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Cash Flow Trends and Their Fundamental Drivers: Comprehensive Review (Quarter 3, 2019)

Free Cash Margin Index:

0.99%, 3.45%	**3.92%**	**6.88%**
Recession Lows (Dec. 2000, Dec. 2008)	**Current (Sept 2019)**	**Recent High (Dec. 2009)**

Median free cash margin increased slightly to 3.92% for the twelve months ending September 2019, compared with 3.83% for the twelve months ending June 2019 but decreased from 4.10% in September 2018. Median revenues decreased to $1,167.45 million in the current period from $1,194 million in June 2019 and $1,214.24 million in September 2018.

When compared with September 2018, a decline in operating cushion to 13.39% in September 2019 from 14.30% in September 2018 and an increase in the cash cycle to 50.59 days in September 2019 from 48.92 days in September 2018 pushed free cash margin lower in the September 2019 reporting period. The drop in operating cushion was driven by a decline in gross margin and an increase in SG&A as a percent of revenue. The cash cycle was pushed higher by an increase in receivables days and inventory days and a decline in payables days.

Capital expenditures decreased to 3.65% in the current quarter compared to 3.68% in June 2018 and 2.80% in September 2018 and helped to mitigate the decline in free cash margin.

With declining revenues and capital spending, the results for the September 2019 reporting period show economic weakness and declining business confidence. Rising cash levels as a percent of revenue and declining dividends and stock repurchases also show caution.

Data for this research were provided by the Wharton Research Data Services database. **March 2020**

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Georgia Tech Financial Analysis Lab

The Georgia Tech Financial Analysis Lab conducts research on issues of financial reporting and analysis. Unbiased information is vital to effective investment decision-making. Accordingly, the Lab thinks that independent research organizations, such as this Lab, have an important role to play in providing information to market participants.

Because the Lab is housed within a university, all of its research reports have an educational quality, as they are designed to impart knowledge and understanding to those who read them. Its focus is on issues that it believes will be of interest to a large segment of stock market participants. Depending on the issue, it may focus its attention on individual companies, groups of companies, or on large segments of the market at large.

A recurring theme in the work is the identification of reporting practices that give investors a misleading signal, whether positive or negative, of corporate earning power. The Labs defines earning power as the ability to generate a sustainable stream of earnings that is backed by cash flow. Accordingly, its research may look into reporting practices that affect either earnings or cash flow, or both. At times, its research may look at stock prices generally, though from a fundamental and not technical point of view.

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Free Cash Margin Index*:

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The ***Free Cash Margin Index** is free cash flow measured as a percentage of revenue for the trailing twelve-month period.

Introduction

This research report is part of a continuing series that examines cash flow trends and the underlying drivers that are causing changes in those trends. The current study contains a review of the cash flow performance of all non-financial companies for a series of rolling twelve-month periods from the first quarter of 2000 through the third quarter of 2019. Additionally, it looks at individual industry results and focuses its attention on the drivers that pushed free cash margin higher or lower in those industries. All companies with total assets of $100 million or more are included, resulting in a total sample of 2,658 companies. Please see pages 5 and 6 for a list of industries included. That list is followed by a summary of the findings.

Measured as free cash flow divided by revenue, free cash margin is a cash flow profit margin. It indicates what percent of revenue is left for shareholders in the form of free and discretionary cash flow. If the company sells its products or services for a dollar, free cash margin tells how many cents the shareholders can take home without reducing the company’s ability to generate more. Thus, as the report looks at cash flow trends and their underlying drivers, its particular interest is on how those factors impact free cash margin.

Continuous Focus on Cash Flow

Corporate financial success is dependent not only on a company’s ability to generate revenues and earnings, but also cash flow, especially free cash flow. It is free cash flow and growth in free cash flow, that discretionary stream of cash that a company can put to use for acquisitions, debt retirement, dividends and stock buybacks that works with growing earnings to drive firm value higher. Because it is "free," free cash flow comes with no strings attached. It is truly discretionary. Spending it does not impact the company's ability to generate more. A company with revenue growth will eventually lose the favor of investors if it never finds a way to generate earnings. In a similar way, a company with profits that is unable to generate cash will also experience waning investor enthusiasm. It may take a while. Investors are patient with profitable, growing companies. Ultimately, however, a company must show an ability to generate free cash flow.

Companies that consume cash must continually seek new sources of capital – whether debt or equity. At some point, those sources of capital will dry up or become prohibitively expensive if the firm does not show at least some progress toward getting closer to positive cash generation. Worse, if cash flow does not back a company's earnings, ultimately those earnings themselves may become suspect, necessitating write-downs of the resulting non-cash assets. Net losses will likely accompany those write-downs.

When free cash margin is positive, a firm is covering all ongoing claims and is able to pay dividends, reduce debt or simply add to its cash coffers. When free cash margin turns negative, ongoing claims are not being met. Cash and short-term investments can be used to meet the shortfall. However, on-hand cash and short-term investments are not an unlimited source of funds. Firms can borrow money to meet their needs. However, even if this were an option, increasing debt levels add new, unwanted risks. Equity issues provide another avenue, but capital markets can be painfully dilutive when share prices are depressed for firms that are seemingly unable to generate cash.

During periods of growth, firms may have problems generating cash as profits are consumed with growth-related investments in working capital and property, plant and equipment needed to support that growth. During recessions, cash generation can be particularly problematic as revenues and profits decline, draining the economic engine that supports cash generation. Regardless of the economic environment, however, free cash margin serves as an important measure of long-term financial health for individual companies, industries and the economy as a whole. The Lab thinks that by periodically examining their cash generating ability, readers will gain insight into the overall financial health of important segments of U.S. firms. With all "nonfinancial firm industry" data dating back to 2000, it is possible to see how the cash-generating performance of these firms presently compares with their performance during previous periods of economic contraction (e.g., 2001 and 2008-2009) and economic expansion.

Cash Flow Definitions

Free cash flow is the cash flow equivalent of the income statement "bottom line". Like net income, free cash flow is available for shareholders after all prior claims have been satisfied. However, also like net income, which, to facilitate analysis, can be divided into certain sub-measures of performance, like gross profit and operating profit, free cash flow can be similarly divided. Thus, while the primary focus of the report is on free cash flow and free cash margin, or free cash flow as a percentage of revenue, it analyzes the fundamental drivers underlying two distinct, but also closely related, measures of cash flow:

1) Operating cash flow and operating cash margin - cash flow from operations after interest charges and income taxes. Operating cash margin is operating cash flow divided by revenue.

2) Free cash flow and free cash margin - cash flow available for common shareholders that can be used for such discretionary purposes as stock buybacks and dividends without affecting the firm's ability to grow and generate more. This measure is calculated as operating cash flow less preferred dividends and net capital expenditures. Free cash margin is free cash flow divided by revenue.

Data and Methodology

The data is provided by Compustat through a license with the Wharton Research Data Services. As noted, each data amount is for a rolling twelve-month period ending with the quarter end in question. For example, cash flow amounts for September 30, 2019 represent amounts for the twelve months (four quarters) ended September 30, 2019.

The 20 analyzed industry groups are as follows:

GICS	Industry Group
1010	Energy
1510	Materials
2010	Capital Goods
2020	Commercial & Professional Services
2030	Transportation
2510	Automobiles & Components
2520	Consumer Durables & Apparel
2530	Consumer Services
2550	Retailing
3010	Food & Staples Retailing
3020	Food, Beverage, & Tobacco
3030	Household & Personal Products
3510	Health Care Equipment & Services
3520	Pharmaceuticals, Biotech, & Life Sciences
4510	Software & Services
4520	Technology Hardware & Equipment
4530	Semiconductors & Equipment
5010	Telecommunication Services
5020	Media
5510	Utilities

The 20 industry groups use the four-digit Global Industrial Classification System (GICS) and represent 10 overall sectors. The ten sectors with industry groups included in parentheses are: Energy (Energy), Materials (Materials), Industrials (Capital Goods, Commercial & Professional Services, and Transportation), Consumer Discretionary (Automobiles & Components, Consumer Durables & Apparel, Consumer Services, Media and Retailing), Consumer Stapes (Food & Staples Retailing, Food, Beverage & Tobacco and Household & Personal Products), Health Care (Health Care Equipment & Services and Pharmaceuticals, Biotech & Life Sciences), Information Technology (Software & Services, Technology Hardware & Equipment and Semiconductors & Equipment), Telecommunications (Telecommunication Services) and Utilities (Utilities).

Summary of Results for All Non-Financial Companies

Median free cash margin increased slightly to 3.92% for the twelve months ending September 2019, compared with 3.83% for the twelve months ending June 2019 but decreased from 4.10% in September 2018.

Factors impacting free cash margin were operating cushion, or operating profit before depreciation, which decreased to 13.39% during the twelve months ending September 2019 from 14.06% in June 2019 and 14.30% in September 2018. A decrease in the cash cycle, which decreased to 50.59 days in September 2019, from 51.38 days in June 2019 contributed in the increase in cash margin in the September period when compared with June 2019, but an increase in the cash cycle from 48.92 in September 2018 pushed free cash margin lower. Accounts receivable days, payables days and inventory days all decreased from the last quarter. A decrease in capital spending served to increase free cash margin when compared with June 2019.

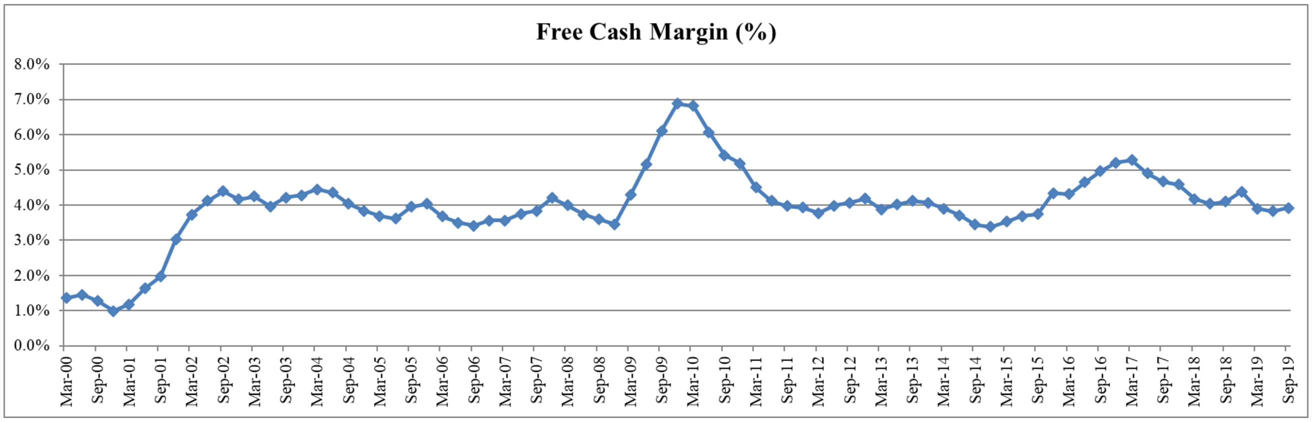
Median revenues decreased to $1,167.45 million in the current period from $1,194 million in June 2019 and $1,214.24 million in September 2018.

Drivers of Free Cash Margin

ALL NON-FINANCIAL INDUSTRIES	Q3 2019 (Sep 2019)	Q2 2019 (Jun 2019)	Q3 2018 (Sep 2018)	Effect on FCM (Q3 2019 vs. Q3 2018)
Revenue (millions)	**$1,167.45**	**$1,194.00**	**$1,214.24**	**DOWN 3.87%**
Free Cash Flow (millions)	**$39.94**	**$36.30**	**$46.10**	**DOWN 13.36%**
Free Cash Margin	**3.92%**	**3.83%**	**4.10%**	**DOWN 4.39%**
Operating Cushion %	13.39%	14.06%	14.30%	Driving **DOWN**
Gross Margin % (before depreciations)	37.18%	37.26%	37.34%	Driving **DOWN**
SGA% (before depreciation)	18.03%	17.57%	16.55%	Driving **DOWN**
Cash Cycle (rev days)	50.59	51.38	48.92	Driving **DOWN**
Accounts Receivable (rev days)	53.55	54.25	53.44	Driving **DOWN**
Inventory (rev days)	22.82	23.35	22.16	Driving **DOWN**
Accounts Payable (rev days)	25.78	26.21	26.68	Driving **DOWN**
Income tax to Rev %	0.91%	0.95%	0.55%	Driving **DOWN**
Cap Exp. to Rev %	3.65%	3.68%	2.80%	Driving **UP**

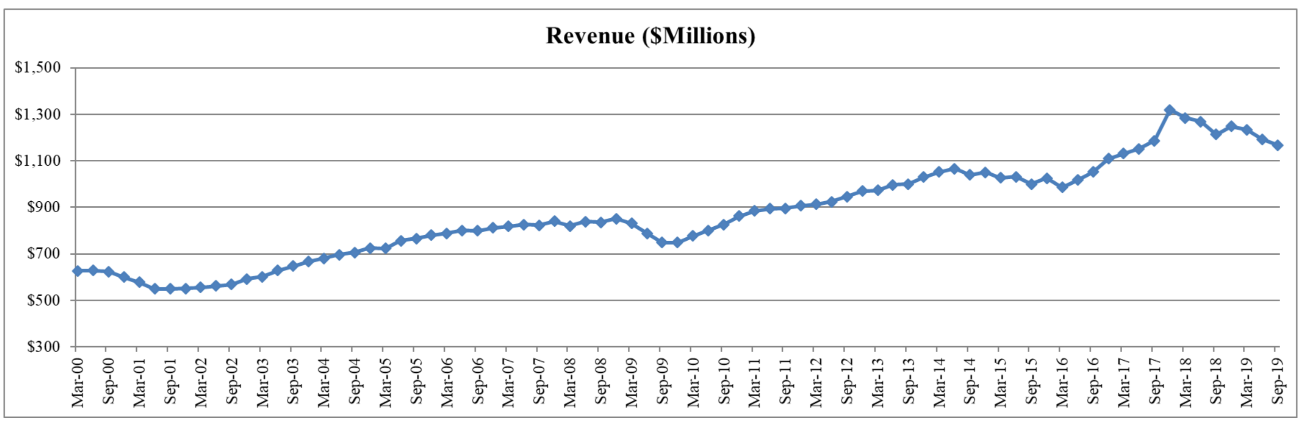
In the exhibits below we present graphs of free cash margin and several of its underlying drivers. These exhibits were constructed with data from the complete sample of 2,658 non-financial companies. For more details on each of the 20 individual industry groups included, please refer to the individual industry spreadsheets and supporting charts that are available on our website (www.scheller.gatech.edu/finlab).

All Non-financials, Q1 2000 – Q3 2019



Free cash margin has increased to 3.92% in September 2019 from 3.83% in the previous quarter ending June 2019, but is down from 4.10% in September 2018.

All Non-financials, Q1 2000 – Q3 2019



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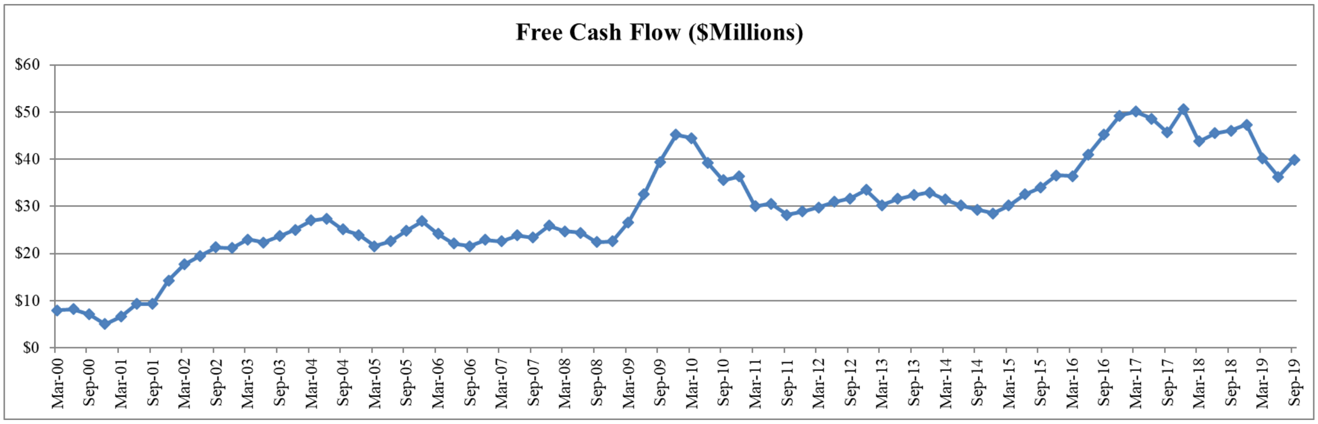
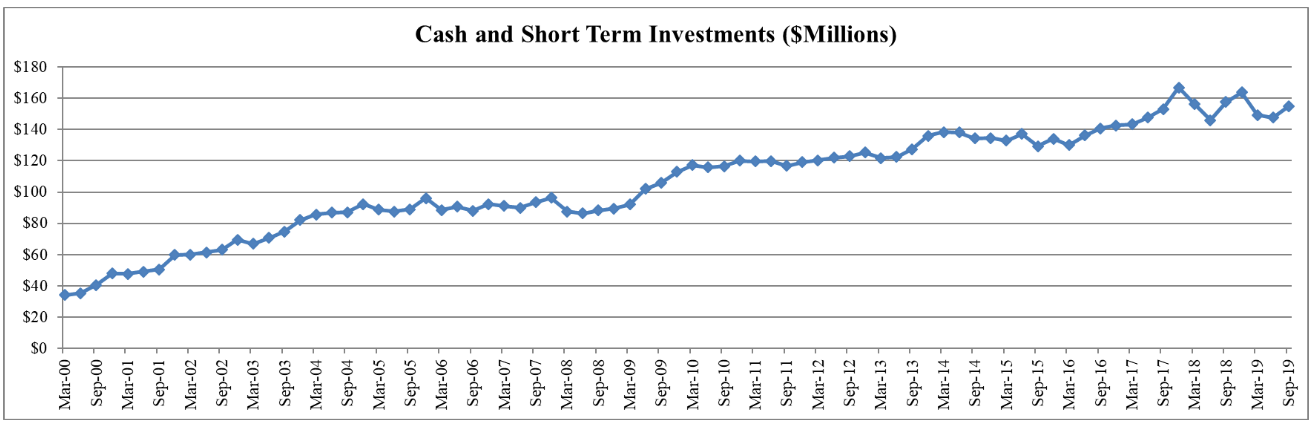
All Non-financials, Q1 2000 – Q3 2019



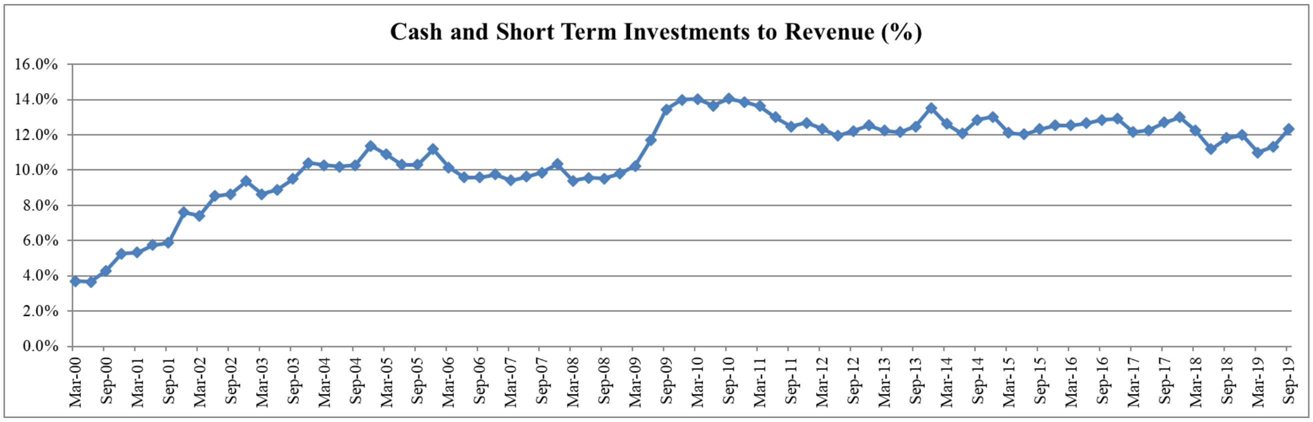
Median free cash flow increased to $39.34 million in the current quarter from $36.30 million in June 2019 but decreased year over year from $46.10 million in September 2018.

All Non-financials, Q1 2000 – Q3 2019



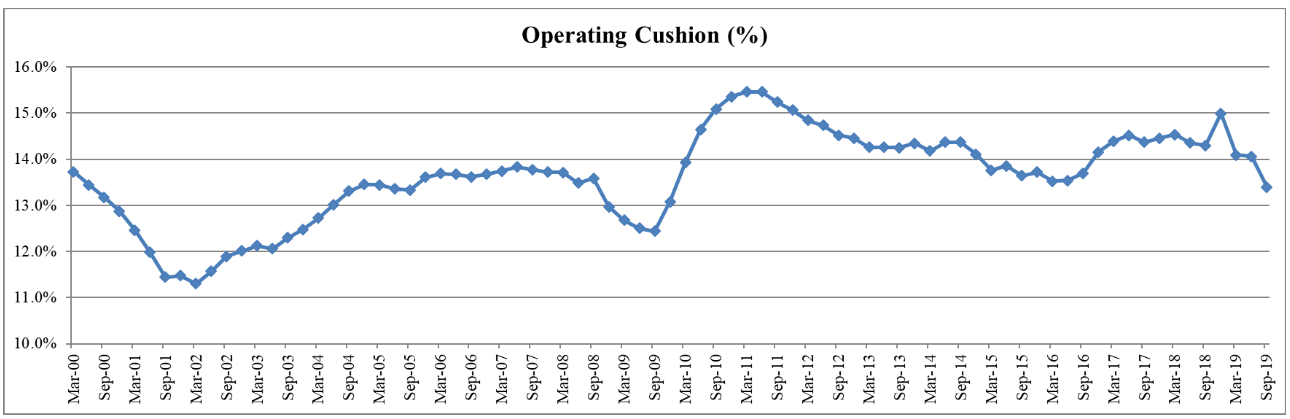
Median cash and short-term investments increased to $154.87 million in September 2019 from $147.62 million in June 2019 but decreased year over year from $157.64 million in September 2018.

All Non-financials, Q1 2000 – Q3 2019



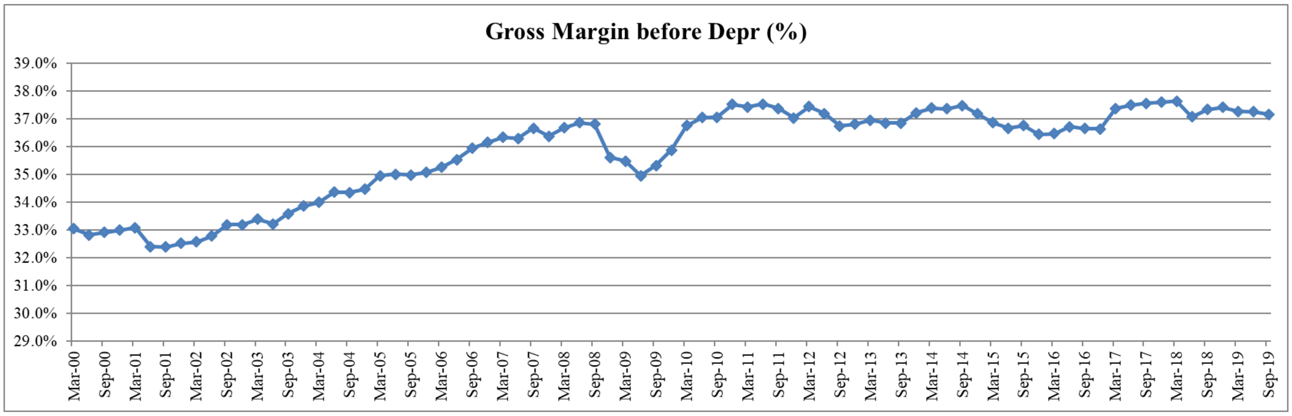
Cash and short-term investments to revenue increased to 12.34% in September 2019 from 11.32% in June 2019 and from 11.82% in September 2018. Prior to the recession, cash and short-term investments were approximately 10% of revenue, so scaled for revenue, the excess cash balances we've seen in previous periods is continuing.

All Non-financials, Q1 2000 – Q3 2019



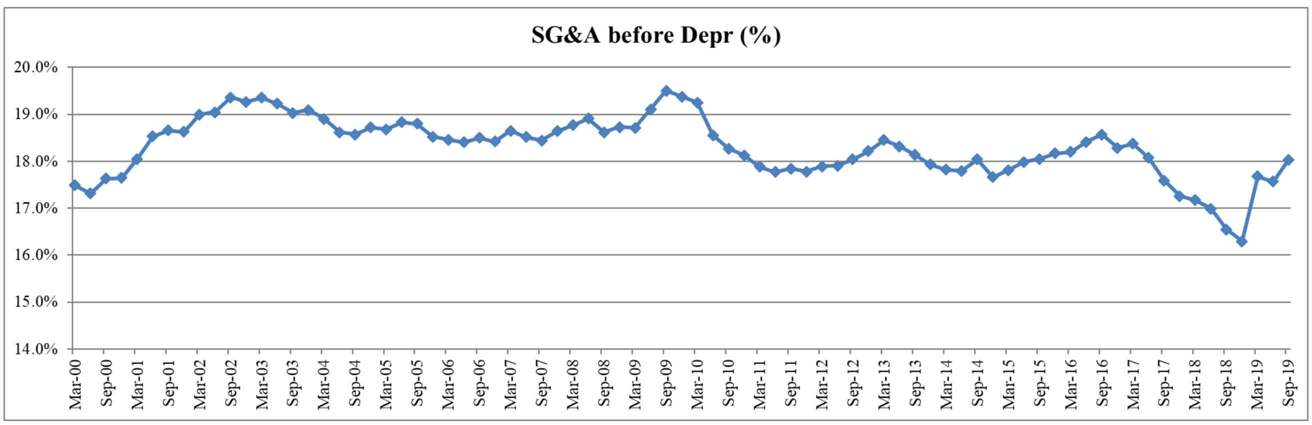
Median operating cushion decreased to 13.39% in the current reporting period from 14.06% in the reporting period ending June 2019. The decline was driven by a decrease in gross margin and an increase in SGA%.

All Non-financials, Q1 2000 – Q3 2019



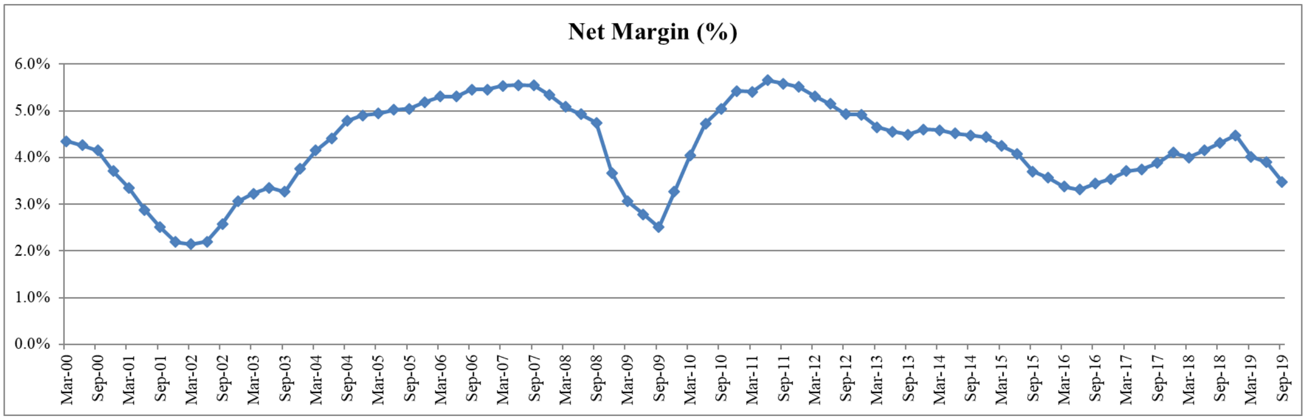
Median gross margin before depreciation marginally decreased to 37.18% for the twelve months ending September 2019 compared with 37.26% for the twelve months ending June 2019.

All Non-financials, Q1 2000 – Q3 2019



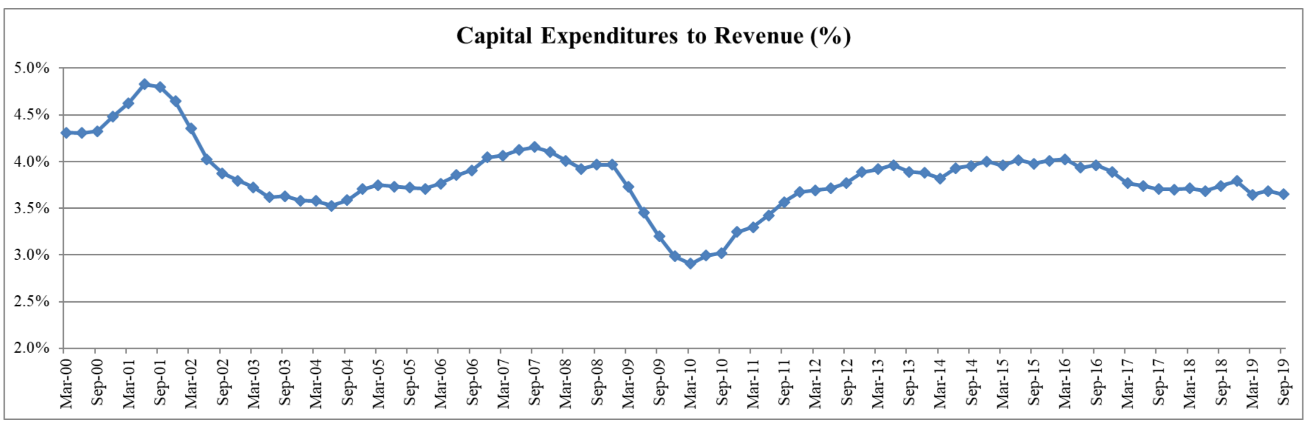
Median selling, general, and administrative expense (before depreciation) as a percent of revenue increased to 18.03% in September 2019, up from 17.57% in June 2019 and 16.55% in September 2018.

All Non-financials, Q1 2000 – Q3 2019



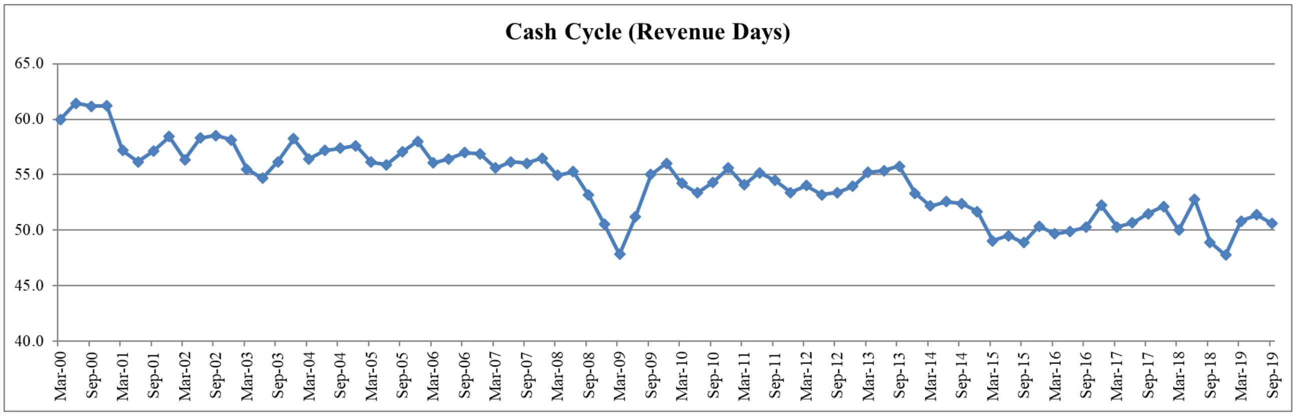
Median net margin decreased to 3.48% in September 2019 period, down from 3.90% for the June 2019 period, and from 4.31% for the September 2018 reporting period.

All Non-financials, Q1 2000 – Q3 2019



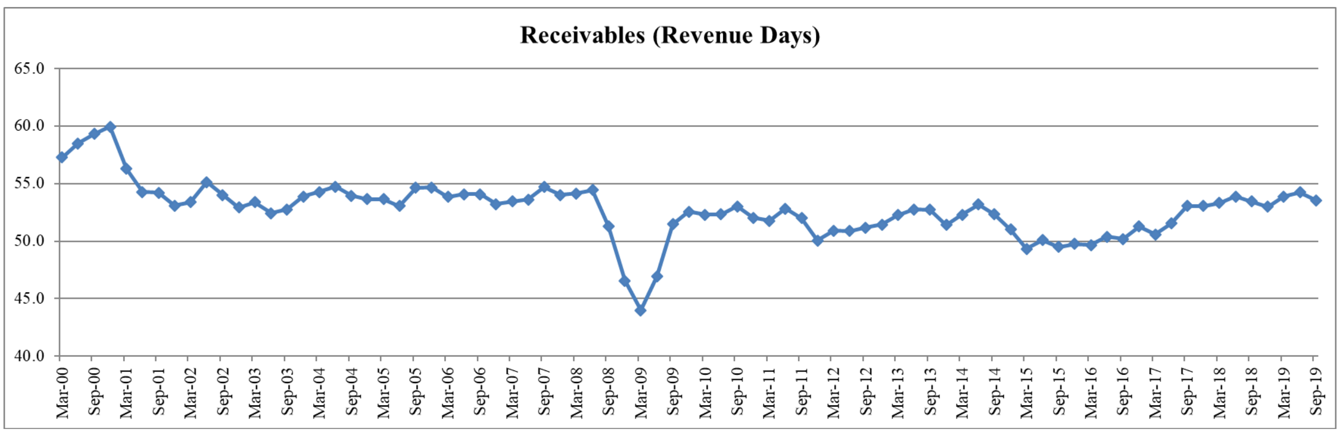
Capital expenditures as a percentage of revenue decreased to 3.65% in the September 2019 reporting period, down from 3.68% in the June 2019 and up from 2.80% in the September 2018 reporting period.

All Non-financials, Q1 2000 – Q3 2019



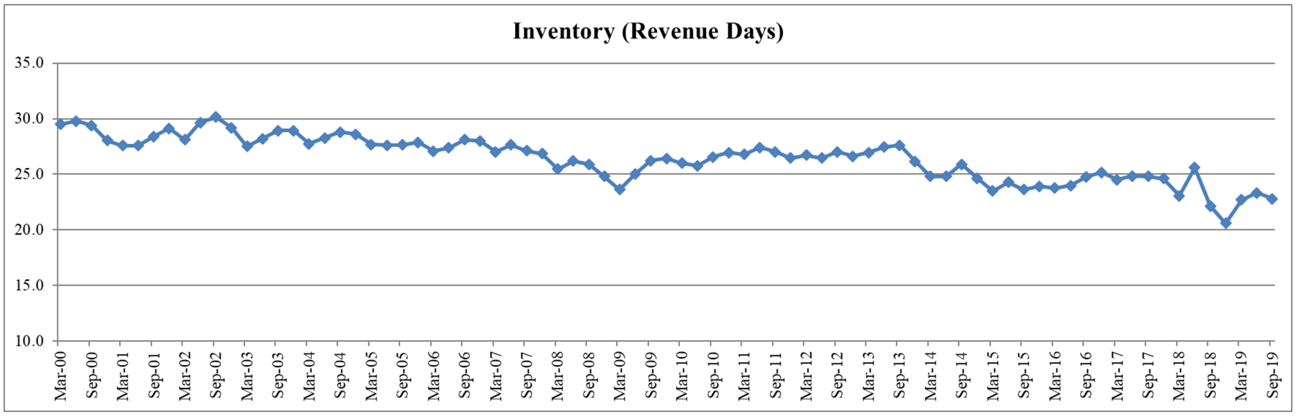
The cash cycle measures the proportion of operating cash flow carried in working capital and is measured by receivables days plus inventory days less payables days. The metric decreased to 50.59 days for the period ending September 2019 compared to 51.38 days for the period ending June 2019 and 48.92 days from September 2018. The decrease was driven by decrease in accounts receivable days and inventory days.

All Non-financials, Q1 2000 – Q3 2019



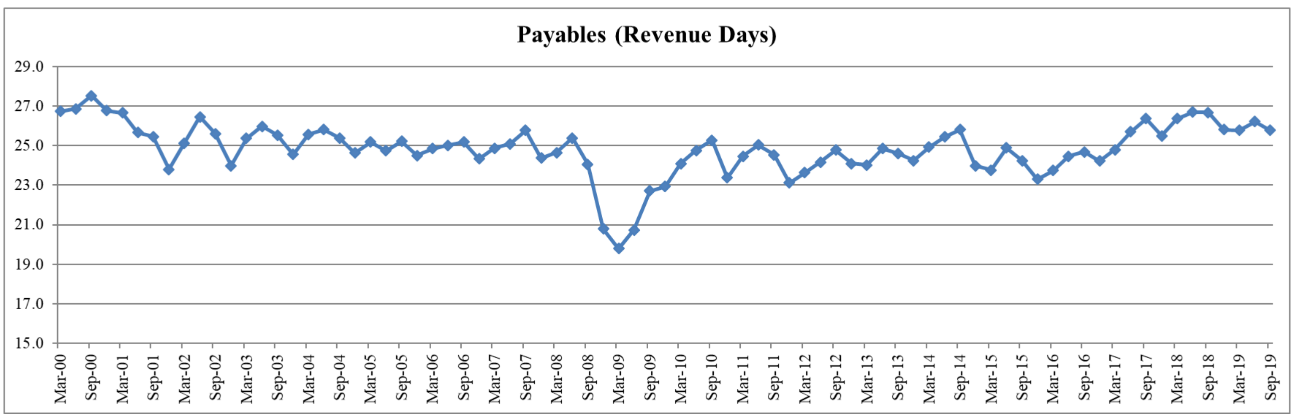
Median accounts receivable days decreased to 53.55 days in the September 2019 reporting period from 54.25 days in the June 2019 reporting period and was up from 53.44 days in September 2018.

All Non-financials, Q1 2000 – Q3 2019



Median inventory days decreased to 22.82 days in September 2019 from 23.35 days in June 2019 and was up from 22.16 days in September 2018.

All Non-financials, Q1 2000 – Q3 2019



Accounts payable days declined to 25.78 days in September 2019 from 26.21 days in June 2019 from 26.68 days in the September 2018 reporting period.

Individual Industry Results

During the twelve months ended September 2019, when compared with September 2018, industry trends evidenced a moderate to substantial improvement in free cash margin in **9** industries, a decline in free cash margin in **9** industries, and a stable free cash margin in **2** industries.

Please refer to the individual industry spreadsheets, available on our website, for charts and further details on each of the 20 industry groups outlined in the following tables.

Industry Trends in Free Cash Margin

GICS	Industry Group	Increasing	Stable	Declining
1010	Energy	X		
1510	Materials		X	
2010	Capital Goods	X		
2020	Commercial & Prof Services		X	
2030	Transportation	X		
2510	Automobiles & Components			X
2520	Consumer Durables & Apparel	X		
2530	Consumer Services	X		
2550	Retailing			X
3010	Food & Staples Retailing			X
3020	Food, Beverage, & Tobacco	X		
3030	Household & Personal Products			X
3510	Health Care Equipment & Services			X
3520	Pharmaceuticals, Biotech, & Life Sciences	X		
4510	Software & Services			X
4520	Technology Hardware & Equipment	X		
4530	Semiconductors & Equipment			X
5010	Telecommunication Services			X
5020	Media	X		
5510	Utilities			X
	Total	**9**	**2**	**9**

The following table compares Free Cash Margin for the 20 industry groups in the period ending September 2019 (Q3 2019) with the September 2018 and June 2019 reporting periods.

GICS	Sector/Industry Group	Q3 2019	Q2 2019	Q3 2018
1010	Energy	1.33%	0.71%	-0.50%
1510	Materials	4.94%	4.08%	4.98%
2010	Capital Goods	4.52%	4.40%	4.08%
2020	Commercial & Prof Services	5.94%	5.04%	5.82%
2030	Transportation	3.64%	4.05%	2.13%
2510	Automobiles & Components	2.48%	1.87%	3.07%
2520	Consumer Durables & Apparel	4.86%	4.62%	4.71%
2530	Consumer Services	5.56%	4.52%	5.07%
2550	Retailing	2.29%	2.99%	3.69%
3010	Food & Staples Retailing	1.22%	1.66%	1.50%
3020	Food, Beverage, & Tobacco	6.62%	6.84%	4.89%
3030	Household & Personal Products	6.85%	7.99%	11.67%
3510	Health Care Equipment & Services	4.46%	3.86%	5.82%
3520	Pharmaceuticals, Biotech, & Life Sciences	-42.84%	-62.96%	-52.42%
4510	Software & Services	9.93%	9.52%	10.53%
4520	Technology Hardware & Equipment	4.02%	3.13%	3.83%
4530	Semiconductors & Equipment	10.72%	9.90%	12.13%
5010	Telecommunication Services	5.03%	5.15%	5.25%
5020	Media	7.01%	6.00%	5.94%
5510	Utilities	-3.74%	-2.16%	0.27%
	All Industries Median	**3.92%**	**3.83%**	**4.10%**

The Standouts: A Closer Look

The drivers of improvements or declines in free cash margin consist of factors that impact profitability and efficiency. On the profitability front, operating cushion measures operating profit, exclusive of the non-cash expenses, depreciation and amortization. Factors impacting operating cushion consist of gross margin (excluding depreciation and amortization), and SG&A% (excluding depreciation and amortization). Also impacting profitability and a firm's ability to generate free cash flow, but excluded from operating cushion, is income taxes paid, which is measured as a percent of revenue. Capital expenditures do not impact profitability directly, but through depreciation on fixed asset additions. However, these expenditures are subtracted in computing free cash flow. It is also important to look at capital expenditures because these are investments in fixed assets that will likely improve a company's ability to generate revenue, and subsequent profit, in the future. Like operating expenses and taxes, capital expenditures are measured as a percent of revenue.

On the efficiency front, increases in receivables and inventory consume free cash flow. Increases in accounts payable provide free cash flow. The combination of receivables days plus inventory days less payables days is a firm's cash cycle. Reductions in the cash cycle provide free cash flow, while increases in the cash cycle consume free cash flow. All of these factors are evaluated when analyzing changes in free cash margin for the standout firms discussed in this section.

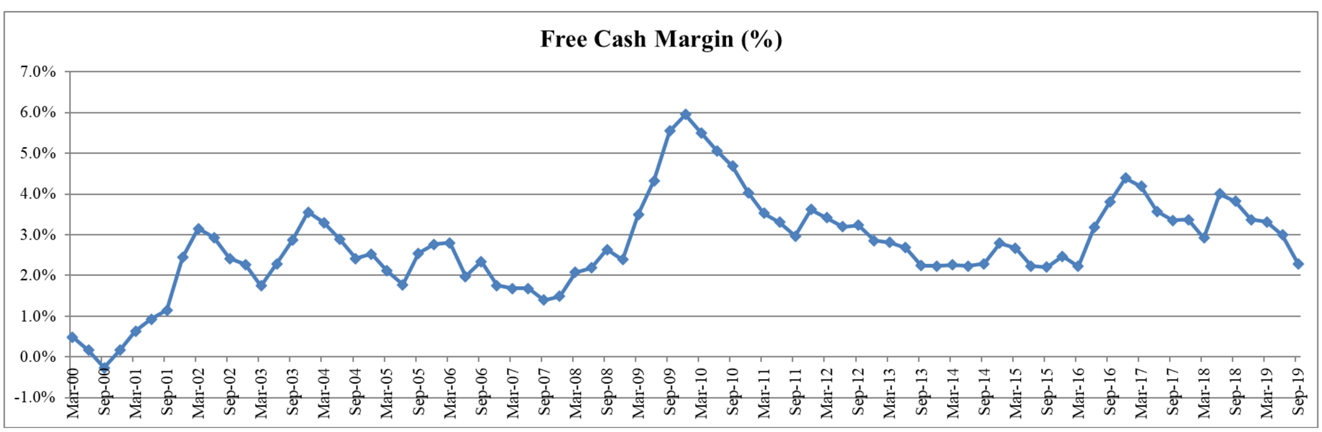
Graphs of free cash margin for select industries studied in the reporting period are provided below. With each graph we provide a short summary of the primary drivers or factors that are behind the observed changes in free cash margin for the selected industries. For more details regarding the industries, please refer to the separate industry spreadsheets found on our website.

Industries with Declining Free Cash Margin

In the twelve-month period ending September 2019, nine industries saw free cash margin decline: Automobiles & Components; Retailing; Food & Staples Retailing; Household & Personal Products; Health Care Equipment & Services; Software & Services; Semiconductors & Equipment; Telecommunication Services and Utilities.

In the following paragraphs we take a closer look at an industry with declining free cash margin: Retailing

Retailing, Q1 2000 – Q3 2019



Drivers of Free Cash Margin

Retailing	Q3 2019 (Sep 2019)	Q2 2019 (Mar 2018)	Q3 2018 (Sep 2018)	Effect on FCM (Q3 2019 vs. Q3 2018)
Revenue (millions)	**$1,974.28**	**$2,092.42**	**$1,940.35**	**UP 1.75%**
Free Cash Flow (millions)	**$46.92**	**$57.20**	**$62.62**	**DOWN 25.07%**
Free Cash Margin	**2.29%**	**2.99%**	**3.82%**	**DOWN 40.0%**
Operating Cushion %	6.68%	7.14%	7.69%	Driving **DOWN**
Gross Margin % (before depreciations)	38.02%	37.81%	37.32%	Driving **UP**
SGA% (before depreciation)	31.30%	30.65%	29.73%	Driving **DOWN**
Cash Cycle (rev days)	34.86	34.10	36.05	Driving **UP**
Accounts Receivable (rev days)	7.51	7.33	7.58	Driving **UP**
Inventory (rev days)	56.49	52.78	58.93	Driving **UP**
Accounts Payable (rev days)	29.14	26.00	30.46	Driving **DOWN**
Income tax to Rev %	0.77%	0.73%	0.68%	Driving **DOWN**
Cap Exp. to Rev %	2.25%	2.36%	2.42%	Driving **UP**

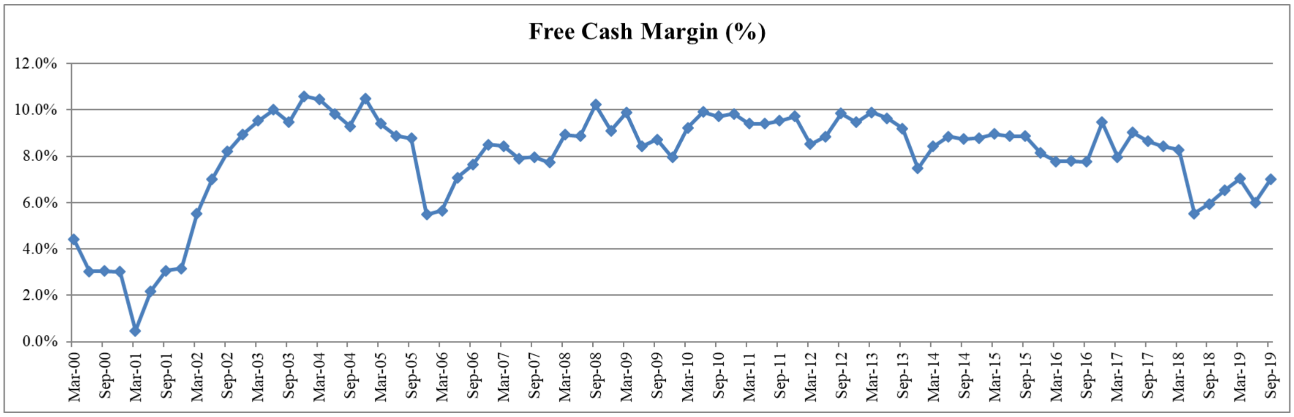
Analysis

Free cash margin for the Retailing industry declined in September 2019, due to a myriad of factors. Operating cushion declined, driven by a decline in free cash flow, and the SGA as a percentage of revenue increased.

Industries with Improving Free Cash Margin

In the twelve-month period ending September 2019, nine industries enjoyed improving free cash margin: Energy; Capital Goods; Transportation; Consumer Durables & Apparel; Consumer Services; Food, Beverage & Tobacco; Pharmaceuticals, Biotech, & Life Sciences; Technology Hardware & Equipment; and Media. In the following paragraphs we take a closer look at an industry with improving free cash margin: Media.

Media, Q1 2000 – Q3 2019



Drivers of Free Cash Margin

Media	Q3 2019 (Sep 2019)	Q2 2019 (Mar 2019)	Q3 2018 (Sep 2018)	Effect on FCM (Q3 2019 vs. Q3 2018)
Revenue (millions)	**$1,167.45**	**$1,375.96**	**$1,143.12**	**UP 2.00%**
Free Cash Flow (millions)	**$41.50**	**$43.76**	**$50.63**	**DOWN 18.03%**
Free Cash Margin	**7.01%**	**6.00%**	**5.94%**	**UP 18.01%**
Operating Cushion %	14.74%	16.38%	16.99%	Driving **DOWN**
Gross Margin % (before depreciations)	47.61%	47.03%	47.749%	Driving **DOWN**
SGA% (before depreciation)	31.97%	29.39%	29.59%	Driving **DOWN**
Cash Cycle (rev days)	34.06	35.26	38.15	Driving **UP**
Accounts Receivable (rev days)	53.89	54.36	55.77	Driving **UP**
Inventory (rev days)	0.00	0.00	0.00	Driving **-**
Accounts Payable (rev days)	19.83	19.10	17.62	Driving **UP**
Income tax to Rev %	1.24%	1.16%	0.24%	Driving **DOWN**
Cap Exp. to Rev %	2.67%	3.02%	2.70%	Driving **UP**

Analysis

Improving free cash margin for the Media industry is being driven by a decrease in the cash cycle, due to a decline in receivables days and an increase in payables days. A decline in capital expenditures also contributed to the improvement in free cash margin.

Conclusions

The cash flow data reported through the third quarter of 2019 provides us with new insight into the U.S. economy. We are seeing overall weakness as median revenues have declined for six of the last seven quarters. At 3.92%, free cash margin is up slightly from 3.83% in June 2019, but down from 4.10% in September 2018. As such, we can say that free cash margin is relatively stable near 4%. Except for a burst during the recession and a short-lived increase during 2016, free cash margin has remained near 4% since 2002.

The tax reform legislation passed in 2017 targeted increased business investment to spur economic growth. That desired result began to materialize in 2018, as median capital expenditures as a percentage of revenue increased in the four quarters ending December 2018 after falling for three consecutive quarters. However, capital spending was lower in the September 2019 reporting period. Median capital expenditures as a percentage of revenue decreased to 3.65% in the September 2019 period compared to 3.68% of revenue in the June 2019 period and 2.80% in the September 2018 period. We are seeing a slump in capital spending, as revenues decline, and the percentage of revenues devoted to capital expenditures decreases. It appears that uncertainty surrounding tariffs and the overall threat to economic growth of the Corona virus is hurting business confidence and, in turn, capital spending. Also pointing to a general decline in confidence is the increasing level of cash and short-term investments. When measured as a percent of revenue, cash and short-term investments once again rose above 12% in September 2019, which is about 20% higher than it was before the recession. Supporting the increase in cash balances is the continued decline in dividends and stock repurchases. When measured as a percent of revenue, dividends and stock repurchases declined for the third quarter, reaching 1.94% in September 2019 from 1.94% in June 2019 and 2.03% in September 2018.

We are in the late stages of the current expansion. As is typical at this stage of an expansion, we are seeing declining margins as costs rise and discounting occurs as a means to support sales increases. During this reporting period we saw a decrease in operating cushion (reflecting a deteriorating operating margins) as gross margin declined and SG&A expense as a percentage of revenue increased.

The Coronavirus is replacing tariff battles as the new threat to global growth and business confidence. To what extent this new threat hurts revenue growth and free cash margin remains to be seen. We will continue to watch and report.