



Rating  
**Buy**

North America  
United States

Health Care  
Healthcare Technology &  
Distribution

Company  
**Express Scripts Inc**

Reuters  
ESRX.OQ

Bloomberg  
ESRX US

Exchange  
NSM

Ticker  
ESRX

Date  
25 July 2018

Company Update

Price at 24 Jul 2018	79.39
Price target	87.00
52-week range	82.24 - 56.81

## Oppty Ahead of CI Shareholder Vote - Risk/Reward Skews Positive

**Bottom Line: ~1.5X Downside/Upside Heading into August 24 CI & ESRX Shareholder Votes, But Believe High Likelihood CI Vote Will Be Favorable**

The current CI/ESRX deal spread (16.8%) has come in substantially over the past few weeks (average spread since deal announced - 20.2%; max spread - 32.6%) as we head towards the August 24th shareholder votes. In the event that the deal receives shareholder approval, we see high-single-digit upside in shares of ESRX over the next ~30 days, assuming a post-approval spread more in-line with CVS/AET's current spread of 5.9%. We acknowledge that a favorable shareholder vote and subsequent spread contraction may not entirely accrue to ESRX shareholders, as the value of CI is likely to also fluctuate given the mixed reaction in CI shares following the deal announcement. In the event that CI shareholders do not approve the deal, we see significant, double-digit downside in ESRX (~12-15%) as the stand-alone PBM business model faces a number of structural challenges, including most recently, renewed concerns around the sustainability of rebates and AMZN's entry into mail order pharmacy via PillPack. We are maintaining our Buy rating and \$87 PT based on this proposed deal, and our expectation that both sets of shareholders will vote in favor of the deal, as we continue believe that fundamentals do not support the current valuation.

**CI & ESRX Shareholder Votes on August 24, Record Date Was Set as of July 10**  
CI shareholders will vote on the proposed ESRX acquisition on August 24th, although we note the solicitation firm will be collecting votes over the next 2-3 weeks. This is a highly anticipated event as CI's volatile share performance and relative underperformance since the announcement has highlighted investor concerns over the proposed transaction. Given similar regulatory risks for both CVS/AET (5.9% spread) and CI/ESRX (16.8% spread), we suspect the delta between the two is largely representative of the uncertainty surrounding the shareholder vote. While we believe that both deals will ultimately be completed, we recognize the heightened risk surrounding the August 24th shareholder vote and understand that speculation of shareholder opposition increases the volatility in the deal spread near term. As an example, on Wednesday July 18th the spread widened by 5% - and it is our sense that this was largely driven by some unusual options activity around the date of the shareholder votes. We would note, however, that the record date for the CI shareholder vote had already been set at July 10th, and thus we are not reading too much into this options activity given the list of shareholders was already set (more than a week prior to this activity). Further increasing our confidence is the fact that we cannot think of a single instance where the shareholders of the acquiring company did NOT vote in favor of the deal. We believe it is reasonable to think, particularly given the volatility

### Valuation & Risks

**Glen Santangelo**

Research Analyst

+1-212-250-1500

**Nick Feinman**

Research Associate

+1-212-250-8368

**Vikram Kesavabhotla**

Research Associate

+1-212-250-7103

**Gerard Campagna, CFA**

Research Associate

+1-212-250-1174

### Key changes

EPS (USD)	- ↓	-0.1%
Revenue (USDm)	100,719 to ↑ 101,264	0.5%

Source: Deutsche Bank



in CI shares post the deal announcement, that some number of the shareholders which opposed the transaction “voted with their feet” and sold the shares. We would also highlight that CI only needs a >50% (majority) of the shareholders to vote in favor of the deal. We note the top-15 shareholders own ~45% of the company, and we are not aware of any of them openly opposing the deal. Lastly, given the significant downside risk in ESRX shares in the event of a negative vote, we do not see material risk in the ESRX shareholder vote.

#### Upside in Wake of Vote Approval - Assumes ~17% Spread Narrows In-line with CVS/AET ~6% Spread

With a current deal spread of 16.8%, we see high-single-digit upside for ESRX in the event that CI shareholders approve the deal. Given the relatively similar nature of CI/ESRX and CVS/AET (already received shareholder approval), we believe that in the event of a favorable CI shareholder vote the deal spread for CI/ESRX would likely narrow to be more roughly in line with 5.9% CVS/AET spread. Moreover, we note that CI shares are down ~9% since the initial announcement while UNH and ANTM are up 12% and 7% respectively, over the same time frame, suggesting to us that shares of CI will likely also experience volatility tied to the outcome of the shareholder vote. Looking beyond the shareholder votes, we continue to believe both CVS/AET and CI/ESRX deals will pass regulatory review, suggesting additional upside post approval.

#### ESRX - Significant Downside (12-15%) in a Deal Break Scenario

In the event the CI/ESRX shareholder vote is not positive, investors will quickly need to re-evaluate ESRX on a stand-alone basis. We continue to believe the PBM industry faces a number of structural issues that could challenge ESRX over the longer-term, and some of these are exacerbated due to their independent status (Caremark (CVS) and Optum (UNH) likely have more flexibility to lead with price as part of a broader enterprise). This includes the renewed concern around the sustainability of rebates and greater scrutiny of ESRX's mail-order business, as investors assess the potential competitive impact of PillPack under Amazon's ownership. That said, ESRX does benefit from a strong balance sheet and cash flow generation, which we note would only be aided by the \$1.6bn break up fee in the event CI shareholders do not approve the transaction. This creates significant flexibility for share repurchases or other accretive capital deployment. With these puts and takes in mind, we estimate ESRX can generate F19 adjusted EPS ex-ANTM of \$6.32, which does not include any benefit from share repurchases. In our sensitivity analysis in the body of our note we estimate that a \$3 billion ASR program executed at the start of 2019 could add \$0.51 (8%) to Core EPS. It is worth noting that the level of repurchases could be meaningfully higher, as we anticipate ESRX is accumulating cash at an accelerated rate in the absence of share repurchases, even after requisite debt repayments to reach its target leverage post ANTM. We include a sensitivity analysis of share repurchases on Page 3, which assumes a range of break-up multiples and ASR amounts. From a valuation perspective, we think it is reasonable to assume that in a deal-break scenario ESRX will garner a multiple similar to other supply-chain peers of ~10x core (ex-ANTM) earnings. Using our F19 estimate of \$6.32 plus the benefit of a \$3 billion ASR (\$0.51), a 10x PE multiple consistent with other supply channel peers would imply a price of ~\$68, or 13% below the current price. While we continue to believe the shareholder votes will be supportive and the transaction will receive regulatory approval, we thought it would be helpful for investors to appreciate the downside scenario. Please see the body of our note for more details on our estimates.



#### Rating & Price Target

We are maintaining our Buy rating based solely on the prospects of the deal, as we believe the current fundamentals do not support the current valuation/share price. We are also maintaining our \$87 PT, which assuming CI shares remain flat from current levels, would imply a spread of ~5-6%, which we believe is more reasonable/typical given the expected timing of the transaction. As a reminder, CI has guided that it expects to be able to close the transaction by the end of 2018. From a valuation perspective, our \$87 PT implies a near 14x P/E multiple of shares of ESRX (F19 ex-ANTM \$6.32), which we noted above our estimate conservatively does not include the benefit of a break-up fee or any capital deployment in the event of a deal-break.



## Financial Review, Deal Spreads and Break Analysis

Below we detail our ESRX estimates both consolidated and ex-ANTM. Importantly, these estimates do not assume any share repurchases.

Figure 1: Express Scripts Financial Summary

ESRX - Financial Snapshot					
(\$ in millions)	2017	2018e	2019e	2020e	2021e
<b>Core ESRX</b>					
Revenue	81,273	82,593	83,178	84,507	85,850
Adj Rx	1,165	1,135	1,132	1,147	1,170
Growth	-0.4%	-2.5%	-0.2%	1.3%	2.0%
Adj EBITDA	5,043	5,374	5,522	5,658	5,794
Growth	3.2%	6.6%	2.8%	2.4%	2.4%
Margin	6.2%	6.5%	6.6%	6.7%	6.7%
eviCore EBITDA (est)	-	282	310	332	348
EBITDA/Rx (ex-eviCore)	\$4.33	\$4.49	\$4.60	\$4.64	\$4.66
Adj EPS	\$4.59	\$6.04	\$6.32	\$6.49	\$6.61
Growth	8.2%	31.7%	4.6%	2.8%	1.7%
<b>Anthem</b>					
Revenue	18,792	18,670	19,759	12,524	4,775
Adj Rx	235	232	239	150	57
Growth	6.9%	-1.0%	2.8%	-37.2%	-62.0%
Adj EBITDA	2,374	2,369	2,406	1,047	358
Growth	5.6%	-0.2%	1.5%	-56.5%	-65.8%
Margin	12.6%	12.7%	12.2%	8.4%	7.5%
EBITDA/Rx	\$10.11	\$10.20	\$10.08	\$6.98	\$6.28
Adj EPS	\$2.51	\$3.04	\$3.06	\$1.31	\$0.44
Growth	16.6%	21.1%	0.7%	-57.2%	-66.7%
<b>Consolidated</b>					
Revenue	100,065	101,264	102,937	97,030	90,625
Adj Rx	1,401	1,368	1,371	1,297	1,227
Growth	-0.5%	-2.4%	0.3%	-5.4%	-5.4%
Adj EBITDA	7,417	7,743	7,928	6,704	6,152
Growth	2.2%	4.4%	2.4%	-15.4%	-8.2%
Margin	7.4%	7.6%	7.7%	6.9%	6.8%
EBITDA/Rx	\$5.29	\$5.66	\$5.78	\$5.17	\$5.01
Adj EPS	\$7.10	\$9.08	\$9.38	\$7.80	\$7.04
Growth	11.0%	27.9%	3.3%	-16.8%	-9.8%

Source: Company Data, Deutsche Bank

Our F19 ESRX adjusted EPS estimate ex-ANTM is \$6.32, not including any benefit from share repurchases. We estimate that a \$3 billion ASR conducted at the start of 2019 could add \$0.51, or roughly 8% to Adj EPS (\$6.82) in a deal-break scenario. ESRX benefits from a high level of free cash flow, which will only be aided by a \$1.6 billion break-up fee in the event that the transaction is not approved by shareholders. This allows the opportunity to increase share repurchases even more meaningfully. On the other hand, it is also worth noting that any negative impact to ESRX's EBITDA outlook would ultimately limit free



cash flow flexibility. In Figure 3, we display a sensitivity analysis to evaluate the range of impacts from share repurchases.

Figure 2: Express Scripts Accretion Analysis

ASR Accretion Analysis	
(\$ in millions)	
Current Share Price	\$78.75
2019 EPS (ex-ANTM)	\$6.32
P/E ratio (current)	12.5x
Share repurchase amount (\$)	3,000
Purchase price (break scenario)	\$70.00
Impact on weighted avg diluted S/O	42.9
Accretion/Dilution	\$0.51
%	8.0%
2019 EPS Including Accretion	\$6.82
<b>Break multiple</b>	<b>10.0x</b>
<b>ESRX Break Share Price</b>	<b>\$68.25</b>
<i>Downside to Break (including ASR)</i>	<i>(13.3%)</i>

Source: Company Data, DB estimates

Figure 3: Deal-Break Sensitivity Analysis (\$)

Break-up Multiple	Size of ASR				
	\$1,000	\$2,000	\$3,000	\$4,000	\$5,000
8.0x	\$51.82	\$53.17	\$54.60	\$56.10	\$57.69
9.0x	\$58.29	\$59.82	\$61.42	\$63.11	\$64.90
10.0x	\$64.77	\$66.46	\$68.25	\$70.13	\$72.11
11.0x	\$71.25	\$73.11	\$75.07	\$77.14	\$79.32
12.0x	\$77.73	\$79.76	\$81.89	\$84.15	\$86.53

Source: Deutsche Bank

Figure 4: Deal-Break Sensitivity Analysis (%)

Break-up Multiple	Size of ASR				
	\$1,000	\$2,000	\$3,000	\$4,000	\$5,000
8.0x	(34.2%)	(32.5%)	(30.7%)	(28.8%)	(26.7%)
9.0x	(26.0%)	(24.0%)	(22.0%)	(19.9%)	(17.6%)
10.0x	(17.8%)	(15.6%)	(13.3%)	(11.0%)	(8.4%)
11.0x	(9.5%)	(7.2%)	(4.7%)	(2.0%)	0.7%
12.0x	(1.3%)	1.3%	4.0%	6.9%	9.9%

Source: Deutsche Bank

In Figures 5 and 6, we highlight the current and historical CI/ESRX and CVS/AET deal spreads, which currently stand at 16.8% and 5.9%, respectively.

Figure 5: Cigna - Express Scripts Deal Spread Overview

CI - ESRX	
Cigna Current Price	\$177.50
Number of shares per ESRX share	0.2434
Value per ESRX share	\$43.20
Cash per ESRX Share	\$48.75
<b>Total</b>	<b>\$91.95</b>
Express Scripts Current Price	\$78.75
<b>Current Spread</b>	<b>16.8%</b>
<b>Average Spread (since 3/8/18)</b>	<b>20.2%</b>
Max Spread (since 3/8/18)	32.6%
Min Spread (since 3/8/18)	11.2%

Source:FactSet, Deutsche Bank

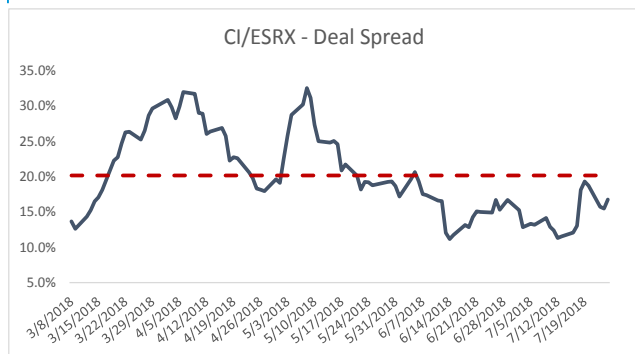
Figure 6: CVS - Aetna Deal Spread Overview

CVS - AET	
CVS Health Current Price	\$65.99
Number of shares per AET share	0.8378
Value per AET share	\$55.29
Cash per AET Share	\$145.00
<b>Total</b>	<b>\$200.29</b>
Aetna Current Price	\$189.12
<b>Current Spread</b>	<b>5.9%</b>
<b>Average Spread (since 12/4/17)</b>	<b>12.7%</b>
Max Spread (since 12/4/17)	17.0%
Min Spread (since 12/4/17)	5.4%

Source:FactSet, Deutsche Bank

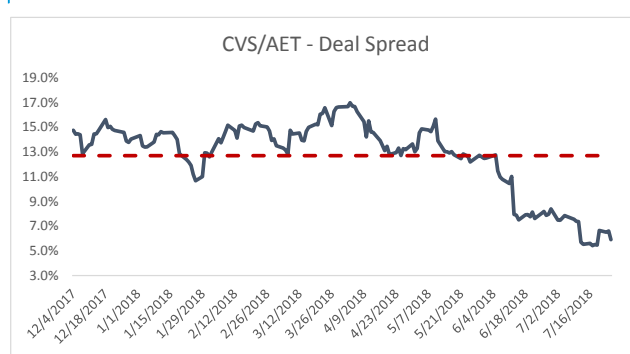


Figure 7: Cigna - Express Scripts Historical Deal Spread



Source:FactSet, Deutsche Bank

Figure 8: CVS - Aetna Historical Deal Spread



Source:Factset, Deutsche Bank



# Appendix 1

## Important Disclosures

\*Other information available upon request

Disclosure checklist			
Company	Ticker	Recent price*	Disclosure
Express Scripts Inc	ESRX.OQ	79.39 (USD) 24 Jul 2018	2, 14, 15

\*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 <https://research.db.com/Research/Disclosures/CompanySearch>. Aside from within this report, important risk and conflict disclosures can also be found at <https://research.db.com/Research/Topics/Equities?topicId=RB0002>. 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.

2. Deutsche Bank and/or its affiliate(s) makes a market in equity securities issued by this company.
14. Deutsche Bank and/or its affiliate(s) has received non-investment banking related compensation from this company within the past year.
15. This company has been a client of Deutsche Bank Securities Inc. within the past year, during which time it received non-investment banking securities-related services.

## 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.

2. Deutsche Bank and/or its affiliate(s) makes a market in equity securities issued by 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 <https://research.db.com/Research/Disclosures/CompanySearch>

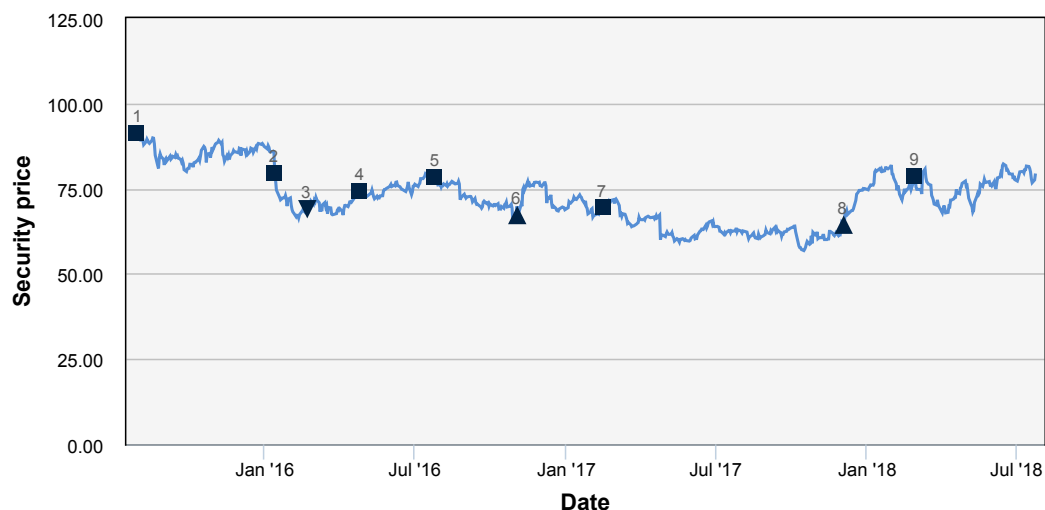
## Analyst Certification

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. Glen Santangelo



## Historical recommendations and target price. Express Scripts Inc (ESRX.OQ)

(as of 07/24/2018)



### Current Recommendations

Buy  
Hold  
Sell  
Not Rated  
Suspended Rating

\*\* Analyst is no longer at Deutsche Bank

1.	07/29/2015	Hold, Target Price Change USD 96.00 George Hill**	6.	11/03/2016	Upgraded to Hold, Target Price Change USD 70.00 George Hill**
2.	01/13/2016	Hold, Target Price Change USD 93.00 George Hill**	7.	02/15/2017	Hold, Target Price Change USD 72.00 George Hill**
3.	02/22/2016	Downgraded to Sell, Target Price Change USD 61.00 George Hill**	8.	12/04/2017	Upgraded to Buy, Target Price Change USD 75.00 Glen Santangelo
4.	04/26/2016	Sell, Target Price Change USD 63.00 George Hill**	9.	02/28/2018	Buy, Target Price Change USD 87.00 Glen Santangelo
5.	07/26/2016	Sell, Target Price Change USD 69.00 George Hill**			

## Equity Rating Key

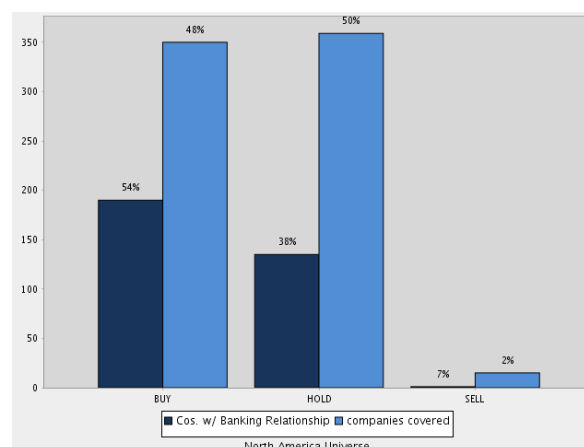
**Buy:** Based on a current 12- month view of total share-holder return (TSR = percentage change in share price from current price to projected target price plus projected dividend yield) , we recommend that investors buy the stock.

**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. Some trade ideas for equities are listed as Catalyst Calls on the Research Website ( <https://research.db.com/Research/> ), and can be found on the general coverage list and also on the covered company ' s page. A Catalyst Call 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 three months. In addition to Catalyst Calls, 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 our organizational arrangements and information barriers we have to prevent and avoid conflicts of interest with respect to our research are available on our website ( <https://research.db.com/Research/> ) under Disclaimer.



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 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://research.db.com/Research/> on each company's research page. Investors are strongly encouraged to review this information before investing.

Deutsche Bank (which includes Deutsche Bank AG, its branches and affiliated companies) is not acting as a financial adviser, consultant or fiduciary to you or any of your agents (collectively, "You" or "Your") with respect to any information provided in this report. 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.

In July 2018, Deutsche Bank revised its rating system for short term ideas whereby the branding has been changed to Catalyst Calls ("CC") from SOLAR ideas; the rating categories for Catalyst Calls originated in the Americas region have been made consistent with the categories used by Analysts globally; and the effective time period for CCs has been reduced from a maximum of 180 days to 90 days.

**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 (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 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 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. In preparing this report, the primary analyst or an individual who assisted in the preparation of this report has likely been in contact with the company that is the subject of this research for confirmation/clarification of data, facts, statements, permission to use company-sourced material in the report, and/or site-visit attendance. Without prior approval from Research Management, analysts may not accept from current or potential Banking clients the costs of travel, accommodations, or other expenses incurred by analysts attending site visits, conferences, social events, and the like. Similarly, without prior approval from Research Management and Anti-Bribery and Corruption ("ABC") team, analysts may not accept perks or other items of value for their personal use from issuers they cover.



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

---