Empirical Research Partners

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Stock Selection: Research and Results June 2016

Tech's Free Cash Flow: How Real? Earnings Quality, Eroding
The Distrusted Fifty: An Update

Tech's Free Cash Flow: The Property of Employees?

- Clients have asked whether the free cash flow of tech companies is real, or if it's been promised to employees through stock option programs. We looked into the question and found for the most part it is real, and for the average tech company option expense equates to only a little more than a tenth of free cash flow. There are exceptions though, and nine companies have expenses that consume all their free cash flow. Most qualify as Big Growers and the list includes LinkedIn, Workday, Twitter, Yahoo and others. Facebook and Alphabet have options expense that equates to 45% and 30% of their free cash flow respectively.

- We analyzed whether the performance of our free cash flow yield metric was improved if we adjust it to take out options expense. We found there was a benefit but it was minor. The market disregards the hit to cash flow as long as the growth story holds up. When it cracks, there is a price to pay. Appendix 1 presents an analysis of the options use for the large-cap tech companies. Many of the most-aggressive users screen as failure candidates.

Earnings Quality, Eroding

- The quality of earnings has begun to erode. The use of charges is up, as is the differential between results reported on GAAP and non-GAAP bases. The energy and health care sectors account for most of the differential, as asset writedowns, restructuring charges and goodwill impairments have taken a toll.

- The earnings quality issues of this cycle are destined to be related to acquisitions. There's been about $4 trillion in deals since 2010 compared to $3.5 trillion in capital expenditures (ex-energy). With the after-tax cost of debt below the free cash flow yield the market endorsed deal-making. The health care sector was where there's been the most activity, with energy ranking third. We've long found that most serial acquirers disappoint and they represent a threat to earnings quality.

The Distrusted Fifty: An Update

- The Distrusted Fifty is an equally-weighted list of 50 large-cap growth stocks where the market is expressing the view that strong profitability won't turn into much earnings growth. It's had a good track record over the last dozen years and is slightly behind the S&P 500 this year. In constructing it we use our growth model as an up-front screen and that step has been the primary source of the strategy's alpha. Our bias toward companies priced to above-average free cash flow yields has helped too.

- We still have faith in our Distrusted methodology because the premises that underpin it remain valid. Plebeian growth stocks have ROEs and free cash flow margins that far exceed their top-line growth rates. The financial characteristics of the portfolio are much better than those of the market and the discounted earnings growth is lower. Exhibit 23 on page 9 presents changes to this slow-moving strategy and Exhibit 24 on page 10 contains the entire portfolio.

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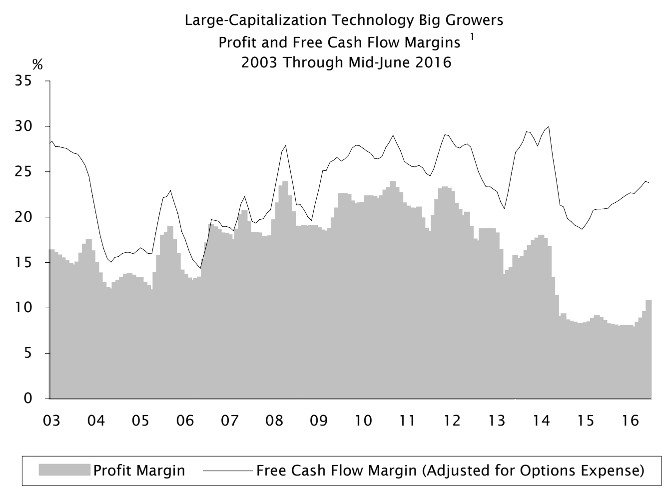
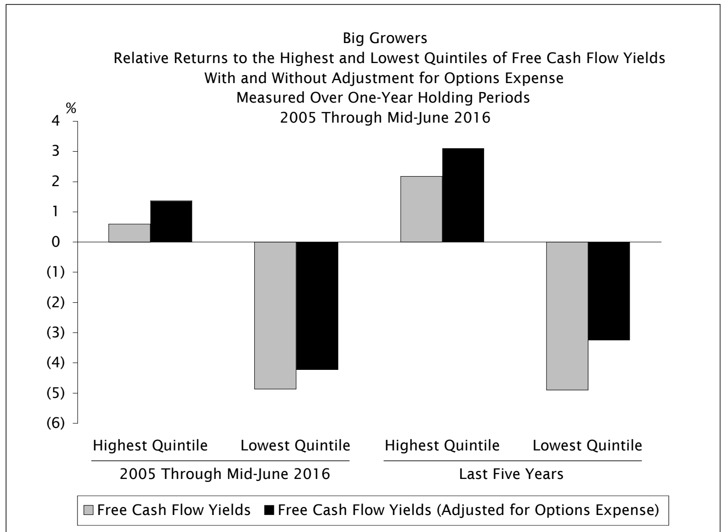
Conclusions in Brief

- Option expense is a material item for some of tech's Big Growers…



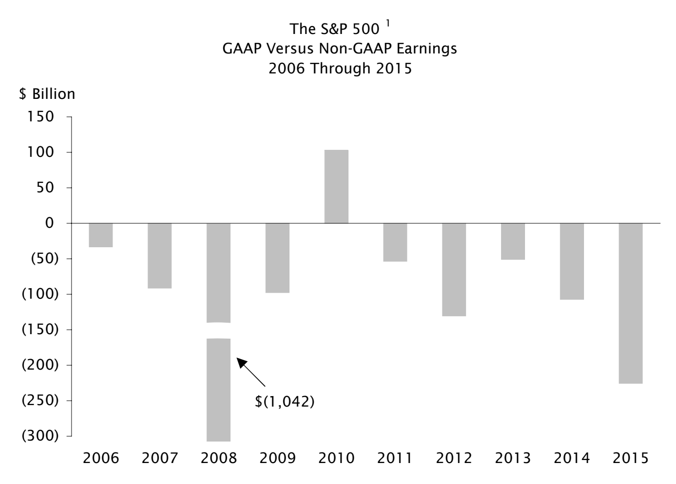
Source: Corporate Reports, Empirical Research Partners Analysis.
[1] Data smoothed on a trailing three-month basis.

- …Although adjusting for it doesn't add much to returns:



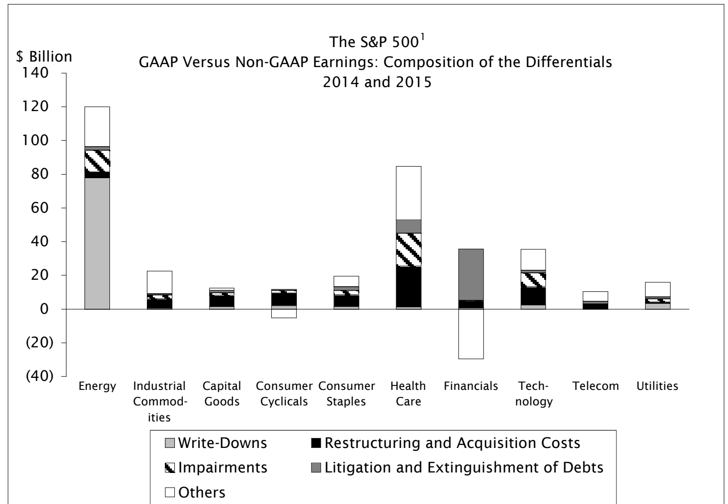
Source: Empirical Research Partners Analysis.

- The quality of earnings has begun to erode…



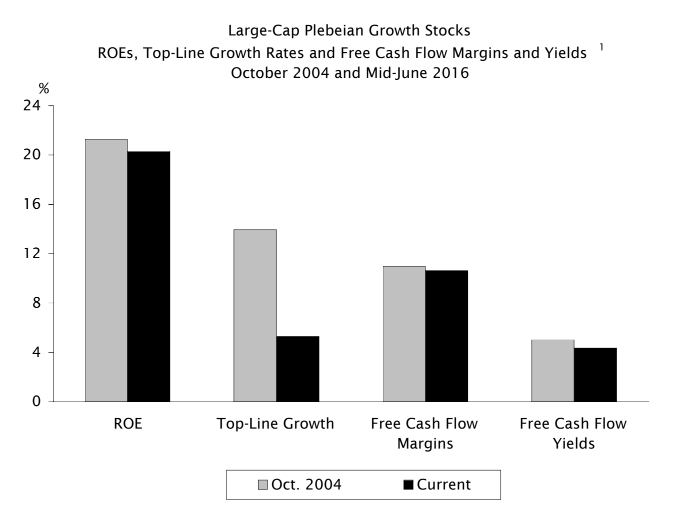
Source: Empirical Research Partners Analysis.
[1] Based on current constituents.

- …As capital spending and acquisitions start to go bad:



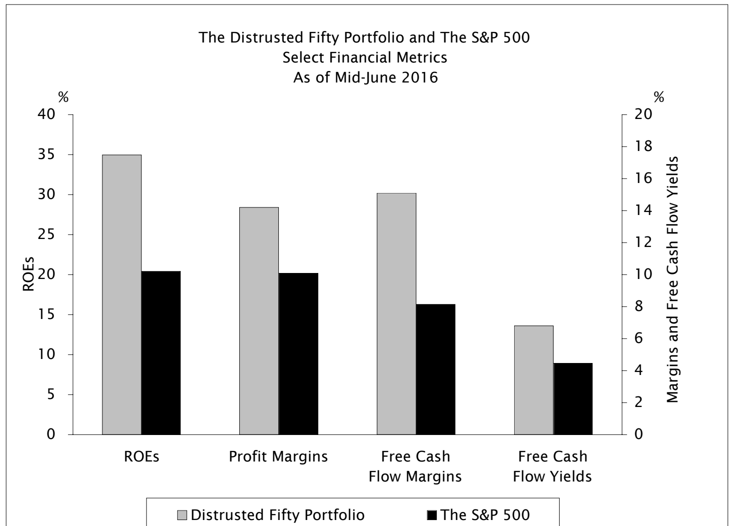
Source: Empirical Research Partners Analysis.
[1] Based on current constituents

- The premises behind the Distrusted Fifty remain intact…



Source: Empirical Research Partners Analysis.
[1] Equally-weighted data.

- …And the portfolio's attriibutes should carry the day:



Source: Corporate Reports, Empirical Research Partners Analysis.

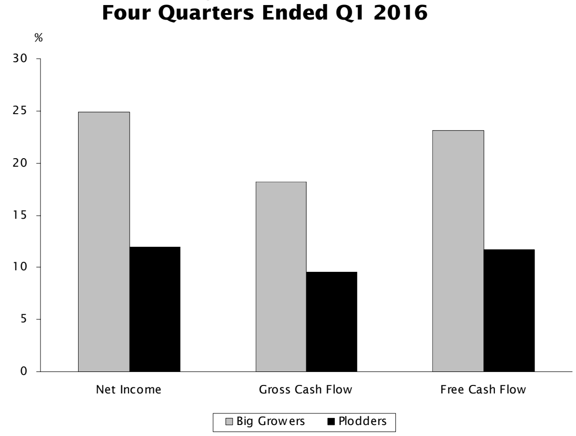
Tech's Free Cash Flow and Options Expense: Reality Bites?

A Big, Non-Cash Item

We've had discussions with clients about the veracity of free cash flow margins in the tech sector. The reported numbers clearly overstate reality because although awards of employee stock options are expensed for P&L purposes (since required in 2005), they're treated as non-cash items when computing cash flow. For most companies the distortion isn't large enough to matter, and on average the options expense equates to 11% of gross cash flow and 13% of free cash flow. There are exceptions though, and we found nine large-cap tech companies where in the past four quarters that expense item has amounted to essentially all their gross cash flow and twice their free cash flow. Not surprisingly, most of them are classified as Big Growers in our work.

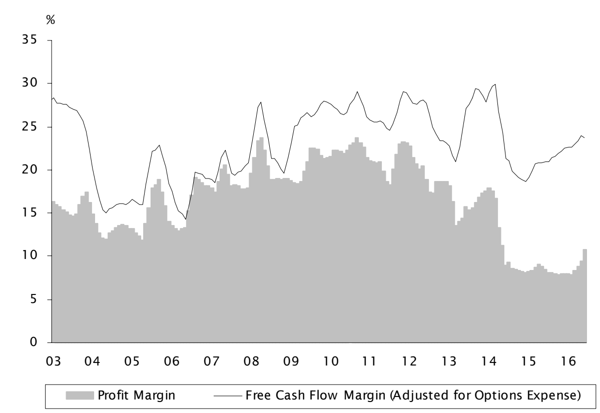
Tech's Big Growers, that currently number 28, have options expense that equates to just under a quarter of their free cash flow, while the rest of the sector, the plodders, 91 in all, grant options at about half that rate (see Exhibit 1). Aggressive use by a handful of large companies including LinkedIn, Workday, Facebook and Palo Alto Networks has caused the Big Growers' free cash flow margins to diverge markedly from those computed based on net income (see Exhibit 2). We don't see that phenomenon among the much-larger plodder group, that includes just three notable users of options: Twitter, Yahoo and Tableau Software (see Exhibit 3). Outside of the tech sector options use is more limited, with homebuilders and some health care and media stocks topping the list.

Exhibit 1: Large-Capitalization Technology Stocks: Big Growers and Plodders *Median* Options Expense as a Share of Earnings and Cash Flow Four Quarters Ended Q1 2016



Source: Empirical Research Partners Analysis.

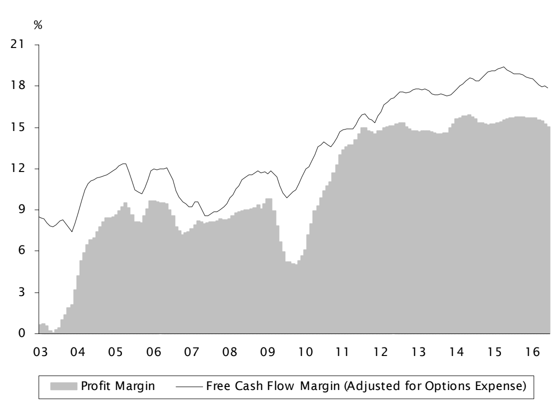
Exhibit 2: Large-Capitalization Technology Big Growers Profit and Free Cash Flow Margins[1] 2003 Through Mid-June 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

[1]Data smoothed on a trailing three-month basis.

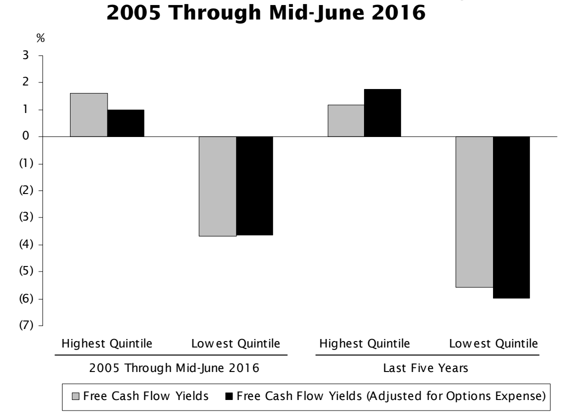
Exhibit 3: Large-Capitalization Technology Plodders Profit and Free Cash Flow Margins[1] 2003 Through Mid-June 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

[1]Data smoothed on a trailing three-month basis.

Exhibit 4: Large-Capitalization Technology Stocks *Sector* Relative Returns to the Highest and Lowest Quintiles of Free Cash Flow Yields With and Without Adjustments for Options Expense Measured Over One-Year Holding Periods 2005 Through Mid-June 2016

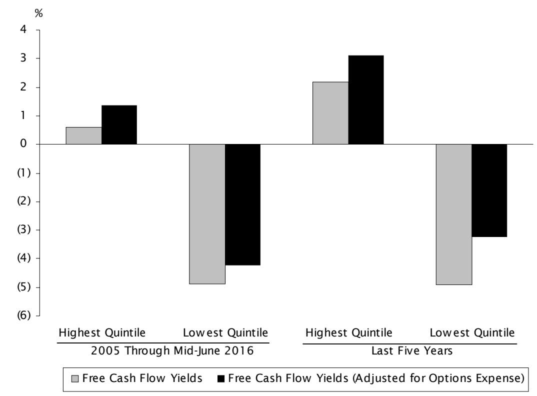


Source: Empirical Research Partners Analysis.

Does Option Use Matter to Returns?

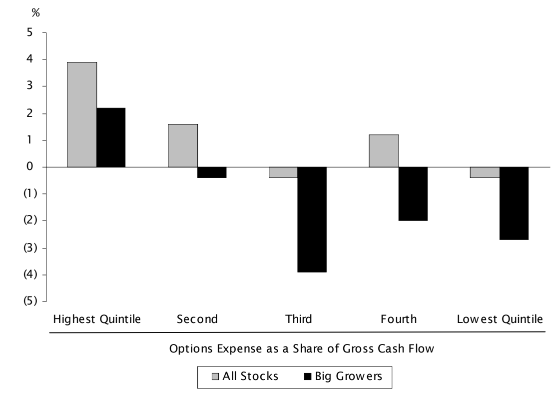
We analyzed whether we should deduct options expense when computing free cash flow yields and Exhibit 4 (overleaf) compares the results before and after doing so. In recent years there was a small benefit from including options in the calculation. If we repeat the exercise within just the Big Grower universe we find only a trivial improvement (see Exhibit 5). Among the companies with the highest free cash flow margins the aggressive use of options has been treated as a virtue by the market (see Exhibit 6).

Exhibit 5: Large-Capitalization Big Growers
Relative Returns to the Highest and Lowest
Quintiles of Free Cash Flow Yields
With and Without Adjustments for Options Expense
Measured Over One-Year Holding Periods
2005 Through Mid-June 2016



Source: Empirical Research Partners Analysis.

Exhibit 6: Large-Capitalization Stocks and Big Growers
The Highest Quintile of Free Cash Margins
Relative Returns by Options Expense
(as a Share of Gross Cash Flow)
Measured Over One-Year Holding Periods
2005 Through Mid-June 2016



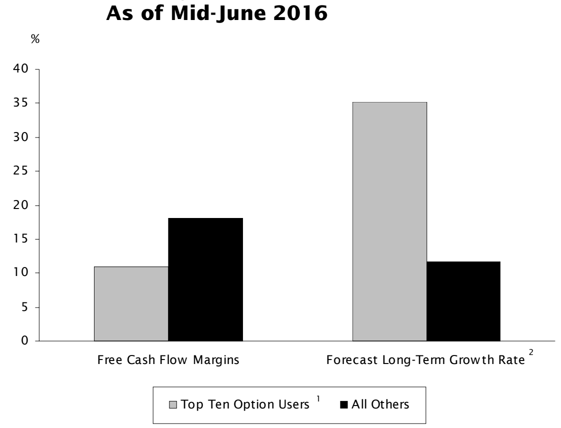
Source: Empirical Research Partners Analysis.

Conclusion: Sanguine, for a While

At present there's just a handful of tech companies where options expense constitutes a big item in their financial statements. What they have in common are exceptional outlooks with forecast growth rates three times those of their peers (see Exhibit 7). The market believes in their stories and is willing to accept the fact that the entire free cash flow (or more) is earmarked for employees. We looked into whether that generosity of spirit is temporary by examining whether failure candidates that have high option use fared more poorly than the rest. We found they did worse in the last five years but did better before that (see Exhibit 8). The reality was that failure was exceptionally painful in both cases.

We conclude that the market's benevolent feelings toward companies that aggressively grant options remains as long as their stories holds up. Appendix 1 on pages 11 and 12 presents the large-cap tech universe, Big Growers and the Plodders sorted by their option use. Our failure score is included too.

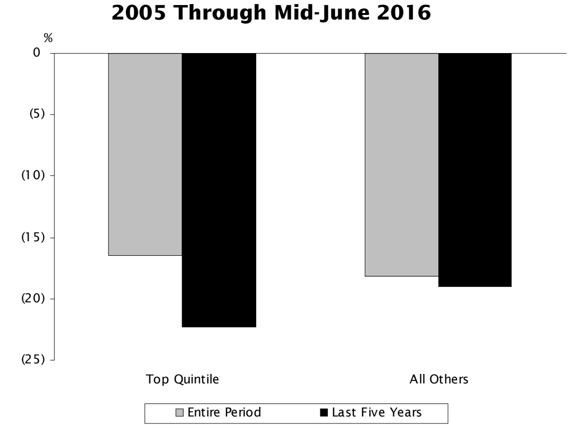
Exhibit 7: Large-Capitalization Technology Stocks
Big Option Users and All Others
Median Free Cash Flow Margins and
Earnings Growth Forecasts
As of Mid-June 2016



Source: Factset Research Systems, Empirical Research Partners Analysis.

[1]As determined by the ratio of options expense-to-gross cash flow.
[2]Long-term growth is the estimated annual EPS growth over the next 3-5 years.

Exhibit 8: Large-Capitalization Big Growers
Relative Returns of the Failure Candidates
Top Quintile of Option Users and All Others
Monthly Data Compounded to Annual Periods
2005 Through Mid-June 2016



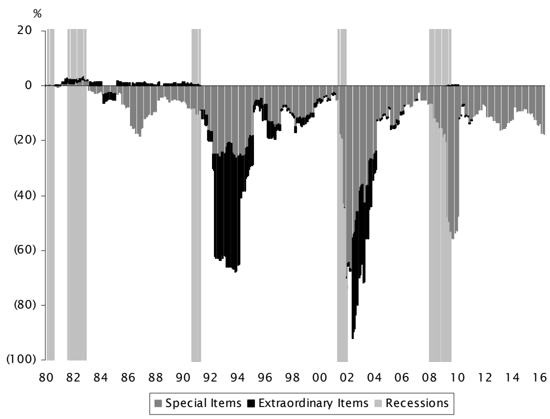
Source: Empirical Research Partners Analysis.

Has Earnings Quality Eroded? GAAP Versus Non-GAAP Results

Oil and Deals

We've had several questions from clients about the quality of earnings. They're concerned that the use of special items and writedowns is gaining momentum, as bad decisions made earlier in the cycle have begun to come home to roost. We rolled up the special or extraordinary items, sizing them relative to operating earnings (see Exhibit 9). Special items is a catch-all category that includes all sorts of "non-recurring" events, gains/losses on extinguishment of debt, goodwill impairment, restructuring changes and much more. In the last four quarters those items have amounted to 17.5% of pre-charge earnings, compared to 12.5% in the prior five years. By comparison, that statistic was 10% in the 2003 through 2007 period. What's apparent from the chart is that the big charges have come during, and immediately following recessions.

Exhibit 9: Large-Capitalization Stocks
Special and Extraordinary Items as a Share of Operating Earnings
1980 Through May 2016



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

Exhibit 10: The S&P 500[1]
GAAP Versus Non-GAAP Earnings
2006 Through 2015

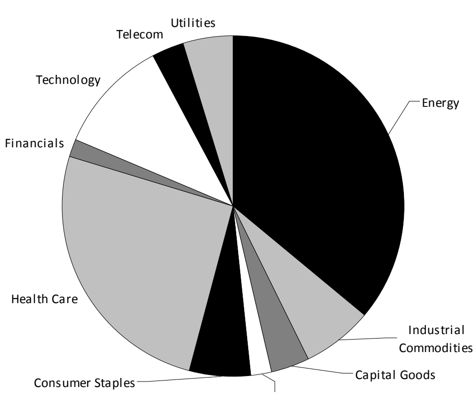
Source: Empirical Research Partners Analysis.

[1]Based on current constituents.

Another way to gauge the quality of earnings is to look at the differential between those reported on GAAP and non-GAAP bases. That differential also captures writedowns that aren't booked as special items. Last year that spread amounted to $225 billion, or just over 20% of earnings, the widest one since 2008 (see Exhibit 10).

In the last couple of years two sectors, energy and health care, have accounted for more than 60% of the spread between GAAP and non-GAAP earnings (see Exhibit 11). Asset writedowns, restructuring and acquisition costs and impairment charges represent the bulk of the differential (see Exhibit 12).

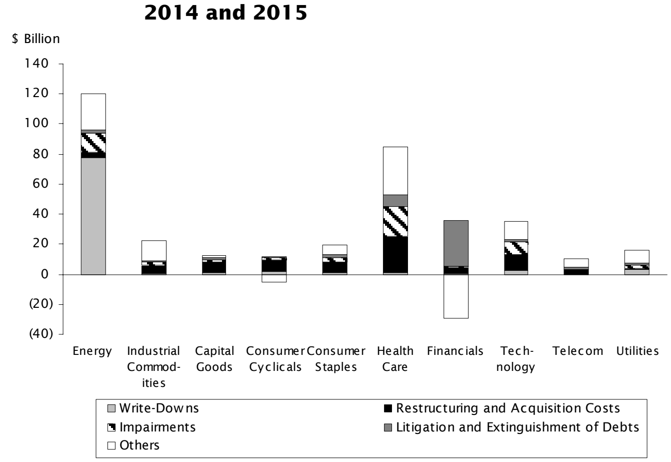
Exhibit 11: The S&P 500[1]
Sector Mix of Differential Between GAAP and Non-GAAP Earnings
2014 and 2015



Source: Empirical Research Partners Analysis.

[1]Based on current constituents.

Exhibit 12: The S&P 500[1]
GAAP Versus Non-GAAP Earnings: Composition of the Differentials
2014 and 2015



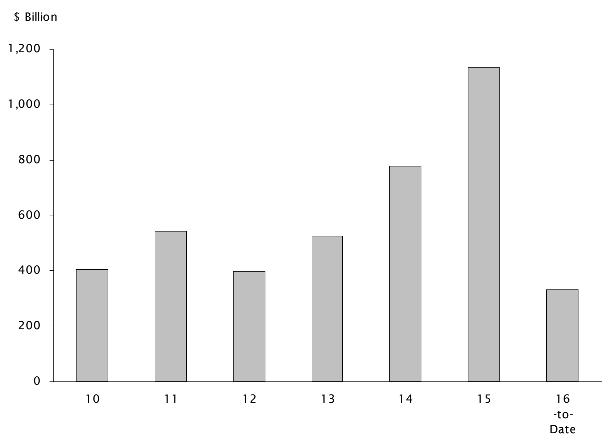
Source: Empirical Research Partners Analysis.

[1]Based on current constituents.

M&A, Once Again, Good 'til Cancelled

Since the financial crisis ended there's been lots of M&A activity and in 2015 the value of deals exceeded $1 trillion (see Exhibit 13). The number of transactions has been steady, it's their size that's increased. The health care sector was the home to 18% of the deal value and the energy sector accounted for another 11% of it (see Exhibit 14). Unfortunately the energy acquisitions were done near the top of the boom and there's been little activity during the bust. The premia paid were greatest in telecommunications, were average in health care and below-average in energy. Health care is where there's been substantial goodwill impairments and restructuring charges (see Exhibit 15). When doing deals those managements acted with the approval of equity investors (see Exhibit 16).

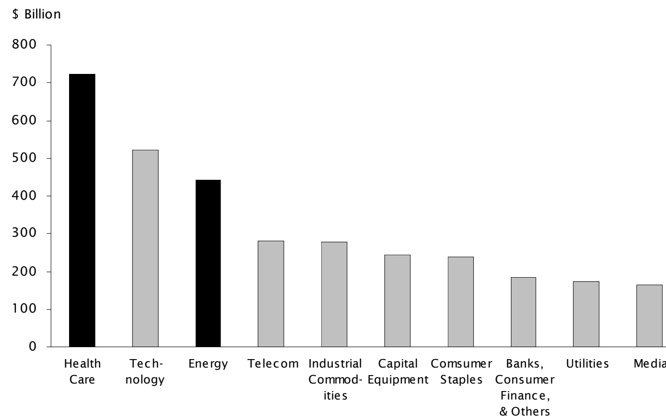
Exhibit 13: U.S. Acquirers
Value of M&A Activity
2010 Through Mid-June 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1]Excludes deals less than $50 million and cancelled/withdrawn deals.

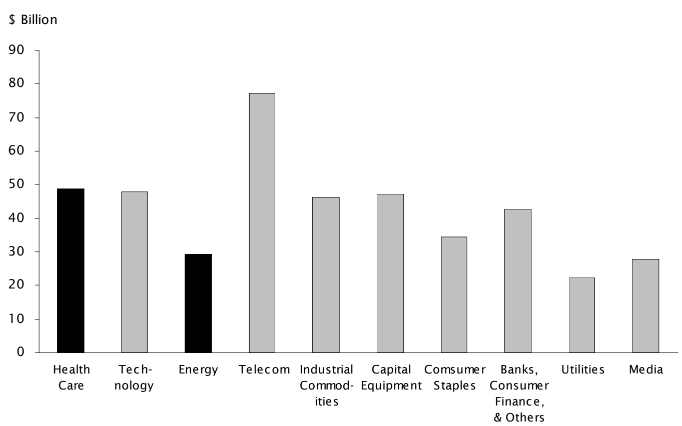
Exhibit 14: U.S. Acquirers
Top Ten Sectors by Transaction Value[1]
2010 Through Mid-June 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1]Excludes deals less than $50 million and cancelled/withdrawn deals.

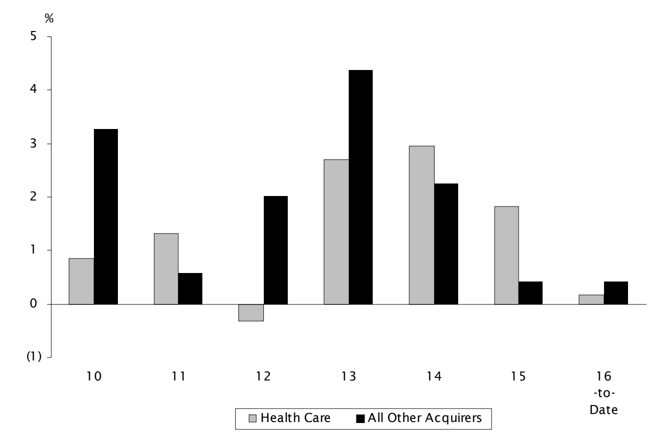
Exhibit 15: U.S. Acquirers
Average Premium Paid by Sector[1]
2010 Through Mid-June 2016



Source: FactSet Research Systems, Empirical Research Partners Analysis.

[1]Excludes deals less than $50 million and cancelled/withdrawn deals; premium paid is relative to target share price in month prior to acquisition, excludes non-listed targets.

Exhibit 16: U.S. Health Care Acquirers
Average Announcement Week Relative Returns
2010 Through Mid-June 2016



Source: Empirical Research Partners Analysis.

Conclusion: Serial Acquirers at Risk

What boomed in the aftermath of the financial crisis were debt-financed acquisitions, that were endorsed by the market as it eyed the spread between free cash flow yields and the after-tax cost of financing. We've found that most serial acquirers eventually fail, and that's where the greatest vulnerability lies.[1]

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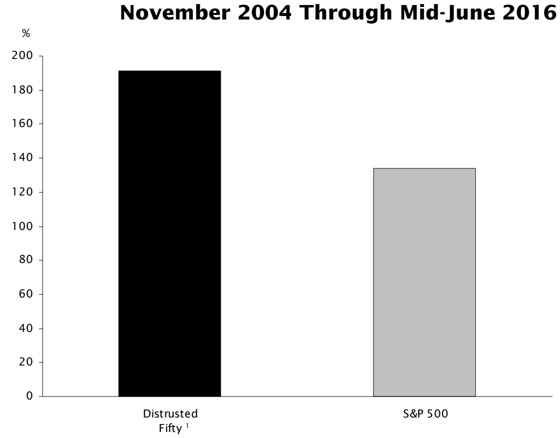
[1]*Stock Selection: Research and Results* May 2015. "Serial Acquirers: Practice Makes Perfect?"

The Distrusted Fifty: Exploiting Levels

Our Growth Model Carries the Day

The Distrusted Fifty is an equally-weighted list of 50 large-cap growth stocks where it appears that the market believes that strong profitability will not turn into much growth. It has nearly a 12-year track record over which it's generated a cumulative return of +191% after estimated fees and transaction costs, compared to +134% for its benchmark, the S&P 500 (see Exhibit 17). The portfolio has trailed the market by a small amount so far this year after a stumble in 2015, attributable to a couple of bad stock picks and an underweight in the Big Growers (see Exhibit 18). The list turns over at about a 30% annual rate compared to an average of around 50% for actively-managed U.S. growth mutual funds. The holdings tend to be large-cap companies with an average capitalization of $74 billion and a median one of $34 billion at the moment.

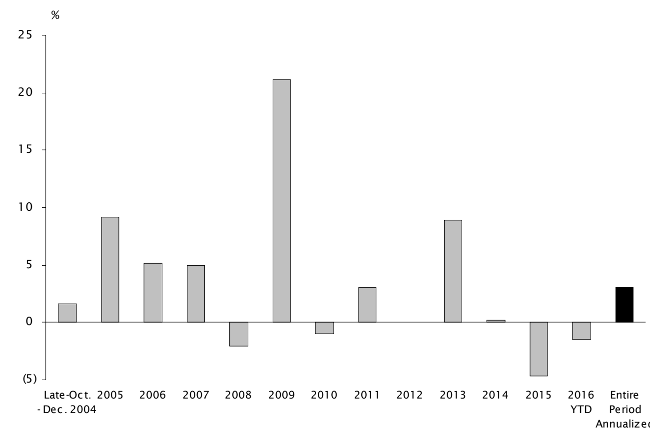
Exhibit 17: The Distrusted Fifty and Its Benchmark
After-Fee Nominal Cumulative Returns
November 2004 Through Mid-June 2016



Source: Empirical Research Partners Analysis.

[1]Assumes an 85 basis point expense ratio, the average for retail mutual funds of this type, and 13 basis points for round-trip transaction costs.

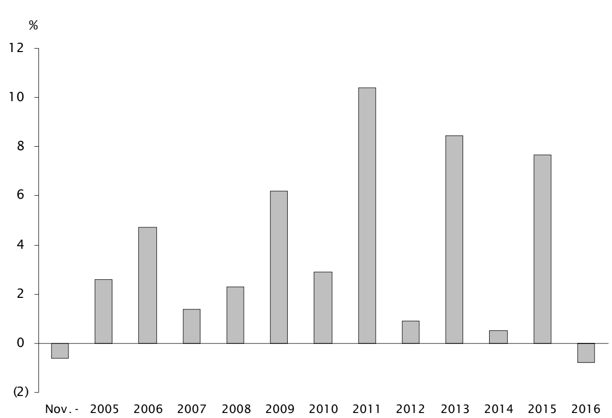
Exhibit 18: The Distrusted Fifty
Annual Returns Relative to the S&P 500
Late-October 2004 Through Mid-June 2016



Source: Empirical Research Partners Analysis.

Our growth stock selection model is the source of most new ideas for the portfolio and it's been the driver of its returns. The model's top quintile has outperformed the universe of growth stocks by nearly +4 percentage points per annum in the past 11 years, generating at least some alpha in all of them (see Exhibit 19). So far this year it's lagged its benchmark by a small increment. The Distrusted strategy also has a bias toward companies with higher free cash flow yields and that's helped too (see Exhibit 20). At the same time, with so much free cash flow in the system, stocks without it have fared poorly.

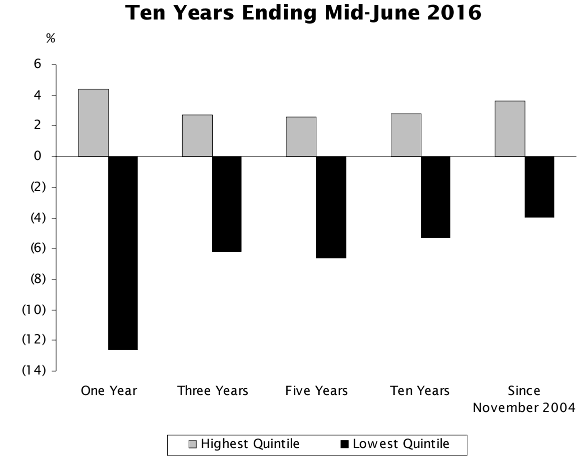
Exhibit 19: The Large-Cap Growth Model
Relative Returns of the Top Quintile[1]
November 2004 Through Mid-June 2016



Source: Empirical Research Partners Analysis.

[1]Equally-weighted data. Relative to the large-capitalization growth universe.

Exhibit 20: Large-Capitalization Growth Stocks
Relative Returns to the Highest and Lowest
Quintiles of Free Cash Flow-to-Enterprise Value
Monthly Data Compounded to Annual Periods
Ten Years Ending Mid-June 2016

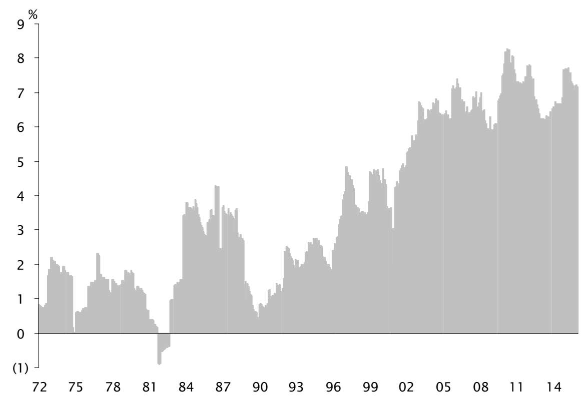


Source: Empirical Research Partners Analysis.

The Premise Has Held Up as Margins Stayed High

A broad-based decline in the capital intensity was already well underway when we launched this strategy back in 2004, and it's persisted thereafter. The chart of the post-dividend free cash flow margins of our growth universe of stocks tells the tale (see Exhibit 21). The need to make large capital expenditures has weighed on stock performance while high free cash margins have been treated as a virtue (see Exhibit 22). As the bounty of free cash flow proved sustainable companies that repurchased their own stock *and* cut their share count materially were bid up (see Exhibit 23). What's unusual is that mindset has remained dominant throughout this cycle. That's because there's a deep-seated fear that mis-investment will undermine margins.

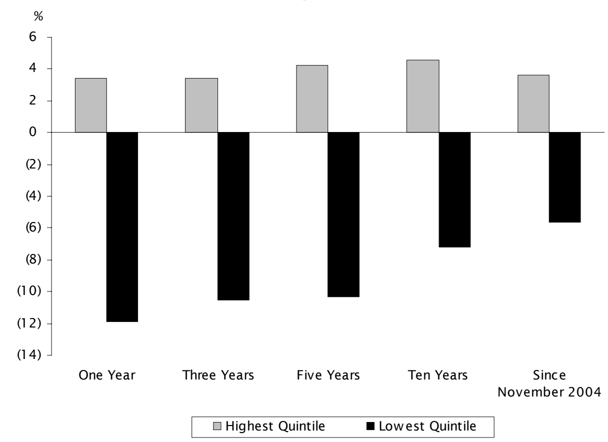
Exhibit 21: Large-Capitalization Growth Stocks[1]
Post-Dividend Free Cash Flow Margins
1972 Through May 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

[1]Excludes financials and utilities.

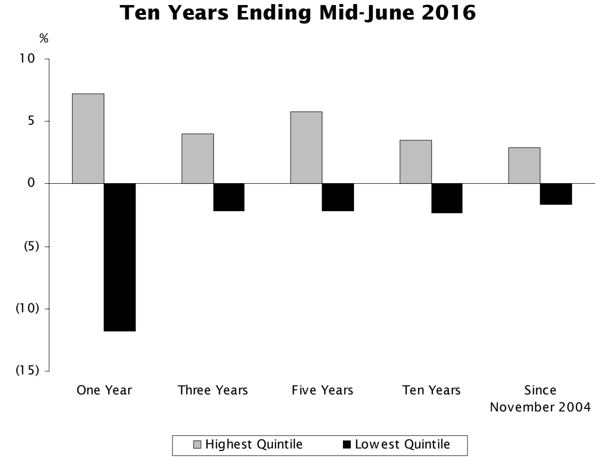
Exhibit 22: Large-Capitalization Growth Stocks
Relative Returns to the Highest and Lowest Quintiles of Gross Cash Flow-to-Net Capital Spending
Monthly Data Compounded to Annual Periods
Ten Years Ending Mid-June 2016



Source: Empirical Research Partners Analysis.

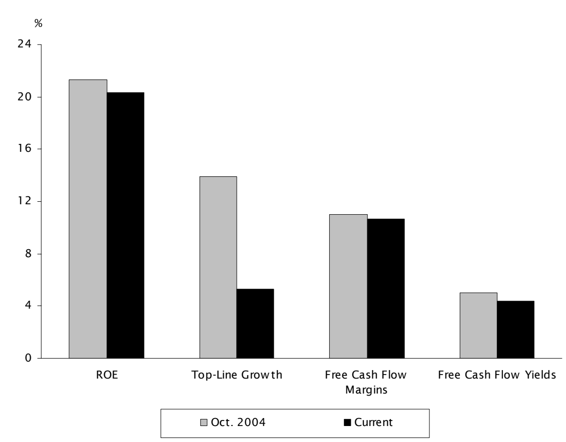
We remain confident in the Distrusted approach because the premises built into it still seem to be the right ones. Exhibit 24 presents the financial attributes of the Plebeian growth stocks, our universe excluding the 75 Big Growers, that were in place back in 2004 compared to those we see now. The ROEs and free cash flow margins have remained high for a dozen years while the growth rates have come down by a large amount. In other words, reinvestment risk has increased. In this methodology we seek out fundamentally-attractive growth stocks where the market is (over)discounting that risk, expecting that the retained earnings will be deployed in such a way as to produce little future growth. In addition high free cash flow yields are seen as a sign of financial flexibility.

Exhibit 23: Large-Capitalization Growth Stocks
Relative Returns to the Lowest and Highest Quintiles of the Change in Shares Outstanding
Monthly Data Compounded to Annual Periods
Ten Years Ending Mid-June 2016



Source: Empirical Research Partners Analysis.

Exhibit 24: Large-Capitalization Plebeian Growth Stocks
ROEs, Top-Line Growth Rates and Free Cash Flow Margins and Yields[1]
October 2004 and Mid-June 2016



Source: Empirical Research Partners Analysis.

[1]Equally-weighted data.

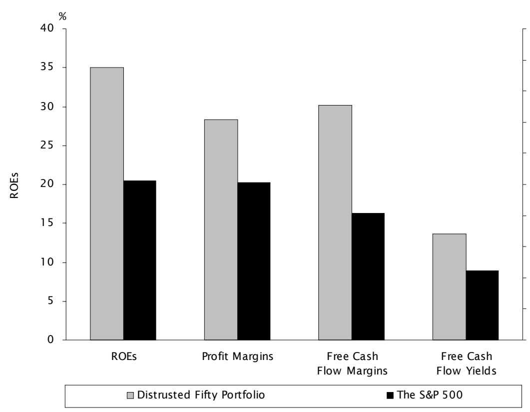
Conclusion: Aiming at the Middle Ground

Most growth stock investing involves looking out to the distant horizon. If a growth rate in the 20s is sustained it will eventually roll over the multiple, no matter what it is. Success involves riding winners and ruthlessly disposing of losers. The compounding produced by the best stories takes care of many mistakes if position sizing is right. More than in other strategies concentration is important here.

The Distrusted Fifty approach doesn't look out that far, but instead tries to capitalize on skepticism about the here and now. It aims at the middle ground, where managements have the opportunity to prove themselves less inept than the market has feared. Ultimately what's made it work is the sustainability of the free cash flow margins, as globalization and the use of technology, particularly on the plant floor, have thus far blunted the forces of regression to the mean.

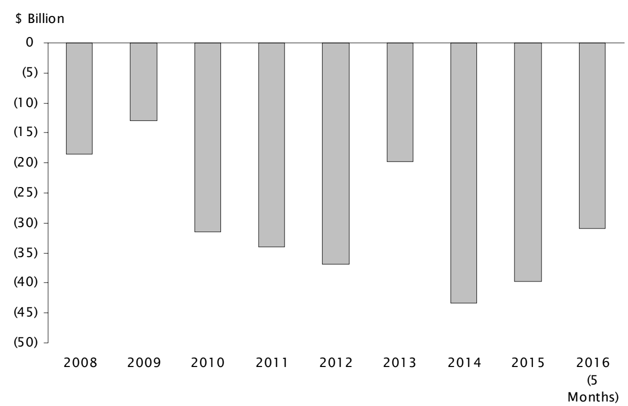
We remain optimistic about the prospects for this approach because the premises that underpin it remain intact. The portfolio combines high returns on capital and cash flow yields with a skepticism kicker (see Exhibit 25).

Exhibit 25: The Distrusted Fifty Portfolio and The S&P 500
Select Financial Metrics
As of Mid-June 2016



Source: Corporate Reports, Empirical Research Partners Analysis.

Exhibit 26: Large-Cap Growth Mutual Funds
Net Outflows
2008 Through May 2016



Source: Strategic Insight Simfund.

Finally there's the matter of capacity. The top 125 large-cap growth mutual funds have endured $(267) billion of net redemptions since 2008, a sum equal to almost 30% of their average assets over the period (see Exhibit 26). A portion of those flows went towards collective trusts and separate accounts managed by the same people, but the bulk of them were real. While in the Big Grower universe hedge funds have filled the void, we're not sure anyone has in the space the Distrusted Fifty operates in. We think that on balance a GARP strategy still has an edge.

We've made some changes to the Distrusted Fifty that are presented in Exhibit 27 while the entire portfolio is in Exhibit 28.

Exhibit 27: Changes to the Distrusted Fifty
Mid-June 2016

Symbol	Company	Price at Inclusion	Recent Price	Market Capitalization ($ Billion)	Rationale
Additions					
ESRX	EXPRESS SCRIPTS HOLDING CO	$42.43	$42.43	$47.2	Attractive
FFIV	F5 NETWORKS INC	118.56	118.56	7.9	Attractive
JAZZ	JAZZ PHARMACEUTICALS PLC	143.63	143.63	8.7	Attractive
SNI	SCRIPPS NETWORKS INTERACTIVE	63.97	63.97	8.2	Attractive
TDG	TRANSDIGM GROUP INC	259.46	259.46	13.7	Attractive
Deletions					
DISH	DISH NETWORK CORP	$35.11	$53.00	$24.6	Loss in model rank
GS	GOLDMAN SACHS GROUP INC	112.87	145.64	63.7	Better opportunity elsewhere
ROK	ROCKWELL AUTOMATION	78.95	116.70	15.2	Appreciation
TEL	TE CONNECTIVITY LTD	62.62	60.62	21.7	Better opportunity elsewhere
UNP	UNION PACIFIC CORP	73.98	87.58	73.7	Loss in model rank

Source: Empirical Research Partners Analysis.

Exhibit 28: The Distrusted Fifty
Large-Capitalization Growth Stocks With High Reinvestment Rates Discounting Relatively Low Secular Earnings Growth
Sorted by Capitalization
As of Mid-June 2016

				Quintile Ranks (1=Best; 5=Worst)										
				Super Factors										
				Management Behavior										
Symbol	Company	Price at Inclusion	Recent Price	Capital Deployment	Earnings Quality and Trend	Market Reaction	Valuation	Growth Model Rank	Forward-P/E Ratio	Rate of Earnings Reinvestment	Implied Earnings Growth Rate	Implied Earnings Growth/ Reinvestment Rate	Free Cash Flow Yield	Market Capitalization ($ Billion)
AAPL	APPLE INC	$13.24	$95.33	2	2	5	1	2	11.1 x	30 %	(0.4) %	NM	10.7 %	$522.3
GOOGL	ALPHABET INC	149.40	704.25	2	2	3	3	3	20.8	15	10.3	70 %	3.6	483.7
MSFT	MICROSOFT CORP	41.23	50.13	1	3	3	2	2	17.6	NM	4.8	NM	6.1	394.5
WFC	WELLS FARGO & CO	32.42	46.60	2	na	4	1	3	11.3	7	(1.3)	NM	na	236.6
PM	PHILIP MORRIS INTERNATIONAL	42.70	100.73	4	1	1	4	2	22.4	2	6.9	276	4.9	156.3
CMCSA	COMCAST CORP	54.67	62.37	4	4	3	2	3	17.6	11	6.4	58	6.6	151.4
PEP	PEPSICO INC	82.15	103.41	3	3	3	3	3	21.8	8	6.9	87	5.1	149.5
IBM	IBM CORP.	119.33	151.99	2	3	3	1	1	11.2	58	(1.5)	NM	10.9	145.9
TSM	TAIWAN SEMICONDUCTOR MFG CO	16.75	25.85	1	2	1	2	1	13.8	14	3.9	28	5.6	134.1
UNH	UNITEDHEALTH GROUP INC	74.70	137.69	2	5	3	2	4	17.4	12	6.4	52	5.7	131.4
GILD	GILEAD SCIENCES INC	20.12	82.65	1	1	4	1	1	6.8	97	(0.4)	NM	15.9	111.4
MMM	3M CO	77.21	168.94	3	2	2	3	3	20.4	18	5.9	32	5.0	102.5
ABBV	ABBVIE INC	55.65	60.01	1	2	2	2	1	12.5	68	1.1	NM	7.5	100.8
BA	BOEING CO	74.78	129.82	1	1	3	1	1	15.2	42	3.0	7	9.6	83.1
QCOM	QUALCOMM INC	73.87	53.55	1	1	3	1	1	12.6	6	1.6	26	8.6	78.7
ACN	ACCENTURE PLC	31.89	117.57	5	1	2	4	2	21.0	38	7.1	19	4.3	78.6
TXN	TEXAS INSTRUMENTS INC	59.28	61.62	3	1	2	4	2	20.7	15	6.2	41	5.9	62.0
AVGO	BROADCOM LTD	32.35	156.00	5	5	1	4	5	14.4	NM	4.4	NM	2.9	61.7
AXP	AMERICAN EXPRESS CO	20.04	61.86	1	na	5	2	3	11.1	18	(0.4)	NM	na	58.8
BIIB	BIOGEN INC	67.38	238.21	4	1	4	2	2	12.7	34	4.4	13	6.3	52.2
TJX	TJX COMPANIES INC	16.34	75.65	2	2	2	3	2	19.5	40	9.2	23	3.9	50.0
ADBE	ADOBE SYSTEMS INC	27.81	95.58	3	1	2	5	2	32.2	12	18.6	159	3.4	47.9
ESRX	EXPRESS SCRIPTS HOLDING CO	74.58	74.58	2	2	3	1	1	11.7	14	4.4	31	0.1	47.2
MCK	MCKESSON CORP	182.39	177.78	1	2	4	1	1	12.3	24	4.4	18	8.0	40.0
ITW	ILLINOIS TOOL WORKS	63.12	106.24	2	1	1	4	1	19.1	23	5.9	26	5.5	38.2
HAL	HALLIBURTON CO	55.14	44.11	1	5	4	4	5	NM	NM	12.3	NM	1.1	37.9
COF	CAPITAL ONE FINANCIAL CORP	42.77	64.19	1	na	5	1	1	8.5	6	(0.4)	NM	na	33.0
HCA	HCA HOLDINGS INC	81.95	77.43	2	3	3	1	1	11.8	29	4.4	15	8.8	30.5
EBAY	EBAY INC	25.75	23.79	1	3	4	1	1	12.7	15	4.4	NM	6.8	27.3
STT	STATE STREET CORP	29.97	57.94	2	na	5	1	2	12.1	6	2.7	43	na	22.9
DFS	DISCOVER FINANCIAL SERVICES INC	43.74	52.80	1	na	3	1	1	9.3	16	(0.4)	NM	na	21.9
MCO	MOODY'S CORP	28.63	96.69	3	1	4	3	2	20.9	NM	7.6	NM	5.5	18.8
TROW	PRICE (T. ROWE) GROUP	65.36	71.37	1	na	4	2	3	15.5	13	3.4	25	na	17.7
CHKP	CHECK POINT SOFTWARE TECHNOLOGIES	34.41	81.15	4	1	3	2	2	18.7	19	9.1	47	6.9	14.2
TDG	TRANSDIGM GROUP INC	259.46	259.46	4	1	2	3	2	22.0	43	12.3	29	0.0	13.7
LRCX	LAM RESEARCH CORP	82.66	82.89	1	2	2	1	1	12.4	11	4.4	40	7.8	13.2
WDC	WESTERN DIGITAL CORP	18.87	46.59	1	3	5	1	1	10.8	4	(2.2)	NM	11.7	13.1
CTXS	CITRIX SYSTEMS INC	69.68	83.81	2	1	1	1	1	16.8	18	7.7	43	7.1	13.0
HOT	STARWOOD HOTELS & RESORTS WORLDWIDE	53.24	73.90	2	1	2	3	1	24.5	16	5.8	36	5.1	12.5
ADS	ALLIANCE DATA SYSTEMS CORP	152.77	207.22	2	1	5	1	2	12.3	30	4.4	15	13.0	12.2
WAT	WATERS CORP	47.00	134.02	2	2	2	3	2	21.0	24	10.3	43	4.3	10.8
WYNN	WYNN RESORTS LTD	137.30	103.19	5	2	2	4	3	28.3	73	7.7	11	(9.5)	10.5
VRSN	VERISIGN INC	56.47	84.35	1	1	2	2	1	24.0	38	12.3	32	6.8	9.2
JAZZ	JAZZ PHARMACEUTICALS PLC	143.63	143.63	2	1	3	2	1	12.7	23	4.4	19	6.4	8.7
SNI	SCRIPPS NETWORKS INTERACTIVE	63.97	63.97	3	3	1	1	1	12.3	43	4.4	10	9.8	8.2
FFIV	F5 NETWORKS INC	118.56	118.56	5	1	2	3	2	16.1	28	6.9	24	7.8	7.9
WYN	WYNDHAM WORLDWIDE CORP	61.65	70.12	1	1	4	1	1	12.3	39	2.4	6	10.1	7.9
BBBY	BED BATH & BEYOND INC	67.34	43.85	1	4	5	1	1	8.4	32	(0.4)	NM	10.0	6.9
KSS	KOHL'S CORP	49.76	36.35	1	4	5	1	2	9.1	4	(3.0)	NM	12.2	6.7
SPR	SPIRIT AEROSYSTEMS HOLDINGS	54.55	44.43	3	3	4	1	3	9.9	40	(0.4)	NM	10.0	5.9
Average									15.7 x	26 %	4.8 %	19 %	6.5 %	
All Other Large-Cap Stocks									18.4 x	5 %	6.7 %	139 %	3.6 %	

Source: Empirical Research Partners Analysis.

Appendix 1: Large-Capitalization Technology Stocks
Options Expense as a Share of Reported Free and Gross Cash Flow
Four Quarters Ending Q1 2016

Symbol	Name	Price	Options Expense Relative to: Free Cash Flow	Options Expense Relative to: Gross Cash Flow	Forecast Long-Term Earning Growth	Failure Model Rank (1= Best Decile 10=Worst Decile)	Forward-P/E Ratios	Market Capitalization ($ Billion)
Big Growers								
SPLK	SPLUNK INC	$58.01	278 %	195 %	41 %	10	119.6 x	$7.7
N	NETSUITE INC	77.94	230	109	17	10	166.5	6.3
LNKD	LINKEDIN CORP	191.33	185	62	24	10	55.4	25.8
ULTI	ULTIMATE SOFTWARE GROUP	205.78	156	79	24	9	61.5	5.9
WDAY	WORKDAY INC	79.30	149	86	38	10	NM	15.6
NOW	SERVICENOW INC	73.68	116	84	43	10	115.2	12.0
PANW	PALO ALTO NETWORKS INC	129.96	68	60	38	10	56.2	11.6
MBLY	MOBILEYE N V	36.82	47	45	41	10	52.7	8.1
FB	FACEBOOK INC	114.39	45	30	35	7	31.1	327.2
CRM	SALESFORCE COM INC	81.64	39	33	25	6	61.4	55.3
CSGP	COSTAR GROUP INC	210.23	29	24	18	6	50.6	6.8
AKAM	AKAMAI TECHNOLOGIES INC	53.71	28	15	14	6	19.8	9.5
NXPI	N X P SEMICONDUCTORS N V	86.13	27	20	23	10	15.4	29.8
RHT	RED HAT INC	76.97	25	23	18	7	29.5	14.0
TYL	TYLER TECHNOLOGIES INC	154.55	22	17	18	9	45.0	5.6
ADBE	ADOBE SYSTEMS INC	97.19	21	19	22	9	32.8	48.7
AVGO	BROADCOM LTD	158.63	20	16	15	10	14.4	62.7
PYPL	PAYPAL HOLDINGS INC	36.97	17	13	17	8	24.6	44.8
SWKS	SKYWORKS SOLUTIONS INC	64.78	16	10	19	6	11.3	12.3
EA	ELECTRONIC ARTS INC	75.00	16	15	11	8	18.7	22.6
IT	GARTNER INC	100.14	15	13	15	7	35.5	8.3
CTSH	COGNIZANT TECHNOLOGY SOLS CORP	59.71	11	10	14	7	17.6	36.2
ATVI	ACTIVISION BLIZZARD INC	39.03	10	9	13	7	21.1	28.8
CHKP	CHECK POINT SOFTWARE TECHS LTD	81.70	8	8	10	6	18.7	14.3
ADS	ALLIANCE DATA SYSTEMS CORP	206.55	5	5	14	1	12.3	12.2
APH	AMPHENOL CORP NEW	58.31	5	4	9	9	22.3	18.0
GPN	GLOBAL PAYMENTS INC	74.54	3	3	18	5	21.5	11.5
MELI	MERCADOLIBRE INC	135.47	0	0	27	7	50.9	6.0
Plodders								
TWTR	TWITTER INC	$15.87	566 %	143 %	53 %	10	29.6 x	$11.1
DATA	TABLEAU SOFTWARE INC	54.44	162	102	33	10	98.3	4.1
YHOO	YAHOO INC	37.39	105	50	na	7	74.2	35.5
ADSK	AUTODESK INC	56.77	50	41	15	9	NM	12.8
ARRS	ARRIS INTERNATIONAL PLC	23.06	47	35	na	6	8.8	4.4
FTNT	FORTINET INC	33.37	42	34	19	5	47.1	5.7
IAC	IAC INTERACTIVECORP	53.75	38	31	18	3	17.4	4.3
QRVO	QORVO INC	54.81	37	20	15	2	9.9	7.0
JNPR	JUNIPER NETWORKS INC	22.97	35	26	10	3	11.3	8.9
NUAN	NUANCE COMMUNICATIONS INC	16.28	35	31	16	2	10.4	4.5
VMW	VMWARE INC	61.07	32	28	14	5	14.6	25.9
GOOGL	ALPHABET INC	724.25	31	20	18	8	21.4	497.4
NTAP	NETAPP INC	24.47	28	27	9	1	10.3	7.1
SSNC	S S & C TECHNOLOGIES HLDGS INC	57.97	27	25	13	8	17.9	5.9
EMC	E M C CORP MA	27.68	27	22	11	3	15.3	54.1
BBRY	BLACKBERRY LTD	6.91	26	23	0	3	NM	3.6
CDNS	CADENCE DESIGN SYSTEMS INC	24.40	26	23	9	7	20.1	7.3
FFIV	F 5 NETWORKS INC	119.03	25	23	13	4	16.1	8.0
INTU	INTUIT INC	106.49	22	16	18	6	25.9	27.3
ANET	ARISTA NETWORKS INC	72.51	22	20	22	8	25.0	5.0
ACN	ACCENTURE PLC	118.30	21	18	11	7	21.4	79.0
EBAY	EBAY INC	23.85	20	16	7	4	12.8	27.4
NVDA	NVIDIA CORP	47.55	19	17	10	6	29.6	25.4
SNPS	SYNOPSYS INC	52.52	17	15	9	5	17.2	8.0
CTXS	CITRIX SYSTEMS INC	84.42	17	14	16	4	17.0	13.1
XLNX	XILINX INC	46.84	16	15	7	8	20.1	11.9
TRMB	TRIMBLE NAVIGATION LTD	26.30	16	14	14	4	21.5	6.6
TDC	TERADATA CORP DE	27.23	16	14	10	2	11.3	3.5
AMAT	APPLIED MATERIALS INC	23.69	15	13	15	5	14.7	25.8
QCOM	QUALCOMM INC	53.42	15	14	12	3	12.5	78.5
FLIR	FLIR SYSTEMS INC	31.25	15	11	15	7	19.2	4.3
LRCX	LAM RESH CORP	82.67	14	12	15	3	12.3	13.2
AVT	AVNET INC	41.98	14	10	2	3	9.4	5.4
BAH	BOOZ ALLEN HAMILTON HOLDING CORP	28.71	14	10	9	8	15.6	4.2
SYMC	SYMANTEC CORP	19.78	14	11	10	3	14.4	12.2
KEYS	KEYSIGHT TECHNOLOGIES INC	29.49	13	10	na	9	11.9	5.0
SABR	SABRE CORP	26.99	13	6	19	9	18.3	7.5
CDK	C D K GLOBAL INC	55.58	13	11	15	7	26.6	8.6
STX	SEAGATE TECHNOLOGY PLC	22.69	13	8	na	1	11.8	6.8

Source: Empirical Research Partners Analysis.

Appendix 1 (cont.): Large-Capitalization Technology Stocks
Options Expense as a Share of Reported Free and Gross Cash Flow
Four Quarters Ending Q1 2016

Symbol	Name	Price	Options Expense Relative to: Free Cash Flow	Gross Cash Flow	Forecast Long-Term Earning Growth	Failure Model Rank (1= Best Decile 10=Worst Decile)	Forward-P/E Ratios	Market Capitalization ($ Billion)
Plodders (cont.)								
HPQ	H P INC	$12.98	12 %	8 %	1 %	1	8.1 x	$22.2
LLTC	LINEAR TECHNOLOGY CORP	47.70	12	12	7	7	22.3	11.4
FLEX	FLEXTRONICS INTERNATIONAL LTD	12.97	12	7	14	2	10.4	7.1
MANH	MANHATTAN ASSOCIATES INC	65.14	12	11	15	9	37.0	4.7
BR	BROADRIDGE FINANCIAL SOLUTNS INC	64.46	12	10	11	6	21.1	7.6
CSCO	CISCO SYSTEMS INC	28.87	12	11	9	3	12.0	145.3
G	GENPACT LTD	27.18	12	9	12	7	19.0	5.7
FLT	FLEETCOR TECHNOLOGIES INC	144.05	12	11	17	6	21.6	13.3
INTC	INTEL CORP	31.69	12	7	8	2	13.2	149.6
MCHP	MICROCHIP TECHNOLOGY INC	52.05	11	10	10	7	14.2	11.2
MSFT	MICROSOFT CORP	50.39	11	8	8	3	17.7	396.6
MSI	MOTOROLA SOLUTIONS INC	67.80	11	9	7	9	15.0	11.8
WDC	WESTERN DIGITAL CORP	46.42	11	8	na	2	10.8	13.1
IPGP	I P G PHOTONICS CORP	84.11	11	7	19	8	18.0	4.5
MXIM	MAXIM INTEGRATED PRODUCTS INC	37.08	10	10	10	4	19.3	10.5
CA	C A INC	32.98	10	9	3	3	12.6	13.9
ANSS	ANSYS INC	87.97	10	9	10	7	24.6	7.7
FIS	FIDELITY NATIONAL INFO SVCS INC	73.76	9	8	12	7	19.3	24.1
ADP	AUTOMATIC DATA PROCESSING INC	88.03	9	8	11	8	24.2	40.2
COMM	COMMSCOPE HOLDING CO INC	32.34	9	8	11	10	13.0	6.2
TEL	T E CONNECTIVITY LTD	60.28	9	6	12	6	14.6	21.6
ORCL	ORACLE CORP	38.64	8	7	7	3	12.8	160.6
CDW	C D W CORP NEW	40.80	8	7	8	5	12.4	6.8
ADI	ANALOG DEVICES INC	56.90	8	7	8	8	19.9	17.5
TSS	TOTAL SYSTEM SERVICES INC	52.35	8	7	13	4	18.4	9.6
TXN	TEXAS INSTRUMENTS INC	62.06	8	7	9	6	20.9	62.5
VRSN	VERISIGN INC	85.14	8	7	10	5	24.2	9.3
DOX	AMDOCS LTD	56.98	7	6	10	5	15.7	8.5
AAPL	APPLE INC	97.55	7	6	10	2	11.4	534.4
ARW	ARROW ELECTRONICS INC	66.00	7	5	12	2	9.7	6.0
KLAC	K L A TENCOR CORP	72.79	7	6	6	4	15.4	11.3
FISV	FISERV INC	106.28	6	5	12	5	23.8	23.7
OTEX	OPEN TEXT CORP	58.58	5	5	7	5	15.6	7.1
GLW	CORNING INC	20.11	5	2	11	3	14.6	21.6
HRS	HARRIS CORP	81.99	5	4	na	3	14.0	10.2
VNTV	VANTIV INC	53.02	5	4	15	5	20.0	8.3
WU	WESTERN UNION CO	18.80	4	4	7	3	11.5	9.2
PAYX	PAYCHEX INC	54.90	4	3	10	6	24.7	19.8
JKHY	HENRY JACK & ASSOC INC	83.83	3	3	12	6	27.4	6.6
V	VISA INC	78.35	3	3	16	9	26.4	186.9
IBM	INTERNATIONAL BUSINESS MACHS COR	151.06	3	2	1	3	11.2	145.0
GIB	GROUPE C G I INC	45.27	3	3	11	4	16.8	13.7
IM	INGRAM MICRO INC	34.88	3	2	na	1	14.0	5.2
XRX	XEROX CORP	9.70	3	2	8	1	8.8	9.8
CSRA	C S R A INC	23.04	2	2	10	2	11.0	3.8
MA	MASTERCARD INC	94.08	1	1	16	9	26.3	103.7
CSC	COMPUTER SCIENCES CORP	51.00	0	0	13	2	14.9	7.1
MRVL	MARVELL TECHNOLOGY GROUP LTD	10.31	0	0	na	1	22.9	5.3
MU	MICRON TECHNOLOGY INC	11.95	NM	4	na	1	22.7	12.4
JBL	JABIL CIRCUIT INC	18.78	NM	9	12	1	9.6	3.6
FSLR	FIRST SOLAR INC	48.39	NM	41	na	5	11.3	4.9
HPE	HEWLETT PACKARD ENTERPRISE CO	18.66	NM	22	5	1	9.8	32.2

Source: Empirical Research Partners Analysis.