



S&P 500 & Sectors: ROIC vs. WACC Through 4Q20

This report analyzes the drivers¹ of [economic earnings](#) [return on invested capital ([ROIC](#)), [NOPAT margin](#), [invested capital turns](#), and weighted average cost of capital ([WACC](#))] for the S&P 500 and each of its sectors. In this report, our research is based on the latest audited financial data, which is the 2020 10-K for most companies. Price data is as of 3/23/21.

For reference, we analyze the [Core Earnings](#) for the entire S&P 500 in [S&P 500 Priced for Significant Earnings Rebound](#) and for each S&P 500 sector in [S&P 500 & Sectors: Core Earnings Vs. GAAP Net Income Through 4Q20](#).

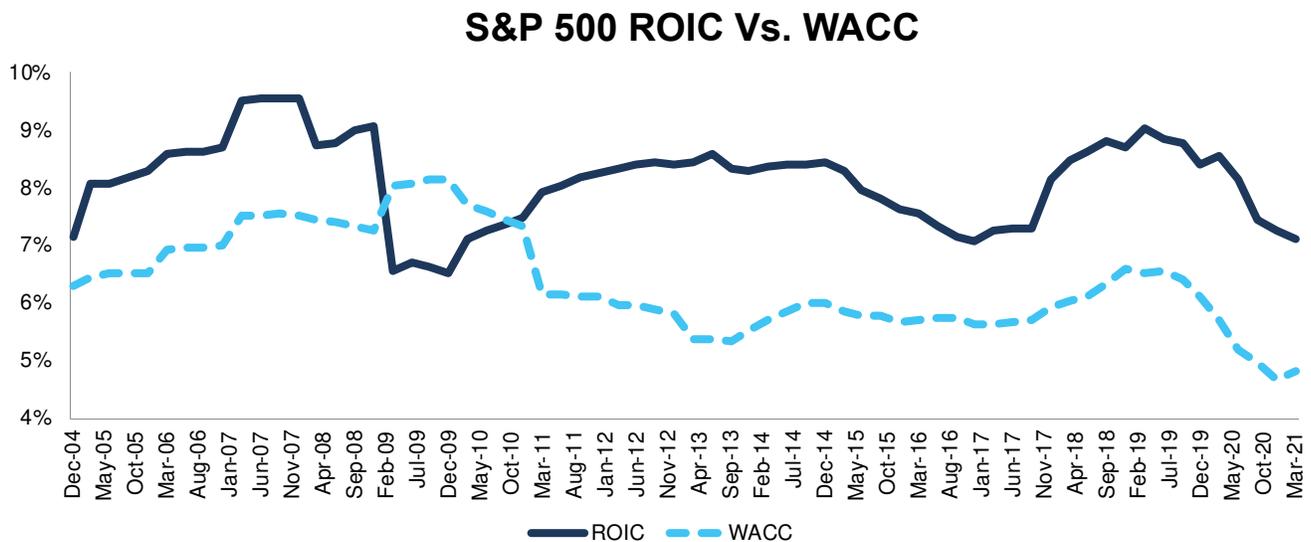
These reports leverage [more reliable fundamental data](#)² that enables investors to overcome [flaws with legacy fundamental datasets](#). Investors armed with our research enjoy a differentiated and more informed view of the fundamentals and valuations of companies and sectors.

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S&P 500 ROIC Falls Significantly in 2020

ROIC for the S&P 500 began to decline in 2019 before falling significantly in 2020. The S&P 500's ROIC fell from 8.5% at the end of 2019 to 7.1% as of 3/23/21, the earliest date 2020 annual data was provided by all S&P 500 companies. See Figure 1. All S&P 500 sectors, except for the Technology and Consumer Non-cyclicals sectors, saw a drop in ROIC year-over-year (YoY) based on 2020 financial data, though some more than others, as we'll show below.

Figure 1: ROIC and WACC for the S&P 500 From December 2004 – 3/23/21³



Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

¹ We calculate these metrics based on SPGI's methodology, which sums the individual S&P 500 constituent values for NOPAT and invested capital before using them to calculate the metrics. We call this the "Aggregate" methodology. Get more details in Appendix III. See Appendix I for details on how we calculate WACC for the S&P 500 and each of its sectors.

² For 3rd-party reviews, including [The Journal of Financial Economics](#), on our more reliable fundamental data, historically and prospectively, across all stocks, click [here](#) and [here](#).

³ We use stock prices from 3/23/21 because that is the date when all the 2020 10-Ks for the S&P 500 constituents were available.



Ranking the S&P 500 Sectors by Change in ROIC

Figure 2 ranks all 11 S&P 500 sectors by the change in ROIC from the end of 2019 to 2020.

Figure 2: ROIC for All S&P 500 Sectors

Sector	ROIC	Change in 2020 (% points)
Technology	22%	0.9%
Consumer Non-Cyclicals	9%	0.3%
Telecom Services	5%	-0.3%
Utilities	3%	-0.3%
Basic Materials	5%	-0.3%
Healthcare	9%	-0.6%
Real Estate	4%	-0.9%
Financials	7%	-1.3%
Consumer Cyclical	7%	-3.2%
Industrials	5%	-4.2%
Energy	0%	-4.2%
S&P 500	7%	-1.4%

Sources: New Constructs, LLC and company filings.
Financial data from 2020 10-Ks.

The Technology sector performed best through the COVID-19 pandemic, as measured by change in ROIC. This trend is not surprising given that the global shutdowns accelerated the enterprise and individual shift to cloud and other software solutions.

On the flip side, the Energy and Industrials sectors have the largest drop in ROIC from 2019 to 2020.

Overall, the Technology sector earns the highest ROIC of all sectors, by far, and the Energy sector earns the lowest ROIC. These trends in the Technology and Energy sector mirror the changes in Core Earnings we analyze in [S&P 500 & Sectors: Core Earnings Vs. GAAP Net Income Through 4Q20](#).

Details on each of the S&P 500 Sectors

Figures 3-13 compare the ROIC and WACC trends for every sector since 2004. Appendix I presents the current WACC for each sector.

Appendix II presents the [drivers of ROIC: NOPAT margin](#) and [invested capital turns](#) for each sector.

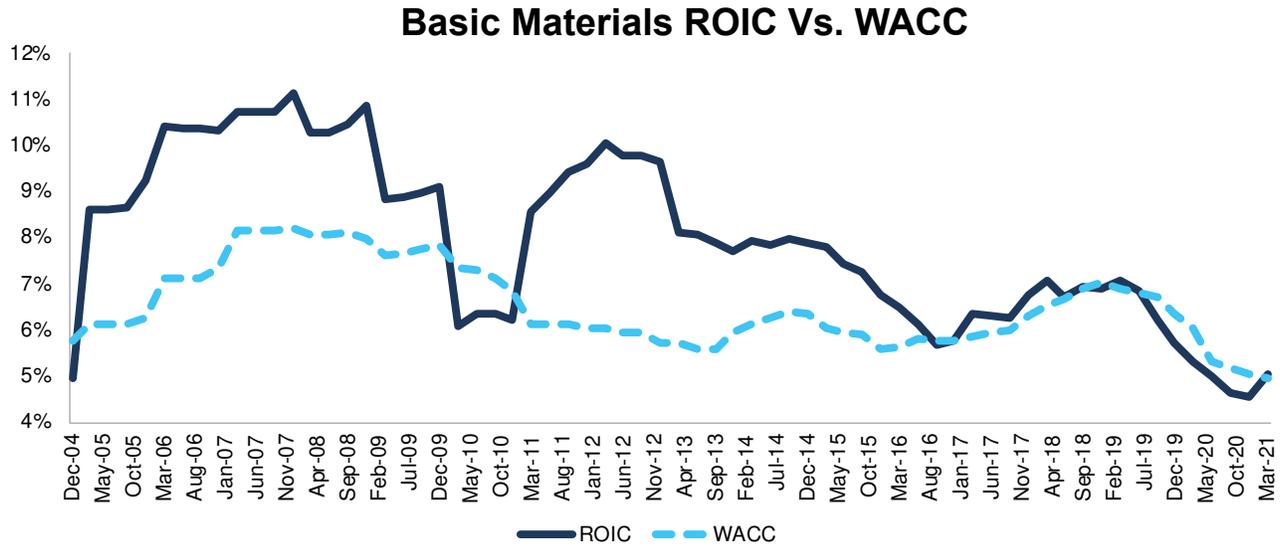
Appendix III presents additional ROIC analysis based on different weighting methodologies to adjust for the impact of a firm’s size on its sector and the S&P 500.

Basic Materials

Figure 3 shows the ROIC for the Basic Materials sector has been in a long-term decline since ~2011 and fell 29 basis points YoY in 2020. Basic Materials sector NOPAT margin fell from 10.5% in 2019 to 10.0% in 2020 and invested capital turns fell from 0.51 to 0.50 over the same time.



Figure 3: Basic Materials ROIC vs. WACC: December 2004 – 3/23/21



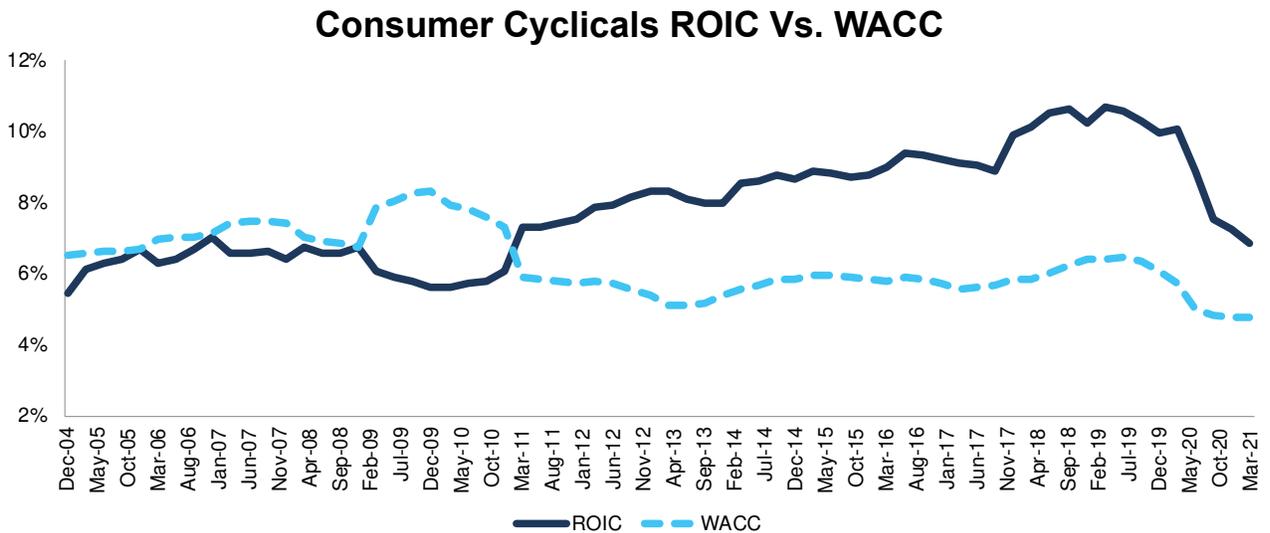
Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Consumer Cyclicals

Figure 4 shows the ROIC for the Consumer Cyclicals sector was hit hard by the COVID-19 pandemic and, at 6.8% in 2020, has fallen to its lowest level since 2010. Consumer Cyclicals NOPAT margin fell from 8.3% in 2019 to 6.0% in 2020 and invested capital turns declined from 1.21 to 1.13 over the same time.

Figure 4: Consumer Cyclicals ROIC vs. WACC: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.

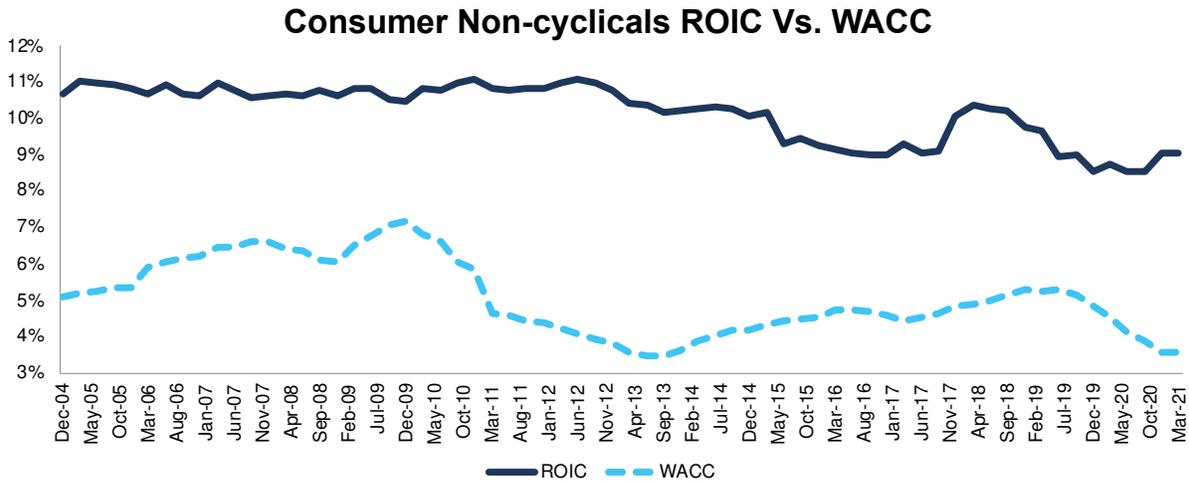
The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Consumer Non-cyclicals

Figure 5 shows ROIC for the Consumer Non-Cyclicals sector trended higher in recent quarters and at 9.1% in 2020, is at its highest level since 2018. Consumer Non-cyclicals NOPAT margin of fell from 6.6% in 2019 to 6.5% in 2020 and invested capital turns rose from 1.33 to 1.39 over the same time. Investors only analyzing margins will miss the fact that improved balance sheet efficiency drives ROIC higher for many companies in this sector.

Figure 5: Consumer Non-cyclicals ROIC vs. WACC: December 2004 – 3/23/21



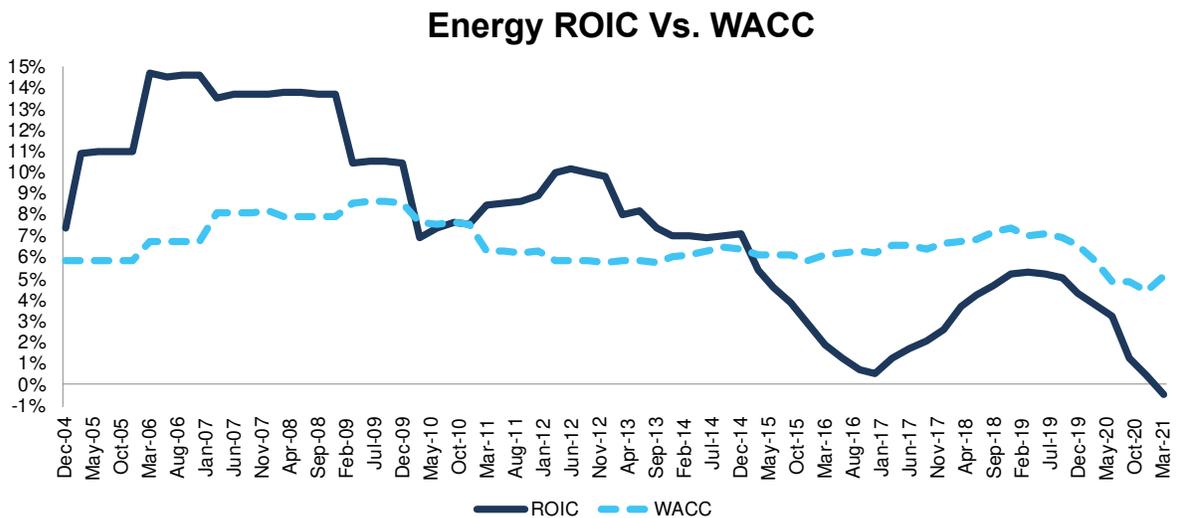
Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Energy

Figure 6 shows the ROIC for the Energy sector is hit hardest of all sectors as the COVID-19 pandemic combined with increased production from Saudi Arabia and Russia drove oil prices down. The deteriorating ROIC wiped out all the improvement achieved from 2016 to mid-2019. The decline in ROIC is driven by NOPAT margin falling from 6.6% in 2019 to -1.2% in 2020 and invested capital turns falling from 0.57 to 0.39 over the same time.

Figure 6: Energy ROIC vs. WACC: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.

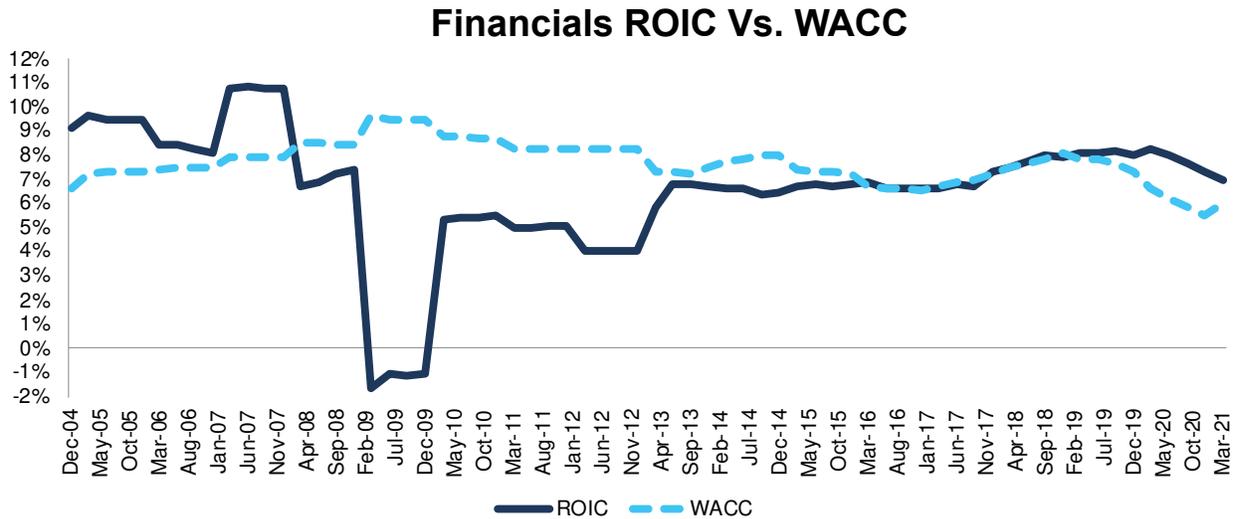
The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Financials

Figure 7 shows ROIC for the Financials sector declined 133 basis points YoY in 2020 but remains well above the lows of the Financial Crisis. Given the stability in ROIC since 2013, one could argue regulators were successful in turning large Financial firms into “boring”, more stable businesses. Financials NOPAT margin fell from 15.6% in 2019 to 14.2% in 2020 and invested capital turns fell from 0.53 to 0.49 over the same time.

Figure 7: Financials ROIC vs. WACC: December 2004 – 3/23/21



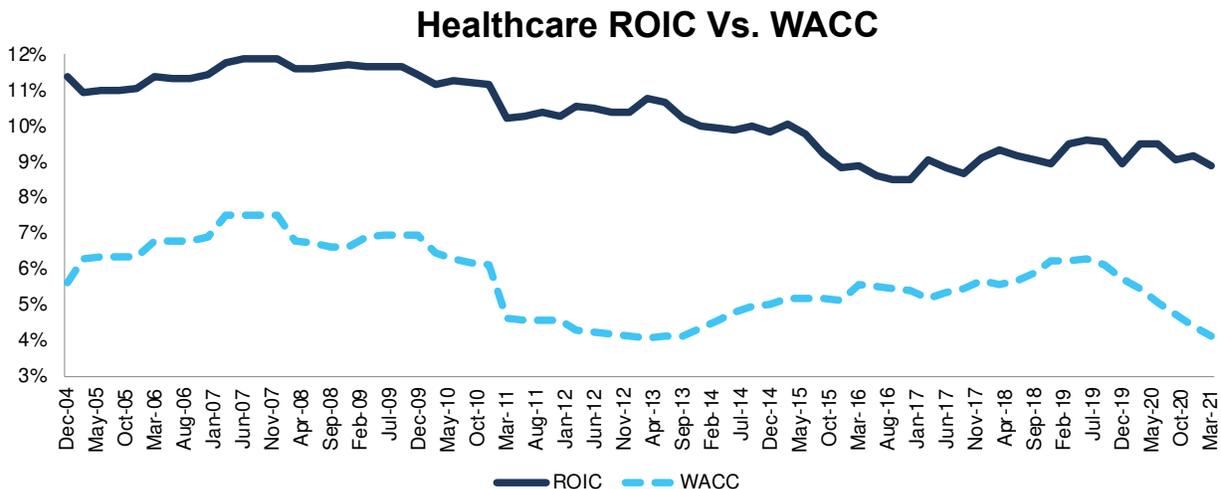
Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Healthcare

Figure 8 shows ROIC for the Healthcare sector declined 59 basis points YoY in 2020 but has remained relatively stable since the end of 2016. The decline in ROIC is driven by Healthcare NOPAT margin falling from 10.9% in 2019 to 10.1% in 2020. Meanwhile, invested capital turns have improved from 0.87 to 0.88 over the same time.

Figure 8: Healthcare ROIC vs. WACC: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.

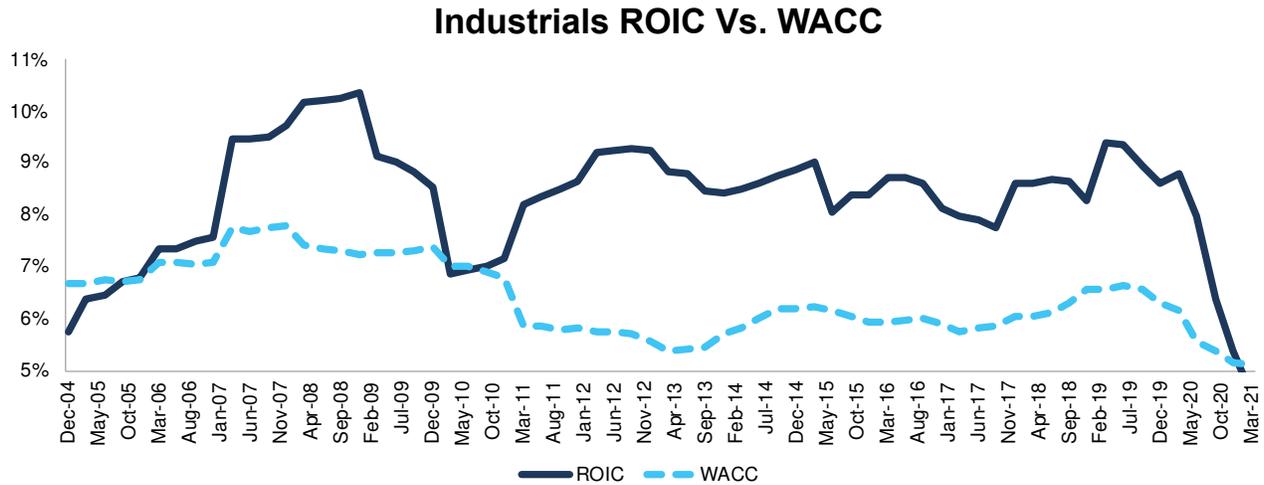
The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Industrials

Figure 9 shows ROIC for the Industrials sector was the second hardest hit in 2020 and fell 420 basis points YoY as the sector bore much of the brunt of the global shutdowns. Industrials NOPAT margin fell from 11.1% in 2019 to 7.0% in 2020 and invested capital turns fell from 0.79 to 0.66 over the same time.

Figure 9: Industrials ROIC vs. WACC: December 2004 – 3/23/21

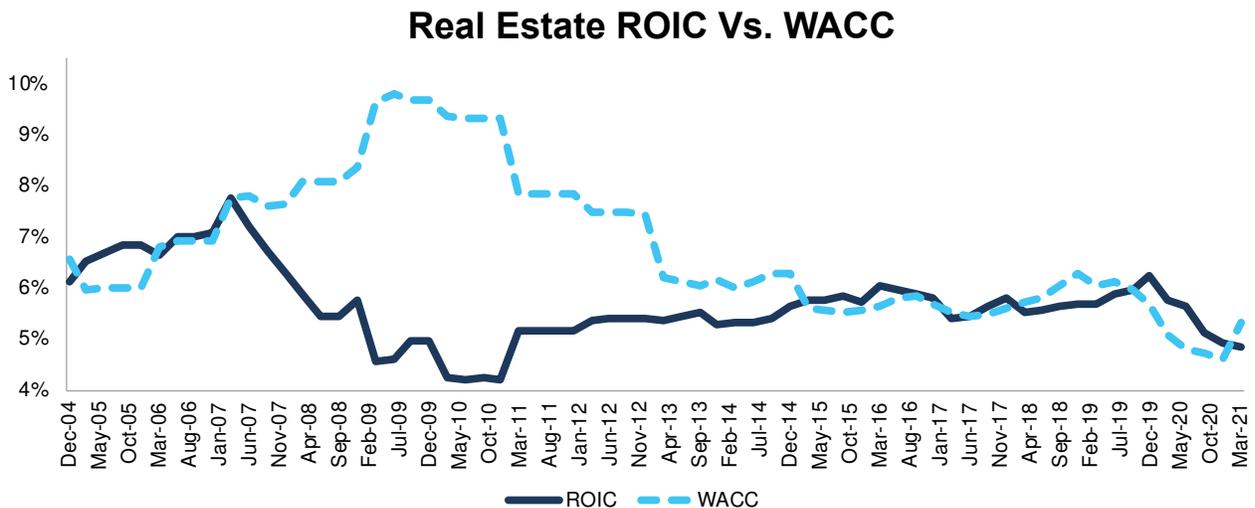


Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Real Estate

Figure 10 shows ROIC for the Real Estate sector has fallen significantly since 2019. Longer term, the ROIC for the Real Estate sector has yet to reach the highs achieved prior to the Financial Crisis. Real Estate NOPAT margin fell from 24.2% in 2019 to 22.1% in 2020 and invested capital turns fell from 0.22 to 0.20 over the same time.

Figure 10: Real Estate ROIC vs. WACC: December 2004 – 3/23/21



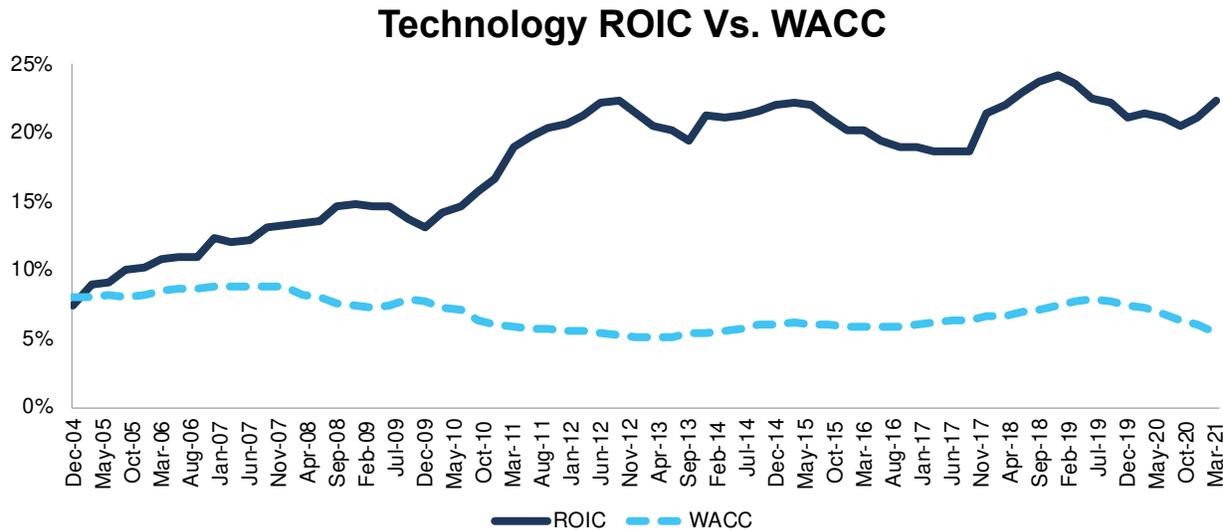
Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Technology

Figure 11 shows the ROIC for the Technology sector has declined since mid-2018 but remains in a long-term uptrend. The Technology sector has the highest ROIC of any sector by a wide margin. Technology NOPAT margin improved from 20.7% in 2019 to 21.1% in 2020 and invested capital turns improved from 1.04 to 1.06 over the same time.

Figure 11: Technology ROIC vs. WACC: December 2004 – 3/23/21

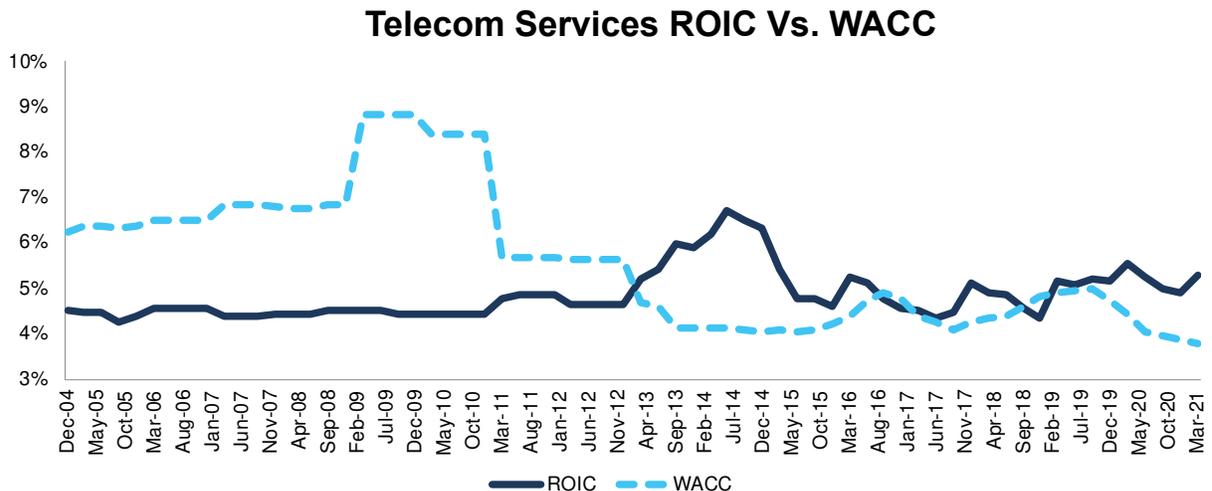


Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Telecom Services

Figure 12 shows the ROIC for the Telecom Services sector fell 26 basis points YoY in 2020 and remains well below its peak in mid-2014. Telecom Services NOPAT margin remained flat YoY, at 15.5% in 2020, and invested capital turns fell from 0.36 to 0.34 over the same time.

Figure 12: Telecom Services ROIC vs. WACC: December 2004 – 3/23/21



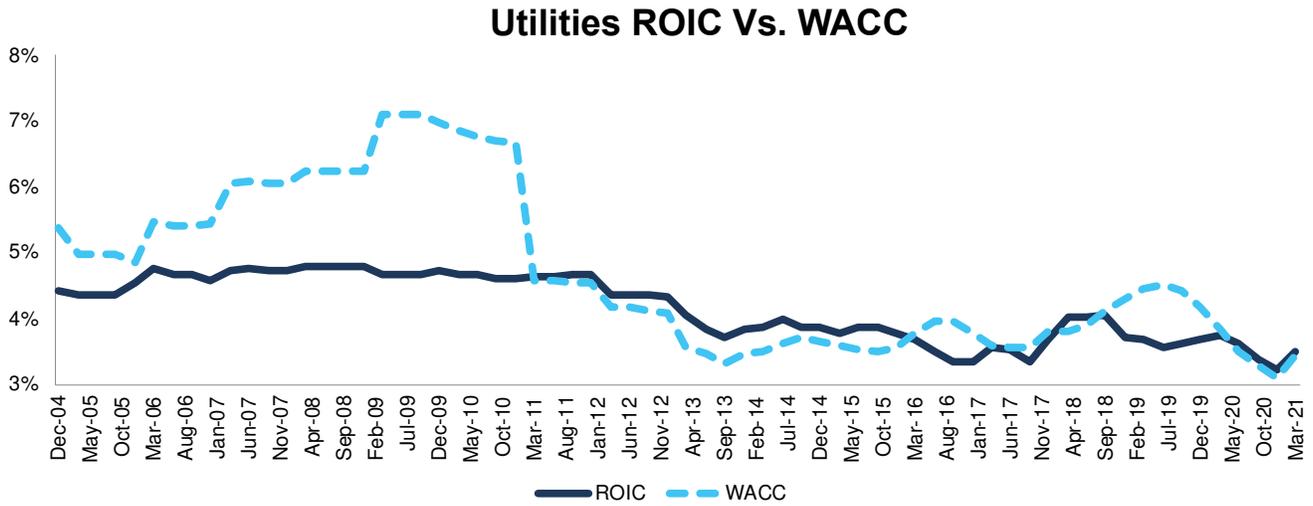
Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Utilities

Figure 13 shows the ROIC for the Utilities sector fell 27 basis points YoY in 2020 and remains in a long-term downtrend. Utilities NOPAT margin improved from 17.3% in 2019 to 17.8% in 2020 but invested capital turns fell from 0.22 to 0.20 over the same time.

Figure 13: Utilities ROIC vs. WACC: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period uses price data as of that date and incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

This article originally published on [April 15, 2021](#).

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: WACC for Each Sector and S&P 500

This appendix shows the WACC for the S&P 500 and each sector in 2020, based on prices as of 3/23/21 and financial data from 2020 10-Ks.

We derive the sector and S&P 500 WACCs by solving for WACC in the [economic earnings](#) formula:

$$(ROIC - WACC) * \text{Average Invested Capital} = \text{Economic Earnings}$$

translates to

$$WACC = ROIC - \text{Economic Earnings} / \text{Average Invested Capital}$$

We calculate Economic Earnings, NOPAT and Invested Capital according to the Aggregate methodology described in Appendix III.

Figure 14: WACC by Sector – as of 3/23/21

Sector	WACC
Financials	6.0%
Technology	5.4%
Energy	5.1%
Industrials	5.1%
Basic Materials	4.9%
Real Estate	4.8%
Consumer Cyclicals	4.7%
Healthcare	4.1%
Telecom Services	3.8%
Consumer Non-cyclical	3.5%
Utilities	3.4%
S&P 500	4.8%

Sources: New Constructs, LLC and company filings.
Prices as of 3/23/21, financial data from 2020 10-Ks.



Appendix II: NOPAT Margin and Invested Capital Turns Since 2004

This appendix shows the two key drivers ([DuPont model](#)) of ROIC – NOPAT margin and invested capital turns – for each sector going back to December 2004. We sum the individual S&P 500 constituent values for revenue, NOPAT, and invested capital to calculate these metrics. We call this approach the “Aggregate” methodology. More methodology details in Appendix III.

Figure 15 ranks all 11 sectors by NOPAT margin based on financial data from 2020 10-Ks.

Figure 15: NOPAT Margin by Sector – Financial Data from 2020 10-Ks

Sector	NOPAT Margin
Real Estate	22.1%
Technology	21.1%
Utilities	17.8%
Telecom Services	15.5%
Financials	14.2%
Healthcare	10.1%
Basic Materials	10.0%
Industrials	7.0%
Consumer Non-cyclicals	6.5%
Consumer Cyclical	6.0%
Energy	-1.2%
S&P 500	10.5%

Sources: New Constructs, LLC and company filings.
Financial data from 2020 10-Ks.

Figure 16 ranks all 11 sectors by invested capital turns based on financial data from 2020 10-Ks.

Figure 16: Invested Capital Turns by Sector – Financial Data from 2020 10-Ks

Sector	Invested Capital Turns
Consumer Non-cyclicals	1.4
Consumer Cyclical	1.1
Technology	1.1
Healthcare	0.9
Industrials	0.7
Financials	0.5
Basic Materials	0.5
Energy	0.4
Telecom Services	0.3
Real Estate	0.2
Utilities	0.2
S&P 500	0.7

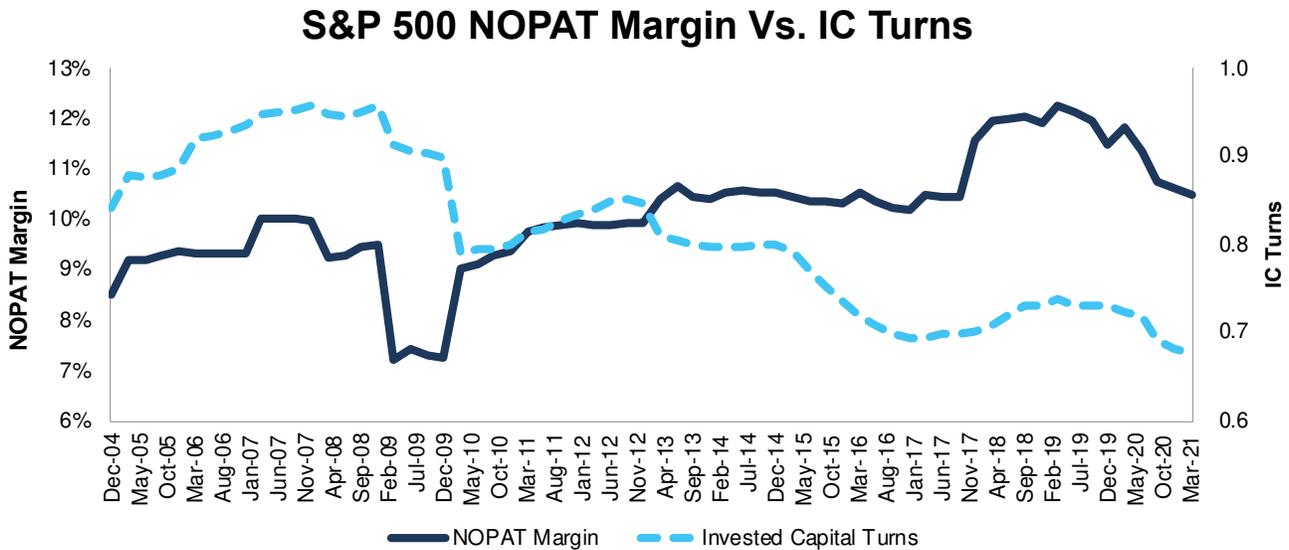
Sources: New Constructs, LLC and company filings.
Financial data from 2020 10-Ks.

These two tables show how rare it is for a sector to have both high margins and capital turns. Real Estate, the highest margin sector, has the second-worst invested capital turns. Consumer Non-cyclicals, the sector with the highest invested capital turns has the third lowest margin. The Technology sector has both high margins and invested capital turns, which is why that sector leads the market in ROIC by a wide margin.



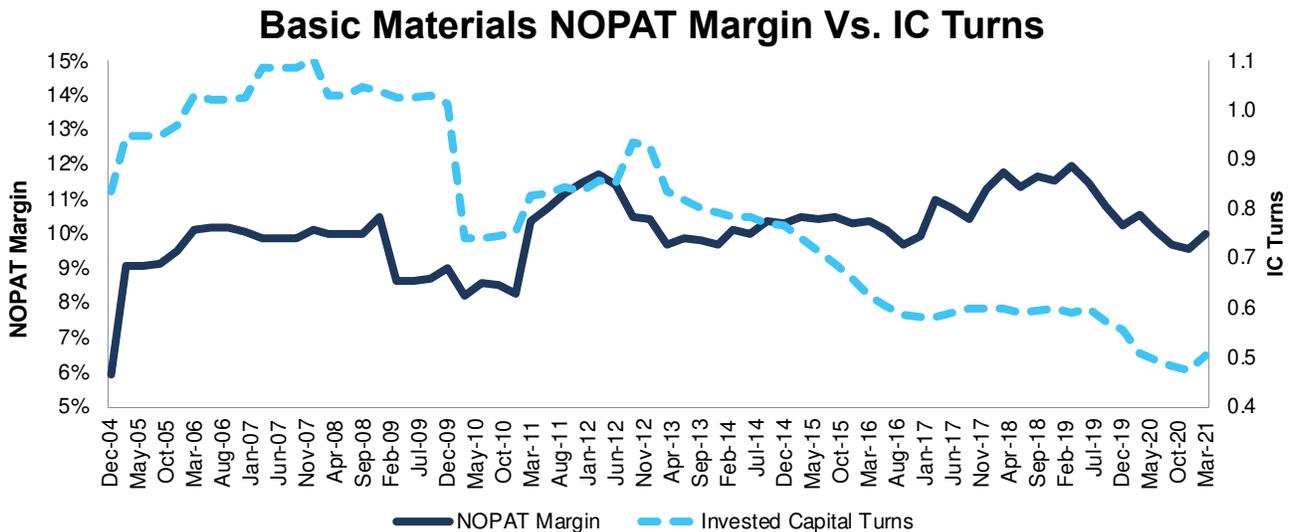
Figures 17-28 compare the NOPAT margin and invested capital turns trends for the S&P 500 and every sector since 2004.

Figure 17: S&P 500 NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

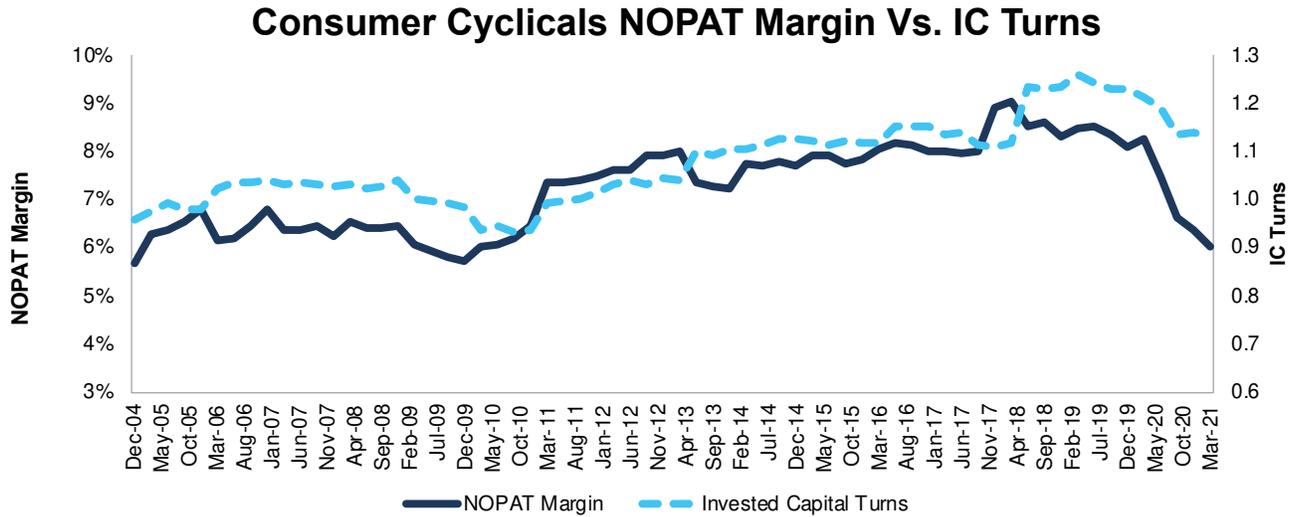
Figure 18: Basic Materials NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

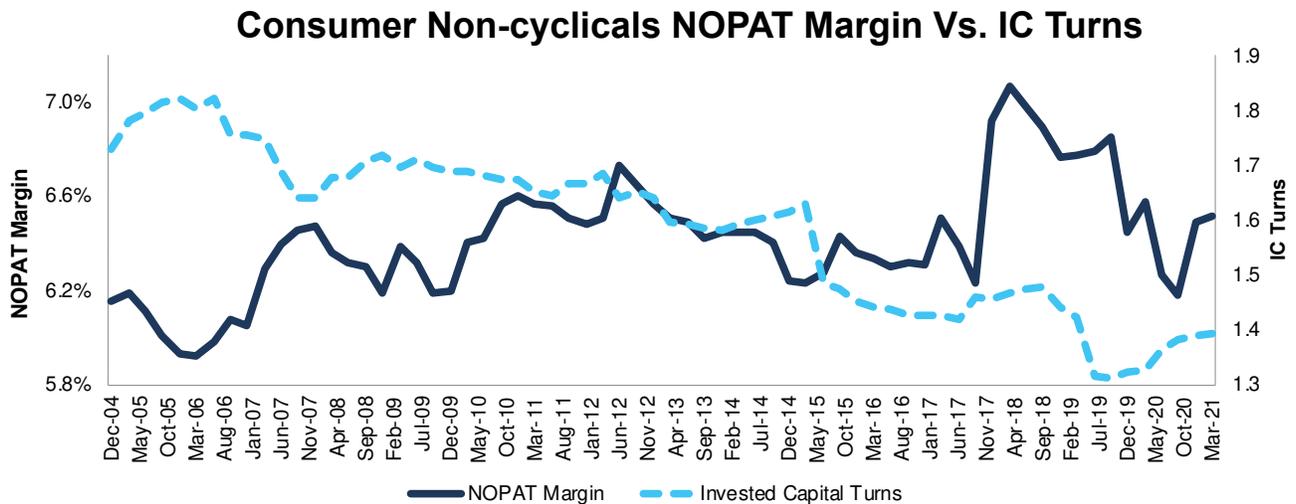


Figure 19: Consumer Cyclical NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

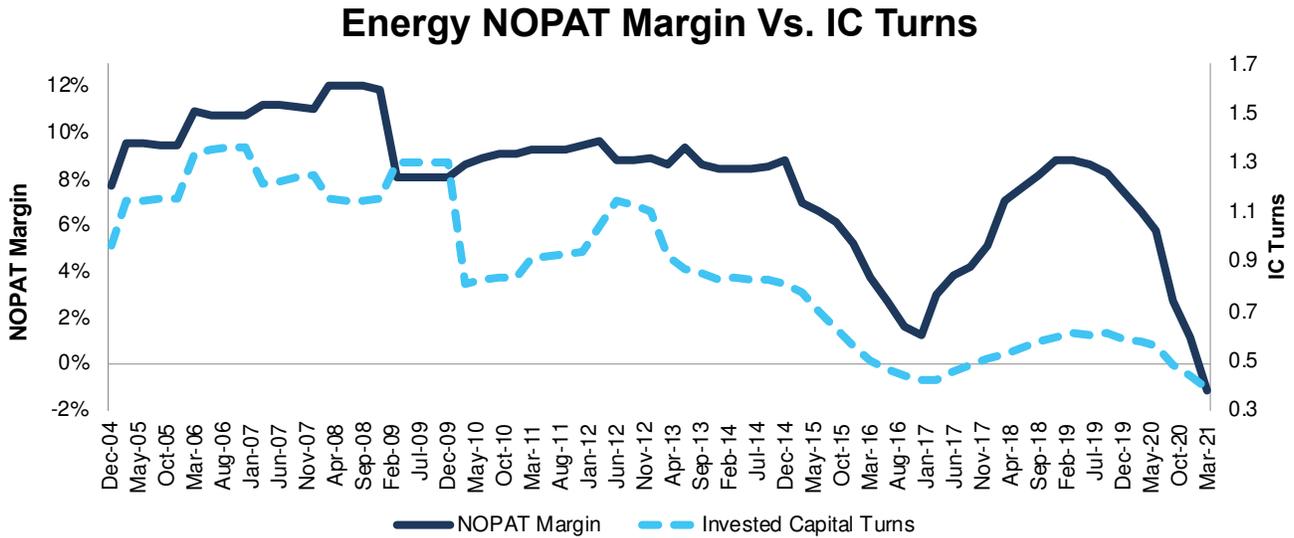
Figure 20: Consumer Non-Cyclicals NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

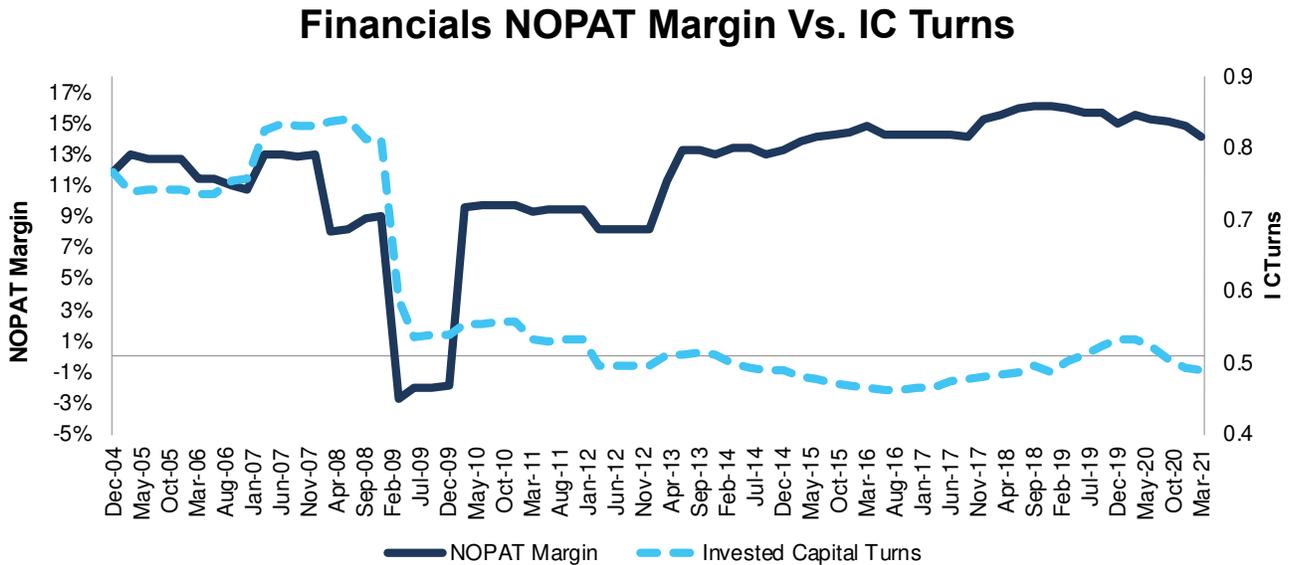


Figure 21: Energy NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

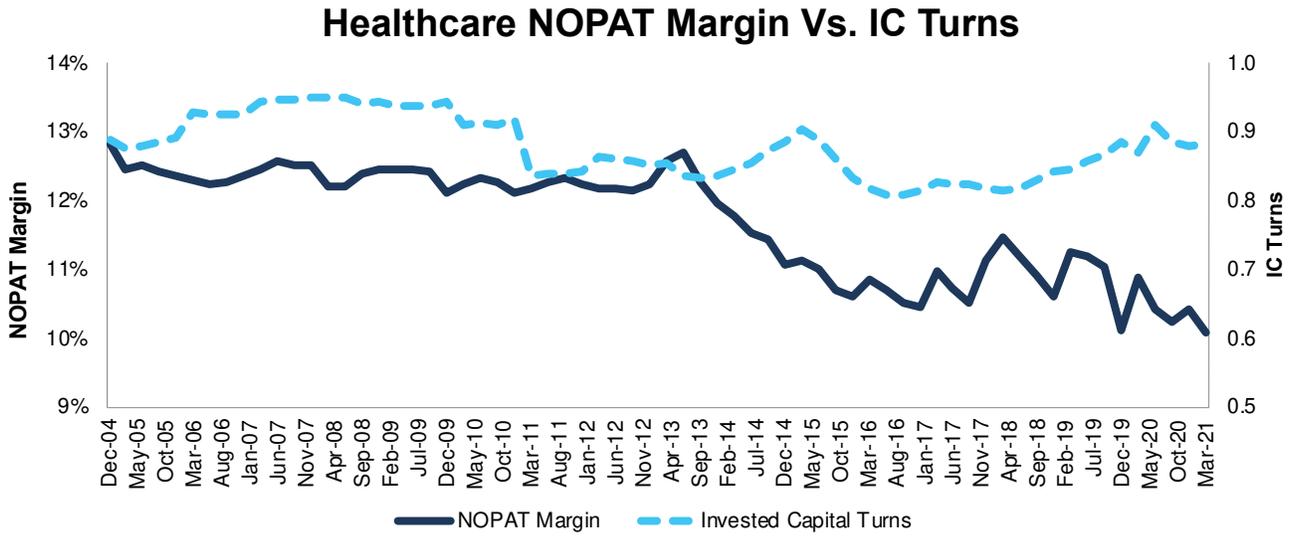
Figure 22: Financials NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

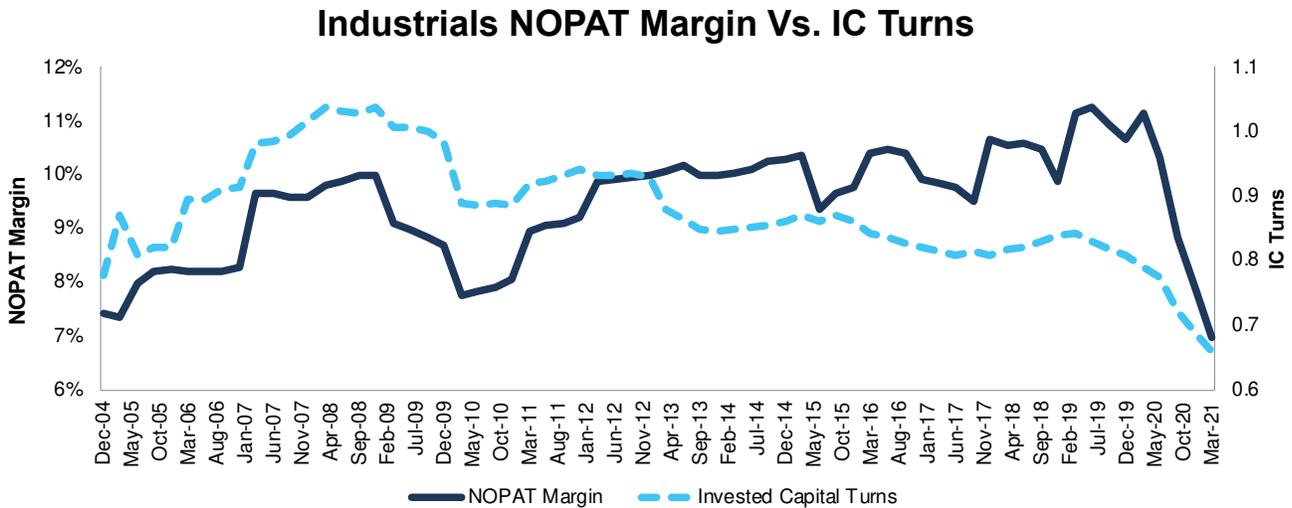


Figure 23: Healthcare NOPAT Margin and IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

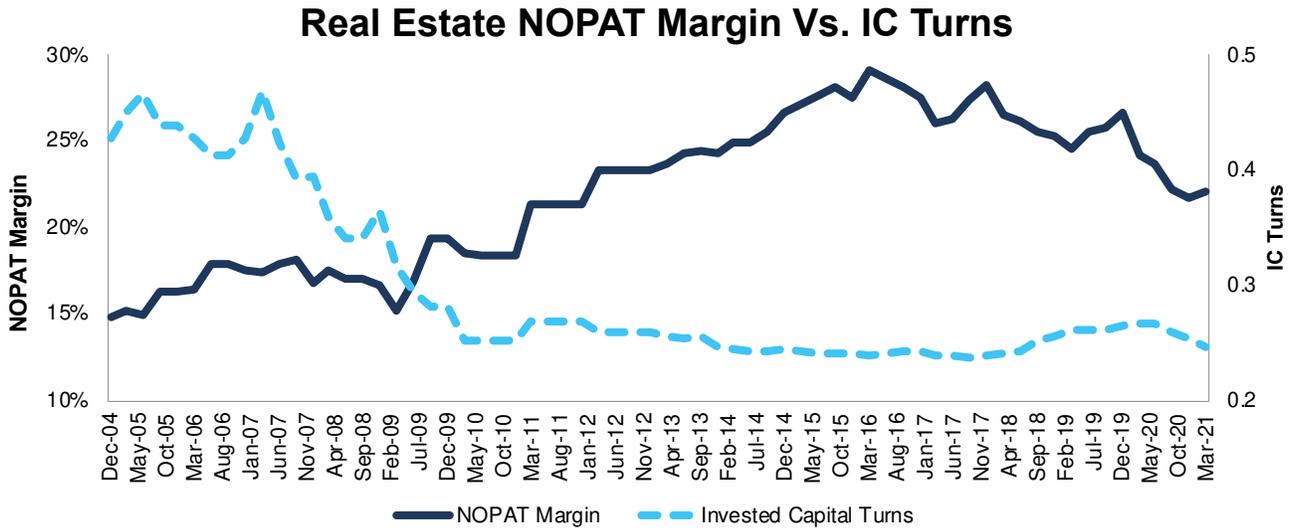
Figure 24: Industrials NOPAT Margin vs. IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

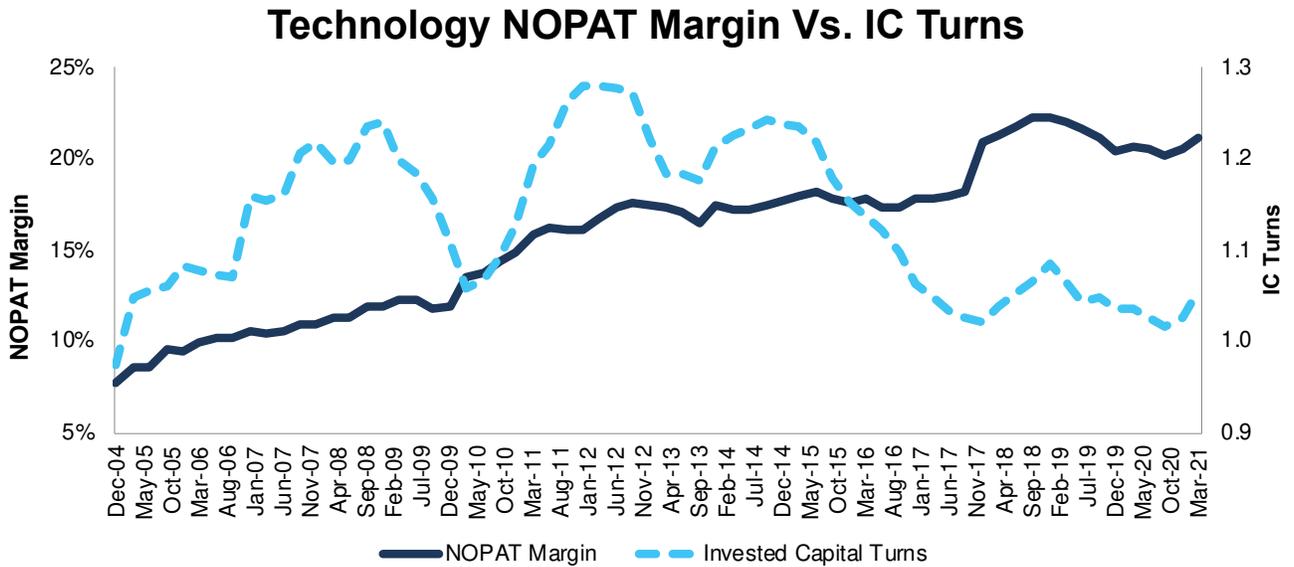


Figure 25: Real Estate NOPAT Margin Vs. IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

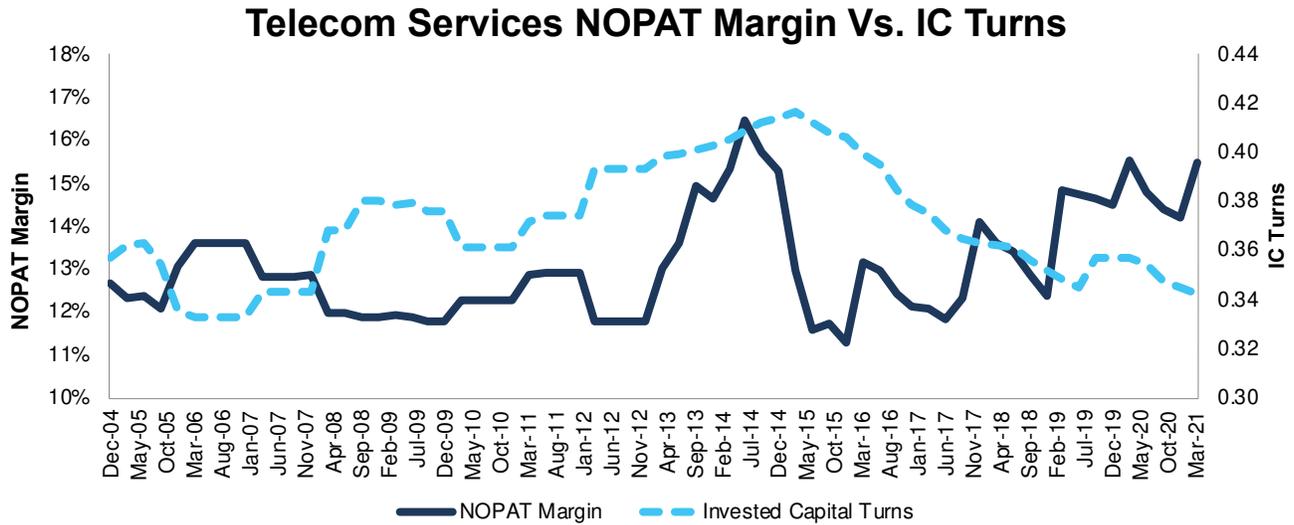
Figure 26: Technology NOPAT Margin Vs. IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

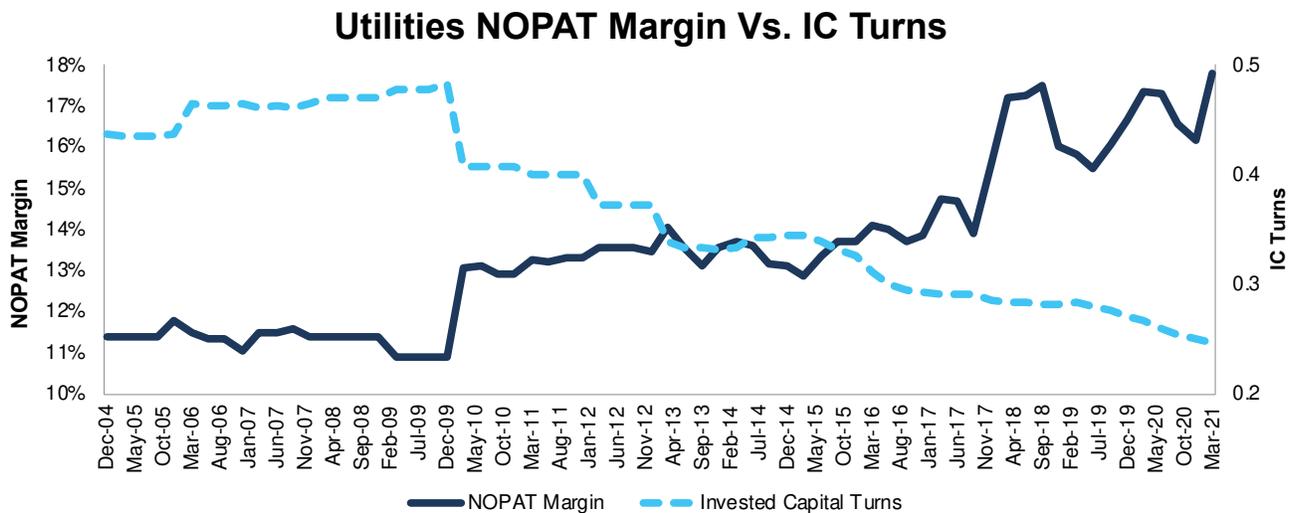


Figure 27: Telecom Services NOPAT Margin Vs. IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Figure 28: Utilities NOPAT Margin vs. IC Turns: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Appendix III: Analyzing ROIC with Different Weighting Methodologies

We derive the metrics above by summing the individual S&P 500 constituent values for revenue, NOPAT, and invested capital to calculate the metrics presented. We call this approach the “Aggregate” methodology.

The Aggregate methodology provides a straightforward look at the entire sector, regardless of market cap 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 ROIC with two other market-weighted methodologies:

1. **Market-weighted metrics** – calculated by market-cap-weighting the ROIC 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/its sector
 - b. We multiply each company’s ROIC by its weight
 - c. S&P 500/Sector ROIC equals the sum of the weighted ROICs for all the companies in the S&P 500/each sector
2. **Market-weighted drivers** – calculated by market-cap-weighting the NOPAT and invested capital 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/its sector
 - b. We multiply each company’s NOPAT and invested capital by its weight
 - c. We sum the weighted NOPAT and invested capital for each company in the S&P 500/each sector to determine each sector’s weighted NOPAT and weighted invested capital
 - d. S&P 500/Sector ROIC equals weighted sector NOPAT divided by weighted sector invested capital

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 by companies entering/exiting the group of companies, which could unduly affect aggregate values despite the level of change from companies that remain in the group.

Market-weighted metrics method

Pros:

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

Cons:

- Vulnerable to outsized impact of one or a few companies, as shown below in the Consumer Non-cyclicals sector. This outsized impact tends to occur only for ratios where unusually small denominator values can create extremely high or low results.

Market-weighted drivers method

Pros:

- Accounts for a firm’s size relative to the overall S&P 500/sector and weights its NOPAT and invested capital accordingly.
- Mitigates potential outsized impact of one or a few companies by aggregating values that drive the ratio before calculating the ratio.

Cons:



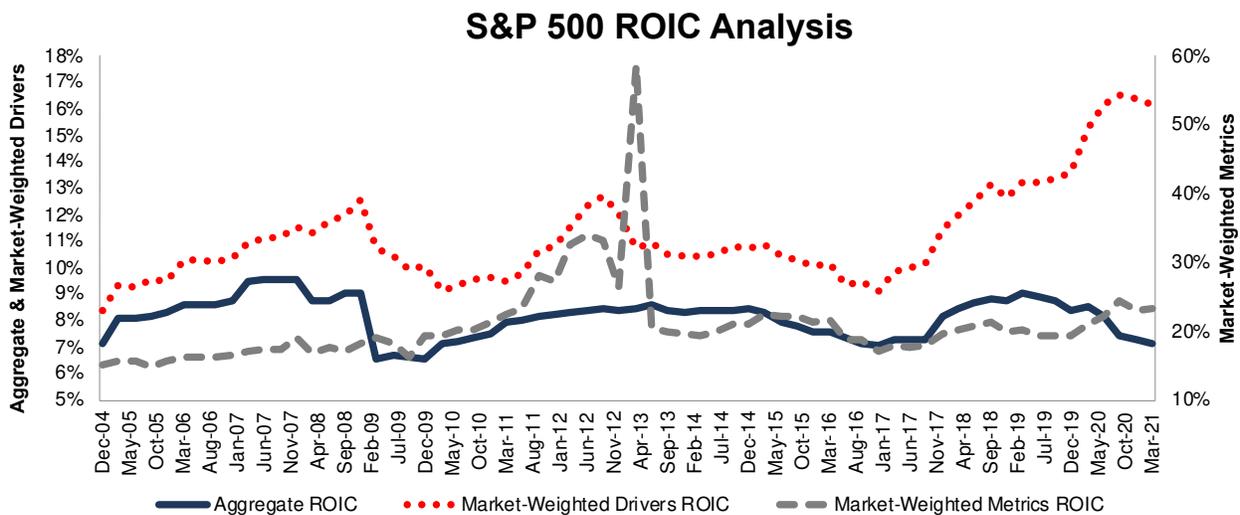
- Can minimize the impact of period-over-period changes in smaller companies, as their impact on the overall sector NOPAT and invested capital is smaller.

Figures 29-40 compare these three methods for calculating S&P 500 and sector ROICs.

In Figure 29, we chart the market-weighted metrics version of ROIC on its own axis to highlight the differences in the aggregate and market-weighted drivers versions of ROIC.

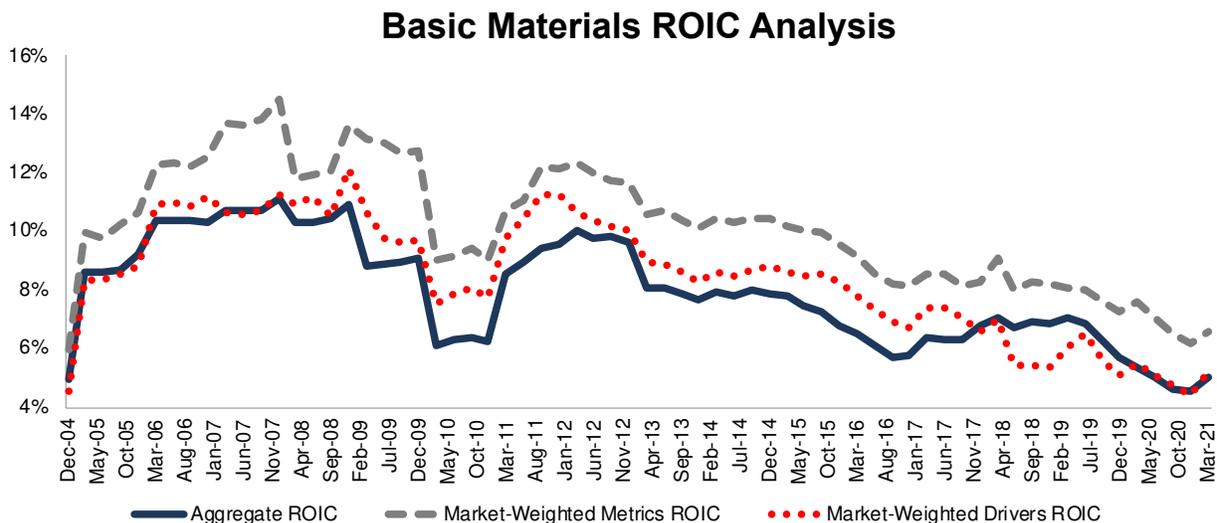
Note the impact on the market-weighted metrics version of ROIC for the entire S&P 500 from Lorillard (LO) in 2013, when the firm's ROIC was more than 36,000%.

Figure 29: S&P 500 ROIC Methodologies Compared: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

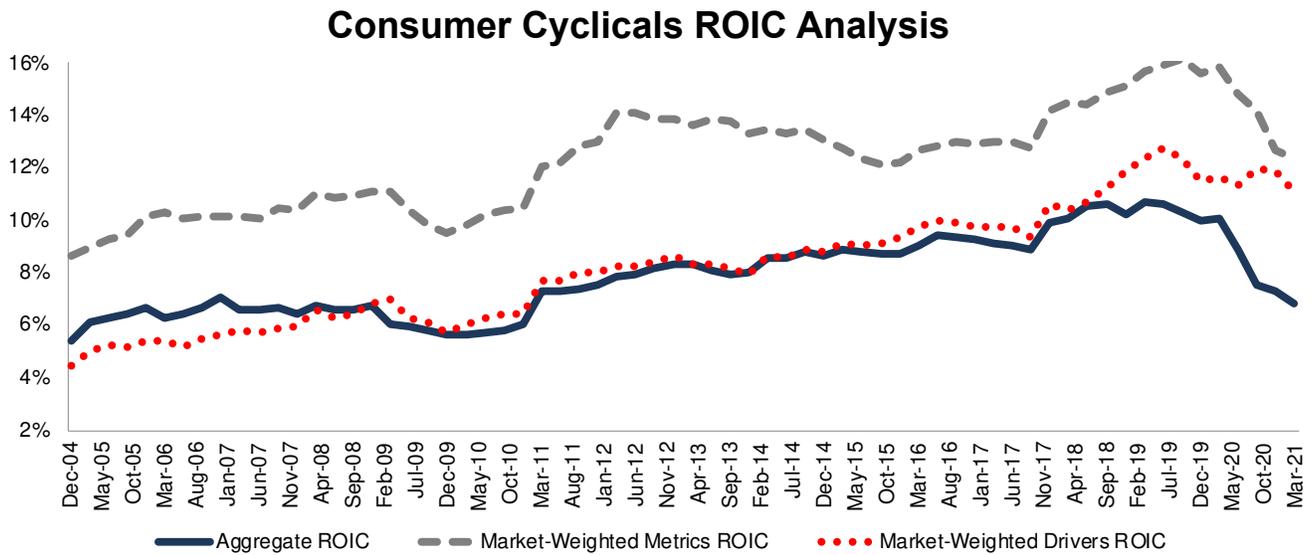
Figure 30: Basic Materials ROIC Methodologies Compared: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Figure 31: Consumer Cyclical ROIC Methodologies Compared: December 2004 – 3/23/21



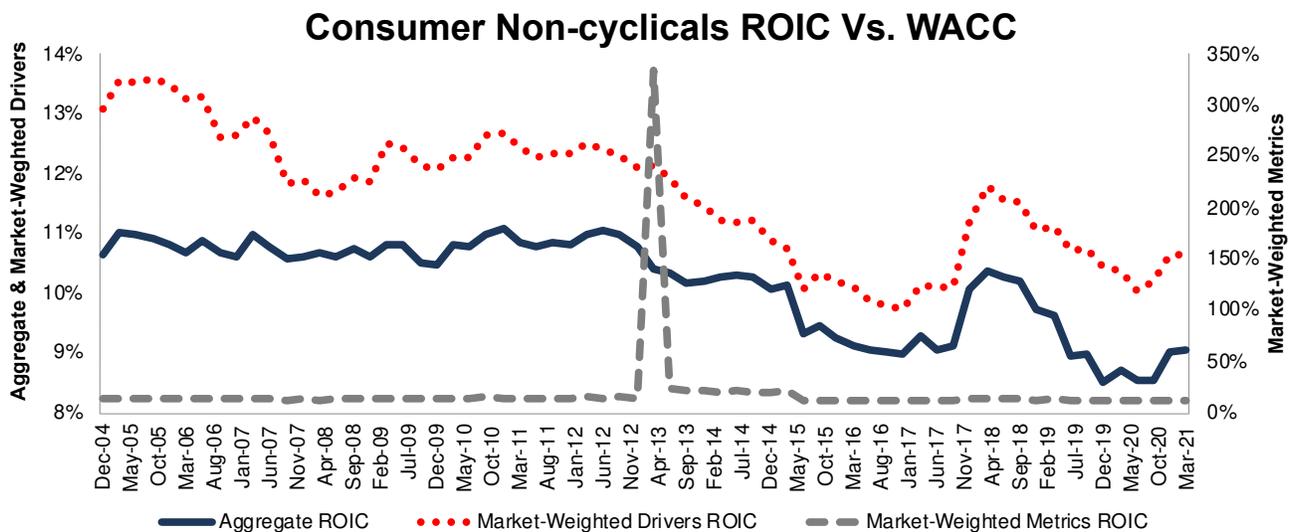
Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Note the impact on the market-weighted metrics version of ROIC for the Consumer Non-cyclicals sector from Lorillard (LO) in 2013, when the firm’s ROIC was more than 36,000%.

This outlier caused the Consumer Non-cyclicals sector’s ROIC to increase from 15% to 334% in just one period, before falling to 24% one period later.

Figure 32: Consumer Non-cyclicals ROIC Methodologies Compared: December 2004 – 3/23/21



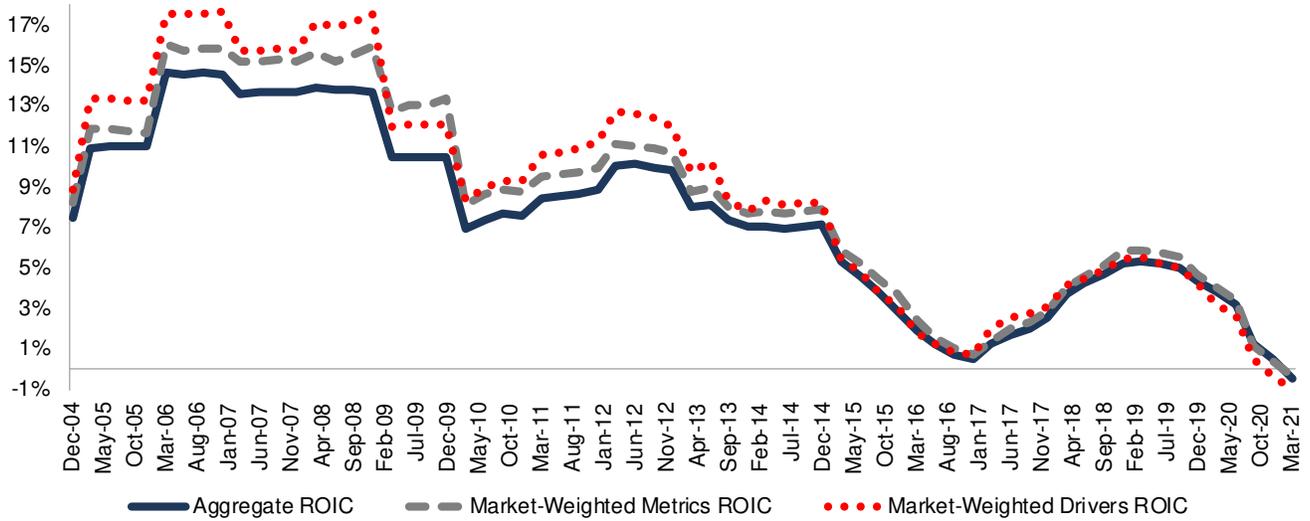
Sources: New Constructs, LLC and company filings.

The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Figure 33: Energy ROIC Methodologies Compared: December 2004 – 3/23/21

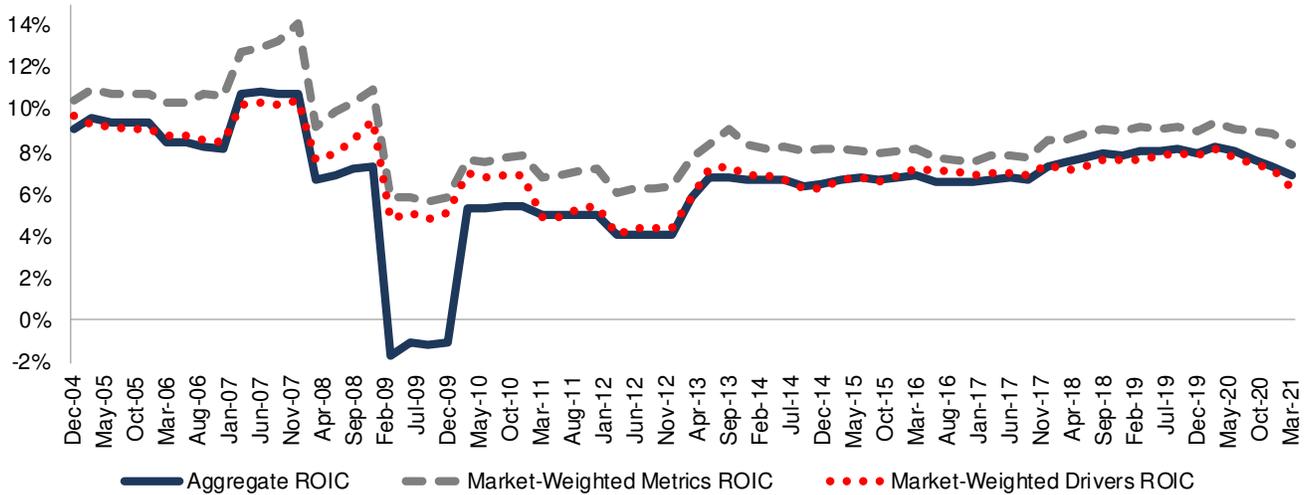
Energy ROIC Analysis



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Figure 34: Financials ROIC Methodologies Compared: December 2004 – 3/23/21

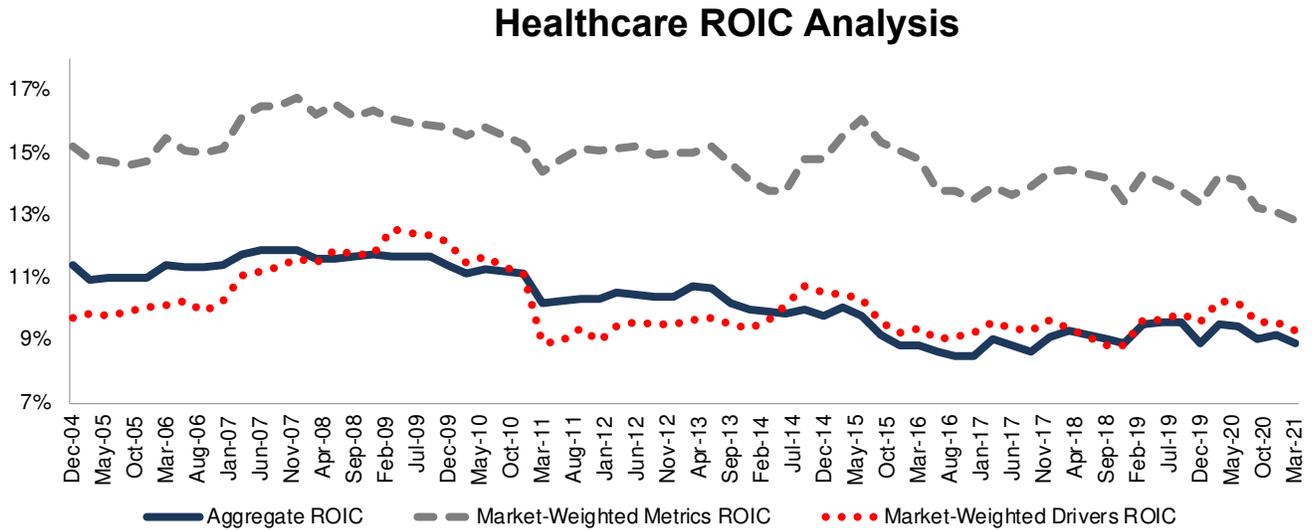
Financials ROIC Analysis



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

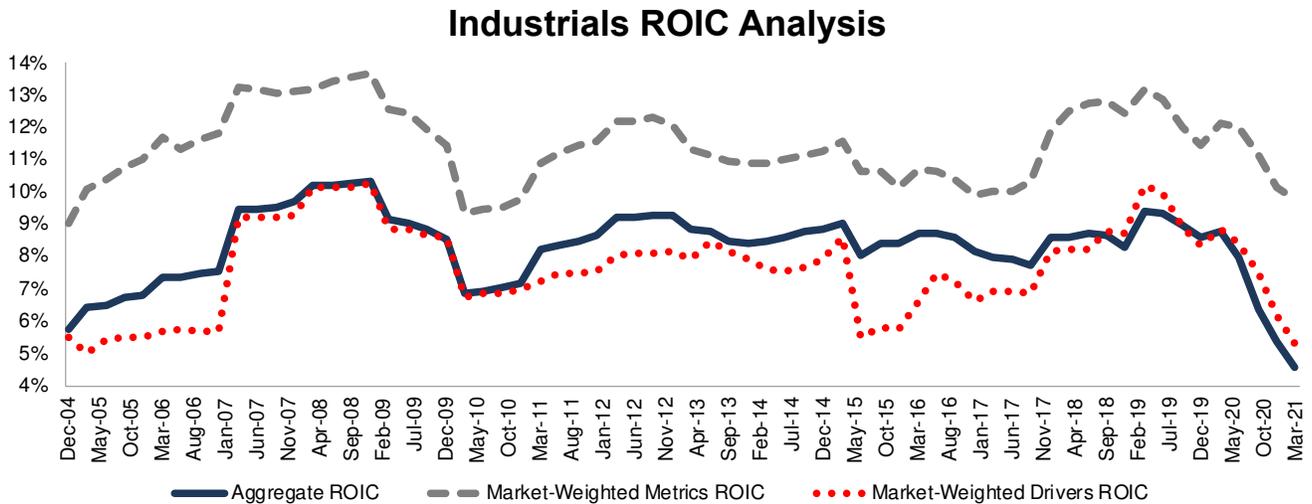


Figure 35: Healthcare ROIC Methodologies Compared: December 2004 – 3/23/21



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Figure 36: Industrials ROIC Methodologies Compared: December 2004 – 3/23/21

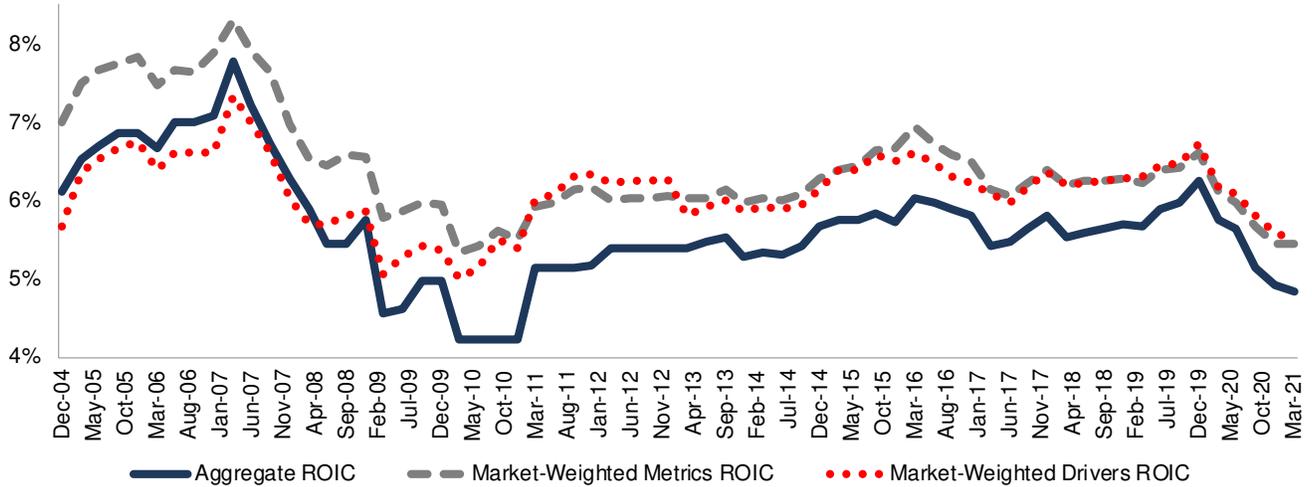


Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Figure 37: Real Estate ROIC Methodologies Compared: December 2004 – 3/23/21

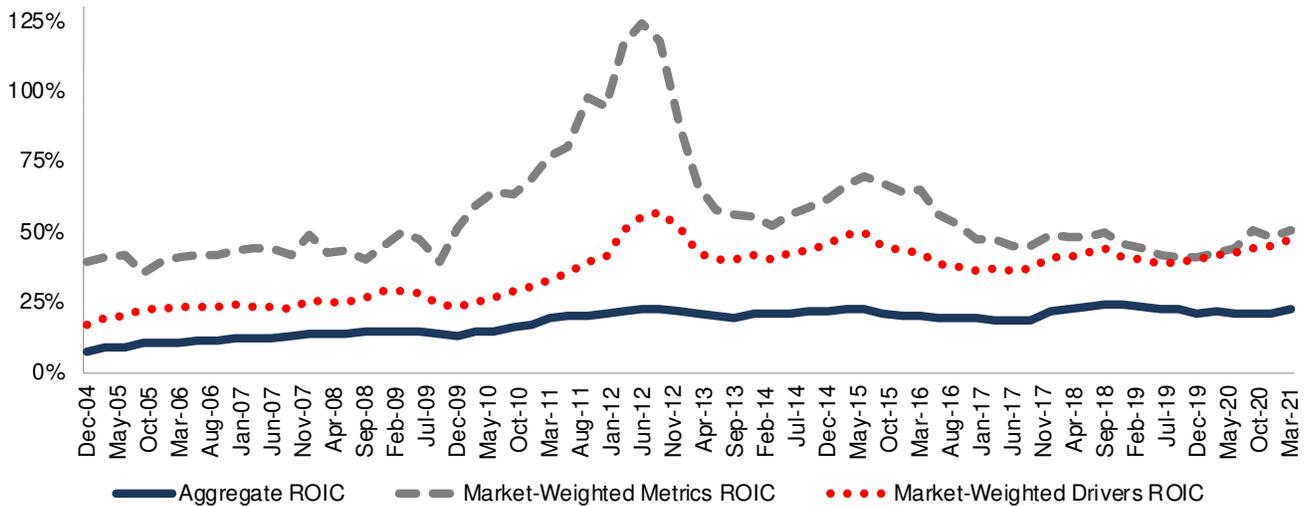
Real Estate ROIC Analysis



Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Figure 38: Technology ROIC Methodologies Compared: December 2004 – 3/23/21

Technology ROIC Analysis

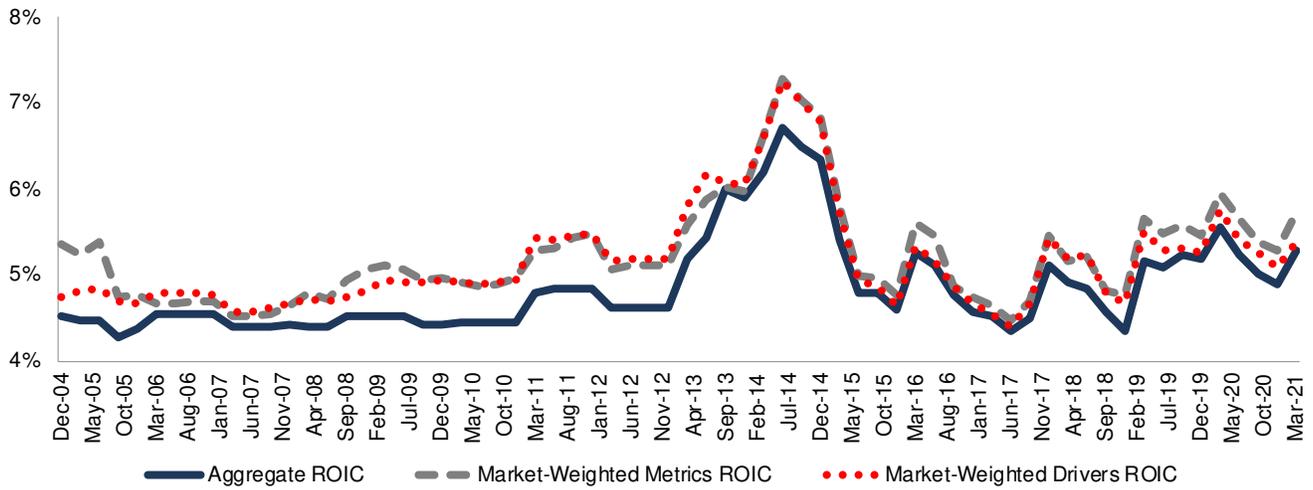


Sources: New Constructs, LLC and company filings. The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



Figure 39: Telecom Services ROIC Methodologies Compared: December 2004 – 3/23/21

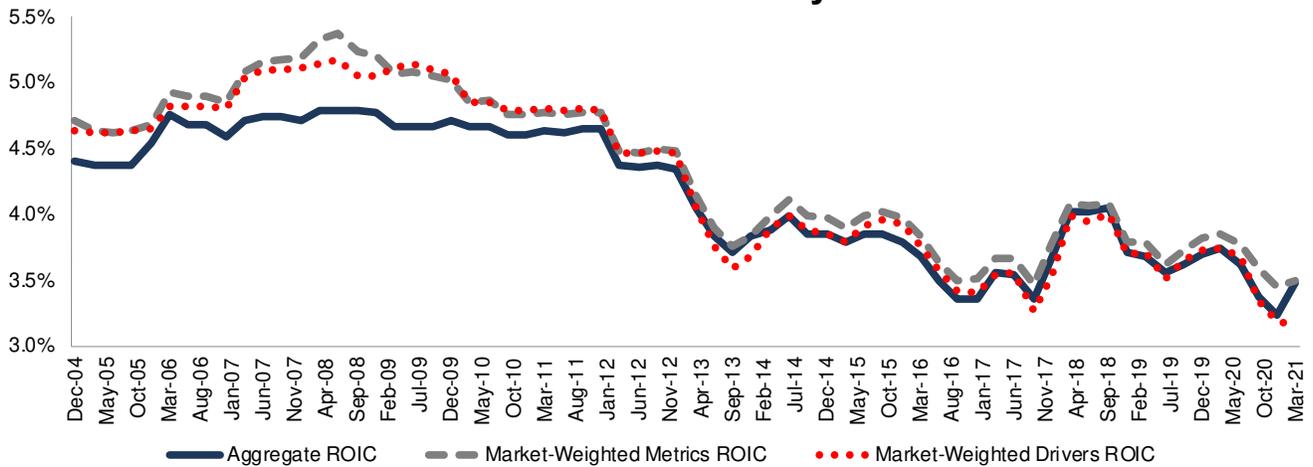
Telecom Services ROIC Analysis



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.

Figure 40: Utilities ROIC Methodologies Compared: December 2004 – 3/23/21

Utilities ROIC Analysis



Sources: New Constructs, LLC and company filings.
 The March 23, 2021 measurement period incorporates the financial data from 2020 10-Ks, as this is the earliest date for which all the 2020 10-Ks for the S&P 500 constituents were available.



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Best Fundamental Data in the World

Forthcoming in [The Journal of Financial Economics](#), a top peer-reviewed journal, [Core Earnings: New Data & Evidence](#) proves our Robo-Analyst technology overcomes material shortcomings in legacy firms’ data collection processes to provide superior [fundamental data](#), [earnings](#) models, and [research](#). More [details](#).

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, 1st 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, 2nd para.

Superior Models

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, 5th 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, 2nd para.

Superior Stock Ratings

Robo-Analysts’ stock ratings outperform those from human analysts as shown in this [paper](#) from Indiana’s Kelley School of Business. Bloomberg features the paper [here](#).

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, 3rd para.
- “Our results ultimately suggest that Robo-Analysts are a valuable, alternative information intermediary to traditional sell-side analysts.” – pp. 20, 3rd para.

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