



Rating
Buy

Asia
China

Consumer
Alcohol & Tobacco

Company
Kweichow Moutai

Reuters 600519.SS Bloomberg 600519 CG Exchange SHH Ticker 600519

Date
16 November 2017

Forecast Change

Price at 15 Nov 2017 (CNY)	688.08
Price target - 12mth (CNY)	745.00
52-week range (CNY)	688.08 - 308.97
Shanghai Composite	3,403

How much Moutai is stored in channels now?

Restocking cycle to continue; revising up TP to Rmb745

We estimate Moutai's current channel inventory equals six months of Moutai's real consumption, indicating there is still room for distributors and high-wealth individuals to fill up their warehouses. More importantly, this would leave management time to deal with the channel stocking problem. Meanwhile, we identify three possible catalysts that might trigger channel de-stocking, and before these catalysts are triggered, we expect less risk of a strong de-stocking. We are revising up Moutai's TP to Rmb745 and we maintain Buy.

Current channel inventory equals six months of real consumption

We think Moutai's strong sales recovery from 2016 has been mainly driven by both channel restocking and a consumption upgrade. Therefore, it is important for investors to gauge the water line in the channels. Based on historical channel inventory movement, Moutai's ex-factory supply, and Moutai's real consumption pattern, we estimate that currently there are 12,000 tons of Moutai in distributors' and investors' warehouses, representing six months of real consumption in 2017. Compared with the peak level of 12 months in 2012, this implies there is room for channels to stock up (Figure 1).

Three catalysts that could trigger channel de-stocking in next 12 months

Distributors are building up channel stocking because they expect the retail price to continue to go up. Therefore, whenever such an expectation weakens, the cycle could turn from restocking to de-stocking. We identify three events that might lead to weakened expectation: 1) Moutai strictly implements a fixed price e-commerce policy; 2) Moutai raises its ex-factory price at an inappropriate time; and 3) the retail price rises to Rmb2000 suddenly, which is the peak level in the last cycle. Before these catalysts happen, we believe risk-reward remains attractive for a Buy on the stock.

Maintaining Buy

Moutai's management is undertaking several measures, including implementing price guidance, increasing supply and implementing an e-commerce policy, to stabilize the retail price. We expect these measures to push distributors to release channel inventory gradually (instead of suddenly). We are revising up our TP to Rmb745 based on the DCF method (factoring in 9.5% WACC and 2% TG). We reiterate Buy. **Downside risk: sudden channel de-stocking.**

Valuation & Risks

Mark Yuan

Research Analyst
+852-2203 6181

Anne Ling

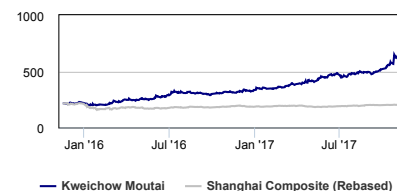
Research Analyst
+852-2203 6177

Key changes

TP	650.00 to 745.00	↑	14.6%
Sales (FYE)	44,522 to 48,551	↑	9.0%
Op prof margin (FYE)	71.6 to 71.8	↑	0.3%
Net profit (FYE)	23,295.4 to 25,350.4	↑	8.8%

Source: Deutsche Bank

Price/price relative



Performance (%)	1m	3m	12m
Absolute	23.6	38.7	119.1
Shanghai Composite	0.3	4.6	6.1

Source: Deutsche Bank

Key indicators (FY1)

ROE (%)	31.6
Net debt/equity (%)	-85.6
Book value/share (CNY)	69.79
Price/book (x)	9.9
Net interest cover (x)	-
Operating profit margin (%)	71.8

Source: Deutsche Bank

Deutsche Bank AG/Hong Kong

Deutsche Bank does and seeks to do business with companies covered in its resDistributed on: 16/11/2017 11:24:07 GMT 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. DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1. MCI (P) 083/04/2017. THE CONTENT MAY NOT BE DISTRIBUTED IN THE PEOPLE ' S REPUBLIC OF CHINA ("THE PRC") (EXCEPT IN COMPLIANCE WITH THE APPLICABLE LAWS AND REGULATIONS OF PRC), EXCLUDING SPECIAL ADMINISTRATIVE REGIONS OF HONG KONG AND MACAU.



Revisiting our channel inventory model

What's the channel inventory by the end of 2017?

We introduced our Moutai channel inventory model in our report "[The restocking cycle is just beginning; reiterating Buy](#)" published on 22 June 2017 as below:

Ending channel stocking = beginning channel stocking ("A") + Moutai ex-factory supply ("B") - real consumption in the period ("C"), where,

- **A** = based on channel check and historical movement
- **B** = based on reported data
- **C** = based on last year real consumption and a growth rate (which correlated to changes in retail price, income growth and national FAI growth)

We are revisiting the model based on recent changes. We estimate the ending stock level to be 12,000 tons by the end of 2017 (Figure 1). Particularly, we estimate the real consumption ("C") to decline 10% yoy from 27,000 tons in 2016 to 24,000 tons in 2017, mainly due to negative impact from a 50% yoy retail price increase, which is partly offset by rising demand from per capita income growth and consumption upgrade. The stocking level is higher than our previous forecast in June (4,000 tons) mainly because Moutai increased its supply in 3Q17 to stabilize the retail price.

The ending balance of 12,000 tons equals around six months' consumption. We believe this is still a safe level. To recap, the channel inventory reached one year's consumption by the end of 2011 in the last peak cycle, based on our estimates, and at the 12 month level, the retail price continued to go up, to Rmb2000 at Chinese New Year 2012. This implies that there is still room for distributors to build up inventories (Figure 1 & 2), which also leaves time for Moutai's management to solve the channel problem.

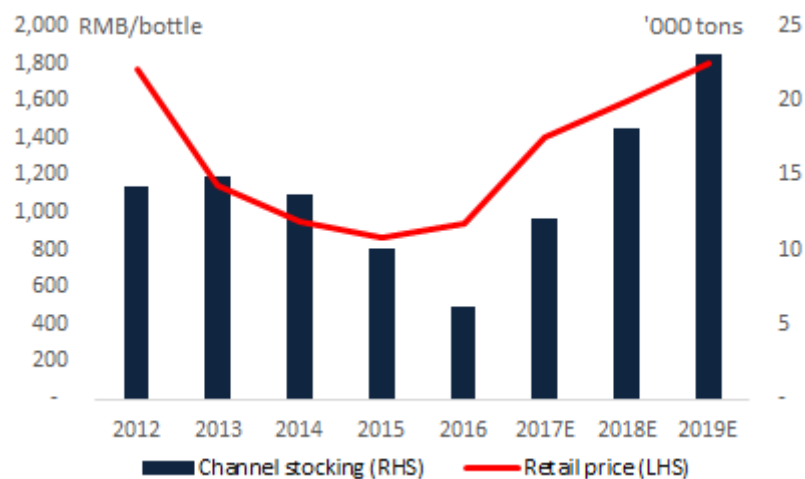
Figure 1: Moutai's channel inventory model

(thousands tons)	2012	2013	2014	2015	2016	2017E	2018E	2019E
Channel stocking - beginning ("A")	13	14	15	14	10	6	12	18
Add: Moutai ex-factory sales ("B")	15	17	18	20	23	30	33	35
Less: retail consumption ("C")	-14	-16	-20	-24	-27	-24	-27	-30
Channel stocking - ending	14	15	14	10	6	12	18	23
Actual retail price (RMB/bottle)	1,771	1,145	951	865	942	1,400	1,600	1,800
YoY	17%	-35%	-17%	-9%	9%	49%	14%	13%

Source: Deutsche Bank estimates; company data; the parameters A and C are based on Deutsche Bank estimates



Figure 2: Channel stocking vs. retail price



Source: Deutsche Bank estimates

What will happen if everything goes well in 2018-19?

For 2018-19, we calculate our model based on an important assumption - Moutai successfully stabilizes the retail price, and, at the same time, avoids the sudden channel de-stocking. This is our base case, because we believe Moutai's management is fully aware of the risks of over channel stocking, and it is taking various measures to resolve the risks. In this scenario, we expect:

- **A gradual increase in the retail price.** The price increase pace should not be too strong to depress real consumption, and should not be too weak to trigger channel de-stocking;
- **Real consumption recovers to positive growth** in 2018-19, helped by a more stable retail price; and
- **Channel stocking to be maintained at a safe level of < one year's real consumption** in 2018-19.
 Due to lower price hike expectation (but still some), distributors gradually (instead of suddenly) release the channel stockings. This could ultimately remove the channel de-stocking risk.

In this base case, we expect Moutai's actual ex-factory volume to increase by 10% in 2018, and it will be able to raise the ex-factory price slightly in 2019. We forecast Moutai's sales and earnings to grow 20% and 22% in 2018-19, which is also helped by mix upgrade.

What will happen if something goes wrong in 2018-19?

If channels begin heavy de-stocking, then what happened in 2013-15 will happen again in 2018-19. The retail price could collapse and decline to Rmb1200, and then even lower. At the same time, the distributors will rush to push out their inventories and drive a further decline in retail price.

We don't expect this to happen in our base case . Moutai's management is fully aware of the channel de-stocking risk and is taking various measures to avoid this situation. However, it is still important for investors to keep an eye on potential risks that might lead to heavy channel de-stockings. Channels are building up



inventories because of price hike expectations, and therefore any events that remove such expectations could lead to a reverse trend. We think there are three potential events that could remove this price hike expectation:

- **Catalyst I: Moutai strengthens its requirement on e-commerce policy strictly.** On Sept 9, Moutai launched its e-commerce platform (“Moutai Yunshang”) and requires all distributors to sell 30% of their volume on the platform at Rmb1299. Distributors have indicated that the impact is limited because some distributors could buy back the stock and sell it again in offline channels. But if Moutai strictly implements this policy, or increases the ratio to a higher portion, say 50%, then this could reduce distributors’ stocking-up incentives, due to fixed channel profits.
- **Catalyst II: Moutai raises its ex-factory price at an inappropriate time or by an inappropriate magnitude.** For example, if Moutai raises its ex-factory significantly in 1H18, distributors' incentive to stock up liquor will decline, because the liquor is already priced up (as happened in other FMCG products). Some distributors might begin to take profits and sell out inventories. This would result in a change in Moutai liquor's market from undersupply to oversupply, and lead to a retail price decline.
- **Catalyst III: Retail price rises to over Rmb2000/bottle.** The peak level of retail price for “Feitian Mouta” in the last cycle was Rmb2000 in 2012. Some distributors might stop channel restocking at this level.

A heavy channel de-stocking would pressure Moutai’s ex-factory volume growth (mainly on the column that is not in quotas), and hurt its branding. **Meanwhile, investors will likely turn bearish on Moutai’s sales outlook, and its valuation could de-rate.**

Too early to take profit; revising up TP to Rmb745

Near-term, given Moutai's channel stocking level is still far from its peak level, and the de-stocking catalysts have not happened, we believe the key drivers for Moutai's sales growth are still valid. Meanwhile, we expect Moutai’s retail price to gradually increase until peak consumption season during Chinese New Year 2018, which will drive further valuation re-ratings of the stock.

We are revising up our sales and net profit to factor in Moutai’s increased ex-factory volume in 2018. We forecast 29% and 31% sales/earnings CAGR in 2017-19E. We are revising up our target price to Rmb745 based on the DCF method, factoring in 9.5% WACC (3.9% RFR, 5.6% ERP, 1.0 beta, debt-free structure) and a 2% terminal growth rate. **Downside risk:** early-than-expected channel de-stockings.



Figure 3: Forecast change

RMBm	New			Old			Change		
	2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E
Gross sales	58,990	71,265	85,223	54,251	66,938	76,082	8.7%	6.5%	12.0%
Net Sales	48,551	58,703	70,148	44,522	55,048	62,424	9.0%	6.6%	12.4%
Gross profit	43,416	52,430	62,984	39,733	49,319	55,850	9.3%	6.3%	12.8%
EBIT	34,861	42,733	52,072	31,888	40,060	45,952	9.3%	6.7%	13.3%
Net profit	25,350	31,001	37,836	23,295	29,141	33,575	8.8%	6.4%	12.7%
GPM	73.6%	73.6%	73.9%	73.2%	73.7%	73.4%	0.4%	-0.1%	0.5%
EBITM	59.1%	60.0%	61.1%	58.8%	59.8%	60.4%	0.3%	0.1%	0.7%
NPM	43.0%	43.5%	44.4%	42.9%	43.5%	44.1%	0.0%	0.0%	0.3%

Source: Deutsche Bank

Figure 4: Valuation comp

Company	Ticker	Recom	Listing	Price	Mkt Cap	PE (x)			PB (x)			EV/EBITDA			Div Yield (%)		
			Curr	US\$mn	Hist	FY1Y	FY2Y	Hist	FY1Y	FY2Y	Hist	FY1Y	FY2Y	Hist	FY1Y	FY2Y	
Kweichow Moutai Co Ltd	600519.SS	Buy	CNY	688.08	133,773	20.7	34.1	27.9	5.8	9.9	8.3	12.1	21.8	17.3	2.5	1.6	1.9
Jiangsu Yanghe Brewery	002304.SZ	NR	CNY	112.08	25,956	18.2	25.6	21.4	4.1	5.8	5.0	12.0	18.4	15.6	1.8	2.0	2.4
Luzhou Laojiao Co Ltd	000568.SZ	NR	CNY	67.31	15,239	24.0	39.0	29.6	4.2	7.4	6.6	17.2	27.1	20.4	1.4	1.3	2.0
Shanxi Xinghuacun Fen Wine	600809.SS	NR	CNY	59.05	7,826	35.8	50.3	34.0	4.6	9.6	8.1	19.7	29.7	21.2	0.9	1.0	1.5
Anhui Gujing Distillery Co	000596.SZ	NR	CNY	68.93	4,718	27.6	32.1	25.4	4.1	5.4	4.6	17.8	18.2	15.1	0.9	0.9	1.2
Anhui Yingjia Distillery C	603198.SS	NR	CNY	18.58	2,271	25.4	20.6	18.0	4.4	N/A	N/A	16.6	N/A	N/A	3.2	N/A	N/A
Sichuan Swellfun Co Ltd	600779.SS	NR	CNY	48.24	3,647	41.5	69.3	38.9	6.4	14.2	11.2	30.4	44.7	26.6	0.9	0.7	1.0
Sichuan Tuopai Shede Wine	600702.SS	NR	CNY	46.73	2,460	95.0	95.7	43.0	3.3	6.1	5.0	29.8	39.5	19.8	0.1	0.1	0.4
Zhejiang Guyuelongshan Sha	600059.SS	NR	CNY	9.49	1,161	68.3	48.6	41.1	2.1	1.9	1.9	34.0	28.5	26.2	1.0	0.8	1.0
Jiugui Liquor Co Ltd	000799.SZ	NR	CNY	29.36	1,530	61.4	59.3	40.4	3.6	5.0	4.5	38.6	37.6	25.5	0.4	N/A	N/A
Xinjiang Yilite Industry	600197.SS	NR	CNY	24.76	1,673	23.1	30.0	24.0	3.3	5.0	4.3	11.9	18.3	15.6	1.0	1.2	1.3
Average						40.1	45.9	31.2	4.2	7.0	6.0	21.8	28.4	20.3	1.3	1.1	1.4

Source: Deutsche Bank, Bloomberg Finance LP. Stock price is on 15 Nov 2017. We use DB estimates for those companies we cover and Bloomberg consensus for others.



Model updated: 16 November 2017

Running the numbers

Asia
China
Alcohol & Tobacco

Kweichow Moutai

Reuters: 600519.SS Bloomberg: 600519 CG

Buy

Price (15 Nov 17) CNY 688.1

Target Price CNY 745.0

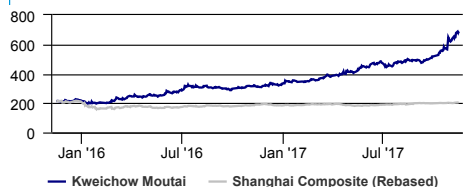
52 Week range CNY 308.97 - 688.08

Market cap (m) CNYm 864,366
USDm 130,293

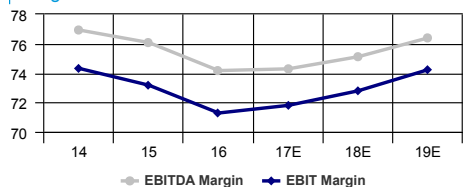
Company Profile

Kweichow Moutai is China's largest local spirit brand/producer by sales value.

Price Performance



Margin Trends



Growth & Profitability



Mark Yuan

+852 2203 6181

mark.yuan@db.com

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

Financial Summary

DB EPS (CNY)	12.22	12.34	13.31	20.18	24.68	30.12
Reported EPS (CNY)	12.22	12.34	13.31	20.18	24.68	30.12
DPS (CNY)	3.98	6.17	6.79	10.73	13.13	16.02
BVPS (CNY)	42.5	50.9	58.0	69.8	83.1	97.5
Weighted average shares (m)	1,256	1,256	1,256	1,256	1,256	1,256
Average market cap (CNYm)	169,335	256,416	346,172	864,366	864,366	864,366
Enterprise value (CNYm)	145,643	225,583	290,095	785,482	764,794	742,879

Valuation Metrics

P/E (DB) (x)	11.0	16.5	20.7	34.1	27.9	22.8
P/E (Reported) (x)	11.0	16.5	20.7	34.1	27.9	22.8
P/BV (x)	4.05	4.28	5.76	9.86	8.28	7.06
FCF Yield (%)	4.8	6.0	10.5	3.9	4.0	4.8
Dividend Yield (%)	2.9	3.0	2.5	1.6	1.9	2.3
EV/Sales (x)	5.1	7.7	9.0	16.2	13.0	10.6
EV/EBITDA (x)	6.6	10.2	12.1	21.8	17.3	13.9
EV/EBIT (x)	6.8	10.6	12.6	22.5	17.9	14.3

Income Statement (CNYm)

Sales revenue	28,785	29,210	32,353	48,551	58,703	70,148
Gross profit	26,446	26,672	28,943	43,416	52,430	62,984
EBITDA	22,146	22,223	23,997	36,069	44,096	53,591
Depreciation	753	848	934	1,207	1,363	1,519
Amortisation	0	0	0	0	0	0
EBIT	21,393	21,375	23,063	34,861	42,733	52,072
Net interest income/(expense)	707	780	1,203	1,819	1,808	2,284
Associates/affiliates	0	0	0	0	0	0
Exceptionals/extraordinary	0	0	0	0	0	0
Other pre-tax income/(expense)	-218	-153	-308	-236	-214	-256
Profit before tax	21,882	22,002	23,958	36,444	44,327	54,101
Income tax expense	5,613	5,547	6,027	9,475	11,348	13,850
Minorities	920	952	1,212	1,618	1,979	2,415
Other post-tax income/(expense)	0	0	0	0	0	0
Net profit	15,350	15,503	16,718	25,350	31,001	37,836
DB adjustments (including dilution)	0	0	0	0	0	0
DB Net profit	15,350	15,503	16,718	25,350	31,001	37,836

Cash Flow (CNYm)

Cash flow from operations	12,633	17,436	37,451	34,798	36,464	43,538
Net Capex	-4,431	-2,061	-1,019	-1,389	-1,497	-1,783
Free cash flow	8,201	15,375	36,432	33,408	34,967	41,755
Equity raised/(bought back)	0	0	0	0	0	0
Dividends paid	-5,122	-5,554	-8,351	-8,526	-13,484	-16,490
Net inc/(dec) in borrowings	1,246	1,948	4,811	11	11	11
Other investing/financing cash flows	105	65	6	-2	0	0
Net cash flow	4,430	11,834	32,899	24,892	21,493	25,276
Change in working capital	-4,480	471	19,162	6,001	2,121	1,768

Balance Sheet (CNYm)

Cash and other liquid assets	27,711	36,801	66,855	89,673	110,372	132,298
Tangible fixed assets	13,798	16,312	17,199	17,332	17,436	17,569
Goodwill/intangible assets	3,583	3,582	3,532	3,481	3,430	3,380
Associates/investments	64	29	29	29	29	29
Other assets	20,718	29,577	25,320	27,827	32,807	36,916
Total assets	65,873	86,301	112,935	138,342	164,074	190,191
Interest bearing debt	4,019	5,967	10,779	10,790	10,800	10,811
Other liabilities	6,543	14,100	26,257	35,397	42,509	48,398
Total liabilities	10,562	20,067	37,036	46,186	53,310	59,209
Shareholders' equity	53,430	63,926	72,894	87,664	104,413	122,488
Minorities	1,881	2,308	3,004	4,491	6,351	8,494
Total shareholders' equity	55,312	66,234	75,898	92,155	110,765	130,982
Net debt	-23,692	-30,833	-56,076	-78,884	-99,572	-121,487

Key Company Metrics

Sales growth (%)	2.3	1.5	10.8	50.1	20.9	19.5
DB EPS growth (%)	1.4	1.0	7.8	51.6	22.3	22.0
EBITDA Margin (%)	76.9	76.1	74.2	74.3	75.1	76.4
EBIT Margin (%)	74.3	73.2	71.3	71.8	72.8	74.2
Payout ratio (%)	32.5	50.0	51.0	53.2	53.2	53.2
ROE (%)	32.0	26.4	24.4	31.6	32.3	33.4
Capex/sales (%)	15.4	7.1	3.2	2.9	2.6	2.5
Capex/depreciation (x)	5.9	2.4	1.1	1.2	1.1	1.2
Net debt/equity (%)	-42.8	-46.6	-73.9	-85.6	-89.9	-92.8
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
Kweichow Moutai	600519.SS	688.08 (CNY) 15 Nov 2017	NA

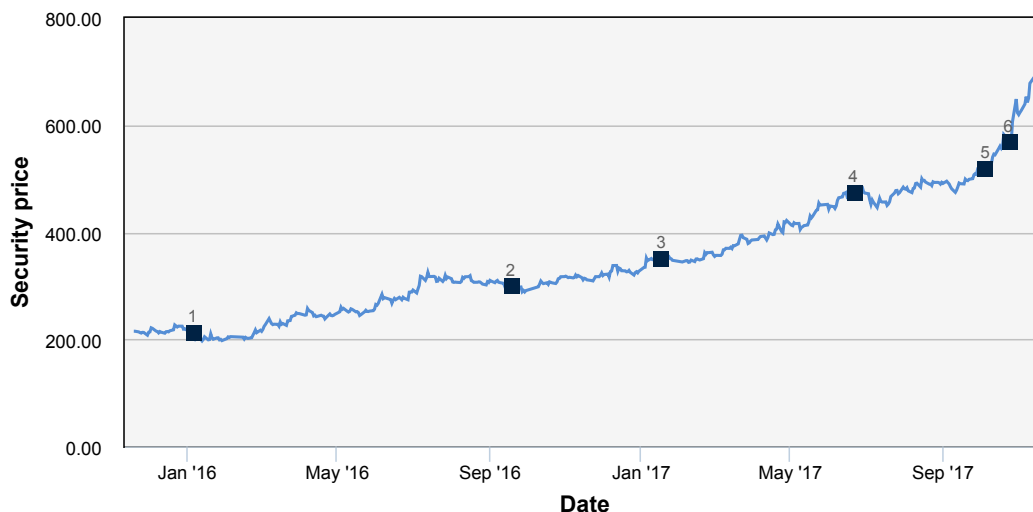
*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg, and other vendors. Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations 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.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.

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. Mark Yuan

Historical recommendations and target price. Kweichow Moutai (600519.SS)

(as of 11/15/2017)



Current Recommendations

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

** Analyst is no longer at Deutsche Bank

1.	01/07/2016	Buy, Target Price Change CNY 267,00	Winnie Mak**	4.	06/22/2017	Buy, Target Price Change CNY 550,00	Mark Yuan
2.	09/19/2016	Buy, Target Price Change CNY 385,00	Charlie Chen**	5.	10/06/2017	Buy, Target Price Change CNY 610,00	Mark Yuan
3.	01/18/2017	Buy, Target Price Change CNY 410,00	Charlie Chen**	6.	10/25/2017	Buy, Target Price Change CNY 650,00	Mark Yuan



Equity Rating Key

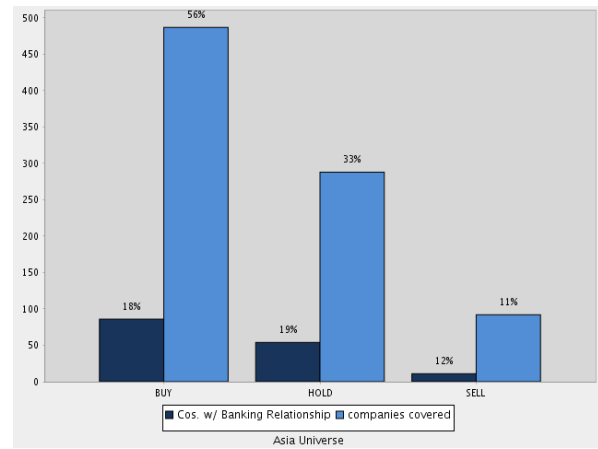
Buy: Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus pro-jected dividend yield) , we recommend that investors buy the stock.

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 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.

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. 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: 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 Australia-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
