



MORNING BRIEFING

May 17, 2018

Google's World

See the [collection](#) of the individual charts linked below.

(1) AI: The good, the bad, and the ugly. (2) Want a robot personal assistant to schedule your appointments? Just don't get it mad. (3) Fear grips Industrials sector after a CAT call—buying opportunity? (4) Korean deal far from a done deal.

Technology: Google's AI. Google held a developer conference last week that made two things abundantly clear: The era of artificial intelligence (AI) has arrived, and AI is being inextricably woven throughout everything we do. The advances in AI technology highlighted at the conference can border on creepy: AI-enhanced machines are tiptoeing ever closer to being human-like—or better. At the same time, they capture the imagination: Google's demonstrations illustrated how AI could help save time and make life easier, and the potential applications of that are boundless. I asked Jackie, who has developed an expertise in disruptive technologies, to take a look at some of the company's recent disruptive innovations:

(1) *Google's smarter Assistant.* The highlight of Google's event was the demonstration of Duplex, basically AI technology that makes Google's Assistant much smarter. Google Assistant was asked to make a haircut appointment, so it called the haircutter and held an appropriate, casual conversation with an unsuspecting human. The original time requested by Google Assistant wasn't available, so the human offered an alternative, and it was accepted by the Assistant. The appointment was booked, and an email with the details was sent to the Assistant's owner.

Here's a YouTube [video](#) of Google CEO Sundar Pichai introducing the new product, which wowed the crowd. "It brings together all our investments over the years in natural language understanding, deep learning, [and] text to speech," he told the developers.

In another example, Assistant calls to make a reservation at a restaurant where the human spoke broken English and made a number of language errors. The Assistant was able to follow along and participate in the conversation nonetheless. In both situations, the Assistant used conversational English that made it sound pretty darn human.

Google hopes the Duplex-powered Assistant will save users time and generate value for businesses. It's rolling out in the coming weeks.

(2) *DeepMind pays off.* AI was an element in many of the products Google displayed last week. Several of the advancements were developed by the folks at DeepMind, a London-based AI company that Google bought in 2014 for more than \$500 million. DeepMind, for example, developed WaveNet, the extremely human-sounding speech that Assistant uses.

Google also displayed a DeepMind-developed program that uses AI to evaluate the scan of an eye more quickly and efficiently than a human can. Because 3D retinal scans "provide rich data with

millions of pixels of information, the algorithm can learn to analyze them for signs of the three biggest serious eye diseases: glaucoma, diabetic retinopathy and age-related macular degeneration,” a 2/4 *FT article* reported. “The technology could enter clinical trials in a few years if results pass a peer review by academics.”

The AI is “generalized” so it can also be used to “read” other kinds of medical images, like radiotherapy scans or mammograms. Another Google division, Verily, is using AI to scan the back of eyes to assess a person’s risk of heart disease. The scan can determine a person’s age, blood pressure, and whether or not they smoke. These data can then be used by doctors to more easily determine a patient’s cardiovascular risk, eliminating the need for a blood test, explained a 2/19 *article* in *The Verge*.

The article stated: “When presented with retinal images of two patients, one of whom suffered a cardiovascular event in the following five years, and one of whom did not, Google’s algorithm was able to tell which was which 70 percent of the time. This is only slightly worse than the commonly used SCORE method of predicting cardiovascular risk, which requires a blood test and makes correct predictions in the same test 72 percent of the time.”

(3) *Everyday wonders*. Google is using AI to help with the more mundane tasks of life as well. Google News will use it to deliver up news stories based on what it knows a user likes. Google’s AI knows who’s in your pictures and can suggest sending that person a copy. AI can automatically adjust the brightness on the phone and put the apps on your Android phone in the order in which you might use them. Clearly, the company is imagining how AI can be embedded in all varieties of applications.

(4) *A bit scary*. DeepMind is programing its AI to grow more human-like, by learning, cooperating, and perhaps even feeling anger. Wolfpack, for example, is a game where two wolves go after prey. The AI agents learn that if the wolves cooperate, they can capture the prey and better protect the carcass from scavengers.

In another scenario, DeepMind gives a robot a simple goal, like clean up an area, and rewards it for completion. “The researchers don’t tell the robot how to complete the task, they simply equip it with sensors (which are initially turned off) and let it fumble around until it gets things right,” a 3/2 *article* in *Artificial Intelligence* reported. “By exploring its environment and testing the functionality of its sensors, the robot is able to eventually earn its reward: a point. If it fails, it doesn’t get a point. ... [T]he amazing part is that this particular machine isn’t following a program or doing something it was designed for. It’s just a robot trying to figure out how to make a human happy.”

In the less benign scenario, DeepMind ran a fruit-gathering computer game that asks two AI agents to compete against each other to gather as many apples as they could. In the less intelligent iterations of DeepMind, the agents would end up with equal shares of apples. However, in the more intelligent versions, “as the apples began to dwindle, the two agents turned aggressive, using laser beams to knock each other out of the game to steal all the apples,” a 3/31 *ScienceAlert article* reported. Sabotage, greed, and aggression set in.

“While these are just simple little computer games, the message is clear—put different AI systems in charge of competing interests in real-life situations, and it could be an all-out war if their objectives are not balanced against the overall goal of benefitting us humans above all else,” the *ScienceAlert article* continued.

(5) *AI divides*. Some Google employees are up in arms because the company agreed to use its AI knowhow in work for the US Defense Department. Project Maven is “a sweeping effort to enhance its surveillance drones with technology that helps machines think and see,” a 5/14 *Bloomberg article*

reported. Four thousand employees signed a letter to CEO Pichai requesting that he end Project Maven and halt all work in “the business of war,” and a dozen workers reportedly have resigned over the matter.

Some see the work as moving the world a step closer to having autonomous killing machines. Google’s Cloud CEO Diane Greene, however, explained that the drones would be scanning for things like landmines and then getting the information to military personnel. The software, she said, wouldn’t be used to identify targets or make attack decisions. Separately, Google is competing to land a Pentagon cloud contract worth at least \$10 billion. Appeasing employees while pursuing business opportunities with the government may be a tough tightrope to walk.

Industrials: Cheaper Cyclical. There’s a tug of war going on in the stock market. On one side, there’s the hope of investors that the tax cut will mean higher capital spending and bolster sales for companies in the S&P 500 Industrials sector. On the other side, there’s the fear of investors that the market is seeing peak profit margins, and future results have no where to go but south. Right now, the fear is winning.

It’s easy to understand why investors are uneasy. Talk of a trade war—and the potential damage it could do to the business of some of our largest exporting corporations—is unnerving. As are the rising prices of raw materials and a tight labor market. But peak panic really kicked into high gear after Caterpillar’s Q1 conference call when management told investors that Q1 adjusted profits per share would be the “high-water mark of the year.” Investors headed for the hills after assuming that the company’s profits had peaked for the cycle.

We had [thought](#) at the time that the company was referring to peak earnings just for this year, and management soon clarified that the comment wasn’t meant to suggest that its business is peaking, a 5/8 Bloomberg [article](#) reported. However, the damage was done to investors’ psyches, and since then the Industrials shares have continued to lag the broader market—even though the sector’s valuation is low and industrial production has continued to reach new highs, as Debbie explains below.

Here’s a look at how the Industrials sector’s performance stacks up against the other 10 sectors’ in the S&P 500 ytd through Tuesday’s close—falling smack dab in the middle of the pack: Tech (9.7%), Energy (6.7), Consumer Discretionary (5.8), S&P 500 (1.4), Financials (0.7), Health Care (-0.3), Industrials (-2.1), Materials (-2.6), Utilities (-5.8), Real Estate (-6.9), Telecom Services (-12.7), and Consumer Staples (-14.0) ([Fig. 1](#)).

The Industrials sector’s ytd performance doesn’t reflect the extent of the damage done to some of the more cyclical industries in the sector. The list of industries that have suffered the most damage ytd includes: Airlines (-12.7%), Industrial Conglomerates (-10.6), Building Products (-7.5), Construction Machinery & Heavy Trucks (-7.1), Agricultural & Farm Machinery (-7.0), Industrial Machinery (-6.9), Construction & Engineering (-5.9), Environmental & Facilities Services (-3.6), Electrical Components & Equipment (-3.2), and Air Freight & Logistics (-1.3).

To be fair, the woes of General Electric have had an outsized impact on the sector. Without the downward pull of GE, the Industrial Conglomerates industry would be down around 8.4% ytd, and the Industrials sector would be down 1.4%. Likewise, the recent jump in oil prices has had an outsized impact on the Airline industry. Without GE and Airlines, Industrials would be up about 0.6% ytd.

The industries in the Industrials sector that have been outperforming ytd lean toward services industries: Diversified Support Services (17.5%), Human Resources & Employment Services (13.0), Trucking (7.2), Railroads (6.6), Aerospace & Defense (5.5), Trading Companies & Distributors (5.1),

and Research & Consulting Services (2.5).

The sharp downdraft in the S&P 500 Industrials share price index and the upward direction of analysts' recent earnings estimate revisions have left the sector much more reasonably valued than just a month ago. The S&P 500 Industrials' revenues are expected to increase 7.1% this year and 4.7% in 2019 ([Fig. 2](#)). Analysts forecast an even faster jump in earnings: 19.3% in 2018 and 12.4% in 2019 ([Fig. 3](#)). As a result, the sector's forward P/E has dropped to 16.3, from the recent peak of 19.5 hit in mid-January. And its P/E-to-growth ratio has fallen sharply to 1.0 from 1.6 in late 2016 ([Fig. 4](#)).

South Korea: Peace, Love, and Understanding. Not six months since the US and South Korea responded to North Korea military aggression by putting on a massive display of might, there is talk of peace on the Korean peninsula—even of potential reunification.

North Korean strongman Kim Jong-un crossed the border on April 26 for historic peace talks with South Korean President Moon Jae-in. He was the first North Korean leader to enter South Korea since the Korean War. His younger sister, Kim Yo Jong, paved the way by attending the Winter Olympics in Seoul in February.

Yet in a sign of how volatile the North Korean leader can be, plans to meet yesterday for a second round of talks with South Korea were abruptly cancelled, citing the joint military drills being conducted by South Korea and the US. Kim also threatened to withdraw from next month's summit meeting with President Trump in Singapore if the US continues to demand unilateral denuclearization while staging military exercises with South Korea and failing to make any concessions of its own. Kim vowed that his country wouldn't suffer the fate of Libya and Iraq after agreeing to give up weapons of mass destruction and denuclearizing.

Peace is the stated goal, but trade is a big driver of the new diplomacy occurring on the Korean peninsula. The North has been isolated by severe economic sanctions for so long that it is in dire need of food, basic infrastructure, and technology. Developments in the region give us a good excuse to check in on South Korea, which we last visited in our 12/7/17 [Morning Briefing](#). After a rousing 2017, trends this year have soured:

(1) *Declining production.* Industrial production fell 4.3% y/y in March, the second straight month of sharp contraction, on weaker activity in the automobile and machinery sectors ([Fig. 5](#)).

(2) *Manufacturing PMI.* The Nikkei South Korea Manufacturing PMI fell to 48.4 in April from 49.1 the previous month as output and new orders fell sharply, according to IHS Markit's 5/2 [report](#) ([Fig. 6](#)). Slumping electronics and auto sales were to blame, and shortages of skilled labor played a role. New orders dropped at the fastest rate since November 2016 on reduced demand domestically and lower sales to China and Japan. Softer demand led to job cuts for the first time since January, as did a 16% hike in the national minimum wage. Higher labor costs along with rising raw material prices led to a jump in selling prices, despite the softer demand.

(3) *Sentiment depressed.* Consumer confidence fell in April to 107.1, reaching a one-year low, and is down sharply from a seven-year peak in November 2017 ([Fig. 7](#)). Business confidence remained low in April. The Bank of Korea's manufacturing business survey index was 72 in April (saar), unchanged from March, according to a 4/27 [report](#) from the Bank of Korea ([Fig. 8](#)).

(4) *GDP.* South Korea's economy rebounded in Q1, with GDP rising 1.1% q/q after contracting by 0.2% in Q4-2017. Rising exports and a spike in government spending drove the advance; exports represent about half of South Korea's GDP. Household consumption was the weakest in a year ([Fig. 9](#)). The

Bank of Korea forecasts GDP growth of 3.0% in 2018, compared with 3.1% in 2017.

(5) **Valuation.** The MSCI Korea Share Price Index is off 2.0% ytd in local currency through Tuesday compared with a rise of 1.6% ytd in the MSCI EM Asia Share Price Index. So far in May, it is off 3.5% compared with a gain of 0.5% in the EM Asia index. The index is trading at a P/E of 8.6, and earnings growth for this year is projected at 16.7%—though recent earnings revisions have been pulling estimates down ([Fig. 10](#) and [Fig. 11](#)).

Given the economic trends in South Korea, peace with North Korea could go a long way toward helping each country.

CALENDARS

US. Thurs: Leading Indicators 0.4%, Jobless Claims 215k, Philadelphia Fed Manufacturing Index 21.0, Weekly Consumer Comfort Index, E-Commerce Sales, EIA Natural Gas Report. **Fri:** Baker-Hughes Rig Count, Mester, Brainard. (*Wall Street Journal* estimates)

Global. Thurs: European Car Sales, Japan CPI Headline, Core, and Core-Core 0.7%/0.8%/0.4% y/y, Australia Employment Change & Unemployment Rate 20k/5.5%. **Fri:** None. (DailyFX estimates)

STRATEGY INDICATORS

Stock Market Sentiment Indicators ([link](#)): Our Bull/Bear Ratio (BBR) remained below 3.00 this week for the eighth week after 26 weeks above. The BBR climbed to 2.40 this week after declining seven of the prior eight weeks from 3.50 to 2.09—which was the lowest reading since November 2016. Most of the recent movement has been between the bullish and correction camps. Bullish sentiment rose to 46.6% this week after dropping 4.9ppts to 43.1% over the prior two weeks, while the correction count fell to 34.0% after climbing 3.9ppts to 36.3% the previous two weeks. Bearish sentiment ticked down for the second week to 19.4% from 20.6% and 20.8%—which was the most bears since November; movements in bearish sentiment have been relatively subdued recently. The AAI Ratio rebounded to 56.8% last week after falling from 59.1% to 48.4% the previous week. Bullish sentiment increased from 28.4% to 33.5% last week, while bearish sentiment decreased from 30.3% to 25.5%.

S&P 500 TCJA Earnings Leaders & Laggards ([link](#)): The 2018 earnings forecast for the S&P 500 has surged 9.5% in the 20 weeks since the TCJA was signed into law on December 22. This outstanding performance has no comparison over the years since consensus earnings forecasts were first derived in 1978. The change in the 2018 forecast only edged up 0.1ppt from a week earlier as the post-Q1 earnings season revisions continued to wind down. The top sector gainers since the TCJA was passed: Energy (31.8%), Telecom (15.9), Financials (12.1), Industrials (10.7), and Consumer Discretionary (9.8). Real Estate is the sole decliner, with a drop of 2.2%; also underperforming the S&P 500 are Consumer Staples (1.8), Utilities (2.1), Health Care (6.8), Tech (8.1), and Materials (9.0). Higher oil prices have contributed heavily to the improvement in Energy's 2018 earnings forecast.

S&P 500 Earnings, Revenues & Valuation ([link](#)): S&P 500 consensus forward revenues edged down from a record high last week as forward earnings rose to another record, but the forward profit margin remained steady. The forward profit margin forecast of 12.2% is up from 11.1% prior to the passage of the TCJA in December and a 24-month low of 10.4% in March 2016. Forward revenue growth remained steady w/w at 6.0%, which is little changed from an 80-month high of 6.3% at the end of February. That reading compares to a cyclical low of 2.7% in February 2016. Forward earnings growth rose 0.1ppt w/w to 15.3%. That's down from 16.9% in February, which was the highest since October 2010, but it's up 4.2ppts from 11.1% prior to the passage of the TCJA, and up 10.5ppts from the

cyclical low of 4.8% in February 2016. Turning to the consensus expectations for 2018, the revenue growth forecast slipped w/w to 7.3% from 7.4%, and earnings growth rose to 21.5% from 21.3%. Looking at last week's results among the 11 sectors, four had a w/w improvement in their forward revenue growth forecast and five had forward earnings growth improve. These four had both measures improve w/w: Energy, Industrials, Real Estate, and Tech. Energy's contribution to forward growth peaked at the start of 2017. The S&P 500 ex-Energy's forward growth was steady at 5.6% for revenues and 14.0% for earnings. However, the S&P 500 ex-Energy forward profit margin rose 0.1ppt to a record high of 12.8%, which is up from 11.7% before the TCJA. Valuations fell w/w primarily due to the surge in forward revenues and earnings. The S&P 500's forward P/E rose to 16.4 from 16.0, which compares to a 16-year high of 18.6 at the market's peak in late January and a 15-month low of 14.9 in January 2016. The S&P 500 price-to-sales ratio of 2.00 was up from 1.95, and compares to late January's record high of 2.16.

S&P 500 Sectors Earnings, Revenues & Valuation ([link](#)): Consensus forward revenue forecasts rose w/w for five of the 11 sectors, and forward earnings forecasts rose for all but Consumer Staples, Industrials, and Telecom. These three had both measures improve w/w: Materials, Real Estate, and Tech. Forward revenues and earnings are at or around record highs for 5/11 sectors: Consumer Discretionary, Consumer Staples, Health Care, Industrials, and Tech. Energy's forward revenues and earnings are back on uptrends after stalling during 2016-2017, and its earnings have about tripled from their 18-year low in April 2016. Forward P/S and P/E ratios are down from their recent highs for all sectors, and most fell w/w with the exception of Tech and Utilities. Energy's valuations remain elevated relative to historical levels, but are normalizing now after soaring in 2016 when revenues and earnings collapsed. Energy's P/S ratio of 1.33 compares to a record high of 1.56 in May 2016, and its P/E of 19.5 is down from a record high of 57.5 then. Due to the TCJA, higher margins are expected y/y in 2018 for all sectors but Real Estate, but that sector's forward earnings includes gains from property sales and typically improves as the year progresses. Three sectors had their forward profit margins rise w/w and two had theirs fall: Energy posted a 0.2% gain w/w in its forward profit margin, and was followed by 0.1ppt increases for Consumer Discretionary and Financials. Real Estate and Materials were the sole decliners, with drops of 0.2ppt and 0.1ppt, respectively. Here's how the sectors rank based on their current forward profit margin forecasts: Information Technology (22.7%), Financials (18.7), Real Estate (15.9), Telecom (13.4), Utilities (12.3), S&P 500 (12.2), Materials (11.4), Health Care (10.5), Industrials (10.2), Consumer Discretionary (8.3), Consumer Staples (7.7), and Energy (6.8).

US ECONOMIC INDICATORS

Industrial Production ([link](#)): Headline production hit another new record high in April, while factory output reached a new cyclical high. Total production rose for the sixth time in seven months, up 0.7% in April and 4.0% over the period, with all three industry groupings—mining (1.1% and 8.4%), utilities (1.9% and 6.6%), and manufacturing (0.5% and 2.8%)—rising over the comparable periods. Business equipment production has posted only one decline the past nine months, climbing 1.2% in April and 2.8% over the period. Production of information processing equipment has been very strong the first four months of this year, expanding 4.4% to a new record high, while industrial equipment output got a jolt in April—jumping 1.8%—after a three-month slide of 2.4%. Production of transit equipment took a small step back, dipping 0.2% in April after a three-month spurt of 2.8% to its highest reading since February 2016.

Capacity Utilization ([link](#)): The headline capacity utilization rate in April climbed for the third month from 76.9% in January to 78.0%—the highest reading since March 2015. Still, it's 1.8ppts below its long-run (1972-2017) average. Manufacturing's capacity utilization rate rose to 75.8% last month—the highest reading since August 2015—after ticking down from 75.6% to 75.5% in March; April's rate was 2.5ppts below its long-run average. The utilization rate for mining rose for the third month from 87.4% in

January to 90.6% in April, which is 3.6ppts above its long-run average, while the capacity utilization rate for utilities jumped 5.7ppts the past two months to 79.2% in April.

Housing Starts & Building Permits ([link](#)): Housing activity is treading water around 11-year highs, hampered by shortages of skilled labor and lots, along with rising materials' costs. Total starts sank 3.7% to 1.287mu (saar) last month, after rebounding a revised 3.6% in March (roughly double the 1.9% initial estimate) to 1.336mu—which was the best reading since mid-2007. In April, volatile multi-family starts sank 11.3% to 393,000 units (saar) after a 13.6% gain and a 13.0% loss the prior two months. Meanwhile, builders broke ground on about the same number of single-family homes in April as they did in March, with starts ticking up 0.1% to 894,000 units (saar), hovering around cyclical highs; these starts are up 5.6% ytd. Building permits dipped 1.8% to 1.352mu (saar) last month, following an upwardly revised 4.1% jump in March (from 2.5%) to a new cyclical high of 1.377mu. April's decline in permits was driven by a 6.3% drop in multi-family units to 493,000 units (saar), after a 20.4% spurt in March. Single-family permits climbed 0.9% to 859,000 units (saar) after 3.9% loss and a 1.8% gain the prior two months. Meanwhile, May builder confidence rose 2 points to 70, reflecting a 2-point gain in the current sales component to 76; sales expectations (77) and traffic (51) were unchanged from April readings. "Tight housing inventory, employment gains and demographic tailwinds should continue to boost demand for newly-built single-family homes," NAHB Chief Economist Robert Dietz said in a statement. "With these fundamentals in place, the housing market should improve at a steady, gradual pace in the months ahead."

GLOBAL ECONOMIC INDICATORS

Eurozone CPI ([link](#)): April's CPI rate moved down to 1.2% y/y (matching the flash estimate), after climbing from 1.1% to 1.3% in March. So April's rate remained below the ECB's goal of just under 2.0%. Looking at the main components, rates for food, alcohol, and tobacco (to 2.4% from 2.1% y/y), energy (2.6 from 2.0), and non-energy industrial goods (0.3 from 0.2) accelerated, while the rate for services (1.0 from 1.5) decelerated. The core rate—which excludes energy, food, alcohol, and tobacco—fell to a 13-month low of 0.7%, after three months at 1.0%. Of the top four Eurozone economies, inflation rates in France (1.8% y/y) and Germany (1.4) were above the Eurozone's 1.2% rate, while Spain's (1.1) and Italy's (0.6) were below. Portugal (0.3) had among the region's lowest rates, along with Italy; Ireland's (-0.1) turned slightly negative.

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