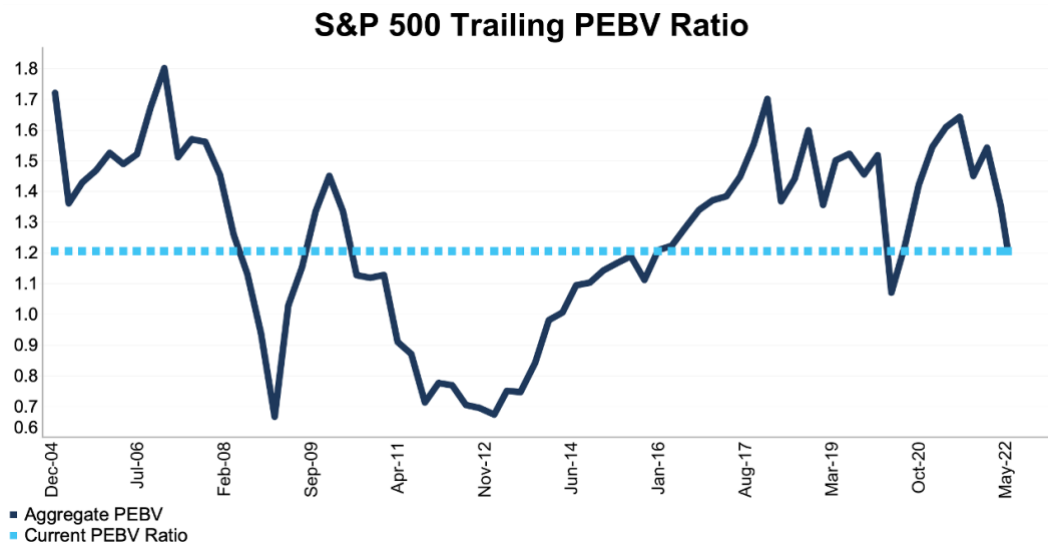
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### S&P 500 Trailing PEBV Ratio Falls to 2016 Levels

The trailing PEBV ratio for the S&P 500 fell from 1.6 on 6/30/21 to 1.2 on 5/16/22 and is at its second lowest level since June 30, 2016, per Figure 1. As shown in Appendix I, prices have come down, but profits have not fallen nearly as much, and market expectations of how low they will fall are in flux.

Figure 1: Trailing PEBV Ratio for the S&P 500 From December 2004 – 5/16/22



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

<sup>1</sup> We calculate these metrics based on [S&P Global's](#) (SPGI) methodology, which sums the individual S&P 500 constituent values for market cap and economic book value before using them to calculate the metrics. We call this the "Aggregate" methodology. Get more details in Appendices I and II.

<sup>2</sup> Analysis in this report is based on the latest audited financial data available, or 1Q22 10-Qs in most cases. Price data for the current period as of 5/16/22.

<sup>3</sup> Our research utilizes our [Core Earnings](#), a more reliable measure of profits, as proven in [Core Earnings: New Data & Evidence](#), written by professors at Harvard Business School (HBS) & MIT Sloan and published in [The Journal of Financial Economics](#).



**Ranking All Sectors by Trailing Price to Economic Book Value Ratio (PEBV)**

Five S&P 500 sectors, Telecom Services, Healthcare, Financials, Basic Materials, and Energy trade below their economic book value. The Consumer Non-cyclicals sector trades at its economic book value. Figure 2 shows the Telecom Services sector has the lowest trailing PEBV ratio among all eleven S&P 500 sectors based on prices as of 5/16/22 and financial data from 1Q22 10-Qs.

**Figure 2: Trailing PEBV Ratios for all S&P 500 Sectors as of 5/16/22**

Sector	Trailing PEBV Ratio
Telecom Services	0.5
Energy	0.9
Healthcare	0.9
Financials	0.9
Basic Materials	0.9
Consumer Non-cyclicals	1.0
Utilities	1.5
Technology	1.5
Consumer Cyclical	1.8
Industrials	1.8
Real Estate	3.5
<b>S&amp;P 500</b>	<b>1.2</b>

Sources: New Constructs, LLC and company filings.  
Price as of 5/16/22, financial data incorporates 1Q22 10-Qs.

A trailing PEBV ratio of 0.5 means the market expects the Telecom Services sector's profits to decline by 50% from TTM through 1Q22 levels. On the flip side, investors expect the Real Estate and Consumer Cyclical sectors (trailing PEBV ratios of 3.5 and 1.8) to improve profits more than any other S&P 500 sectors.

**Details on Each of the S&P 500 Sectors**

Figures 3 through 13 show the trailing PEBV ratio trends for every sector since 2004. Note that the current PEBV ratios are based on prices as of May 16, 2022 and the latest financial data, mostly 1Q22 10-Qs.

Appendix I presents the components of the trailing PEBV ratio: market cap and economic book value for the S&P 500 and each S&P 500 sector.

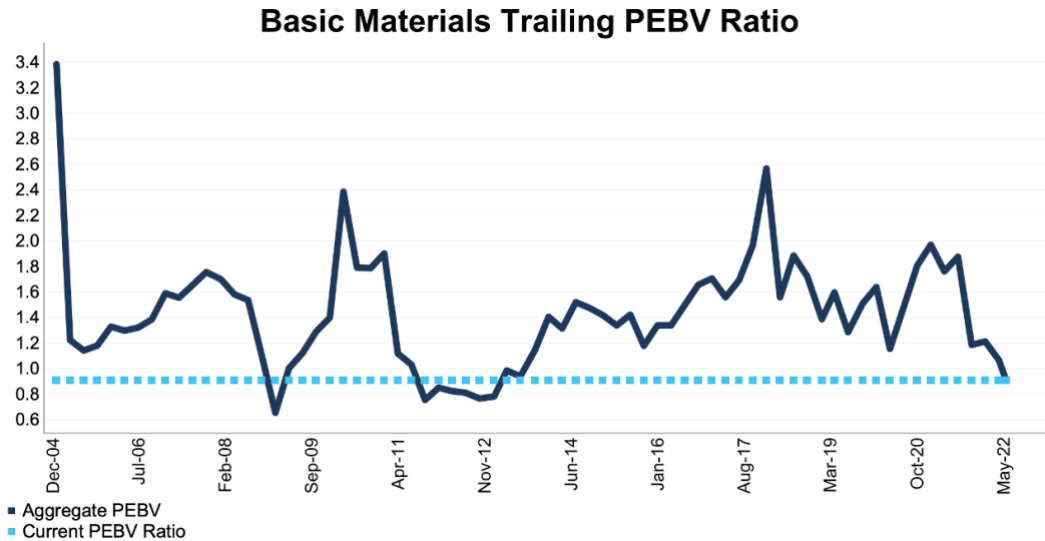
Appendix II provides additional aggregated trailing PEBV ratio analyses that adjusts for company size/market cap.



**Basic Materials: Trailing PEBV Ratio = 0.9**

Figure 3 shows the trailing PEBV ratio for the Basic Materials sector fell from 1.9 as of 6/30/21 to 0.9 as of 5/16/22. The Basic Materials sector market cap fell from \$1.0 trillion as of 6/30/21 to \$871 billion as of 5/16/22, while its economic book value rose from \$556 billion as of 6/30/21 to \$960 billion as of 5/16/22.

**Figure 3: Basic Materials Trailing PEBV Ratio: December 2004 – 5/16/22**



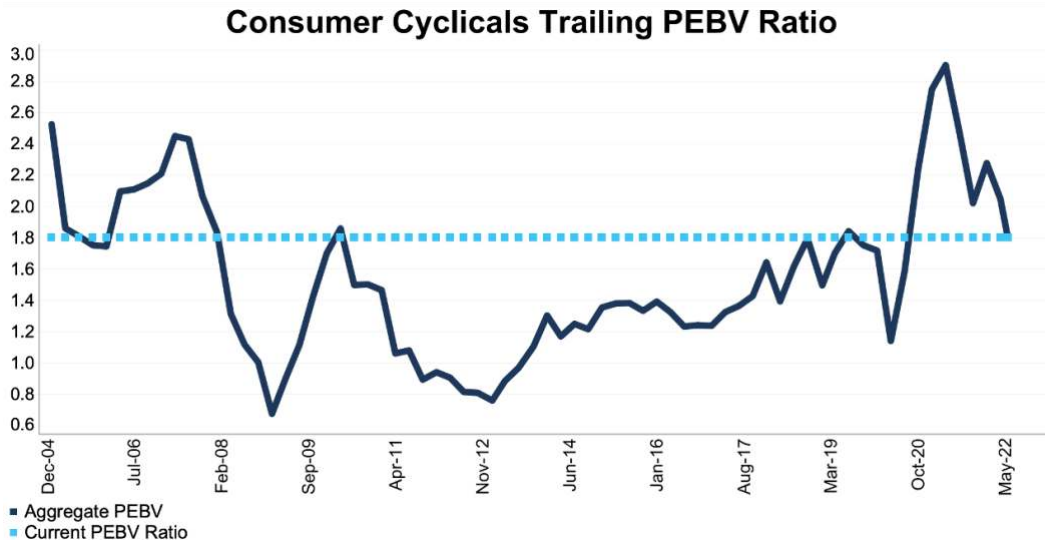
Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Consumer Cyclical: Trailing PEBV Ratio = 1.8**

Figure 4 shows the trailing PEBV ratio for the Consumer Cyclical sector fell from 2.5 as of 6/30/21 to 1.8 as of 5/16/22. The Consumer Cyclical sector market cap fell from \$5.9 trillion as of 6/30/21 to \$4.8 trillion in as of 5/16/22, while its economic book value rose from \$2.4 trillion as of 6/30/21 to \$2.7 trillion in as of 5/16/22.

**Figure 4: Consumer Cyclical Trailing PEBV Ratio: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

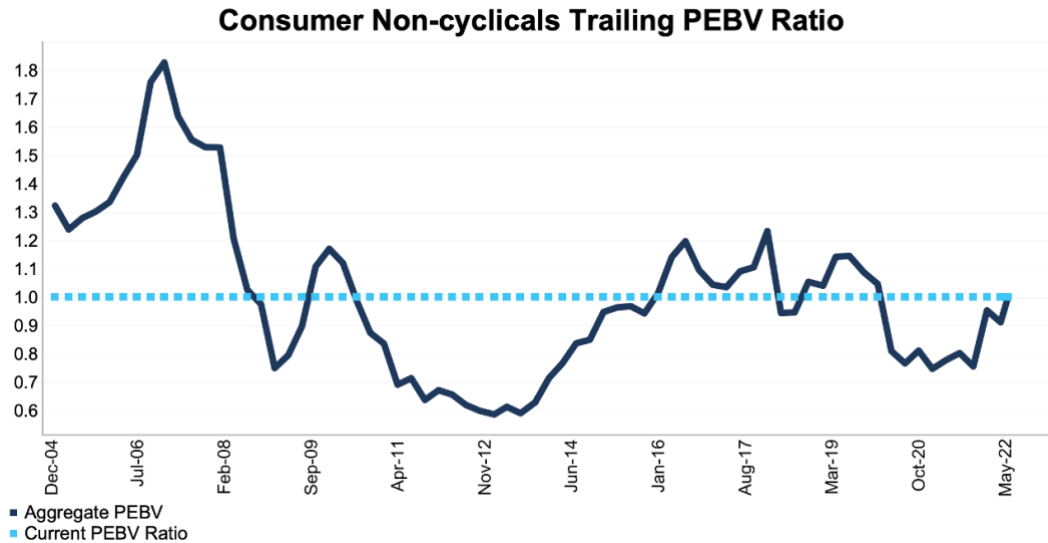
The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Consumer Non-cyclicals: Trailing PEBV Ratio = 1.0**

Figure 5 shows the trailing PEBV ratio for the Consumer Non-cyclicals sector rose from 0.8 as of 6/30/21 to 1.0 as of 5/16/22. The Consumer Non-cyclicals sector market cap rose from \$2.4 trillion as of 6/30/21 to \$2.7 trillion as of 5/16/22, while its economic book value fell from \$3.0 trillion as of 6/30/21 to \$2.7 trillion as of 5/16/22.

**Figure 5: Consumer Non-cyclicals Trailing PEBV Ratio: December 2004 – 5/16/22**

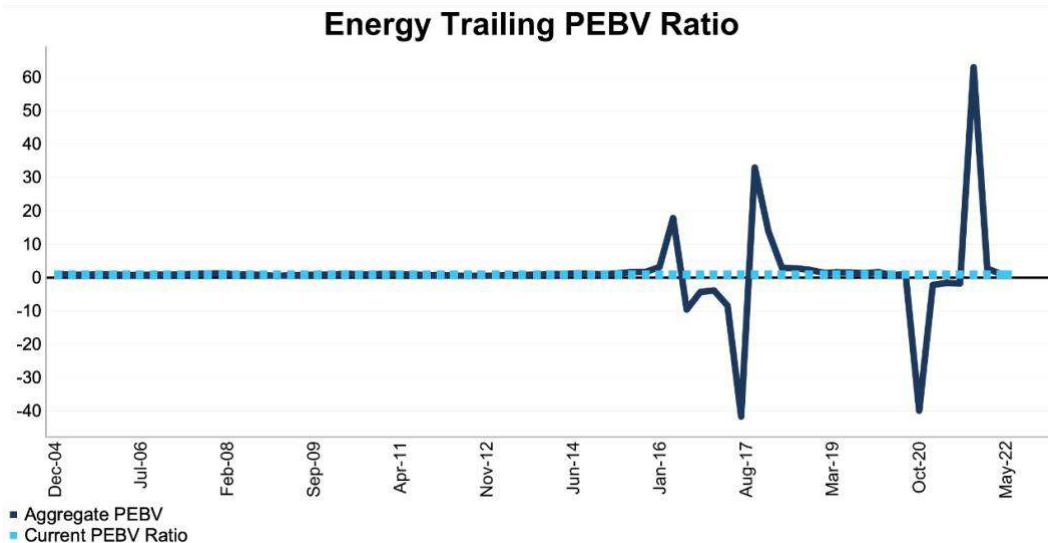


Sources: New Constructs, LLC and company filings.  
The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Energy: Trailing PEBV Ratio = 0.9**

Figure 6 shows the trailing PEBV ratio for the Energy sector rose from -1.8 as of 6/30/21 to 0.9 as of 5/16/22. The Energy sector market cap rose from \$1.1 trillion as of 6/30/21 to \$1.7 trillion as of 5/16/22, while its economic book value rose from -\$619 billion as of 6/30/21 to \$1.9 trillion as of 5/16/22.

**Figure 6: Energy Trailing PEBV Ratio: December 2004 – 5/16/22**



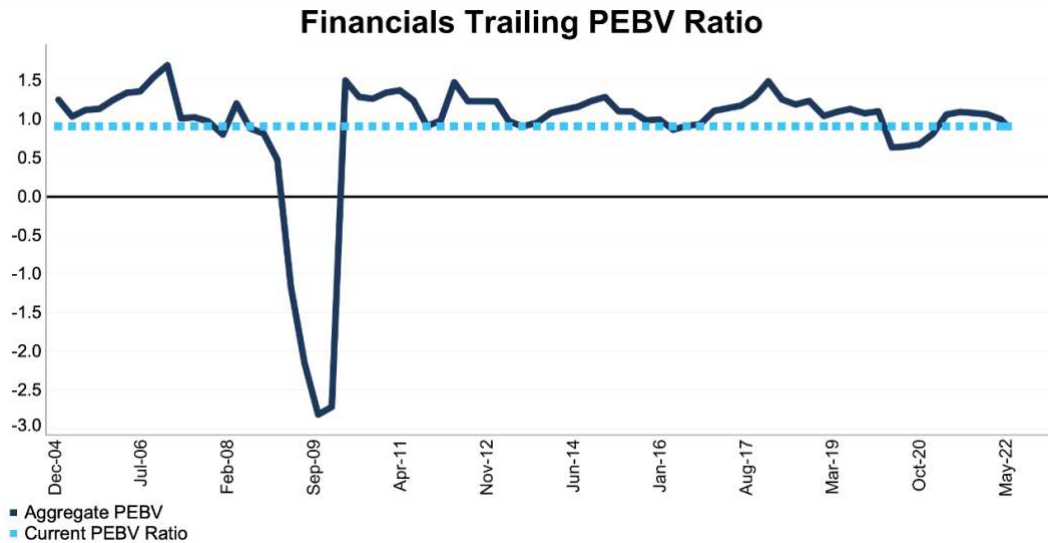
Sources: New Constructs, LLC and company filings.  
The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Financials: Trailing PEBV Ratio = 0.9**

Figure 7 shows the trailing PEBV ratio for the Financials sector fell from 1.1 as of 6/30/21 to 0.9 as of 5/16/22. The Financials sector market cap fell from \$4.4 trillion as of 6/30/21 to \$3.9 trillion as of 5/16/22, while its economic book value rose from \$4.0 trillion as of 6/30/21 to \$4.3 trillion as of 5/16/22.

**Figure 7: Financials Trailing PEBV Ratio: December 2004 – 5/16/22**

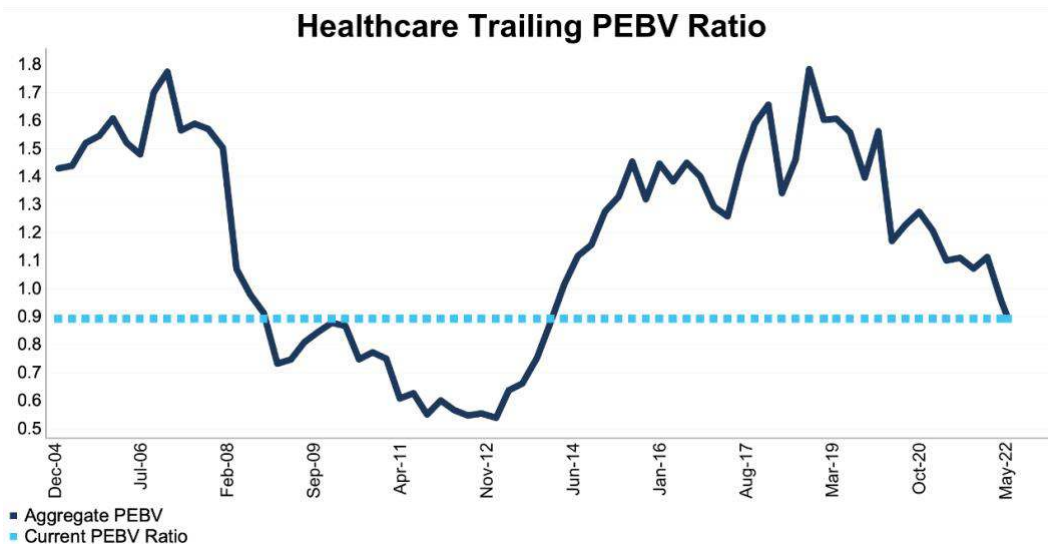


Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Healthcare: Trailing PEBV Ratio = 0.9**

Figure 8 shows the trailing PEBV ratio for the Healthcare sector fell from 1.1 as of 6/30/21 to 0.9 as of 5/16/22. The Healthcare sector market cap rose from \$4.7 trillion as of 6/30/21 to \$4.8 trillion as of 5/16/22, while its economic book value rose from \$4.2 trillion as of 6/30/21 to \$5.4 trillion as of 5/16/22.

**Figure 8: Healthcare Trailing PEBV Ratio: December 2004 – 5/16/22**



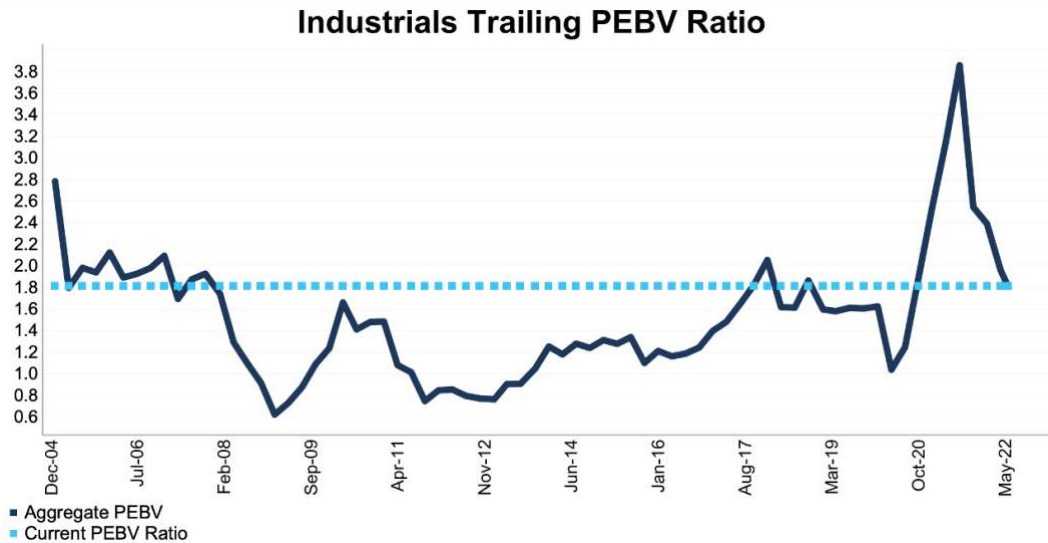
Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Industrials: Trailing PEBV Ratio = 1.8**

Figure 9 shows the trailing PEBV ratio for the Industrials sector fell from 3.9 as of 6/30/21 to 1.8 as of 5/16/22. The Industrials sector market cap fell from \$3.5 trillion as of 6/30/21 to \$3.1 trillion as of 5/16/22, while its economic book value rose from \$916 billion as of 6/30/21 to \$1.7 trillion as of 5/16/22.

**Figure 9: Industrials Trailing PEBV Ratio: December 2004 – 5/16/22**

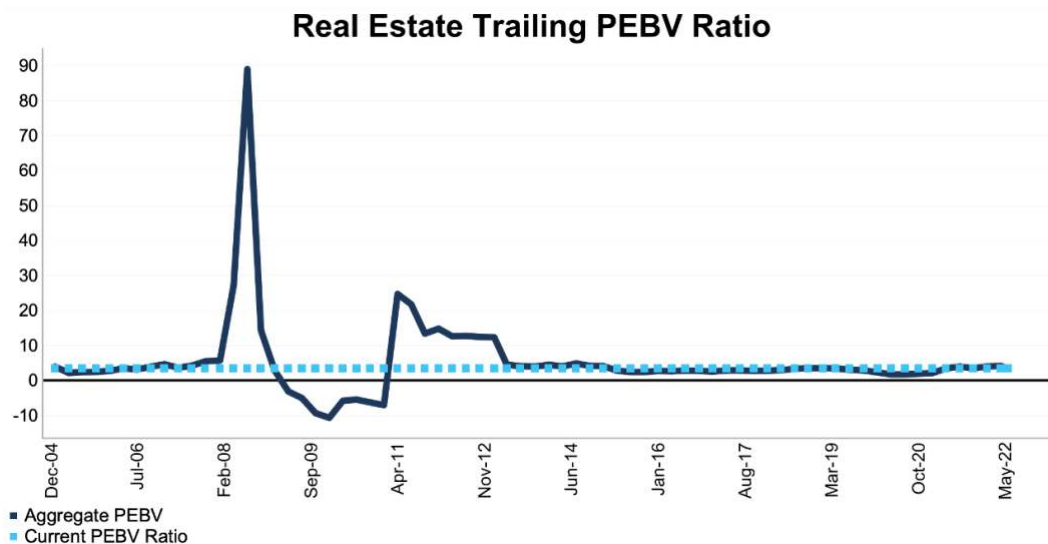


Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Real Estate: Trailing PEBV Ratio = 3.5**

Figure 10 shows the trailing PEBV ratio for the Real Estate sector fell from 4.0 as of 6/30/21 to 3.5 as of 5/16/22. The Real Estate sector market cap rose from \$902 billion as of 6/30/21 to \$910 billion as of 5/16/22, while its economic book value rose from \$226 billion as of 6/30/21 to \$263 billion as of 5/16/22.

**Figure 10: Real Estate Trailing PEBV Ratio: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

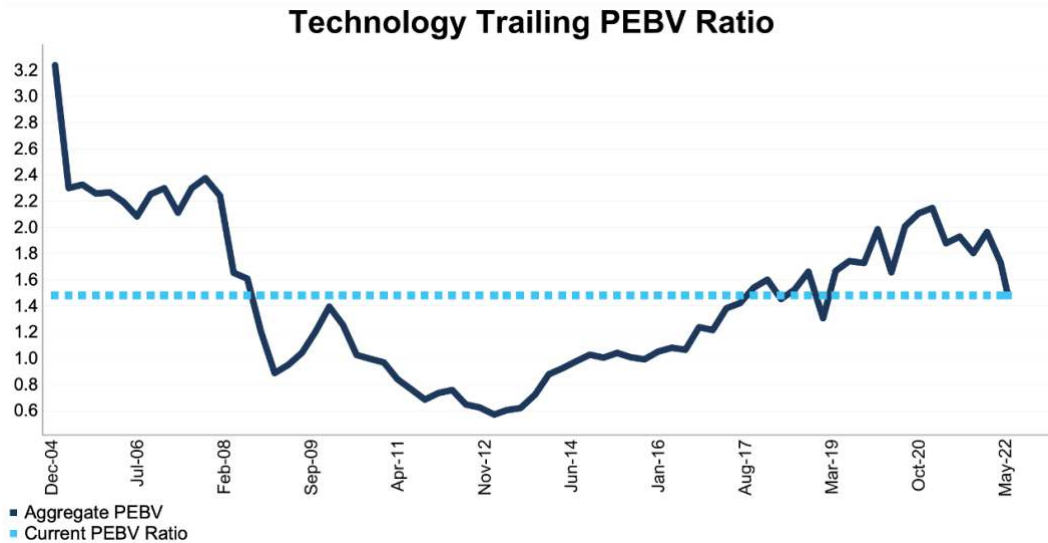




**Technology: Trailing PEBV Ratio = 1.5**

Figure 11 shows the trailing PEBV ratio for the Technology sector fell from 1.9 as of 6/30/21 to 1.5 as of 5/16/22. The Technology sector market cap fell from \$13.2 trillion as of 6/30/21 to \$11.5 trillion as of 5/16/22, while its economic book value rose from \$6.9 trillion as of 6/30/21 to \$7.8 trillion as of 5/16/22.

**Figure 11: Technology Trailing PEBV Ratio: December 2004 – 5/16/22**

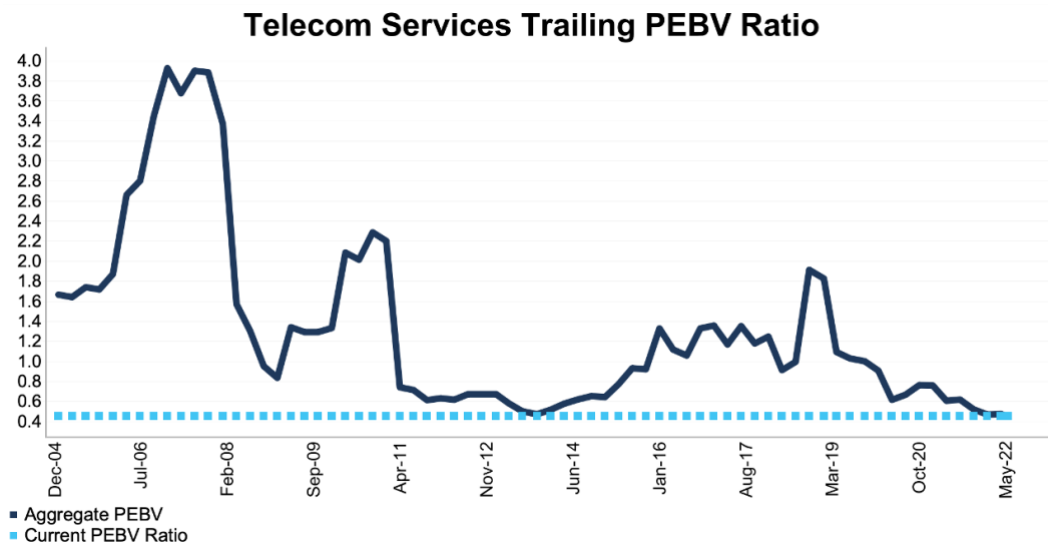


Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Telecom Services: Trailing PEBV Ratio = 0.5**

Figure 12 shows the trailing PEBV ratio for the Telecom Services sector fell from 0.6 as of 6/30/21 to 0.5 as of 5/16/22. The Telecom Services sector market cap fell from \$769 billion as of 6/30/21 to \$600 billion as of 5/16/22, while its economic book value rose from \$1.2 trillion as of 6/30/21 to \$1.3 trillion as of 5/16/22.

**Figure 12: Telecom Services Trailing PEBV Ratio: December 2004 – 5/16/22**



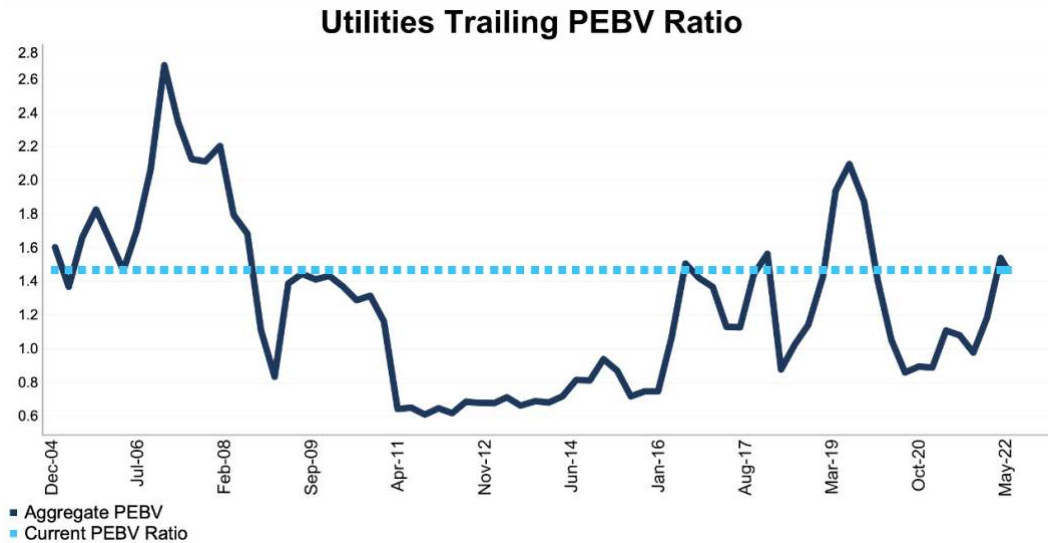
Sources: New Constructs, LLC and company filings. The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Utilities: Trailing PEBV Ratio = 1.5**

Figure 13 shows the trailing PEBV ratio for the Utilities sector rose from 1.1 as of 6/30/21 to 1.5 as of 5/16/22. The Utilities sector market cap rose from \$890 billion as of 6/30/21 to \$1.0 trillion as of 5/16/22, while its economic book value fell from \$824 billion as of 6/30/21 to \$685 billion as of 5/16/22.

**Figure 13: Utilities Trailing PEBV Ratio: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

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*Disclosure: David Trainer, Kyle Guske II, and Matt Shuler receive no compensation to write about any specific stock, style, or theme.*

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**Appendix I: S&P 500: Market Cap & Economic Book Value Since 2004**

This appendix shows the two drivers used to calculate trailing PEBV ratio – market cap and economic book value (EBV) – for the S&P 500 and each S&P 500 sector going back to December 2004. We sum the individual S&P 500/sector constituent values for market cap and economic book value. We call this approach the “Aggregate” methodology, and it matches S&P Global’s (SPGI) methodology for these calculations. More methodology details in Appendix II.

Figure 14 ranks all 11 sectors by market cap as of 5/16/22. It shows the Technology sector’s outsized impact on the S&P 500, with a market cap more than double the size of the next closest sector, Healthcare

**Figure 14: Market Cap by Sector – as of 5/16/22**

Sector	Market Cap (\$billions)
Technology	\$11,503
Healthcare	\$4,847
Consumer Cyclical	\$4,811
Financials	\$3,888
Industrials	\$3,115
Consumer Non-cyclicals	\$2,660
Energy	\$1,656
Utilities	\$1,003
Real Estate	\$910
Basic Materials	\$871
Telecom Services	\$600
<b>S&amp;P 500</b>	<b>\$35,865</b>

Sources: New Constructs, LLC and company filings.  
Prices as of 5/16/22.

Figure 15 ranks all 11 S&P 500 sectors by economic book value based on financial data that incorporates 1Q22 10-Qs. It shows that the Technology sector also has the highest economic book value – though it’s not double the EBV of the next closest sector.

**Figure 15: Economic Book Value by Sector – as of 5/16/22**

Sector	Economic Book Value (\$billions)
Technology	\$7,784
Healthcare	\$5,441
Financials	\$4,304
Consumer Cyclical	\$2,671
Consumer Non-cyclicals	\$2,657
Energy	\$1,937
Industrials	\$1,721
Telecom Services	\$1,326
Basic Materials	\$960
Utilities	\$685
Real Estate	\$263
<b>S&amp;P 500</b>	<b>\$29,748</b>

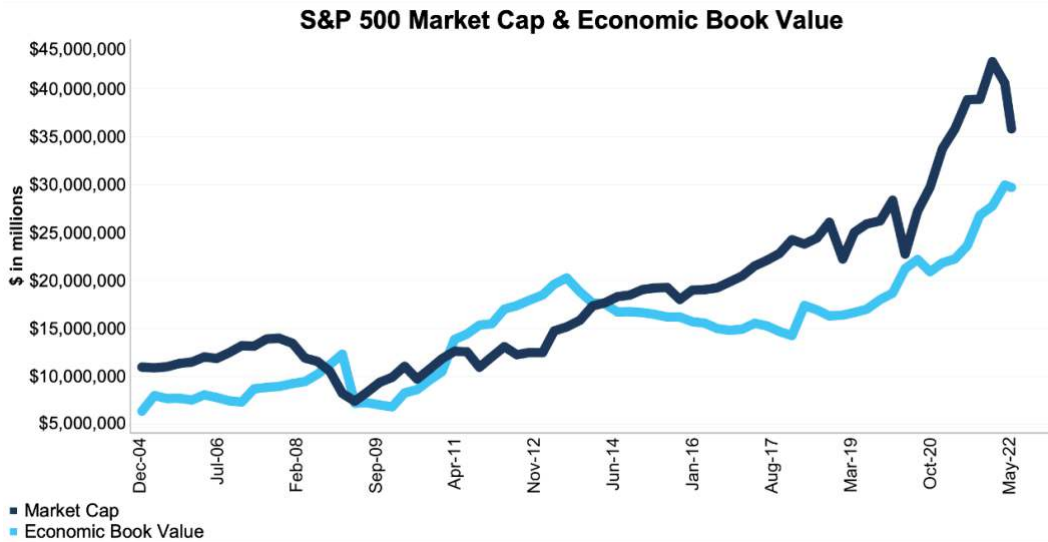
Sources: New Constructs, LLC and company filings.  
Financial data incorporates 1Q22 10-Qs.



Figures 16-27 compare the market cap and economic book value trends for the S&P 500 and every sector since 2004.

Note the much more prolonged price downturn during the Financial Crisis compared to the rapid and continuing rise after the COVID-19-induced market crash.

**Figure 16: S&P 500 Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 17: Basic Materials Market Cap & Economic Book Value: December 2004 – 5/16/22**

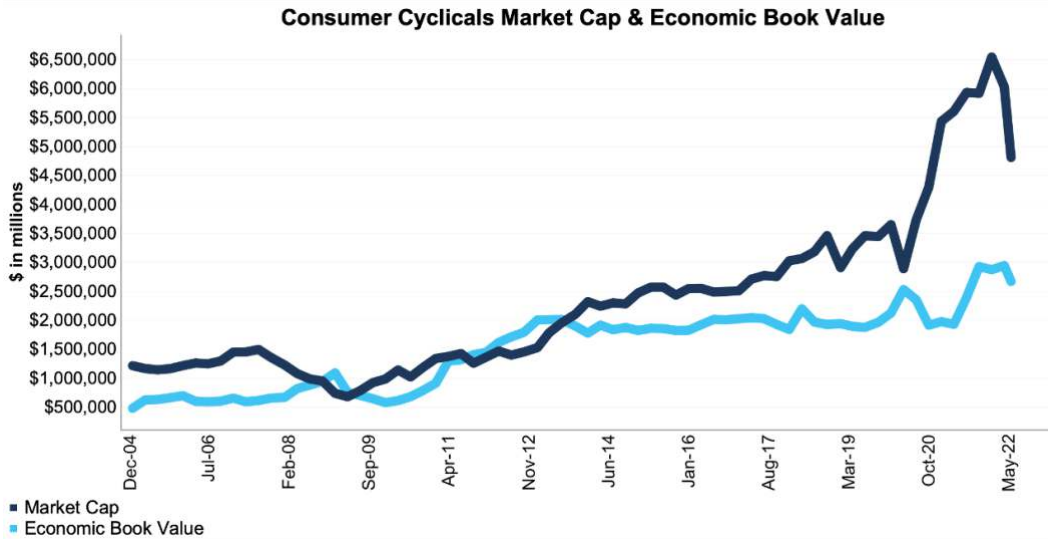


Sources: New Constructs, LLC and company filings.

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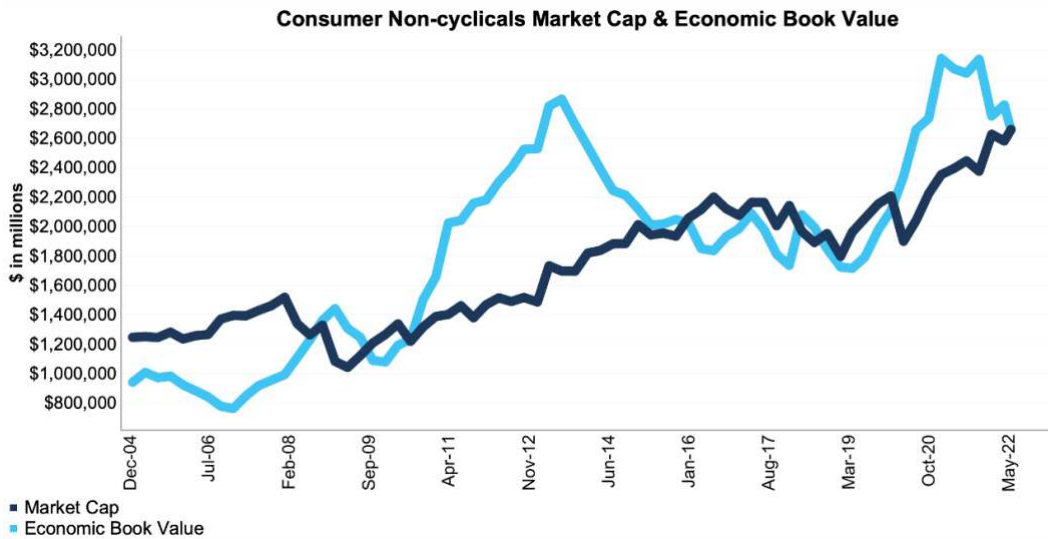
**Figure 18: Consumer Cyclical Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 19: Consumer Non-cyclicals Market Cap & Economic Book Value: December 2004 – 5/16/22**

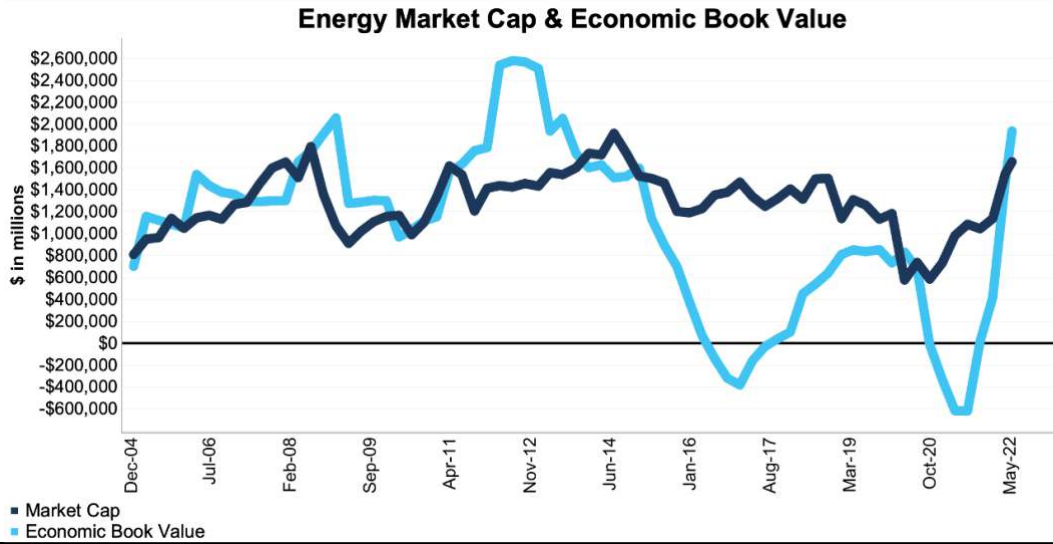


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Figure 20: Energy Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

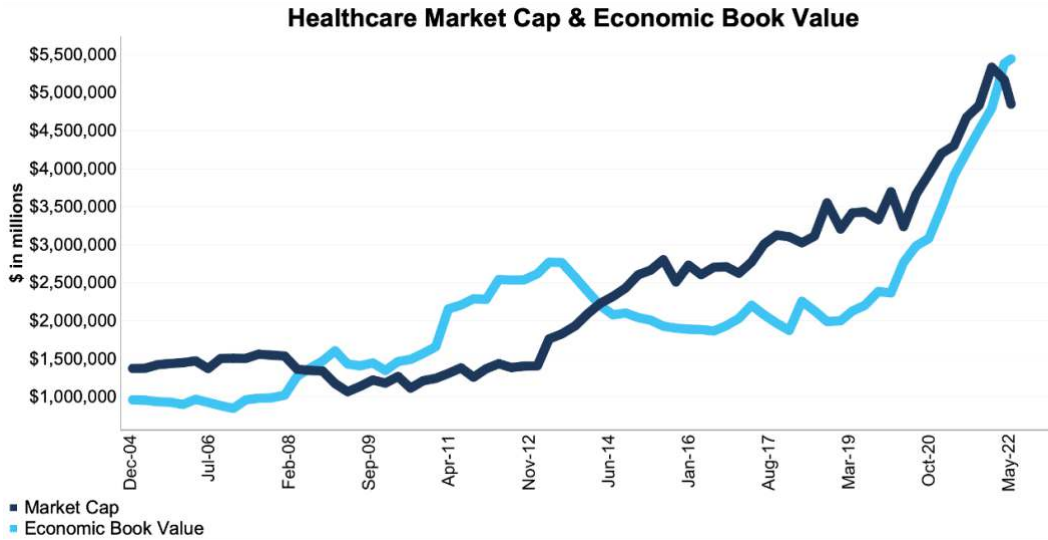
**Figure 21: Financials Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Figure 22: Healthcare Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 23: Industrials Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



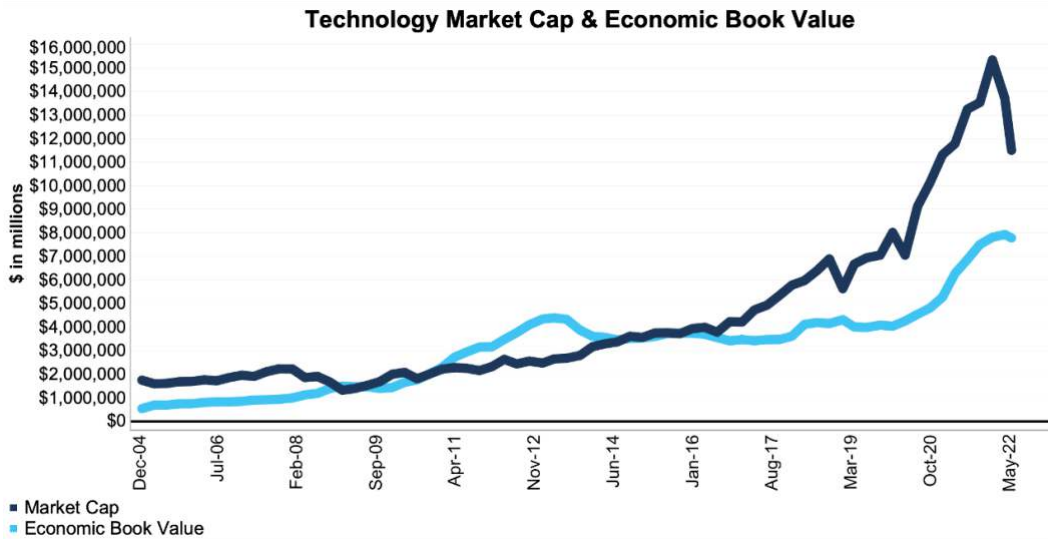
**Figure 24: Real Estate Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 25: Technology Market Cap & Economic Book Value: December 2004 – 5/16/22**



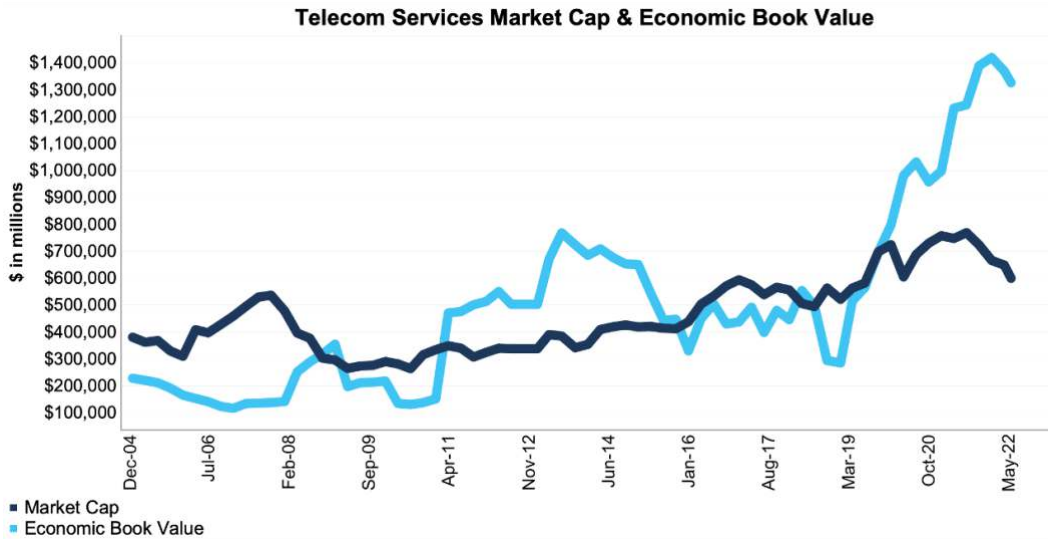
Sources: New Constructs, LLC and company filings.

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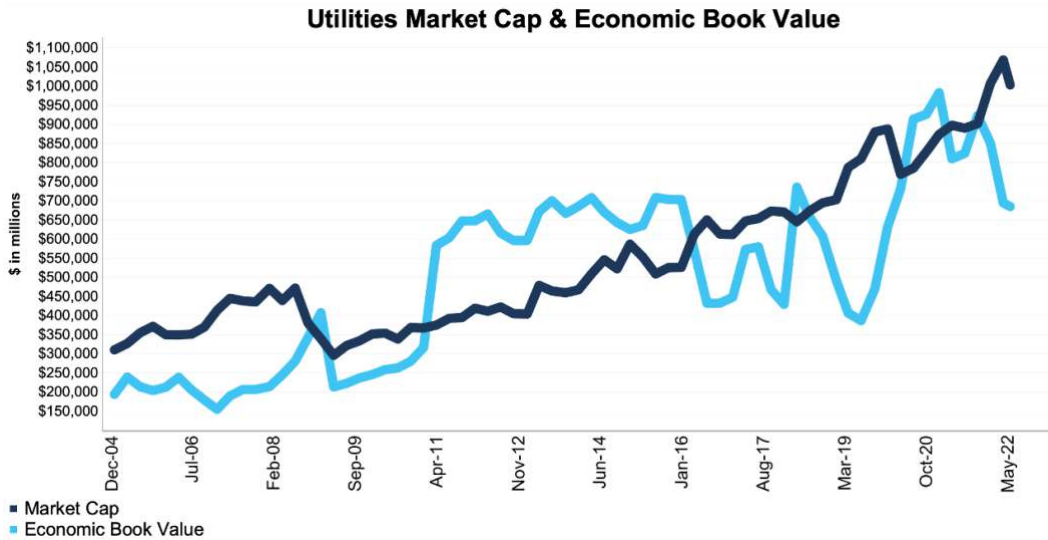
**Figure 26: Telecom Services Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 27: Utilities Market Cap & Economic Book Value: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.





## **Appendix II: Analyzing Trailing PEBV Ratio with Different Weighting Methodologies**

We derive the metrics above by summing the individual S&P 500/sector constituent values for market cap and economic book value to calculate trailing PEBV ratio. We call this approach the “Aggregate” methodology.

The Aggregate methodology provides a straightforward look at the entire S&P 500/sector, regardless of firm size or index weighting, and matches how S&P Global (SPGI) calculates metrics for the S&P 500.

For additional perspective, we compare the Aggregate method for trailing PEBV ratio with two other market-weighted methodologies. These market-weighted methodologies add more value for ratios that do not include market values, e.g. ROIC and its drivers, but we include them here, nonetheless, for comparison:

1. **Market-weighted metrics** – calculated by market-cap-weighting the trailing PEBV ratio for the individual companies relative to their sector or the overall S&P 500 in each period. Details:
  - a. Company weight equals the company’s market cap divided by the market cap of the S&P 500 or its sector
  - b. We multiply each company’s trailing PEBV ratio by its weight
  - c. S&P 500/Sector trailing PEBV equals the sum of the weighted trailing PEBV ratios for all the companies in the S&P 500/sector
2. **Market-weighted drivers** – calculated by market-cap-weighting the market cap and economic book value for the individual companies in each sector in each period. Details:
  - a. Company weight equals the company’s market cap divided by the market cap of the S&P 500 or its sector
  - b. We multiply each company’s market cap and economic book value by its weight
  - c. We sum the weighted market cap and weighted economic book value for each company in the S&P 500/each sector to determine the S&P 500 or sector’s weighted FCF and weighted enterprise value
  - d. S&P 500/Sector trailing PEBV ratio equals weighted S&P 500/sector market cap divided by weighted S&P 500/sector economic book value

Each methodology has its pros and cons, as outlined below:

### **Aggregate method**

Pros:

- A straightforward look at the entire S&P 500/sector, regardless of company size or weighting in any indices.
- Matches how S&P Global calculates metrics for the S&P 500.

Cons:

- Vulnerable to impact of companies entering/exiting the group of companies, which could unduly affect aggregate values. Also susceptible to outliers in any one period.

### **Market-weighted metrics method**

Pros:

- Accounts for a firm’s market cap relative to the S&P 500/sector and weights its metrics accordingly.

Cons:

- Vulnerable to outlier results from a single company disproportionately impacting the overall trailing PEBV ratio, as we’ll show below.

### **Market-weighted drivers method**

Pros:

- Accounts for a firm’s market cap relative to the S&P 500/sector and weights its size and economic book value accordingly.
- Mitigates the disproportionate impact of outlier results from one company on the overall results.

Cons:



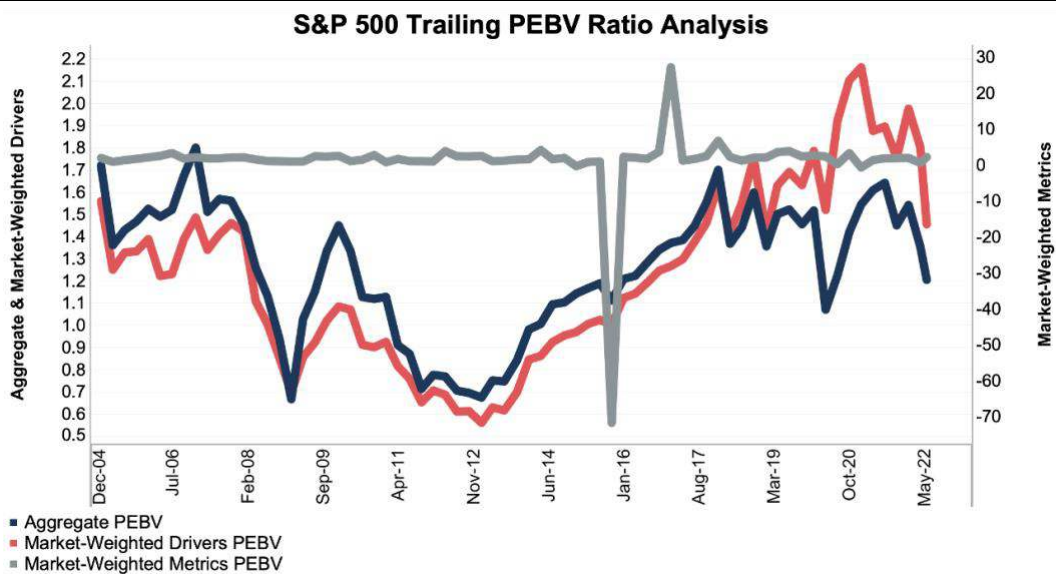
- More susceptible to large swings in market cap or economic book value (which can be impacted by changes in WACC) period over period, particularly from firms with a large weighting in the S&P 500/Sector.

Figures 28-39 compare these three methods for calculating S&P 500 and sector trailing PEBV ratio. We provide some high-level commentary on why certain sectors show some interesting results. Clients can contact us for access to the underlying data to study the results in more detail.

In Figure 28, the sharp decline in the market-weighted metrics trailing PEBV for the S&P 500 in 2015 is driven largely by volatility in Amazon’s (AMZN) economic book value. The first instance was caused by a sharp decline in the firm’s net operating profit after-tax (NOPAT), coupled with an increase in weighted average cost of capital (WACC), which resulted in a negative economic book value and negative 16,606 trailing PEBV.

This analysis highlights the outsized sensitivity of the market-weighted metrics methodology to outlier results from a single company with a large market cap, such as Amazon.

**Figure 28: S&P 500 Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

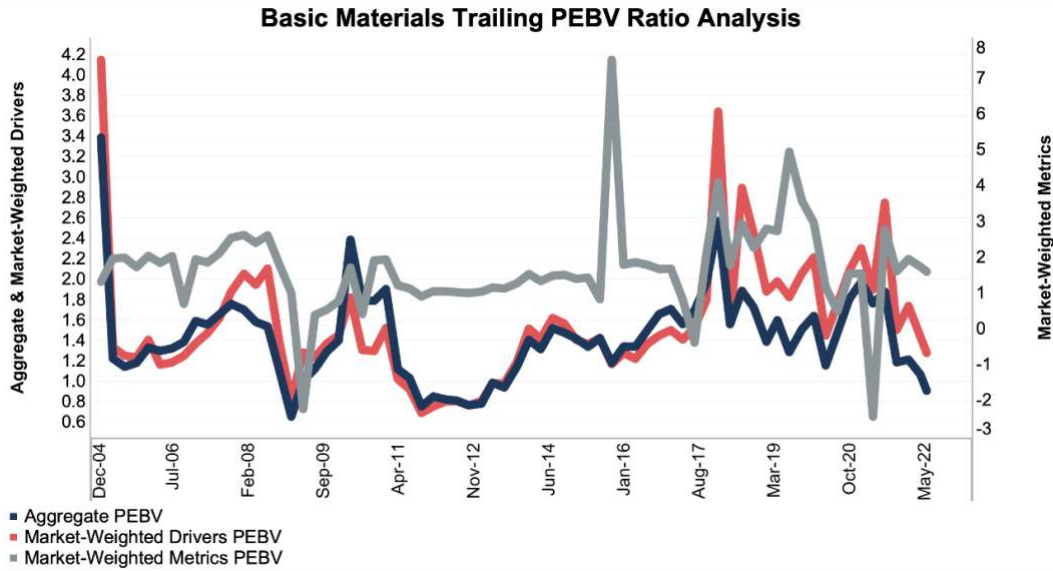


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



**Figure 29: Basic Materials Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

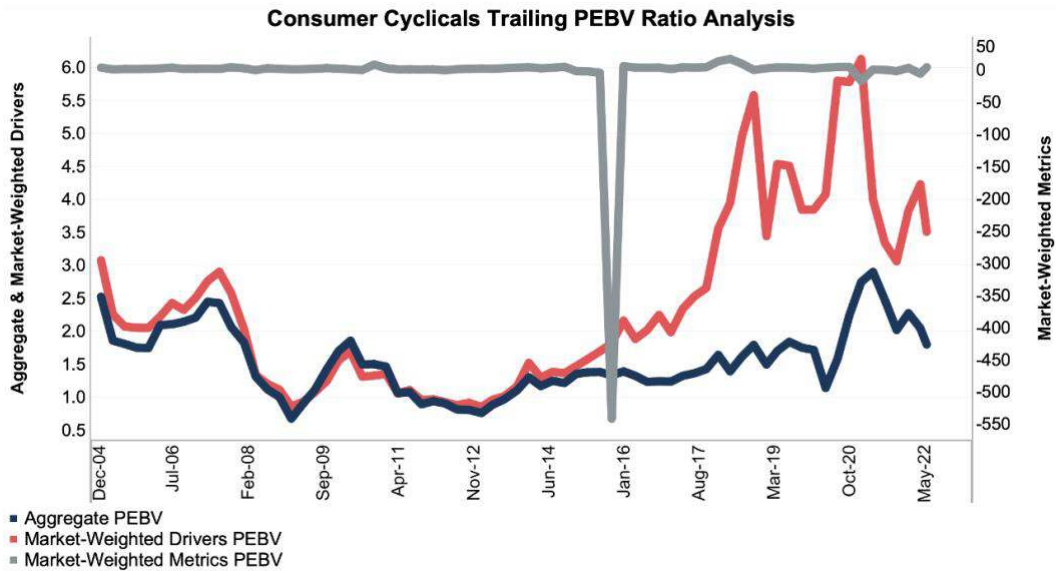


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

In Figure 30, Amazon drives the sharp decline in the market-weighted metrics trailing PEBV for the Consumer Cyclical Sector in 2015, as noted for S&P 500 above. The impacts are even larger on the sector-level results, as Amazon represented 10% of the sector in 2015.

**Figure 30: Consumer Cyclical Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**



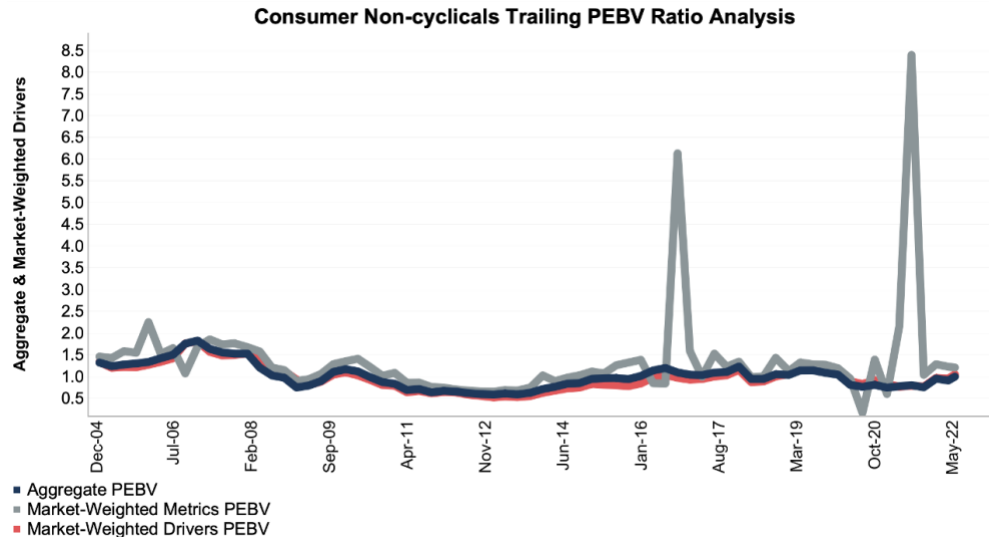
Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



In Figure 31, the sharp increase in the market-weighted metrics trailing PEBV for the Consumer Non-cyclicals sector in 2016, is driven by Kraft Heinz (KHC). The merger between Kraft and Heinz caused the combined firms' economic book value to improve from -\$15 billion in June 2016 to \$1 billion in September 2016, which resulted in trailing PEBV rising from negative 7 to positive 98 over the same time. Given KHC's 5% weight in the sector, this large change in trailing PEBV had an outsized impact on the sector's market-weighted metrics trailing PEBV.

**Figure 31: Consumer Non-cyclicals Trailing PEBV Ratio Methodologies Compared: Dec 2004 – 5/16/22**

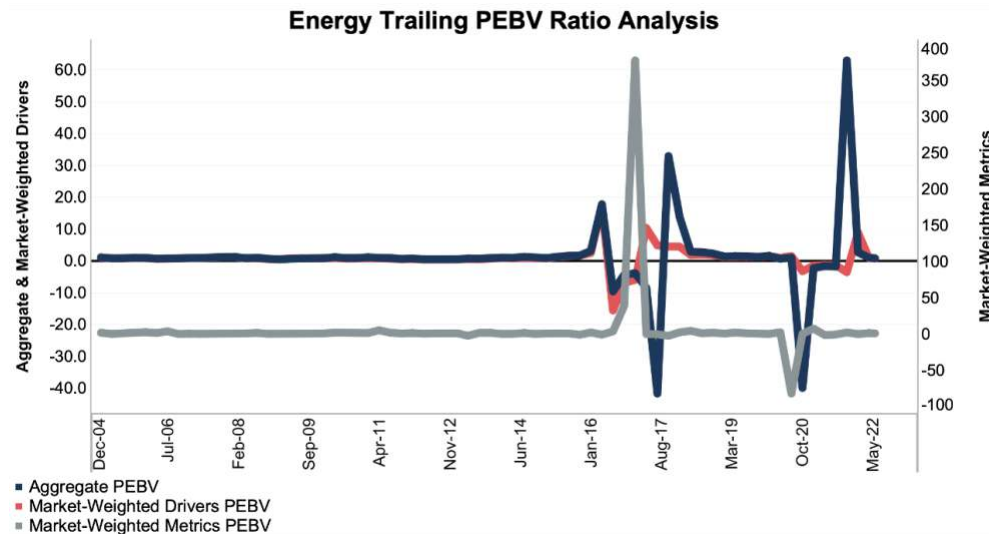


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

In Figure 32, the sharp increase in the market-weighted metrics trailing PEBV for the Energy sector in 2016, is driven largely by Exxon Mobil (XOM), which at the time, made up 25% of the sector's market cap. As a result of crashing oil prices, Exxon Mobil's NOPAT more than halved in 2015 and 2016 was still 41% below 2014. The significant decline in profitability caused an equally large drop in Exxon Mobil's economic book value and resulted in XOM's trailing PEBV increasing from 14 in June 2016 to 425 in December 2016. Given its large weighting in the sector, this increase had an outsized impact on the sector's market-weighted metrics trailing PEBV during this time.

**Figure 32: Energy Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

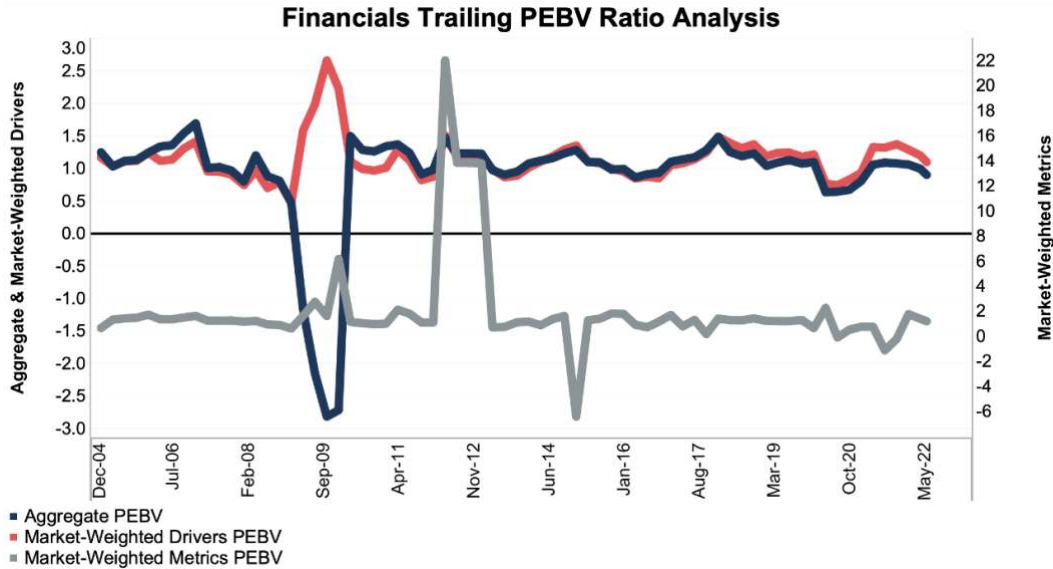


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

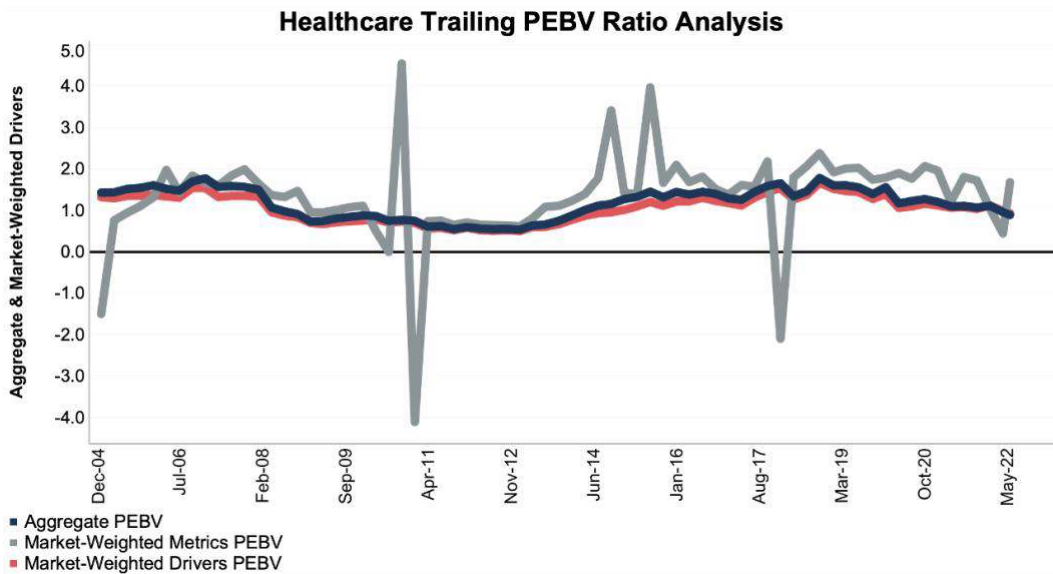


**Figure 33: Financials Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 34: Healthcare Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

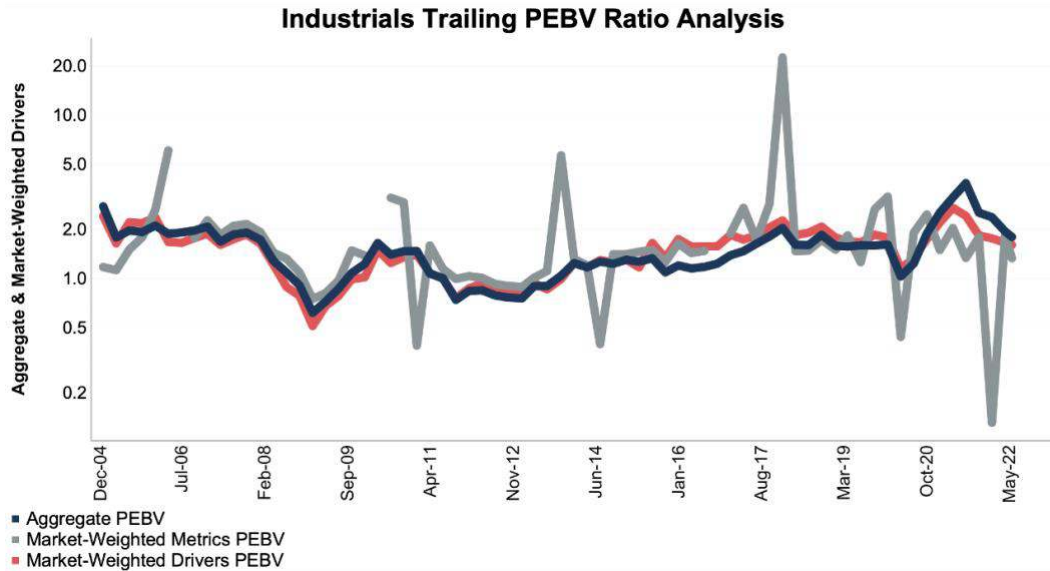


Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.





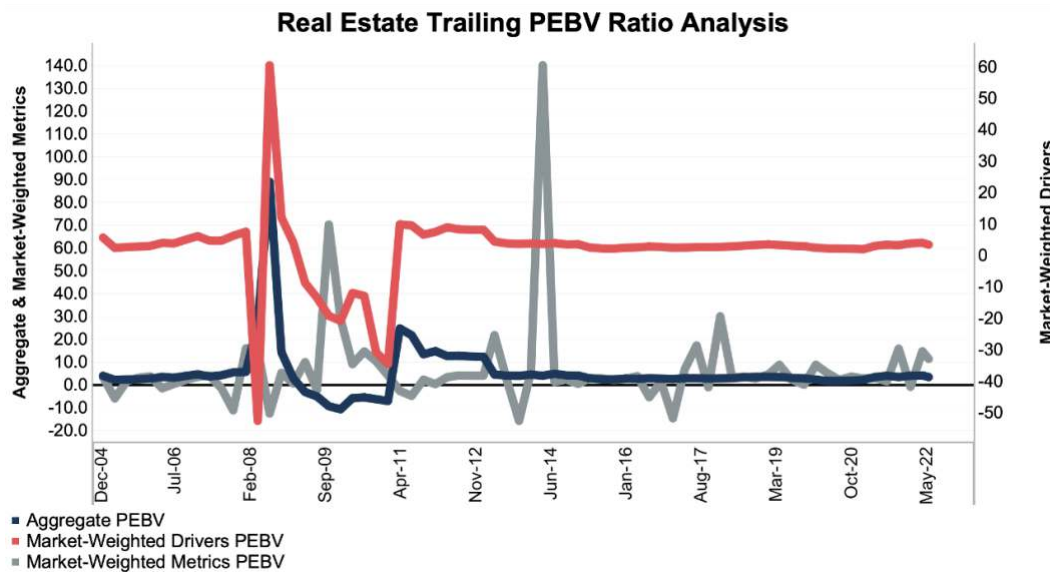
**Figure 35: Industrials Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 36: Real Estate Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

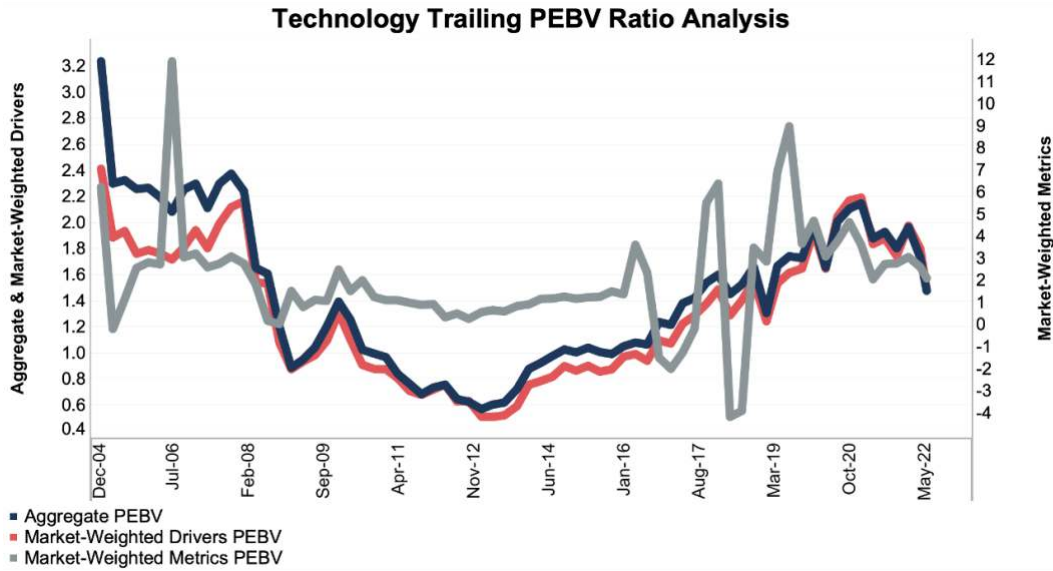


Sources: New Constructs, LLC and company filings.

The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

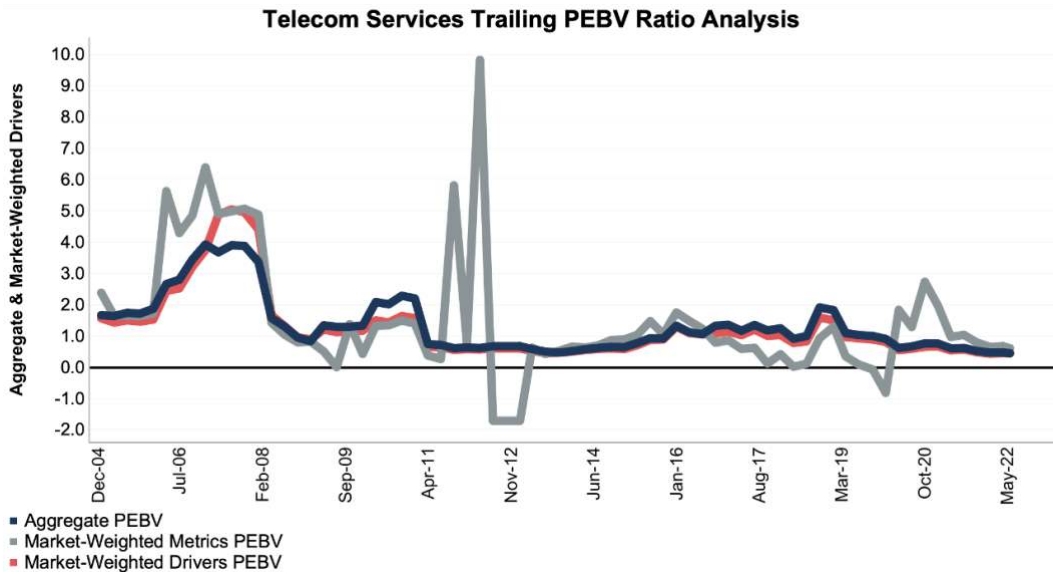


**Figure 37: Technology Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.

**Figure 38: Telecom Services Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**

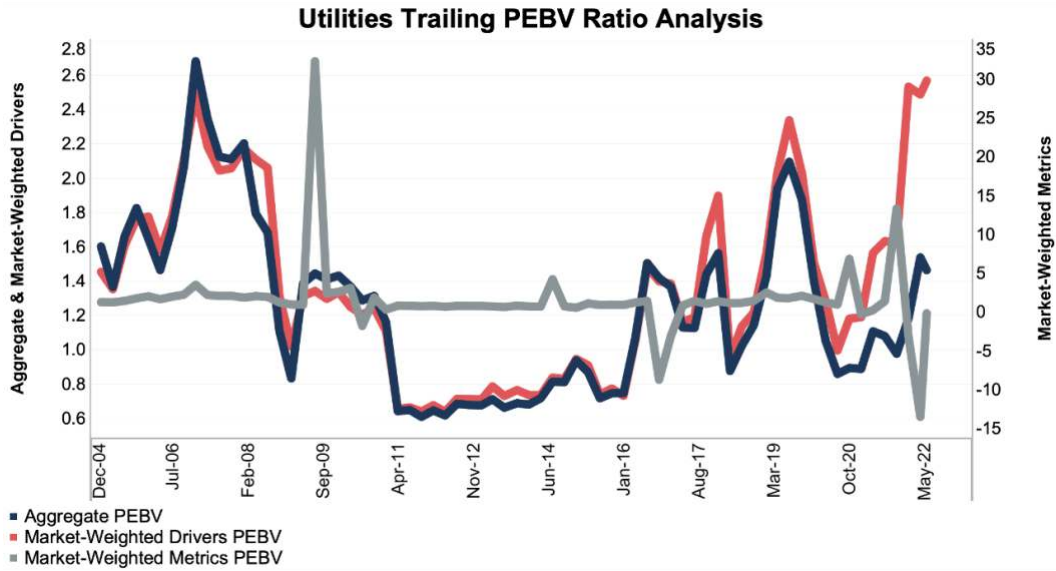


Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.





**Figure 39: Utilities Trailing PEBV Ratio Methodologies Compared: December 2004 – 5/16/22**



Sources: New Constructs, LLC and company filings.  
 The May 16, 2022 measurement period uses price data as of that date and incorporates the financial data from 1Q22 10-Qs, as this is the earliest date for which all the calendar 1Q22 10-Qs for the S&P 500 constituents were available.



## *It's Official: We Offer the Best Fundamental Data in the World*

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Key quotes from the paper:

- “[New Constructs’] *Total Adjustments* differs significantly from the items identified and excluded from Compustat’s adjusted earnings measures. For example... 50% to 70% of the variation in *Total Adjustments* is not explained by *S&P Global’s (SPGI) Adjustments* individually.” – pp. 14, 1<sup>st</sup> para.
- “A final source of differences [between New Constructs’ and S&P Global’s data] is due to data collection oversights...we identified cases where Compustat did not collect information relating to firms’ income that is useful in assessing core earnings.” – pp. 16, 2<sup>nd</sup> para.

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A top accounting firm features the superiority of our ROIC, NOPAT and Invested Capital research to Capital IQ & Bloomberg’s in [Getting ROIC Right](#). See the [Appendix](#) for direct comparison details.

Key quotes from the paper:

- “...an accurate calculation of ROIC requires more diligence than often occurs in some of the common, off-the-shelf ROIC calculations. Only by scouring the footnotes and the MD&A [ as New Constructs does] can investors get an accurate calculation of ROIC.” – pp. 8, 5<sup>th</sup> para.
- “The majority of the difference...comes from New Constructs’ machine learning approach, which leverages technology to calculate ROIC by applying accounting adjustments that may be buried deeply in the footnotes across thousands of companies.” – pp. 4, 2<sup>nd</sup> para.

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Key quotes from the paper:

- “the portfolios formed following the buy recommendations of Robo-Analysts earn abnormal returns that are statistically and economically significant.” – pp. 6, 3<sup>rd</sup> para.
- “Our results ultimately suggest that Robo-Analysts are a valuable, alternative information intermediary to traditional sell-side analysts.” – pp. 20, 3<sup>rd</sup> para.

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