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U.S. Equity Strategy

Sector Cross-Currents: How to Surf the Swirl of Trump & Tech Disruption

In this report, we delve deep into the fundamental cross-currents buffeting U.S. equities, and show how the impact of government policies, and disruptive innovations that are sweeping across the economy, influence our outlook for the S&P 500 and relative positioning between sectors.

- **The government and fiscal policies undertaken by global policymakers have been both a blessing and a curse for U.S. equity markets.** While the first three arrows of Trumponomics – tax cuts, fiscal expansion, and deregulation – have been clearly pro-growth, the fourth arrow, trade barriers, which was deployed by the Trump administration this year, has the potential to negatively impact growth. **While it is not our base case, an all-out global trade war could completely offset the positive fiscal stimulus from tax reform. Although Industrials and Energy are particularly vulnerable to a potential trade war**, the impact on the energy sector is mostly because of its exposure to trade within NAFTA.

- **While the arrow of deregulation has continued to be a positive tailwind for Financials**, the fading of political rhetoric on drug pricing this year and an industry-friendly FDA has led to **U.S. government policy also becoming a positive catalyst for Healthcare.** Meanwhile, although the antitrust regulations by the EU could be a negative for internet companies, the impact of GDPR in the short term is likely to be limited. Ironically, longer term, GDPR and ePrivacy regulation (slated for 2020 and beyond) might actually benefit larger internet platforms.

- **A key focus of policy makers across the globe has been the growing dominance of internet-based companies as a result of a series of disruptive innovations sweeping across the U.S. economy.** Broadly, the Disruptors (Internet and Cloud-based companies, mainly the FAANGs: Facebook, Apple, Amazon, Netflix, and Google) are breaking down moats of the Disrupted (legacy consumer businesses and IT hardware & software companies), by dominating the user experience and creating strong moats for themselves in the process. **This is leading to a shift in value from Consumer Discretionary and Consumer Staples to Info Tech.**

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The Blessing and Curse of Government Policy

An all-out global trade war could completely offset the positive fiscal stimulus from tax reform

The government and fiscal policies undertaken by global policymakers have been both a blessing and a curse for U.S. equity markets. While the first three arrows of Trumponomics – tax cuts, fiscal expansion, and deregulation – have been clearly pro-growth, the fourth arrow, trade barriers, which was deployed by the Trump administration this year, has the potential to negatively impact growth. While it is not our base case, an all-out global trade war could completely offset the positive fiscal stimulus from tax reform. Although Industrials and Energy are particularly vulnerable to a potential trade war, the impact on the energy sector is mostly because of its exposure to trade within NAFTA.

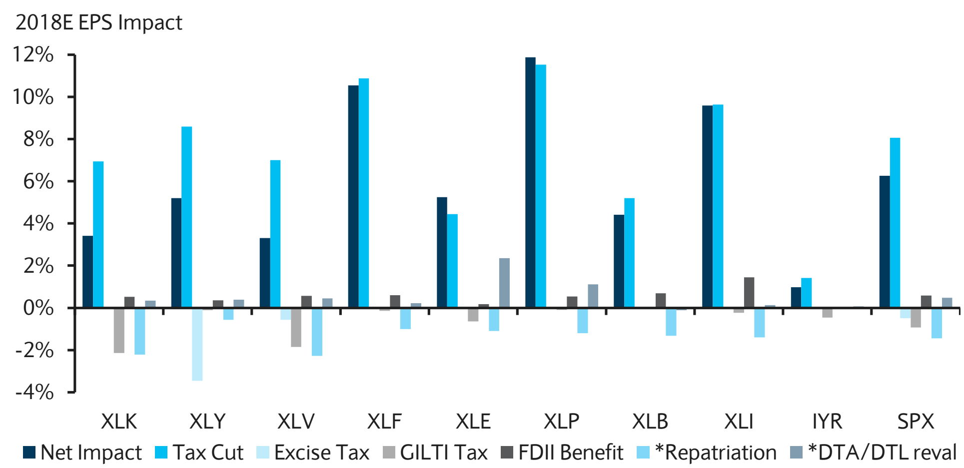
Tax Cuts and Fiscal Stimulus: A Short-Term Positive

After the Tax Cuts and Job Act of 2017 was passed in December 2017, we estimated that it could boost 2018 recurring earnings for S&P companies by 7.3% (Figure 1), with an additional one-time impact of -1% due to one-off factors ("*Special Report: Assessing the Impact of US Tax Reform on US Equities*," 19 December 2017). Since that time, 2018 IBES consensus estimates have actually performed modestly better than we expected, rising by 7.8%.

Our analysis had suggested that while the corporate statutory tax rate was reduced from 35% to 21%, the effective rate (for S&P 500 companies) was only reduced from 26% to 20.7%, primarily due to the introduction of a territorial-based US tax system. The introduction of a territorial-based U.S. tax system (as opposed to the prior worldwide-based US tax system) follows a "carrot and stick" approach to incentivize multinationals to relocate their foreign intangible assets to the United States. If a U.S.-parented group holds a significant portion of its intangibles (intellectual property, patents, copyrights, etc.) offshore, any income generated from those intangibles will be taxed at a rate of at least 10.5%, considering foreign and U.S. tax. If the same group holds those intangibles in the United States, the 37.5% FDII deduction for sales and services income provided to foreign persons effectively provides an effective tax rate of 13.125% on income generated from those same intangibles. The small rate differential significantly decreases the advantage under current law of holding intangibles offshore.

FIGURE 1

Our estimates on the impact of the key provisions of Senate Tax Reform Bill on S&P 500 sectors' corporate earnings when the TCJA 2017 was released



Source: Barclays Research, "*Special Report: Assessing the Impact of US Tax Reform on US Equities*," 19 December 2017

Importantly, our estimates did not include the positive impact from the reduction in personal income tax, which could potentially lead to higher economic growth. In addition, it only included the first-order effects of the changes in corporate tax policy in that it invest in capital expenditure or increase hiring, that would have a more powerful effect of increasing valuations. However, given that the output gap for the U.S. economy is almost closed, this is not our baseline scenario. Indeed, the S&P 500 index increased by roughly 10% from end-November 2017 to end-January 2018. Since 7.8% of this rally can be attributed to an increase in earnings expectations, the increase in valuations was minimal over this time.

An additional fiscal stimulus is the Bipartisan Budget Act of 2018, passed on 9 February 2018, which could lead to $67.9bn and $184.3bn of additional fiscal spending in FY 18 and FY 19, respectively, according to U.S. Congressional Budget Office estimates.

"Trade Wars" a New Headwind

Despite its election campaign rhetoric, the Trump administration did not deploy the trade-barrier arrow last year, but this has emerged as one of the key tail risks this year after the U.S. imposed tariffs of 25% and 10% on steel and aluminium imports, respectively, following an investigation by the U.S. Commerce Department. Although the U.S. equity market sold off initially, it recovered after the U.S. administration provided temporary exemptions to Canada, Mexico, EU, and other strategic partners.

While this significantly reduced global tensions, the U.S. and China again ratcheted up trade tensions with their 'tit-for-tat' tariff measures on $50 billion worth of trade, with the U.S. proposing to impose a 25% tariff on mainly machinery, aerospace, electronics, and medical equipment and China responding in kind with a list mostly in aerospace, autos, chemicals, and soybeans. President Trump doubled down by raising the possibility of an additional $100 billion worth of Chinese imports and potentially using the 1974 Trade Act to restrict Chinese investment into strategic sectors. Tensions eased between the two countries after President Xi Jinping also offered to increase the market access on restricted financial and service industries along with purchases of various U.S. exports, greater intellectual property rights protection, and cutting tariffs on auto imports, leading to a market relief rally.

Over the last couple of months, while the U.S. had been engaged in negotiations with trading partners in the hopes of persuading them to restrict their exports to the U.S., most of these talks turned out to be unfruitful. So on May 31, the U.S. Commerce Department announced that it will be ending the temporary exemptions from steel and aluminum tariffs that it had given to Canada, Mexico, and the EU. Countries that will still be exempt from the tariffs include Argentina, South Korea, Brazil, and Australia since they have agreed to restrict their exports to the United States. In the meantime, the targeted countries have already released retaliatory tariffs, which will hit agricultural and industrial products.

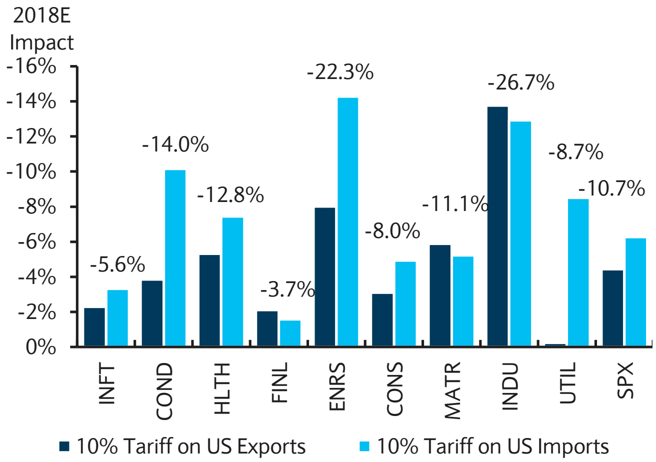
VIX isn't expecting an all-out trade war; neither are we…but we model it anyway

While equity markets were concerned previously that 'tit-for-tat' tariffs could boil over into an all-out trade war, they are taking the most recent developments in their stride in the hope that the trade tensions will subside this time again, as evident from the muted response of VIX this time around. While that remains our base case too, we believe it is prudent to assess the potential impact of an all-out trade war, and have developed a bottom-up framework using detailed export-import data available from BEA to evaluate the potential impact of a trade war on the 2018E EPS of each S&P 500 company and then aggregate based on industries and country exposure.

This allows us to estimate the impact in the worst-case scenario of an all-out trade war for U.S. companies across sectors and U.S. trading partners.

FIGURE 2

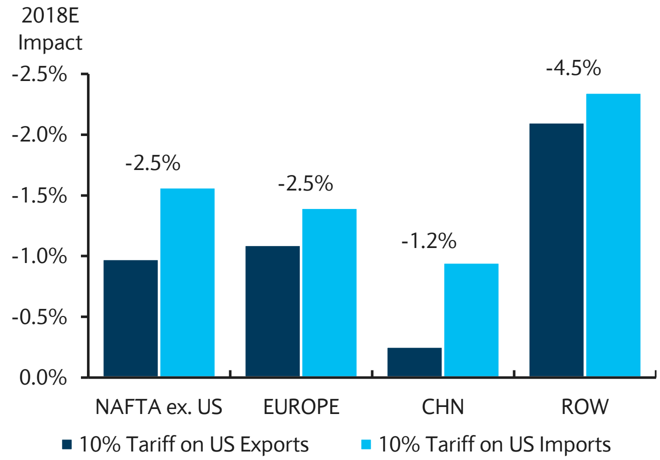
Impact of Tariffs vary significantly across sectors…



Source: Barclays Research
Note: The labels depicted in the figure represent the total impact of 10% tariff on both US Exports and US Imports

FIGURE 3

…And across trading partners



Source: Barclays Research
Note: The labels depicted in the figure represent the total impact of 10% tariff on both US Exports and US Imports

We estimate that an across-the-board tariff of 10% on all U.S. imports and exports would lower 2018 EPS for S&P 500 companies by c.11% and, thus, completely offset the positive fiscal stimulus from tax reform. We estimate that the impact on exporters, which would be directly affected, would be only 5%, while that on U.S. companies that import finished goods or inputs would be higher, at roughly 6%. We believe this highlights the unintended consequences of imposing tariffs given the global nature of current supply chains. We would point out that our estimates based on 10% tariff should be viewed through the lens of a sensitivity analysis on 2018E earnings from the impact of an all-out trade war. Clearly, the actual announced trade measures carried a 25% tariff for steel and the U.S.-China "tit-for-tat" exchange, while aluminum carried a tariff of 10%.

U.S. companies would be hurt more by tariffs on imports than by tariffs on exports

As shown in Figure 2, the impact varies substantially across sectors, with Industrials being particularly vulnerable. Although technology companies have a large amount of foreign revenue, they would not be directly impacted because this revenue is attributed to their foreign subsidiaries. The impact on the energy sector is large but that is mostly because of exposure to trade within NAFTA. Figure 3 calculates the exposure aggregated across trading partners. Again, it shows that U.S. companies would be hurt more by tariffs on imports than by tariffs on exports. A trade war only on China will affect S&P earnings only by 1.2%.

We emphasise that, for our analysis, we have assumed a worst-case scenario that all tariffs are absorbed by U.S. companies and would therefore flow through to EPS. Thus, implicitly, we assume that a U.S. company has no pricing power for the goods it sells and for the raw materials it buys. This is a conservative assumption, for two reasons: first, in reality, companies would likely try to optimize how much of the tariffs they could pass on to consumers based on the demand elasticity of their products, so as to maximise profitability; and second, the tariffs imposed by U.S. trade partners on U.S. exports would most likely be shared between the foreign downstream companies and their U.S. suppliers.

However, our analysis ignores the second-order ripple effects of the tariffs due to declines in aggregate output of the global economy relative to expectations. The decline in sales of a company due to market share loss as it tries to optimize its pricing would affect its upstream suppliers as well. Furthermore, the decline in profitability would cause investment to decline. It is hard to quantify this effect since it requires knowledge of demand elasticity across products.

Our analysis also ignores the possibility that some U.S. companies would acquire market share from foreign companies whose products would be less competitive due to the imposition of tariffs or outright quotas. These effects also would depend on the demand elasticity.

Finally, a slowdown would also likely hit business sentiment, which would have its own knock-on effect. Although protectionism was one of the four arrows of "Trumponomics," it did not materialize during the administration's first year in office. Equity valuations reached an all-time high as sentiment improved with the market's focus on the other three "pro-growth" arrows – tax cuts, deregulation, and fiscal expansion. An unleashing of anti-trade policies and potential of a trade war could reverse the upward trend in valuations.

Regulation of Internet: Inevitable but Not Debilitating

Potential data privacy in the U.S. and EU and antitrust litigation in EU have emerged this year as the global policy makers seek to rein in the growing dominance of Internet companies (the Disruptors).

New data privacy regulation could simply solidify the Facebook/Google digital advertising duopoly

The FTC has launched an investigation into Facebook in response to the Cambridge Analytica scandal for violation of a 2011 consent decree it signed with the agency. Facebook is also facing several lawsuits, including a couple of class actions. While the potential fines from the FTC investigation and litigation costs could be detrimental to the company, any new data privacy regulations as a result of the scandal would likely lock-in the leadership position of Google/Facebook[1] even further, in our opinion. EU's new regulation GDPR (General Data Protection Regulation) is a case in point. While the impact of GDPR in the short term is likely to be limited, ironically, longer term, GDPR and ePrivacy regulation (slated for 2020 and beyond) might actually benefit larger internet platforms. This is primarily due to two reasons. Firstly, as various businesses see users opt-out of being tracked, advertising dollars are likely to flow back into customer acquisition, which ironically benefits Google/Facebook. Secondly, since Facebook/Google are not allowed to share user data collected on their platforms with third parties as a result of the new regulation, it will likely further solidify their duopoly of the digital advertising market, in our view.

While the standard of antitrust regulation in the U.S. is consumer welfare, in EU it is restriction of competition

The Internet-based disruptors are dominating by providing a differentiated user experience, which earns them the most consumers/users, which attracts the most suppliers, which further enhances the user experience in a virtuous cycle. This means that the Internet enforces strong winner-take-all effects: since the value of a disruptor to end users is continually increasing, it is exceedingly difficult for competitors to take away users or win new ones. While this makes it difficult to make antitrust arguments based on consumer welfare (the standard for U.S. jurisprudence), they are ripe for EU antitrust regulation (which considers monopolistic behavior illegal if it restricts competition). The case in point is Google, which is being investigated by the EU for antitrust violations in how the company has used Android bundling to leverage monopolies in smartphone operating systems (Android), app stores (the Google Play Store), and search (Google Search). While the potential maximum for the fine is $11 billion[2] (~1.4% of its market cap), the actual fine could be much lower.

Other Government Policies: A Net Positive

While the arrow of deregulation has continued to be a positive tailwind for Financials, the fading of political rhetoric on drug pricing this year and an industry-friendly FDA has led to U.S. government policy becoming a positive catalyst for Healthcare. Meanwhile, while the antitrust regulations by the EU could be a negative for Internet companies, it is offset by potential data privacy regulations in the EU and U.S. which could be a positive catalyst in our

[1] Facebook (FB) and Alphabet (GOOGL) are covered by Barclays Equity Research's U.S. Internet analyst, Ross Sandler
[2] *Alphabet, Inc.: Revisiting the Potential 'At Risk' Revenue from Android Bundling*, 6 June 2018

opinion, leading us to believe that the new regulatory environment will not hurt Info Tech. Below we summarize the impact of these policies across sectors.

Other Government Policies

Information Technology: Neutral

- Trump administration blocking cross-border mega-tech deals (Broadcom-Qualcomm deal)
- GDPR likely locks in leadership position of Google/Facebook further as it makes it harder for online businesses to acquire customers leading to higher Ad revenue
- Antitrust litigation against Google in EU is a negative as it considers monopolistic behavior illegal if it restricts competition (as opposed to U.S. which bases it on consumer welfare)

Consumer Discretionary: Positive

- Disposable income from personal tax cuts could lead to higher discretionary spend, although with a lag as in the past
- Potential wage increases from tax reform could benefit but has not shown up in BLS hourly wages data

Healthcare: Positive

- Political rhetoric on drug pricing has abated and President Trump's drug pricing plan did not call for direct price negotiation or price-caps for government/commercial payers (except more price transparency)
- FDA exhibiting industry-friendly views on drug approvals with change in FDA commissioner

Financials: Positive

- Treasury recommendations roll back major regulatory/capital requirements revealing the true earnings power of banks overshadowed by years of regulatory/litigation costs

Industrials: Neutral

- Defense budget of $700 billion is a positive, but actual outlays remain uncertain

Materials: Positive

- Supply-side reforms, tighter environmental policies and privatization of SOEs in China has led to capacity rationalization

Utilities: Neutral

- 100% capex expensing in 2018 could front-load capex for infrastructure investment
- Timeline of implementation of lower utility rates (from US tax reform) by state PUCs uncertain
- While withdrawal of federal environmental policies by President Trump is a positive, state PUCs continue to enforce tighter environmental policies

Disruptive Innovation: Who Are the Disrupters and the Disrupted?

A key focus of policy makers across the globe has been the growing dominance of internet-based companies as a result of a series of disruptive innovations sweeping across the US economy. Broadly, the Disruptors (Internet and Cloud-based companies, mainly the FAANGs: Facebook, Apple, Amazon, Netflix, and Google) are breaking down moats of the Disrupted (legacy consumer businesses and IT hardware & software companies), by dominating the user experience and creating strong moats for themselves in the process. We can summarize the table above into three key types of disruptions:

- **Internet is disrupting consumer focused businesses (retailers, cable TV/media, consumer staples, consumer PC industry):** FAANG stocks are disrupting legacy consumer industries by either modularizing supply or distribution moats of the incumbents and creating strong moats for themselves by owning the user experience.

- **Cloud computing disrupting IT hardware and software companies:** Amazon/Microsoft are the disruptors due to the flexibility and low cost of cloud's pay-for-use model

- **Shale/fracking disrupting oil & gas industry and power companies:** Shale oil & gas revolution and well productivity disrupting oil & gas supply-demand balance

We delve deeper into each of these innovations, and look at how they are disrupting legacy businesses, how the disrupted legacy businesses are adapting, and whether the value will likely continue to shift from the disrupted to the disruptors.

Internet Disrupting Consumer-Focused Businesses

The old ways of gaining competitive advantage by integrating backwards with suppliers have been upended

The competitive advantage of legacy consumer focused businesses depended on either: 1) creating a monopoly/oligopoly in supply (creating a "scarce resource" in the process), or 2) controlling distribution by integrating with suppliers. The fundamental disruption of the Internet has been to turn this dynamic on its head by dominating the user experience. First, while the mega-tech Internet companies have high upfront capital costs, their user base is so large that the capital costs per user are insignificant, specially relative to revenue generated per user. This means that the marginal costs of serving another customer is effectively zero, thus neutralizing the advantage of exclusive supplier relationships that were leveraged by legacy distributors. Secondly, the Internet has led to the creation of infinitely scalable networks that commoditize/modularize supply of "scarce resources" (thus disrupting the legacy suppliers of those resources), making it viable for the disrupting internet company to position itself as the key beneficiary of the industry's disruption by integrating forward with end users/consumers at scale.

Dominating user experience now drives success

As a result of the disruption, the user experience has become the most important factor determining success in the current environment: the disruptors win by providing the best experience, which earns them the most consumers/users, which attracts the most suppliers, which enhances the user experience in a virtuous cycle. This has resulted in a shift of value from the disrupted to the disruptors who modularize/commoditize suppliers, integrate the modularized suppliers on their platform, and distribute to consumers/users with which they have an exclusive relationship at scale. Figure 4 illustrates: 1) the key disrupted industries that have been disrupted by the Internet-based companies, 2) what were the moats of these legacy businesses, 3) how the disruptors commoditized those moats, 4) how the disrupted legacy businesses are adapting, and 5) whether the value will continue to shift from the disrupted to the disruptors in our opinion.

Internet creates winner take-all effects

This further means that the Internet enforces strong winner-take-all effects: since the value of a disruptor to end users is continually increasing it is exceedingly difficult for competitors to take away users or win new ones. This makes it difficult to make antitrust arguments based on consumer welfare (the standard for U.S. jurisprudence), but ripe for EU antitrust regulation (which considers monopolistic behaviour illegal if it restricts competition).

Cloud Computing Disrupting IT Hardware/Software

On-premise IT hardware and software companies built high barriers to entry by creating integrated suites of hardware/middleware and application software involving multi-year relationships with enterprises, complete with licensing & support contracts and cash-rich streams of maintenance and service costs. High switching costs and entrenchment through customization of on-premise hardware and software based on enterprise-specific needs resulted in outsized profits for the incumbents. Amazon/Microsoft commoditized data center infrastructure, effectively transforming computing resources into storage, computing, database, and application software components running on centralized servers which could be used on an ad-hoc basis not only by their internal teams but also enterprise customers.

The cloud is becoming a disruptive force for IT hardware, software, and the services industry as the cloud's greater efficiency, flexibility, and lower cost is reshaping IT spending patterns and vendor incumbency. Cloud displacement risk is high for companies participating in storage and servers, followed by managed services and application/middleware software as competitive pressures mount from elongating replacement cycle and greater price discounting. Even for large enterprises and governments, where decades of IT infrastructure and applications make the move from on-premise to the cloud difficult, the cloud's pay-for-use model is changing how these enterprises evaluate and deploy on-premise IT workloads, and increasing the use of modular and customized IT solutions, which stands to hurt the cash-rich services and software maintenance streams of the disrupted legacy IT hardware and software businesses.

FIGURE 4

Who are the Disrupted and how are they responding?

Disrupted Legacy Industries	Moats	Disruptors	Mode of Disruption	How are disrupted adapting?	Our opinion on response
Cable TV & Media	Cable bundles with "must-see" shows/events	Facebook, Amazon, Netflix, Google	Unbundling of content, information, entertainment	Unbundling content & offering OTT services	Not helpful, will further solidify disruptors' moats
IT Hardware, Software & Services	Integrated suites of application software with multi-year licensing & support contracts	Amazon, Microsoft, Google	Cloud based pay for use storage, computing & applications	Recalibrating business model from on-premise to subscription	Not helpful, requires a full pivot
PC Industry	Integrated chip (Intel) and software (MS Windows/Office)	Apple, Google, Facebook, Netflix	Smartphones disrupted PCs and Intels chip monoply	Pivoting to smartphones and app subscription	Helpful in long-term
Consumer Staples + Retailers	Dominating physical shelf space via huge collection of heavily branded products	Amazon, eCommerce	Virtual Shops with no constraint on range of products + access to fulfilment services	Focusing on key brands	Might provide short-term relief
Oil & Gas Majors, OPEC	Creation of oligopoly (OPEC) to control oil supply leading to control of oil prices	Shale E&Ps	Technology to exploit shale oil	Deeper traget output cuts by OPEC	Might provide short-term relief

Source: Barclays Research. Facebook (FB), Alphabet (GOOGL), and Amazon.com (AMZN) are covered by Barclays Equity Research U.S. Internet analyst, Ross Sandler. Microsoft (MSFT) is covered by Barclays Equity Research U.S. Software analyst, Raimo Lenschow. Netflix (NFLX) is covered by Barclays Equity Research U.S. Media analyst, Kannan Venkateshwar. Apple (AAPL) is covered by Barclays Equity Research U.S. IT Hardware analyst, Mark Moskowitz.

Shale/Fracking Disrupting Oil & Gas Industry and Power Companies

Creation of oligopoly (OPEC) and controlling supply of oil led to outsized profits in the past not only for OPEC countries, but also oil & gas majors in the U.S. and other parts of the world. The shale oil & gas revolutionized oil well exploration, development, and production in North America through horizontal drilling and multi-stage hydraulic fracking techniques, thus disrupting the oil & gas supply-demand balance and becoming the "swing producer" in the process.

Low gas prices (as a result of abundant natural gas supply due to shale revolution) also led to low power prices and disruption of coal-powered power plants as power generation shifted from coal to natural gas, leading to a decline in asset values and new-build incentives for the coal-powered power-generating subsidiaries of regulated utilities.

Impact of Disruptive Innovation across Sectors

Assessing the net impact of these innovations on each sector is difficult as in some cases the disruptors and the disrupted belong to the same sector. For example, Amazon and retailers are both in consumer discretionary while Microsoft and IT hardware and software companies are both in Information Technology. We next briefly describe our view of the net impact on the affected sectors.

Impact of Disruptive Innovation Across Sectors

Consumer Discretionary: Neutral

- Amazon's cloud computing, fulfillment centers, Google/Facebook's targeted ads, and YouTube's brand advertising disrupting retailers by leveling the playing-field between ecommerce start-ups and retailers
- Netflix has led to unbundling of legacy cable bundles (disrupting cable TV & media in the process)and migration toward non-linear content delivery; however, incumbents are adapting
- Facebook and YouTube disrupting cable TV & media as it is reshaping how consumers entertain themselves and follow the world, leading to lower brand advertising spend on TV

The headwinds for the disrupted are offset by tailwinds for the disruptors, leading to our neutral position

Consumer Staples: Negative

- Amazon's cloud computing, fulfillment centers and Google/Facebook's Mobile Advertising are disrupting consumer staples by leveling the playing-field between small merchants and conglomerates
- Private-label and organic/natural food brands are disrupting food manufacturers
- Amazon-Whole Foods is accelerating price competition in groceries
- In response, retailers are acquiring ecommerce companies, staples manufacturers are restructuring their brand portfolio, and food companies are acquiring natural/organic brands
- While the sector has sold off, its P/E ratio has been tracking SPX and have not collapsed

Energy: Negative

- Shale oil & gas revolution and well productivity disrupting oil & gas supply-demand balance

Information Technology: Positive

- Disrupted
  - Cloud computing disrupting IT hardware/software as greater flexibility and lower cost of pay-for-use model are not only leading to migration to cloud but also reshaping on-premise IT spending patterns, elongating replacement cycles and driving price competition
  - High user engagement with Netflix, and Facebook and its messaging apps, is disrupting the PC industry as smart-phones have taken over most PC functionality
- Beneficiaries from disruption
  - Facebook, Apple, Google, and Microsoft benefitting from migration to cloud, increasing user engagement with their productivity/messaging apps leading to higher Ad spend
  - Semiconductors and data networking benefitting from strength in server/data-center demand from cloud build-out, AI-driven technologies, internet of things (IoT) and automation despite weakness in PC and handset markets

The tailwinds for disruptors are drastically outweighed by the headwinds to the disrupted, leading to our positive position

Utilities: Negative

- Low gas prices (due to shale/fracking) disrupting coal power plants leading to decline in asset values

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Materially Mentioned Stocks (Ticker, Date, Price)

Alphabet Inc. (GOOGL, 08-Jun-2018, USD 1132.71), Overweight/Positive, CD/CE/J/K/M/N

Amazon.com, Inc. (AMZN, 08-Jun-2018, USD 1683.99), Overweight/Positive, CD/CE/J/K/M

Apple, Inc. (AAPL, 08-Jun-2018, USD 191.70), Equal Weight/Neutral, A/CD/CE/D/E/J/K/L/M/N

Facebook, Inc. (FB, 08-Jun-2018, USD 189.10), Overweight/Positive, CE/J/K/M

Microsoft Corp. (MSFT, 08-Jun-2018, USD 101.63), Overweight/Positive, CD/CE/D/J/K/L/M/N

Netflix, Inc. (NFLX, 08-Jun-2018, USD 360.57), Overweight/Neutral, CD/CE/J/K/N

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GD: One of the analysts on the fundamental credit coverage team (or a member of his or her household) has a financial interest in the debt or equity securities of this issuer.

GE: One of the analysts on the fundamental equity coverage team (or a member of his or her household) has a financial interest in the debt or equity securities of this issuer.

H: This issuer beneficially owns more than 5% of any class of common equity securities of Barclays PLC.

I: Barclays Bank PLC and/or an affiliate is party to an agreement with this issuer for the provision of financial services to Barclays Bank PLC and/or an affiliate.

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K: Barclays Bank PLC and/or an affiliate has received non-investment banking related compensation (including compensation for brokerage services, if applicable) from this issuer within the past 12 months.

L: This issuer is, or during the past 12 months has been, an investment banking client of Barclays Bank PLC and/or an affiliate.

M: This issuer is, or during the past 12 months has been, a non-investment banking client (securities related services) of Barclays Bank PLC and/or an affiliate.

N: This issuer is, or during the past 12 months has been, a non-investment banking client (non-securities related services) of Barclays Bank PLC and/or an affiliate.

O: Not in use.

P: A partner, director or officer of Barclays Capital Canada Inc. has, during the preceding 12 months, provided services to the subject company for remuneration, other than normal course investment advisory or trade execution services.

Q: Barclays Bank PLC and/or an affiliate is a Corporate Broker to this issuer.

R: Barclays Capital Canada Inc. and/or an affiliate has received compensation for investment banking services from this issuer in the past 12 months.

S: This issuer is a Corporate Broker to Barclays PLC.

T: Barclays Bank PLC and/or an affiliate is providing equity advisory services to this issuer.

U: The equity securities of this Canadian issuer include subordinate voting restricted shares.

V: The equity securities of this Canadian issuer include non-voting restricted shares.

Risk Disclosure(s)

Master limited partnerships (MLPs) are pass-through entities structured as publicly listed partnerships. For tax purposes, distributions to MLP unit holders may be treated as a return of principal. Investors should consult their own tax advisors before investing in MLP units.

Explanation of the U.S. Equity Strategy sector rating system:

Overweight: The performance of the S&P 500 sector is expected to outperform the performance of the S&P 500 index in the next 3–6 months.

Market Weight: The performance of the S&P 500 sector is expected to perform in line with the S&P 500 index in the next 3–6 months.

Underweight: The performance of the S&P 500 sector is expected to underperform the performance of the S&P 500 index in the next 3–6 months.

Guide to the Barclays Fundamental Equity Research Rating System:

Our coverage analysts use a relative rating system in which they rate stocks as Overweight, Equal Weight or Underweight (see definitions below) relative to other companies covered by the analyst or a team of analysts that are deemed to be in the same industry (the "industry coverage universe").

In addition to the stock rating, we provide industry views which rate the outlook for the industry coverage universe as Positive, Neutral or Negative (see definitions below). A rating system using terms such as buy, hold and sell is not the equivalent of our rating system. Investors should carefully read the entire research report including the definitions of all ratings and not infer its contents from ratings alone.

Stock Rating

Overweight - The stock is expected to outperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Equal Weight - The stock is expected to perform in line with the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Underweight - The stock is expected to underperform the unweighted expected total return of the industry coverage universe over a 12-month investment horizon.

Rating Suspended - The rating and target price have been suspended temporarily due to market events that made coverage impracticable or to comply with applicable regulations and/or firm policies in certain circumstances including where the Investment Bank of Barclays Bank PLC is

IMPORTANT DISCLOSURES CONTINUED

acting in an advisory capacity in a merger or strategic transaction involving the company.

Industry View

Positive - industry coverage universe fundamentals/valuations are improving.

Neutral - industry coverage universe fundamentals/valuations are steady, neither improving nor deteriorating.

Negative - industry coverage universe fundamentals/valuations are deteriorating.

Below is the list of companies that constitute the "industry coverage universe":

U.S. Internet

Activision Blizzard, Inc. (ATVI)	Alibaba Group Holding Ltd. (BABA)	Alphabet Inc. (GOOGL)
Amazon.com, Inc. (AMZN)	Baidu, Inc. (BIDU)	Blue Apron Holdings, Inc. (APRN)
Booking Holdings Inc. (BKNG)	Ctrip.com International Ltd. (CTRP)	eBay, Inc. (EBAY)
Electronic Arts, Inc. (EA)	Expedia Inc. (EXPE)	Facebook, Inc. (FB)
GoDaddy Inc. (GDDY)	Groupon, Inc. (GRPN)	GrubHub, Inc. (GRUB)
IAC/InterActiveCorp (IAC)	Match Group, Inc. (MTCH)	MercadoLibre (MELI)
NetEase, Inc. (NTES)	Shopify (SHOP)	Snap, Inc (SNAP)
Stitch Fix (SFIX)	Take-Two Interactive Software (TTWO)	Tencent Holdings Ltd. (TCEHY)
Tripadvisor Inc. (TRIP)	Twitter, Inc. (TWTR)	Web.com (WEB)
Weibo Corporation (WB)	Wix.com Ltd. (WIX)	Yelp, Inc. (YELP)
Zillow, Inc. (ZG)		

U.S. IT Hardware

Apple, Inc. (AAPL)	CDW Corp. (CDW)	Hewlett-Packard Enterprise (HPE)
HP Inc. (HPQ)	IBM Corp. (IBM)	NetApp, Inc. (NTAP)
Presidio, Inc. (PSDO)	Pure Storage (PSTG)	Seagate Technology (STX)
Western Digital Corp. (WDC)	Xerox Co. (XRX)	

U.S. Media

CBS Corp. (CBS)	Discovery Inc (DISCA)	Liberty Formula One (FWONK)
Netflix, Inc. (NFLX)	TEGNA Inc. (TGNA)	The New York Times (NYT)
Time Warner Inc. (TWX)	Twenty-First Century Fox (FOXA)	Viacom Inc. (VIAB)
Walt Disney Co. (DIS)		

U.S. Software

Adobe Systems Inc. (ADBE)	Amdocs Ltd. (DOX)	Ansys, Inc. (ANSS)
Appian Corporation (APPN)	Apptio, Inc. (APTI)	Autodesk Inc. (ADSK)
CA Technologies (CA)	Carbonite, Inc. (CARB)	Ceridian HCM Holding Inc. (CDAY)
Check Point Software Technologies Ltd. (CHKP)	Citrix Systems (CTXS)	Cornerstone OnDemand Inc. (CSOD)
Coupa Software Inc. (COUP)	CyberArk Software (CYBR)	Ellie Mae Inc. (ELLI)
FireEye (FEYE)	Five9, Inc. (FIVN)	Fortinet, Inc. (FTNT)
Hortonworks, Inc. (HDP)	Intuit Inc. (INTU)	LogMeIn, Inc. (LOGM)
Magic Software Enterprises Ltd. (MGIC)	Microsoft Corp. (MSFT)	Mimecast Ltd. (MIME)
MobileIron, Inc. (MOBL)	MongoDB, Inc. (MDB)	Nice Ltd. (NICE)
Nuance Communications, Inc. (NUAN)	Oracle Corp. (ORCL)	Palo Alto Networks (PANW)
Paycom (PAYC)	Pivotal Software, Inc. (PVTL)	Pluralsight, Inc. (PS)
PTC Inc. (PTC)	Rapid7 (RPD)	Red Hat Inc. (RHT)
Salesforce.com Inc. (CRM)	SAP SE (SAP)	Sapiens International Corp (SPNS)
SecureWorks (SCWX)	ServiceNow, Inc. (NOW)	Splunk Inc. (SPLK)
Symantec Corp. (SYMC)	Tableau Software, Inc. (DATA)	Talend S.A. (TLND)
Teradata Corp. (TDC)	Varonis Systems, Inc. (VRNS)	VMware Inc. (VMW)
Workday Inc. (WDAY)	Zscaler, Inc. (ZS)	

IMPORTANT DISCLOSURES CONTINUED

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42% have been assigned an Overweight rating which, for purposes of mandatory regulatory disclosures, is classified as a Buy rating; 59% of companies with this rating are investment banking clients of the Firm; 76% of the issuers with this rating have received financial services from the Firm.

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