

AmerisourceBergen

ABC Week Day 5: A Look at Other Businesses; Lowering Estimates on PharMEDium Facility Delay

For Day 5 of ABC Week we take a deeper dive into the company's other businesses outside of core pharmaceutical and specialty distribution, including PharMEDium, as well as the MWI Veterinary Supply, World Courier, and AmerisourceBergen Consulting Services (ABCS) businesses. Driven by acquisitions, ABC has delivered strong growth in the Other segment (comprised of MWI, World Courier and ABCS), and while we project this segment to comprise just under 4% of the company's total F2018E revenue, we estimate it will account for ~18% of adjusted operating profit. Recall that we hosted a conference call on Monday afternoon with CEO Steve Collis and CFO Tim Guttman. See our note [here](#) for key takeaways from the call.

- **We are lowering estimates to reflect a delay in the resumption of production at PharMEDium's Memphis facility.** Following the 8-K on 4/2, we are lowering our FY18 adjusted EPS estimate by \$0.16, and now assume production at the Memphis facility resumes in early F4Q (vs. ABC's prior F2Q expectation). Note that given the level of automation, the Memphis facility contributes a large portion of profitability. We are lowering our FY19 estimate by \$0.12 as we assume it takes time to reach full production and that not all lost volume is immediately recaptured.
- **ABC believes PharMEDium issues are manageable and remains positive on the longer term outlook.** PharMEDium is the leading national provider of customized outsourced compounded sterile preparations (CSPs) to acute care hospitals in the U.S. There are no other pure play national competitors, and ABC has noted that PharMEDium is 3x larger than its closest competitor. The company believes the fundamental outlook remains intact, driven by strong demand for outsourced CSPs.
- **We estimate MWI drives roughly half of ABC's Other segment revenue.** A leading animal health distributor, MWI serves the companion and production animal markets. MWI reported nearly \$3B in revenues in FY14. Animal health distribution in the U.S. has consolidated around three large players (MWI, Patterson and Henry Schein). MWI provided revenue diversification, and is expected to drive cost and purchasing synergies (at least \$50M in synergies by year three).
- **World Courier specializes in logistics for global clinical trials.** The WCG acquisition strengthened ABC's service offerings to global pharmaceutical manufacturers, and provided an established platform from which to grow its service offering outside of North America given WCG's large global network (the company operates in 50+ countries worldwide and has an established distribution network).

AmerisourceBergen (ABC;ABC US)

FYE Sep	2015A	2016A	2017A	2018E (Prev)	2018E (Curr)	2019E (Prev)	2019E (Curr)
EPS (\$)							
Q1 (Dec)	1.14	1.27	1.36	1.55A	1.55A	-	-
Q2 (Mar)	1.45	1.68	1.77	1.75	1.74	-	-
Q3 (Jun)	1.20	1.37	1.43	1.60	1.50	-	-
Q4 (Sep)	1.17	1.30	1.33	1.65	1.60	-	-
FY	4.96	5.62	5.88	6.55	6.39	7.34	7.22
Bloomberg EPS FY (\$)	4.97	5.55	5.88	-	6.55	-	7.36

Source: Company data, Bloomberg, J.P. Morgan estimates. 'Bloomberg' above denotes Bloomberg consensus estimates.

See page 14 for analyst certification and important disclosures.

J.P. Morgan does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision.

Neutral

ABC, ABC US

Price: \$87.38

▼ **Price Target: \$100.00**
Previous: \$105.00

Healthcare Technology & Distribution

Lisa C. Gill AC

(1-212) 622-6466

lisa.c.gill@jpmorgan.com

Bloomberg JPMA GILL <GO>

Michael Minchak, CFA

(1-212) 622-6506

michael.minchak@jpmorgan.com

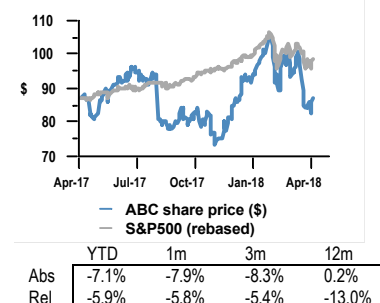
Anne E. Samuel

(1-212) 622-4163

anne.e.samuel@jpmorgan.com

J.P. Morgan Securities LLC

Price Performance



Company Data

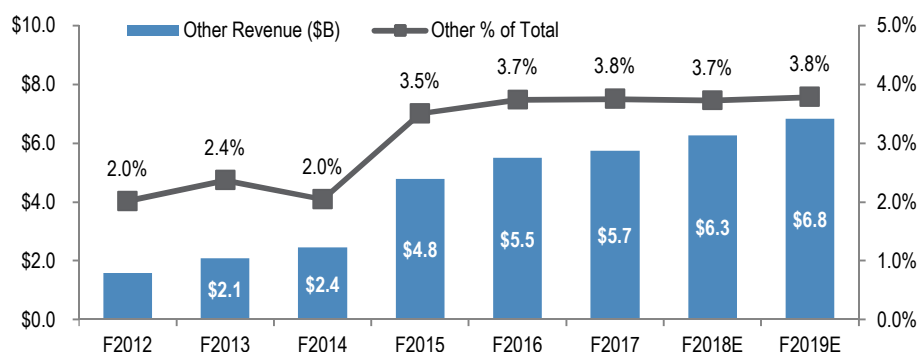
Price (\$)	87.38
Date Of Price	05-Apr-18
52-week Range (\$)	106.27-71.90
Market Cap (\$ mn)	19,295.43
Fiscal Year End	Sep
Shares O/S (mn)	221
Price Target (\$)	100.00
Price Target End Date	31-Dec-18

Other Business

For Day 5 of ABC week, we look at several of the company's other businesses beyond core pharmaceutical and specialty distribution. This includes PharMEDium, as well as the MWI Veterinary Supply (MWI), World Courier Group (WCG) and AmerisourceBergen Consulting Services (ABCS) businesses. Importantly, note that for reporting purposes, ABC's "Other" segment includes MWI, WCG and ABCS, as PharMEDium falls under the Pharmaceutical Distribution segment, although given the unique characteristics of that business, we have opted to include it in today's note. We note that ABC does not provide any breakout of revenue or operating profit contribution from PharMEDium. Looking at the financial performance, the revenue contribution of the Other segment is relatively modest in relation to traditional drug distribution but has been growing as a result of acquisitions. Other revenue accounted for \$5.7B of sales in F2017, or roughly 3.7% of total sales. However, this is up from \$1.6B in sales and 2.0% of total sales in F2012. We point to the acquisitions of World Courier and TheraCom in 2012 and the acquisition of MWI in February 2015. Going forward, we estimate the Other segment will account for \$6.3B in sales and 3.7% of total sales in F2018E.

Figure 1: Other Revenue, F2012-F2019E

\$ in billions

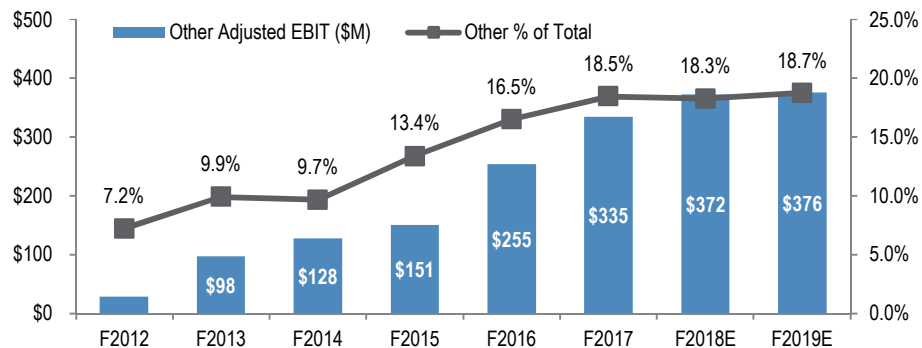


Source: Company reports, J.P. Morgan estimates.

Adjusted operating profit contribution from the Other segment has grown nicely over the past few years, reaching 18.5% of total adjusted operating profit in F2017 (up from just 7.2% in F2012), and we project the Other segment to account for over 18% of total adjusted operating profit in F2018E and F2019E.

Figure 2: Other Adjusted EBIT, F2012-F2019E

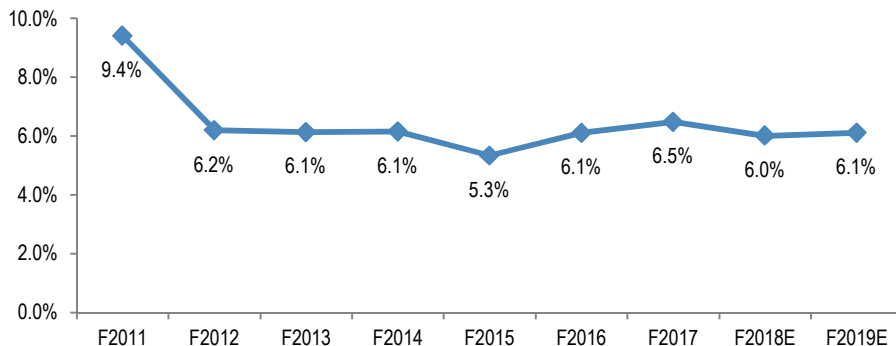
\$ in millions



Source: Company reports, J.P. Morgan estimates.

We do note that acquisitions of lower margin businesses over the past few years have driven some margin compression in the Other segment, as margins declined to 6.5% in F2017 from 9.4% in F2011, although they have been relatively stable over the F2012-F2017 period. We also expect some modest margin compression in F2018E, driven by the Fusion technology system implementation at Lash, but expect a return to y/y growth in F2019E.

Figure 3: Other Adjusted EBIT Margin Trend, F2011-F2019E



Source: Company reports, J.P. Morgan estimates.

PharMEDium

Background

As previously noted, PharMEDium does not fall under ABC's "Other" reporting segment, but instead had historically fallen within the legacy AmerisourceBergen Drug Corporation, or ABDC, which is consolidated under the Pharmaceutical Distribution segment. However, given the different characteristics of this business versus ABC's typical distribution businesses, we are addressing it separately in our Day 5 note.

On November 6, 2015 AmerisourceBergen completed the acquisition of privately-held PharMEDium Healthcare Holdings, Inc. for \$2.7 billion in cash, on a cash-free, debt-free basis. PharMEDium is the leading national provider of customized outsourced compounded sterile preparations (CSPs) to acute care hospitals in the U.S. The "sterile-to-sterile" CSPs that PharMEDium provides are mixtures of FDA-

approved drugs in finished dosage form and FDA-approved diluents and FDA-cleared containers. The CSPs are delivered to hospitals on an anticipatory basis, in a ready-to-use form, meet specific hospital and physician clinical needs and quality standards, and are in formulations that are not otherwise commercially available.

Hospitals may choose to outsource the preparation of “sterile-to-sterile” CSPs to PharMEDium for a number of reasons, including: process and quality controls; sterility assurance; reliable and consistent supply; extended dating to reduce waste; reduced medication errors; increased productivity; and better resource/capital management. PharMEDium’s services help customers drive pharmacy operating efficiencies, enhance patient safety and improve outcomes. PharMEDium’s four 503b-registered compounding facilities are staffed by pharmacists and pharm-techs, providing a broad range of 2,000 SKUs across five therapeutic categories (pain management, nerve block, operating room anesthesia, labor & delivery, and intensive care). The company has over 3,000 hospital customers across all 50 states. At the time the deal was announced in 2015, PharMEDium had pointed to annual contract retention rates in the mid-90% range.

The market that PharMEDium competes in is highly fragmented, with no other pure play national competitors, and a number of smaller regional and local players, although we do note the potential for new entrants into the market over time. At the time the deal was announced, PharMEDium had noted that it was 3x larger than the next closest competitor (B. Braun’s CAPS division), although we note that PharMEDium focuses on a different segment of the market. PharMEDium had estimated an overall addressable market of ~\$6.5 billion at the time, implying a ~6% share, although it further noted that just 20% of the market had been outsourced, and that that the percentage outsourced could potentially increase over time. Key competitive advantages for PharMEDium include: scale; preferred provider relationships; a track record and commitment to quality (especially important given heightened regulatory requirements following product safety issues over the past few years across the industry); and relationships with key manufacturers.

At the time the deal was announced, ABC had indicated that it expected PharMEDium to drive FY16 adjusted EPS accretion of \$0.22-\$0.26, which was on a net basis and included the impact of \$0.05 in financing costs and a \$0.04 impact from curtailing regular share repurchases during FY16. The transaction was funded with cash, existing credit facilities and a new term loan. From a leverage standpoint, ABC had indicated that it expected to return to the target leverage ratio by September 2016. At the time the deal was announced, ABC management cited projections of \$470M in revenues for 2015 (up over 20% y/y) and adjusted EBITDA growth in excess of 20%. Longer term the company pointed to unit volume growth in the mid-teens range, with revenue and operating margin growth in the high teens. ABC had previously indicated that it expects to generate ~\$30M in synergies by fiscal 2018, coming from incremental revenue growth (as the ABC health system sales force cross-sells PharMEDium services), and expense savings by leveraging ABC’s size and scale. Finally, the acquisition expanded ABC’s offerings for health system customers, which has been a key area of focus.

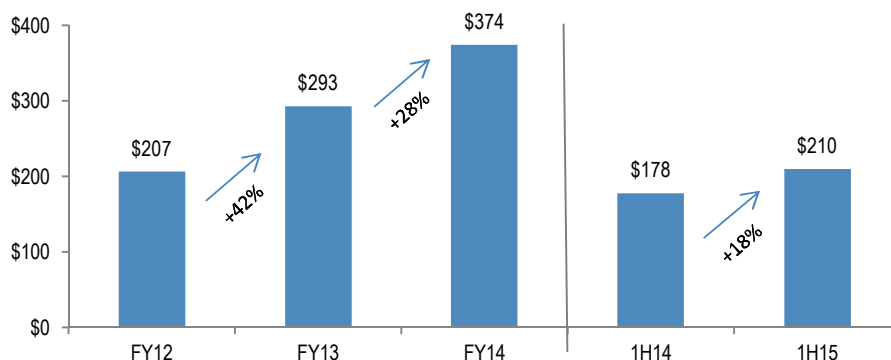
Historical Financial Performance

For reference, in Figure 4 - Figure 6 below, we show the historical revenue and EBITDA performance for PharMEDium over the 2012-2014 timeframe, and also show the comparison for 1H15 vs. 1H14. Revenue growth had been strong over that

period, and was generally driven by multiple factors, including: 1) base volume growth; 2) expanding penetration within existing customers (i.e., increasing the level of outsourcing); 3) adding new customers; 4) adding new product lines/therapeutic categories; and 5) adding new sites of care (i.e., alternate site). We also point to a flight to quality following industry regulatory requirements.

Figure 4: PharMEDium Revenue Trend

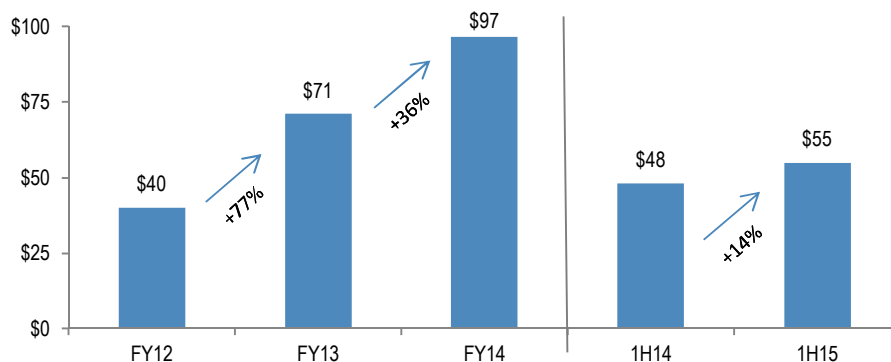
\$ in millions



Source: Company reports.

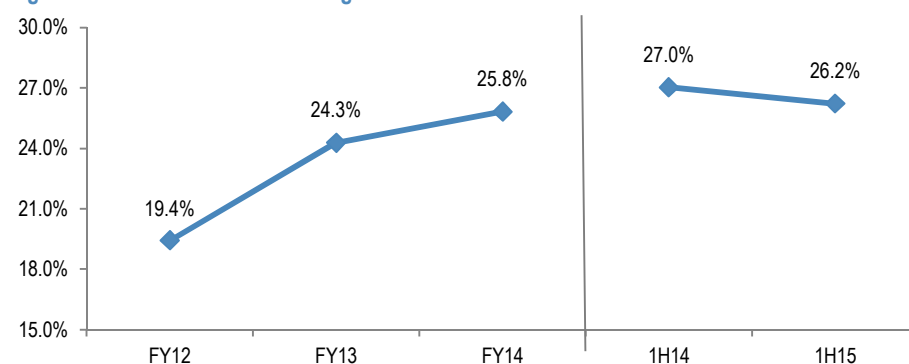
Figure 5: PharMEDium EBITDA Trend

\$ in millions



Source: Company reports.

Figure 6: PharMEDium EBITDA Margin Trend



Source: Company reports.

Recent Issues and Estimate Revisions

While ABC does not break out performance of PharMEDium separately, as of the end of F2016, management had noted that performance had exceeded internal expectations. However, in F2Q17, ABC management indicated that the company had strategically increased the investment in PharMEDium to support its continued growth by enhancing the company's quality assurance (QA) and quality control (QC) systems, which will support batch level finished product testing prior to product release. The company had noted that this initiative would enable it to deliver the highest levels of product quality and patient safety, while also creating a compelling competitive advantage. However, this was expected to result in fewer units shipped and incremental costs, which drove a headwind to profit for the PharMEDium business in FY17.

More recently, after FDA inspections of the company's 503B outsourcing facilities in late calendar 2017, the company voluntarily suspended production activities at the Memphis outsourcing facility (PharMEDium's largest production facility, accounting for ~50% of total production, and also the most automated facility) in December 2017 pending execution of certain remedial measures. As a result, revenue and gross profit contribution from the pharmaceutical compounding operations in F1Q18 (ended December) were significantly lower as that business shipped fewer units due to the Memphis facility not being operational in the month of December 2017. During F1Q, the company also incurred certain fixed costs and scrapped non-usable inventory related to the Memphis facility, which drove \$8.3M in costs (although these costs were recorded within Employee Severance, Litigation, and Other, and as such, were excluded from adjusted operating profit and adjusted EPS).

On the F1Q18 call in early February, management noted that it had originally expected the Memphis facility to resume operations in early January, and while that did not happen, the company was optimistic that it would resume operations during F2Q (the March 2018 quarter), with production ramping over the balance of FY18 to exit the year at full production. With remediation efforts taking longer than anticipated, as a result of the delay, ABC had reduced the FY18 adjusted operating profit growth forecast for the Pharma Distribution Services segment to 1-4% from 4-7%, which implied a ~\$50M headwind at the midpoint of the ranges, due almost entirely to the PharMEDium impact. The updated guidance assumed the Memphis facility would resume operations in F2Q, with the company disclosing that results would continue to be adversely impacted until the Memphis facility is fully operational.

However, on Monday (4/2), the company filed an 8-K indicating that production at the Memphis facility remained voluntarily suspended while the company completes remediation measures. The company noted that it remains in active communication with the FDA, and will provide a further update to the FDA upon completion of such remediation efforts, and is working to resume production as soon as possible thereafter. In addition, we note that on the F1Q18 earnings call in February, the company had noted that all other inspections were complete, and the other three 503B outsourcing facilities had remained operational throughout the process. However, according to a recent report by STAT news, the State of California had issued a 30-day cease-and-desist order to PharMEDium's Sugarland, Texas facility after an inspection by the State Board of Pharmacy found a variety of violations. Importantly, while the facility remains open, and the cease-and-desist order would

only impact shipments to California from the Sugarland facility, we believe this could potentially drive a minor incremental headwind.

ABC has noted that it will wait until F2Q18 earnings on May 8 to provide any update to guidance despite the disclosure earlier this week around the Memphis facility. ABC did not provide incremental detail on the financial impact with the 8-K filing, and on our call earlier this week, management noted that it believes it will have a better sense of where it stands with respect to the PharMEDium remediation timeline, and with over half of the fiscal year behind, trends in the rest of the business, which would allow them to provide a more comprehensive view across the entire company.

That said, we are taking this opportunity to lower our estimates due to the delay in resuming production at the Memphis facility. Note that given the level of automation, the Memphis facility does contribute a large portion of profitability. We estimate every additional month of delay could drive a \$10-\$15M headwind to adjusted operating profit. At this point, assuming production does not resume until early F4Q (a 3-4 month incremental delay), and pushing out the timeline for the company to return to full production (originally expected in F4Q), that would imply an additional ~\$45M in headwind to Pharmaceutical Distribution adjusted operating profit (an incremental 2.2% headwind for FY18). This equates to a \$0.16 headwind to FY18 adjusted EPS, or a reduction of ~2.4% vs. our prior estimate. We include a sensitivity analysis in Table 1 below to demonstrate the impact of varying assumptions of operating profit headwind to the EPS line. To frame the potential impact, we note that based on PharMEDium's historical financial results, a mid-teens CAGR on the EBITDA line would have led to ~\$170M in EBITDA in FY18 (or ~\$200M assuming the realization of \$30M in synergies), which would equate to ~9% of ABC's total EBITDA. We are also conservatively assuming a modest reduction in FY19 (\$35M in adjusted operating profit and a \$0.12 impact to adjusted EPS), as we assume it takes incremental time to reach full production and that the company does not immediately recapture all of the lost volume.

Table 1: Potential EPS Headwind from Varying Levels of EBIT Reduction

EBIT \$ in millions

	\$10.0	\$20.0	\$30.0	\$40.0	\$50.0	\$60.0	\$70.0	\$80.0
EBIT impact	\$10.0	\$20.0	\$30.0	\$40.0	\$50.0	\$60.0	\$70.0	\$80.0
EPS impact	\$0.03	\$0.07	\$0.10	\$0.14	\$0.17	\$0.21	\$0.24	\$0.27

Source: J.P. Morgan estimates.

While we are currently assuming no offsets, we note the potential that ABC could partially offset the PharMEDium headwind with stronger than expected performance in the core pharma distribution business as the market stabilizes, as well as via additional share repurchase (note that we currently assume that sharecount remains essentially flat over the balance of the fiscal year, which is consistent with the company's guidance of share repurchases to offset dilution from employee stock option exercises, although we believe the company does have the financial flexibility to do incremental repurchases).

Note that on our call earlier this week, management had stated that it does not feel like the issues at PharMEDium are daunting, and believes they are manageable and containable and that they have the necessary resources focused on it. Further, the company continues to believe in the longer term opportunities PharMEDium, with the fundamental outlook supported by strong demand for outsourced compounded

sterile preparations, and believes the business will come back and be a top performer as they had originally expected at the time the deal was done. The company pointed to support of customers, who are awaiting the company's return to full capacity (ABC believes that this business has since been insourced, rather than lost to other competitors).

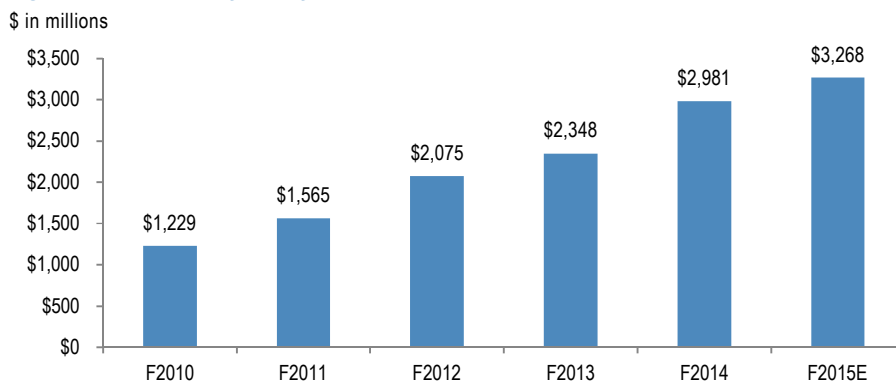
MWI Veterinary Supply

On February 24, 2015, ABC closed the \$2.6B acquisition of MWI Veterinary Supply. MWI is a leading animal health distributor, selling pharmaceuticals, vaccines, parasiticides, diagnostics, micro feed ingredients, and other products to customers in both the companion animal market (~75% of revenue at the time of the deal) and the food production animal market (~25% of revenue at the time of the deal). MWI also offers other value-added services, including an e-commerce platform, technology management systems, pharmacy fulfillment, inventory management system, equipment procurement consultation, special order fulfillment, and educational seminars. The segment is led by EVP and President, MWI Veterinary Supply James Cleary, who had previously served as President and CEO of MWI since 2002.

Historical Financial Performance

MWI's revenues are primarily from the U.S., although the company does have a small presence in the U.K. as well. In fiscal 2014, MWI had reported ~\$3.0B in revenues and \$133M in EBITDA (a 4.5% EBITDA margin), with revenue and EBITDA up 27% and 19%, respectively, on a y/y basis. We note that the latest fiscal 2015 Bloomberg consensus estimates for MWI prior to the transaction close had projected ~10% top-line growth and ~8% EBITDA growth. ABC had noted that MWI had contributed \$1.9B in revenue in F2015, which was a partial year of contribution (just over seven months of contribution). While ABC no longer breaks out performance of MWI separately, management had noted that MWI had a solid F2016, driven by the companion side of the business, with organic growth, new product introductions and market share gains having contributed to growth. Penetration rates at existing customers improved, while the company had also pointed to a doubling of corporate accounts. Management pointed to strong revenue and volume growth at MWI in F2017.

Figure 7: MWI Veterinary Supply Revenue, F2010-F2015E



Source: Company reports, Bloomberg consensus.

The animal health distribution market has seen a fair amount of consolidation over the past few years, with three dominant players having emerged. In addition to MWI, Patterson Companies and Henry Schein are both larger players. We note that all three companies have revenues just over the \$3 billion, although we note that the mix is relatively different at all three. As noted above, at the time of the transaction, roughly 75% of MWI revenues had come from the companion animal (i.e., dogs, cats, birds, etc.), while ~25% had come from food production animals (e.g., cattle, dairy, swine, poultry), and on an overall basis, ~10% of MWI's revenues had come from outside of the U.S. Following the acquisition of Animal Health International in 2015, Patterson more than doubled its animal health revenue. The company's business is split roughly evenly across the companion and production animal segments, while ~20% of Patterson's animal health business is international (comes entirely from the U.K.). Finally, Henry Schein's revenues are split nearly evenly across U.S. and international, with the U.S. being comprised of nearly entirely of companion animal, while the international segment has a small component of production animal business.

Table 2: Animal Health Distributor Revenues, CY17

\$ in billions

	Total Animal Health Revenue (\$B)	North America Revenue	NA Companion %	NA Companion \$	NA Production %	NA Production \$	Outside of NA Revenue
Henry Schein	\$3.5	\$1.8	100%	\$1.8	0%	\$0.0	\$1.7
Patterson Companies	\$3.2	\$2.7	52%	\$1.4	48%	\$1.3	\$0.6
MWI Veterinary Supply	\$3.4	\$3.1	75%	\$2.3	25%	\$0.8	\$0.3

Source: J.P. Morgan estimates. Note: MWI sales are estimates.

The MWI acquisition provided diversification within the distribution market, and ABC had indicated that it expected the deal to drive cost and purchasing synergies. At the time the deal was announced, ABC indicated that it had expected \$0.08 of adjusted EPS accretion in the second half of F2015 (MWI contribution of ~\$0.10 offset by \$0.02 impact from foregone share repurchases). Recall that MWI was included in ABC's results for slightly more than two quarters in F2015. ABC had used ~\$500M in cash to complete the purchase, and funded the rest with debt, including \$1B in senior notes (two tranches of \$500M) and a new \$1B term loan. While the FY15 accretion guidance had not included any synergies, ABC had indicated that it aims to generate at least \$50M in synergies by the third full year following the transaction close, ramping up over F2016-F2018. The company had noted that about two-thirds of the synergies are expected to come from sourcing and procurement (largely on the drug side), with the remainder of savings coming from freight savings, eliminating duplicate public company costs and operating leverage from ABC's scale. At the time of the deal, MWI had noted that <\$100M of revenues had come from human generic pharmaceutical products, with the majority of pharmaceutical revenues from branded products. ABC management had previously noted that the medication and vaccine market for global animal health is ~\$22B in size and growing at a rate of ~6%. ABC has previously indicated a willingness to expand in animal health via tuck-in acquisitions, and has completed few smaller deals over the past two years.

World Courier

ABC acquired World Courier Group in April 2012 for \$520M. World Courier is a global specialty transportation and logistics provider for the biopharmaceutical industry. WCG specializes in logistics for global clinical trials, including

temperature-controlled transportation, storage and worldwide distribution. While WCG's services are largely an extension of services that ABC already provides, the acquisition strengthened the company's service offerings to global pharmaceutical manufacturers, and ABC management views this as an established platform from which to grow its service offering outside of North America given WCG's large global network (the company operates in over 50 countries worldwide).

The company's business is based on a fee-for-service model and revenues are not necessarily tied to the outcomes of clinical trials. Of the ~\$500M in revenues reported by World Courier in 2011 (the company's last year as an independent company), only ~35% was based in the U.S. with the remainder diversified globally. This provides ABC with local market expertise and an already established distribution network (and as such, did not require significant additional investments for ABC to build out a global network themselves).

Similar to MWI, World Courier revenues and earnings consolidated under ABC's Other segment and are not broken out separately. At the time the deal was announced, in March 2012, management had expected it to contribute \$30-\$50M in EBIT in F2013, equating to margins of 6%-10%, but after a slow start to the year expectations were later revised to \$25-\$40M in EBIT with ~5%-7.5% margins. Business has since improved (recall that ABC had subsequently pointed to improved margins in the World Courier business as positively impacting 2014 results in the Other segment), although we do point to a drag from foreign exchange due to currency volatility. Over the past few years, management has indicated that World Courier has been a very consistent performer, and it continues to strengthen its position as the undisputed leader in niche premium logistics in support of clinical trials. Finally, we note that in January 2017, ABC had sold the U.S. ground transportation division of World Courier, which it had determined was a non-strategic asset.

AmerisourceBergen Consulting Services (ABCS)

The company's Consulting Services business (ABCS) provides services to pharmaceutical and biotech manufacturers and also internally to ABC itself, including commercialization support, reimbursement support programs, outcomes research, contract field staffing, patient assistance and co-pay assistance programs, adherence programs, risk mitigation services and other market access programs. These services are provided under a number of operating businesses (including those shown in Table 3 below). Results for ABCS are not broken out separately (they are consolidated under the Other segment), although ABC management has previously called out strong growth during 2015 and 2016, both on revenue and operating profit. Relative to MWI and WCG, ABCS is somewhat smaller in terms of revenue contribution, but depending on the mix of business, can drive higher margins. The company has noted that the consulting business is currently in the midst of a business process redesign initiative, which includes a new ERP system implementation aimed at driving internal efficiencies and expanding capabilities to provide custom-tailored programs and services to manufacturer customers.

Table 3: ABCS Business Units

ABCS Operating Business	Services Provided
Xcenda	Commercialization consulting services, including brand strategy, messaging and market research
Lash Group	Reimbursement services for pharmaceutical, biotech and medical device companies
Premier Source	Reimbursement and strategic consulting
TheraCom	Commercialization and support services to biotech and pharma manufacturers

Source: Company reports.

Management pointed to the timing and expected operating expenses related to the implementation of the Fusion technology system in the Lash consulting business as one factor that is driving a headwind to growth in the Other segment in FY18. The implementation of the new platform will impact the customer capacity and the conversion of existing customers, and as such, the company is projecting a more limited ramp during this transition period. That said, the company expects to return to a normal level of growth in FY19.

Investment Thesis, Valuation and Risks

AmerisourceBergen (Neutral; Price Target: \$100.00)

Investment Thesis

Our rating on AmerisourceBergen is Neutral. We continue to point to a positive longer term fundamental outlook for the drug distribution industry, driven by an aging population and increased utilization of prescription drugs. We believe the core pharma distribution business is stabilizing, with several of the headwinds that have driven tough y/y comps now behind. ABC should see an incremental benefit from growth at key customers (such as Walgreens completing the Rite Aid asset purchase). Further, as the largest distributor of specialty drugs to community-based oncologists, we believe the company could potentially see an incremental benefit from biosimilar launches going forward. We also point to the potential for accretive uses of cash flow. However, we note that a higher level of generic deflation and longer than expected remediation efforts at PharMEDium represent potential risks.

Valuation

ABC shares trade at 13.3x our new CY18 adjusted EPS estimate of \$6.55. We are lowering our December 2018 price target to \$105 from \$100. Our new target is based on a 13.5x multiple on our CY19 adjusted EPS estimate of \$7.38. This target multiple is below the historical average forward P/E multiple for the pharma distributors of ~14.5x over the past 10 years and represents a discount to the market multiple as we point to incremental uncertainty around the PharMEDium business. Our prior December 2018 price target of \$105 had been based on a 14.0x multiple on our prior CY19 adjusted EPS estimate of \$7.51.

Risks to Rating and Price Target

Several factors could cause the stock to outperform or underperform our expectations. These risks include higher or lower than anticipated drug price inflation, generic deflation, timing and dynamics of generic launches, competitive pricing pressure, potential contract wins or losses, a change in the interest rate

environment, significant downward revision to the growth rate of the pharmaceutical industry, and changes in the healthcare regulatory environment.

AmerisourceBergen: Summary of Financials

Income Statement - Annual						Income Statement - Quarterly					
	FY16A	FY17A	FY18E	FY19E	FY20E		1Q18A	2Q18E	3Q18E	4Q18E	
Revenue	146,850	153,144	167,691	180,006	-	Revenue	40,466A	40,496	42,899	43,830	-
COGS	(142,511)	(148,757)	(163,094)	(175,111)	-	COGS	(39,354)A	(39,295)	(41,779)	(42,666)	-
Gross profit	-	-	-	-	-	Gross profit	-	-	-	-	-
SG&A	(2,091)	(2,129)	(2,313)	(2,436)	-	SG&A	(559)A	(568)	(585)	(601)	-
Adj. EBITDA	2,248	2,258	2,283	2,459	-	Adj. EBITDA	554A	632	535	562	-
D&A	(217)	(241)	(270)	(272)	-	D&A	(66)A	(69)	(67)	(68)	-
Adj. EBIT	2,030	2,017	2,013	2,186	-	Adj. EBIT	488A	564	467	494	-
Net Interest	(131)	(140)	(167)	(171)	-	Net Interest	(36)A	(44)	(44)	(44)	-
Adj. PBT	1,904	1,880	1,846	2,016	-	Adj. PBT	452A	520	423	451	-
Tax	(618)	(576)	(435)	(438)	-	Tax	(110)A	(135)	(92)	(98)	-
Minority Interest	-	-	-	-	-	Minority Interest	-	-	-	-	-
Adj. Net Income	1,286	1,304	1,411	1,577	-	Adj. Net Income	342A	384	331	353	-
Reported EPS	5.62	5.88	6.39	7.22	-	Reported EPS	1.55A	1.74	1.50	1.60	-
Adj. EPS	5.62	5.88	6.39	7.22	-	Adj. EPS	1.55A	1.74	1.50	1.60	-
DPS	1.26	1.45	1.51	1.65	-	DPS	-	-	-	-	-
Payout ratio	22.4%	24.6%	23.7%	22.9%	-	Payout ratio	-	-	-	-	-
Shares outstanding	229	222	221	218	-	Shares outstanding	221A	221	221	221	-
Balance Sheet & Cash Flow Statement						Ratio Analysis					
	FY16A	FY17A	FY18E	FY19E	FY20E		FY16A	FY17A	FY18E	FY19E	FY20E
Cash and cash equivalents	2,742	2,435	3,319	4,097	-	Gross margin	-	-	-	-	-
Accounts receivable	9,176	10,303	10,887	11,637	-	EBITDA margin	1.5%	1.5%	1.4%	1.4%	-
Inventories	10,724	11,461	12,297	12,897	-	EBIT margin	1.4%	1.3%	1.2%	1.2%	-
Other current assets	210	103	103	103	-	Net profit margin	0.9%	0.9%	0.8%	0.9%	-
Current assets	22,852	24,303	26,606	28,733	-	ROE	93.7%	62.2%	56.9%	47.0%	-
PP&E	1,531	1,798	1,857	1,888	-	ROA	4.2%	3.8%	3.8%	4.0%	-
LT investments	-	-	-	-	-	ROCE	26.3%	23.6%	24.6%	23.1%	-
Other non current assets	9,274	9,215	9,923	9,744	-	SG&A/Sales	1.4%	1.4%	1.4%	1.4%	-
Total assets	33,656	35,316	38,385	40,365	-	Net debt/equity	68.7%	48.8%	28.4%	(4.0%)	-
Short term borrowings	611	12	20	20	-	P/E (x)	15.6	14.9	13.7	12.1	-
Payables	23,926	25,404	26,695	27,945	-	P/BV (x)	-	-	-	-	-
Other short term liabilities	744	1,402	1,654	1,654	-	EV/EBITDA (x)	9.2	9.0	8.8	7.8	-
Current liabilities	25,281	26,818	28,369	29,619	-	Dividend Yield	1.4%	1.7%	1.7%	1.9%	-
Long-term debt	3,594	3,430	4,120	3,923	-	Sales/Assets (x)	4.8	4.4	4.6	4.6	-
Other long term liabilities	2,651	3,004	3,004	3,004	-	Interest cover (x)	17.1	16.1	13.7	14.4	-
Total liabilities	31,527	33,252	35,492	36,546	-	Operating leverage	86.1%	(15.5%)	(1.8%)	117.0%	-
Shareholders' equity	2,129	2,064	2,893	3,819	-	Revenue y/y Growth	8.0%	4.3%	9.5%	7.3%	-
Minority interests	-	-	-	-	-	EBITDA y/y Growth	7.6%	0.5%	1.1%	7.7%	-
Total liabilities & equity	33,656	35,316	38,385	40,365	-	Tax rate	32.5%	30.7%	23.6%	21.8%	-
BVPS	-	-	-	-	-	Adj. Net Income y/y Growth	12.7%	1.4%	8.2%	11.8%	-
y/y Growth	-	-	-	-	-	EPS y/y Growth	13.4%	4.7%	8.6%	13.1%	-
Net debt/(cash)	1,464	1,007	821	(153)	-	DPS y/y Growth	8.6%	14.7%	4.7%	9.2%	-
Cash flow from operating activities	3,178	1,504	1,755	1,965	-						
o/w Depreciation & amortization	365	398	444	448	-						
o/w Changes in working capital	1,228	402	124	(100)	-						
Cash flow from investing activities	(3,169)	(498)	(1,209)	(300)	-						
o/w Capital expenditure	(465)	(466)	(325)	(300)	-						
as % of sales	0.3%	0.3%	0.2%	0.2%	-						
Cash flow from financing activities	565	(1,313)	337	(887)	-						
o/w Dividends paid	(288)	(320)	(334)	(361)	-						
o/w Net debt issued/(repaid)	712	(750)	698	(196)	-						
Net change in cash	574	(307)	884	778	-						
Adj. Free cash flow to firm	2,803	1,135	1,558	1,799	-						
y/y Growth	(25.2%)	(59.5%)	37.3%	15.5%	-						

Source: Company reports and J.P. Morgan estimates.

Note: \$ in millions (except per-share data). Fiscal year ends Sep. o/w - out of which

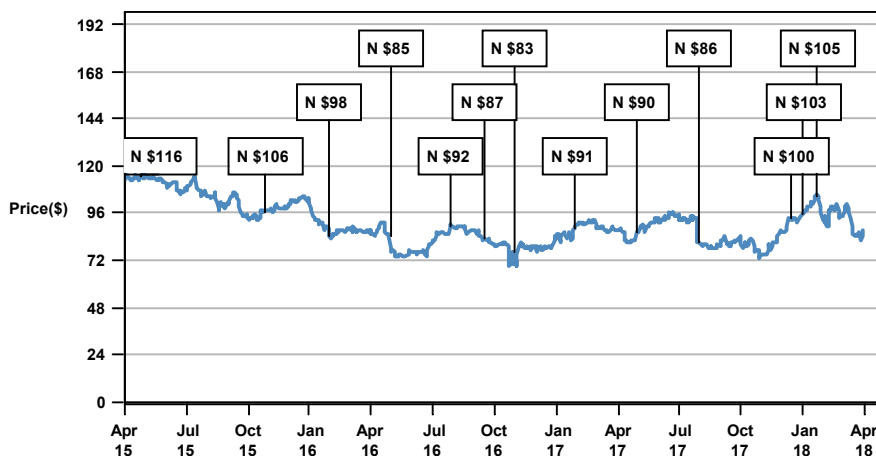
Analyst Certification: The research analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple research analysts are primarily responsible for this report, the research analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to each security or issuer that the research analyst covers in this research) that: (1) all of the views expressed in this report accurately reflect his or her personal views about any and all of the subject securities or issuers; and (2) no part of any of the research analyst's compensation was, is, or will be directly or indirectly related to the specific recommendations or views expressed by the research analyst(s) in this report. For all Korea-based research analysts listed on the front cover, they also certify, as per KOFIA requirements, that their analysis was made in good faith and that the views reflect their own opinion, without undue influence or intervention.

Important Disclosures

- **Market Maker:** JPMS makes a market in the stock of AmerisourceBergen.
- **Market Maker/ Liquidity Provider:** J.P. Morgan Securities plc and/or an affiliate is a market maker and/or liquidity provider in securities issued by AmerisourceBergen.
- **Lead or Co-manager:** J.P. Morgan acted as lead or co-manager in a public offering of equity and/or debt securities for AmerisourceBergen within the past 12 months.
- **Client:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients: AmerisourceBergen.
- **Client/Investment Banking:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as investment banking clients: AmerisourceBergen.
- **Client/Non-Investment Banking, Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-investment-banking, securities-related: AmerisourceBergen.
- **Client/Non-Securities-Related:** J.P. Morgan currently has, or had within the past 12 months, the following entity(ies) as clients, and the services provided were non-securities-related: AmerisourceBergen.
- **Investment Banking (past 12 months):** J.P. Morgan received in the past 12 months compensation for investment banking services from AmerisourceBergen.
- **Investment Banking (next 3 months):** J.P. Morgan expects to receive, or intends to seek, compensation for investment banking services in the next three months from AmerisourceBergen.
- **Non-Investment Banking Compensation:** J.P. Morgan has received compensation in the past 12 months for products or services other than investment banking from AmerisourceBergen.
- **Other Significant Financial Interests:** J.P. Morgan owns a position of 1 million USD or more in the debt securities of AmerisourceBergen.

Company-Specific Disclosures: Important disclosures, including price charts and credit opinion history tables, are available for compendium reports and all J.P. Morgan-covered companies by visiting <https://www.jpmm.com/research/disclosures>, calling 1-800-477-0406, or e-mailing research.disclosure.inquiries@jpmorgan.com with your request. J.P. Morgan's Strategy, Technical, and Quantitative Research teams may screen companies not covered by J.P. Morgan. For important disclosures for these companies, please call 1-800-477-0406 or e-mail research.disclosure.inquiries@jpmorgan.com.

AmerisourceBergen (ABC, ABC US) Price Chart



Date	Rating	Share Price (\$)	Price Target (\$)
30-Apr-15	N	114.30	116.00
30-Oct-15	N	96.51	106.00
04-Feb-16	N	84.40	98.00
05-May-16	N	84.29	85.00
03-Aug-16	N	89.43	92.00
20-Sep-16	N	83.26	87.00
03-Nov-16	N	75.96	83.00
31-Jan-17	N	88.61	91.00
05-May-17	N	85.89	90.00
04-Aug-17	N	80.83	86.00
19-Dec-17	N	93.79	100.00
05-Jan-18	N	95.32	103.00
26-Jan-18	N	104.37	105.00

Source: Bloomberg and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage Jun 11, 1999.

The chart(s) show J.P. Morgan's continuing coverage of the stocks; the current analysts may or may not have covered it over the entire period.

J.P. Morgan ratings or designations: OW = Overweight, N= Neutral, UW = Underweight, NR = Not Rated

Explanation of Equity Research Ratings, Designations and Analyst(s) Coverage Universe:

J.P. Morgan uses the following rating system: Overweight [Over the next six to twelve months, we expect this stock will outperform the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Neutral [Over the next six to twelve months, we expect this stock will perform in line with the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Underweight [Over the next six to twelve months, we expect this stock will underperform the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.] Not Rated (NR): J.P. Morgan has removed the rating and, if applicable, the price target, for this stock because of either a lack of a sufficient fundamental basis or for legal, regulatory or policy reasons. The previous rating and, if applicable, the price target, no longer should be relied upon. An NR designation is not a recommendation or a rating. In our Asia (ex-Australia and ex-India) and U.K. small- and mid-cap equity research, each stock's expected total return is compared to the expected total return of a benchmark country market index, not to those analysts' coverage universe. If it does not appear in the Important Disclosures section of this report, the certifying analyst's coverage universe can be found on J.P. Morgan's research website, www.jpmorganmarkets.com.

Coverage Universe: Gill, Lisa C: Allscripts (MDRX), AmerisourceBergen (ABC), CVS Health (CVS), Cardinal Health (CAH), Cerner (CERN), Cotiviti (COTV), Diplomat Pharmacy, Inc. (DPLO), Evolent Health (EVH), Express Scripts (ESRX), HealthEquity (HQY), LabCorp (LH), McKesson Corporation (MCK), Owens & Minor, Inc. (OMI), Premier, Inc. (PINC), Quality Systems (QSII), Quest Diagnostics (DGX), Rite Aid (RAD), Teladoc, Inc. (TDOC), Walgreens Boots Alliance Inc (WBA), athenahealth (ATHN)

J.P. Morgan Equity Research Ratings Distribution, as of April 02, 2018

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage	46%	41%	13%
IB clients*	52%	49%	39%
JPMS Equity Research Coverage	45%	43%	13%
IB clients*	72%	67%	57%

*Percentage of investment banking clients in each rating category.

For purposes only of FINRA/NYSE ratings distribution rules, our Overweight rating falls into a buy rating category; our Neutral rating falls into a hold rating category; and our Underweight rating falls into a sell rating category. Please note that stocks with an NR designation are not included in the table above.

Equity Valuation and Risks: For valuation methodology and risks associated with covered companies or price targets for covered companies, please see the most recent company-specific research report at <http://www.jpmorganmarkets.com>, contact the primary analyst or your J.P. Morgan representative, or email research.disclosure.inquiries@jpmorgan.com. For material information about the proprietary models used, please see the Summary of Financials in company-specific research reports and the Company Tearsheets, which are

available to download on the company pages of our client website, <http://www.jpmorganmarkets.com>. This report also sets out within it the material underlying assumptions used.

Equity Analysts' Compensation: The equity research analysts responsible for the preparation of this report receive compensation based upon various factors, including the quality and accuracy of research, client feedback, competitive factors, and overall firm revenues.

Other Disclosures

J.P. Morgan ("JPM") is the global brand name for J.P. Morgan Securities LLC ("JPMS") and its affiliates worldwide. J.P. Morgan Cazenove is a marketing name for the U.K. investment banking businesses and EMEA cash equities and equity research businesses of JPMorgan Chase & Co. and its subsidiaries.

All research reports made available to clients are simultaneously available on our client website, J.P. Morgan Markets. Not all research content is redistributed, e-mailed or made available to third-party aggregators. For all research reports available on a particular stock, please contact your sales representative.

Options related research: If the information contained herein regards options related research, such information is available only to persons who have received the proper option risk disclosure documents. For a copy of the Option Clearing Corporation's Characteristics and Risks of Standardized Options, please contact your J.P. Morgan Representative or visit the OCC's website at <https://www.theocc.com/components/docs/riskstoc.pdf>

Legal Entities Disclosures

U.S.: JPMS is a member of NYSE, FINRA, SIPC and the NFA. JPMorgan Chase Bank, N.A. is a member of FDIC. **U.K.:** JPMorgan Chase N.A., London Branch, is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and to limited regulation by the Prudential Regulation Authority. Details about the extent of our regulation by the Prudential Regulation Authority are available from J.P. Morgan on request. J.P. Morgan Securities plc (JPMS plc) is a member of the London Stock Exchange and is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. Registered in England & Wales No. 2711006. Registered Office 25 Bank Street, London, E14 5JP. **South Africa:** J.P. Morgan Equities South Africa Proprietary Limited is a member of the Johannesburg Securities Exchange and is regulated by the Financial Services Board. **Hong Kong:** J.P. Morgan Securities (Asia Pacific) Limited (CE number AAJ321) is regulated by the Hong Kong Monetary Authority and the Securities and Futures Commission in Hong Kong and/or J.P. Morgan Broking (Hong Kong) Limited (CE number AAB027) is regulated by the Securities and Futures Commission in Hong Kong. **Korea:** This material is issued and distributed in Korea by or through J.P. Morgan Securities (Far East) Limited, Seoul Branch, which is a member of the Korea Exchange (KRX) and is regulated by the Financial Services Commission (FSC) and the Financial Supervisory Service (FSS). **Australia:** J.P. Morgan Australia Limited (JPMAL) (ABN 52 002 888 011/AFS Licence No: 238188) is regulated by ASIC and J.P. Morgan Securities Australia Limited (JPMSAL) (ABN 61 003 245 234/AFS Licence No: 238066) is regulated by ASIC and is a Market, Clearing and Settlement Participant of ASX Limited and CHI-X. **Taiwan:** J.P. Morgan Securities (Taiwan) Limited is a participant of the Taiwan Stock Exchange (company-type) and regulated by the Taiwan Securities and Futures Bureau. **India:** J.P. Morgan India Private Limited (Corporate Identity Number - U67120MH1992FTC068724), having its registered office at J.P. Morgan Tower, Off. C.S.T. Road, Kalina, Santacruz - East, Mumbai - 400098, is registered with Securities and Exchange Board of India (SEBI) as a 'Research Analyst' having registration number INH000001873. J.P. Morgan India Private Limited is also registered with SEBI as a member of the National Stock Exchange of India Limited (SEBI Registration Number - INB 230675231/INF 230675231/INE 230675231), the Bombay Stock Exchange Limited (SEBI Registration Number - INB 010675237/INF 010675237) and as a Merchant Banker (SEBI Registration Number - MB/INM000002970). Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: www.jpmpil.com. For non local research reports, this material is not distributed in India by J.P. Morgan India Private Limited. **Thailand:** This material is issued and distributed in Thailand by JPMorgan Securities (Thailand) Ltd., which is a member of the Stock Exchange of Thailand and is regulated by the Ministry of Finance and the Securities and Exchange Commission and its registered address is 3rd Floor, 20 North Sathorn Road, Silom, Bangkok, Bangkok 10500. **Indonesia:** PT J.P. Morgan Securities Indonesia is a member of the Indonesia Stock Exchange and is regulated by the OJK a.k.a. BAPEPAM LK. **Philippines:** J.P. Morgan Securities Philippines Inc. is a Trading Participant of the Philippine Stock Exchange and a member of the Securities Clearing Corporation of the Philippines and the Securities Investor Protection Fund. It is regulated by the Securities and Exchange Commission. **Brazil:** Banco J.P. Morgan S.A. is regulated by the Comissão de Valores Mobiliários (CVM) and by the Central Bank of Brazil. **Mexico:** J.P. Morgan Casa de Bolsa, S.A. de C.V., J.P. Morgan Grupo Financiero is a member of the Mexican Stock Exchange and authorized to act as a broker dealer by the National Banking and Securities Exchange Commission. **Singapore:** This material is issued and distributed in Singapore by or through J.P. Morgan Securities Singapore Private Limited (JPMS) [MCI (P) 202/03/2017 and Co. Reg. No.: 199405335R], which is a member of the Singapore Exchange Securities Trading Limited and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) [MCI (P) 059/09/2017], both of which are regulated by the Monetary Authority of Singapore. This material is issued and distributed in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289 (SFA). This material is not intended to be issued or distributed to any retail investors or any other investors that do not fall into the classes of "accredited investors," "expert investors" or "institutional investors," as defined under Section 4A of the SFA. Recipients of this document are to contact JPMS or JPMCB Singapore in respect of any matters arising from, or in connection with, the document. **Japan:** JPMorgan Securities Japan Co., Ltd. and JPMorgan Chase Bank, N.A., Tokyo Branch are regulated by the Financial Services Agency in Japan. **Malaysia:** This material is issued and distributed in Malaysia by JPMorgan Securities (Malaysia) Sdn Bhd (18146-X) which is a Participating Organization of Bursa Malaysia Berhad and a holder of Capital Markets Services License issued by the Securities Commission in Malaysia. **Pakistan:** J. P. Morgan Pakistan Broking (Pvt.) Ltd is a member of the Karachi Stock Exchange and regulated by the Securities and Exchange Commission of Pakistan. **Saudi Arabia:** J.P. Morgan Saudi Arabia Ltd. is authorized by the Capital Market Authority of the Kingdom of Saudi Arabia (CMA) to carry out dealing as an agent, arranging, advising and custody, with respect to securities business under licence number 35-07079 and its registered address is at 8th Floor, Al-Faisaliyah Tower, King Fahad Road, P.O. Box 51907, Riyadh 11553, Kingdom of Saudi Arabia. **Dubai:** JPMorgan Chase Bank, N.A., Dubai Branch is regulated by the Dubai Financial Services Authority (DFSA) and its registered address is Dubai International Financial Centre - Building 3, Level 7, PO Box 506551, Dubai, UAE.

Country and Region Specific Disclosures

U.K. and European Economic Area (EEA): Unless specified to the contrary, issued and approved for distribution in the U.K. and the EEA by JPMS plc. Investment research issued by JPMS plc has been prepared in accordance with JPMS plc's policies for managing conflicts of interest arising as a result of publication and distribution of investment research. Many European regulators require a firm to establish, implement and maintain such a policy. Further information about J.P. Morgan's conflict of interest policy and a description of the effective internal organisations and administrative arrangements set up

for the prevention and avoidance of conflicts of interest is set out at the following link <https://www.jpmorgan.com/ipmpdf/1320742677360.pdf>. This report has been issued in the U.K. only to persons of a kind described in Article 19 (5), 38, 47 and 49 of the Financial Services and Markets Act 2000 (Financial Promotion) Order 2005 (all such persons being referred to as "relevant persons"). This document must not be acted on or relied on by persons who are not relevant persons. Any investment or investment activity to which this document relates is only available to relevant persons and will be engaged in only with relevant persons. In other EEA countries, the report has been issued to persons regarded as professional investors (or equivalent) in their home jurisdiction. **Australia:** This material is issued and distributed by JPMSAL in Australia to "wholesale clients" only. This material does not take into account the specific investment objectives, financial situation or particular needs of the recipient. The recipient of this material must not distribute it to any third party or outside Australia without the prior written consent of JPMSAL. For the purposes of this paragraph the term "wholesale client" has the meaning given in section 761G of the Corporations Act 2001. **Germany:** This material is distributed in Germany by J.P. Morgan Securities plc, Frankfurt Branch which is regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht. **Hong Kong:** The 1% ownership disclosure as of the previous month end satisfies the requirements under Paragraph 16.5(a) of the Hong Kong Code of Conduct for Persons Licensed by or Registered with the Securities and Futures Commission. (For research published within the first ten days of the month, the disclosure may be based on the month end data from two months prior.) J.P. Morgan Broking (Hong Kong) Limited is the liquidity provider/market maker for derivative warrants, callable bull bear contracts and stock options listed on the Stock Exchange of Hong Kong Limited. An updated list can be found on HKEx website: <http://www.hkex.com.hk>. **Korea:** This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Limited, Seoul Branch. **Singapore:** As at the date of this report, JPMSS is a designated market maker for certain structured warrants listed on the Singapore Exchange where the underlying securities may be the securities discussed in this report. Arising from its role as designated market maker for such structured warrants, JPMSS may conduct hedging activities in respect of such underlying securities and hold or have an interest in such underlying securities as a result. The updated list of structured warrants for which JPMSS acts as designated market maker may be found on the website of the Singapore Exchange Limited: <http://www.sgx.com>. In addition, JPMSS may also have an interest or holding in any of the securities discussed in this report – please see the Important Disclosures section above. For securities where the holding is 1% or greater, the holding may be found in the Important Disclosures section above. For all other securities mentioned in this report, JPMSS and/or its affiliates may have a holding of less than 1% in such securities and may trade them in ways different from those discussed in this report. Employees of JPMSS and/or its affiliates not involved in the preparation of this report may have investments in the securities (or derivatives of such securities) mentioned in this report and may trade them in ways different from those discussed in this report. **Taiwan:** This material is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan) Limited. According to Paragraph 2, Article 7-1 of Operational Regulations Governing Securities Firms Recommending Trades in Securities to Customers (as amended or supplemented) and/or other applicable laws or regulations, please note that the recipient of this material is not permitted to engage in any activities in connection with the material which may give rise to conflicts of interests, unless otherwise disclosed in the "Important Disclosures" in this material. **India:** For private circulation only, not for sale. **Pakistan:** For private circulation only, not for sale. **New Zealand:** This material is issued and distributed by JPMSAL in New Zealand only to persons whose principal business is the investment of money or who, in the course of and for the purposes of their business, habitually invest money. JPMSAL does not issue or distribute this material to members of "the public" as determined in accordance with section 3 of the Securities Act 1978. The recipient of this material must not distribute it to any third party or outside New Zealand without the prior written consent of JPMSAL. **Canada:** The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell securities described herein, or solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made. The information contained herein is under no circumstances to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through a dealer registered in Canada. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed judgment upon these materials, the information contained herein or the merits of the securities described herein, and any representation to the contrary is an offence. **Dubai:** This report has been issued to persons regarded as professional clients as defined under the DFSA rules. **Brazil:** Ombudsman J.P. Morgan: 0800-7700847 / ouvidoria.jp.morgan@jpmorgan.com.

General: Additional information is available upon request. Information has been obtained from sources believed to be reliable but JPMorgan Chase & Co. or its affiliates and/or subsidiaries (collectively J.P. Morgan) do not warrant its completeness or accuracy except with respect to any disclosures relative to JPMS and/or its affiliates and the analyst's involvement with the issuer that is the subject of the research. All pricing is indicative as of the close of market for the securities discussed, unless otherwise stated. Opinions and estimates constitute our judgment as of the date of this material and are subject to change without notice. Past performance is not indicative of future results. This material is not intended as an offer or solicitation for the purchase or sale of any financial instrument. The opinions and recommendations herein do not take into account individual client circumstances, objectives, or needs and are not intended as recommendations of particular securities, financial instruments or strategies to particular clients. The recipient of this report must make its own independent decisions regarding any securities or financial instruments mentioned herein. JPMS distributes in the U.S. research published by non-U.S. affiliates and accepts responsibility for its contents. Periodic updates may be provided on companies/industries based on company specific developments or announcements, market conditions or any other publicly available information. Clients should contact analysts and execute transactions through a J.P. Morgan subsidiary or affiliate in their home jurisdiction unless governing law permits otherwise.

"Other Disclosures" last revised January 01, 2018.

Copyright 2018 JPMorgan Chase & Co. All rights reserved. This report or any portion hereof may not be reprinted, sold or redistributed without the written consent of J.P. Morgan.