



Rating
Sell

Company
NavInfo Co., Ltd.

Date
28 August 2017

Forecast Change

Asia
China

Automobiles & Components

Reuters 002405.SZ Bloomberg 002405 CH Exchange SHZ Ticker 002405

Price at 25 Aug 2017 (CNY)	25.07
Price target - 12mth (CNY)	13.20
52-week range (CNY)	26.57 - 16.55
Shenzhen Index	1,998

1H17 missed on lower revenue contribution from IoVs and Jiefa

1H17 missed on slower revenue; margin expansion at navigation offset by Jiefa
1H17 revenue expanded 16.8% YoY to RMB833.8m, driven by the consolidation of revenue from Jiefa Technology (AutoChips). Gross profit grew 16.9% YoY to RMB625.1m in 1H17 with a stable 75.0% gross margin. The 4.3% margin expansion in navigation segment and 5.6% margin expansion in Internet of Vehicles (IoVs) were offset by the inclusion of lower margin Jiefa business (60.4% in 1H17). Together with 3.8ppt drop in SG&A expenses ratio, but partially offset by a 1.3x jump in finance costs, 1H17 net profit increased by 54.9% YoY to RMB121.3m (38% of FY17 DBE and 32% of consensus). Excluding non-recurring items (mainly RMB5.7m government subsidy and RMB3.8m investment gains), 1H17 core net profit grew 61.6% YoY to RMB114.2m, with 3.8ppt improvement in core net margin.

On a quarterly basis, 2Q17 revenue grew 27.1% QoQ and 19.7% YoY. Gross margin deteriorated 7.1ppt QoQ (0.9ppt YoY) to 71.8%. 2Q17 net profit increased by 42.1% QoQ (57.4% YoY) to RMB71.2m.

Deutsche Bank view - slower ramp-up of auto chips business; maintaining Sell
We consider 1H17 net profit a miss due to lower revenue contribution from Internet of Vehicles and Jiefa Technology. Gross profit margin was better than expected while net profit margin was in-line. Maintain Sell on worse-than-expected revenue and net profit contribution from Jiefa Technology/IoVs and excessive valuation.

We cut our FY17-19E revenue by 13.7-14.7% to reflect weaker revenue growth of Jiefa and FY17-19E net profit by 11.1-12.6% to factor in Jiefa's weaker-than-expected gross margin, partly offset by further margin expansion at navigation and IoVs segments. We expect NavInfo to deliver 15.9% FY16-19 revenue CAGR, driven mainly by acquisition of Jiefa. Our TP is set at 45x FY18E P/E (unchanged), c.60% below its mid-cycle P/E of 108x. This is justified, in our view, since we expect the company to deliver a 43.1% net profit CAGR in FY16-19. Key upside risks: 1) less-than-expected competition in in-dash navigation market; 2) stronger-than-expected auto sales volume; 3) faster-than-expected development in the IoVs and ADAS businesses; and 4) a more efficient consolidation of Jiefa Tech.

Valuation & Risks

Vincent Ha, CFA
Research Analyst
+852-2203 6247

Fei Sun, CFA
Research Analyst
+852-2203 6130

Yuki Lu
Research Associate
+852-2203 5925

Key changes

TP	14.90 to 13.20	↓	-11.4%
Sales (FYE)	2,163 to 1,863	↓	-13.9%
Op prof margin (FYE)	9.0 to 6.8	↓	-24.9%
Net profit (FYE)	316.4 to 276.4	↓	-12.6%

Source: Deutsche Bank

Price/price relative



Performance (%)	1m	3m	12m
Absolute	38.6	47.0	7.4
Shenzhen Index	3.3	5.4	-5.4

Source: Deutsche Bank

Key indicators (FY1)

ROE (%)	5.7
Net debt/equity (%)	-25.1
Book value/share (CNY)	5.29
Price/book (x)	4.7
Net interest cover (x)	-
Operating profit margin (%)	6.8

Source: Deutsche Bank



Figure 1: NavInfo - 1H17 results summary

(RMBm)	1H17	1H16	YoY	2H16	HoH
Gross turnover	833.8	713.9	16.8%	871.4	-4.3%
Navigation	393.8	406.5	-3.1%	408.7	-3.6%
Internet of Vehicles	210.4	221.8	-5.1%	304.5	-30.9%
ADAS	10.2	8.7	18.2%	13.8	-26.0%
Corporate services/industry applications	56.4	76.4	-26.1%	144.3	-60.9%
Chips	161.3	0.0	n.a.	0.0	n.a.
Business taxes and surcharges	-10.6	-5.8	82.0%	-7.9	33.9%
Net revenue	823.2	708.0	16.3%	863.5	-4.7%
Cost of sales	-198.1	-173.4	14.2%	-193.5	2.4%
Gross (loss)/profit	625.1	534.6	16.9%	670.0	-6.7%
Gross profit margin	75.0%	74.9%		76.9%	
Navigation	95.0%	90.6%	4.3%	93.9%	1.1%
Internet of Vehicles	53.9%	48.3%	5.6%	53.3%	0.7%
Chips	60.4%	n.a.	n.a.	n.a.	n.a.
Corporate services/industry applications	69.2%	73.0%	-3.8%	81.9%	-12.7%
Selling and distribution expenses	-52.4	-46.4	12.9%	-66.1	-20.7%
Administrative expenses	-524.8	-474.7	10.6%	-543.1	-3.4%
Operating (loss)/profit (EBIT)	47.9	13.5	255.1%	60.8	-21.3%
Impairment gains/(losses) on assets	-3.8	-3.0	27.8%	-33.1	-88.6%
Investment income	5.7	10.5	-45.6%	9.9	-42.2%
Including: share of associates' / JVs' equity accounting profit	2.0	7.1	-72.5%	7.5	-73.9%
Finance income/(costs), net	28.7	12.7	126.4%	14.1	103.3%
Non-operating income	26.8	49.5	-45.7%	31.5	-14.9%
Non-operating expense	-0.6	-2.2	-73.6%	-0.6	1.3%
Income tax credit/(expense)	-12.5	-18.1	-30.8%	-29.2	-57.2%
(Loss)/profit for the period/year	92.2	62.9	46.8%	53.4	72.7%
Minority interest	29.1	15.5	87.7%	24.8	17.3%
Net profit	121.3	78.4	54.9%	78.2	55.1%
Core net profit	114.2	70.7	61.6%	74.0	54.3%

Key P&L ratio	1H17	1H16	YoY	2H16	HoH
Gross profit margin	75.0%	74.9%	0.1%	76.9%	-1.9%
Selling and distribution expenses as % of revenue	6.3%	6.5%	-0.2%	7.6%	-1.3%
Administrative expenses as % of revenue	62.9%	66.5%	-3.6%	62.3%	0.6%
EBIT margin	5.7%	1.9%	3.9%	7.0%	-1.2%
Minority interest as % of PBT ex-JVs/associates	-28.3%	-21.0%	-7.3%	-33.0%	4.7%
Net profit margin	14.6%	11.0%	3.6%	9.0%	5.6%
Core net profit margin	13.7%	9.9%	3.8%	8.5%	5.2%

Source: company data

Forecasts and ratios

Year End Dec 31	2015A	2016A	2017E	2018E	2019E
Sales (CNYm)	1,492.7	1,571.6	1,863.3	2,171.7	2,443.2
EBITDA (CNYm)	324.2	317.9	276.9	401.4	501.4
Reported NPAT (CNYm)	130.2	156.6	276.4	380.1	459.0
Reported EPS FD (CNY)	0.12	0.15	0.22	0.29	0.35
DB EPS FD (CNY)	0.10	0.14	0.22	0.29	0.35
OLD DB EPS FD (CNY)	0.10	0.14	0.25	0.33	0.40
% Change	0.0%	0.0%	-12.6%	-11.4%	-11.1%
DB EPS growth (%)	30.6	40.9	61.6	31.6	20.8
PER (x)	255.5	153.0	112.6	85.6	70.9
EV/EBITDA (x)	75.5	64.4	88.4	60.7	47.6
DPS (net) (CNY)	0.04	0.04	0.06	0.09	0.11
Yield (net) (%)	0.1	0.2	0.3	0.4	0.4

Source: Deutsche Bank estimates, company data



Model updated: 27 August 2017

Running the numbers

Asia
 China
 Automobiles & Components

NavInfo Co., Ltd.

Reuters: 002405.SZ Bloomberg: 002405 CH

Sell

Price (25 Aug 17) CNY 25.07
 Target Price CNY 13.20
 52 Week range CNY 16.55 - 26.57
 Market cap (m) CNYm 26,738
 USDm 4,011.8

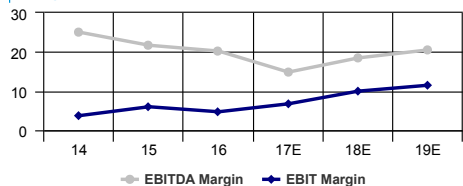
Company Profile

NavInfo Co., Ltd. is a China-based company engaged principally in the manufacture and distribution of navigation electronic maps. The company operates its business through navigation electronic maps, including automobile navigation fields, consumer electronics fields and others, as well as integrated geographical information services, and it provides dynamic traffic information services, car networking and map compilation services, online services and industry applications. It distributes its products within the domestic market and to overseas markets.

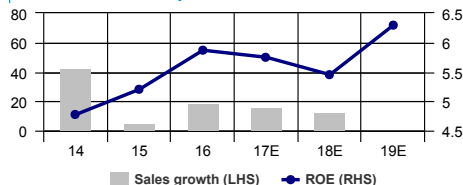
Price Performance



Margin Trends



Growth & Profitability



Vincent Ha, CFA

+852 2203 6247

vincent.ha@db.com

Fiscal year end 31-Dec 2014 2015 2016 2017E 2018E 2019E

Financial Summary

DB EPS (CNY)	0.07	0.10	0.14	0.22	0.29	0.35
Reported EPS (CNY)	0.11	0.12	0.15	0.22	0.29	0.35
DPS (CNY)	0.03	0.04	0.04	0.06	0.09	0.11
BVPS (CNY)	2.3	2.4	2.6	5.3	5.5	5.8
Weighted average shares (m)	1,037	1,040	1,042	1,234	1,290	1,290
Average market cap (CNYm)	12,705	25,959	21,966	26,738	26,738	26,738
Enterprise value (CNYm)	11,202	24,477	20,459	24,466	24,348	23,868

Valuation Metrics

P/E (DB) (x)	163.7	255.5	153.0	112.6	85.6	70.9
P/E (Reported) (x)	108.1	200.1	141.3	112.6	85.6	70.9
P/BV (x)	5.63	10.84	7.39	4.74	4.54	4.33
FCF Yield (%)	nm	nm	nm	0.8	0.4	1.6
Dividend Yield (%)	0.3	0.1	0.2	0.3	0.4	0.4
EV/Sales (x)	10.7	16.4	13.0	13.1	11.2	9.8
EV/EBITDA (x)	42.7	75.5	64.4	88.4	60.7	47.6
EV/EBIT (x)	286.7	272.7	275.3	194.2	112.2	84.9

Income Statement (CNYm)

Sales revenue	1,046	1,493	1,572	1,863	2,172	2,443
Gross profit	849	1,137	1,205	1,356	1,536	1,698
EBITDA	262	324	318	277	401	501
Depreciation	44	48	41	39	41	45
Amortisation	179	186	203	112	143	176
EBIT	39	90	74	126	217	281
Net interest income/(expense)	36	19	27	52	53	59
Associates/affiliates	5	6	15	0	0	0
Exceptionals/extraordinary	0	0	0	0	0	0
Other pre-tax income/(expense)	93	83	48	69	69	69
Profit before tax	173	199	164	247	339	410
Income tax expense	44	53	47	37	51	61
Minorities	12	16	-40	-67	-92	-111
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	118	130	157	276	380	459
DB adjustments (including dilution)	-40	-28	-12	0	0	0
DB Net profit	78	102	145	276	380	459

Cash Flow (CNYm)

Cash flow from operations	325	296	399	430	343	724
Net Capex	-399	-303	-458	-196	-211	-213
Free cash flow	-74	-6	-59	233	132	511
Equity raised/(bought back)	14	277	1	3,800	0	0
Dividends paid	-42	-39	-44	-48	-84	-116
Net inc/(dec) in borrowings	59	-71	-26	-1	-1	-1
Other investing/financing cash flows	317	-91	211	-3,899	-29	-35
Net cash flow	274	70	83	86	18	360
Change in working capital	-22	-72	31	84	-118	165

Balance Sheet (CNYm)

Cash and other liquid assets	1,732	1,779	1,724	1,810	1,828	2,188
Tangible fixed assets	206	317	766	807	850	897
Goodwill/intangible assets	520	694	758	4,065	4,081	4,061
Associates/investments	34	172	183	794	801	809
Other assets	620	766	691	719	981	847
Total assets	3,111	3,728	4,122	8,195	8,542	8,803
Interest bearing debt	92	46	22	21	20	19
Other liabilities	389	718	929	1,040	1,184	1,213
Total liabilities	481	764	951	1,061	1,204	1,232
Shareholders' equity	2,461	2,542	2,793	6,822	7,119	7,462
Minorities	169	422	378	311	220	109
Total shareholders' equity	2,630	2,964	3,172	7,134	7,338	7,571
Net debt	-1,639	-1,733	-1,702	-1,789	-1,808	-2,169

Key Company Metrics

Sales growth (%)	nm	42.7	5.3	18.6	16.6	12.5
DB EPS growth (%)	na	30.6	40.9	61.6	31.6	20.8
EBITDA Margin (%)	25.1	21.7	20.2	14.9	18.5	20.5
EBIT Margin (%)	3.7	6.0	4.7	6.8	10.0	11.5
Payout ratio (%)	29.2	29.3	29.6	29.0	30.3	30.3
ROE (%)	4.8	5.2	5.9	5.7	5.5	6.3
Capex/sales (%)	38.2	20.6	29.2	11.6	10.6	9.5
Capex/depreciation (x)	1.8	1.3	1.9	1.4	1.3	1.1
Net debt/equity (%)	-62.3	-58.5	-53.7	-25.1	-24.6	-28.7
Net interest cover (x)	nm	nm	nm	nm	nm	nm

Source: Company data, Deutsche Securities estimates



Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
NavInfo Co., Ltd.	002405.SZ	25.07 (CNY) 25 Aug 2017	NA

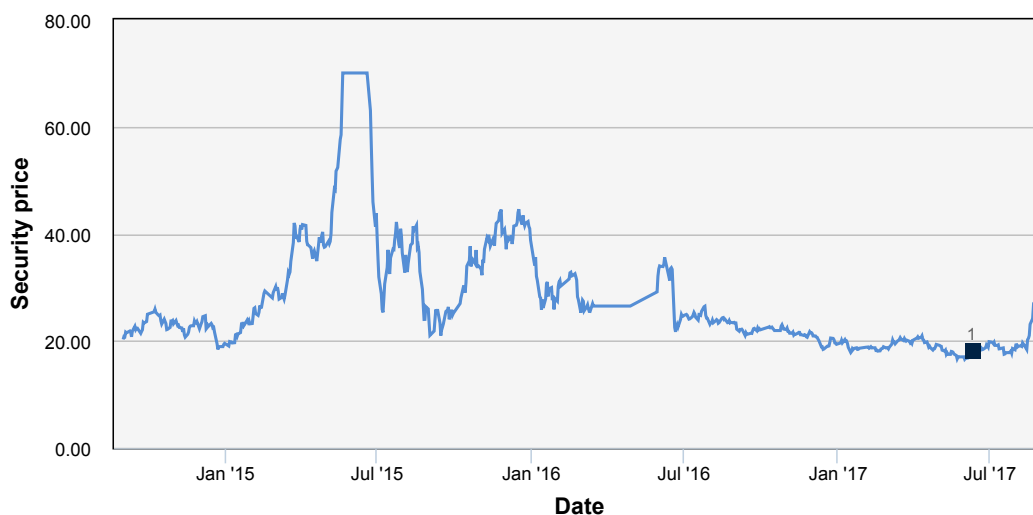
*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg, and other vendors. Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at <http://gm.db.com/ger/disclosure/DisclosureDirectory.eqs>. Aside from within this report, important conflict disclosures can also be found at <https://gm/db.com/equities> under the "Disclosures Lookup" and "Legal" tabs. Investors are strongly encouraged to review this information before investing.

Analyst Certification

The views expressed in this report accurately reflect the personal views of the undersigned lead analyst(s) about the subject issuer and the securities of the issuer. In addition, the undersigned lead analyst(s) has not and will not receive any compensation for providing a specific recommendation or view in this report. Vincent Ha

Historical recommendations and target price. NavInfo Co., Ltd. (002405.SZ)

(as of 08/25/2017)



Current Recommendations

- Buy
- Hold
- Sell
- Not Rated
- Suspended Rating

** Analyst is no longer at Deutsche Bank

1. 06/11/2017 Sell, Target Price Change CNY 14,90 Vincent Ha, CFA



Equity Rating Key

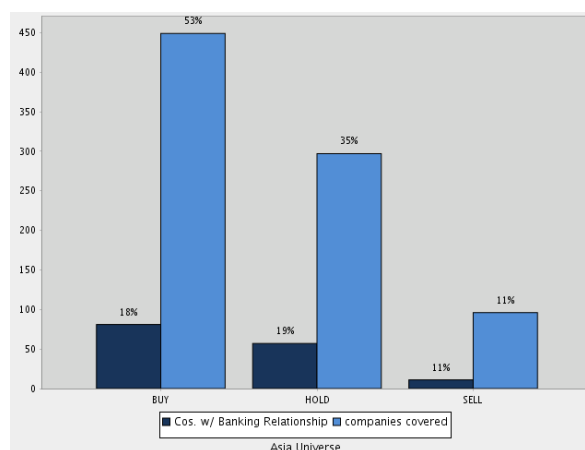
Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.

Sell: Based on a current 12-month view of total share-holder return, we recommend that investors sell the stock.

Hold: We take a neutral view on the stock 12-months out and, based on this time horizon, do not recommend either a Buy or Sell.

Newly issued research recommendations and target prices supersede previously published research.

Equity rating dispersion and banking relationships





Additional Information

The information and opinions in this report were prepared by Deutsche Bank AG or one of its affiliates (collectively "Deutsche Bank"). Though the information herein is believed to be reliable and has been obtained from public sources believed to be reliable, Deutsche Bank makes no representation as to its accuracy or completeness. Hyperlinks to third-party websites in this report are provided for reader convenience only. Deutsche Bank neither endorses the content nor is responsible for the accuracy or security controls of these websites.

If you use the services of Deutsche Bank in connection with a purchase or sale of a security that is discussed in this report, or is included or discussed in another communication (oral or written) from a Deutsche Bank analyst, Deutsche Bank may act as principal for its own account or as agent for another person.

Deutsche Bank may consider this report in deciding to trade as principal. It may also engage in transactions, for its own account or with customers, in a manner inconsistent with the views taken in this research report. Others within Deutsche Bank, including strategists, sales staff and other analysts, may take views that are inconsistent with those taken in this research report. Deutsche Bank issues a variety of research products, including fundamental analysis, equity-linked analysis, quantitative analysis and trade ideas. Recommendations contained in one type of communication may differ from recommendations contained in others, whether as a result of differing time horizons, methodologies or otherwise. Deutsche Bank and/or its affiliates may also be holding debt or equity securities of the issuers it writes on. Analysts are paid in part based on the profitability of Deutsche Bank AG and its affiliates, which includes investment banking, trading and principal trading revenues.

Opinions, estimates and projections constitute the current judgment of the author as of the date of this report. They do not necessarily reflect the opinions of Deutsche Bank and are subject to change without notice. Deutsche Bank provides liquidity for buyers and sellers of securities issued by the companies it covers. Deutsche Bank research analysts sometimes have shorter-term trade ideas that are consistent or inconsistent with Deutsche Bank's existing longer term ratings. Trade ideas for equities can be found at the SOLAR link at <http://gm.db.com>. A SOLAR idea represents a high conviction belief by an analyst that a stock will outperform or underperform the market and/or sector delineated over a time frame of no less than two weeks. In addition to SOLAR ideas, the analysts named in this report may from time to time discuss with our clients, Deutsche Bank salespersons and Deutsche Bank traders, trading strategies or ideas that reference catalysts or events that may have a near-term or medium-term impact on the market price of the securities discussed in this report, which impact may be directionally counter to the analysts' current 12-month view of total return or investment return as described herein. Deutsche Bank has no obligation to update, modify or amend this report or to otherwise notify a recipient thereof if any opinion, forecast or estimate contained herein changes or subsequently becomes inaccurate. Coverage and the frequency of changes in market conditions and in both general and company specific economic prospects make it difficult to update research at defined intervals. Updates are at the sole discretion of the coverage analyst concerned or of the Research Department Management and as such the majority of reports are published at irregular intervals. This report is provided for informational purposes only and does not take into account the particular investment objectives, financial situations, or needs of individual clients. It is not an offer or a solicitation of an offer to buy or sell any financial instruments or to participate in any particular trading strategy. Target prices are inherently imprecise and a product of the analyst's judgment. The financial instruments discussed in this report may not be suitable for all investors and investors must make their own informed investment decisions. Prices and availability of financial instruments are subject to change without notice and investment transactions can lead to losses as a result of price fluctuations and other factors. If a financial instrument is denominated in a currency other than an investor's currency, a change in exchange rates may adversely affect the investment. Past performance is not necessarily indicative of future results. Unless otherwise indicated, prices are current as of the end of the previous trading session, and are sourced from local exchanges via Reuters, Bloomberg and other vendors. Data is sourced from Deutsche Bank, subject companies, and in some cases, other parties.

The Deutsche Bank Research Department is independent of other business areas divisions of the Bank. Details regarding our organizational arrangements and information barriers we have to prevent and avoid conflicts of interest with respect to our research is available on our website under Disclaimer found on the Legal tab.



Macroeconomic fluctuations often account for most of the risks associated with exposures to instruments that promise to pay fixed or variable interest rates. For an investor who is long fixed rate instruments (thus receiving these cash flows), increases in interest rates naturally lift the discount factors applied to the expected cash flows and thus cause a loss. The longer the maturity of a certain cash flow and the higher the move in the discount factor, the higher will be the loss. Upside surprises in inflation, fiscal funding needs, and FX depreciation rates are among the most common adverse macroeconomic shocks to receivers. But counterparty exposure, issuer creditworthiness, client segmentation, regulation (including changes in assets holding limits for different types of investors), changes in tax policies, currency convertibility (which may constrain currency conversion, repatriation of profits and/or the liquidation of positions), and settlement issues related to local clearing houses are also important risk factors to be considered. The sensitivity of fixed income instruments to macroeconomic shocks may be mitigated by indexing the contracted cash flows to inflation, to FX depreciation, or to specified interest rates – these are common in emerging markets. It is important to note that the index fixings may – by construction – lag or mis-measure the actual move in the underlying variables they are intended to track. The choice of the proper fixing (or metric) is particularly important in swaps markets, where floating coupon rates (i.e., coupons indexed to a typically short-dated interest rate reference index) are exchanged for fixed coupons. It is also important to acknowledge that funding in a currency that differs from the currency in which coupons are denominated carries FX risk. Naturally, options on swaps (swaptions) also bear the risks typical to options in addition to the risks related to rates movements.

Derivative transactions involve numerous risks including, among others, market, counterparty default and illiquidity risk. The appropriateness or otherwise of these products for use by investors is dependent on the investors' own circumstances including their tax position, their regulatory environment and the nature of their other assets and liabilities, and as such, investors should take expert legal and financial advice before entering into any transaction similar to or inspired by the contents of this publication. The risk of loss in futures trading and options, foreign or domestic, can be substantial. As a result of the high degree of leverage obtainable in futures and options trading, losses may be incurred that are greater than the amount of funds initially deposited. Trading in options involves risk and is not suitable for all investors. Prior to buying or selling an option investors must review the "Characteristics and Risks of Standardized Options", at <http://www.optionsclearing.com/about/publications/character-risks.jsp>. If you are unable to access the website please contact your Deutsche Bank representative for a copy of this important document.

Participants in foreign exchange transactions may incur risks arising from several factors, including the following: (i) exchange rates can be volatile and are subject to large fluctuations; (ii) the value of currencies may be affected by numerous market factors, including world and national economic, political and regulatory events, events in equity and debt markets and changes in interest rates; and (iii) currencies may be subject to devaluation or government imposed exchange controls which could affect the value of the currency. Investors in securities such as ADRs, whose values are affected by the currency of an underlying security, effectively assume currency risk.

Unless governing law provides otherwise, all transactions should be executed through the Deutsche Bank entity in the investor's home jurisdiction. Aside from within this report, important conflict disclosures can also be found at <https://gm.db.com/equities> under the "Disclosures Lookup" and "Legal" tabs. Investors are strongly encouraged to review this information before investing.

Deutsche Bank (which includes Deutsche Bank AG, its branches and all affiliated companies) is not acting as a financial adviser, consultant or fiduciary to you, any of your agents (collectively, "You" or "Your") with respect to any information provided in the materials attached hereto. Deutsche Bank does not provide investment, legal, tax or accounting advice, Deutsche Bank is not acting as Your impartial adviser, and does not express any opinion or recommendation whatsoever as to any strategies, products or any other information presented in the materials. Information contained herein is being provided solely on the basis that the recipient will make an independent assessment of the merits of any investment decision, and it does not constitute a recommendation of, or express an opinion on, any product or service or any trading strategy.

The information presented is general in nature and is not directed to retirement accounts or any specific person or account type, and is therefore provided to You on the express basis that it is not advice, and You may not rely upon it in making Your decision. The information we provide is being directed only to persons we believe to be financially sophisticated, who are capable of evaluating investment risks independently, both in general and with regard to particular transactions and investment strategies, and who understand that Deutsche Bank has financial interests in the offering of its products



and services. If this is not the case, or if You are an IRA or other retail investor receiving this directly from us, we ask that you inform us immediately.

United States: Approved and/or distributed by Deutsche Bank Securities Incorporated, a member of FINRA, NFA and SIPC. Analysts located outside of the United States are employed by non-US affiliates that are not subject to FINRA regulations.

Germany: Approved and/or distributed by Deutsche Bank AG, a joint stock corporation with limited liability incorporated in the Federal Republic of Germany with its principal office in Frankfurt am Main. Deutsche Bank AG is authorized under German Banking Law and is subject to supervision by the European Central Bank and by BaFin, Germany's Federal Financial Supervisory Authority.

United Kingdom: Approved and/or distributed by Deutsche Bank AG acting through its London Branch at Winchester House, 1 Great Winchester Street, London EC2N 2DB. Deutsche Bank AG in the United Kingdom is authorised by the Prudential Regulation Authority and is subject to limited regulation by the Prudential Regulation Authority and Financial Conduct Authority. Details about the extent of our authorisation and regulation are available on request.

Hong Kong: Distributed by Deutsche Bank AG, Hong Kong Branch or Deutsche Securities Asia Limited.

India: Prepared by Deutsche Equities India Pvt Ltd, which is registered by the Securities and Exchange Board of India (SEBI) as a stock broker. Research Analyst SEBI Registration Number is INH000001741. DEIPL may have received administrative warnings from the SEBI for breaches of Indian regulations.

Japan: Approved and/or distributed by Deutsche Securities Inc.(DSI). Registration number - Registered as a financial instruments dealer by the Head of the Kanto Local Finance Bureau (Kinsho) No. 117. Member of associations: JSDA, Type II Financial Instruments Firms Association and The Financial Futures Association of Japan. Commissions and risks involved in stock transactions - for stock transactions, we charge stock commissions and consumption tax by multiplying the transaction amount by the commission rate agreed with each customer. Stock transactions can lead to losses as a result of share price fluctuations and other factors. Transactions in foreign stocks can lead to additional losses stemming from foreign exchange fluctuations. We may also charge commissions and fees for certain categories of investment advice, products and services. Recommended investment strategies, products and services carry the risk of losses to principal and other losses as a result of changes in market and/or economic trends, and/or fluctuations in market value. Before deciding on the purchase of financial products and/or services, customers should carefully read the relevant disclosures, prospectuses and other documentation. "Moody's", "Standard & Poor's", and "Fitch" mentioned in this report are not registered credit rating agencies in Japan unless Japan or "Nippon" is specifically designated in the name of the entity. Reports on Japanese listed companies not written by analysts of DSI are written by Deutsche Bank Group's analysts with the coverage companies specified by DSI. Some of the foreign securities stated on this report are not disclosed according to the Financial Instruments and Exchange Law of Japan. Target prices set by Deutsche Bank's equity analysts are based on a 12-month forecast period.

Korea: Distributed by Deutsche Securities Korea Co.

South Africa: Deutsche Bank AG Johannesburg is incorporated in the Federal Republic of Germany (Branch Register Number in South Africa: 1998/003298/10).

Singapore: by Deutsche Bank AG, Singapore Branch or Deutsche Securities Asia Limited, Singapore Branch (One Raffles Quay #18-00 South Tower Singapore 048583, +65 6423 8001), which may be contacted in respect of any matters arising from, or in connection with, this report. Where this report is issued or promulgated in Singapore to a person who is not an accredited investor, expert investor or institutional investor (as defined in the applicable Singapore laws and regulations), they accept legal responsibility to such person for its contents.

Taiwan: Information on securities/investments that trade in Taiwan is for your reference only. Readers should independently evaluate investment risks and are solely responsible for their investment decisions. Deutsche Bank research may not be distributed to the Taiwan public media or quoted or used by the Taiwan public media without written consent. Information on securities/instruments that do not trade in Taiwan is for informational purposes only and is not to be



construed as a recommendation to trade in such securities/instruments. Deutsche Securities Asia Limited, Taipei Branch may not execute transactions for clients in these securities/instruments.

Qatar: Deutsche Bank AG in the Qatar Financial Centre (registered no. 00032) is regulated by the Qatar Financial Centre Regulatory Authority. Deutsche Bank AG - QFC Branch may only undertake the financial services activities that fall within the scope of its existing QFCRA license. Principal place of business in the QFC: Qatar Financial Centre, Tower, West Bay, Level 5, PO Box 14928, Doha, Qatar. This information has been distributed by Deutsche Bank AG. Related financial products or services are only available to Business Customers, as defined by the Qatar Financial Centre Regulatory Authority.

Russia: This information, interpretation and opinions submitted herein are not in the context of, and do not constitute, any appraisal or evaluation activity requiring a license in the Russian Federation.

Kingdom of Saudi Arabia: Deutsche Securities Saudi Arabia LLC Company, (registered no. 07073-37) is regulated by the Capital Market Authority. Deutsche Securities Saudi Arabia may only undertake the financial services activities that fall within the scope of its existing CMA license. Principal place of business in Saudi Arabia: King Fahad Road, Al Olaya District, P.O. Box 301809, Faisaliah Tower - 17th Floor, 11372 Riyadh, Saudi Arabia.

United Arab Emirates: Deutsche Bank AG in the Dubai International Financial Centre (registered no. 00045) is regulated by the Dubai Financial Services Authority. Deutsche Bank AG - DIFC Branch may only undertake the financial services activities that fall within the scope of its existing DFSA license. Principal place of business in the DIFC: Dubai International Financial Centre, The Gate Village, Building 5, PO Box 504902, Dubai, U.A.E. This information has been distributed by Deutsche Bank AG. Related financial products or services are only available to Professional Clients, as defined by the Dubai Financial Services Authority.

Australia: Retail clients should obtain a copy of a Product Disclosure Statement (PDS) relating to any financial product referred to in this report and consider the PDS before making any decision about whether to acquire the product. Please refer to Australian specific research disclosures and related information at <https://australia.db.com/australia/content/research-information.html>

Australia and New Zealand: This research is intended only for "wholesale clients" within the meaning of the Australian Corporations Act and New Zealand Financial Advisors Act respectively.

Additional information relative to securities, other financial products or issuers discussed in this report is available upon request. This report may not be reproduced, distributed or published without Deutsche Bank's prior written consent. Copyright © 2017 Deutsche Bank AG



David Folkerts-Landau

Group Chief Economist and Global Head of Research

Raj Hindocha
Global Chief Operating Officer
Research

Michael Spencer
Head of APAC Research
Global Head of Economics

Steve Pollard
Head of Americas Research
Global Head of Equity Research

Anthony Klarman
Global Head of
Debt Research

Paul Reynolds
Head of EMEA
Equity Research

Dave Clark
Head of APAC
Equity Research

Pam Finelli
Global Head of
Equity Derivatives Research

Andreas Neubauer
Head of Research - Germany

Spyros Mesomeris
Global Head of Quantitative
and QIS Research

International locations

Deutsche Bank AG

Deutsche Bank Place
Level 16
Corner of Hunter & Phillip Streets
Sydney, NSW 2000
Australia
Tel: (61) 2 8258 1234

Deutsche Bank AG

Mainzer Landstrasse 11-17
60329 Frankfurt am Main
Germany
Tel: (49) 69 910 00

Deutsche Bank AG

Filiale Hongkong
International Commerce Centre,
1 Austin Road West, Kowloon,
Hong Kong
Tel: (852) 2203 8888

Deutsche Securities Inc.

2-11-1 Nagatacho
Sanno Park Tower
Chiyoda-ku, Tokyo 100-6171
Japan
Tel: (81) 3 5156 6770

Deutsche Bank AG London

1 Great Winchester Street
London EC2N 2EQ
United Kingdom
Tel: (44) 20 7545 8000

Deutsche Bank Securities Inc.

60 Wall Street
New York, NY 10005
United States of America
Tel: (1) 212 250 2500
