



Rating
Hold

Asia
Hong Kong

Banking / Finance
Banks

Company
HSBC Holdings Plc

Reuters 0005.HK Bloomberg 5 HK Exchange HSI Ticker 0005

Date
5 March 2018

Company Update

Price at 2 Mar 2018 (HKD)	77.20
Price target - 12mth (HKD)	76.00
52-week range (HKD)	85.85 - 62.10
HANG SENG INDEX	30,583

Jaws guidance held firm

Cost jaws reiterated at 1-2%

Shares in HSBC have been weaker since results, in part reflecting a moderation of market expectations on cost jaws. Management have reiterated their 1-2% guidance over the year and stressed that they are unlikely to want to operate outside of this range - preferring instead to invest in the business and in growth opportunities to drive the strategy forward. HSBC indeed remains geared to growth (targeting mid-single digit loan expansion), interest rate normalisation (100bps rise across all currency blocks is worth US\$3.3bn in revenue in year 1, US\$4.4bn in year 2) and provides a stable dividend yield of 5.3% (3.7% net of scrip) with potential for buybacks. But trading at 12.7x 2019e EPS it is not cheap vs. European (10.2x) or HK banks (12.4x) and we see the shares as fairly priced for the growth outlook at present. Our forecast changes are shown in Figure 1 - we have reduced forecasts by 2-4% for 2018-20e (with cost jaws now 1.2-1.9%). Our TP falls to 76HKD. Given proximity to current share price we retain our Hold rating. Updated list of questions for management included overleaf.

Next catalyst: Asia update + strategy refresh from new CEO

The next catalysts for HSBC primarily focus on what strategic direction the new management (Chairman Tucker, CEO Flint) decide to take the firm in. We expect new content as part of its investor trip to Hong Kong / China in April, and on the call new CEO Flint said he would update the market on strategy either at or before 1H18 results at beginning of August. At this stage we suspect **evolution rather than a revolution**: the post-crisis heavy lifting on legacy assets, country exits and GBM rationalisation has completed; costs are far better controlled, and growth returned to the business in 2017. Where we expect focus to rest is on the specific areas of growth and investment targeted over the coming 3-4 years: with particular attention likely on insurance in Asia, the US business (where returns remain poor) and Europe (transitioning to a post-Brexit structure). We also expect the issue of capital return will need to be addressed by management given a CET1 which remains well above even an elevated capital requirement.

Target price to 76HKD, retain Hold

Our DDM & SoTP derived TP falls to 76HKD on EPS changes. Key upside risks are higher US rates, an improvement in Emerging Markets outlook, lower-than-expected loan losses, better-than-expected outcomes for regulation, lower costs, and better than expected distributions / buybacks, weaker sterling. Key downside risks relate to regulatory change, legacy liabilities, slowdown in EM, sustained low interest rate environment, cost inflation, and stronger sterling.

Valuation & Risks

David Lock

Research Analyst
+44-20-754-11521

Key changes

TP	78.00 to 76.00	↓	-2.6%
Provisioning (FYE)	2,730.4 to 2,744.9	↑	0.5%
Net int margin (FYE)	1.69 to 1.65	↓	-2.2%
Net profit (FYE)	13,919.8 to 13,567.2	↓	-2.5%

Source: Deutsche Bank



Questions for management

- **Cost jaws:** please discuss some of the areas where you are targeting investment spend currently, and areas that you would like to direct investment in the future? What is the timeframe on payback of some of these initiatives?
- **Capital allocation:** given the complex structure of HSBC, with different subsidiaries and differing capital requirements how does management approach capital allocation in the business? Are further buybacks possible, or would the group prefer to target growth opportunities? Is there any potential for acceleration of capital upstream out of the US?
- **Rising rates:** please discuss how rising rates impacts NII & BSM revenues and cashflow reserve on a 1-2year view? What are the behavioural assumptions behind this (UK rate sensitivity increased markedly in 1H17)? What has been your experience in core markets so far? What is your expectation for deposit beta? How do you think about the potential for rising impairments in the context of rising interest rates in Asia? Which areas are you most concerned about?
- **Costs:** HSBC no longer targets a CTA following completion of the 2017 programme. But are there particular areas that you still see potential for further efficiencies? Taking a long-term view, where do you see the greatest potential for change to cost within the organisation?
- **US business:** even after upstreaming of capital, return levels remain extremely low vs. peers. What is the plan to improve these returns and what is the long-term strategy for the US business?
- **M&A:** do you have any M&A ambitions, and if so which particular markets and products?
- **GBM:** given components of GBM are in Europe, Asia and US subsidiaries, how is this business managed globally, and how are RWAs / capital / revenues / costs allocated across these geographies?
- **European business:** what is the strategy for improving sub-COE businesses within Europe, particularly given the tougher operating environment from lower interest rates? Does Brexit have any operational implications for the European business? What is the capital requirement for the ring-fenced bank?
- **Value of the network:** for HSBC's shares to trade at a premium, the 'value of the network' needs to outweigh the costs (higher capital requirements, hold co costs, sub-CoE businesses). Please give examples of this value within HSBC's business, and/or how this value can be unlocked in the coming years.
- **Margins:** what is your expectation for margins in 2018? Is competition still strong in HSBC's core EM markets? What is the outlook for mortgage margins in Hong Kong? Please discuss how rising rates impacts different geographies of your business. How does the sensitivity of NII to rising rates change as rates move higher?
- **Capital return:** HSBC has done buybacks in recent years, but has not committed to a rolling programme of buybacks. Do the investment



opportunities you see mean that you may consider reducing the buyback vs. recent years to fund growth?

- **Capital requirements:** management have talked about the capital target now being higher than 13%. Please discuss the headwinds on capital requirements for HSBC at this stage. What are the key elements of Basel 3 that impact the business?

Forecast changes

Our forecast changes are shown below. We increase our revenue forecasts by 1-3% for 2018-20e, and our cost forecasts by 3-7%, reflecting cost jaws guidance. Loan losses rise modestly on higher loan growth assumption. AT1 costs also increase, given guidance of additional AT1 issuance of US\$5-7bn planned for 1H18. We retain our US\$3bn buyback assumption for 2018.

Figure 1: Forecast changes

	OLD FORECASTS					NEW FORECASTS					CHANGES (€m)					CHANGES (%)				
	2016	2017	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e
Total income	49,880	51,766	54,612	56,673	58,858	49,880	51,524	55,046	58,373	60,706	0	-242	434	1,700	1,847	0%	0%	1%	3%	3%
Opex	-30,556	-31,081	-31,733	-32,255	-32,792	-30,556	-31,140	-32,666	-34,039	-34,976	0	-59	-932	-1,785	-2,183	0%	0%	3%	6%	7%
PPP	19,324	20,685	22,879	24,418	26,066	19,324	20,384	22,381	24,333	25,730	0	-301	-498	-85	-336	0%	-1%	-2%	0%	-1%
LLPs	-3,400	-1,971	-2,730	-3,157	-3,702	-3,400	-1,769	-2,745	-3,186	-3,759	0	202	-14	-29	-57	0%	-10%	1%	1%	2%
Associates	2,354	2,332	2,402	2,474	2,548	2,354	2,375	2,468	2,541	2,616	0	43	66	67	68	0%	2%	3%	3%	3%
Underlying PBT	18,278	21,046	22,550	23,735	24,912	18,278	20,990	22,103	23,688	24,586	0	-56	-447	-47	-326	0%	0%	-2%	0%	-1%
Non-operating items	-11,166	-3,112	-1,220	-500	0	-11,166	-3,823	-1,000	-500	0	0	-711	220	0	0	0%	23%	-18%	0%	n/a
Stated PBT	7,112	17,934	21,330	23,235	24,912	7,112	17,167	21,103	23,188	24,586	0	-767	-227	-47	-326	0%	-4%	-1%	0%	-1%
Tax / Minorities / AT1	-16,978	-11,194	-8,631	-8,441	-8,376	-16,978	-11,307	-8,536	-8,729	-8,599	0	-113	94	-288	-223	0%	1%	-1%	3%	3%
Earnings	1,300	9,852	13,920	15,293	16,535	1,300	9,683	13,567	14,959	15,987	0	-169	-353	-335	-548	0%	-2%	-3%	-2%	-3%
Adjusted earnings	11,599	13,860	14,847	15,673	16,535	11,599	13,756	14,327	15,339	15,987	0	-104	-520	-335	-548	0%	-1%	-4%	-2%	-3%
EPS stated (US\$)	6.6	49.4	69.3	76	82	6.6	48.7	67.8	74.3	78.9	0.0	-0.8	-1.6	-1.6	-2.8	0%	-2%	-2%	-2%	-3%
EPS adjusted (US\$)	58.7	69.5	74.0	78	82	58.7	69.1	71.6	76.2	78.9	0.0	-0.4	-2.4	-1.6	-2.8	0%	-1%	-3%	-2%	-3%
DPS (US\$)	51.0	51.0	52.0	53	54	51.0	51.0	51.0	51.0	52.0	0.0	0.0	-1.0	-2.0	-2.0	0%	0%	-2%	-4%	-4%
BVPS (US\$)	790.8	828.4	832.5	852	877	790.8	835.0	840.5	857.5	879.1	0.0	6.6	8.1	5.2	1.8	0%	1%	1%	1%	0%
TBVPS (US\$)	691.7	722.8	727.2	747	773	691.7	726.0	726.2	739.2	756.8	0.0	3.2	-1.1	-8.2	-16.0	0%	0%	0%	-1%	-2%
RoTE	8.2%	9.8%	10.2%	10.5%	10.8%	8.2%	9.8%	9.9%	10.4%	10.5%	0.0%	-0.1%	-0.3%	-0.2%	-0.2%	0%	-1%	-3%	-1%	-2%
CET1	13.6%	14.5%	14.4%	14.5%	14.6%	13.6%	14.5%	14.2%	14.2%	14.1%	0.0%	0.0%	-0.1%	-0.3%	-0.5%	0%	0%	-1%	-2%	-3%
Divisional PBT	2016	2017e	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e	2016	2017	2018e	2019e	2020e
RB&WM	4,873	6,717	7,827	8,097	8,376	4,873	6,478	7,676	8,717	9,134	0	-239	-151	620	758	0%	-4%	-2%	8%	9%
Commercial Banking	5,779	6,370	6,257	6,481	6,639	5,779	6,780	6,696	6,879	6,982	0	410	440	398	343	0%	6%	7%	6%	5%
GB&M	5,584	6,144	7,215	7,502	7,747	5,584	5,774	6,666	6,940	7,153	0	-370	-550	-563	-594	0%	-6%	-8%	-8%	-8%
GPB	289	284	344	355	366	289	296	153	172	191	0	12	-192	-183	-174	0%	4%	-56%	-52%	-48%
Corporate centre	2,027	1,531	908	1,300	1,784	2,027	1,662	913	981	1,126	0	131	6	-319	-658	0%	9%	1%	-25%	-37%
Total	18,552	21,046	22,550	23,735	24,912	18,552	20,990	22,103	23,688	24,586	0	-56	-447	-47	-326	0%	0%	-2%	0%	-1%

Source: Deutsche Bank estimates, company data

Valuation & Risks

Company is trading at 13.6x 2018e EPS, 1.3x TNAV for a forecast RoTE of 10-10.5% in 2018-20e. We use two methodologies to value HSBC: Sum-of-the-parts (SoTP) and Dividend-Discount-Model (DDM); our 12-month target price is the average of the two. For the DDM we assume 9% cost of equity and a 4% growth rate and include cash dividends and buybacks out to 2020, as well as a terminal value in 2020. For the SoTP, we use 2020e bank earnings, and then value each business division based on our assessment of appropriate P/E multiples, incorporate an NPV of non-operating items before discounting back to a 12 month target.

Key upside risks are higher US rates, an improvement in Emerging Markets outlook, lower-than-expected loan losses, better-than-expected outcomes for regulation, lower costs, and better-than-expected distributions / buybacks, weaker sterling (given USD earnings). Key downside risks relate to regulatory

5 March 2018

Banks

HSBC Holdings Plc



change, legacy liabilities, a slowdown in emerging markets, sustained low interest rate environment, cost inflation, and stronger sterling.



Model updated: 05 March 2018

Running the numbers

Asia

Hong Kong

Banks

HSBC Holdings Plc

Reuters: 0005.HK

Bloomberg: 5 HK

Hold

Price (2 Mar 18) HKD 77.20

Target Price HKD 76.00

52 Week range HKD 62.10 - 85.85

Market cap (m) HKDm 1,550,176
USDm 197,995

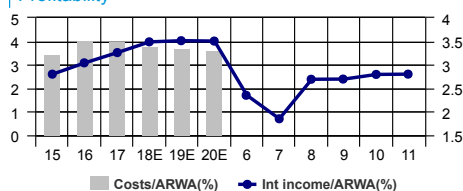
Company Profile

HSBC is one of the world's largest banking and financial institutions with c.3,900 offices, 233,000 employees and 38 million customers in 67 countries across Europe, Hong Kong, Asia-Pacific, Middle East, North Africa, North America and Latin America. HSBC has 4 main business divisions: Retail Banking & Wealth Management, Commercial Banking, Global Banking and Markets and Global Private Banking.

Price Performance



Profitability



David Lock

+44 20 754-11521

david.lock@db.com

Fiscal year end 31-Dec	2015	2016	2017	2018E	2019E	2020E
Data Per Share						
EPS (stated)(USD)	0.65	0.07	0.49	0.68	0.74	0.79
EPS (DB) (USD)	0.68	0.59	0.69	0.72	0.76	0.79
Growth Rate - EPS (DB) (%)	-17.2	-13.2	17.8	3.5	6.4	3.6
DPS (USD)	0.51	0.51	0.51	0.51	0.51	0.52
BVPS (stated) (USD)	8.73	7.91	8.35	8.41	8.57	8.79
Tang. NAV p. sh. (USD)	7.48	6.92	7.26	7.26	7.39	7.57
Market Capitalisation	157,220	159,152	204,779	197,995	197,995	197,995
Shares in issue	19,517	19,761	19,899	20,020	20,140	20,260

Valuation Ratios & Profitability Measures

P/E (stated)	12.3	122.8	21.1	14.6	13.3	12.5
P/E (DB)	11.8	13.7	14.8	13.8	12.9	12.5
P/B (stated)	0.9	1.0	1.2	1.2	1.1	1.1
P/Tangible equity (DB)	1.1	1.2	1.4	1.4	1.3	1.3
ROE(stated)(%)	7.2	0.8	6.0	8.1	8.7	9.1
ROTE (tangible equity) (%)	8.9	8.2	9.8	9.9	10.4	10.5
ROIC (invested capital) (%)	7.6	7.1	8.5	8.5	9.0	9.1
Dividend yield(%)	5.9	7.3	5.6	5.2	5.2	5.3
Dividend cover(x)	1.3	0.1	1.0	1.3	1.5	1.5

Profit & Loss (USDm)

Net interest revenue	32,531	29,813	28,176	31,049	32,507	33,739
Non interest income	27,308	18,153	23,269	23,998	25,866	26,967
Commissions	0	0	0	0	0	0
Trading Revenue	0	0	0	0	0	0
Other revenue	27,308	18,153	23,269	23,998	25,866	26,967
Total revenue	59,839	47,966	51,445	55,046	58,373	60,706
Total Operating Costs	39,807	39,808	34,884	33,666	34,539	34,976
Employee Costs	0	0	0	0	0	0
Other costs	39,807	39,808	34,884	33,666	34,539	34,976
Pre-Provision profit/(loss)	20,032	8,158	16,561	21,381	23,833	25,730
Bad debt expense	3,721	3,400	1,769	2,745	3,186	3,759
Operating Profit	16,311	4,758	14,792	18,636	20,647	21,970
Pre-tax associates	2,556	2,354	2,375	2,468	2,541	2,616
Pre-tax profit	18,867	7,112	17,167	21,103	23,188	24,586
Tax	3,771	3,666	5,288	5,065	5,565	5,901
Other post tax items	-2,524	-2,146	-2,196	-2,471	-2,664	-2,698
Stated net profit	12,572	1,300	9,683	13,567	14,959	15,987
Goodwill	0	0	0	0	0	0
Extraordinary & Other items	626	10,299	4,073	760	380	0
Bad Debt Provisioning	0	0	0	0	0	0
Investment reval, cap gains / losses	0	0	0	0	0	0
DB adj. core earnings	13,198	11,599	13,756	14,327	15,339	15,987

Key Balance Sheet Items (USDm) & Capital Ratios

Risk-weighted assets	1,102,995	857,181	871,337	908,482	941,918	983,223
Interest-earning assets	924,454	861,504	962,964	1,009,030	1,042,839	1,078,062
Customer Loans	924,454	861,504	962,964	1,009,030	1,042,839	1,078,062
Total Deposits	1,289,586	1,272,386	1,364,462	1,406,156	1,423,847	1,441,933
Stated Shareholder Equity	171,943	156,869	166,666	168,777	173,211	178,629
Equals: Tangible Equity	147,338	137,219	144,900	145,811	149,326	153,789
Tier 1 capital	153,303	138,022	150,954	153,065	157,499	162,917
Tier 1 ratio (%)	14	16	17	17	17	17
o/w core tier 1 capital ratio (%)	11.9	13.6	14.5	14.2	14.2	14.1

Credit Quality

Gross NPLs/Total Loans(%)	2.57	2.12	1.61	1.71	1.71	1.71
Risk Provisions/NPLs(%)	40	43	48	42	42	42
Bad debt / Avg loans (%)	0.39	0.38	0.19	0.28	0.31	0.35
Bad debt/Pre-Provision Profit(%)	18.6	41.7	10.7	12.8	13.4	14.6

Growth Rates & Key Ratios

Growth in revenues (%)	-3	-20	7	7	6	4
Growth in costs (%)	-4	0	-12	-3	3	1
Growth in bad debts (%)	-3	-9	-48	55	16	18
Growth in RWA (%)	-10	-22	2	4	4	4
Net int. margin (%)	1.88	1.73	1.63	1.65	1.66	1.67
Cap.-market rev. / Total revs (%)	nm	nm	nm	nm	nm	nm
Total loans / Total deposits (%)	72	68	71	72	73	75

ROTE Decomposition

Revenue % ARWAs	5.15	4.89	5.95	6.19	6.31	6.31
Net interest revenue % ARWA	2.80	3.04	3.26	3.49	3.51	3.51
Non interest revenue % ARWA	2.35	1.85	2.69	2.70	2.80	2.80
Costs/income ratio (%)	66.5	83.0	67.8	61.2	59.2	57.6
Bad debts % ARWAs	0.32	0.35	0.20	0.31	0.34	0.39
Tax rate (%)	23.1	77.0	35.7	27.2	27.0	26.9
Adj. Attr. earnings % ARWA	0.92	0.94	1.32	1.33	1.38	1.39
Capital leverage (ARWA/Equity)	7.8	6.9	6.1	6.1	6.3	6.4
ROTE (Adj. earnings/Ave. equity)	7.2	6.5	8.1	8.2	8.7	8.8

Source: Company data, Deutsche Securities estimates



Appendix 1

Important Disclosures

*Other information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
HSBC Holdings Plc	0005.HK	77.20 (HKD) 2 Mar 2018	1, 7, 13, 14

*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.eqsr>. 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.

Important Disclosures Required by U.S. Regulators

Disclosures marked with an asterisk may also be required by at least one jurisdiction in addition to the United States. See Important Disclosures Required by Non-US Regulators and Explanatory Notes.

1. Within the past year, Deutsche Bank and/or its affiliate(s) has managed or co-managed a public or private offering for this company, for which it received fees.
7. Deutsche Bank and/or its affiliate(s) has received compensation from this company for the provision of investment banking or financial advisory services within the past year.
14. Deutsche Bank and/or its affiliate(s) has received non-investment banking related compensation from this company within the past year.

Important Disclosures Required by Non-U.S. Regulators

Disclosures marked with an asterisk may also be required by at least one jurisdiction in addition to the United States. See Important Disclosures Required by Non-US Regulators and Explanatory Notes.

1. Within the past year, Deutsche Bank and/or its affiliate(s) has managed or co-managed a public or private offering for this company, for which it received fees.
7. Deutsche Bank and/or its affiliate(s) has received compensation from this company for the provision of investment banking or financial advisory services within the past year.
13. As of the end of the preceding week, Deutsche Bank and/or its affiliate(s) owns one percent or more of a class of common equity securities of this company.

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.eqsr>

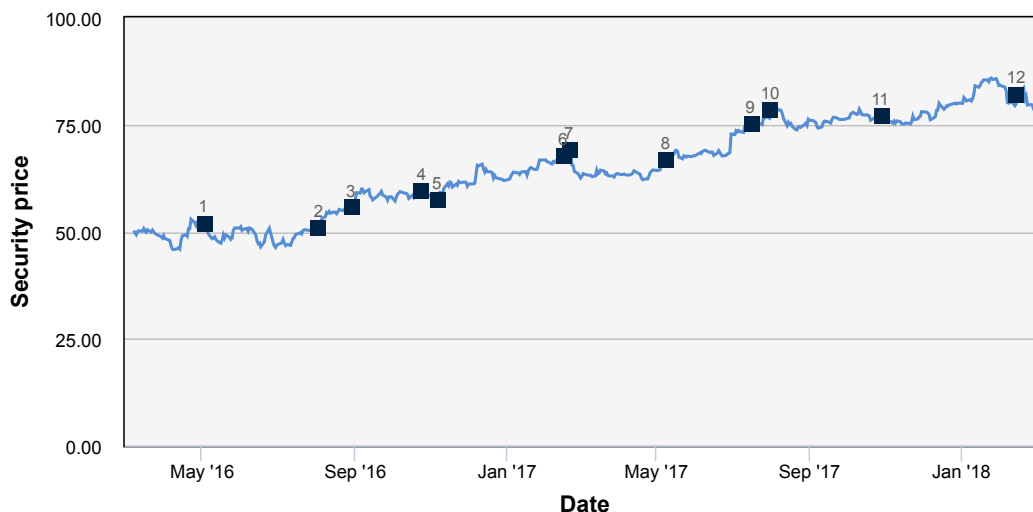
Analyst Certification

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. David Lock



Historical recommendations and target price. HSBC Holdings Plc (0005.HK)

(as of 03/02/2018)



Current Recommendations

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

** Analyst is no longer at Deutsche Bank

1.	05/03/2016	Hold, Target Price Change HKD 50,00 David Lock	7.	02/21/2017	Hold, Target Price Change HKD 61,00 David Lock
2.	08/03/2016	Hold, Target Price Change HKD 51,30 David Lock	8.	05/09/2017	Hold, Target Price Change HKD 64,00 David Lock
3.	08/30/2016	Hold, Target Price Change HKD 53,00 David Lock	9.	07/17/2017	Hold, Target Price Change HKD 71,00 David Lock
4.	10/25/2016	Hold, Target Price Change HKD 55,00 David Lock	10.	08/01/2017	Hold, Target Price Change HKD 76,00 David Lock
5.	11/07/2016	Hold, Target Price Change HKD 56,00 David Lock	11.	10/30/2017	Hold, Target Price Change HKD 72,00 David Lock
6.	02/16/2017	Hold, Target Price Change HKD 64,00 David Lock	12.	02/15/2018	Hold, Target Price Change HKD 78,00 David Lock

Equity Rating Key

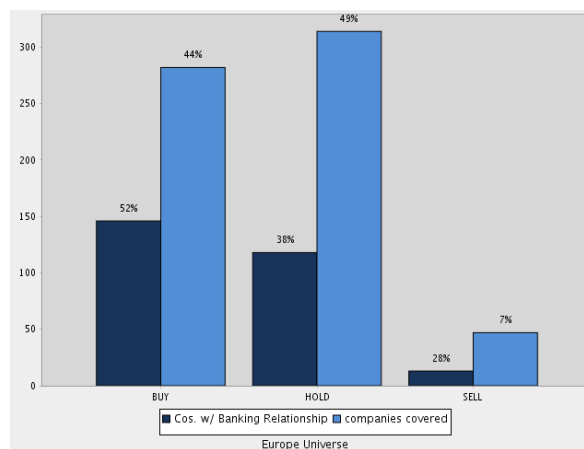
Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus projected dividend yield) , we recommend that investors buy the stock.

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 those 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, perspectives 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 may be 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 a specified sector over a time frame of no less than two weeks and no more than six months. In addition to SOLAR ideas, analysts may occasionally discuss with our clients, and with Deutsche Bank salespersons and 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 an opinion, forecast or estimate changes or 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 or of the Research Department Management, and 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. Performance calculations exclude transaction costs, unless otherwise indicated. 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 also sourced from Deutsche Bank, subject companies, and other parties.

The Deutsche Bank Research Department is independent of other business divisions of the Bank. Details regarding organizational arrangements and information barriers we have established to prevent and avoid conflicts of interest with respect to our research are 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 liquidation of positions), and settlement issues related to local clearing houses are also important risk factors. 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. 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. Funding in a currency that differs from the currency in which coupons are denominated carries FX risk. Options on swaps (swaptions) the risks typical to options in addition to the risks related to rates movements.

Derivative transactions involve numerous risks including market, counterparty default and illiquidity risk. The appropriateness of these products for use by investors depends on the investors' own circumstances, including their tax position, their regulatory environment and the nature of their other assets and liabilities; 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 – up to theoretically unlimited losses. 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: (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.

Deutsche Bank is not acting as a financial adviser, consultant or fiduciary to you or any of your agents with respect to any information provided in this report. Deutsche Bank does not provide investment, legal, tax or accounting advice, and is not acting as an impartial adviser. Information contained herein is being provided on the basis that the recipient will make an independent assessment of the merits of any investment decision, and is not meant for retirement accounts or for any specific person or account type. The information we provide is 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 or your agent are an IRA or other retail investor receiving this directly from us, we ask that you inform us immediately.

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 risk and conflict disclosures can also be found at <https://gm.db.com> on each company ' s research page and under the "Disclosures Lookup" and "Legal" tabs. Investors are strongly encouraged to review this information before investing.

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, including those regarding contacts with issuer companies.



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 (save that any research relating to futures contracts within the meaning of the Hong Kong Securities and Futures Ordinance Cap. 571 shall be distributed solely by Deutsche Securities Asia Limited). The provisions set out above in the "Additional Information" section shall apply to the fullest extent permissible by local laws and regulations, including without limitation the Code of Conduct for Persons Licensed or Registered with the Securities and Futures Commission. .

India: Prepared by Deutsche Equities India Private Limited (DEIPL) having CIN: U65990MH2002PTC137431 and registered office at 14th Floor, The Capital, C-70, G Block, Bandra Kurla Complex Mumbai (India) 400051. Tel: + 91 22 7180 4444. It is registered by the Securities and Exchange Board of India (SEBI) as a Stock broker bearing registration nos.: NSE (Capital Market Segment) - INB231196834, NSE (F&O Segment) INF231196834, NSE (Currency Derivatives Segment) INE231196834, BSE (Capital Market Segment) INB011196830; Merchant Banker bearing SEBI Registration no.: INM000010833 and Research Analyst bearing SEBI Registration no.: INH000001741. DEIPL may have received administrative warnings from the SEBI for breaches of Indian regulations. The transmission of research through DEIPL is Deutsche Bank's determination and will not make a recipient a client of DEIPL. Deutsche Bank and/or its affiliate(s) may have debt holdings or positions in the subject company. With regard to information on associates, please refer to the "Shareholdings" section in the Annual Report at: <https://www.db.com/ir/en/annual-reports.htm>.

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: This report is issued 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 by Deutsche Bank 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 undertake only the financial services activities that fall within the scope of its existing QFCRA license. Its 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 only to Business Customers, as defined by the Qatar Financial Centre Regulatory Authority.

Russia: The 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 undertake only the financial services activities that fall within the scope of its existing CMA license. Its 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 undertake only the financial services activities that fall within the scope of its existing DFSA license. Its 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 available only to Professional Clients, as defined by the Dubai Financial Services Authority.

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. Please refer to Australia-specific research disclosures and related information at <https://australia.db.com/australia/content/research-information.html> Where research refers to any particular financial product recipients of the research should consider any product disclosure statement, prospectus or other applicable disclosure document before making any decision about whether to acquire the product.

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 © 2018 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 Production 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
