

Stock Selection: Research and Results August 2016

Anomaly Watch: Correlations Gone Wild,

Tech's Free Cash Flow: Priced In? Earnings, The Same Story

Anomaly Watch: Correlations Gone Wild

- In the last year or so some highly unusual relationships have developed in the equity market, so unusual in fact that they almost seem crazy. For example, the relative returns of our value stock composite, that includes a heavy weighting of financials, has been positively correlated with those of the Big Growers, a rarity. Not only that, they've been (90)% anti-correlated with those of companies with stable fundamentals, another extreme reading that in the past was only seen during recessions. The correlations have gone wild even as the U.S. added 2.3 million private-sector jobs in the year, a good number. Our regime indicator shifted to a value tilt in early-March, the byproduct of wide valuation spreads and the deep-seated antipathy towards volatility. That's still where we stand as negative rates in Europe and Japan have pushed up risk premia in the U.S. market.
- The large financials are priced to total yields (i.e., inclusive of dividends and buybacks) that average 8%, twice the level offered by the market as well as its stable-stock leadership. The victim of low interest rates offers the highest yields. As usual the Fed is at center stage and they seem confused. Nevertheless, the starting point is provocative and the yields are paying us to wait. The story of the post-Crisis era is that ultimately the micro trumped the macro, but patience was needed to profit from it.

Tech's Free Cash Flow: Priced In?

- We've long been of the view that the market was underestimating the sustainability of free cash flow margins in the tech sector because outsourcing has changed the underlying dynamic. That idea has paid off over the last 15 years. As the sector has matured it's increasingly played by conventional rules, rewarding big buybacks and dividend growth. The top eight companies have 25% free cash flow margins, three times that of the market, and are priced to a +100 basis point free cash flow yield premium. That's a formidable combination that explains why the winners keep winning.
- The semiconductor industry has been part of the story and in the last year it's outperformed by +15 percentage points. Its free cash flow yield is now about +80 basis points above that of the market, about where it was in 2007, and down from more than two percentage points a year ago. That industry's valuation support has eroded to the point that we have to pay more attention to fundamentals in the here and now. That said, the cash flow production is strong enough to make us hang on a bit longer. Appendix 1 on page 13 ranks the tech stocks based on their free cash flow dynamics, and semiconductors and the mega-cap leadership top the list.

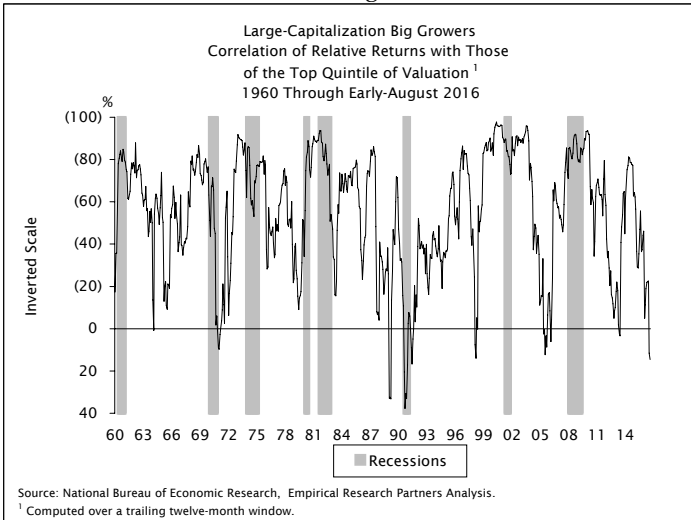
Earnings: Low Nominals, Stable Margins

- The second-quarter earnings have been remarkably similar to those of the past few quarters with +2% core top-line growth, or +3% adjusted for translation effects, and earnings up at a similar rate. The reported earnings number, inclusive of the energy and industrial commodities sectors, should be down by about (3)%. Apple once again knocked about (150) basis points of the composite growth rate after adding a like amount a year earlier.
- Margins have been stable in a setting of very-low nominals, a good outcome by historic standards. That's one big reason why the market has held up and is so sensitive to policy changes domestically and abroad. It also explains why the level of free cash flow margins has dictated equity performance. As long as they're sustained they are worth a lot in a setting for low-single-digit nominals.

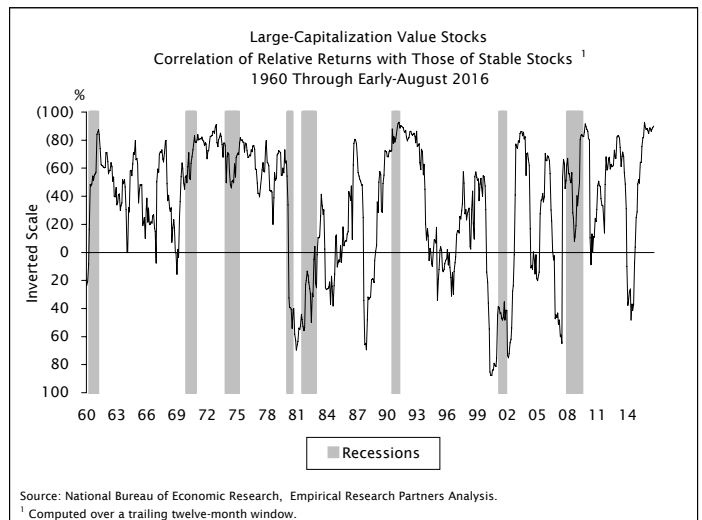
Nicole Price (212) 803-7935 Sungsoo Yang (212) 803-7925 Yi Liu (212) 803-7942 Yu Bai (212) 803-7919 Janai Haynes (212) 803-8005

Conclusions in Brief

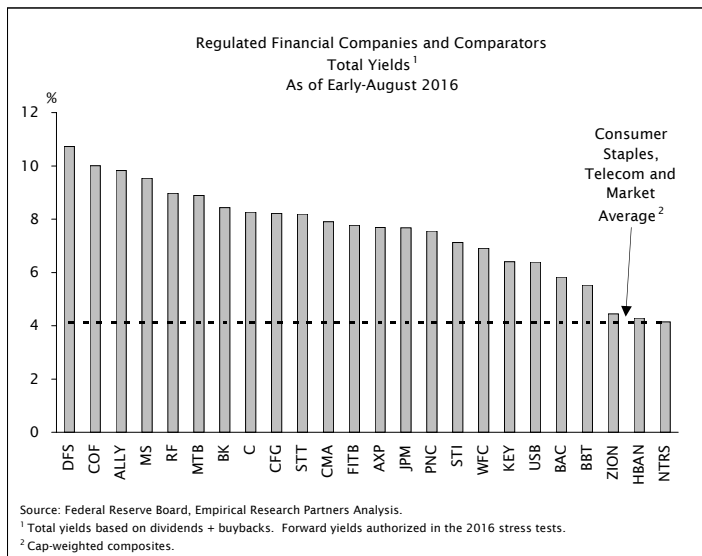
- The performance of value stocks has been unusually correlated with that of the Big Growers...



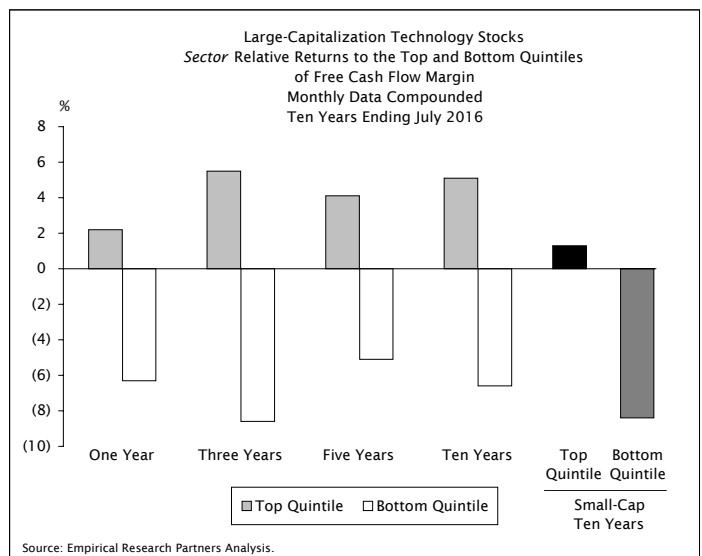
- ...And has moved in the opposite direction from that of stable stocks:



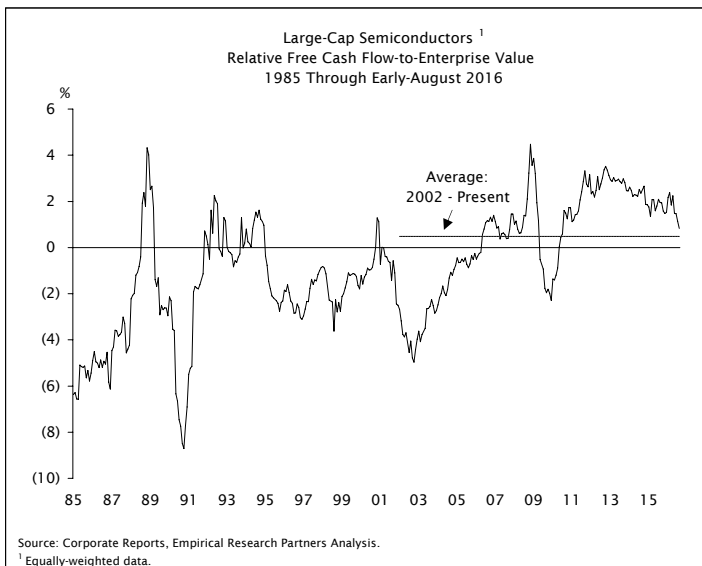
- The financials have twice the total yields of the stable stocks and the market:



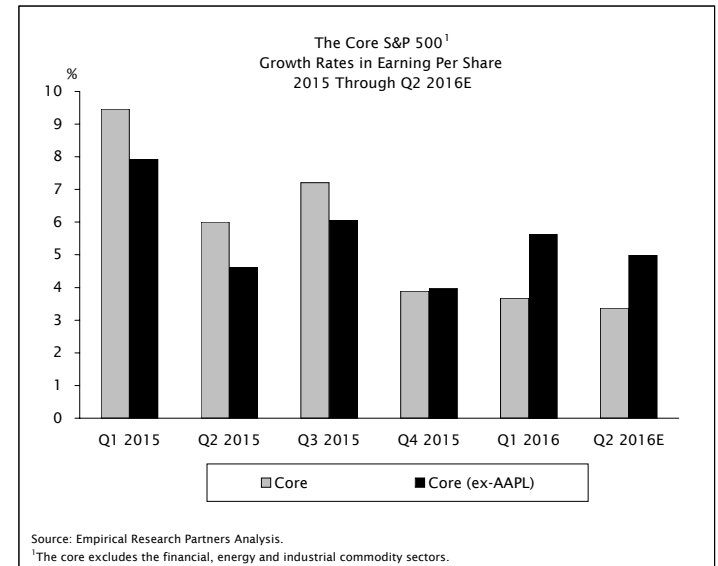
- Free cash flow has been paramount in the tech sector...



- ...And in the semiconductor industry the yield premium is down:



- The earnings story is little changed:

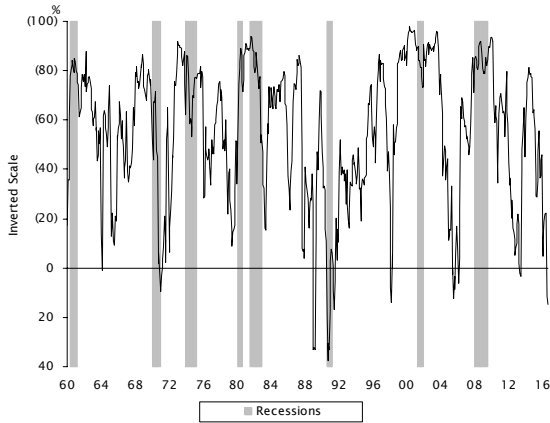


Anomaly Watch: Correlations Gone Wild

Moving into the Passing Lane

The relative returns of our Big Grower composite, that consists of 70 or so large-cap stocks with the best growth profiles, have been positively correlated with those of our value stock universe, that's made up of 160 issues (see Exhibit 1). That's highly unusual. The Big Growers are primarily drawn from the technology, health care and consumer cyclicals sectors, and the financials figure largest in the value cohort (see Exhibits 2 and 3). There is of course a wide gap between the P/E ratios of these disparate groups, with the Big Growers selling at an average(ish) +70% premium to the market, while the value issues are at a wide (35)% discount to it (see Exhibit 4).

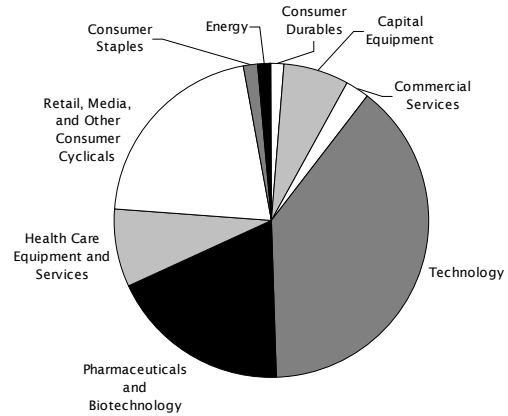
**Exhibit 1: Large-Capitalization Big Growers
Correlation of Relative Returns with Those
of the Top Quintile of Valuation¹
1960 Through Early-August 2016**



Source: National Bureau of Economic Research, Empirical Research Partners Analysis.

¹Computed over a trailing twelve-month window.

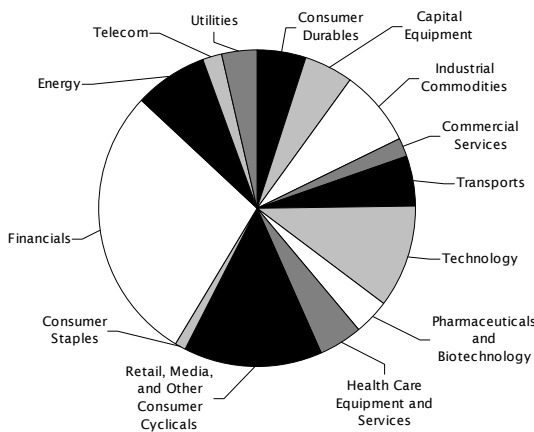
**Exhibit 2: Large-Capitalization Stocks
Composition of the Big Grower Composite¹
As of Early-August 2016**



Source: Empirical Research Partners Analysis.

¹Based on number of stocks.

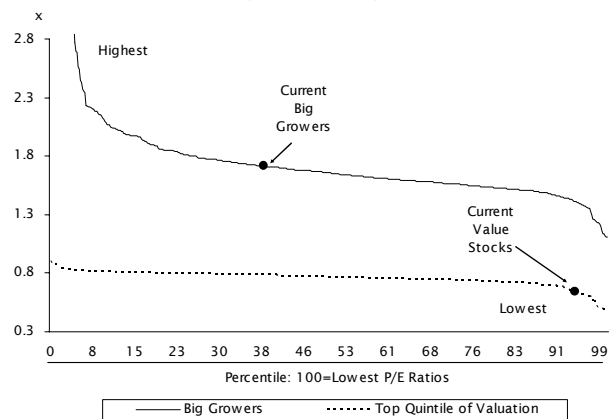
**Exhibit 3: Large-Capitalization Stocks
Composition of the Best Quintile of Valuation¹
As of Early-August 2016**



Source: Empirical Research Partners Analysis.

¹Based on number of stocks.

**Exhibit 4: Large-Capitalization Big Growers and
the Top Quintile of Valuation
Relative Forward-P/E Ratios
Ranked from Highest to Lowest
1977 Through Early-August 2016**



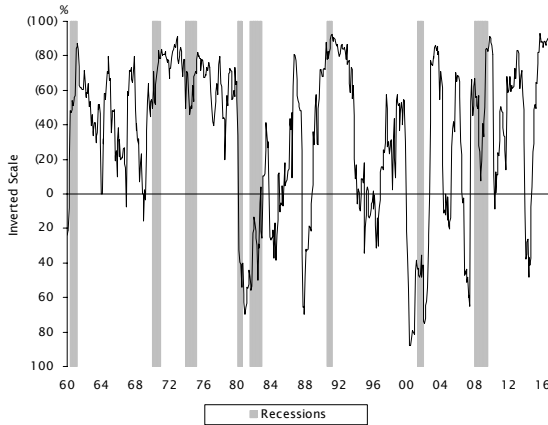
Source: Empirical Research Partners Analysis.

The current circumstance is noteworthy because the relative returns of the two groups have typically been anti-correlated to the tune of more than (50)%. In fact they've moved together in less than 5% of all months of the last 64 years, with the last such episode occurring during the European Debt Crisis. Today what unites them is the fear of a global economic collapse that would undermine the multiples of the Big Growers and the earnings of the value stocks. The moves toward negative rates in Japan and Europe amplified it.

What They Have in Common: A Lack of Predictability

Where we find anti-correlation is between the returns of value stocks to those of our stable stock composite. We define stability based on fundamentals weighing the level of ROEs, their variability, the volatility of earnings growth, the dispersion of earnings estimates, financial leverage and beta. The value stocks are truly their opposite numbers to an extent seen only occasionally (see Exhibit 5). In the past when we've seen relationships of this sort the economy was emerging from a recession and thereafter both Big Growers and value stocks have performed well (see Exhibit 6).

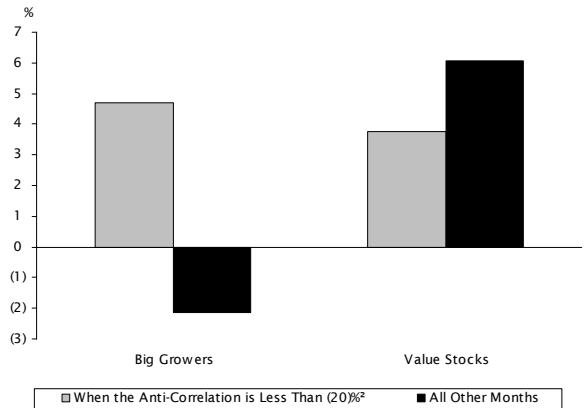
**Exhibit 5: Large-Capitalization Value Stocks
Correlation of Relative Returns with Those
of Stable Stocks¹
1960 Through Early-August 2016**



Source: National Bureau of Economic Research, Empirical Research Partners Analysis.

¹Computed over a trailing twelve-month window.

**Exhibit 6: Big Growers and Value Stocks
Relative Returns in the Following Periods of
Anti-Correlation That's Less Than (20)%¹
Monthly Data Compounded to Annual Periods
1952 Through June 2016**



Source: Empirical Research Partners Analysis.

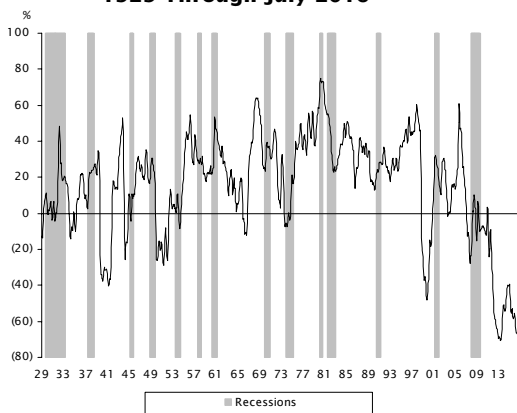
¹Correlation computed over a trailing 12-month window.

²Includes 109 months representing 14% of the sample.

Conclusion: A Potent Starting Point

There's a tug of war between the structural problems in Europe and Japan and the vigor of the U.S. employment market. We're being paid to bet on the latter, with monetary policy the needed catalyst. As is often the case the Fed is at center stage. The financial sector is the uber-option of the normalization of policy with relative returns (66)% anti-correlated with the performance of the bond market (see Exhibit 7). The regulated financial stocks are priced to forward total yields (i.e., dividends + buybacks) of 8%, twice those of the market or its stable-stock leadership (see Exhibit 8). We're being paid to wait for a turn in policy.

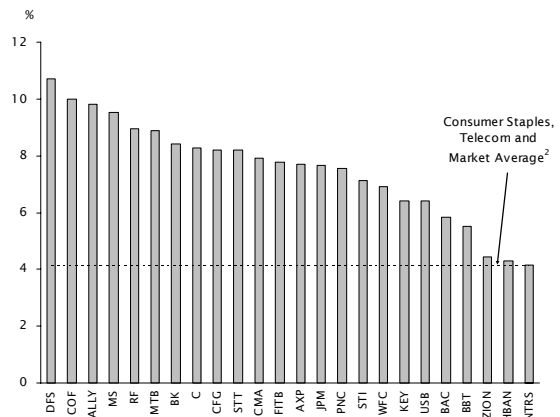
**Exhibit 7: Large-Capitalization Financial Stocks
Correlation of Relative Returns with
the Total Return of Ten-Year Treasury Bonds¹
1929 Through July 2016**



Source: Bloomberg L.P., National Bureau of Economic Analysis, Empirical Research Partners Analysis.

¹Constructed using trailing two-year capitalization-weighted returns; smoothed on trailing three month basis. Long bond return is used prior to 1978.

**Exhibit 8: Regulated Financial Companies and Comparators
Total Yields¹
As of Early-August 2016**



Source: Federal Reserve Board, Empirical Research Partners Analysis.

¹Total yields based on dividends + buybacks. Forward yields authorized in the 2016 stress tests.

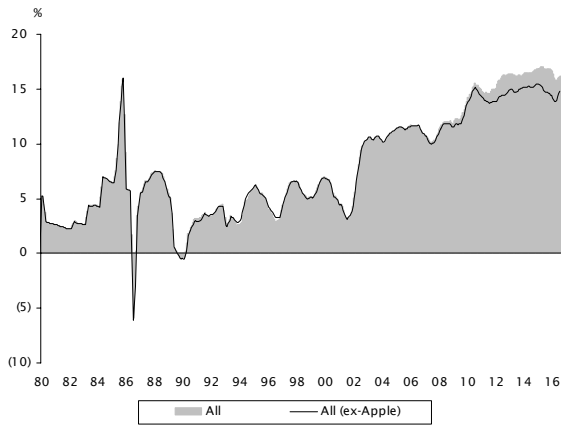
²Cap-weighted composites.

Tech's Free Cash Flow: Priced In?

Margins Hold Up, and Pay Off

We've long been of the view that there were many opportunities within the technology sector because investors were underestimating the durability of free cash flow production there. The story, that's been unfolding for almost 15 years, has continued to play out throughout the post-Crisis era, and the margins have been flat-to-up (see Exhibit 9). That remains the case if Apple is removed from the composite. The tale has been most provocative in the software industry and somewhat less valid in the semiconductor industry (see Exhibit 10). Still, even there, free cash flow margins are at exceptional levels.

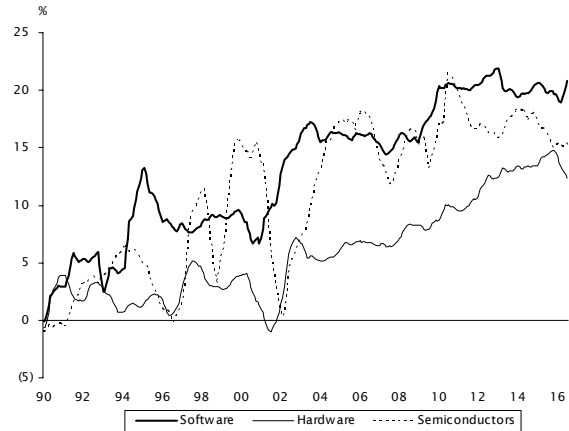
Exhibit 9: Technology Stocks' Free Cash Flow Margins 1980 Through July 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Drawn from the largest 1,500 stocks; data smoothed on a trailing three-month basis.

Exhibit 10: Technology Stocks' Free Cash Flow Margins By Industry 1990 Through July 2016

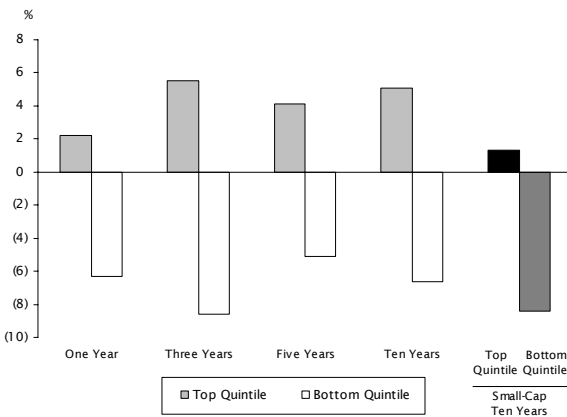


Source: Corporate Reports, Empirical Research Partners Analysis.

¹Drawn from the largest 1,500 stocks; data smoothed on a trailing three-month basis.

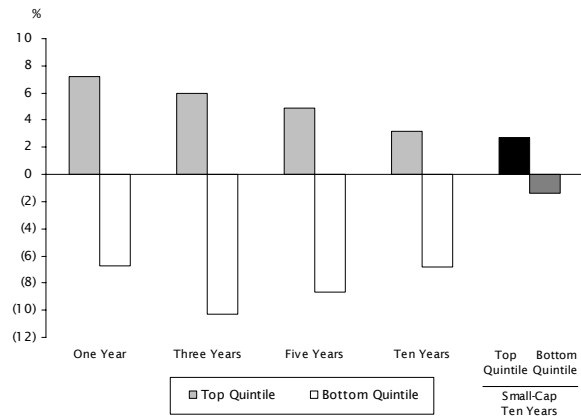
The depth of skepticism about the sustainability of tech's cash flow margins is apparent in Exhibit 11 that displays the sector-neutral relative returns of the companies producing the highest and lowest margins. In the last decade there's been a performance differential between them of almost +12 percentage points *per annum*, while in the past five years that spread has averaged +9 points. We see the same pattern in small-cap tech, albeit in somewhat diminished form. The incremental margins, those earned on a dollar of new revenues, have carried information too, and companies where there's been an upward trajectory in them have been bid up (see Exhibit 12). That's been particularly true in the last couple of years when the differentials in yields have narrowed.

Exhibit 11: Large-Capitalization Technology Stocks Sector Relative Returns to the Top and Bottom Quintiles of Free Cash Flow Margin Monthly Data Compounded Ten Years Ending July 2016



Source: Empirical Research Partners Analysis.

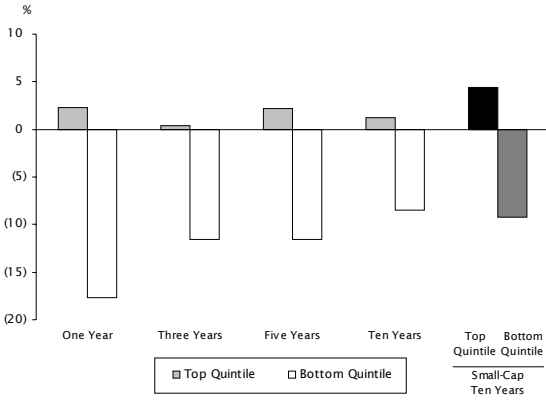
Exhibit 12: Large-Capitalization Technology Stocks Sector Relative Returns to the Top and Bottom Quintiles of Incremental Free Cash Flow Margin Monthly Data Compounded Ten Years Ending July 2016



Source: Empirical Research Partners Analysis.

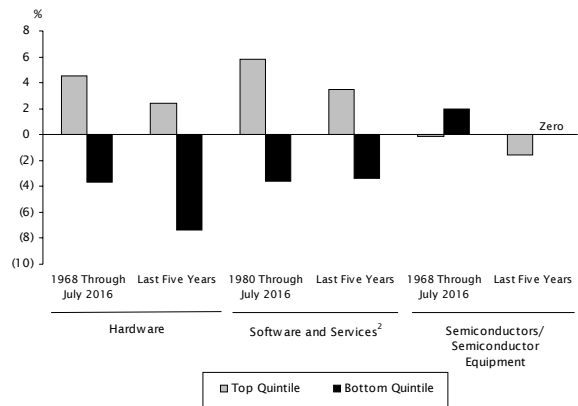
What stands out most is that in an environment of falling yields and rising multiples the mere presence of free cash flow was more important than the price paid for it (see Exhibit 13). Failure to produce any of it was a difficult burden to overcome, in both the large- and small-cap parts of the sector. Paying attention to free cash flow yields has been profitable in hardware, software and services but not within the semiconductor industry (see Exhibit 14).

Exhibit 13: Large-Capitalization Technology Stocks
Sector Relative Returns to the Top and Bottom Quintiles of Free Cash Flow-to-Enterprise Value
Monthly Data Compounded
Ten Years Ending July 2016



Source: Empirical Research Partners Analysis.

Exhibit 14: Technology Stocks¹
Industry Relative Returns to Free Cash Flow Yield
Measured Over One-Year Holding Periods
1968 Through July 2016



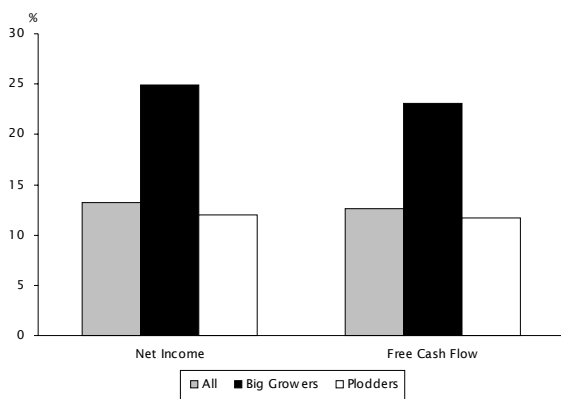
Source: Empirical Research Partners Analysis.

¹Based on a universe of large- and small-cap companies.
²Since 1980 only.

Somebody Else's Money?

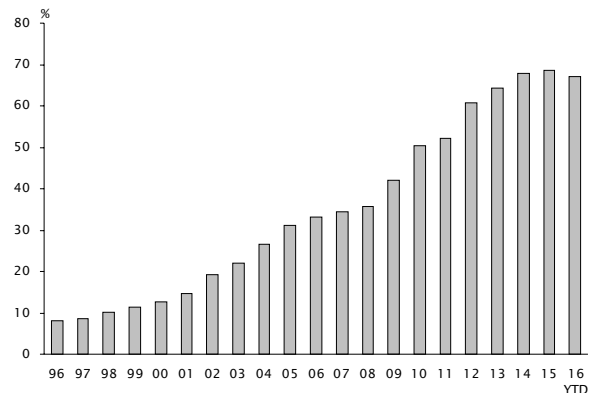
Of course not all the free cash flow is available to shareholders, having instead been promised to employees via stock options. On average options expense equates to 13% of the sector's free cash flow, but there are a handful of companies where it consumes all of it (see Exhibit 15). Three of the big users - LinkedIn, Netsuite and Yahoo - have recently been all or in part acquired by much larger enterprises. Workday, Servicenow and Twitter are among the remaining aggressive grantors. The companies where options are a material item are generally growing very rapidly, and the quality of their earnings only becomes an issue when the trend breaks down.¹

Exhibit 15: Large-Capitalization Technology Stocks:
All, Big Growers and Plodders
Median Options Expense as a Share of Earnings
and Free Cash Flow
Four Quarters Ended Q1 2016



Source: Empirical Research Partners Analysis.

Exhibit 16: U.S. Imports of Technology Products and Components from the Emerging Markets¹
As a Share of the Domestic Shipments²
1996 Through May 2016



Source: U.S. Census Bureau, Empirical Research Partners Analysis.

¹Technology products include (SITC - 75) office machines, automatic data processing machines, (SITC - 764) telecom equipment and (SITC - 776) thermionic, cold cathode or photocathode valves and tubes; diodes, transistors and similar semiconductor devices; integrated circuits, etc.
²Domestic shipments is for all computers and electronic products.

¹Stock Selection: Research and Results June 2016. "Tech's Free Cash Flow and Options Expense: Reality Bites?"

Globalization Has Had Real Consequences

Globalization and the outsourcing of the production function have been a big part of tech’s margin story of the last 15 years. Exhibit 16 (overleaf) looks at the imports of tech products and components coming into the U.S. from emerging market countries relative to domestic production. In 2002 that ratio was 15% and now it’s over 50%. Import prices have continually fallen while the PPI, that has well-known measurement problems when capturing prices in the semiconductor and hardware industries, has been closer to flat (see Exhibit 17). Despite the problems in the construction of the price index, it’s clear that outsourcing has provided a large and continuing tailwind to cash flow production.

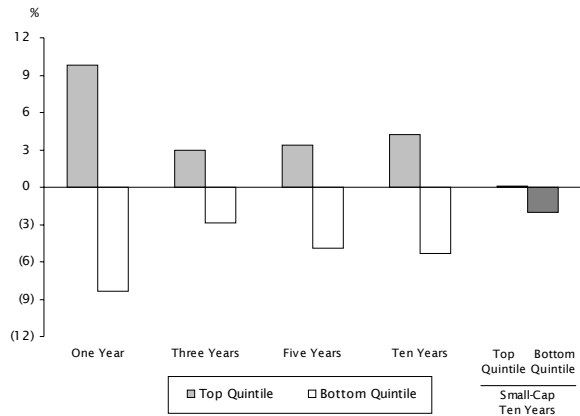
Given the path that margins have taken to reach these lofty levels it’s hardly surprising that tech investors have been capital spending-phobic, penalizing companies that were aggressively ramping up their outlays (see Exhibit 18) Conversely they’ve rewarded companies returning capital in size, either via dividends or buybacks (see Exhibits 19 and 20). In the past five years big dividend increases have been the more powerful signal, while in the last 12 months buybacks have carried more weight. In the end investors are trying to exploit the margins until they’re either competed away or collapse in a deep downturn. The consolidation underway in the industry is seen as a good thing as one cash-rich company removes the capacity represented by another. As maturity has set in conservatism has been rewarded.

Exhibit 17: Computer and Electronic Products
Year-over-Year Change in Producer and Import Price Indices
2007 Through June 2016



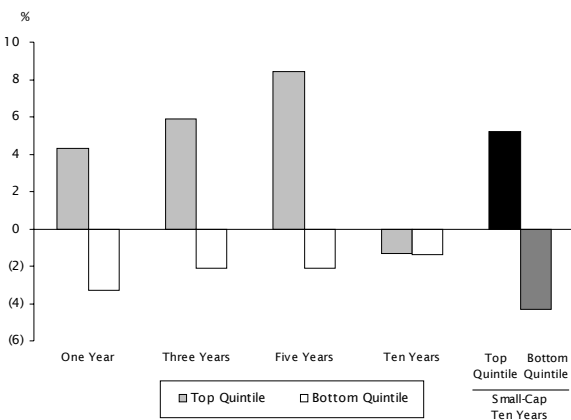
Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

Exhibit 18: Large-Capitalization Technology Stocks
Sector Relative Returns to the Top and Bottom Quintiles of Capital Spending Growth
Monthly Data Compounded
Ten Years Ending July 2016



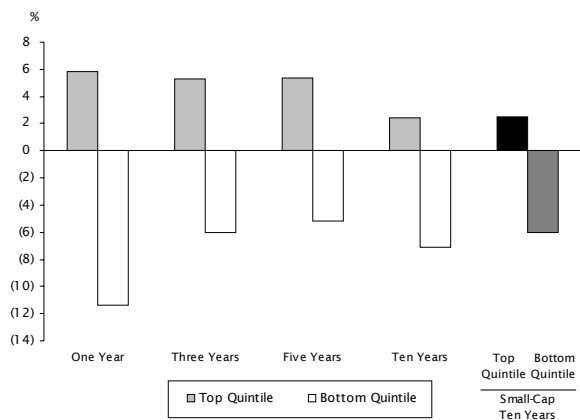
Source: Empirical Research Partners Analysis.

Exhibit 19: Large-Capitalization Technology Stocks
Sector Relative Returns to the Top and Bottom Quintiles of Dividend Growth
Monthly Data Compounded
Ten Years Ending July 2016



Source: Empirical Research Partners Analysis.

Exhibit 20: Large-Capitalization Technology Stocks
Sector Relative Returns to the Top and Bottom Quintiles of Change in Shares Outstanding
Monthly Data Compounded
Ten Years Ending July 2016



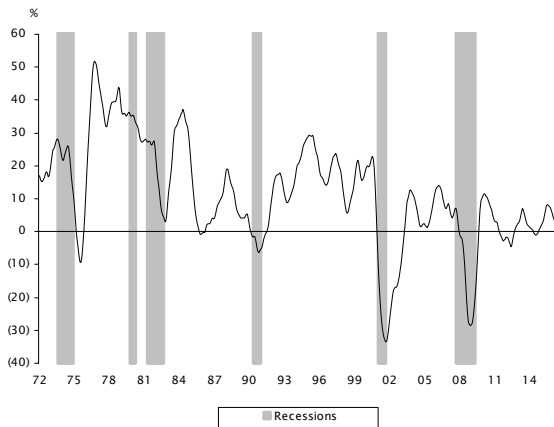
Source: Empirical Research Partners Analysis.

The Valuation Support of Semis Weakens

The maturation of the sector has meant that most companies are now plodders, growing at rates that look like those of the overall economy. That’s led the norms for valuation to change.

One way to measure the secular decline in growth rates is via the Tech Pulse Index, built and maintained by the Federal Reserve Bank of San Francisco. It weighs the consumption, production, investment and employment data for the tech sector and extracts the common trend among them. Exhibit 21 depicts the twelve-month rate of change in the index; it averaged +18.5% from 1973 through 2000 and since 2010 the growth rate has vacillated around +3%. Hardware companies have taken on the role of traditional capital goods suppliers and the vast bulk of the stocks that screen as offering growth are drawn from software and/or services.

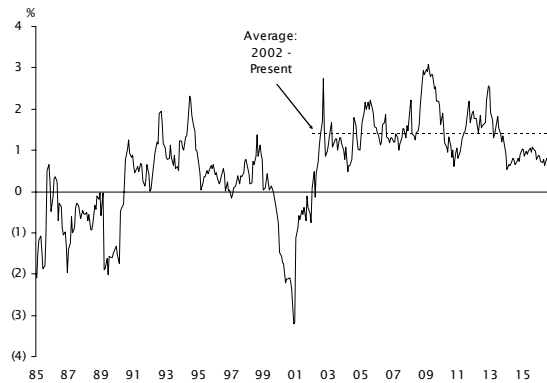
**Exhibit 21: The Tech Pulse Index¹
Twelve-Month Rate of Change
1972 Through June 2016**



Source: Federal Reserve Bank of San Francisco, Census Bureau, National Bureau of Economic Research.

¹The Tech Pulse Index is an index of coincident indicators of activity in the U.S. information technology sector based on the pace of investment in IT goods, consumption of personal computers and software, employment in the sector, as well as industrial production of and shipments. The index extracts the common trend in these series.

**Exhibit 22: Large-Cap Technology Software and Services¹
Relative Free Cash Flow-to-Enterprise Value
1985 Through Early-August 2016**

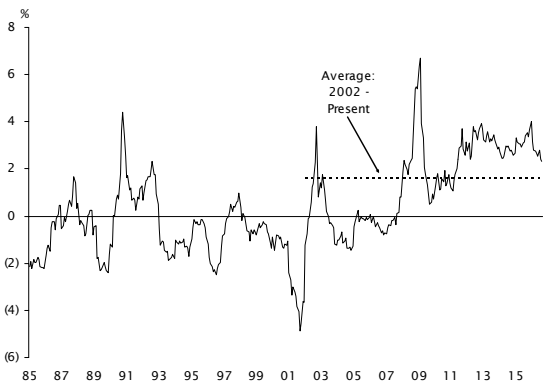


Source: Corporate Reports, Empirical Research Partners Analysis.

¹Equally-weighted data.

The stocks in the software and services group are priced to free cash flow yields that top those of the market by +50 basis points, a modest premium by the standards of the last 15 years (see Exhibit 22). The yield advantage of the hardware companies remains at more than four times that level (see Exhibit 23). What’s changed this year is the valuation of semiconductors, that’ve performed well, bringing down their yield advantage by more than half (see Exhibit 24). Merger activity within the sector has helped drive down risk premia as well. Micron Technology has the lowest yield among the major companies, while Lam Research, Xilinx and Qualcomm offer the highest ones.

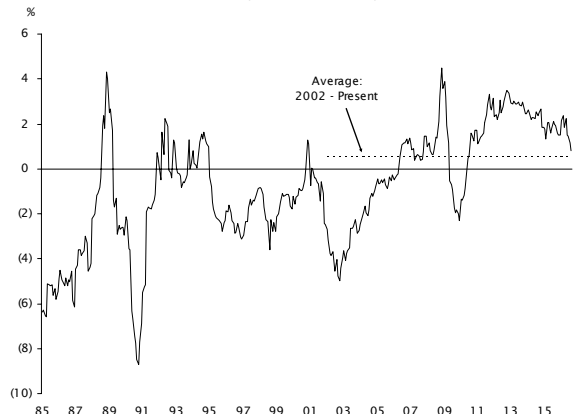
**Exhibit 23: Large-Cap Technology Hardware¹
Relative Free Cash Flow-to-Enterprise Value
1985 Through Early-August 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Equally-weighted data.

**Exhibit 24: Large-Cap Semiconductors¹
Relative Free Cash Flow-to-Enterprise Value
1985 Through Early-August 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Equally-weighted data.

Conclusion: Staying the Course

A topic we've discussed with clients frequently concerns the leadership of the tech sector. The current leaders appear to be more formidable than their predecessors, benefiting from business models that thrive on scale while at the same time require modest amounts of capital. They have exceptional free cash flow margins that average 25%, compared to 17% for the average tech stock and a 9% median for the entire large-cap market (see Exhibit 25). The free cash flow yields of tech's elite average 5.2%, +50 basis points above those of their sector peers, and more than +100 basis points higher than the market-wide average. We see the power of the winning business models in a variable we use that measures in what share of the last nine months each stock has outperformed its peers. As shown in Exhibit 26, return consistency has been a virtue. As the same time controversy, as measured by our arbitrage risk framework, has been shunned (see Exhibit 27). The best-performing stocks have been those with the highest margins and the least controversy while the laggards have had the opposite characteristics (see Exhibit 28). The winning bet has been on the status quo.

Exhibit 25: Mega-Cap Technology Stocks Free Cash Flow Margins and Free Cash Flow-to-Enterprise Value As of Early-August 2016

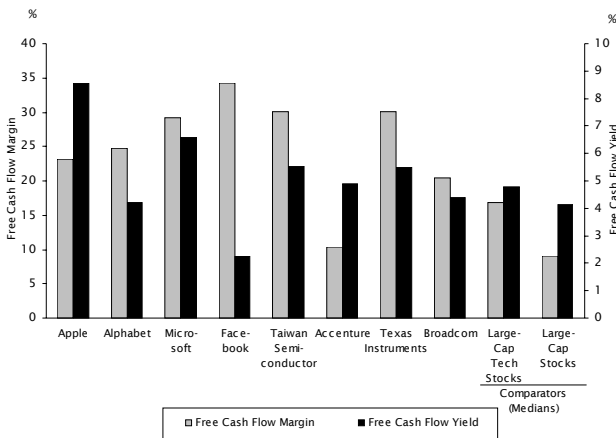
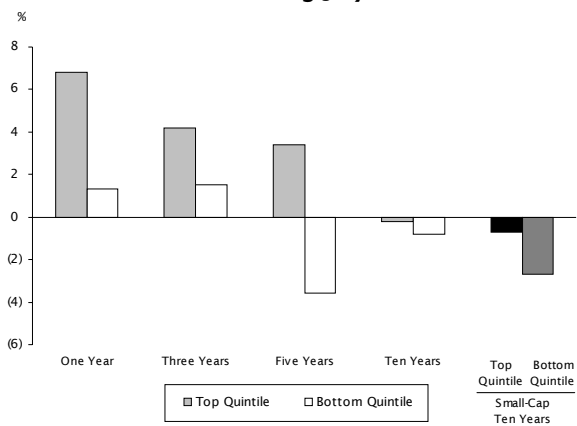


Exhibit 26: Large-Capitalization Technology Stocks Sector Relative Returns to the Top and Bottom Quintiles of Nine-Month Return Consistency Monthly Data Compounded Ten Years Ending July 2016



Source: Empirical Research Partners Analysis.

Source: Empirical Research Partners Analysis.

Although tech's valuation support has weakened a bit, particularly in the semiconductor industry, we don't yet see a strong case to exit the sector. The cash flow story still looks exploitable and the competitive setting hasn't proven cutthroat enough to threaten the margins. Appendix 1 on page 13 ranks the tech stocks with capitalizations of \$7 billion or greater based on their cash flow dynamics and the market's response to them. More than usual, semiconductors top the list, with Microsoft, Alphabet and Facebook also well ranked.

Exhibit 27: Large-Capitalization Technology Stocks Sector Relative Returns to the Lowest and Highest Quintiles of Arbitrage Risk Ten Years Ending July 2016

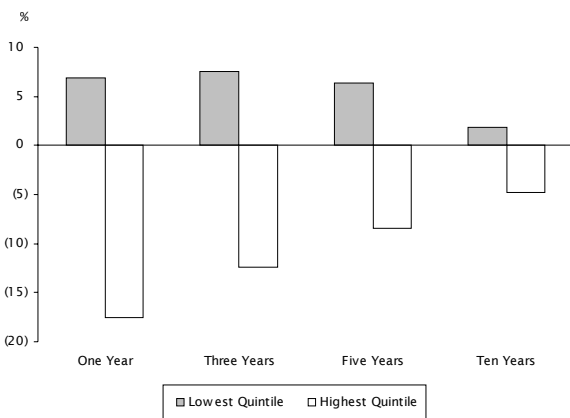
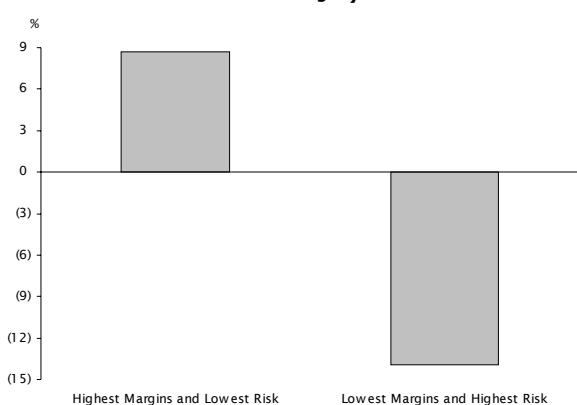


Exhibit 28: Large-Capitalization Technology Stocks Relative Returns to Combinations of Free Cash Flow Margins and Arbitrage Risk Monthly Data Compounded and Annualized Five Years Ended July 2016



Source: Empirical Research Partners Analysis.

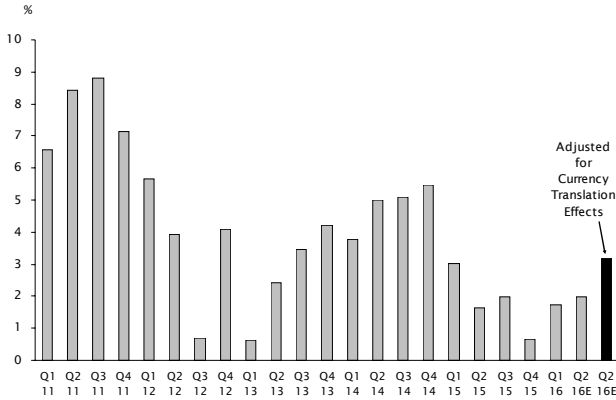
Source: Empirical Research Partners Analysis.

Earnings: Low Nominals, Stable Margins

More of the Same, More or Less

The reported top-line growth for the core of the S&P 500 (i.e., excluding energy and industrial commodities) will come in at about +2% in the second quarter, continuing a streak of barely-positive numbers (see Exhibit 29). If we adjust for currency translation effects the growth rate rises to +3%, a number similar to those put up in the last few quarters. The weakness at Apple reduced the top line by about a half a point, after boosting it by a like amount last year. Taking that hit into account, the trajectory for the core of the market has, as usual, tracked the nominal growth rate of the U.S. economy (see Exhibit 30).

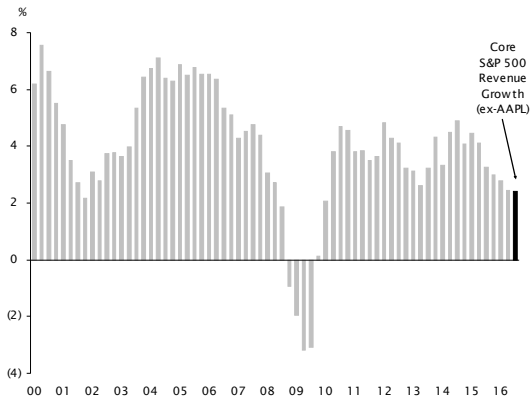
Exhibit 29: The Core S&P 500¹
Year-Over-Year Changes in Revenues
2011 Through Q2 2016E



Source: Corporate Reports, Empirical Research Partners Analysis and Estimates.

¹The core excludes the financial, energy and industrial commodity sectors.

Exhibit 30: The U.S.
Year-over-Year Changes in Nominal GDP
2000 Through Q2 2016E

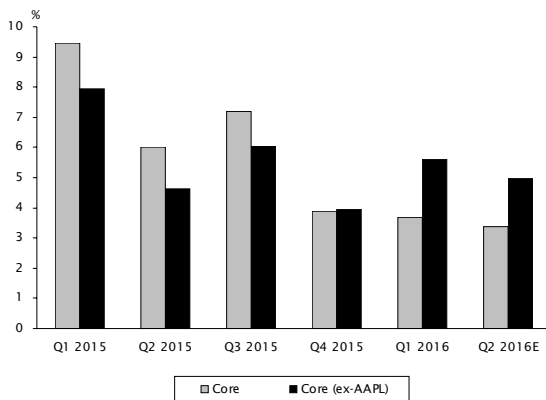


Source: Bureau of Economic Analysis, Empirical Research Partners Analysis.

The profit margins for the core of the market (i.e., less energy and industrial commodities) were stable in the quarter, as earnings more-or-less tracked revenues. The growth rate of earnings without Apple was +1½ points faster than that with it, while last year there was a +135 basis point differential in the opposite direction (see Exhibit 31). A little more than half of companies saw their margins increase on a year-over-year basis, an encouraging statistic given the snail-like progress of the top line (see Exhibit 32).

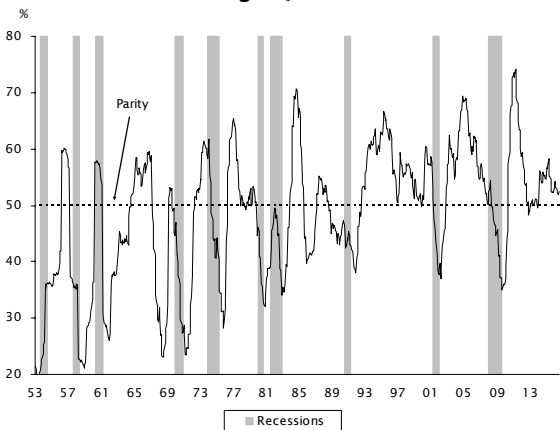
The weakness in global growth hasn't sapped the system's operating leverage and the behavior of the equity market has been consistent with that of margins. There's little evidence of self-undermining behavior by managements and the growth rate of capital expenditures has about tracked that of revenues in the quarter. The threats are from outside the corporate sector.

Exhibit 31: The Core S&P 500¹
Growth Rates in Earnings Per Share
2015 Through Q2 2016E



Source: Empirical Research Partners Analysis.

Exhibit 32: Large-Capitalization U.S. Stocks
Share With Rising Profit Margins¹
1953 Through Q2 2016E



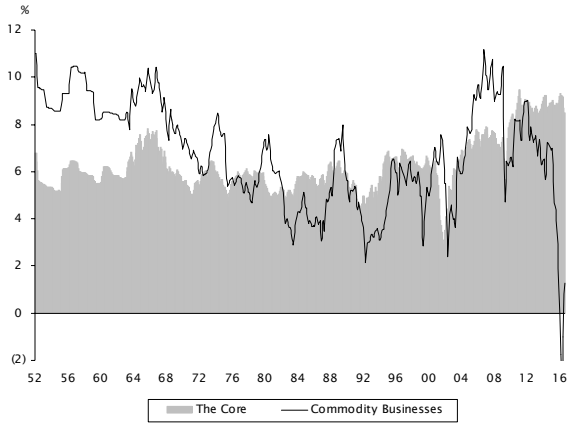
Source: National Bureau of Economic Research, Corporate Reports, Empirical Research Partners Analysis.

¹Measured on a year-over-year basis.

¹The core excludes the financial, energy and industrial commodity sectors.

Exhibit 33 tells the story by comparing the margins of the commodity sectors, energy and the industrial commodities, to those for the rest of the market. Taken together the commodity businesses made little money in the quarter while margins elsewhere have been stable. The profit dynamic that's prevailed during the Bretton Woods II era remains intact, and companies involved in manufacturing, even if it's outsourced to others, have accounted for most of the margin expansion (see Exhibit 34). The exceptional profitability of those 200 or so companies has been sustained, and in this cycle, and technology companies, the leading outsourcers, have propelled the trend. It will take a full-blown recession to crack margins, as we've seen that economic malaise hasn't been enough to do it.

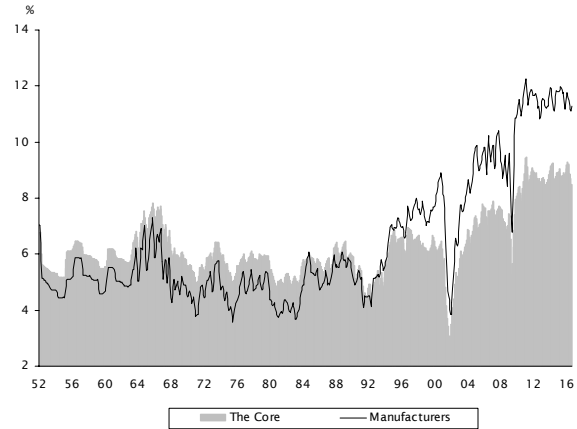
**Exhibit 33: Large-Capitalization U.S. Stocks
The Core of the Market and Commodity Businesses'
Quarterly Net Profit Margins
1952 Through Early-August 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

'The core excludes the financial, energy and industrial commodity sectors; data smoothed on a trailing three-month basis.

**Exhibit 34: Large-Capitalization U.S. Stocks
The Core of the Market and Manufacturers'
Quarterly Net Profit Margins
1952 Through Early-August 2016**

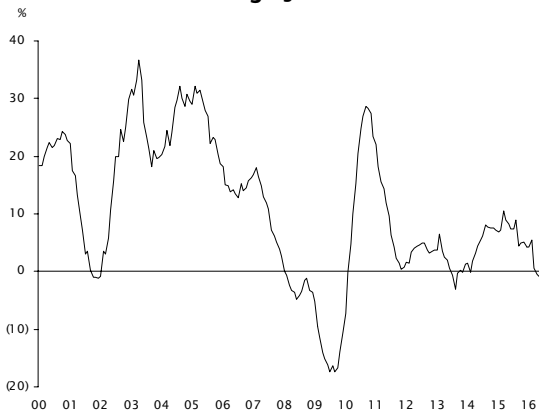


Source: Corporate Reports, Empirical Research Partners Analysis.

'The core excludes the financial, energy and industrial commodity sectors; data smoothed on a trailing three-month basis.

One way to assess the state of the Bretton Woods II era is to examine the growth rate of U.S. imports from China. In the first-half of this year they were flat when expressed in local currency, while since the beginning-of-2015 the growth rate averaged just shy of +4% (see Exhibit 35). Globalization isn't dead, it's just no longer the defining force. The deflationary impulse associated with those imports has continued, helped along by a (10)% devaluation of the Yuan (see Exhibit 36).

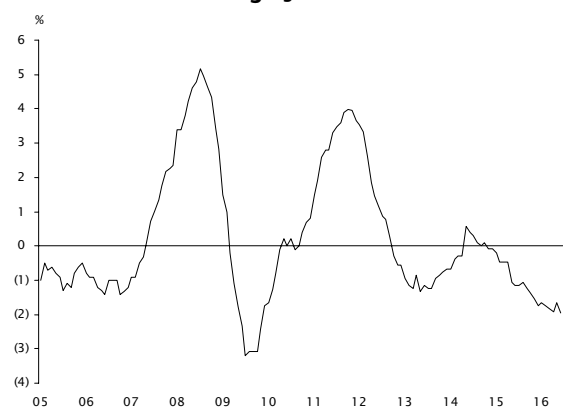
**Exhibit 35: U.S. Imports from China
Year-over-Year Changes'
2000 Through June 2016**



Source: Census Bureau, Empirical Research Partners Analysis.

'Expressed in Chinese Yuan; data smoothed on a trailing six-month basis.

**Exhibit 36: Price of U.S. Imports from China
Year-over-Year Changes
2005 Through June 2016**

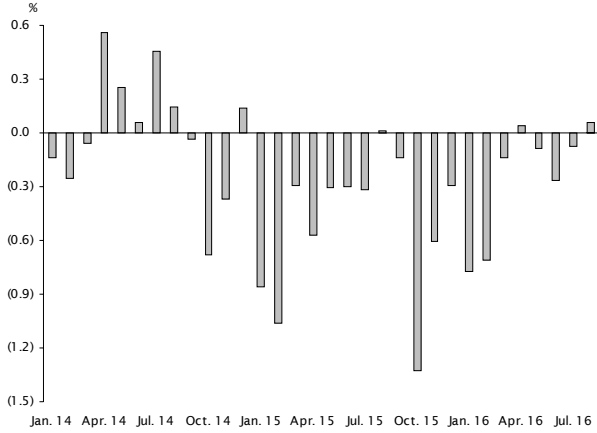


Source: Bureau of Labor Statistics, Empirical Research Partners Analysis.

We also examined the trajectory of earnings forecasts to see if the size of the cuts have changed. Estimates of the earnings growth rate for the core of the market had been falling by about (50) basis points a month, and in the last few months revision rate was nearly flat for the first time in several years (see Exhibit 37).

The earnings downgrades began when the Dollar took off in the Fall of 2014 (see Exhibit 38). It takes a couple of years for significant Dollar moves to work their way through the system, and that headwind has begun to fade. It will take a while before the benefits of the recent reversal show up.

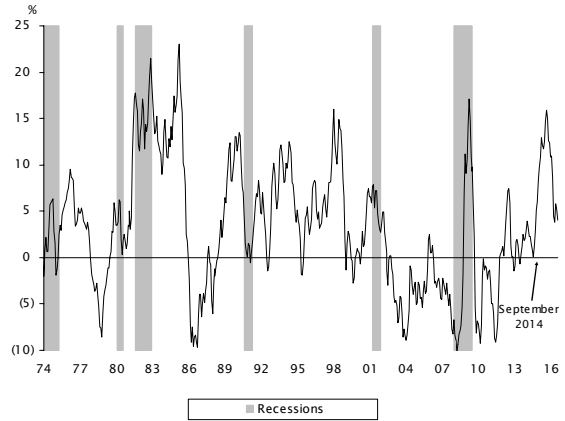
**Exhibit 37: The Core S&P 500¹
Average Monthly Earnings Revision
to Forward One-Year Earnings Growth
2014 Through Early-August 2016**



Source: Empirical Research Partners Analysis.

¹The core excludes the financial, energy and industrial commodity sectors.

**Exhibit 38: The Broad Trade-Weighted U.S. Dollar Index¹
Year-over-Year Changes
1974 Through July 2016**



Source: Federal Reserve Board, National Bureau of Economic Research, Empirical Research Partners Analysis.

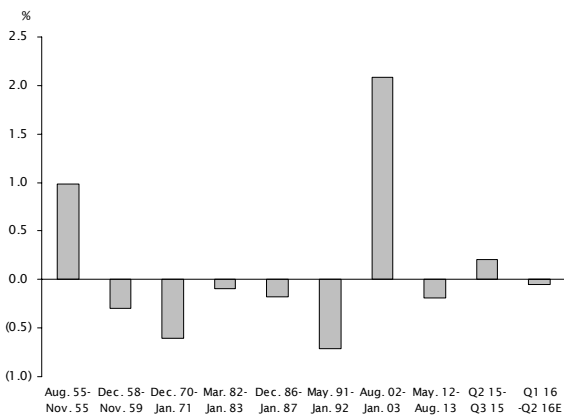
¹Trade-weighted U.S. dollar with a broad set of developed and emerging market currencies.

Conclusion: Resilience, Despite the Malaise

One chart we see frequently depicts the profit margins of the market as a whole. The commentator inevitably points out that they've peaked, and then draws some implications about what to do with stocks. We're not adherent to that approach because it doesn't test well, and today focusing on the composite results makes little sense in the midst of a once-in-a-generation commodities bust. This quarter's flattish core margins are a better-than-expected outcome in a setting of low-single-digit top-line growth (see Exhibit 39).

The profit problems haven't stemmed from the misbegotten behaviors of starry-eyed managements but instead are rooted in global economics. As the multiplier effects from trade flows have faded there simply hasn't been enough growth to go around, a situation that was made worse by a strong Dollar. It's not a margin story per se. If the tide isn't rising a high level of margins becomes more valuable to investors, and that's what's been going on in the past couple of years (see Exhibit 40).

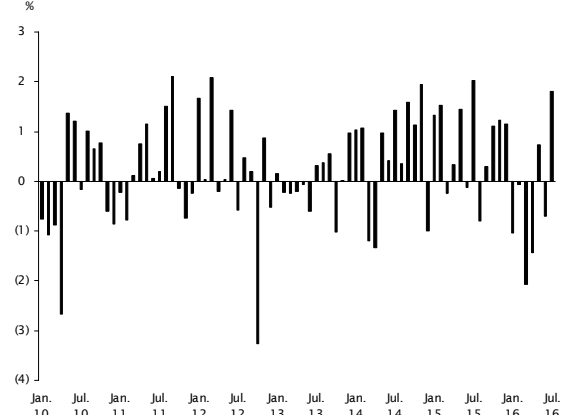
**Exhibit 39: Large-Capitalization Core Stocks¹
Episodes When Year-over-Year Growth in
Quarterly Revenue Between 0 and 3%
Year-over-Year Increase/(Decrease) in Profit Margins
1952 Through Q2 2016E**



Source: Empirical Research Partners Analysis.

¹The core excludes the financial, energy and industrial commodity sectors.

**Exhibit 40: Large-Capitalization Stocks
Relative Returns to the Highest Quintile of
Free Cash Flow Margins
Measured Over One-Month Holding Periods
2010 Through July 2016**



Source: Empirical Research Partners Analysis.

**Appendix 1: Large-Capitalization Technology Stocks
Intra-Sector Cash Flow Dynamics Analysis
Sorted by Composite Score
As of Early-August 2016**

Symbol	Company	Price	Intra-Sector Ranks (1=Best, 5=Worst)							Composite Score	Growth Model Rank	Market Capitalization (\$ Billion)
			Cash Flow Dynamics				Nine-Month Share of Days Outperforming	Arbitrage Risk (1=Lowest, 5=Highest)				
			Trailing Free Cash Flow-to-Enterprise Value	Free Cash Margin	Incremental Free Cash Flow Margin	Free Cash Flow Surprise						
MXIM	MAXIM INTEGRATED PRODUCTS	\$40.51	1	1	1	2	1	2	1.4	1	\$11.5	
SNPS	SYNOPSIS INC	54.36	1	2	1	1	2	1	1.4	1	8.3	
CSCO	CISCO SYSTEMS INC	30.72	1	1	2	1	3	1	1.5	1	154.6	
MCHP	MICROCHIP TECHNOLOGY INC	55.33	2	1	2	2	1	2	1.6	2	11.9	
SYMC	SYMANTEC CORP	20.90	1	1	1	1	3	3	1.7	1	12.9	
CTXS	CITRIX SYSTEMS INC	84.81	1	2	2	2	1	3	1.9	1	13.2	
MSFT	MICROSOFT CORP	56.97	1	1	3	3	1	2	1.9	1	444.8	
PAYX	PAYCHEX INC	58.51	3	1	2	3	1	2	1.9	2	21.1	
LRCX	LAM RESEARCH CORP	90.79	1	3	2	2	1	2	1.9	1	14.5	
XLNX	XILINX INC	50.84	1	1	1	2	4	2	1.9	1	12.9	
VRSN	VERISIGN INC	84.86	1	1	4	2	2	1	1.9	1	9.1	
GOOGL	ALPHABET INC	798.92	3	2	2	1	3	2	2.1	2	548.7	
MA	MASTERCARD INC	95.08	3	1	2	1	4	2	2.1	3	104.4	
FB	FACEBOOK INC	122.51	5	1	2	2	3	1	2.1	3	351.7	
INTU	INTUIT INC	109.83	3	2	1	5	1	1	2.1	2	28.2	
FIS	FIDELITY NATIONAL INFO SVCS	78.15	3	3	2	1	3	1	2.1	3	25.6	
CRM	SALESFORCE.COM INC	80.41	4	2	1	1	5	1	2.2	4	54.5	
GLW	CORNING INC	22.20	4	3	1	4	1	1	2.2	1	23.0	
KLAC	KLA-TENCOR CORP	76.09	2	2	5	1	2	1	2.2	1	11.8	
CDK	CDK GLOBAL INC	58.55	4	4	1	3	1	1	2.2	2	9.1	
LLTC	LINEAR TECHNOLOGY CORP	59.22	3	1	2	1	2	5	2.3	2	14.5	
VMW	VMWARE INC -CL A	70.40	1	2	1	1	4	4	2.3	1	30.0	
QCOM	QUALCOMM INC	61.01	1	2	5	1	1	3	2.3	1	89.9	
CHKP	CHECK POINT SOFTWARE TECHNOLOGIES	75.60	1	1	1	3	4	3	2.3	4	13.2	
ORCL	ORACLE CORP	40.71	1	1	3	2	4	2	2.3	2	168.2	
IBM	IBM CORP	160.67	1	3	4	3	1	1	2.3	2	153.6	
ADBE	ADOBE SYSTEMS INC	96.67	4	1	4	2	2	2	2.4	3	48.2	
TEL	TE CONNECTIVITY LTD	58.30	4	3	1	1	4	2	2.4	1	20.8	
JNPR	JUNIPER NETWORKS INC	22.60	2	2	1	4	3	2	2.4	3	8.7	
CDW	CDW CORP	44.22	4	4	3	1	1	2	2.4	4	7.3	
MBLY	MOBILEYE NV	46.21	5	1	2	2	1	5	2.5	3	10.1	
YHOO	YAHOO INC	38.39	5	3	1	1	2	4	2.5	4	36.5	
HPQ	HP INC	14.31	1	4	2	2	1	4	2.5	1	24.5	
ADI	ANALOG DEVICES	62.87	3	2	3	4	2	1	2.5	2	19.3	
QRVO	QORVO INC	55.12	2	4	1	1	1	5	2.5	2	7.0	
STX	SEAGATE TECHNOLOGY PLC	30.73	1	3	2	3	1	5	2.6	1	9.2	
NTAP	NETAPP INC	26.22	1	1	3	3	4	3	2.6	1	7.4	
ADP	AUTOMATIC DATA PROCESSING	88.19	3	4	1	4	2	2	2.6	3	40.2	
INTC	INTEL CORP	34.25	1	3	5	3	2	1	2.6	1	162.0	
HRS	HARRIS CORP	88.07	3	3	4	4	1	1	2.6	3	11.0	
AMAT	APPLIED MATERIALS INC	26.20	4	4	1	2	2	4	2.7	2	28.5	
FFIV	F5 NETWORKS INC	123.47	2	1	3	5	1	4	2.7	2	8.2	
ASML	ASML HOLDING NV	108.45	4	2	1	3	4	3	2.7	4	47.1	
TSM	TAIWAN SEMICONDUCTOR MFG CO	28.16	2	1	3	4	4	2	2.7	1	146.0	
FLT	FLEETCOR TECHNOLOGIES INC	153.72	2	1	1	5	5	2	2.7	3	14.2	
ADSK	AUTODESK INC	57.95	4	3	2	3	3	2	2.7	4	13.4	
EMC	EMC CORP/MA	28.20	2	1	4	3	5	1	2.7	3	55.1	
APH	AMPHENOL CORP	59.03	4	2	3	4	3	1	2.7	4	18.2	
TXN	TEXAS INSTRUMENTS INC	68.88	3	2	3	4	3	2	2.8	2	69.2	
CA	CA INC	33.63	1	2	5	4	2	2	2.8	1	14.1	
BR	BROADRIDGE FINANCIAL SOLUTNS	67.98	3	4	2	4	3	1	2.8	2	8.0	
BABA	ALIBABA GROUP HLDG	83.67	4	1	4	3	1	5	2.9	4	208.8	
PANW	PALO ALTO NETWORKS INC	129.61	4	1	2	2	4	5	2.9	5	11.6	
ADS	ALLIANCE DATA SYSTEMS CORP	222.32	2	2	2	2	5	4	2.9	2	13.1	
RHT	RED HAT INC	74.58	2	1	3	5	4	2	2.9	3	13.5	
MSI	MOTOROLA SOLUTIONS INC	69.29	4	2	5	1	5	1	2.9	2	12.1	
ANSS	ANSYS INC	90.32	2	1	5	4	4	1	2.9	3	8.0	
ATVI	ACTIVISION BLIZZARD INC	40.38	3	2	2	3	4	4	3.0	3	29.8	
ERIC	ERICSSON	7.20	1	4	3	2	3	4	3.0	2	23.9	
SWKS	SKYWORKS SOLUTIONS INC	64.39	3	4	1	3	3	4	3.0	2	12.2	
TSS	TOTAL SYSTEM SERVICES INC	49.46	3	3	3	3	2	4	3.0	4	9.1	
V	VISA INC	78.71	5	1	5	5	1	2	3.0	4	185.9	
FISV	FISERV INC	104.45	3	3	5	4	1	2	3.0	2	23.2	
NVDA	VIDIA CORP	56.19	4	3	3	3	1	5	3.1	2	30.0	
FDC	FIRST DATA CORP	13.08	2	5	1	2	3	5	3.1	4	11.9	
GIB	CGI GROUP INC -CL A	48.63	2	5	1	5	1	4	3.1	1	14.8	
SAP	SAP SE	86.15	4	4	5	1	2	3	3.1	4	105.9	
WDAY	WORKDAY INC	82.03	5	4	2	1	4	4	3.2	5	16.2	
XRX	XEROX CORP	9.94	1	5	4	3	2	3	3.2	1	10.1	
CDNS	CADENCE DESIGN SYSTEMS INC	24.22	3	3	5	4	1	3	3.2	3	7.1	
TWTR	TWITTER INC	17.61	4	4	1	1	5	5	3.3	5	12.5	
PYPL	PAYPAL HOLDINGS INC	36.58	2	2	3	3	5	4	3.3	3	44.2	
OTEX	OPEN TEXT CORP	61.47	2	2	5	4	3	3	3.3	1	7.5	
CTSH	COGNIZANT TECH SOLUTIONS	58.15	2	4	4	3	4	2	3.3	4	35.3	
ACN	ACCENTURE PLC	113.61	2	5	2	4	5	1	3.3	3	75.7	
IT	GARTNER INC	99.39	4	4	3	3	5	1	3.3	3	8.2	
WDC	WESTERN DIGITAL CORP	44.78	3	3	5	2	2	5	3.4	4	12.6	
ZG	ZILLOW GROUP INC	39.06	5	5	3	3	1	4	3.4	3	7.0	
AAPL	APPLE INC	105.79	2	1	4	5	5	3	3.5	3	570.5	
GN	GLOBAL PAYMENTS INC	73.16	4	4	5	4	1	3	3.5	5	11.2	
BIDU	BAIDU INC	162.24	3	3	3	2	5	5	3.5	3	56.2	
N	NETSUITE INC	108.53	5	5	3	1	3	5	3.5	4	8.8	
SPLK	SPLUNK INC	60.09	5	4	3	4	2	4	3.5	5	8.0	
DOX	AMDOCS	59.42	1	4	5	5	4	1	3.5	3	8.9	
AKAM	AKAMAI TECHNOLOGIES INC	49.44	2	3	4	2	5	5	3.6	4	8.7	
LNKD	LINKEDIN CORP	192.26	5	5	3	1	4	5	3.7	5	25.9	
AVGO	BROADCOM LTD	164.11	3	3	4	5	4	3	3.7	5	64.9	
EBAY	EBAY INC	30.95	2	3	5	4	3	5	3.8	1	35.0	
EA	ELECTRONIC ARTS INC	78.63	3	3	5	4	3	5	3.9	3	23.7	
VNTV	VANTIV INC	53.86	2	4	4	5	4	4	4.0	3	8.4	
SABR	SABRE CORP	26.66	4	5	4	4	4	3	4.0	5	7.4	
HPE	HEWLETT PACKARD ENTERPRISE	21.51	5	5	5	5	2	4	4.3	1	37.1	
NOW	SERVICENOW INC	74.27	5	5	5	5	2	4	4.3	5	12.1	
NXPI	NXP SEMICONDUCTORS NV	83.15	4	4	4	5	5	4	4.4	5	28.8	
NOK	NOKIA CORP	5.69	5	5	5	5	4	4	4.6	5	32.5	
MU	MICRON TECHNOLOGY INC	13.51	5	5	4	5	5	5	4.8	3	14.0	

Source: Empirical Research Partners Analysis.