

Stock Selection: Research and Results October 2016

Semiconductors: The Promised Land

Modeling: One Big Story and A Couple of Smaller Ones

Semiconductors, Skepticism Has Faded

- In the past five years semiconductors have been the best-performing technology industry as margins stayed high and the companies distributed a growing share of their impressive output of free cash flow to shareholders. Globalization dramatically reduced the industry's capital intensity and its tax rate as well, and over time investors have grudgingly accepted that state of affairs as the new normal. Companies with rising margins and those returning lots of capital to shareholders, through either dividend increases or buy backs, have consistently done well. While on the other hand an absence of free cash flow has been a big impediment to performance. In this part of the market trend-following strategies have worked, as the winners kept on winning.
- After this year's big run, for the first time in many years the semiconductors' free cash flow yields have fallen below that of the market. The equipment stocks are still priced at a premium as they usually are. The differences in yields among companies are also now well below normal. With so much having gone right we're not being paid to make value bets here and instead we're tilting toward companies with good growth attributes and/or consistent fundamentals. Exhibit 27 on page 8 ranks the stocks on those traits, as well as their free cash flow dynamics and the market's reaction to both. Linear Technology and Taiwan Semiconductor are near the top of the list.
- The semiconductor industry has played a role in the degradation in the U.S. productivity statistics. The manufacture of semiconductors has historically produced high productivity and as those functions moved elsewhere that engine of growth was lost. What remains onshore, the design and engineering functions, has output that is harder to measure.

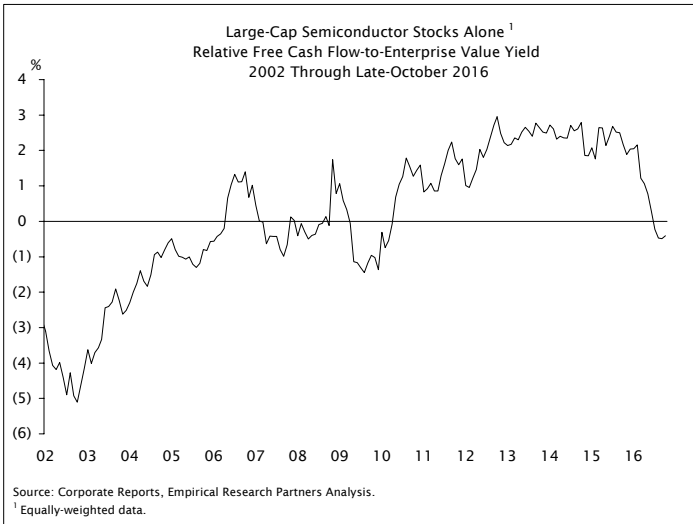
Modeling: One Big Story and a Couple of Smaller Ones

- The last two cycles have been characterized by disappointing economic growth, strong free cash flow production and the rise of absolute-return investing. Both pension plans and Baby Boomers have put capital preservation at the top of their lists of priorities, raising the cost of de facto portfolio insurance. We see the effects of all of the above in the return dynamics within our models. Our earnings quality super factor, that captures the production of free cash flow, has been the most-reliable building block. Tracking how the excess capital was deployed has been helpful too. The complex system that we use to quantify the market's reaction to fundamentals has performed much better than just following stock price trends, that've been subject to painful whipsaws. When measuring valuation our emphasis on free cash flow yield has saved the day.
- We opted to bet on our regime indicator when assembling the factors that make up our models, and that's turned out to be a good idea. Since 2010 our regime-shifting model has produced +12 percentage points more in alpha than its counterpart that uses fixed weights. Eventually the era of bountiful free cash flow will come to an end, with protectionism and changes in corporate taxation threats at the moment. For now, we think the Bretton Woods II era is set to continue, and that the decision rules that've worked in the last two cycles are still the right ones.

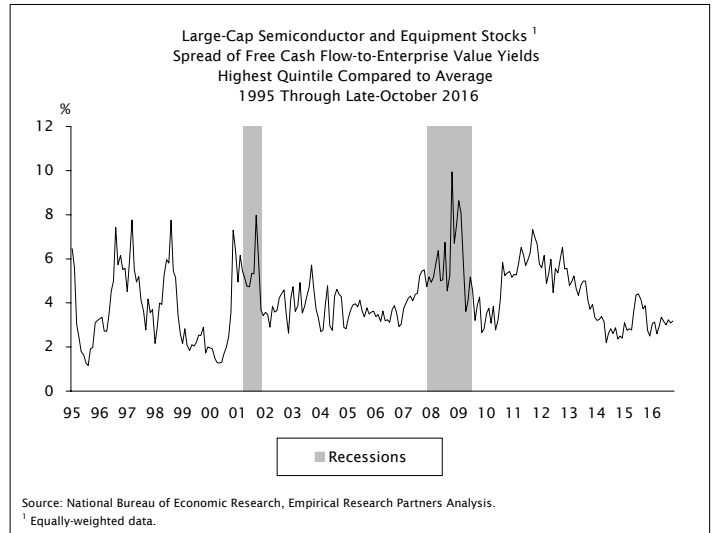
Nicole Price (212) 803-7935 Sungsoo Yang (212) 803-7925 Yi Liu (212) 803-7942 Yu Bai (212) 803-7919 Janai Haynes (212) 803-8005

Conclusions in Brief

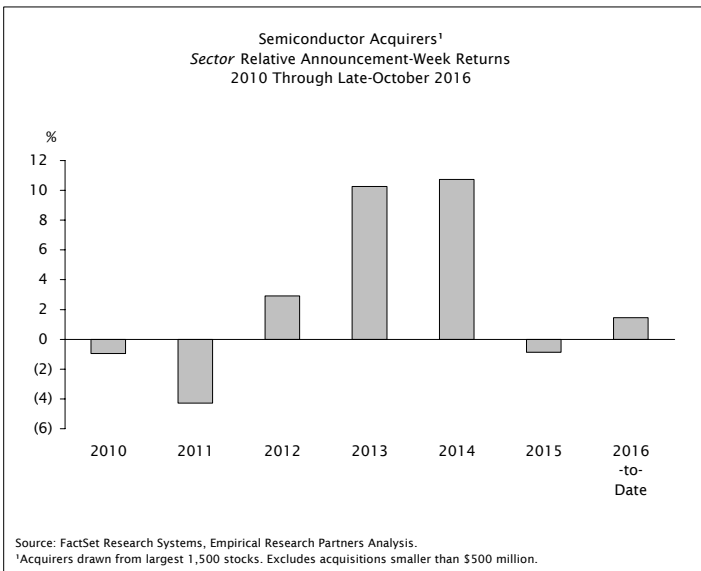
● The semiconductor stocks have been revalued...



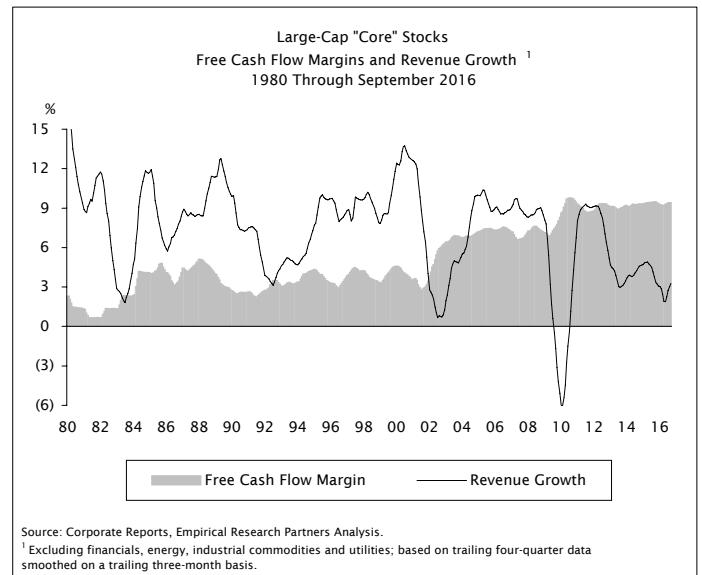
● ...And valuation differentials among them are quite narrow:



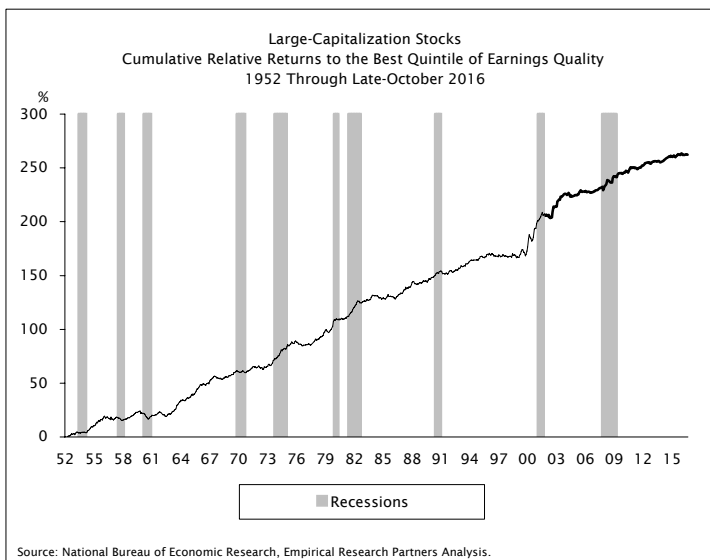
● Consolidation within the industry has been applauded:



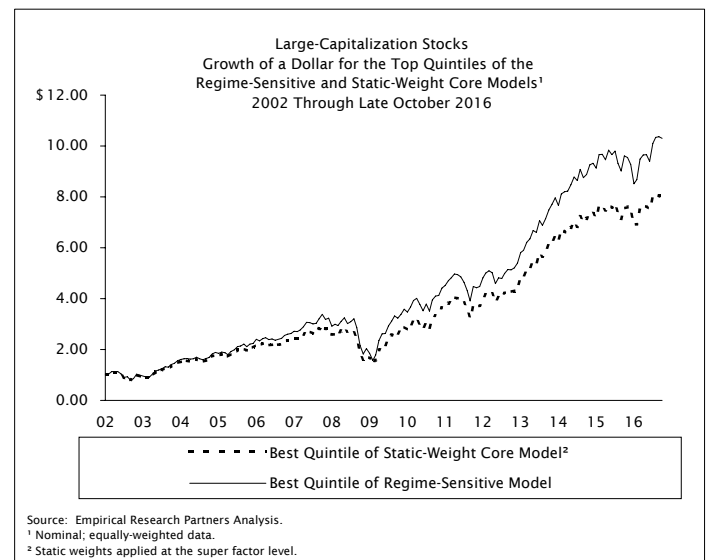
● The environment has changed in some fundamental ways...



● ...And our earnings quality super factor, that captures cash flow dynamics, has been an ongoing source of alpha:



● It's been worthwhile to bet on regime:

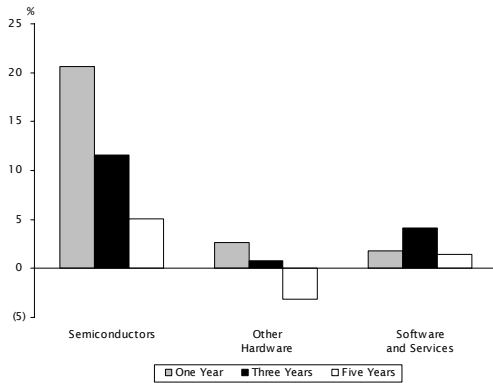


Semiconductors: The Promised Land

Skepticism Has Faded

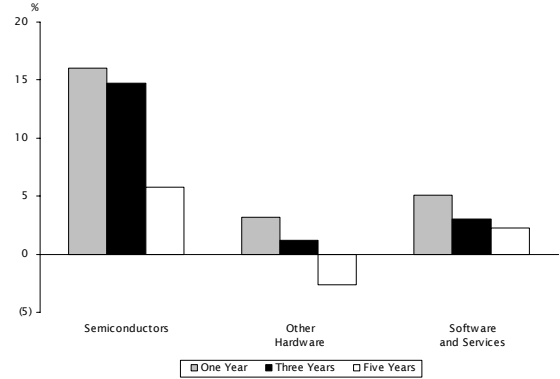
The semiconductor industry has been the best-performing segment of the large-cap tech sector in the last twelve months and during the past five years as well (see Exhibit 1). That’s also been true in the small-cap tech space (see Exhibit 2). The effects of that re-rating are apparent in the valuation statistics. Five years ago the entire industry, including the equipment stocks, had a three percentage point free cash flow yield advantage over the market, and now it’s down to +70 basis points, close to a rounding error (see Exhibit 3). The current spread matches that in place in Fall of 2007, the peak of the last market cycle. The semiconductor manufacturers and design companies are now priced to free cash flow yields moderately below that of the market, while those for the handful of equipment providers remain well above that benchmark, the typical state of affairs (see Exhibits 4 and 5). As the overall risk premium has come down so has the differentiation among companies. Five years ago stocks offering the highest yields had a seven percentage point advantage over the industry and now that differential is down to less than two points (see Exhibit 6). This year spreads have widened a little, but even after taking that into account, the fodder for value bets has gone from plentiful to sparse.

Exhibit 1: Large-Cap Technology Stocks Equally-Weighted Relative Returns by Industry Monthly Data Compounded and Annualized Five Years Ending Late-October 2016



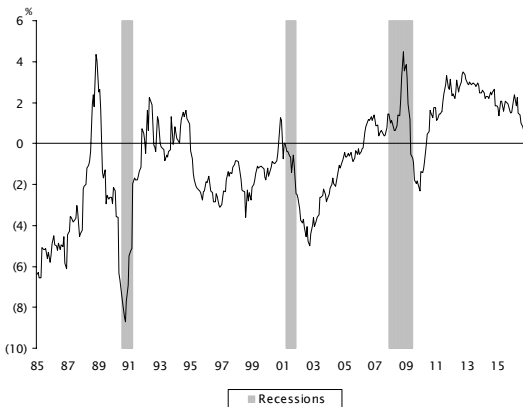
Source: Empirical Research Partners Analysis.

Exhibit 2: Small-Cap Technology Stocks Equally-Weighted Relative Returns by Industry Monthly Data Compounded and Annualized Five Years Ending Late-October 2016



Source: Empirical Research Partners Analysis.

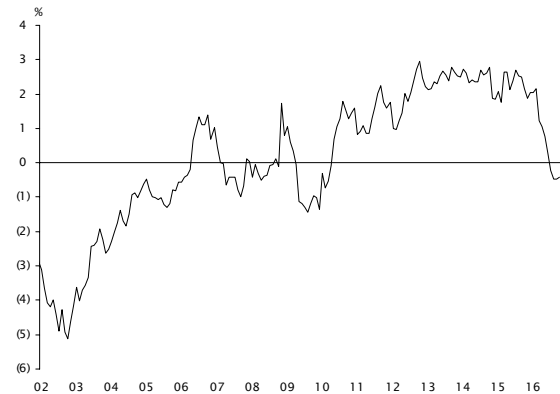
Exhibit 3: Large-Cap Semiconductor and Equipment Stocks Relative Free Cash Flow-to-Enterprise Value Yield 1985 Through Late-October 2016



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

¹Equally-weighted data.

Exhibit 4: Large-Cap Semiconductor Stocks Alone Relative Free Cash Flow-to-Enterprise Value Yield 2002 Through Late-October 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

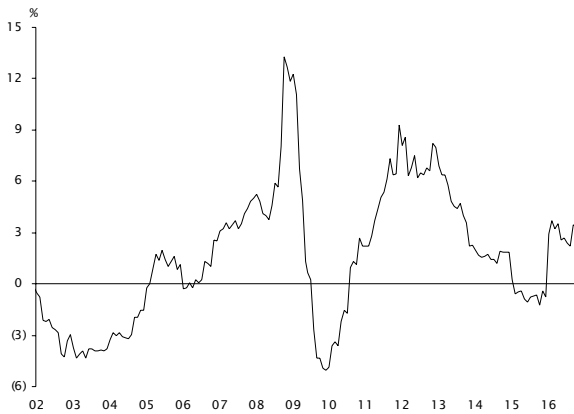
¹Equally-weighted data.

Margins Levitate and Then Hover

This industry has been a poster child for the benefits of outsourcing, apparent in both its profit and free cash flow margins. Exhibit 7, that depicts the ratio of capital expenditures-to-gross cash flow, makes clear how large the transformation has been. From the mid-1980s up until the early-2000s almost 70% of the industry’s gross cash flow

went to those outlays while thereafter the share has been only around 40%. The windfall from that decline in capital intensity hasn't been competed away, and instead there's been a good deal of consolidation actually within the industry. The number of large-cap stocks has shrunk from 30 in 2001 to 22 today. The free cash flow and profit margins have been at parity in the last 15 years as capital expenditures have only matched depreciation expense. The margins have averaged almost 20%, a remarkable statistic, and they sit just slightly below that level today (see Exhibit 8). The industry's tax rate has fallen from 35% to 18% over the past two decades and that alone accounts for most of the improvement in margins. Foreign-sourced income is the primary reason why tax rates are so low and the companies have also benefited from R&D tax credits. As in the rest of the tech sector, these managements have enjoyed enormous financial flexibility.

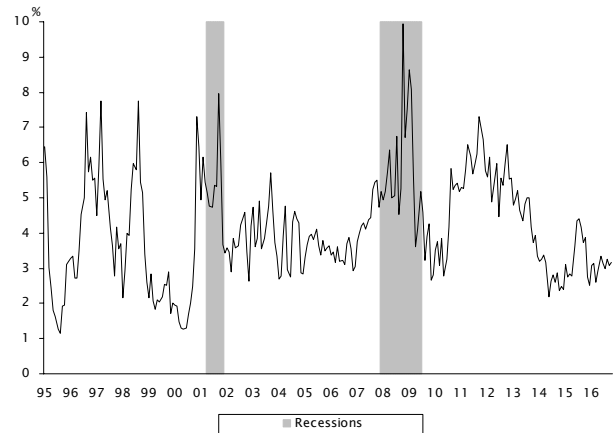
**Exhibit 5: Large-Cap Semiconductor Equipment Stocks¹
Relative Free Cash Flow-to-Enterprise Value Yield
2002 Through Late-October 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Equally-weighted data.

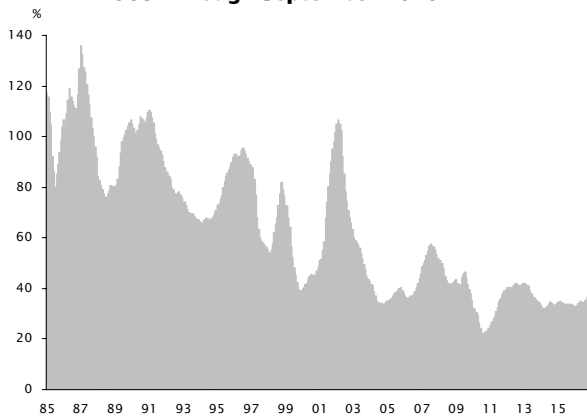
**Exhibit 6: Large-Cap Semiconductor and Equipment Stocks¹
Spread of Free Cash Flow-to-Enterprise Value Yields
Highest Quintile Compared to Average
1995 Through Late-October 2016**



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

¹Equally-weighted data.

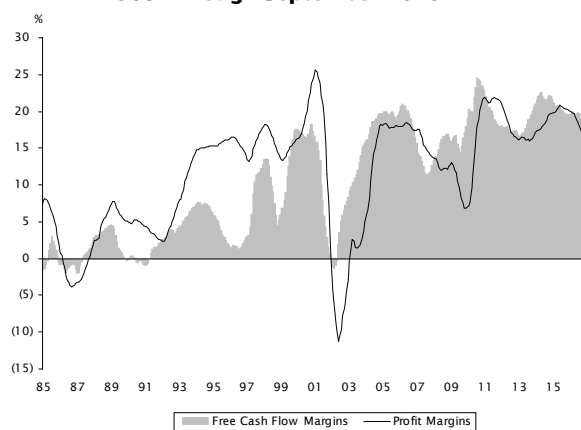
**Exhibit 7: Large-Cap Semiconductor Stocks
Capital Spending as a Share of Gross Cash Flow¹
1985 Through September 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Based on trailing four-quarter data and smoothed on a three-month basis.

**Exhibit 8: Large-Cap Semiconductor Stocks
Free Cash Flow and Profit Margins¹
1985 Through September 2016**

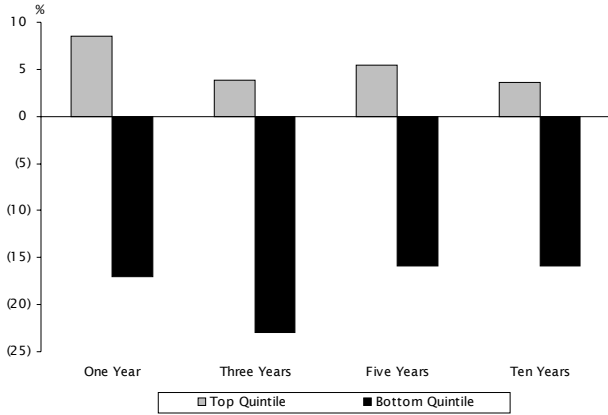


Source: Corporate Reports, Empirical Research Partners Analysis.

¹Based on trailing four-quarter data and smoothed on a three-month basis.

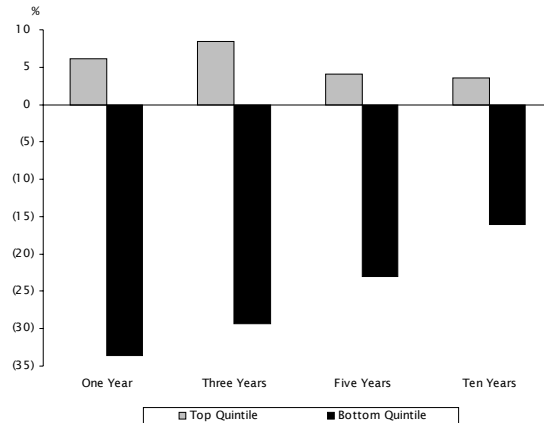
The way that flexibility is used and the trajectory of margins have been instrumental to the performance of the stocks. Companies showing degradation in margins, measured relative to the previous trend, have been poor performers, as have those putting up weak incremental numbers (see Exhibits 9 and 10). Irrespective of the trend, the lower-margin businesses have consistently underperformed their peers (see Exhibit 11). And, since the free cash flow margins were sustained, betting on the associated yields has paid off (see Exhibit 12). What the last four charts make clear is that when most companies are awash in cash flow those that aren't are to be avoided.

Exhibit 9: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Top and Bottom Quintiles of Free Cash Flow Margin Versus the Prior Trend Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



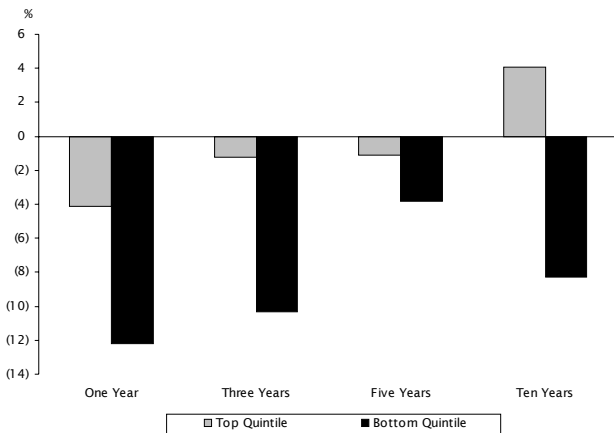
Source: Empirical Research Partners Analysis.

Exhibit 10: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Top and Bottom Quintiles of Incremental Free Cash Flow Margins Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



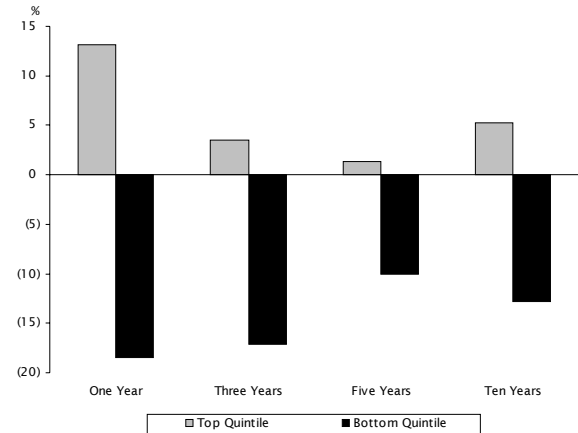
Source: Empirical Research Partners Analysis.

Exhibit 11: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Top and Bottom Quintiles of Free Cash Flow Margins Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



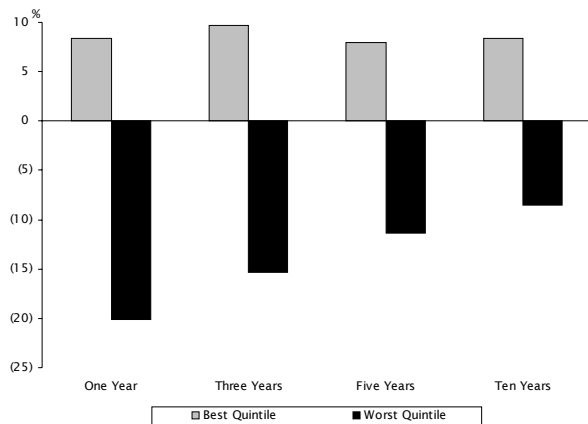
Source: Empirical Research Partners Analysis.

Exhibit 12: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Top and Bottom Quintiles of Free Cash Flow-to-Enterprise Value Yield Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



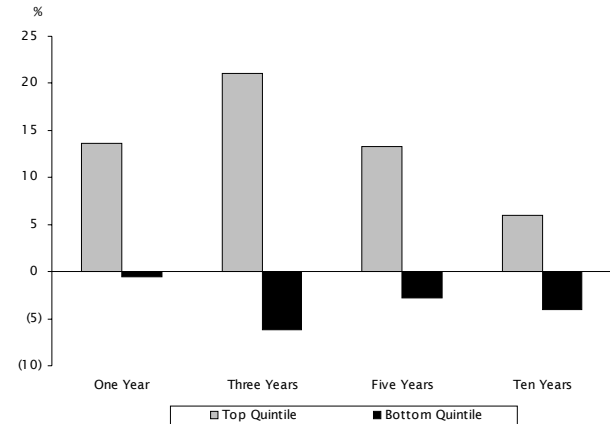
Source: Empirical Research Partners Analysis.

Exhibit 13: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Best and Worst Quintiles of the Change in Share Count Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



Source: Empirical Research Partners Analysis.

Exhibit 14: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Top and Bottom Quintiles of Dividend Growth Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016

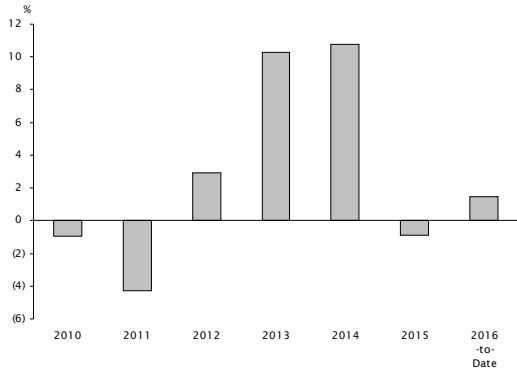


Source: Empirical Research Partners Analysis.

The Recycling of Capital Has Been Rewarded

With margins at record levels, investors have rewarded management behaviors aimed at protecting them. As in much of the economy it's all been about keeping a good thing going. Large buybacks and dividend increases have generated significant amounts of alpha while dilution was punished (see Exhibits 13 and 14 overleaf). In some recent years companies announcing acquisitions were applauded, not the case before (see Exhibit 15). If the market liked the deal when it was announced that told us something about the performance of the acquirer's stock in the subsequent year (see Exhibit 16). As shown at the right-hand side of the chart, negative knee-jerk reactions shouldn't be taken lightly.

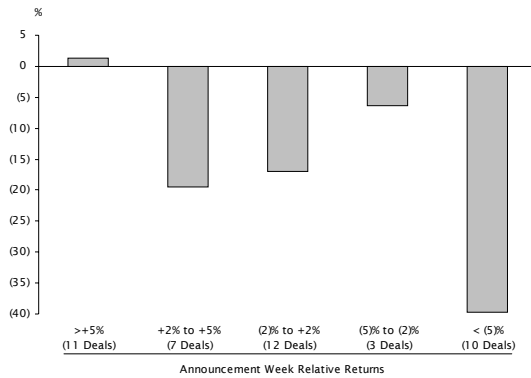
Exhibit 15: Semiconductor Acquirers' Sector Relative Announcement-Week Returns 2010 Through Late-October 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹Acquirers drawn from largest 1,500 stocks. Excludes acquisitions smaller than \$500 million.

Exhibit 16: Semiconductor Companies Making Acquisitions' Sector Relative Returns in the Year Following the Announcement Contingent on the Announcement Week Relative Returns² 2010 Through Late-October 2016



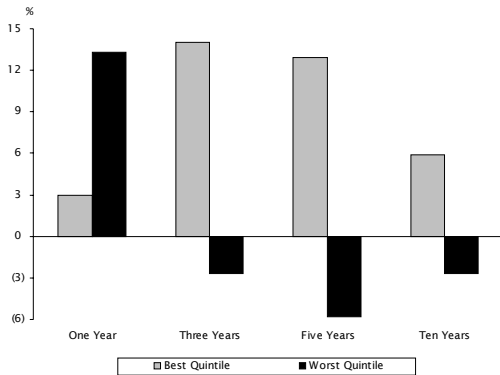
Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹Excludes acquisitions smaller than \$500 million.

²Returns exclude the announcement-week return.

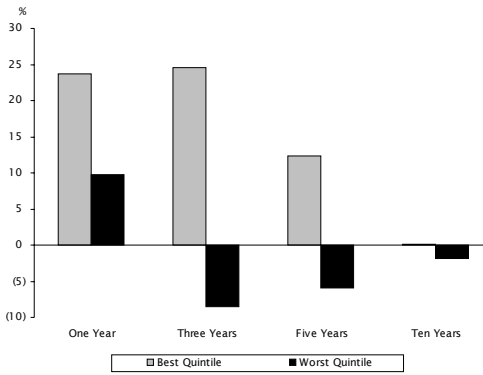
With profitability on the rise, the winners kept winning, and this is one part of the market where simple momentum strategies, based on price movements or analysts' estimates, have paid off (see Exhibits 17 and 18). In addition, as the industry's capital intensity declined the stocks took on a less-risky character (see Exhibit 19). Nor are they as controversial as they've been in the past and the correlation of their returns with downside moves in the market has come down (see Exhibit 20).

Exhibit 17: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Best and Worst Quintiles of Nine-Month Stock Price Trends Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



Source: Empirical Research Partners Analysis.

Exhibit 18: Large-Cap Semiconductor and Equipment Stocks Sector Relative Returns to the Best and Worst Quintiles of Earnings Revisions Monthly Data Compounded and Annualized Ten Years Ending Late-October 2016



Source: Empirical Research Partners Analysis.

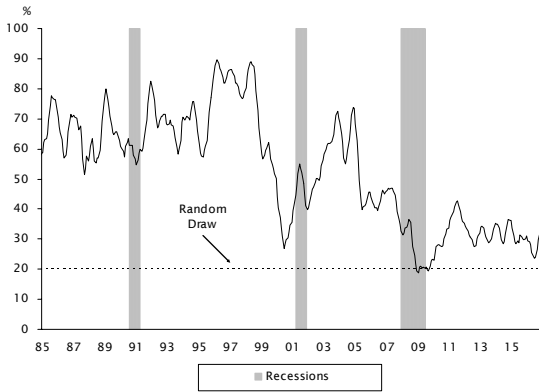
A Macroeconomic Story as Well

What's been good for semiconductor margins has been bad for the U.S. productivity statistics. That point is made in a recent insightful piece of research from the Dallas Federal Reserve Bank.¹ The manufacture of semiconductors

¹Sposi, M. and Kelvende Viridi, 2016. "U.S. Productivity Growth Flowing Downstream," *Dallas Fed Economic Letter*, Vol. 11, No. 12.

and other technology products is highly automated producing huge economies of scale that have translated into exceptional productivity growth (see Exhibit 21). What happened was that driver of U.S. productivity was sent off to Taiwan and elsewhere and what remains onshore are design and engineering functions that at face value don't produce real growth of that sort. Of course measuring the output of engineers is much trickier than counting the number of chips being produced. We examined the plant-level P&L statements drawing upon the Survey of Manufactures conducted annually by the Census Department. As supply chains have been globalized the value-added coming out of domestic plants has come down a bit while gross margins have held up (see Exhibits 22 and 23).

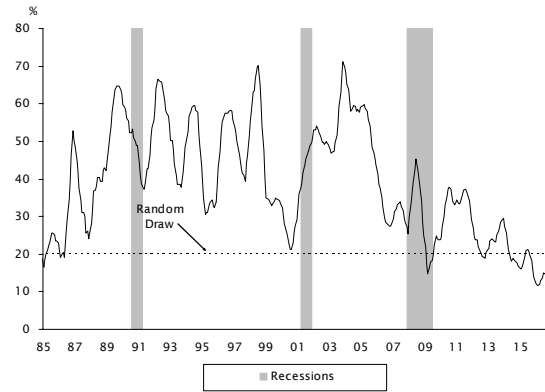
**Exhibit 19: Large-Cap Semiconductor and Equipment Stocks
Share in the Highest Quintile of Arbitrage Risk¹
1985 Through Late-October 2016**



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

¹Data smoothed on a trailing six-month basis.

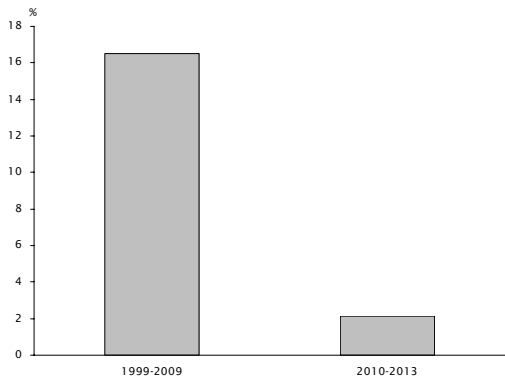
**Exhibit 20: Large-Cap Semiconductor and Equipment Stocks
Share in the Worst Quintile of Downside Risk¹
1985 Through Late-October 2016**



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

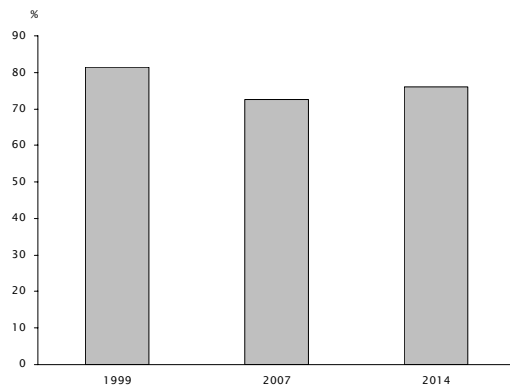
¹Data smoothed on a trailing six-month basis.

**Exhibit 21: Computers and Electronics
Total Factor Productivity Growth
1999 Through 2013**



Source: Sposi, M. and Kelvende Virdi, 2016. "U.S. Productivity Growth Flowing Downstream," *Dallas Fed Economic Letter*, Vol. 11, No. 12.

**Exhibit 22: U.S. Semiconductor Manufacturing Plants
Value Added-to-Shipments
1999, 2007 and 2014**



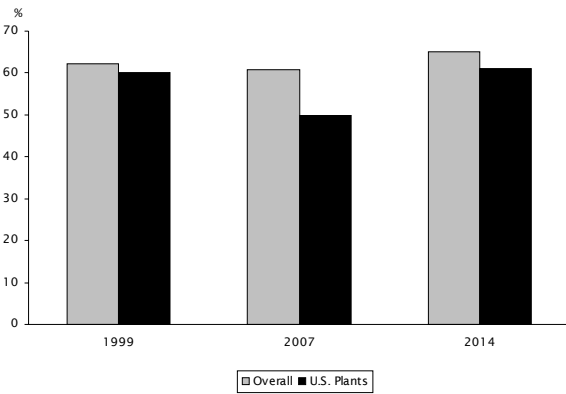
Source: U.S. Census Bureau's Survey of Manufactures.

Conclusion: Revaluation, Well Along

The semiconductor industry has been revalued as its margins defied gravity, it consolidated, and as the excess capital was recycled back to shareholders. The pattern of recycling looks much as it did in the last cycle, with dividends playing a larger role this time around (see Exhibit 24). Like many highly-cyclical businesses the entry point has been crucial to investors' experience here and the current one doesn't look all that inspiring. It's possible though that the stocks will remain in the leadership for the duration of the expansion because we don't see signs of self-undermining behavior.

With so much having gone right, valuation spreads within the sector are quite narrow. Given the state of the cycle we want to have a bias towards companies that offer either superior growth attributes or relatively stable fundamentals (see Exhibits 25 and 26). We have systems that quantify both dynamics and Exhibit 27 on page 8 ranks the stocks on those factors as well as the company's free cash flow output and momentum attributes.

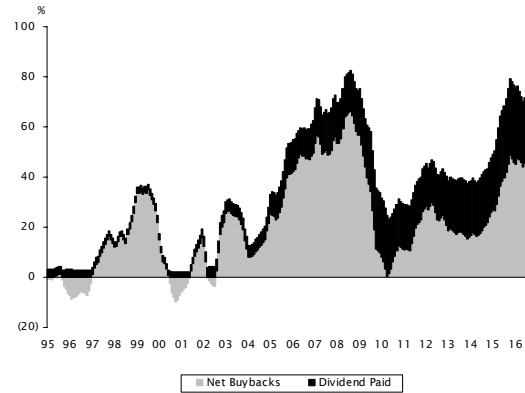
**Exhibit 23: Semiconductor Manufacturers
Gross Margins: Overall and at U.S. Plants¹
1999, 2007 and 2014**



Source: Corporate Reports, U.S. Census Bureau

¹The plant-level gross margins are computed as shipments-employee compensation the cost of materials - energy consumption.

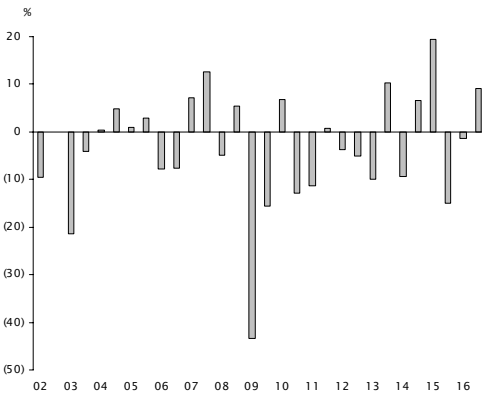
**Exhibit 24: Large-Cap Semiconductor and Equipment Stocks
Net Buybacks and Dividends Paid
as a Share of Gross Cash Flow
1995 Through September 2016**



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Based on trailing four-quarter data and smoothed on a three-month basis.

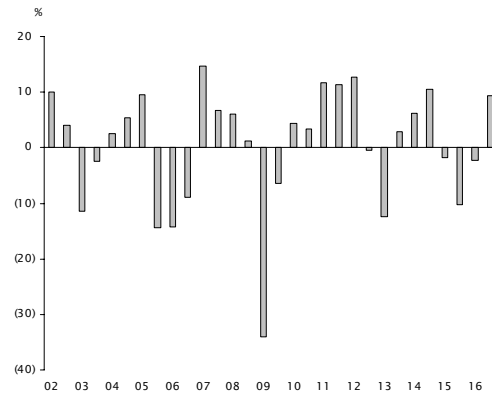
**Exhibit 25: Semiconductor and Equipment Stocks¹
Sector Relative Returns to the Highest Quintile
of Growth Score
Measured Over Six-Month Holding Periods
2002 Through Late-October 2016**



Source: Empirical Research Partners Analysis.

¹Drawn from the largest 1,500 stock universe; ranked within sector and returns relative to the equally-weighted sector.

**Exhibit 26: Semiconductor and Equipment Stocks¹
Sector Relative Returns to the Highest Quintile
of Fundamental Stability Score
Measured Over Six-Month Holding Periods
2002 Through Late-October 2016**



Source: Empirical Research Partners Analysis.

¹Drawn from the largest 1,500 stock universe; ranked within sector and returns relative to the equally-weighted sector.

**Exhibit 27: Large-Cap Semiconductor and Equipment Stocks
Growth Model Ranking
Sorted by the Overall Score
As of Late-October 2016**

Symbol	Company	Price	Growth + Stability Scores			Quintiles (1=Best, 5=Worst)						Forward P/E-Ratio	Market Capitalization (\$ Billion)			
			Growth Score	Stability of Fundamentals Score	Composite Score	Free Cash Flow Dynamic			Stock Price Dynamic							
						Free Cash Flow Yield	Free Cash Flow Margin	Incremental Free Cash Flow Margin	Free Cash Flow Above Trend	Composite Score	Nine-Month Stock Price Trend			Earnings Estimates: Three-Month Change	Composite Score	Overall Score
LLTC	LINEAR TECHNOLOGY CORP	\$60.25	1	1	1.0	3	1	1	1	1.5	1	2	1.5	1.3	25.9	\$14.8
TXN	TEXAS INSTRUMENTS INC	71.68	2	2	2.0	2	1	1	2	1.5	1	2	1.5	1.7	22.3	71.9
NVDA	NVIDIA CORP	70.71	1	1	1.0	4	1	3	5	3.3	1	1	1.0	1.8	33.8	37.8
AMAT	APPLIED MATERIALS INC	29.15	2	4	3.0	2	1	1	1	1.3	1	1	1.0	1.8	13.4	31.5
LRCX	LAM RESEARCH CORP	98.98	3	4	3.5	1	1	1	2	1.3	1	1	1.0	1.9	12.4	16.0
TSM	TAIWAN SEMICONDUCTOR MFG CO	31.41	2	1	1.5	3	1	5	5	3.5	1	1	1.0	2.0	14.9	162.9
MCHP	MICROCHIP TECHNOLOGY INC	60.64	1	4	2.5	2	1	3	4	2.5	1	1	1.0	2.0	15.5	13.1
XLNX	XILINX INC	50.33	2	2	2.0	2	1	1	3	1.8	4	1	2.5	2.1	21.1	12.8
KLAC	KLA-TENCOR CORP	74.56	1	4	2.5	2	1	2	2	1.8	3	1	2.0	2.1	13.3	11.7
ADI	ANALOG DEVICES	64.02	3	2	2.5	3	1	1	2	1.8	2	2	2.0	2.1	19.9	19.7
INTC	INTEL CORP	35.26	3	2	2.5	1	1	4	4	2.5	3	1	2.0	2.3	12.9	166.8
AVGO	BROADCOM LTD	176.55	2	4	3.0	3	1	3	5	3.0	1	1	1.0	2.3	13.3	70.0
QCOM	QUALCOMM INC	68.06	4	3	3.5	2	1	5	1	2.3	1	2	1.5	2.4	14.6	100.3
SWKS	SKYWORKS SOLUTIONS INC	78.49	2	1	1.5	3	2	4	4	3.3	2	3	2.5	2.4	12.9	14.7
MXIM	MAXIM INTEGRATED PRODUCTS	40.37	3	2	2.5	2	1	1	3	1.8	2	5	3.5	2.6	18.4	11.4
ASML	ASML HOLDING NV	105.28	2	3	2.5	4	1	1	5	2.8	3	2	2.5	2.6	25.6	45.5
NXPI	NXP SEMICONDUCTORS NV	101.84	1	4	2.5	4	2	3	5	3.5	1	3	2.0	2.7	15.7	35.2
QRVO	QORVO INC	57.29	2	5	3.5	4	3	5	5	4.3	1	1	1.0	2.9	9.4	7.3
STM	STMICROELECTRONICS NV	8.12	3	4	3.5	3	4	5	5	4.3	2	1	1.5	3.1	24.9	7.4
AMD	ADVANCED MICRO DEVICES	7.01	3	5	4.0	5	5	4	5	4.8	1	1	1.0	3.3	NM	6.3
MU	MICRON TECHNOLOGY INC	17.06	4	5	4.5	5	5	3	5	4.5	1	1	1.0	3.3	10.9	17.7
MRVL	MARVELL TECHNOLOGY GROUP LTD	13.07	5	4	4.5	5	5	4	5	4.8	1	1	1.0	3.4	16.4	6.7

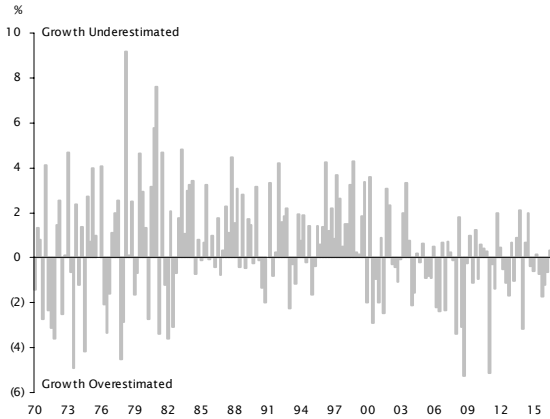
Source: Empirical Research Partners Analysis.

Modeling: One Big Story and Some Smaller Ones

Two Business Cycles, One Big Story

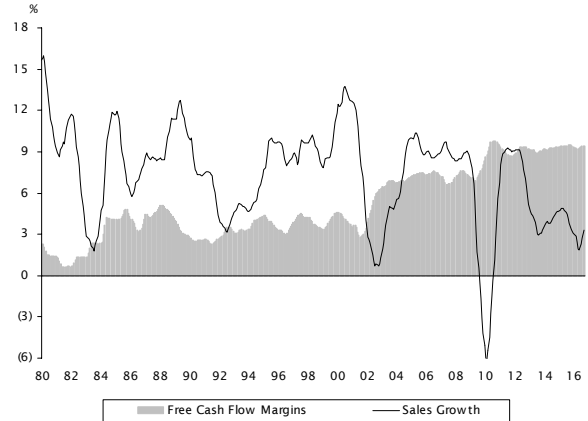
Three charts that speak volumes about the environment faced by equity investors are shown below. They depict errors by economists in forecasting U.S. GDP growth, top-line growth and the state of free cash flow margins for the core of the market, and the share of the market owned by hedge funds (see Exhibits 28 through 30). In both the last cycle and in this one the economy has disappointed, not the case before, free cash flow has been abundant, and the ownership of stocks has shifted, with the portion held by hedge funds tripling. The attitudes of the asset owners have changed too. When surveyed, institutions describe their priorities as protecting capital (see Exhibit 31). Baby boomers and their predecessors, who hold almost 70% of mutual fund assets, are pessimistic about the future and they're focused on protecting what they've already accumulated (see Exhibits 32 and 33).

Exhibit 28: U.S. Real-GDP Quarterly Growth Rate Forecasts Annualized Median Errors 1970 Through Q3 2016



Source: Federal Reserve Bank of Philadelphia, Bureau of Economic Analysis, Empirical Research Partners Analysis.

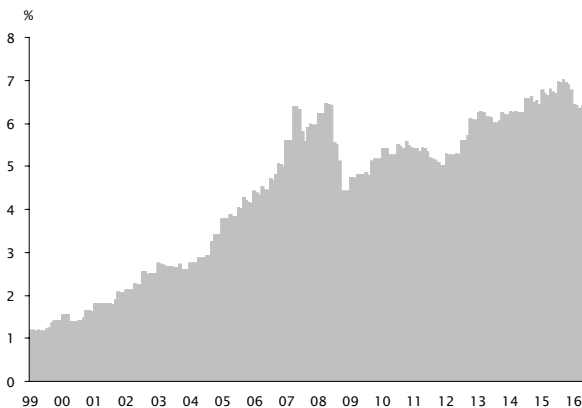
Exhibit 29: Large-Cap "Core" Stocks Free Cash Flow Margins and Revenue Growth¹ 1980 Through September 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

¹Excluding financials, energy, industrial commodities and utilities; based on trailing four-quarter data smoothed on a trailing three-month basis.

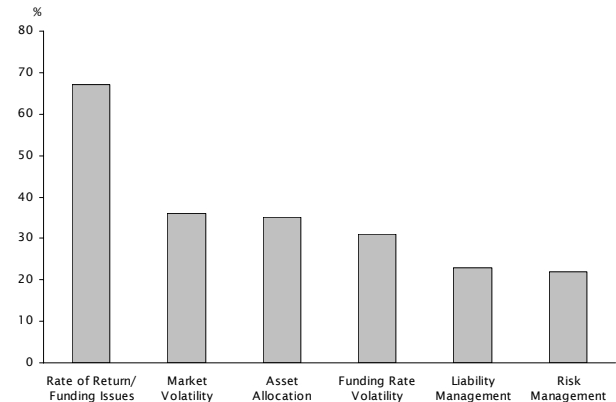
Exhibit 30: Large-Capitalization Stocks Hedge Funds Share of Ownership¹ 1999 Through September 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

¹Equally-weighted data.

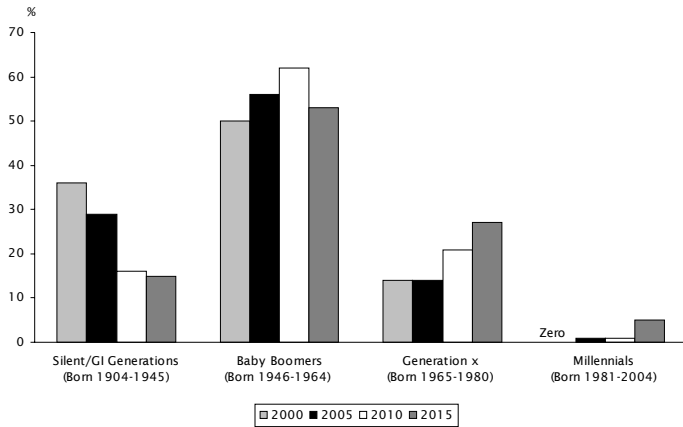
Exhibit 31: Institutional Investors Top Six Strategic Issues 2016



Source: Greenwich Associates.

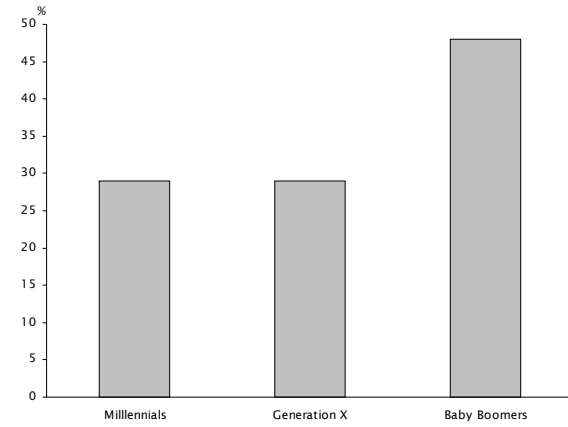
The consequences of the economic realities and the changing objectives of the players (and their investors) are apparent in the character of the returns. For example, our earnings quality super factor, that captures the production of free cash flow and asset intensity, has been the best-performing building block in our models (see Exhibit 34). As the status quo has prevailed, betting on, rather than against, the margins paid off (see Exhibit 35). In this cycle our capital deployment framework has been helpful too as investors shunned businesses that required high rates of re-investment (see Exhibit 36). Globalization has lowered the bar for what constitutes capital intensity.

**Exhibit 32: The U.S. Mutual Fund Industry
Composition of Assets by Generation
2000 Through 2015**



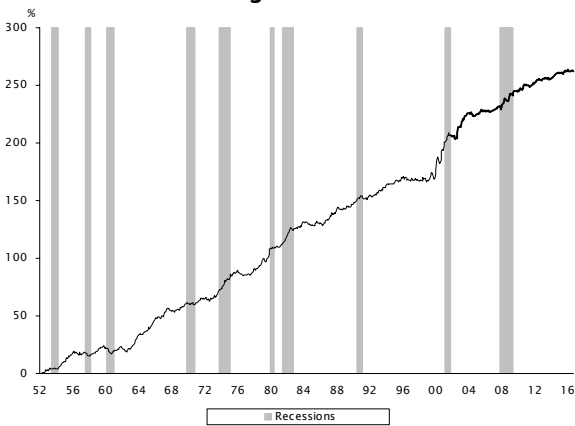
Source: Investment Company Institute.

**Exhibit 33: Will the S&P 500 Produce Lower Returns in the
Next 25 Years Compared to the Last 25 Years?
Share Responding Yes
2016**



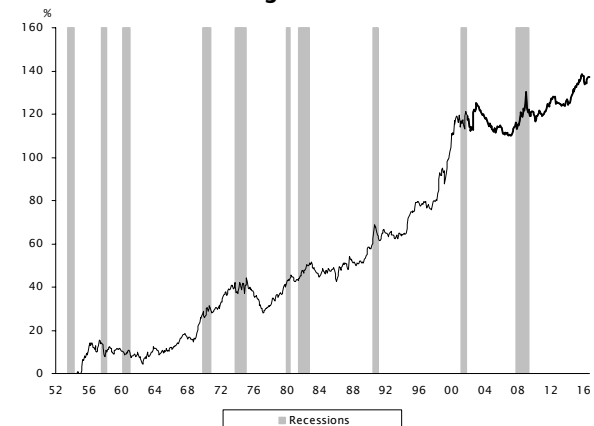
Source: American Funds Survey.

**Exhibit 34: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Earnings Quality
1952 Through Late-October 2016**



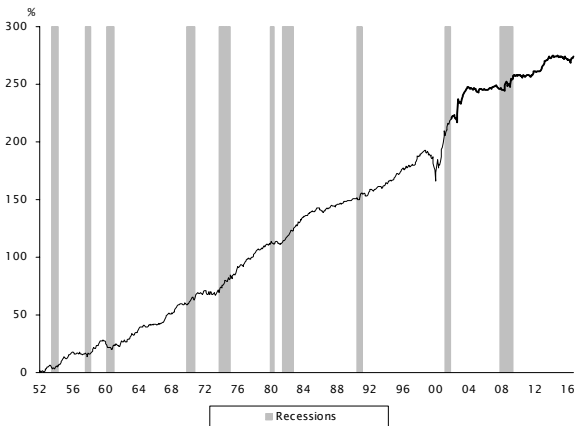
Source: National Bureau of Economic Research, Empirical Research Partners Analysis.

**Exhibit 35: Large-Capitalization Stocks
Cumulative Relative Returns to the
Highest Quintile of Free Cash Flow Margins
1952 Through Late-October 2016**



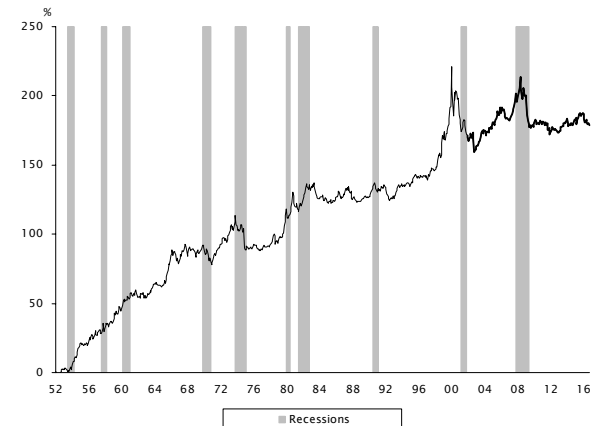
Source: National Bureau of Economic Research, Empirical Research Partners Analysis.

**Exhibit 36: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Capital Deployment
1952 Through Late-October 2016**



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

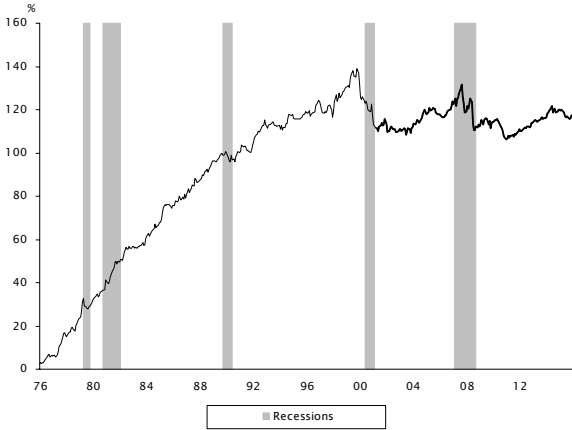
**Exhibit 37: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Nine-Month Stock Price Trends
1952 Through Late-October 2016**



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

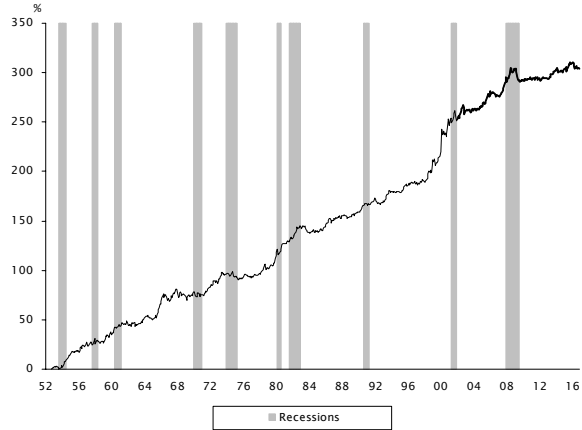
The absence of a strong economic tailwind or overarching investment theme has made simple momentum strategies difficult to execute. Good price trends have reversed with alarming regularity and we've been better off watching what the earnings estimates were doing (see Exhibits 37 and 38). Our market reaction super factor, that combines trend measures with others that describe the milieu by capturing volatility and skewness, has performed better than its component parts (see Exhibit 39). As hedge funds have sped up the pace at which the game is played, ball-handling technique has become more important.

**Exhibit 38: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Earnings Revisions
1976 Through Late-October 2016**



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

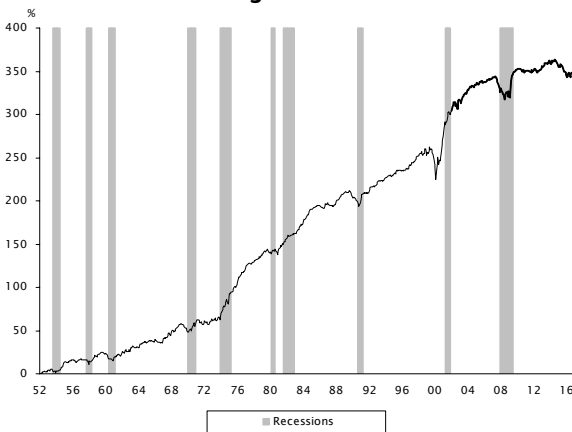
**Exhibit 39: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Market Reaction
1952 Through Late-October 2016**



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

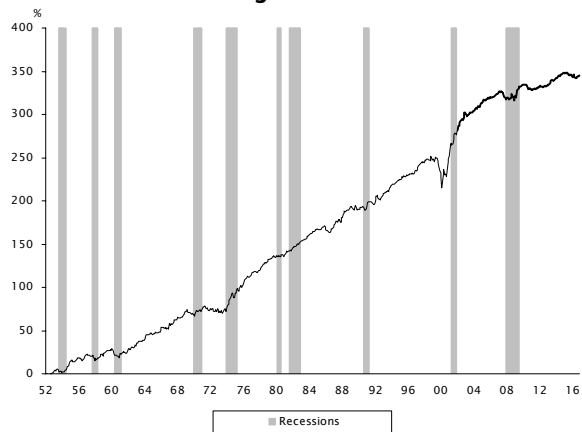
Finally, there's been a benefit from paying attention to valuation, although it's been less consistent than in the past (see Exhibit 40). The heyday for value investing, that occurred from the mid-1970s through the mid-1990s, was a period during which the economy regularly surprised to the upside, lifting the boats closest to the water furthest (see Exhibit 28). We don't think that value investing is dead, rather it's a matter of how it's defined. We've long advocated of putting the emphasis on free cash flow yields and thus far that philosophy has paid off (see Exhibit 41).

**Exhibit 40: Large-Capitalization Stocks
Cumulative Relative Returns to the
Best Quintile of Valuation
1952 Through Late-October 2016**



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

**Exhibit 41: Large-Capitalization Stocks
Cumulative Relative Returns to the
Highest Quintile of Free Cash Flow Yields
1952 Through Late-October 2016**



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

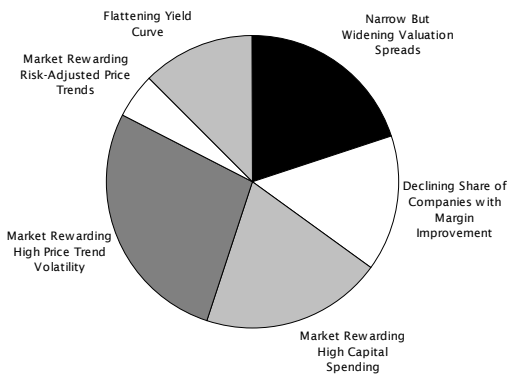
Regime Has Helped Too

Nine years ago we developed a regime indicator that was designed to forecast what would be important to stock selection going forward, misvaluations or growth dynamics. In making that call it takes into account the level of valuation spreads and their direction, the breadth of improvement in profit margins, the market's response to capi-

tal spending and volatility and changes in the shape of the yield curve (see Exhibit 42). It formalizes a philosophy we've used since the early-1990s; we want to bet on misvaluation when we're being paid to do so. The history of the indicator's forecasts during the last two business cycles is shown in Exhibit 43. A five signifies a full-blown, growth-driven regime, while a reading of one represents a value-driven one. In the first four years of this decade, lowly-valued stocks and those with superior growth profiles outperformed with similar frequency (see Exhibit 44). In the last 2¾ years the win rate for value stocks has come down because the low-hanging fruit had already been picked.

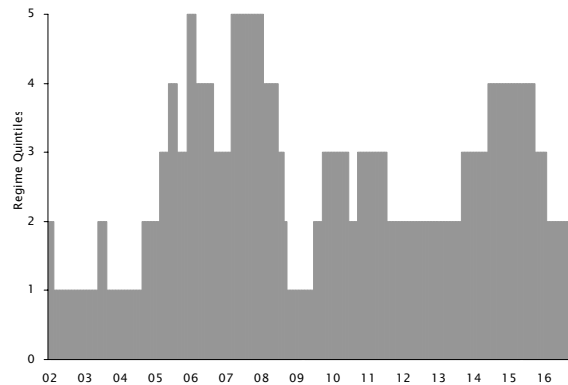
Shifting the factor weights according to the forecasts of our regime indicator has proven worthwhile, particularly in this cycle (see Exhibit 45). It's paid to exploit the many shifts in sentiment including the one earlier this year. Of the many battles that could be fought we've chosen to fight this one.

Exhibit 42: The U.S. Regime Indicator Factor Composition 1952 Through Late-October 2016



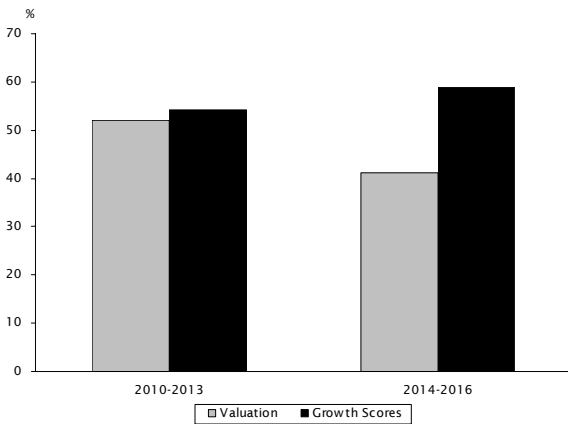
Source: Empirical Research Partners Analysis.

Exhibit 43: The U.S. Regime Indicator (5=Growth-Driven Dynamic; 1=Valuation-Driven Dynamic) 2002 Through September 2016



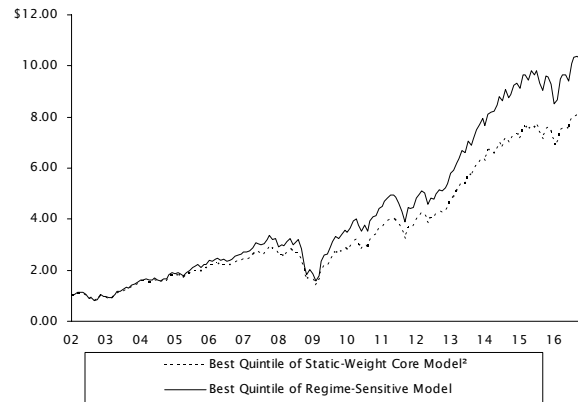
Source: Empirical Research Partners Analysis.

Exhibit 44: Large-Capitalization Stocks The Top Quintiles of Valuation and Growth Scores Share of Months with Positive Relative Returns 2010 Through Late-October 2016



Source: Empirical Research Partners Analysis.

Exhibit 45: Large-Capitalization Stocks Growth of a Dollar for the Top Quintiles of the Regime-Sensitive and Static-Weight Core Models¹ 2002 Through Late October 2016



Source: Empirical Research Partners Analysis.

¹Nominal; equally-weighted data.

²Static weights applied at the super factor level.

Conclusion: Staying the Course

When building stock selection models we are very much story people. Our models embody our perspectives on how the world works. While our presumptions about human nature haven't changed much over the years the global economy has. Eventually the era of bountiful free cash flow will come to an end, with protectionism and changes in corporate taxation threats at the moment. For now we think the Bretton Woods II era is set to continue, and the decision rules that've worked in the past 14 years are still the right ones.