

Sage Therapeutics

3Q Snapshot & Model Update

We are updating our SAGE model based on the company's 3Q results (there was no conference call). After its initial public offering in July and the recent top-line data release from the SAGE-547 Phase 1/2 trial (note [here](#)), the quarterly update was largely incremental. Maintain OW.

- **Upcoming events: Full Phase 1/2 547 data in 2015.** First and most importantly regarding SAGE-547, the co plans to present full data from the Phase 1/2 study (only top-line released thus far) at an upcoming medical meeting, likely in early 2015. The company has also scheduled an End of Phase 2 meeting with the FDA, and thus we expect a regulatory update in the next couple of months. On the pre-clinical side, the co is prioritizing development of SAGE-217, for which an IND is anticipated to be filed in late 2015 (vs. 1H15 prvslly). Development of SAGE-689 will proceed after SAGE-217.
- **3Q results.** 3Q EPS was \$(0.50) vs. JPMe of \$(0.61), largely driven by post-IPO share counts. 3Q OpEx of \$9.5M was higher than JPMe of \$8.4M. That said, SAGE is not yet an earnings story.
- **Estimate changes.** We have updated our model for 3Q results, changes were minimal. We are maintaining our Dec-15 \$42 target.
- **Balance sheet update.** SAGE ended 3Q with \$137M in cash (and no debt) after completing an IPO in July which generated \$94M in net proceeds.

Overweight

SAGE, SAGE US

Price: \$29.58

Price Target: \$42.00

Biotechnology

Cory Kasimov ^{AC}

(1-212) 622-5266

cory.w.kasimov@jpmorgan.com

Bloomberg JPMA KASIMOV <GO>

Whitney G Ijem

(1-212) 622-4668

whitney.g.ijem@jpmorgan.com

Matthew J. Lowe, Ph.D.

(1-212) 622-0848

matthew.j.lowe@jpmorgan.com

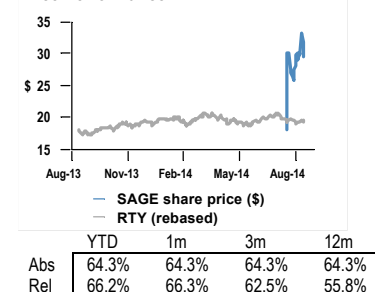
Brittany Turner

(1-212) 622-8527

brittany.turner@jpmorgan.com

J.P. Morgan Securities LLC

Price Performance



Sage Therapeutics, Inc. (SAGE;SAGE US)

FYE Dec	2012A	2013A	2014E (Prev)	2014E (Curr)	2015E
EPS reported (\$)					
Q1 (Mar)	-	(0.76)	(1.17)A	(1.17)A	-
Q2 (Jun)	-	-	(4.57)A	(4.57)A	-
Q3 (Sep)	-	-	(0.61)	(0.50)A	-
Q4 (Dec)	-	-	(0.45)	(0.44)	-
FY	(2.74)	(2.15)	(2.93)	(2.69)	(2.26)

Source: Company data, Bloomberg, J.P. Morgan estimates.

Company Data

Price (\$)	29.58
Date Of Price	13 Aug 14
52-week Range (\$)	41.01-24.25
Market Cap (\$ mn)	760.56
Fiscal Year End	Dec
Shares O/S (mn)	26
Price Target (\$)	42.00
Price Target End Date	31-Dec-15




See page 6 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.

Pipeline

Figure 1: SAGE Pipeline

Product Pipeline Highlights

Program	P/C	Ph 1	Ph 2	Ph 3	FDA	Mkt.	Partner Comments
SAGE 547 SRSE							Phase 1/2 ongoing
SAGE 217 RSE							IND anticipated in late 2015
SAGE 689 SE							

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

Upcoming Events

Figure 2: SAGE Upcoming Events

Anticipated Newsflow Highlights

Program	Event	Expected Timing	Significance
SAGE 547	Full Date from Phase 1/2 Trial Update	1H15	High
	Potential Pivotal trial Start	2015	Low
	Potential Pivotal Data	2016	High
	Potential NDA/MAA Filings	2016	Low
SAGE 217	IND Filing	late 2015	Low
SAGE 689	Potential IND Filing	2016	Low

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

Figure 3: SAGE Income Statement

Sage Therapeutics Income Statement

Cory Kasimov
cory.w.kasimov@jpmorgan.com
212.622.5266

	2013A	1Q14A	2Q14A	3Q14A	4Q14E	2014E	2015E	2016E	2017E	2018E
US 547 Revenues						-	-	-	26.5	195.5
EU 547 Revenues						-	-	-	-	2.2
Total Product Revenue						-	-	-	26.5	197.7
License & Milestone	-					-	-	-	-	-
Contract, Grant & Collaboration	-					-	-	-	-	-
Total Revenues	-	-	-	-	-	-	-	-	26.5	197.7
COGS	-					-	-	-	3.4	21.5
R&D	14.4	4.2	4.4	6.6	8.3	23.46	48.3	56.0	67.5	79.5
SG&A	3.9	1.6	1.8	2.9	3.1	9.4	14.0	56.2	62.7	64.4
Collaboration Expense	-					-	-	-	-	-
Total Operating Expenses	18.3	5.8	6.2	9.5	11.4	32.8	62.3	112.2	133.6	165.4
Operating Income	(18.3)	(5.8)	(6.2)	(9.5)	(11.4)	(32.8)	(62.3)	(112.2)	(107.1)	32.4
Net interest & other income	(0.0)	-	(0.0)	0.0	-	(0.0)	-	-	-	-
Accretion of redeemable conv. pref stock	(0.0)	(0.3)	(1.6)	(0.4)	-	(2.3)	-	-	-	-
Income Tax (benefit)	-	-	-	-	-	-	-	-	-	-
GAAP Net Income	(18.3)	(6.1)	(7.8)	(9.9)	(11.4)	(35.1)	(62.3)	(112.2)	(107.1)	32.4
GAAP Basic EPS	(3.89)	(1.17)	(4.57)	(0.50)	(0.44)	(2.69)	(2.26)	(3.53)	(3.06)	0.85
GAAP Diluted EPS	(2.15)	(1.17)	(4.57)	(0.50)	(0.44)	(2.69)	(2.26)	(3.53)	(3.06)	0.82
Basic Shares Outstanding	4.7	5.2	1.7	19.6	25.8	13.1	27.5	31.8	35.0	38.0
Shares added		5.2	1.0	17.9	1.0	25.1	2.0	2.0	2.0	2.0
Diluted Shares Outstanding	8.5	5.2	1.7	19.6	25.8	13.1	27.5	31.8	35.0	39.5
Margin Analysis:										
Gross margin	NM	NM	NM	NM	NM	NM	NM	NM	87%	89%
Operating margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	16.36%
Net margin	NM	NM	NM	NM	NM	NM	NM	NM	NM	16.36%
Tax Rate	0.0%	0%	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0.0%
Cost Analysis:										
COGS as % of tot. prod. sales	NM	NM	NM	NM	NM	0.00%	15%	15%	13%	11%
R&D as % of tot. revenue	NM	NM	NM	NM	NM	NM	NM	NM	254.41%	40.20%
SG&A as % of tot. revenue	NM	NM	NM	NM	NM	NM	NM	NM	236.23%	32.55%
Year-over-year growth:										
Total revenue	NM	NM	NM	NM	NM	NM	NM	NM	NM	645.30%
R&D Expense	98.60%	61.56%	NM	NM	NM	63.37%	105.71%	16.06%	20.54%	17.78%
SG&A Expense	63.28%	100.62%	NM	NM	NM	139.50%	49.05%	301.43%	11.52%	2.70%
Total operating expenses	89.79%	70.85%	NM	NM	NM	79.70%	89.51%	80.24%	19.09%	23.77%
Operating income	NM	NM	NM	NM	NM	79.70%	89.51%	80.24%	-4.55%	-130.21%
Net income	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
EPS	NM	NM	NM	NM	NM	24.81%	-15.74%	55.93%	-13.31%	-126.77%
Basic Shares	33.44%	16.34%	NM	NM	NM	178.14%	110.22%	15.59%	10.11%	8.58%
Diluted Shares	NM	NM	NM	NM	NM	#DIV/0!	#DIV/0!	15.05%	13.16%	7.41%

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

Investment Thesis, Valuation and Risks

Sage Therapeutics (Overweight; Price Target: \$42.00)

Investment Thesis

We have an OW rating on SAGE based on the potential of SAGE-547 for the treatment of super-refractory status epilepticus (SRSE) – a life-threatening state of persistent seizure that is unresponsive to currently available therapies (and an orphan indication). We believe SAGE-547's unique mechanism of action should continue to generate positive data and that the significant unmet need in SRSE will drive uptake of SAGE-547 upon commercialization. Follow-on candidates SAGE-689 and SAGE-217 for earlier lines of SE could grow the top line with significant infrastructure synergy.

Valuation

Our probability-weighted Dec-15 PT of \$42 is based on a blended average of our proprietary probability-adjusted sum-of-the-parts scenario analysis (50% weighting) and risk-adjusted NPV model (50% weighting).

SAGE Valuation Summary

SAGE Valuation Summary			
Discount rate	14%		
4Q15 Fully Diluted Shares (m)	29.0		
Main value drivers	Prob of approval	Peak WW sales est (avg. scenario)	Avg peak yr
SAGE-547- Status Epilepticus - US	60%	\$ 1,032	2022
SAGE-547- Status Epilepticus - G7	50%	\$ 582	2024
Valuation methodology	Value / share	Weighting	Adj. value/ share
DCF			
P/E 2016			
Real options scenario analysis	\$ 42.39	50%	21.19
Risk adjusted NPV analysis	\$ 42.13	50%	21.06
Total			\$ 42.26
Catalyst/liquidity discount			0%
YE15 Price Target			\$ 42

Source: J.P. Morgan estimates.

Risks to Rating and Price Target

SAGE is susceptible to the standard risks that apply to the entire biotech industry, including development, regulatory, commercial, manufacturing, financing, and IP pitfalls. More specific risks to the downside include clinical setbacks for the key pipeline product SAGE-547 and pre-clinical candidates SAGE-689 and SAGE-217, regulatory hurdles, commercial setbacks and personnel risk.

Sage Therapeutics: Summary of Financials

Income Statement - Annual	FY13A	FY14E	FY15E	FY16E	Income Statement - Quarterly	1Q14A	2Q14A	3Q14A	4Q14E
Revenues	0	0	0	-	Revenues	0A	0A	0A	0
Cost of products sold	0	0	0	-	Cost of products sold	0A	0A	0A	0
Gross profit	-	-	-	-	Gross profit	-	-	-	-
SG&A	(4)	(9)	(14)	-	SG&A	(2)A	(2)A	(3)A	(3)
R&D	(14)	(23)	(48)	-	R&D	(4)A	(4)A	(7)A	(8)
Operating income	(18)	(33)	(62)	-	Operating income	(6)A	(6)A	(9)A	(11)
EBITDA	(18)	(33)	(62)	-	EBITDA	(6)A	(6)A	(9)A	(11)
Net interest (income) / expense	-	-	-	-	Net interest (income) / expense	-	-	-	-
Other income / (expense)	(0)	(0)	0	-	Other income / (expense)	0A	(0)A	0A	0
Income taxes	0	0	0	-	Income taxes	0A	0A	0A	0
Net income - GAAP	(18)	(35)	(62)	-	Net income - GAAP	(6)A	(8)A	(10)A	(11)
Net income - recurring	(18)	(35)	(62)	-	Net income - recurring	(6)A	(8)A	(10)A	(11)
Diluted shares outstanding	8	13	27	-	Diluted shares outstanding	5A	2A	20A	26
EPS - excluding non-recurring	(2.15)	(2.69)	(2.26)	-	EPS - excluding non-recurring	(1.17)A	(4.57)A	(0.50)A	(0.44)
EPS - recurring	(2.15)	(2.69)	(2.26)	-	EPS - recurring	(1.17)A	(4.57)A	(0.50)A	(0.44)
Balance Sheet and Cash Flow Data	FY13A	FY14E	FY15E	FY16E	Ratio Analysis	FY13A	FY14E	FY15E	FY16E
Cash and cash equivalents	8	121	180	-	Sales growth	-	-	-	-
Accounts receivable	-	-	-	-	EBIT growth	89.8%	79.7%	89.5%	-
Inventories	-	-	-	-	EPS growth - recurring	(21.3%)	24.8%	(15.7%)	-
Other current assets	0	0	0	-					
Current assets	8	121	180	-	Gross margin	-	-	-	-
PP&E	0	0	0	-	EBIT margin	-	-	-	-
Total assets	9	121	180	-	EBITDA margin	-	-	-	-
				-	Tax rate	0.0%	0.0%	0.0%	-
Total debt	0	0	0	-	Net margin	-	-	-	-
Total liabilities	2	3	3	-					
Shareholders' equity	6	119	178	-	Net Debt / EBITDA	42.3%	367.3%	288.5%	-
				-	Net Debt / Capital (book)	494.2%	6850.2%	9292.3%	-
Net income (including charges)	(18)	(35)	(62)	-					
D&A	0	0	0	-	Return on assets (ROA)	(317.3%)	(54.1%)	(41.2%)	-
Change in working capital	1	0	0	-	Return on equity (ROE)	(472.0%)	(56.2%)	(42.0%)	-
Other	0	1	1	-					
Cash flow from operations	(18)	(34)	(61)	-	Enterprise value / sales	-	-	-	-
				-	Enterprise value / EBITDA	NM	NM	NM	-
Capex	(0)	0	0	-	Free cash flow yield	(7.0%)	(8.8%)	(7.5%)	-
Free cash flow	(18)	(34)	(61)	-					
Cash flow from investing activities	(0)	0	0	-					
Cash flow from financing activities	23	147	120	-					
Dividends	-	-	-	-					
Dividend yield	-	-	-	-					

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

Note: \$ in millions (except per-share data). Fiscal year ends Dec

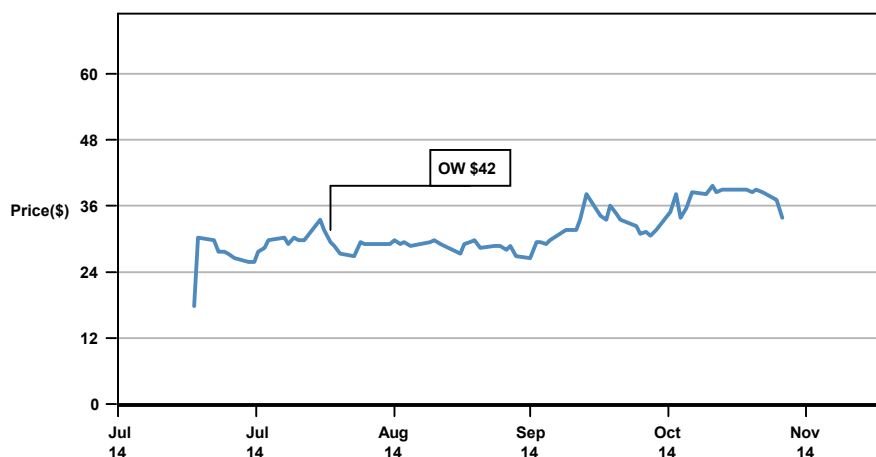
Analyst Certification: The research analyst(s) denoted by an “AC” on the cover of this report certifies (or, where multiple research analysts are primarily responsible for this report, the research analyst denoted by an “AC” on the cover or within the document individually certifies, with respect to 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 Sage Therapeutics.
- **Lead or Co-manager:** J.P. Morgan acted as lead or co-manager in a public offering of equity and/or debt securities for Sage Therapeutics within the past 12 months.
- **Client:** J.P. Morgan currently has, or had within the past 12 months, the following company(ies) as clients: Sage Therapeutics.
- **Client/Investment Banking:** J.P. Morgan currently has, or had within the past 12 months, the following company(ies) as investment banking clients: Sage Therapeutics.
- **Investment Banking (past 12 months):** J.P. Morgan received in the past 12 months compensation from investment banking Sage Therapeutics.
- **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 Sage Therapeutics.

Company-Specific Disclosures: Important disclosures, including price charts, are available for compendium reports and all J.P. Morgan-covered companies by visiting <https://jpm.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.

Sage Therapeutics (SAGE, SAGE US) Price Chart



Date	Rating	Share Price (\$)	Price Target (\$)
12-Aug-14	OW	31.81	42.00

Source: Bloomberg and J.P. Morgan; price data adjusted for stock splits and dividends.
Initiated coverage Aug 12, 2014.

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 [The analyst has not yet formed a view on the stock's performance relative to the average total return of the stocks in the analyst's (or the analyst's team's) coverage universe.]

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 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: Kasimov, Cory W: ACADIA Pharmaceuticals (ACAD), Acorda Therapeutics Inc. (ACOR), Aegerion Pharmaceuticals (AEGR), Alkermes, Inc. (ALKS), Amgen Inc (AMGN), Ariad Pharmaceuticals (ARIA), BioMarin Pharmaceuticals (BMRN), Biogen Idec (BIIB), Celgene (CELG), Clovis Oncology (CLVS), Gilead Sciences (GILD), Incyte Corporation (INCY), Keryx Biopharmaceuticals (KERX), MannKind Corporation (MNKD), Novavax (NVAX), Otonomy (OTIC), Pharmacyclics, Inc. (PCYC), Regeneron Pharmaceuticals (REGN), Sage Therapeutics (SAGE), Sangamo BioSciences (SGMO), Seattle Genetics (SGEN), Ultragenyx (RARE), Vertex Pharmaceuticals (VRTX), ZIOPHARM Oncology (ZIOP), ZS Pharma (ZSPH), bluebird bio (BLUE)

J.P. Morgan Equity Research Ratings Distribution, as of September 30, 2014

	Overweight (buy)	Neutral (hold)	Underweight (sell)
J.P. Morgan Global Equity Research Coverage	46%	42%	12%
IB clients*	57%	49%	34%
JPMS Equity Research Coverage	46%	48%	7%
IB clients*	76%	67%	51%

*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.

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 <http://www.optionsclearing.com/publications/risks/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:** J.P. Morgan Securities (Far East) Ltd, Seoul Branch, is regulated by the Korea Financial Supervisory Service. **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 a member of the National Stock Exchange of India Limited (SEBI Registration Number - INB 230675231/INF 230675231/INE

230675231) and Bombay Stock Exchange Limited (SEBI Registration Number - INB 010675237/INF 010675237) and is regulated by Securities and Exchange Board of India. Telephone: 91-22-6157 3000, Facsimile: 91-22-6157 3990 and Website: www.jpmpi.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, Bangrak, 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 Comissao de Valores Mobiliarios (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) 199/03/2014 and Co. Reg. No.: 199405335R] which is a member of the Singapore Exchange Securities Trading Limited and is regulated by the Monetary Authority of Singapore (MAS) and/or JPMorgan Chase Bank, N.A., Singapore branch (JPMCB Singapore) which is regulated by the MAS. This material is provided in Singapore only to accredited investors, expert investors and institutional investors, as defined in Section 4A of the Securities and Futures Act, Cap. 289. 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. is 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. 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 and J.P.Morgan Chase Bank, N.A., Frankfurt Branch which are 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>. **Japan:** There is a risk that a loss may occur due to a change in the price of the shares in the case of share trading, and that a loss may occur due to the exchange rate in the case of foreign share trading. In the case of share trading, JPMorgan Securities Japan Co., Ltd., will be receiving a brokerage fee and consumption tax (shouhizei) calculated by multiplying the executed price by the commission rate which was individually agreed between JPMorgan Securities Japan Co., Ltd., and the customer in advance. Financial Instruments Firms: JPMorgan Securities Japan Co., Ltd., Kanto Local Finance Bureau (kinsho) No. 82 Participating Association / Japan Securities Dealers Association, The Financial Futures Association of Japan, Type II Financial Instruments Firms Association and Japan Investment Advisers Association. **Korea:** This report may have been edited or contributed to from time to time by affiliates of J.P. Morgan Securities (Far East) Ltd, Seoul Branch. **Singapore:** JPMS and/or its affiliates may have a holding in any of the securities discussed in this report; for securities where the holding is 1% or greater, the specific holding is disclosed in the Important Disclosures section above. **Taiwan:** This material is issued and distributed in Taiwan by J.P. Morgan Securities (Taiwan Limited). **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 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 October 18, 2014.

Copyright 2014 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.