EQUITY RESEARCH

RBC Capital Markets

RBC Capital Markets, LLC
Mark S.F. Mahaney (Analyst)
(415) 633-8608
mark.mahaney@rbccm.com
Jim Shaughnessy (Analyst)
(415) 633-8560
jim.shaughnessy@rbccm.com
Dylan Haber (Senior Associate)
(415) 633-8527
dylan.haber@rbccm.com
Zachary Schwartzman (Associate)
(415) 633-8651
zachary.schwartzman@rbccm.com

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2018 U.S. Internet Sector Outlook

2017 – A Year Of Continued 'Net Outperformance – Large Cap 'Nets rose 26% on average, nicely beating the market, with the FANG stocks (FB, AMZN, NFLX and GOOGL) surging 45%. Over the last 3 years, the highest quality Large Cap U.S. Nets (PEFANG, including PCLN and EXPE), have returned an average 142%, almost 5X that of the S&P 500. Wow. But that's the past. Let's look forward.

Heading Into 2018: Three Constants, One Change… First Constant: Revenue Growth Trends for the highest quality names have been extremely consistent – 18 straight quarters of 50%+ growth for FB, 20+ quarters of 35% growth for NFLX, 31 quarters of 20% organic revenue growth for GOOGL, and approx. 60 quarters of 20% retail revenue growth for AMZN. Advertiser & user surveys (FB & GOOGL), still very limited Online Penetration (AMZN & NFLX), and pricing power (NFLX) suggest Revenue growth will remain robust in '18. Exception has been the OTAs, which have seen recent Growth Slowdown, tho we that view as temporary. **Second Constant: Multiples for the highest quality names have been extremely consistent** – Forward EV/EBITDA Multiples have either held or declined for the PEFANG stocks over the last three years. Which means material stock outperformance has been almost entirely EPS driven. Which means lots of downside protection. We think the term **Internet Staples** captures the First & Second Constants. **Third Constant: Investment Levels remain high** – AMZN, GOOGL, FB, etc… continue to invest aggressively into new growth areas (AI/ML, International, Video, VR, etc…). Only NFLX likely to show material Margin Expansion in '18. **One Change: Government Footsteps…**

10 Key 'Net Growth Factors For 2018: 1) More Mobile: For many Internet companies, Mobile as a channel is now over half of traffic, usage, revenue, bookings. Don't hold your breath waiting for the SNAP desktop site… **2) Social Ubiquity**: User AND Advertiser adoption of Social Media platforms continues to rise; FB alone has ~2.1B unique users on a monthly basis, more than a quarter of the world's population. **3) Video-ification Of The 'Net:** The % of content consumed and ads delivered via the Internet that is Video in format has grown dramatically. A major investment area for AMZN and, of course, NFLX. **4) AI & ML:** Artificial Intelligence & Machine Learning. Both are being increasingly deployed by companies with access to massive data sets and massive computing power. GOOGL, for example. **5) Speedy Delivery…** Raising the performance and the cost bars for competing Online, as consumers increasingly expect expedited shipping. Same Day AMZN. **6) Cloud Computing…** Which will likely continue to grow rapidly for some time to come and now drives half of AMZN's profits.. AWS anyone? **7) Cash Pile Up & M&A Fever:** As the large 'Nets have grown, so too have their cash (and equity) balances. We are likely to see more large acquisitions (e.g. Whole Foods) and more cash returned to investors (EBAY, PCLN, GOOGL, FB, EXPE). **8) Voice-ification of the 'Net: "**Ok, Google, what percentage of Mobile Search queries are voice?" Over 20%. More friction removed, as the 'Net extends into the Car & the Kitchen…and into Developing Markets. **9) Government Footsteps…** This is the rising risk to the leading Internet Platforms. Unlikely to impact revenue, but potentially impacting opex – Security partly driving 45%-60% '18 increase in FB's opex. **10) Blockchain…** We'd be remiss if we failed to mention Blockchain Technology's potential implications for highly fragmented, large TAMs. **Biggest derivatives from these Ten Trends? AMZN, GOOGL, BABA, FB.**

Top Large Cap Longs For 2018: 1) FB ($230 PT): FB's current low market shares – approximately 15% of Global Online Advertising & 5% of Global Total Advertising – will help it maintain premium growth for a long time. FB also offers one of the sector's most attractive growth-adjusted valuation – 25X P/E for 30%+ EPS growth. **2) NFLX** ($250 PT): 20+ straight quarters of 35% Y/Y Streaming Revenue growth. The NFLX Long Thesis remains fully intact. & **3) AMZN** ($1,200 PT): Of the Large Cap Nets, AMZN stands the most to benefit from the Top Ten Themes we have identified for 2018.

Top Small Cap Longs: 1) YELP ($55 PT); 2) TRUE ($18 PT); & 3) ZG ($51 PT).

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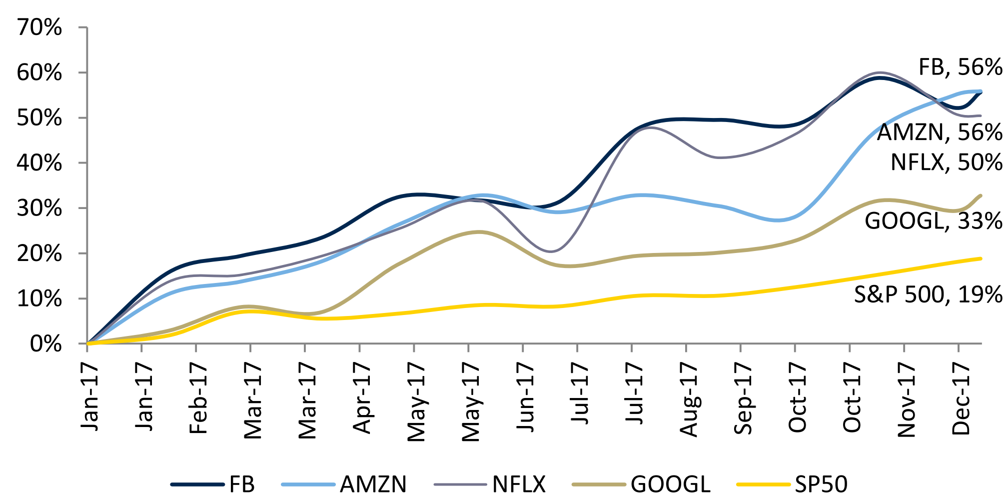
2017 The Continued Run Of FANG

While 2016 had a balanced year among the large caps, 2017 once again saw leadership by the FANG stocks (FB, AMZN, NFLX and GOOGL). In our large cap coverage, BABA was the sole stock that that outperformed FANG. But it was still a strong year for the large caps as a whole. In total, 8 of the 12 Large Cap Net stocks outperformed the market in 2017, while 4 underperformed. Meanwhile, a select group of Small Caps also had a strong 2017 as 7 of our 18 stocks outperformed the S&P for the year. More so, all 7 delivered a return north of 30% on the year.

In The Large Cap Universe, FANG Continued Its Run in 2017

While 2016 was mostly balanced across the Large Caps space, 2017 was led by BABA and FANG (collectively, these five stocks returned +55% on average vs. the Sector's median return of 26%). While these moves were notable, it was not a complete Déjà Vu of 2015 when FANG collectively returned +83% on average vs. the Sector's median return of +15%. On the whole, Large Cap 'Nets outperformed the S&P in 2017, growing 26% Y/Y vs. 17% and in-line with the NASDAQ at 26% Y/Y. Eight out of the twelve Large Caps in our coverage outperformed – **BABA** (+92%), **AMZN** (+52%), **FB** (+50%), **NFLX** (+49%), **GOOGL** (+29%), **TWTR** (+27%), **EBAY**, (+24%) and **PCLN** (+18%) while four underperformed. Of the four underperformers, there were a few that stood out, specifically **SNAP** (-39% since its IPO), **TRIP** (-26%) and **AKAM** (-15%). We note that for the first time in four years, TWTR was not the worst performing Large Cap.

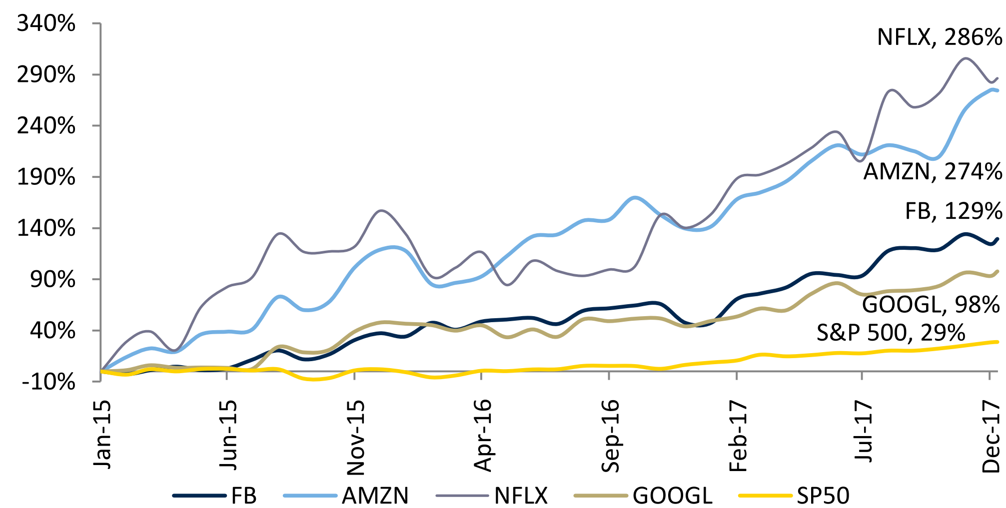
Exhibit 1: FANG return vs. S&P 500, 2017



Source: RBC Capital Markets, FactSet (Priced as of December 10th, 2017)

What is especially impressive about the FANGs is how materially they have outperformed the market for three years in a row now. On a cumulative basis since the beginning of 2015, while the S&P 500 has returned 29%, GOOGL has returned 98%, FB has returned 129%, AMZN has returned 274%, and NFLX has returned 286%.

Exhibit 2: FANG return vs. S&P 500, last three years



Source: RBC Capital Markets, FactSet (Priced as of December 10th, 2017)

Comparing the Large Cap 'Nets stock performance vs. the S&P 500 and NASDAQ, we see that **the Large Cap Internet space has significantly outperformed the market on both a 5-year basis** (returning a median of 178% vs. the S&P's 84%) **and a 3-year basis** (returning a median of 56% on average vs. the S&P's 28%). In terms of 5-year returns, 2/3rds of our Large Caps that have been public for over five years has outperformed S&P – NFLX (+1,293%...yes you're reading that correctly), FB (+549%), AMZN (+355%), GOOGL (+188%) and PCLN (+178%) stand out relative to the S&P's 84% return and the NASDAQ's 124% return. On a 3-year basis, NFLX (277%), AMZN (+268%), FB (+122%) and GOOGL (+92%) performed best relative to the S&P's 28% return and the NASDAQ's 43% return, while TRIP (-54%), TWTR (-42%) and AKAM (-10%) notably underperformed. **At a high level, 8 of the 11 Large Cap Internet stocks in our coverage that have traded for three years have outperformed. These performances continue to highlight how successful the Internet sector has been as an investment vehicle over the past several years relative to other segments of the market.**

Exhibit 3: Price, Yearly Returns, and Market Cap of the Large Cap Internet Stocks

Large Caps Ticker	Current Price	Market Cap (MM)	5-Year Return	3-Year Return	2016 Return	2017 Return
BABA	$168.96	$430,693	--	63%	8%	92%
AMZN	$1,141.57	$549,310	355%	268%	11%	52%
FB	$172.83	$501,396	549%	122%	10%	50%
NFLX	$184.21	$79,765	1293%	277%	8%	49%
GOOGL	$1,019.60	$705,188	188%	92%	2%	29%
TWTR	$20.77	$15,435	--	-42%	-30%	27%
EBAY	$36.81	$38,430	71%	56%	8%	24%
PCLN	$1,724.88	$83,957	178%	51%	15%	18%
EXPE	$120.77	$18,447	97%	41%	-9%	7%
AKAM	$56.44	$9,543	38%	-10%	27%	-15%
TRIP	$34.39	$4,776	-18%	-54%	-46%	-26%
SNAP	$14.94	$18,051	--	--	--	-39%
Average	--	--	306%	79%	0%	22%
Median	--	--	178%	56%	8%	26%
S&P 500	$2,629.57	--	84%	28%	10%	17%
NASDAQ	$6,762.21	--	124%	43%	8%	26%

Source: RBC Capital Markets, FactSet (Priced as of 4:00 pm ET, December 5th, 2017)

Best 2017 Large Cap Outperformers – BABA, AMZN, FB, and NFLX

BABA (+92%) – Alibaba had a very strong 2017, following an in-line 2016. The stock beat Revenue and EBITDA all four quarters it reported in 2017. Core Commerce and the hyper-growth of Cloud (while approaching profitability) led the stock higher. Our basic thesis on BABA remains threefold: 1). BABA is a great play on the dramatic secular growth that is China (China per capita GDP growth faster than U.S. and still 1/7th the size); 2) BABA is a great play on the dramatic secular growth that is the Internet; and 3) Management's long-term focus and excellent execution arguably makes BABA the single best play on points 1 & 2.

AMZN (+52%) – Amazon started the year with mixed Q4 results, with light Retail Revenue results and a miss in AWS results for the first time. From there, Q1 results came in above estimate across the board, and the stock rallied into Q3 earnings. While 2017 was chalked up as another investment year, continued strong top line results kept investors satisfied. Moreover, a new phrase found its way into business vernacular… "Getting Amazon'd". Industries such as Consumer, Retail, Business Services, and even Pharmaceuticals have awoken to Amazon's broad reach. Amazon's acquisition of Whole Foods, Cloud and Retail Revenue accelerations were the tales of the tape this year. We continue to believe Amazon may have the strongest long-term growth outlook among the Internet Staples, as it faces the largest Total Addressable Markets.

FB (+50%) – Facebook had a flurry of Beat & Raises throughout the year. Engagement (DAU/MAU ratio) hovered around 66% through the year, and Mobile continued to drive overall growth. We still see dramatic opportunities for FB to monetize its messaging platforms (FB Messenger and Whats App). Moreover, according to our Social Media Butterflies surveys, Instagram showed the strongest trends and momentum throughout 2017 across all social media platforms. Despite the high OpEx guidance for 2018 (45%-60% Y/Y), driven by investments in AI, Video Content, and Security, Facebook continues to be one of our top Large Cap picks heading into 2018.

NFLX (+49%) – Content (along with Distribution) is King. And Netflix took a step closer to claiming the Throne this year. Why? Well, there are a 100 Million Reasons! 2017 sub adds likely will surpass 2016 sub adds. What about the bear thesis of U.S. reaching saturation, investors asked? U.S. sub adds largely beat expectations this year. And International? Well, International continued to beat expectations, and by Q2 surpassed Domestic in terms of the total subscriber base. And those International losses? Well, those turned into profits in Q2. The Q3 International contribution margin of 5% was a record high, with a Q4 outlook for an improved 7%. And we conservatively expect International margins to ramp to 10% in '18, 15% in '19, and 20% in 20. Further, our surveys showed record high penetration levels, incrementally positive satisfaction levels, low churn, and no significant reactions to recent price increases. We drop the remote…

Biggest Large Cap Underperformers – AKAM, TRIP, and SNAP

AKAM (-15%) – AKAM's year has been challenging as Media Delivery Revenue deteriorated throughout the year. Moreover, margins remained under pressure throughout the year. While AKAM continues to diversify its revenue base, we believe the deceleration in non-IP revenue will continue to challenge growth (and margins) over the near-medium term. The six major internet platforms, the IP6, (Amazon, Apple, Facebook, Google, Microsoft & Netflix), have been shifting CDN spend to DIY solutions and away from AKAM. We will be watching to see if AKAM can recover to double digit revenue growth in 2018.

TRIP (-44%) – TRIP's struggles continued in 2017 and were due to the revenue dilution caused by two major events happening at the company. First, there is the ongoing shift to mobile devices, which TRIP monetizes at around 30% the level of Desktop. In addition, increased Brand Ad Spend ($70-80MM in TV) and Performance Marketing Spend weighed on margins while Revenue still largely missed expectations. While Non-Hotel Revenue remains a bright spot for TRIP, it still accounts for less than 25% of Total Revenue. Q3 fundamentals were weak, with material Revenue Growth deceleration and significant EBITDA Margin decline. We believe leveraging a world-class platform to improve monetization was the right decision strategically, but changing consumer behavior and long-term entrenched habits takes time and significant investment. Television provides distribution but carries a long payback period and an uncertain outcome.

SNAP (-39%) – Snapchat was the largest IPO in our coverage universe this year. SNAP priced at $17 per share on March 2. Expectations were high leading into its first print, and shares collapsed 24% on the Q1 print. Throughout the year, DAU's fell short of expectation each quarter, and downward estimate revisions were the theme in its first year as a public company. In the recent quarter, management did not detail any metrics highlighting engagement improvement. While SNAP remains a top social media platform among the younger demographic cohorts, according to our surveys, continued revenue shortfalls lead investors to believe there was less visibility into SNAP's business than initially thought. SNAP is undergoing a UI design to improve the business this quarter, and we will be watching to see trends improve, and if the company can grow its user base outside its core (ROW, Android, and older demographics).

Select Small Cap Outperformance

Following a strong 2016 across the board for Small Caps, a select group of 7 'Net Small Caps outperformed the S&P in 2017. All seven of these returned greater than 30% on the year. The four biggest outperformers in the group were ROKU, TREE, TRUP, and TTD, which returned 215% (post IPO), 201%, 85%, and 63%, respectively. **In terms of the underperformers, YEXT dropped 5% following its IPO, and TRUE, SFLY, APRN (post IPO) and P dropped 10%, 11%, 62%, and 64%, respectively.** We note that for the second year in a row (but unlike prior years), there were no material acquisitions across our Small Cap coverage in 2017. Overall, the Small Cap Median returned 12% in 2017, underperforming the S&P 500 and the NASDAQ of 17% and 26% Y/Y, respectively.

Over the last 3 and 5 years, stocks within our Small Cap Internet coverage exhibited a great deal more volatility than Large Caps – many have not even been public for 5 years…or 3 years. In terms of 5-year returns, only TREE (+1,593%), ZG (+366%) and YELP (+128%) have outperformed the S&P (+84%) or NASDAQ (+124%), while SFLY (+49%) and P (-48%) have underperformed these indices. On a 3-year basis, three companies have managed to outperform the S&P's 28% return: TREE (531%), TRUP (+314%) and WIX (60%). On the other side of the spectrum, six companies (6 of the 9 that have been public for 3 years) have underperformed the market with four declining: P (-73%), TRUE (-51%), QUOT (-34%), and YELP (-22%). **At a high level, 2 of the 5 Small-Cap Internet stocks that have traded for five years have materially underperformed the S&P and NASDAQ, and a majority of the Small Cap Internet stocks that have traded for three years have underperformed the market. That said, the few that have outperformed, have materially done so. Simply put, Small Cap Internet is a minefield.**

Exhibit 4: Price, Yearly Returns, and Market Cap of the Small Cap Internet Stocks

Large Caps Ticker	Current Price	Market Cap (MM)	5-Year Return	3-Year Return	2016 Return	2017 Return
TREE	$305.20	$3,653	1593%	531%	14%	201%
TRUP	$28.72	$863	--	314%	59%	85%
ROKU	$39.45	$3,955	--	--	--	63%
TTD	$45.07	$1,819	--	--	--	63%
ETSY	$18.19	$2,214	--	--	43%	54%
SFIX	$22.97	$1,992	--	--	--	52%
GDDY	$46.09	$5,911	--	--	9%	32%
WIX	$52.20	$2,423	--	149%	96%	17%
YELP	$42.90	$3,556	128%	-22%	32%	13%
ZG	$40.32	$7,419	366%	22%	40%	11%
QUOT	$11.65	$1,081	--	-34%	58%	8%
CARG	$30.56	$3,200	--	--	--	7%
RDFN	$24.73	$2,010	--	--	--	5%
YEXT	$12.71	$1,160	--	--	--	-5%
TRUE	$11.29	$1,133	--	-51%	31%	-10%
SFLY	$44.45	$1,459	49%	7%	13%	-11%
APRN	$3.76	$696	--	--	--	-62%
P	$4.75	$1,194	-48%	-73%	-3%	-64%
Average	--	--	417%	94%	36%	26%
Median	--	--	128%	7%	32%	12%
S&P 500	$2,629.57	--	84%	28%	10%	17%
NASDAQ	$6,762.21	--	124%	43%	8%	26%

Source: RBC Capital Markets, FactSet (Priced as of 4:00 pm ET, December 7th, 2017)

Best Small Cap Outperformers – TREE, TRUP, TTD

TREE (+201%) – TREE had a stellar year of outperformance in 2017, backed by very solid fundamental trends, which drove material estimate revisions and multiple expansion. TREE shares steadily grinded upward throughout the year (especially post very strong Q1 results) on the back of materially improving fundamentals, including accelerating Mortgage Revenue Strength, robust non-Mortgage Revenue growth, and record high Adjusted EBITDA margins. We continue to view TREE as a leading Online Consumer Finance Marketplace with a large & underpenetrated TAM, very strong secular tailwinds and a very consistent financial track record.

TRUP (+85%) – Shares of TRUP showed large gains (notably in H2:17) driven by six straight quarters of profitability and solid revenue trends. The company has continued to execute on its IPO plan laid out three years ago with very consistent results (net pet adds, ARPU growth and financial performance). The strong performance YTD follows a similarly strong 2016 (+59%) and 2015 (+41%) as the evidence continues to mount that TRUP can address, and execute against, a very large TAM. TRUP narrowed its recent Q4 EBITDA guidance as it steps up investments to drive long-term growth. We are proponents of TRUP's initiatives; though acknowledge they come with increased execution risk. We believe TRUP has the characteristics of a high-growth, subscription-based 'Net company and benefits from a nicely recurring model in an underpenetrated market.

TTD (+63%) – Shares of TTD grinded higher each quarter in 2017 until the recent Q3 report. From Q416 through Q317 EPS, TTD posted strong EPS, Revenue and EBITDA results that consistently beat Street estimates, which included guidance raises. However, in Q3, The Trade Desk did not raise its Q4 guidance despite a solid beat across the board. Thus, the recent pullback in the stock. However, we believe the thesis is largely intact. Customer retention has remained 95%+ for the past 15 quarters. We believe tempered EBITDA expectations are appropriate, as TTD invests heavily, but prudently, in major growth initiatives such as OTT, International, etc. This is a reason TTD's market share of Programmatic Advertising has risen materially over the past four years...

Biggest Small Cap Underperformers – SFLY, APRN, P

SFLY (-11%) – 2017 was somewhat of a transition year for SFLY. Though up initially, Q4:16 results led to a materially trade off in the SFLY business as the company had misses in its Consumer and Enterprise segments and announced a restructuring of its Tiny Prints business. Q2 results also came in weaker than expected as the restructuring continued and Q3 then missed Consumer business expectations, causing continued stock weakness.

APRN (-62%) – Following its $10/share IPO in Q2 of this year, APRN got off to a very rocky start. Execution challenges appeared in the company's very first reported public quarter with management lowering its 2017 outlook and the stock price decreasing. These problems did not ease up and on December 1, APRN's Matt Salzberg stepped down from his role as CEO and President. While we believe APRN is tacking a potentially very large TAM, there is little visibility here and operational challenges remain, and the company's stock price reflects that.

P (-64%) – Pandora shares underperformed throughout the year as the company's Pandora Premium product launch in the first half of the year failed to gain significant traction and the company's Advertising Revenue growth continued to slow. Adding to that was another complete overhaul of the management team with new CEO and CFO coming in, and weaker than Q3 results.

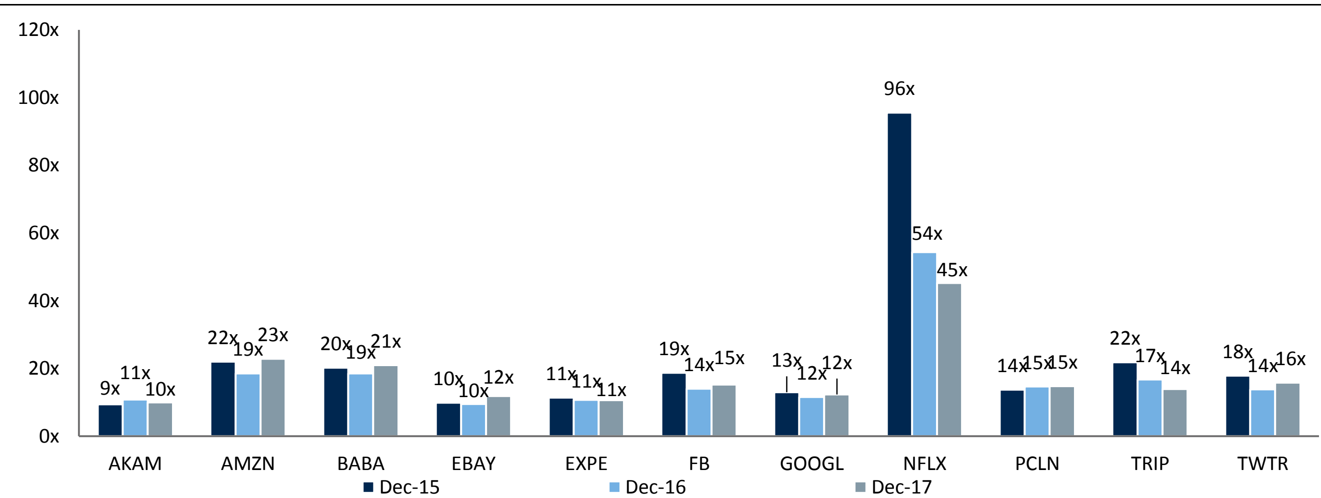
'Net Sector Valuations: Large Cap Multiples Largely Unchanged

In 2016, 9 our 12 Large Cap 'Net stocks saw multiples contract throughout the year, while 5 saw a ~20% decrease in their multiples, including NFLX, FB, TRIP, AMZN and EXPE. Fast forward a year, and we've seen valuations hold roughly steady — 6 of our 12 Large Cap Stocks saw multiples expand, with only 2 seeing a > than 20% increase in their multiples (AMZN, EBAY), and only 1 company seeing a ~20% decrease in its multiple (TRIP). In short, valuations have remained largely unchanged. Further, at this time last year, 5 of the 12 Large Cap 'Nets were trading within 10% of their all-time highs. Today, 4 of the 12 Large Caps are within 10% of their all-time highs. Net/Net For the high quality names, multiples are shockingly unchanged.

On a growth-adjusted basis, we see some selectively attractive valuations. We would particularly point to BABA, FB and GOOG as stocks that we think are attractive on an EV/EBITDA/Growth basis. And in terms of the differences between Large and Small Cap valuations, we have seen a further contraction (and even a slight reversal) from the 7.6x multiple gap in 2015 and the 2.9x multiple gap in 2016 to the -2.8x multiple gap today. That's right… the median Small Cap Forward EV/EBITDA valuation is nearly three turns higher than that for the Large Cap Nets. However, on a P/S basis, the median Large Cap P/Revenue multiple is trading at roughly a 24% premium to the Small–Mid Cap median (versus 106% at this time last year and a two-year average of 65%), and a 20% Large Cap EV/EBITDA discount (versus a 24% premium at this time last year and a two-year average of a 2%). We note that these upward valuation movements in our Small Cap coverage universe are largely due to the recent IPOs in the space (e.g. ROKU, CARG and RDFN all trading 100x+ multiples on '18 EBITDA estimates).

We looked at how the Large Cap 'Nets valuations have trended over the course of the year. From the results, we see that 5 of the 11 stocks are trading at Forward EV/EBITDA multiples below what they were trading at this time last year while 6 are trading at multiples higher than they had a year ago. When compared to two years ago, 4 of the 11 stocks are trading at Forward EV/EBTIDA multiples below what they were trading at that time.

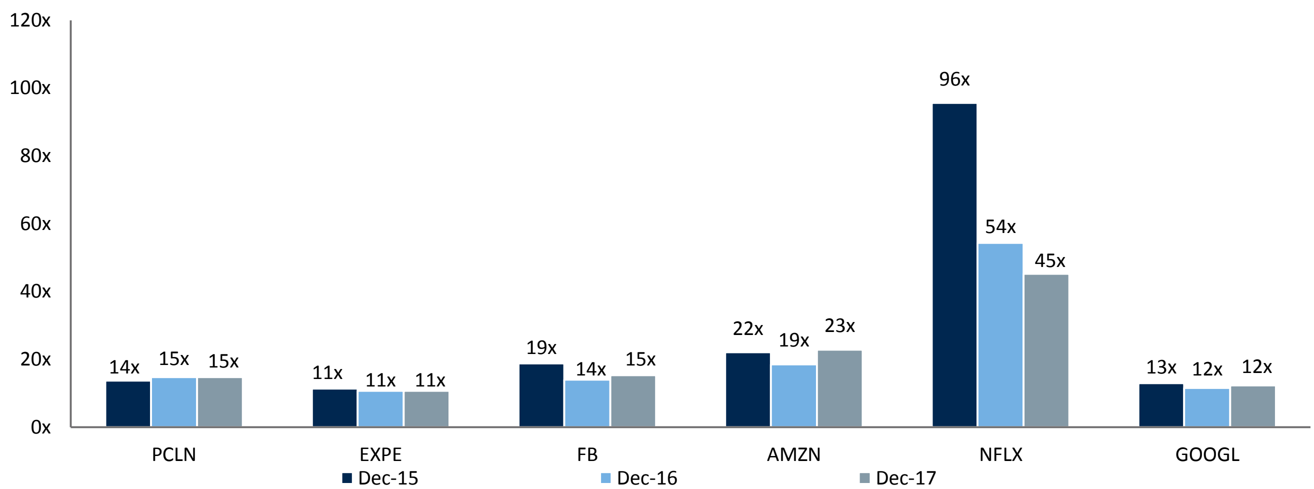
Exhibit 5: Large Cap Consensus Forward EV / EBTIDA Multiples



Source: RBC Capital Markets estimates, Company Reports, (Priced as of market close, December 13th, 2017)

Further, we wanted to highlight a select group of names in our coverage. PEFANG... Priceline, Expedia, Facebook, Amazon, Netflix and Google…. Every single one of these stocks has seen either a derating or a holding of its multiple over the last two years, as seen below. The key insight here is that the highest quality Large Cap Internet stocks (the PEFANGs) have experienced dramatic share price outperformance over the last three years, but this outperformance has been essentially all bottom-line or EPS driven and has not be due to any multiple re-rating. Which actually makes their current share prices more defensible/less risky.

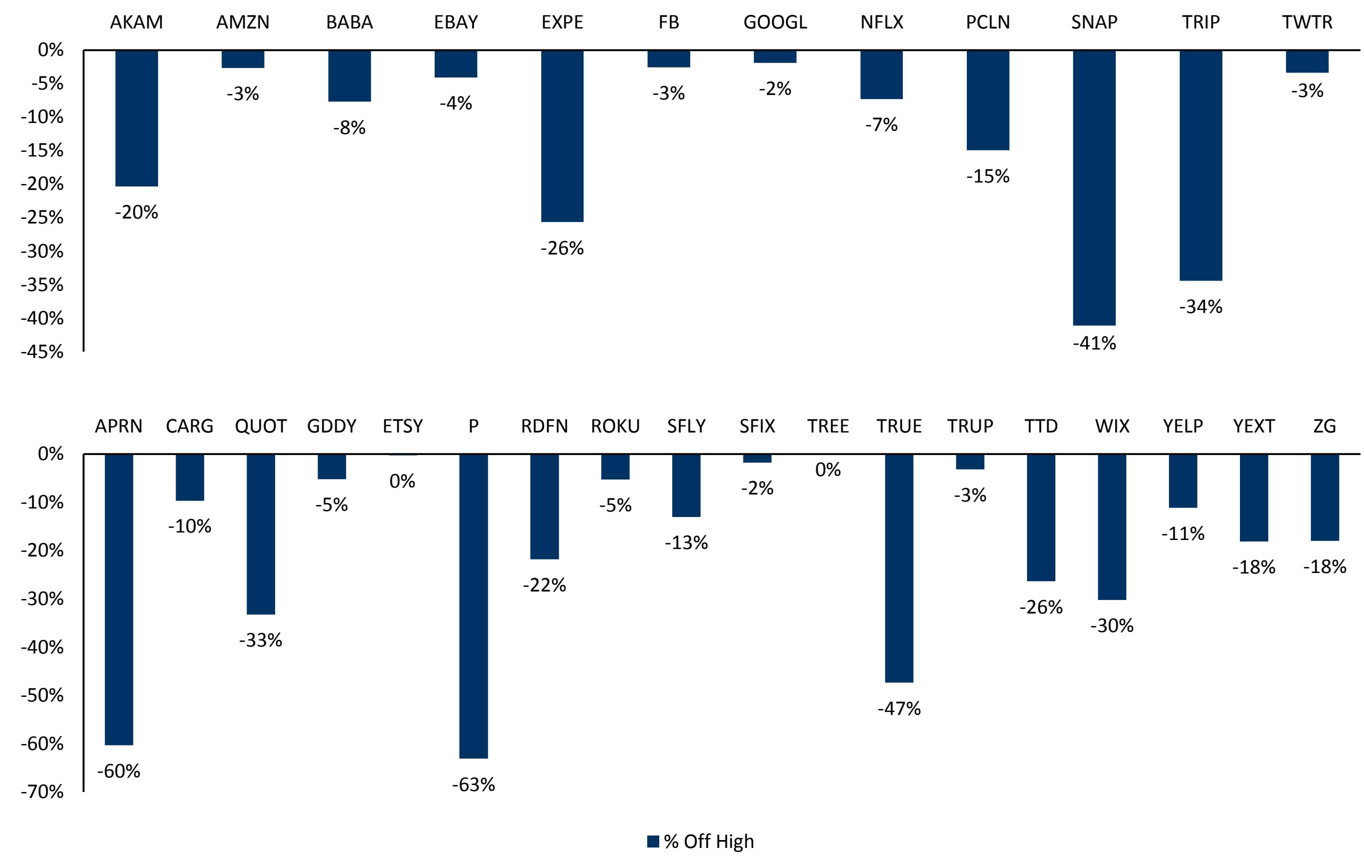
Exhibit 6: PEFANG Consensus Forward EV/EBITDA Multiples



Source: RBC Capital Markets estimates, Company Reports, (Priced as of market close, December 13th, 2017)

Separately, five Large Cap 'Nets are trading within 10% of their all-time highs – AMZN, BABA, FB, GOOGL and NFLX. And 7 of the 12 are trading within 10% of their 52-week highs – namely, AMZN, BABA, EBAY, FB, GOOGL, NFLX and TWTR. On the downside, TRIP is trading close to ~35% off its 52-week highs and SNAP is trading ~40% below its high. Amongst our Small Caps, TREE is notably trading at its all-time high. Outside TREE and the IPOs this year, only ETSY. GDDY and TRUP are trading close to their 52-week highs. On the downside, we note that P is trading 65% below its 52-week high, while TRUE is trading nearly 50% off its high.

Exhibit 7: How Far The 'Net Stocks Off Of Their 52-week Highs



Source: FactSet, Priced as of market close, December 14th, 2017

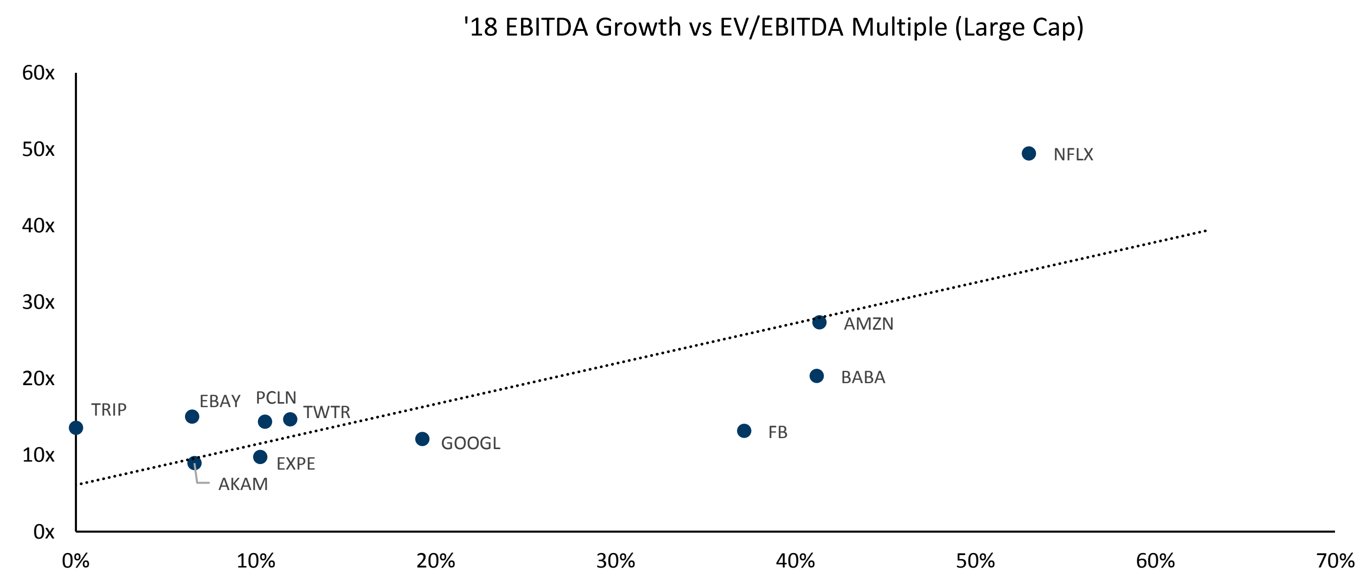
Next, we look at valuations on a growth-adjusted basis, and here we see a number of stocks at seemingly reasonable valuations. Looking at the 12 Large Cap Internet stocks below, the most attractive stocks on a growth-adjusted basis are **BABA, GOOGL, FB and NFLX** – all trading well below the sector median on an EV/EBITDA/G basis (0.95X). The least attractive stocks on a growth-adjusted basis are **EBAY, AKAM and TWTR**.

Exhibit 8: Growth Adjusted Valuations for the Large Cap Net Stocks

	Price 12/05/2017	Market Cap	Ent Value	EPS 2018E	18E Price / Earnings	EPS Growth '17E-18E	2018E P/E/G	EBITDA 2018E	18E EV / EBITDA	EBITDA Grth '17E-18E	2018E EV/EBITDA/G
AKAM	$56.44	$9,543	$9,448	$2.88	19.6x	11%	1.82x	$983	9.6x	7%	1.46x
AMZN	$1,141.57	$549,310	$568,186	$8.17	139.7x	101%	1.39x	$18,261	31.1x	-4%	N/M
BABA	$168.96	$430,693	$419,181	$7.47	22.6x	35%	0.65x	$23,520	17.8x	39%	0.45x
EBAY	$36.81	$38,430	$42,398	$2.20	16.7x	9%	1.77x	$3,725	11.4x	6%	1.76x
EXPE	$120.77	$18,447	$18,853	$4.83	25.0x	6%	3.91x	$1,932	9.8x	10%	0.95x
FB	$172.83	$501,396	$463,107	$7.00	24.7x	17%	1.45x	$31,921	14.5x	20%	0.74x
GOOGL	$1,019.60	$705,188	$609,009	$41.20	24.7x	28%	0.88x	$52,136	11.7x	19%	0.61x
NFLX	$184.21	$79,765	$82,908	$1.88	98.0x	52%	1.90x	$1,659	50.0x	53%	0.94x
PCLN	$1,724.88	$83,957	$86,338	$82.45	20.9x	11%	1.93x	$5,344	16.2x	14%	1.18x
SNAP	$14.94	$18,051	$15,769	($1.19)	-12.6x	N/M	N/M	($629)	-25.1x	-19%	N/M
TRIP	$34.39	$4,776	$4,285	$1.32	26.1x	32%	0.81x	$316	13.5x	-1%	N/M
TWTR	$20.77	$15,435	$12,950	$0.42	49.5x	133%	0.37x	$897	14.4x	12%	1.21x
Median					**24.7x**	**28%**	**1.45x**		**14.0x**	**11%**	**0.95x**

Source: RBC Capital Markets estimates, Company Reports, Priced as of 4:30 PM ET, December 5, 2017

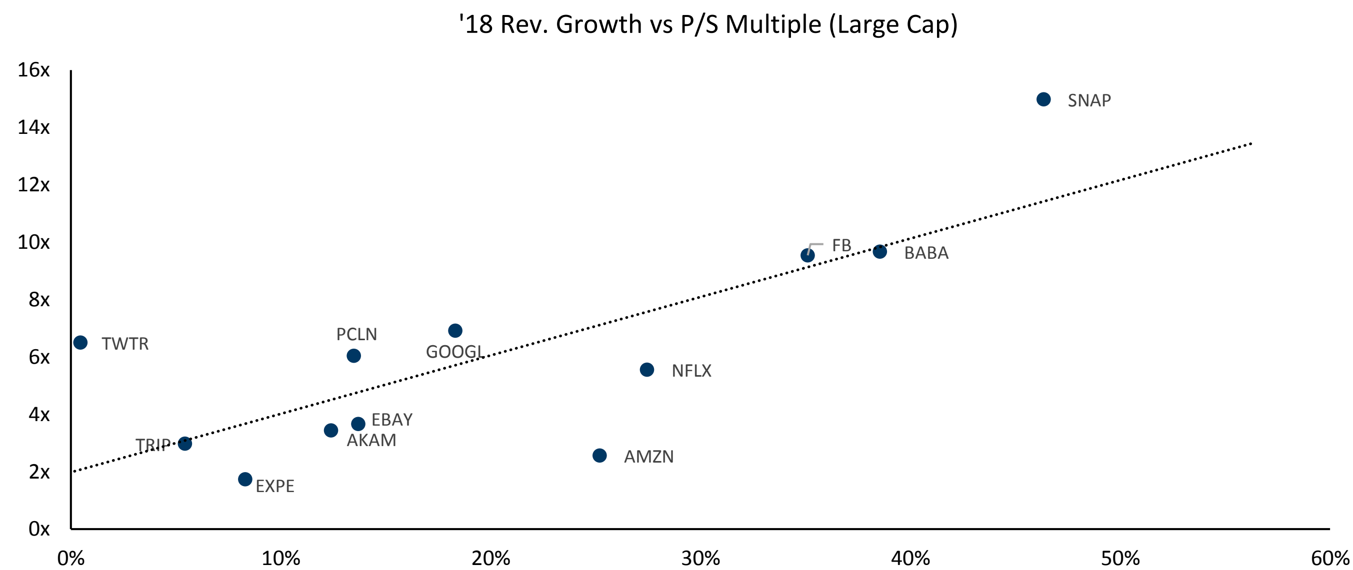
Exhibit 9: Large Cap Forward EV / EBTIDA / G Multiples



*excludes SNAP due to negative or inflecting EBITDA

Source: RBC Capital Markets estimates, Company Reports, (Priced as of 4:30 pm ET, December 6th, 2017)

Exhibit 10: Large Cap Forward P / S / G Multiples



Source: RBC Capital Markets estimates, Company Reports, (Priced as of 4:30 pm ET, December 6th, 2017)

Small Cap Internet Stocks – Outside a select group, Small Cap Internet has underperformed in 2017 with the median Small Cap return 14pts lower than Large Caps. Specifically, the median return for Small Caps was 12% in 2017 versus 26% for Large Caps. Despite this relative underperformance, the Forward median Small Cap valuation has stretched upward due to the recent IPOs in the space and additions to our coverage universe (e.g. ROKU, CARG and RDFN all trading @ 100x+ multiples on ’18 EBITDA estimates). Therefore, the gap between Large and Small Cap valuations has not expanded, but rather contracted. On a P/S basis, the median Large Cap P/Revenue multiple is trading at roughly a 24% premium to the Small–Mid Cap median (versus 106% at this time last year and a two-year average of 65%), and a 20% Large Cap EV/EBITDA discount (versus a 24% premium at this time last year and a two-year average of a 2%).

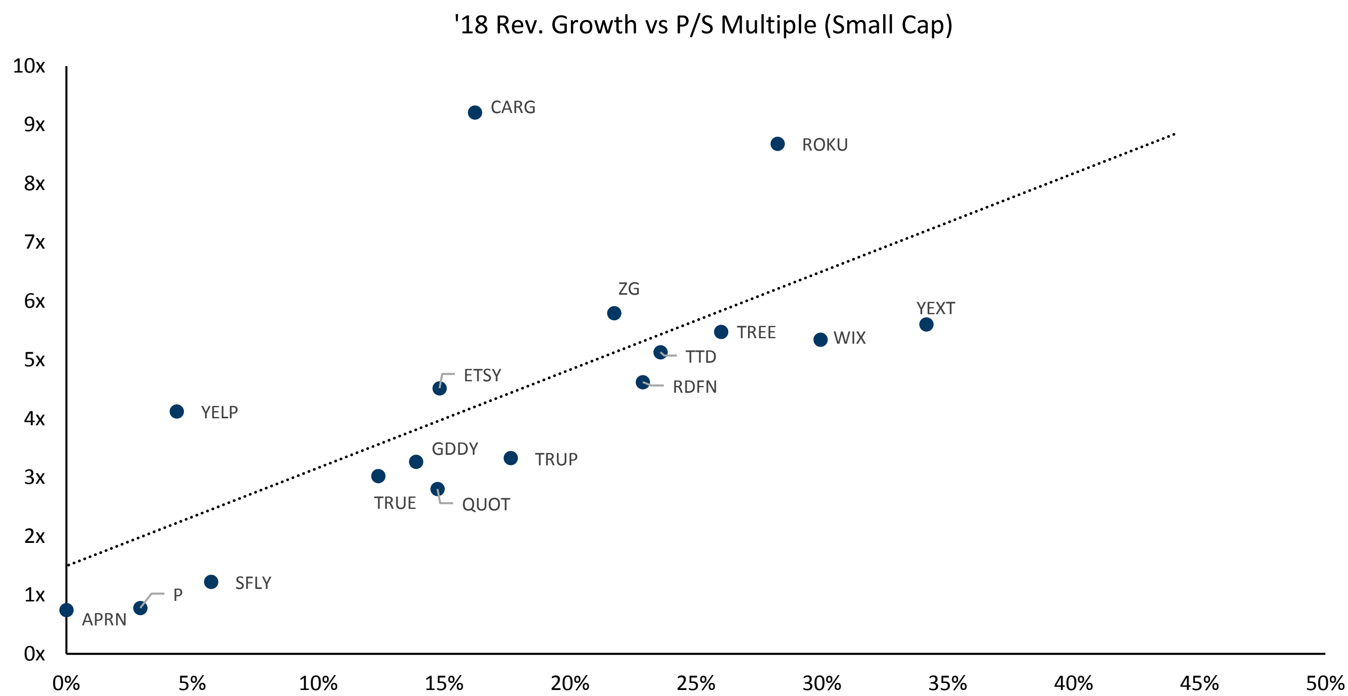
Looking at the Small Cap Internet stocks below, the most attractive stocks we see on a growth-adjusted basis are **WIX, QUOT, TTD** and **SFLY,** all of which are trading below the sector median on an EV/EBITDA/G basis (0.53X). The least attractive stocks we see on a growth-adjusted basis are **ETSY, TREE, TRUP, and ZG**. We would note that excluding this year’s IPO’s, EV/EBITDA/G ratios for the Small Cap sector are materially lower than those for the Large Cap Net sector (on average), most likely reflecting greater uncertainty about the growth rates for Small Cap companies and the lack of future profitability.

Exhibit 11: Growth Adjusted Valuations for the Small-Mid Cap Net Stocks

	Price 12/05/2017	Market Cap	Ent Value	EPS 2018E	18E Price / Earnings	EPS Growth '17E-18E	2018E P/E/G	EBITDA 2018E	18E EV / EBITDA	EBITDA Grth '17E-18E	2018E EV/EBITDA/G
APRN	$3.76	$715	$643	($0.96)	-3.9x	N/M	N/M	($113)	-5.7x	-23%	N/M
CARG	$30.56	$1,293	$1,208	$0.11	277.8x	0%	N/M	$23	52.2x	12%	4.45x
QUOT	$11.65	$1,080	$897	$0.52	22.5x	170%	0.13x	$65	13.8x	35%	0.39x
GDDY	$46.09	$5,817	$7,683	$0.35	131.7x	46%	2.87x	$464	16.5x	31%	0.53x
ETSY	$18.19	$2,202	$1,963	$0.31	59.1x	-21%	N/M	$95	20.6x	28%	0.72x
P	$4.75	$1,181	$949	($0.22)	-21.6x	N/M	N/M	($61)	-15.6x	-57%	N/M
RDFN	$24.73	$2,013	$1,790	($0.12)	-206.1x	N/M	N/M	$14	130.0x	10020%	0.01x
ROKU	$39.45	$3,859	$3,815	($0.67)	-58.9x	N/M	N/M	($16)	-232.6x	-12%	N/M
SFLY	$44.45	$1,458	$1,770	$1.26	35.3x	260%	0.14x	$248	7.1x	15%	0.48x
SFIX	$22.97	$2,192	$1,877	$0.27	85.5x	877%	0.10x	$65	29.0x	0%	497.88x
TREE	$305.20	$3,653	$3,539	$3.18	96.0x	29%	N/M	$147	24.1x	29%	0.82x
TRUE	$11.29	$1,128	$960	$0.11	102.6x	450%	0.23x	$40	24.1x	42%	0.58x
TRUP	$28.72	$863	$811	$0.04	804.2x	N/M	N/M	$10	77.9x	84%	0.93x
TTD	$45.07	$1,849	$1,743	$1.60	28.2x	8%	3.62x	$118	14.8x	31%	0.48x
WIX	$52.20	$2,373	$2,164	$0.82	63.7x	N/M	N/M	$107	20.3x	63%	0.32x
YELP	$42.90	$3,550	$2,991	$0.54	79.4x	184%	0.43x	$200	14.9x	28%	0.53x
YEXT	$12.71	$1,155	$1,042	($0.45)	-28.2x	N/M	N/M	($36)	-28.8x	-10%	N/M
ZG	$40.32	$7,612	$7,312	$0.86	46.9x	65%	0.72x	$311	23.5x	33%	0.70x
Median					**53.0x**	**65%**	**0.33x**		**18.4x**	**29%**	**0.55x**

Source: RBC Capital Markets estimates, Company Reports, Priced as of 4:30 PM ET, December 7, 2017

Exhibit 12: Small Cap Forward P / S / G Multiples



Source: RBC Capital Markets estimates, Company Reports, Priced as of 4:30 PM ET, December 6, 2017

Internet Demand Trends Remain Strong – Internet Staples

2017 Internet Demand Trends were extremely consistent for Online Advertising and Retail, tho Online Travel has shown signs of deceleration. In Online Advertising, Google's organic advertising revenue growth has averaged ~20% for 31 straight quarters and grew 22% in Q3. Facebook has also continued to show robust growth, with Ad Revenue growing close to 50% or more for 18 straight quarters. Likewise, Amazon's organic Retail revenue growth has remained in excess of 20% for ten years and accelerated to a multi-year high of 32% Y/Y in Q3. Even eBay's 7% Y/Y organic GMV growth was a multi-year high. However, in the Online Travel vertical, in the back half of 2017 we saw a second consecutive quarter of deceleration from both PCLN and EXPE, with an outlook that suggests more of the same. We believe these travel headwinds to be cyclical rather than structural, though maturity in the form of relativity high online adoption for leisure travel in increasingly a factor.

Online Advertising – Google's Q3 Advertising Revenue grew organically 22% Y/Y, accelerating 1-pt from Q2 on a 1-pt tougher comp. This was the 31st straight quarter in which Google's Ad Revenue growth has been in the 20% neighborhood (as in 902 20%...corny?) And Facebook's Ad Revenue growth of 47% (ex-FX) decelerated 2-pts on a 4-pt easier comp, remaining close to the 50%ish+ range for the 18th straight quarter. There are certainly a lot of puts and takes in Online Advertising today – with Video and Mobile being the puts, and Display being the takes. **Overall, using Google and Facebook quarterly results as a reasonable proxy, fundamentals for Online Advertising remain extremely robust.**

Online Retail – Trends remain relatively stable. Actually, that is an understatement. They clearly strengthened. By Q3, Amazon's reported Retail growth stayed above 20% for the eleventh consecutive quarter. More interestingly, Amazon's organic Y/Y Retail growth has been above 20% for ten straight years. EBAY's Global GMV growth trends, meanwhile, have held steady, albeit at lower levels. In terms of the numbers, Amazon's Q3 FX-neutral Retail Sales (Media and EGM) growth of 32% Y/Y (+28% when excluding WFM) marked a 7-pt acceleration on a 1-pt easier comp. eBay's Global GMV growth ex-FX of 7% was up 2-pts on a flat comp. eBay's growth continues to remain below 2013/2014 levels and lag overall mid-teens e-commerce growth, but has clearly been improving over the prior two years. **All in, we view current Online Retail Demand trends as extremely solid, highlighted by AMZN's growth.**

Online Travel – In Q3 2017, EXPE's Global Bookings growth decelerated 3-pts to 10% Y/Y growth, though on a 4-pt tougher comp. And material weather events in the U.S. likely clipped growth by 1-pt. Meanwhile, PCLN delivered bookings growth (ex-FX) of 16% Y/Y, the second consecutive quarter Bookings were below 20% after PCLN delivered >20% growth for 41+ quarters, and PCLN's guide indicates a continued slowdown in Q4**.** For key context, Q4 faces very tough comps for PCLN, and we believe there is a set-up for high-teens+ growth again in 2018. **Meanwhile, the takeaway here is that Online Travel trends are decelerating, which raises the question – is this a sign of industry maturity or just a temporary lull? We tend to believe it is the latter (EXPE's Global Brands have sustained room night growth in the high-teens throughout '17 and PCLN did/does face unusually tough comps).**

Online Video – 2017 was a strong year for online video. Looking at recent quarters, NFLX's Global Streaming Revenue grew 33% Y/Y in Q3, driven by 25% growth in Paid Subscribers and 7% growth in ARPU. This was the 20th+ quarter of 35%ish Streaming Revenue growth for NFLX. We believe that the still-early-stage adoption of Streaming on a global basis, Netflix' very strong competitive position, and its relative pricing power should allow it to sustain Revenue growth at close to current levels for some time to come. **All in, we view Online Video Demand Trends as very stable.**

Exhibit 13: Leading Internet Demand Indicators

Online Advertising										
Y/Y Growth	**Q2:15**	**Q3:15**	**Q4:15**	**Q1:16**	**Q2:16**	**Q3:16**	**Q4:16**	**Q1:17**	**Q2:17**	**Q3:17**
Google Advertising Revenue (ex-FX, hedging)	17%	21%	23%	22%	23%	20%	19%	20%	21%	22%
Facebook Advertising Revenue (ex-FX)	55%	57%	66%	63%	63%	59%	54%	51%	49%	47%
Online Retail										
Y/Y Growth	**Q2:15**	**Q3:15**	**Q4:15**	**Q1:16**	**Q2:16**	**Q3:16**	**Q4:16**	**Q1:17**	**Q2:17**	**Q3:17**
Amazon Global Retail Sales (ex-FX)	24%	27%	23%	26%	28%	27%	22%	23%	25%	32%
ebay Global GMV growth (ex-FX)	6%	6%	5%	5%	6%	6%	6%	6%	5%	7%
Online Travel										
Y/Y Growth	**Q2:15**	**Q3:15**	**Q4:15**	**Q1:16**	**Q2:16**	**Q3:16**	**Q4:16**	**Q1:17**	**Q2:17**	**Q3:17**
Priceline Global Bookings (ex-FX, Organic)	26%	22%	24%	26%	21%	26%	28%	27%	19%	16%
Expedia Global Bookings (ex-FX, Organic)	23%	25%	18%	12%	9%	8%	12%	15%	13%	10%
Online Video										
Y/Y Growth	**Q2:15**	**Q3:15**	**Q4:15**	**Q1:16**	**Q2:16**	**Q3:16**	**Q4:16**	**Q1:17**	**Q2:17**	**Q3:17**
Netflix Global Streaming Revenue	29%	29%	28%	30%	33%	36%	41%	39%	36%	33%

Source: RBC Capital Markets, Company Reports

Ever Heard Of Internet Staples? You know Consumer Staples – those companies that deliver low-to-mid single digit percentage Revenue Growth and trade at Market Premiums because they are considered to have extremely reliable future EPS growth because they are Consumer Fixtures? Internet Staples is the same thing…except with growth rates 4X, 5X…10X higher. PCLN, EXPE, FB, AMZN, NFLX, and GOOGL. Internet Staples.

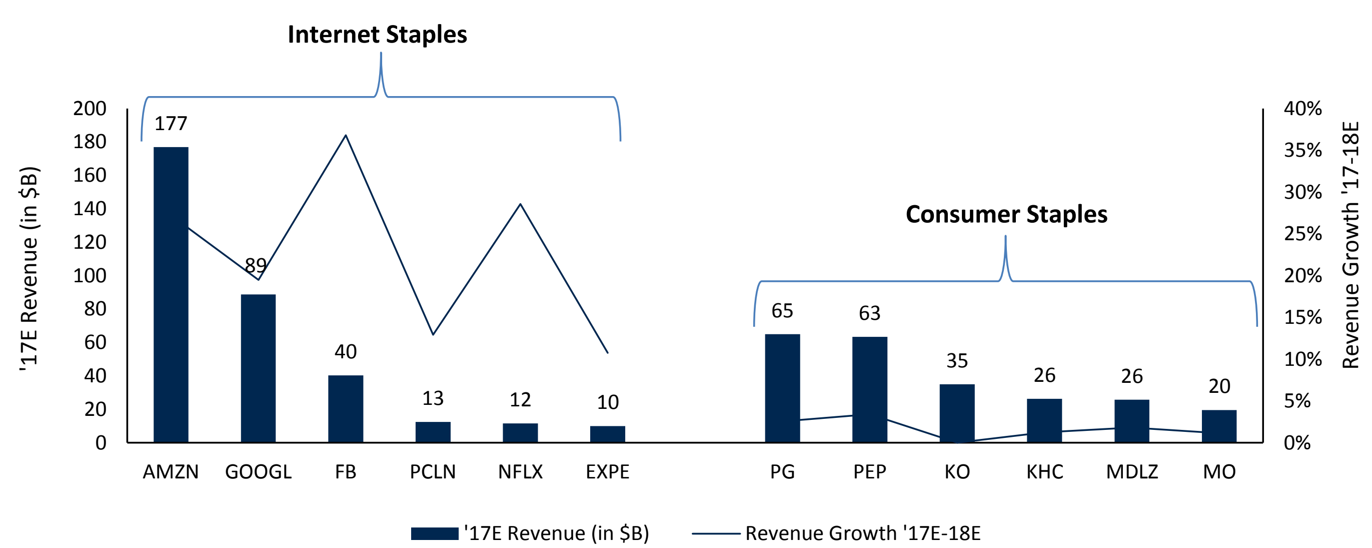
Try the following comparisons on for size. The point here is to at least consider that the valuations of several of the highest quality Internet stocks – PCLN, EXPE, FB, GOOGL – might very be justified given their Staples-esque fundamentals and growth outlooks.

Exhibit 14: Internet Staples vs. Consumer Staples, Relative Valuations

	EPS Growth '17E-18E	GAAP P/E 2018	P/E/G 2018		EPS Growth '17E-18E	GAAP P/E 2018	P/E/G 2018
PCLN	11%	21.0x	1.9x	**PG**	6%	21.7x	3.5x
EXPE	6%	24.5x	3.8x	**KO**	3%	23.0x	8.8x
FB	17%	25.7x	1.5x	**PEP**	7%	20.8x	3.1x
AMZN	101%	142.8x	1.4x	**KHC**	10%	19.9x	2.0x
NFLX	52%	100.1x	1.9x	**MDLZ**	11%	18.1x	1.6x
GOOGL	16%	25.5x	1.6x	**MO**	8%	20.1x	2.4x
Median	*16%*	*25.6x*	*1.8x*	*Median*	*7%*	*20.5x*	*2.8x*

Source: RBC Capital Markets, FactSet Consensus Estimates (Priced as of 12:00 pm ET, December 8th, 2017)

Exhibit 15: Internet Staples vs. Consumer Staples, Total Revenue vs. Revenue Growth



Source: *KO consensus Revenue estimates -15% due to refranchising, but for the purpose of this analysis we assumed it was flat

RBC Capital Markets, FactSet Consensus Estimates (Priced as of 2:00 pm ET, December 7th, 2017)

2018 Global Internet Sector Outlook

Below we provide our fundamental outlook for the Global Internet Sector for 2017, which details our forecasts for Global Online Advertising, Online Retail, and Online Travel, the three principal – though not exclusive -- revenue streams for the Internet sector. **Our headline takeaways are that we anticipate Global Online Advertising to reach $224B in 2018 (up 10%+ Y/Y), Global Online Retail spend to reach $1.59T (up 15% Y/Y), and Global Online Leisure Travel to reach $660B (up 9% Y/Y).**

Global Online Advertising – Consistent Low Double-Digits Growth in 2018

For 2018, we expect that Global Online Advertising will reach nearly $225B, growing 10%+ Y/Y and accounting for 30%-35% of total Global Marketing.

For 2018, we are assuming a 4% increase in total Global Advertising and about 200bps of increased online penetration. We think the usual suspects continue to be the primary drivers of growth…those are Social, Local, Mobile, and Video – as well as the slow migration of major TV advertising budgets to Online channels. Mobile has become especially powerful as a growth factor, now that it has reached a point of significant materiality (i.e., 30%+ channel) for major Internet companies.

Three factors continue to give us confidence in Online Advertising's secular growth potential:

1) The increasing materiality of Mobile devices, which garner a disproportionate share of time spent compared to their share of Online Advertising dollars – we point to the continued growth of core Facebook / Instagram and Mobile Search query growth, aided by initiatives like Google's Expanded Text Ads, 4th paid Mobile search link, and Device Independent Bidding;
2) The migration of TV ad budgets (the biggest Offline ad spend category) onto the Internet – especially given the rise of Internet Video platforms like YouTube and Facebook (Magna Global forecasts that Online ad spend surpassed TV ad spend in the U.S. in 2016 and on a global level in 2017); and
3) The still significant gap between the amount of time spent Online (or on Mobile) and the amount of ad spend dedicated to this format.

One additional secular trend worth highlighting in the advertising space is Programmatic advertising. This innovative secular trends could contribute significantly to the growth of Internet Advertising going forward. For Programmatic alone, Magna Global predicts that spend could grow to $37B by 2019, up from $14B in 2015 – this could make Programmatic nearly 50% of total global Online Display and Video ad spend in 2019. We think that these trends will continue, as advertisers get more and more comfortable with using big data analysis and machine-learning software to enable their ad buying decisions.

Potential Upside Forecast Factors – There may be upside to our projection for Online Advertising growth if we see material macroeconomic outperformance. Faster-than-expected adoption of Mobile advertising, rapid expansion of new ad platforms (i.e., Snapchat, Instagram, Google Maps, heck, Snap Maps), or faster-than-expected adoption of Video ad formats (as better campaign buying/measurement and Nielsen ratings encourage TV ad budgets to transition online) would also provide material upside to our forecasts.

Potential Downside Forecast Factors – Conversely, deterioration in the global macro environment could cause underperformance in Online advertising vs. our expectations. Also, persistently lower ad rates on Smartphones could cause a drag as users spend more time on Mobile devices. Finally, the rise of Programmatic ad buying may push down prices in the near term.

Exhibit 16: RBC Global Online Advertising Forecast (in Billions)

($ in B)	2016	2017E	2018E	2019E	2020E
Total Global Advertising	**$652**	**$679**	**$707**	**$736**	**$767**
Y/Y Change	--	4%	4%	4%	4%
Global Online Advertising	**$177**	**$205**	**$224**	**$250**	**$271**
Y/Y Change	--	16%	9%	12%	9%
Mobile Advertising	**$66**	**$87**	**$114**	**$149**	**$196**
Y/Y Change	--	32%	31%	31%	32%
Internet as % of Total	**27%**	**30%**	**32%**	**34%**	**35%**
Y/Y Incr. in Penetration	--	300 bp	144 bp	227 bp	142 bp

Note estimates from 2017-2020 are based off RBC assumptions given MAGNA Global's estimated growth rates and assumption of Advertising spend breakdown by type (Internet, TV, etc.)
Source: IDC; MAGNA Global

Global Online Retail – 15%+ Growth in 2018

For 2018, we expect that Global Online Retail spend will reach roughly $1.59T, growing 15% Y/Y and accounting for 11% of total Global Retail spend, with likely low-double-digit penetration in the U.S., China, and other leading Online Retail markets.

For 2018, we are modeling a 5% Y/Y increase in Global Retail spend and close to 100bps of increased Online penetration. We think that the continued expedition of delivery times (including same-day delivery) and the incremental impact of Mobile devices will continue to be drivers.

Exhibit 17: RBC Global Online Retail Forecast

	2016	2017E	2018E	2019E	2020E
Global Retail	**$13,992**	**$14,242**	**$14,939**	**$15,066**	**$15,440**
Y/Y Change	--	2%	5%	1%	2%
Global Online Retail Sales	**$1,177**	**$1,381**	**$1,588**	**$1,794**	**$1,994**
Y/Y Change	--	17%	15%	13%	11%
Internet as % of Total	**8%**	**10%**	**11%**	**12%**	**13%**
Y/Y Incr. in Penetration	--	129 bp	93 bp	128 bp	100 bp

Source: RBC Capital Markets estimates, Euromonitor Passport

We highlight several factors that give us confidence in the continued penetration of Online Retail:

- Still intrinsically low Online penetration rates (11% of total Retail spend);
- The move of physical stores to embrace Online channels;
- The opportunity for incremental sales created by Mobile devices;
- The move to establish same-day fulfillment – and even same-hour fulfillment – by companies such as Amazon, which expands the categories of products that can be sold Online (especially, CPG, but also groceries, arguably in the wake of the Whole Foods acquisition by Amazon);

- The emergence of vertically-focused ecommerce vendors (i.e., Wayfair, Houzz) and subscription ecommerce; and
- Use of AI / ML to drive more personalization and enhance product recommendations for mid-funnel shoppers.

Potential Upside Forecast Factors – Aside from material macroeconomic outperformance, the key factors that would drive upside in Online Retail are faster-than-expected international adoption of the Online retail channel (especially in developing economies) and further expansion into categories not yet fully serviced by Online e-commerce channels, such as large ticket items and consumer staples.

Potential Downside Forecast Factors – Aside from material macroeconomic underperformance, the key factors that would drive downside in Online Retail are the potential broader imposition of a change in the corporate tax structure to slow the growth of online sales in the US and other markets and a slowdown in the international adoption of the Online Retail channel.

Global Online Travel – 9% Growth in 2018

For 2018, we expect Global Online Travel Sales to exceed $650B; growing 9% Y/Y and accounting for 43% of total Global Travel spend. This penetration rate is materially higher than for either Advertising or Retail, as Travel was one of the earliest categories to migrate Online. For 2018, we are forecasting a 5% increase in total Global Travel Sales and approximately 170bps of increased online penetration.

Exhibit 18: RBCCM Global Online Travel Forecast

	2016	2017E	2018E	2019E	2020E
Global Total Travel Sales	**$1,404**	**$1,474**	**$1,543**	**$1,612**	**$1,676**
Y/Y Change	5%	5%	5%	4%	4%
Global Online Travel Sales	**$550**	**$603**	**$657**	**$718**	**$781**
Y/Y Change	10%	10%	9%	9%	9%
Online as a % of Total	**39%**	**41%**	**43%**	**45%**	**47%**
Y/Y Incr. in Penetration	176 bp	174 bp	167 bp	199 bp	201 bp

Source: RBC Capital Markets estimates, Phocuswright

There are at least four factors that give us confidence in continued Online Travel penetration: (1) The emerging middle class in emerging markets like China, and their interest in travel; (2) The incremental opportunity posed by Mobile devices, especially in the largely incremental last-minute booking category; (3) Alternative Accommodations creating more travel opportunities for consumers and driving incremental bookings for the industry; and (4) The rise of the Millenials cohort, as this demo appears to be more focused on experiential vs. goods purchases.

Potential Upside Forecast Factors – A better-than-expected macroeconomic situation or a greater contribution from Mobile devices could both provide material upside to our Global Online Travel estimates.

Potential Downside Forecast Factors – Online Travel could underperform due to lower-than-expected GDP growth outcomes and less robust adoption of Mobile bookings.

2018 Key Internet Themes and Trends

Below we highlight what we view as the Top 10 most important current Internet trends and factors. A number of these have been key trends for several years – Mobile, Social Ubiquity, Speedy Delivery, Cloud Computing. A few are fresh – Government Footsteps, Blockchain, and Voice-ification of the 'Net. They should all be key themes in 2018 (and beyond) and create differentiation between companies that can manage and benefit from these themes – especially, AMZN, GOOGL, BABA & FB - and those that cannot. In the following sections, we also will give a brief overview of each of these themes and trends and how the 'Nets are impacted by these trends.

Take a look at the chart below…Here we list the Top 10 Key Themes and Trends for the Internet sector in 2018 and how the Large Caps stack up against each. A full shaded circle denotes that not only do we expect the stock to derive meaningful benefit from the Trend, but the company has also made substantial progress toward building out the requisite capabilities. A three-quarter shaded circle denotes a positive impact while a half-circle is neutral and a one-quarter shaded circle is reflects a current negative impact. Not every trend will have a direct impact, so the Themes with no circle are Not Material for that specific Large Cap stock, in our view.

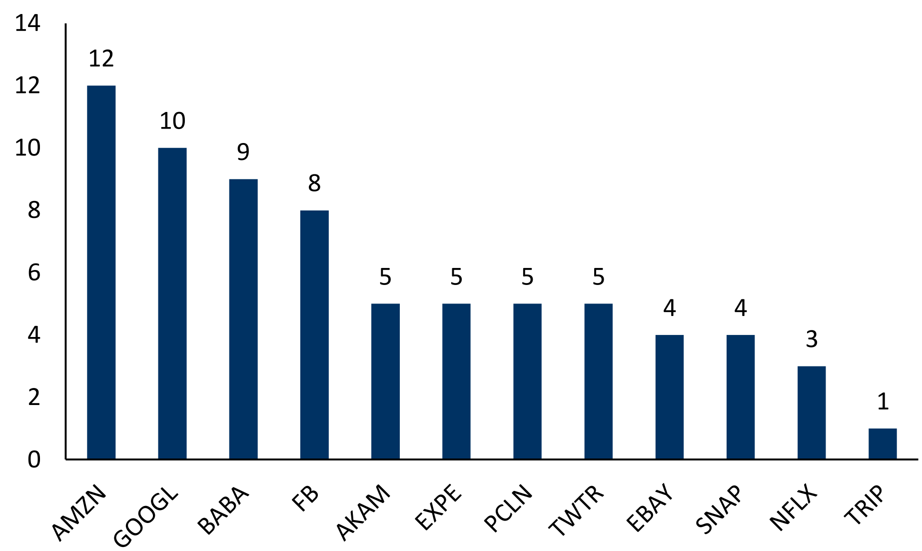
Exhibit 19: How Do the Large Caps Rank Against the 2018 Internet Themes and Trends

	AKAM	AMZN	BABA	EBAY	EXPE	FB	GOOGL	NFLX	PCLN	SNAP	TRIP	TWTR
More Mobile	◕	●	●	●	●	●	●	◕	●	●	◔	●
Social Ubiquity		◑	◕	◑	◕	●	◕		◕	●	◕	●
Video-ification	●	●	●	◑	◑	●	●	●	◑	●	◑	◕
AI & ML	◑	●	◕	◕	◕	●	●	◕	◕	◕	◑	◕
Speedy Delivery		●	◕	◔								
Cloud Computing	◕	●	◕				◕					
Cash Pile Up	◕	◕	●	●	◕	●	●	◔	◕	○	◕	◑
Voice-ification of the 'Net	◑	●	◑				●					
Government Footsteps	◑	◔	◔	◑	◑	○	○	◑	◑	◔		◔
Blockchain	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑	◑
'Net Scorecard	5	12	9	4	5	8	10	3	5	4	1	5

Source: RBC Capital Markets, Company reports

So which Large Caps are seeing the biggest benefits from these key trends…? We assigned a point system with Full Circles earning 2 points, three-quarter shaded section earning +1 point, half-shaded receiving 0 points and one-quarter shaded receiving -1 points. The final results show that AMZN has separated itself from the pack while GOOGL, BABA and FB follow close behind. Each of these companies will see a material Positive impact (i.e., a Full Circle) benefit to at least 3 of the 10 Trends, with Amazon notching Full Circles on 6 trends, with Google and FB notching Full Circles on 5 trends. The stocks benefitting least from these trends in our view are NFLX and TRIP. However, we note that NFLX remains one of our top picks in the space due to the moats it has built through its focus on Video Streaming.

Exhibit 20: Scoring the Large Caps Against the Top Internet Themes and Trends



Source: RBC Capital Markets, Company reports

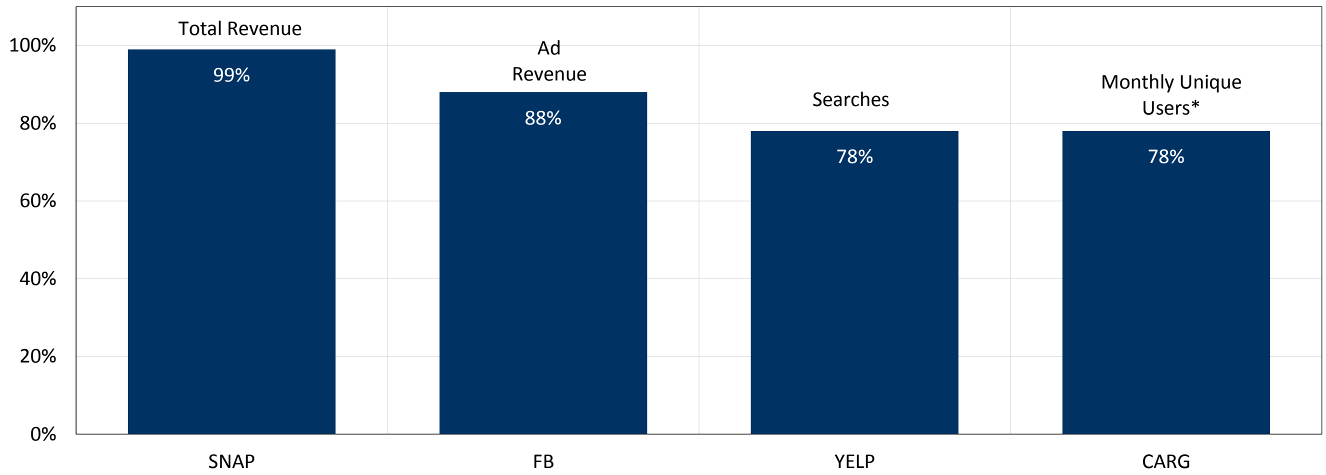
Now, let's dig into these trends a little bit…

1. More Mobile, More Mobile, More Mobile

While we have stressed its importance before, Mobile remains one of the most prominent themes again in 2018, as the world continues transitioning from Desktop, and companies/advertisers increasingly adopt Mobile as a platform. For many Internet companies, Mobile as a channel is well >25% of traffic, usage, revenue, bookings, and for the major Internet platforms, Mobile as a channel has surpassed 50% – PCLN's Booking.com, for example, generates north of 50% of its bookings via Smartphones. CarGurus reports 78% of its unique users come from Mobile devices, Yelp has 78% of searches taking place on Mobile, Snapchat revenue stream is nearly 100% derived from its mobile app, and a whopping 88% of Facebook's Ad Revenue now comes via Mobile. Mobile devices remove friction between consumers and Internet services & applications, so we view the rise of this channel as a key growth driver for the sector.

Although companies' disclosure of Mobile materiality is not consistent across Internet companies, we put together some of the most important datapoints from the companies we see as Mobile leaders. Advertising models are leading the way. In terms of Mobile revenue generation (likely the most important Mobile statistic), Facebook generated 88% of its Ad Revenue from Mobile, and Snapchat generates nearly all of its revenue from mobile. Before Pandora and Twitter stopped reporting the metric, they also generated 75% or more of their Ad revenue from Mobile devices.

Exhibit 21: Significant Q3:16 Mobile Datapoints

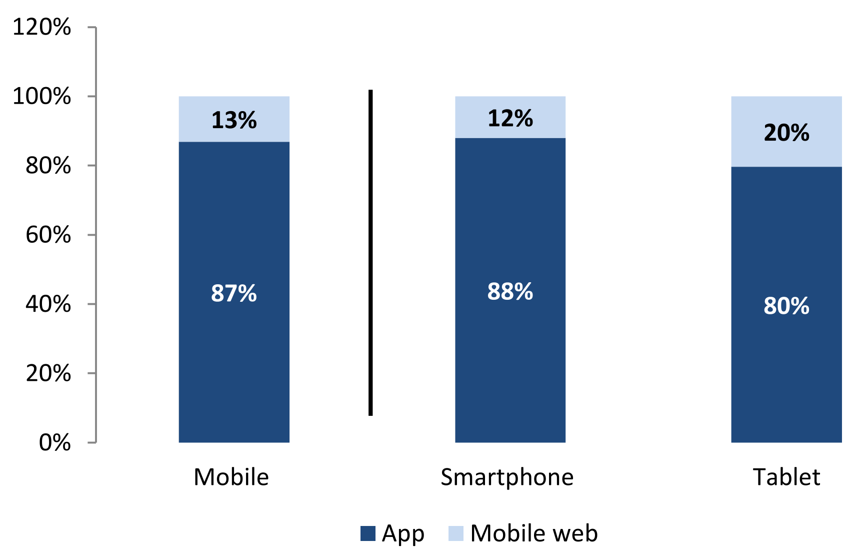


* As of Q217

Source: RBC Capital Markets, Company reports

Mobile's importance has grown significantly over the last several years, and in the U.S., total digital media time spent on Mobile has doubled and is driven significantly by App usage. U.S. Internet users are spending the greatest proportion of time in Apps and just 13% of their time in Mobile Web, per comScore.

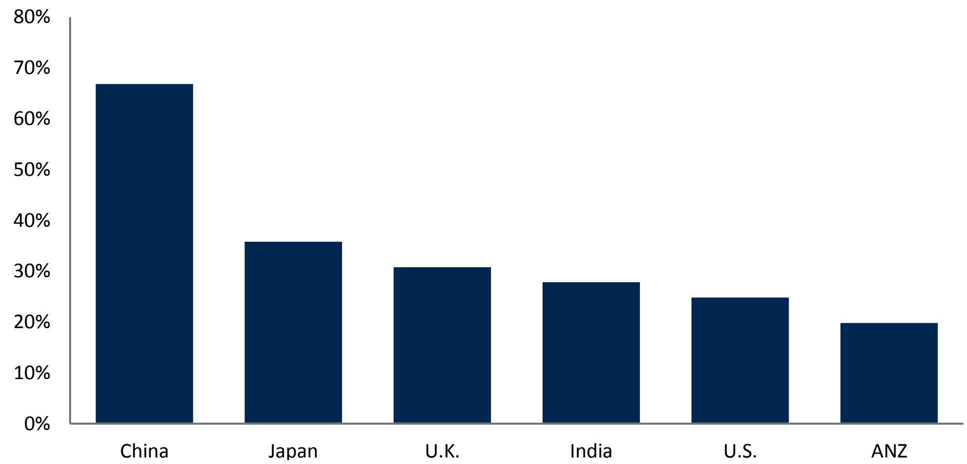
Exhibit 22: Percentage of Time Spent Online in the U.S. by Device (October 2017)



Source: comScore, RBC Capital Markets

As another datapoint, according to forecasts by Phocuswright, nearly 30% of U.S. online travel bookings will be conducted on mobile in 2018. However, that number pales in comparison to Asian countries. Notably, Phocuswright forecasts mobile bookings for China as just under 70% of gross online travel bookings. That would make mobile bookings in China alone greater than total online bookings in Southeast Asia and Northeast Asia. We see the OTA's (EXPE, PCLN) benefitting from these trends.

Exhibit 23: 2018 Mobile Share of Online Travel, by Market



Source: Phocuswright's Global media Market Sizing: Focus on U.S., APAC and Europe, 2017, RBC Capital Markets

The Derivatives: A number of the Large Caps are benefiting from the rise in mobile today, including **AMZN**, **BABA**, **EBAY**, **EXPE**, **FB**, **GOOGL**, **PCLN**, **SNAP** and **TWTR**. Somewhat notable, TRIP is experiencing a material negative Mobile impact. Management has disclosed that it is Mobile Hotel Shoppers are monetizing around one-third the level of Desktop Hotel Shoppers. Modestly positive derivatives include AKAM and NFLX.

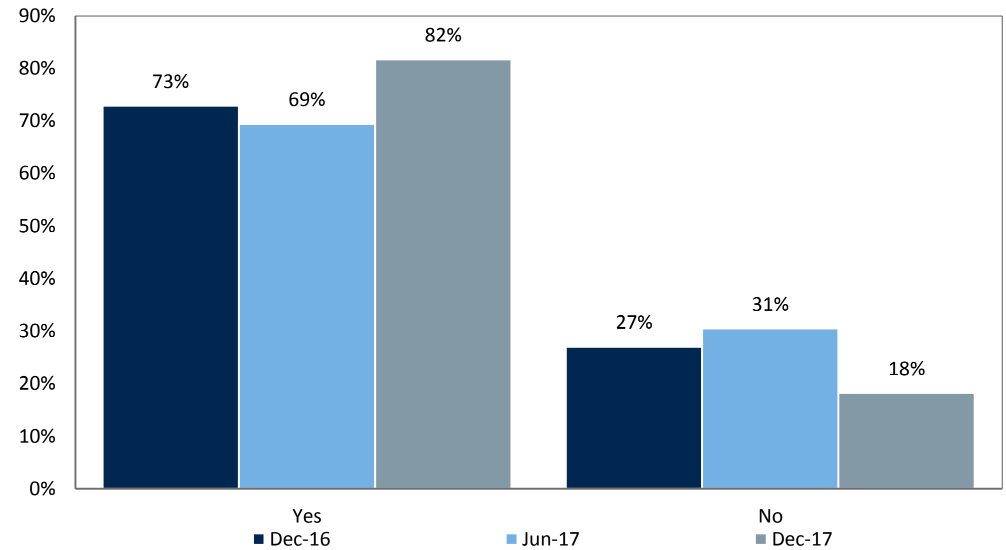
2. Social Ubiquity

Social media continues to rise in importance for consumers and marketers alike.

According to our recent Social Media Butterflies report, in which we conducted a survey of nearly 5,000 U.S. Internet users, we can away with Three Key Social Media Takeaways. First, Social Media usage continues to rise. We found a large majority (82%) of survey participants are Social Media users, and this number is higher than levels we observed six months ago in June (69%) and a year ago in December (73%). Second, we found that over the past 12 months, participants skewed towards increasing (27%) versus decreasing (21%) their Social Media usage, though this skew was less positive than in our prior two surveys. Third, looking at the next 12 months, survey participants are split between increasing (17%) and reducing (17%) their Social Media usage, which is relatively consistent with the past two surveys. One interpretation is that Social Media usage has peaked in the U.S., though we are skeptical of this. We would also note that current usage levels are intrinsically high. We would be wide open to the possibility that Social Media innovations (e.g. prioritizing Video content, adding augmented reality features, incorporating new features such as Maps) could drive further usage growth in the future.

Overall, the majority of those surveyed were on at least one Social Media network, with 82% of respondents having a current account, up 13pts from our June observation. As a quick reminder, we would note that this implies 82% of the U.S. Internet population – not 82% of the total U.S. population – are Social Media users.

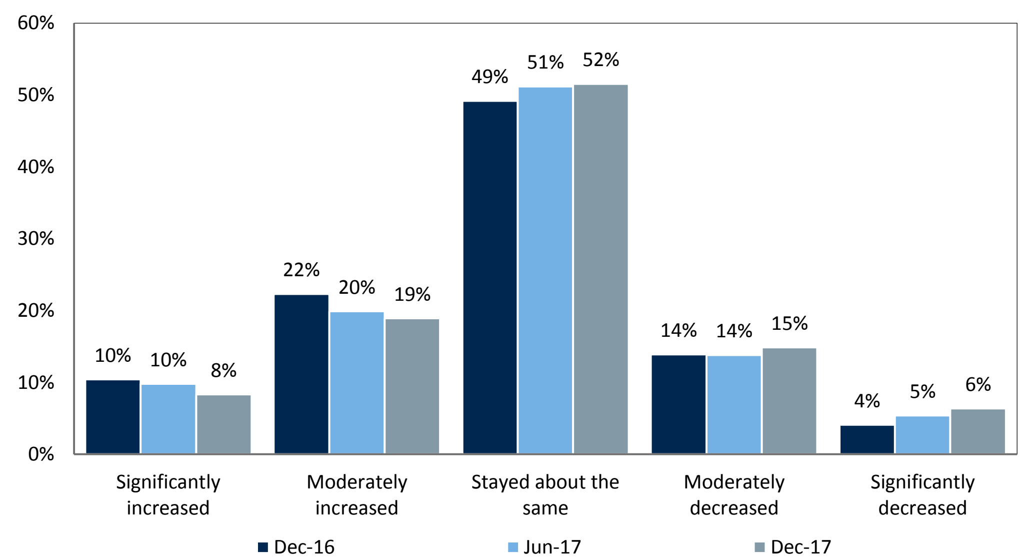
Exhibit 24: Do you currently use Social Media (such as Facebook, Twitter, Instagram, Pinterest, Snapchat...)?



Source: RBC Capital Markets via SurveyMonkey, n= 6,047, Dec. '16 n=2,822, June '17 n=2,892

For those respondents with a Social Media account, we found the amount of time they spend on Social Media continued to skew towards increasing over the past year, however slightly less than prior iterations. Per our results, 27% of respondents increased their Social Media usage versus 21% who decreased their usage; though this result is a bit less positive than our June 2017 and December 2016 surveys. Further, just over half of users (52%) self-reported to have maintained a relatively stable level of Social Media usage over the past 12 months.

Exhibit 25: In the past 12 months, how has your time spent on social media changed?



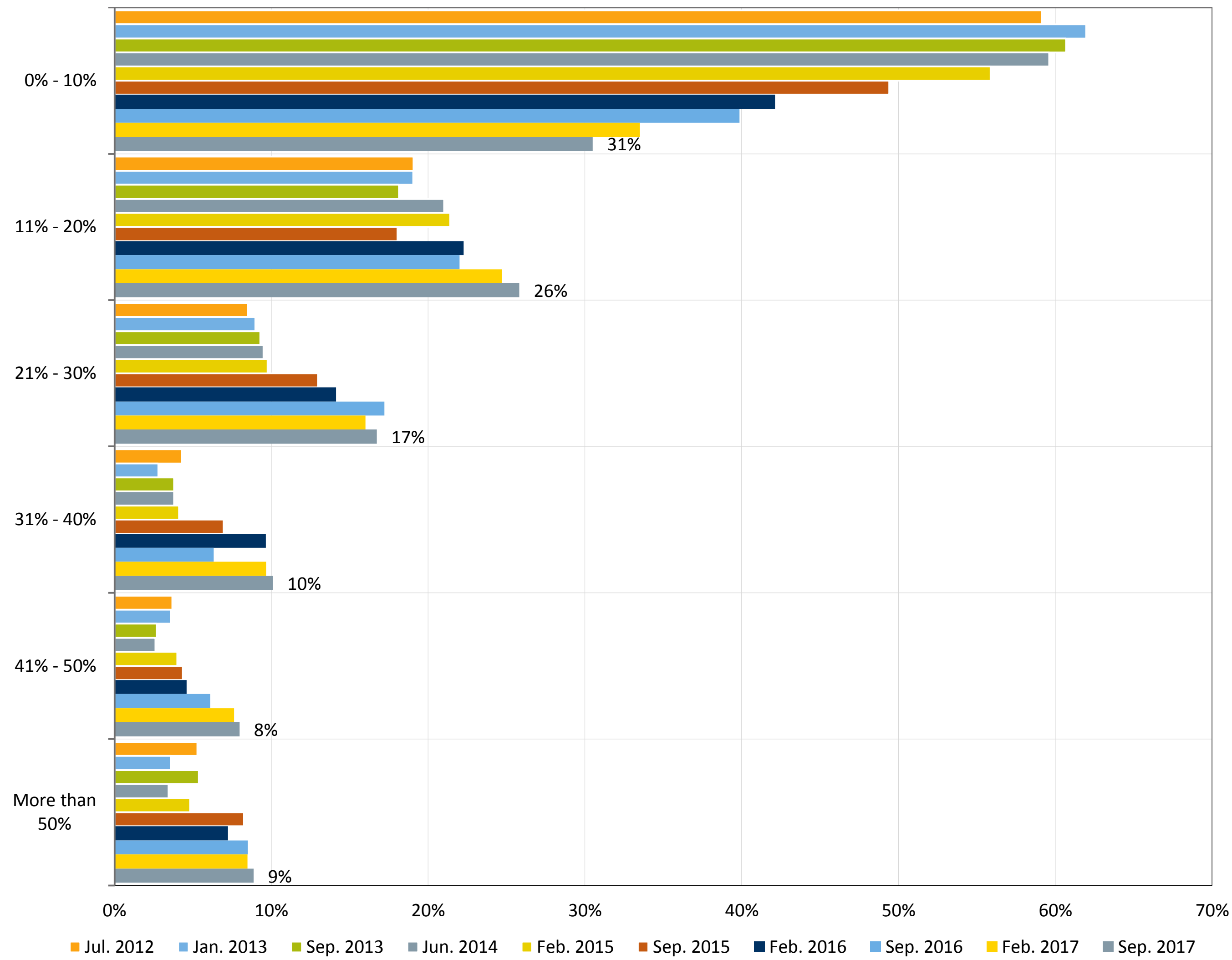
Source: RBC Capital Markets via SurveyMonkey; n=4,869, Dec. '16 n=2,058, June '17 n=2,009

The rise of Social Networks provides a compelling opportunity for advertisers. First, the huge amount of time users are spending on these Social Networks (sometimes even while they are using other media…sometimes while they are working…sometimes when they are supposed to be working…) means that advertisers must compete to capture consumer's attention on traditional media. For instance, Facebook nightly has an audience larger than most primetime networks. Second, the everyday usage of Facebook and Twitter (as well newer networks like Snapchat) creates a huge amount of data about how people connect to friends, places, businesses, products, and news, which is all useful for ad targeting. What's more, both Twitter and Facebook appear to have cracked the code on Native Mobile advertising by utilizing feeds of bite-sized news stories interspersed with other media. As of Q3:17, Facebook received 88% of its ad revenue from Mobile, and we estimate Twitter received near the 90% it reported in Q3:16.

It does not appear that this trend is going away anytime soon. In recent surveys of advertisers we conducted with Ad Age (see our October 5 Note), 59% of Google, 66% of Facebook, and 51% of YouTube advertisers expect to increase their ad spend on these platforms over the next year (though only 26% expect to increase spend with Twitter). On the flipside, the percentage of advertisers looking to decrease their spend on these networks ranges from 5–8% (again, except Twitter at 21%). These are positive indicators for these platforms.

Our most recent survey shows respondents reporting that Social Media constituted more than 20% of their Online Marketing budget increased to a record high 44%, improving from the 42% in February 2017 and 38% in September 2016 and the 19% to 33% range seen in the prior seven surveys. Social Media is clearly becoming a more important part of marketers' messaging, a point that has been part of our broader Internet sector (and FB) investment thesis for the past several years. **A record high of 17% of respondents reported spending greater than 40% of their marketing budget on social. We have seen Social Media break out as a real channel, with just 31% of respondents spending 10% or less of their Online marketing budgets in the category vs. 34% in our last iteration and 40% in September last year.**

Exhibit 26: On average, what percentage of your Online marketing budget is spent on Social Media channels?



Source: Ad Age, n=865

Derivative Plays – FB, SNAP and **TWTR** are the obvious positive derivatives off of this trend, being three of the most important global social networks in existence today (sorry, MySpace…). Modest positive derivatives also include **BABA, EXPE, GOOGL, PCLN,** and **TRIP**.

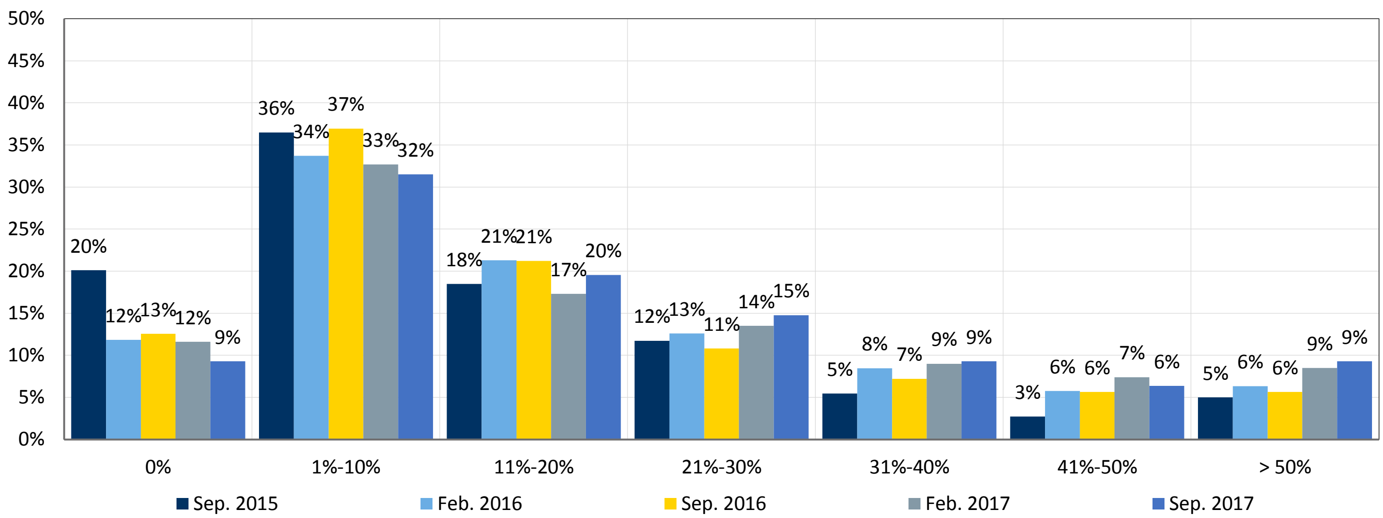
3. The Video-ification Of The Internet

The percentage of content consumed via the Internet that is Video in format has grown dramatically. The percentage of ads served via the Internet that is Video in format has surged. The best evidence of this may be the ~50% YTD Ad Revenue growth of Facebook, with Video Ads being a key component, and the probable 3%+ growth of YouTube. The so-whats? User engagement will likely continue to rise, and Ad budgets will likely continue to be siphoned away from TV.

This latter point -- the Online migration of TV Ad Budgets -- remains a key catalyst that is consistently top-of-mind with almost all the ad-tech firms, especially the video related ones. With consumers spending a greater percentage of their time Online, especially on Mobile devices, we think that other media channels can become sources of funding for Internet advertising. The largest of these sources is the nearly $200B global market for TV advertising. We think that the ability to not only match the TV ad budget, but beat it, is the opportunity in front of Internet Advertising. In fact, Magna Global has estimated that these budgets will be roughly similar in 2018 on a global basis, and were roughly similar in the U.S. in 2017. We estimate 4-year CAGR growth rates through 2020 of 4% for Global Advertising, 11% growth for Internet, and 31% growth for Mobile. Talk about cutting the cord….

In our most recent AdAge Survey of Advertising Professionals, we asked marketers what percentage of their Online marketing budgets they allocated to a Video format. We saw improving adoption by marketers, with Video commanding the largest budget shares we have seen to date. **Overall, a record 91% of surveyed marketers are spending on Online Video (vs. 88% in February), with 40% of marketers spending more than 20% of their budgets on Video (an increase from 38% in the February survey and a meaningful increase from the 29% September '16 result , pushing the new range well ahead of the prior range of 25-33%).**

Exhibit 27: What percentage of your Online/Internet budget is in a video format?



Source: Ad Age, n=908

Derivative Plays – GOOGL is likely one of the biggest beneficiaries due to its YouTube asset. **FB** and **SNAP** both have the potential to become part of a TV-Online ad ecosystem as TV becomes a more socially connected medium. **NFLX, BABA**, and **AMZN** are beneficiaries of the shift to Online video viewing with their Online Video streaming offerings. **AKAM** benefits from the higher bandwidth requirements and complexity with delivering high quality video at scale. **ROKU** is perhaps the most important small cap derivative due to its recent growth and neutral ecosystem as a platform to deliver content.

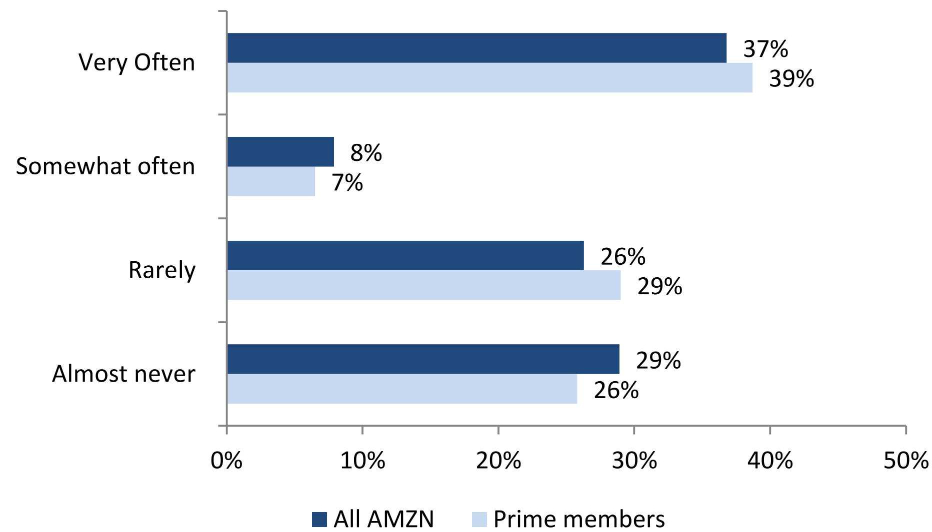
4. AI & ML

Artificial Intelligence & Machine Learning. Both are being increasingly deployed by companies with access to massive data sets and massive computing power. Companies like Amazon, Google, Facebook, Netflix, Priceline, Expedia, etc. This could, at the margin, increase the competitive moats around these businesses. It should almost certainly lead to better targeted/more personalized user interfaces. And photos that contain your face will be found EVERYWHERE on the Internet…

Our take is that given that data access is a limited option for startups, the largest existing Internet platforms – Google, Facebook, and Amazon – will benefit the most from this mega-trend. In the Voice Services arena of AI, Amazon (Alexa), Apple (Siri) and Google (Google Assistant) are the key players (Facebook does not appear to have a Voice investment, surprisingly). In particular, we want to call out Alexa – Amazon's AI Amazon's Artificial Intelligence Voice Assistant.

In our Survey of Internet users from this December, we tested Alexa Awareness and Ownership. Our survey results show that 89% (up from only one-third in August 2016!) of Amazon customers are aware of these devices and 19% (up from only 6% in August '16) of Amazon customers in the U.S. own an Alexa device. We believe this translates into around 24MM in total device sales to date or ~$4.5B in total device revenue since launch. While this would not be very material to Amazon's results, we are seeing strong consumer traction and early green shoots that suggest voice shopping can positively impact Amazon's retail flywheel. 3 out of the Top 4 Best Sellers in Electronics on Amazon are Alexa devices, and Alexa device owners are showing high levels of Satisfaction (per our survey: >90% indicate they are Moderately, Very or Extremely Satisfied). Our survey revealed 45% of Alexa device owners already use Alexa to regularly purchase items online.

Exhibit 28: How often do you order items on Amazon with Echo or Alexa?



Source: RBC Capital Markets Proprietary Survey of Amazon customers n=69

AWS is increasingly becoming an AI/ML play in addition to cloud. At the recent AWS re: Invent in Las Vegas, it was evident AWS is releasing new capabilities at a torrid pace and similar to last year, with a strong emphasis on AI/ML. A few notable new services from re: Invent include, SageMarker (removes heavy lifting and guesswork from ML), Amazon Transcribe, Amazon Translate and Amazon Comprehend and Rekognition Video (new speech/language/vision ML tools). In addition to Amazon, Google's open source software library for ML, TensorFlow, also continues to grow as important tool for AI/ML developers, as well Google's TPUs, amongst other offerings from Google.

Another example of AI/ML implementation is the application of chatbots for various functions including customer service. Most recently, PCLN's Booking.com announced the expansion of the pilot version of its new service and support chatbot, Booking Assistant, for English language bookings worldwide.

Derivative Plays – AMZN, **GOOGL,** and **FB** are the primary beneficiaries of this trend, with the financial power to hire some of the best talent in the space and already material leads in AI & ML research, which is not exactly an easy technology to get ahead in. Modest positive derivatives also include **BABA**, **EBAY**, **EXPE**, **NFLX**, **PCLN**, and **TWTR**.

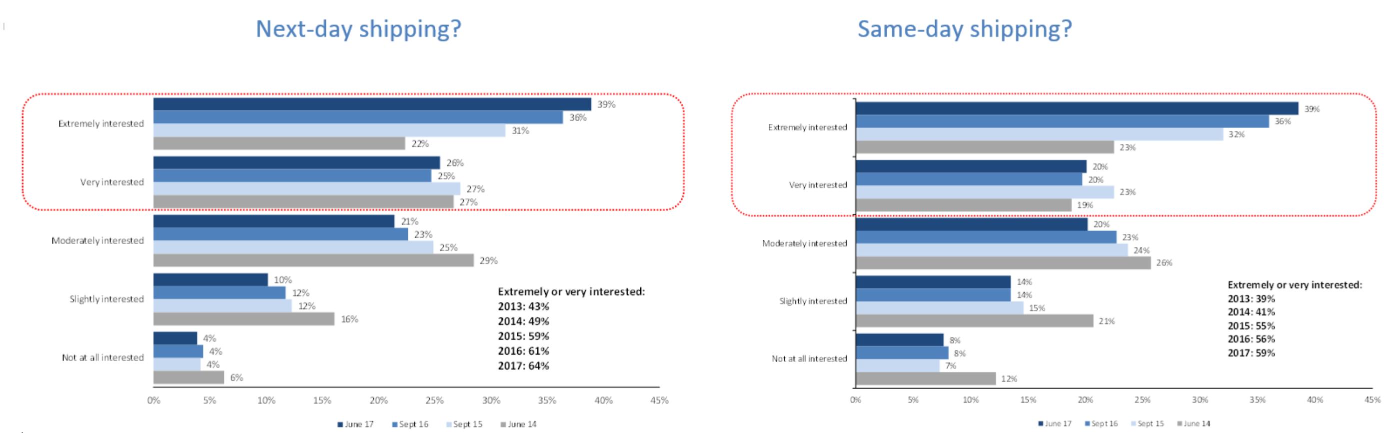
5. Speedy Delivery…aka The Need for Speed

Especially driven by the efforts of Amazon, we are seeing a broad industry move towards speedier fulfillment of Online Retail orders. We believe this move is raising the performance and the cost bars for competing Online, as consumers increasingly expect expedited shipping. Per our survey work, from 2013 to 2017 the percentage of U.S. consumers who are "Extremely" or "Very Interested" in next-day shipping has risen from 43% to 64%. Those companies with scale will likely be the biggest winners against this trend.

The significant steps that Online retailers are taking to improve their fulfillment capabilities could lead to the broad rollout of next-day and eventually same-day delivery. This will not only increase the value proposition for Online shopping compared to brick & mortar shopping, but will also allow eCommerce to expand into new verticals, such as Consumer Packaged Goods, which may have a more time-sensitive element to them.

We think that this element of improving "convenience" in ecommerce transactions is increasingly important. In fact, we have seen a positive trend in interest levels in our four annual US Online Retail surveys, particularly among those who are "extremely interested" and "very interested." We believe an increasingly important factor in improving "convenience" is offering expedited shipping options (i.e., "next-day" and "same-day"). In fact, we have seen a positive trend in interest levels in each of our four annual surveys, particularly among those who are "extremely interested." According to our latest survey, 39% of U.S. Online Shoppers are "extremely interested" and 64% are either "extremely" or "very" interested in Next-Day delivery. Further, 39% are "extremely" interested in Same-Day delivery and 59% are either "extremely" interested or "very" interested. These are materially elevated levels vs. our prior surveys. Rounding out these results, we are seeing a steady decline in the number of respondents who are either "Not at all interested" or only "Slightly Interested."

Exhibit 29: How interested would you be in guaranteed Next-day Shipping? (left) Same-day Shipping? (right)

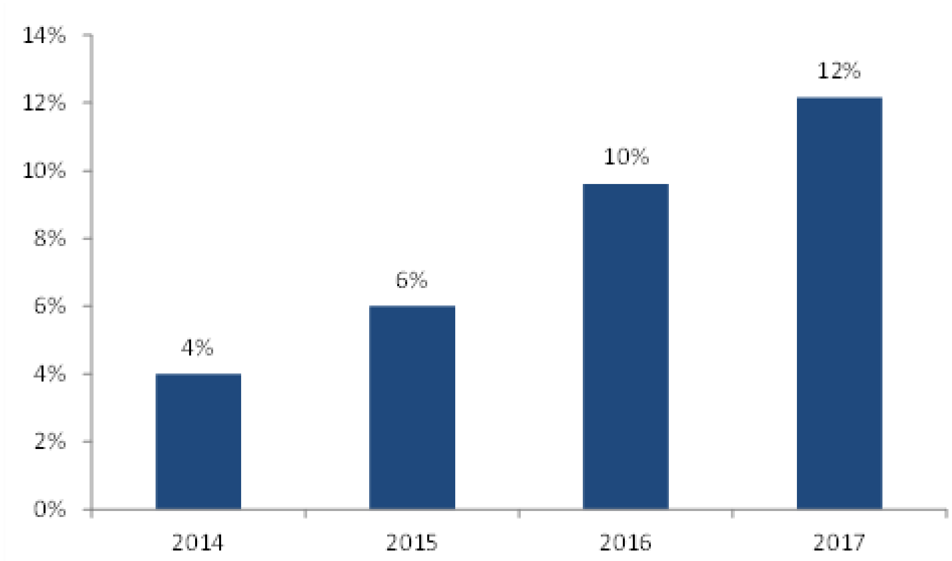


Source: RBC Capital Markets; Proprietary survey of 2,065 (June 2014) 1,617 (Sept 2015), 1,658 (August 2016), 1860 (June 2017) respondents via Survey Monkey

The improvements in "next-day" and "same-day" delivery are emblematic of Amazon's long-term investment thinking and show a willingness to remain patient. The company began investing in new distribution infrastructure back in 2010, specifically for the purpose of building out these capabilities. Fast-forward 6 years and Amazon has built a deep competitive moat around e-Commerce "convenience" in part due to its distribution infrastructure. Investments that shorten delivery times (i.e., Prime Now) are logical extensions and importantly we think this may tie in with the company's recent Whole Foods acquisition because groceries and prepared foods are ideal applications for SDD and Prime Now.

Four years ago, we ran our first survey specifically on Same-Day Delivery's impact on Amazon customer loyalty and we have re-run that survey each of the past three years. While SDD's impact is still relatively limited, we are seeing a steady uptick in usage. Adoption has gone from 4% in 2014 to 6% in 2015, 10% in 2016 and 12% in this year's survey. The service is still geographically constricted – but served metros continues to increase (now available in 30+ metros (Prime Now 31 cities), up from 27 in 2016 and 14 in 2015) and inventorially constrained (approximately 1MM+items available for SDD vs., for example, 50MM+ available for Prime (up from 30MM in 2016)).

Exhibit 30: Do you regularly use Amazon.com's Same-Day Delivery Option?



Source: RBC Capital Markets; Proprietary survey of 2,065 (June 2014) 1,617 (Sept 2015), 1,658 (August 2016), 1860 (June 2017) respondents via Survey Monkey

That said, we see clear signs of green shoots forming in Same-Day Delivery. Similar to last year, we tested whether Amazon SDD customers were more loyal (more spend, more purchases, more satisfaction, more intent to spend) than other Amazon customers. The answer, per our survey remains, Yes!

Forty percent of SDD customers spend $800+ a year with Amazon vs. 31% of non-SDD customers. 68% of SDD customers use Amazon at least 2-3x per month vs. 47% of non-SDD customers. 48% of SDD customers plan to spend more with Amazon over the next 12 months vs. 24% of non-SDD customers. And 89% of SDD customers are “extremely satisfied” or “very satisfied” vs. 81% of non-SDD customers.

Exhibit 31: Non-Same-day Delivery Users vs. Same-day Delivery Users – Percentage of Respondents…

Source: RBC Capital Markets; Proprietary survey of 1,617 (2015), 1,645 (2016) and 1,860 (2017) respondents via Survey Monkey

You know the expression "price elasticity?" We think Amazon is proving out "shipping elasticity" – i.e., the faster the shipping time, the greater the consumer demand/spend.

While the Total Spend and Spend Intentions metrics are lower this year than in our 2016 survey, the two-year trend is moving in the right direction. We think the clear takeaway is that with the rollout of Same-Day Delivery, Prime Now (1-2 hour delivery), and AmazonFresh + Whole Foods (grocery), Amazon is creating more convenience and greater selection for shoppers, which enhances the value proposition. Greater consumer value leads to greater engagement, which means more transactions, which means greater leverage over fixed assets and leads to positive P&L implications. Although there is an enormous execution risk as Amazon adds to the number of markets offering Same-Day Delivery service, the delivery features are increasing the value of its network and helping the Retail Flywheel spin faster. Importantly, financial results are a lagging indicator of the efficiencies its model is creating, but these flywheels should continue supporting long-term premium growth – both revenue and EPS – in Amazon Retail for years to come.

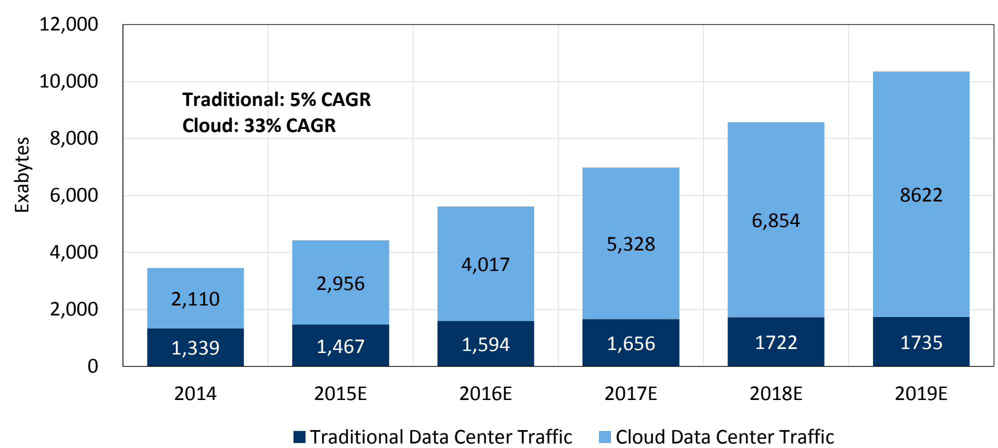
Derivative Plays – AMZN is currently the biggest derivative of this trend because of its fulfillment center build-out. **BABA** may also be a positive derivative, while the lack of vertical integration at **EBAY** may make it a negative derivative of this trend.

6. Cloud Computing – The Most Important Trend Across All Of Technology?

Cloud Computing has been a growing technology trend for the last several years. It has also become a material revenue & profit stream for Amazon (now half of AMZN's profits come from AWS) and, potentially, for Google. While we continue to see Amazon as the leader in this segment in our coverage, Google has increased its efforts the past year.

The market for Cloud Computing will likely continue to grow rapidly for some time to come. According to the Cisco Global Cloud Index, global cloud datacenter traffic overtook traditional traffic in 2013, and Cloud computing is expected to outpace Traditional data center growth over the next several years (33% Cloud CAGR vs. 5% Traditional 2014–2019E). This is partially due to the tremendous flexibility and increased utilization that Cloud architectures allow.

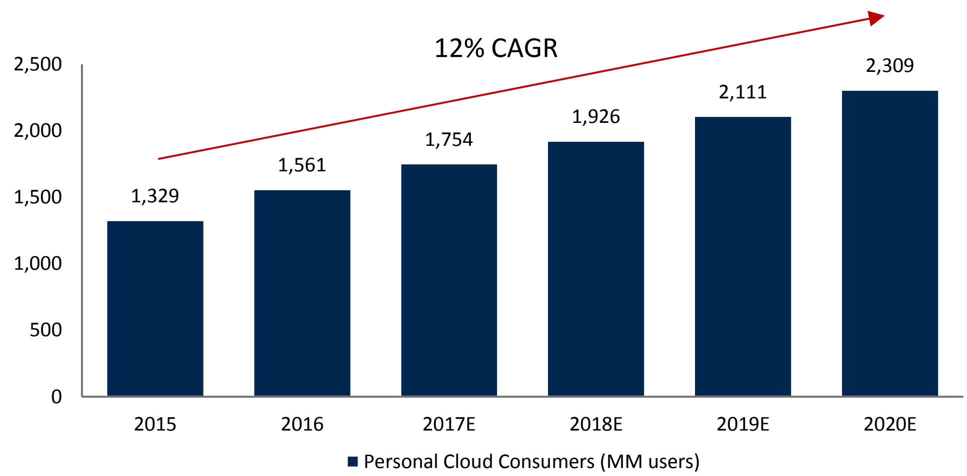
Exhibit 32: Global Data Center Traffic



Source: Cisco Global Cloud Index, RBC Capital Markets

Furthermore, in terms of users, Cisco estimates that by 2019 2B consumer Internet users (55% of the Internet using population) will use personal cloud storage – a notable rise from the 42% (1.1B users) using personal cloud storage in 2014. These "personal content lockers" have been helped by the increased use of tablets, SmartPhones, and other mobile devices, which allow access to personal content lockers in a manner convenient to the user. Companies such as Amazon, Apple, Google, Box and DropBox have made access to the Cloud easier (and cheaper…or free for many services…) for consumers to access.

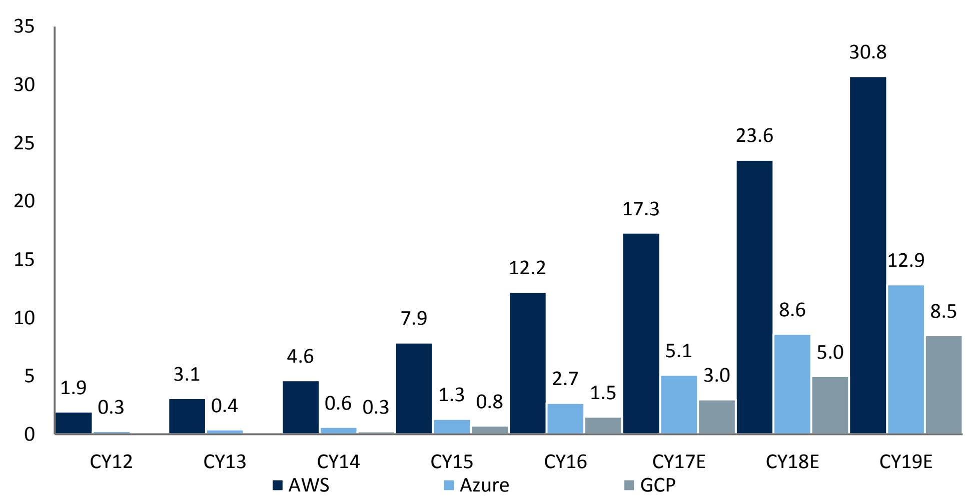
Exhibit 33: Personal Cloud Storage – User Growth



Source: Cisco Global Cloud Index, RBC Capital Markets

We see the growing market for Cloud Computing services having two impacts on the Internet space. First, some large cap Internet names, such as AMZN and GOOGL, are offering cloud services.

Exhibit 34: RBC Big 3 Cloud Estimates ($ in B)



Source: RBC Capital Markets Estimates

Second, the availability of Cloud services opens the door for more new and disruptive companies. Small, rapidly growing companies can self-fund early growth in data storage, rather than needing to secure funding to build out their server capacity. As one example, the cloud-based Web presence offered by Wix.com allows a small business to create a Website and then scale up their business services on Wix servers.

Derivative Plays – AMZN is the primary play off this trend because of the success of AWS. **GOOGL** is also in the mix with its Google Cloud Compute Engine, as well as **BABA** and **AKAM**.

7. The Cash Pile-up & M&A Fever

As the Large Cap Internet companies have grown over the years, so too have their cash (and equity) balances. Alphabet now has $100B in net cash on its balance sheet. Facebook has $38B. This has led to more cash returned to shareholders GOOGL (tho notably not in the recent Q3 quarter), PCLN, EBAY, as well as EXPE's dividend. And M&A activity has definitely increased, with Yahoo!, LinkedIn and Whole Foods having been acquired in recent years…

In the chart below, we show the Q3:17 cash balances for our entire coverage universe. The average proportion of cash to market cap is now 14% across the large cap universe.

Exhibit 35: Internet Coverage Universe Cash Positions

Company	Cash Balance ($MM)	Market Cap	Cash/Market Cap	Dividend
AKAM	1,414	9,690	15%	
AMZN	24,310	574,028	4%	
BABA	24,469	463,055	5%	
EBAY	11,400	41,076	28%	Potential
EXPE	3,827	18,698	20%	Current
FB	38,289	529,124	7%	
GOOGL	100,143	738,465	14%	
NFLX	1,667	84,251	2%	
PCLN	18,514	85,944	22%	Potential
SNAP	2,298	18,581	12%	
TRIP	769	4,796	16%	
TWTR	4,258	15,717	27%	

	Cash Balance ($MM)	Market Cap	Cash/Market Cap
Average	**19,280**	**215,286**	**14%**
Median	**7,829**	**62,664**	**14%**

Source: Company reports, RBC Capital Markets; Priced as of December 9th, 2017

Only one of these companies (EXPE) currently pays regular dividends, but we think a few other names are potential dividend payers in the coming years (EBAY, PCLN).

However, the most likely result of the large cash accumulation is that we will continue to see substantial acquisitions. Below we list a number of large Internet acquisitions that took place over the last few years. Among these are eight $1B+ acquisitions including Amazon – Whole Foods, Microsoft – LinkedIn, Verizon – Yahoo, Expedia – HomeAway, Activision Blizzard – King Digital, Liberty Interactive – Zulily, Verizon – AOL, and Expedia – Orbitz. Those with the biggest balance sheets should have the most options.

Exhibit 36: Significant Recent Internet Acquisitions

Acquiror	Target	Announce Date	Status	Deal Value ($ Billions)	% of Buyer Mkt. Cap.
Amazon	Whole Foods	06/16/17	Closed	$13.7	2.9%
Adobe	TubeMogul	11/10/16	Closed	$0.5	1.0%
Verizon	Yahoo!	07/25/16	Closed	$4.8	2.1%
Microsoft	LinkedIn	06/13/16	Closed	$26.2	6.6%
Expedia	HomeAway	11/04/15	Closed	$3.1	17.8%
Activision Blizzard	King Digital	11/02/15	Closed	$4.8	18.8%
Liberty Interactive	Zulily	08/17/15	Closed	$2.0	11.1%
Ctrip	eLong	05/22/15	Closed	$0.7	5.6%
Verizon	AOL	05/12/15	Closed	$3.9	1.9%
Pitney Bowes	BorderFree	05/05/15	Closed	$0.4	7.8%
Expedia	Orbitz	02/12/15	Closed	$1.6	14.1%
Expedia	Travelocity	01/23/15	Closed	$0.3	2.5%

Source: Company reports, RBC Capital Markets

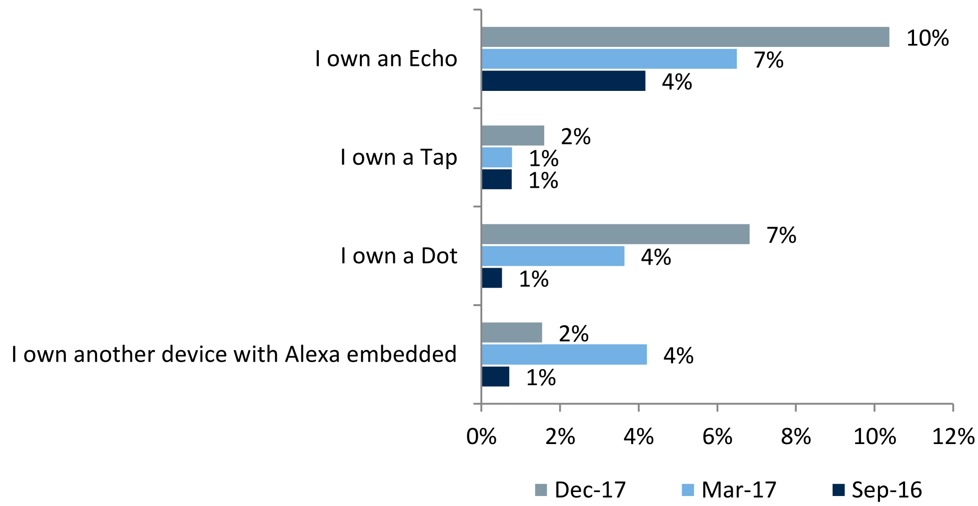
Derivative Plays – Internet companies with large cash balances will have more flexibility to pursue strategic acquisitions or to return capital to shareholders via buybacks or dividends. We believe that the primary plays off of this trend are **BABA, FB, EBAY** and **GOOGL**, with modestly positive derivatives including **AKAM, AMZN, EXPE, PCLN,** and **TRIP. NFLX** and especially **SNAP** may be a negative derivatives off of this trend given the high cash burn NFLX has been having due to content costs and early company costs for SNAP as it grows its consumer base.

8. Voice-ification of the 'Net

At previous Google I/O events, Sundar Pichai referenced that voice search is up to 20% mobile search queries across Android and Google Applications. We believe that penetration has further room to grow. Our broad conclusion is that VAI devices and services – specifically, Amazon Alexa and Google Home -- are dramatically gaining awareness, adoption, and usage in the U.S.

When we look at all Alexa devices, we see that the Echo remains the most popular. In last September, 4% of Amazon customers reported owning an Echo, versus 10% of total respondents in our most recent survey. Again, we would point out that the denominator for our first September survey was Amazon customers, while for this survey its Internet users, which could make this nearly 2x jump a bit conservative. The Dot has also gained meaningful traction, with 7% of Internet users indicating they own a Dot versus 1% in our September 2016 survey. Notably, the Echo Dot is take the Top 2 spots among all Electronics sold on Amazon (the Black and then White version). Interestingly, the number of other respondents that noted they own a different device (Fire TV Stick, Fire Tablet) that is embedded with Alexa decreased this iteration. However, the Echo and Dot selections improvements then offset that decline.

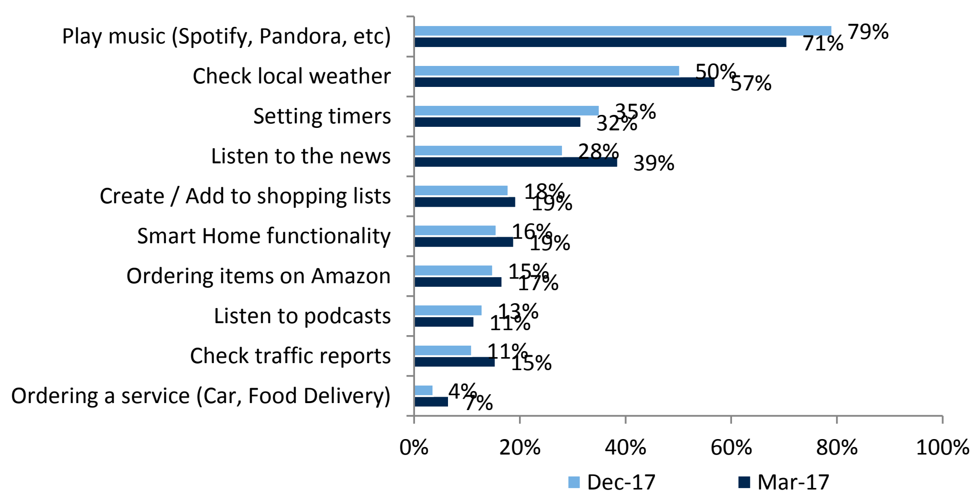
Exhibit 37: Do you own an Echo or any device enabled with Alexa?



Source: RBC Capital Markets; Survey Monkey, Dec. '17 n=1,855, Mar. '17 n=1,748, Sep. '16 n=1,645

When we asked Alexa device users how they use their Alexa most often, Playing Music, Checking Local Weather, and Setting Timers and Listening to the News were among the most popular responses. On the other hand, Ordering Items on Amazon and/or Ordering a Service (Uber, Food delivery) were among the least popular. One interesting observation is that consumers are using Alexa devices mostly for lean back entertainment and less for proactive demand fulfillment. Voice shopping and ordering is still rather unfamiliar. Over time, as penetration rises and users' comfort level with these devices increase, we expect the direction of this chart to continue tilting toward purchases and orders on Alexa-enabled devices. That said, we believe voice interfaces are relatively limiting as far as a shopping experience and the majority of shopping will still need a display. At a basic level, we see Alexa devices as removing friction and increasing frequency for Amazon customers and that is a win for AMZN.

Exhibit 38: How do you use Alexa most often? (Select all that apply)



Source: RBC Capital Markets; Survey Monkey, Dec. '17 n=302, Mar. '17 n=228

Further, as the internet's global expansion enters a new phase in emerging markets, we believe "the next billion" will likely utilize VAI and images to communicate online vs. traditional text. In developing countries with lower education levels, many of the top apps are tailored for slower connections and low data storage. In India, new entrants are driving down data pricing which is helping the mobile market accelerate. The largest cellular company in India, a subsidiary of Vodafone Group, recently offered users an option of buying unlimited data at less than 25 cents per hour. According to Vodafone India's Chief Commercial Officer, Sandeep Kantaria, customers are starting to use phones for social messaging, YouTube, and entertainment apps as opposed to email five years ago. According to App Annie, through the first six months of 2017, the use of YouTube in India has more than doubled, while Gmail fell 15%. Meanwhile, only around 400 million of India's 1.3 billion people in India are online.

In addition to emerging markets, we believe voice will likely extend the internet into the car and into the kitchen. Already, cars are beginning to have voice-powered operating systems come pre-installed. And if autonomous vehicle adoption grows, it is hard not to envision larger voice ecosystems created for the car.

All in, we believe the early winners of the Voice-ification of the internet will be **GOOGL** and **AMZN**, with derivate benefits for **BABA** and **AKAM**.

9. Government Footsteps

If there is structural risk rising to the leading Internet Platforms, it is likely to come from government. And that risk does seem to be rising. Three events have highlighted this for investors: 1) The EU's $2.7B fine levied against GOOGL, 2) The U.S. Government's investigation into the use of Facebook and Twitter to manipulate U.S. Elections, and 3) The pending Data Privacy Regulations (GDPR) in Europe.

During Q2, Google was officially fined by the EU for anti-monopolistic practices in its Comparison Shopping vertical and was given a 90-day deadline to propose changes to its Search Engine results. And the State of Missouri just formally launched a probe in Google's business practices in November. All in, we believe public scrutiny of the 'Net Mega Platforms (GOOGL, FB, AMZN) is rising. And there is risk this could lead to business practice changes that negatively impact each company's financial outlook, with Google likely the platform facing the greatest disruptive risk.

In our August 17 Q2 EPS Review report, we highlighted the risk to the leading Internet Platforms of greater regulatory scrutiny. Specifically, we talked about the rising structural risk of government footsteps. We noted that public scrutiny of the 'Net Mega Platforms (GOOGL, FB, AMZN) was rising, and there was risk that it could lead to business practice changes that negatively impact each company's financial outlook. We also spoke about the $2.7B fine levied by the European Commission on Google for anti-competitive practices in its Comparison Shopping vertical (Key Highlights From June Quarter EPS…Everyday We 'Net… 08/17/17).

In addition to the fine above, in our Moving from FANG to FAN? note on 09/10/17, we highlighted potential government regulation against Google. The European Commission has already initiated two other Statement of Objections against Alphabet for anti-competitive practices related to Android and AdSense. The Android case was brought to our attention from an article published in the UK's *Sunday Times* on September 3: "*Google to be hit with record EU fine over claims of phone software abuse.*" This was the second appearance in the news.

Here is the brief overview of the EC and the U.S. government's regulatory probes into Google…

Exhibit 39: European Commission formal charges and complaints against GOOGL

Official Cases	EC Case Number	Opening of Proceedings	Statement of Objections	Result
Google Search (Shopping)	39740	03/11/2010	04/15/2015	06/27/2017 - €2.42bln fine and required to adhere within 90 days
Google Android	40099	04/15/2015	04/20/2016	???
Google Search (AdSense)	40411	07/14/2016	07/14/2016	???

Complaints
Local Search, Travel, Maps
Scraping

Source: European Commission's Competition Website; RBC Capital Markets channel checks

In addition to the Android and AdSense charges, there have been anti-trust complaints on Maps, Travel and web scraping. However, no formal charges exist yet. These may serve as additional leverage by the EC against Google in potential negotiations.

What is now key to us as stock-pickers is the investigation into Google's Android Operating System, especially given the recent news report that the EU is looking to take more aggressive action against this.

Based on numerous discussions with investors, we believe the market may be under-appreciating the regulatory risk facing GOOGL. But they aren't under-appreciating risks related to rising TAC (Traffic Acquisition Costs), which are largely driven by revenue share payments by Google to Mobile and Desktop OEMs and Carriers. Rising TAC at GOOGL has been one of the biggest concerns we have heard from investors. The rub here is that the potential next EU regulatory action against Google may well involve forcing Google to "unbundle" Android from its other services – Search, YouTube, Maps, etc. This in turn could provide more negotiating leverage to OEMs…and thus lead to potentially higher TAC expenses.

All in, we believe **GOOGL** and **FB** have the most government/regulatory risk in our coverage universe. **AMZN**, **BABA**, **SNAP** and **TWTR** may have some risk as well.

10. Blockchain

We would be remiss if we failed to mention Blockchain Technology and its potential implications. Without getting too deep into the technological jargon, Blockchain is a global distributed (and decentralized) ledger running across millions of separate computers. Transactions are confirmed using cryptography and processing power to solve an algorithm, and in the process, authenticating that transaction. The thought is that if the majority of these decentralized processors authenticate a transaction, it is legitimate. And once these transactions are authenticated into a block, they are permanent and unable to be altered. Moreover, all prior transactions are fully transparent.

Why are we bringing this up now? Well, Blockchain is the technology underlying Bitcoin and other cryptocurrencies. And as you may be aware (unless you've been living under a rock), everyone and their Grandma has been talking about Bitcoin in recent months.

Perhaps cryptocurrencies become a new asset class that enables decentralized applications on the blockchain. However, we note that Blockchain likely cannot exist without cryptocurrencies because the miners will not be incentivized to authenticate transactions.

Which industries do we see potentially being disrupted? Well, the first order is the Payments industry. More broadly, we see the possibility of travel agencies and the real estate industry being disrupted, among others. We single these out because they are massively large and extremely fragmented industries, which may make them more appropriate for the application of blockchain technology. While it is very early, we see this a potential positive for the OTA's

(EXPE, PCLN, and TRIP) if they can leverage this, and perhaps a threat if they do not. We see blockchain as a potential negative to ZG and RDFN. For cryptocurrencies, we would view it as bullish for the technology if eCommerce companies begin to accept alt coins. However, we will continue to watch nascent trends before we make a conviction call on blockchain's implications for the 'Net universe.

Our Top Large & Small Caps for 2018

To be clear, our Top 2018 Longs are consistent with the recommendations we published in our September Quarter Review report, published November 16. Our Top Picks for 2018 are based on several screens: 1) Growth-Adjusted Valuation; 2) Price Target Implied Upside; 3) Fundamental Trends; 4) Core Long Thesis Conviction Levels; 5) Near-Term Catalysts; and 6) 2018 Setups. We summarize the results below. In terms of stocks calls, we would not equally weight the six screens. We would, as Fundamental Analysts, place the most emphasis on the Fundamental Trends Screen, on the Growth-Adjusted Valuation Screen, on our Core Long Thesis screen, and on the 2018 Setups. Our top Internet Picks are as follows:

Exhibit 40: Top Internet Large Cap Picks Summary

Rank	Ticker	Price 12/13/2017	Price Target	Color Commentary
1	FB	$178.3	$230	18 straight quarters of near 50% Y/Y Ad Revenue Growth (46% Y/Y in Q3) and mid-to-high-teens MAU growth (off massive scale) is unprecedented and speaks volumes about FB's value proposition to both advertisers and consumers. Further, we believe that FB's current low market shares – approximately 15% of Global Online Advertising & 5% of Global Total Advertising – will help it maintain premium growth for a long time. And FB still has several new large revenue growth drivers (Instagram monetization, Video monetization, Messaging monetization, etc…). FB also offers one of the sector's most attractive growth-adjusted valuation -- 25X P/E for 30%+ EPS growth.
2	NFLX	$187.9	$250	20+ straight quarters of 35% Y/Y Streaming Revenue growth. Post Q3 EPS results, the NFLX Long Thesis remains fully intact. Thesis being: a. Dramatic Secular Shift away from Linear TV (1B pay TV subs today) to Internet TV (150MM subs today); b. Netflix is the Subs leader – perhaps 8X more subs than closest competitor…and this is a scale game; c. Netflix proving out U.S. & International profitability – U.S. Contribution Margin rising from 16% in '12 to 37% in '17 & International @ break-even; d. Netflix proving out Universal Appeal – 10% HH bband penetration within 3 years in every market launched and Higher International Sat Scores; e. Netflix Exercising Pricing Power - could lead to Revenue Growth Acceleration in '18.
3	AMZN	$1,164	$1,200	60 straight quarters of 20% Y/Y Retail Revenue Growth. Retail Revenue growth has accelerated (32% in Q3 was multi-year high) & AWS growth may accelerate (anniversarying price actions). AMZN's Outlook is arguably the strongest of the Major 'Net Platforms, because it faces the Largest (and Least Penetrated) TAMs – $20T Retail (10%) and $1T Cloud (10%)…along with $1T Advertising (30%), $5T Business Supplies (10%)…and maybe others.

Rank	Ticker	Price 12/13/2017	Price Target	Color Commentary
1	YELP	$42.3	$55	We still see in Yelp a strong and improving Local solution – one that is morphing from a Local Marketing Platform to a Local Marketing AND Transactions Platform. Which means that the strategic value of Yelp is rising. And we still view Yelp as facing a way underpenetrated market opportunity (in Los Angeles, Yelp's most "mature" market, only 4% of small businesses are customers). Yelp appears to have re-gained consistency with sales force execution, and new revenue streams (e.g. RAQ) suggest topline growth is sustainble. Finally, YELP is one of the least expensive 'Nets on a growth adjusted basis -- 16x EV/EBITDA vs. 30% EBITDA growth.
2	TRUE	$11.4	$18	Q3 was a major disappointment, but we believe largely due to 1x issues that can be resolved (USAA). TRUE should also benefit in '18 from the ramp of 3 new initiatives (OEM incentives, Trade-In, Used Cars, etc.) that can bend the growth curve. TRUE addresses a critical consumer need, is attacking a large market opportunity, and presents a differentiated value proposition to both dealers and consumers. Also, among the least expensive 'Nets on a non growth-adjusted basis -- 25X EV/EBITDA vs. 40% EBITDA growth.
3	ZG	$41.6	$51	Zillow remains one of the best growth stories across the 'Net sector (20%+ revenue growth & 30%+ EBITDA growth), because of its emerging growth categories (Rentals, StreetEasy, etc.) and because we believe it has less than 10% penetration of its core TAM. Zillow also continues to benefit from a very strong competitive position, an attractive business model (90% Gross Margins), and a highly effective management team.

Source: RBC Capital Markets estimates, Company Reports, Priced as of market close, 12/13/17

Companies mentioned

Akamai Technologies, Inc. (NASDAQ: AKAM; $56.76; Sector Perform)
Alibaba Group Holding Limited (NYSE: BABA; $171.75; Outperform)
Alphabet Inc. (NASDAQ: GOOGL; $1,057.47; Outperform)
Amazon.com, Inc. (NASDAQ: AMZN; $1,174.26; Outperform)
eBay, Inc. (NASDAQ: EBAY; $37.60; Sector Perform)
Expedia, Inc. (NASDAQ: EXPE; $119.90; Outperform)
Facebook, Inc. (NASDAQ: FB; $178.39; Outperform)
Netflix Inc. (NASDAQ: NFLX; $189.56; Outperform)
Snap Inc. (NYSE: SNAP; $16.04; Sector Perform)
The Priceline Group Inc. (NASDAQ: PCLN; $1,760.92; Outperform)
TripAdvisor Inc. (NASDAQ: TRIP; $34.49; Sector Perform)
TrueCar, Inc. (NASDAQ: TRUE; $11.12; Outperform)
Twitter, Inc. (NYSE: TWTR; $22.58; Underperform)
Yelp, Inc. (NYSE: YELP; $42.17; Outperform)
Zillow Group Inc. (NASDAQ: ZG; $40.64; Outperform)

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