

Bayer

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UBS Research

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Xarelto efficacy should be unaffected from device malfunctioning

- Analyses conducted by Bayer and Duke confirm ROCKET AF results
- Background of the EMA investigations
- Next steps: awaiting publication of Duke's secondary analysis
- Valuation: Neutral, PT is based on 17.3x 2016E EPS

Analyses conducted by Bayer and Duke confirm ROCKET AF results

Last night, headlines in Handelsblatt suggested that EMA is investigating Xarelto due to the use of a defective device in the pivotal ROCKET AF study. ROCKET AF led to Xarelto approval in atrial fibrillation which is contributing the lion's shares for Xarelto sales (UBS's for 2015E is €2.3bn). Based on our conversation with Bayer and a statement released by the ROCKET investigators from the Duke School of Medicine (here) we believe that that Xarelto efficacy should be unaffected by the defective device, as both Bayer's own analysis and secondary analysis conducted by Duke investigators confirm Xarelto's efficacy. The Duke Press release states that "the findings from the (secondary) analysis are consistent with the results from the original trial and do not alter the conclusions of ROCKET AF: Xarelto is a reasonable alternative to warfarin and is non-inferior for the prevention of stroke with less intracranial hemorrhage fatal bleeding".

Background of the EMA investigations

In Dec 2014, the FDA issued a recall of the Alere INRatio & INRatio2 PT/INR Monitor system that had been used in ROCKET AF (conducted from 2006-2010). This device is used to determine warfarin dosing (= active comparator for Xarelto in ROCKET) to maintain the INR in a target corridor and was used in some of the warfarin study population. Hypothetically, a malfunctioning device could have resulted in incorrect warfarin dosing in the ROCKET comparator arm. Reason given for the recall was the device yielded an INR that was too low in certain populations (e.g., patients with anemia, elevated fibrinogen level), and thus could have resulted in too high doses of warfarin potentially increasing the bleeding risk for patients, (though also the anticoagulation effect and hence should not affect the efficacy finding from ROCKET, in our view).

Next steps: awaiting publication of Duke's secondary analysis

How the secondary analyses have been performed has not been made public yet, though it is likely that patients who could have been affected by the device malfunction were removed from the analysis. The Duke investigators stated they intend to publish a full description of this analysis and results as rapidly as possible.

Valuation: Neutral, PT is based on 17.3x 2016E EPS

This is in line with the sector on 17.4x.

12-month rating	Neutral
12-month price target	€130.00
Price	€115.25

Trading data and key metrics

52-wk range	€145.75-108.34
Market cap.	€95.3bn/US\$104bn
Shares o/s	827m (ORD)
Free float	100%
Avg. daily volume ('000)	6
Avg. daily value (m)	€0.7
Common s/h equity (12/15E)	€20.2bn
P/BV (12/15E)	4.7x
Net debt / EBITDA (12/15E)	1.7x
RIC	BAYG.F
BBG	BAYN GR

Sources: UBS, Bloomberg

EPS (UBS, diluted) (€)

	UBS	Cons.
12/15E	6.96	6.96
12/16E	7.44	7.66
12/17E	8.06	8.50

Definitions of terms and abbreviations are available in the appendix section of this report, and more extensively on internet at www.ubs.com/glossary

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Bayer

Company Profile: Bayer

Bayer is a diversified German life sciences company, with Pharmaceutical, Consumer and CropScience divisions; Bayer plans to exit MaterialScience (polycarbonates and polyurethanes) in 2016. Pharma (46% of ongoing group EBITDA) has leading franchises in women's health, cardiovascular and specialty pharmaceuticals; key growth products are Xarelto and Eylea. Consumer Health (26% of EBITDA) acquired Merck OTC in 2014 and is the second-largest OTC business globally. CropScience (28%) is mainly crop protection chemicals (c80% of sales), with a smaller seeds business, and an emerging bio-ag business.

Statement of Risk

Risks to Bayer include - in Pharma: Xarelto growth being impacted by increasing competition from Eliquis as well as edoxaban; multiple new/better competitors for Betaseron (multiple sclerosis) and Kogenate (hemophilia) – including Roche's ACE910; failure of the promising phase II pipeline, particularly cardiovascular assets finerenone and vericiguat. In CropScience: weakness in global crop prices leading to a sharper or more prolonged downturn in crop chemicals markets than expected; renewed competition in seeds, or chemicals; greater regulatory oversight leading to increased R&D requirements or litigation.

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Highlights (€m)	12/12	12/13	12/14	12/15E	12/16E	12/17E	12/18E	12/19E
Revenues	39,741	40,157	42,239	46,983	36,806	38,837	40,611	42,234
EBIT (UBS)	5,639	5,773	5,944	7,190	7,213	7,871	8,450	9,092
Net earnings (UBS)	4,383	4,643	4,977	5,757	6,157	6,666	7,121	7,602
EPS (UBS, diluted) (€)	5.30	5.61	6.02	6.96	7.44	8.06	8.61	9.19
DPS (€)	1.90	2.10	2.25	2.58	2.75	2.98	3.19	3.40
Net (debt) / cash	(7,837)	(7,369)	(20,007)	(17,396)	(6,591)	(4,310)	(1,602)	1,360
Profitability/valuation	12/12	12/13	12/14	12/15E	12/16E	12/17E	12/18E	12/19E
EBIT margin %	14.2	14.4	14.1	15.3	19.6	20.3	20.8	21.5
ROIC (EBIT) %	16.9	16.9	13.9	14.3	16.2	19.9	21.9	24.4
EV/EBITDA (core) x	7.7	10.0	12.2	12.2	12.1	10.5	9.7	8.9
P/E (UBS, diluted) x	11.2	14.9	17.2	16.6	15.5	14.3	13.4	12.5
Equity FCF (UBS) yield %	5.8	4.6	4.2	5.9	4.2	5.3	5.9	6.4
Net dividend yield %	3.2	2.5	2.2	2.2	2.4	2.6	2.8	3.0

Source: Company accounts, Thomson Reuters, UBS estimates. Metrics marked as (UBS) have had analyst adjustments applied.

Valuations: based on an average share price that year, (E): based on a share price of €115.25 on 08 Dec 2015 21:36 GMT

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Appendix

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UBS 12-Month Rating	Rating Category	Coverage ¹	IB Services ²
Buy	Buy	47%	33%
Neutral	Hold/Neutral	42%	34%
Sell	Sell	11%	23%

1:Percentage of companies under coverage globally within the 12-month rating category.

2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

Source: UBS. Rating allocations are as of 31 March 2014.

UBS 12-Month Rating	Definition
Buy	FSR is > 6% above the MRA.
Neutral	FSR is between -6% and 6% of the MRA.
Sell	FSR is > 6% below the MRA.

UBS Investment Research: Global Equity Ratings Definitions

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Global Equity 12-Month Rating Definitions

Buy: FSR is > 6% above the MRA. **Neutral:** FSR is between -6% and 6% of the MRA. **Sell:** FSR is > 6% below the MRA.

Key Definitions

Forecast Stock Return (FSR) is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months.

Market Return Assumption (MRA) is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium).

Under Review (UR) Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation.

Exceptions and Special Cases

Core Banding Exceptions (CBE): Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified the Companies Mentioned or Company Disclosure table in the relevant research piece.

Company Disclosures

Bayer	BAYN GR	Neutral	€115.25	08 Dec 2015
Novo Nordisk	NOVOB DC	Neutral	DKr391.50	08 Dec 2015
AstraZeneca	AZN LN	Buy	4,439p	08 Dec 2015
GlaxoSmithKline	GSK LN	Neutral	1,314p	08 Dec 2015
Roche	ROG VX	Buy	CHF271.60	08 Dec 2015
Novartis	NOVN VX	Buy	CHF84.65	08 Dec 2015
Sanofi	SAN FP	Neutral	€78.66	08 Dec 2015
Syngenta	SYNN VX	Neutral (UR)	CHF360.00	08 Dec 2015

Company Name	Reuters	12-mo rating	Price	Price date
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Source: UBS. All prices as of local market close.

Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

Disclosures (9 December 2015)

AstraZeneca 3, 4, 5, 6, Bayer 1, 2, 3, GlaxoSmithKline 1, 3, 4, Novartis 1, 2, 3, 4, 7, 8, 9, 10, 11, Novo Nordisk 4, 12, Roche 1, 2, 3, 8, 9, 10, Sanofi 3, 4, Syngenta 1, 3, 4, 5, 6, 13;

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2. UBS AG, its affiliates or subsidiaries held other significant financial interests in this company/entity as of last month's end (or the prior month's end if this report is dated less than 10 working days after the most recent month's end).

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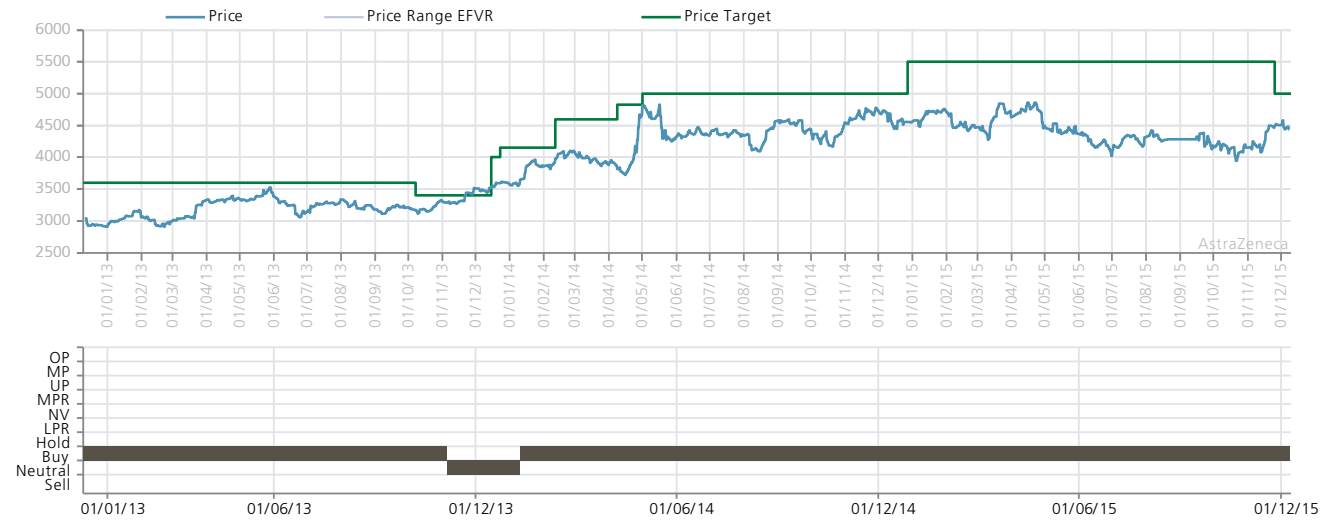
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Bayer

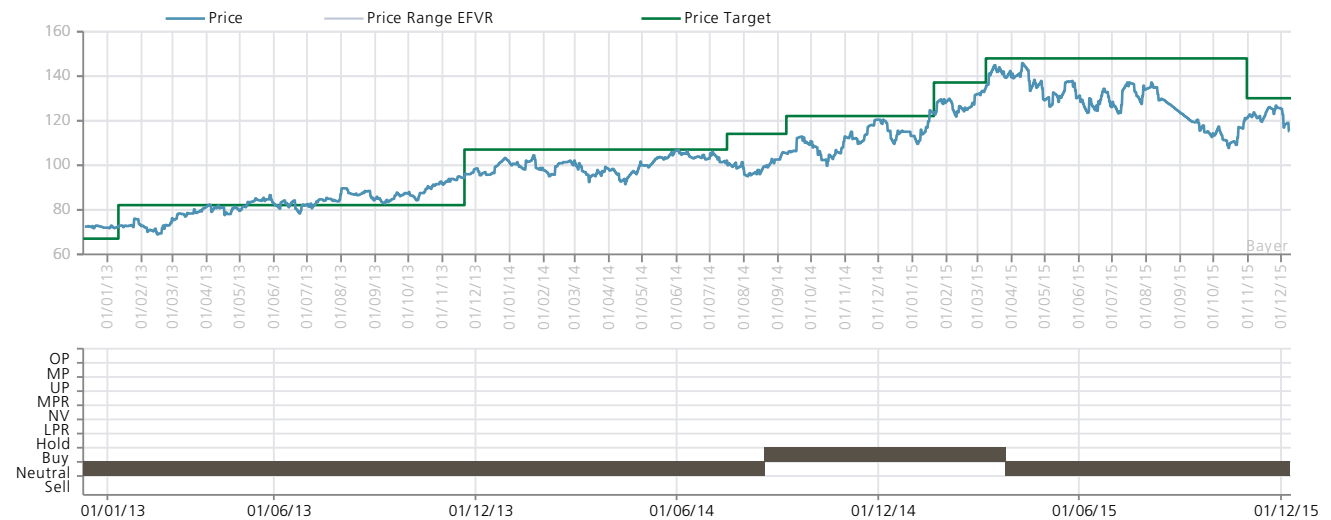
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11. UBS AG is acting as agent in regard to Novartis AG's announced share buyback programme.
12. A U.S.-based global equity strategist, a member of his team, or one of their household members has a long common stock position in Novo Nordisk A/S.
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Global rating history -- AstraZeneca, AZN LN



Source: UBS CIO as of 9 December 2015

Global rating history -- Bayer, BAYN GR



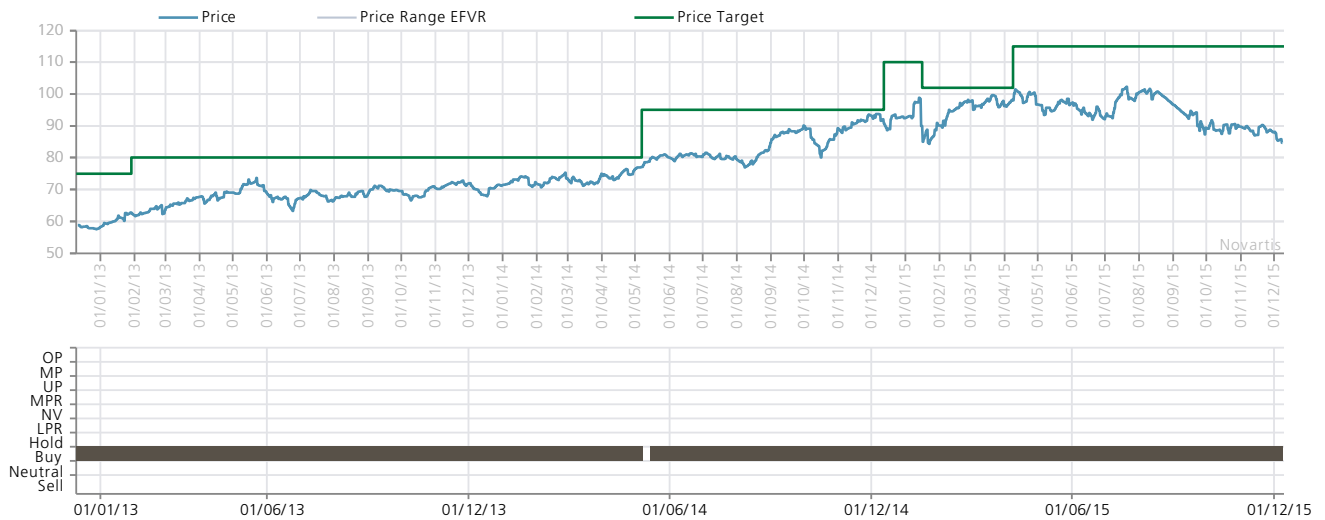
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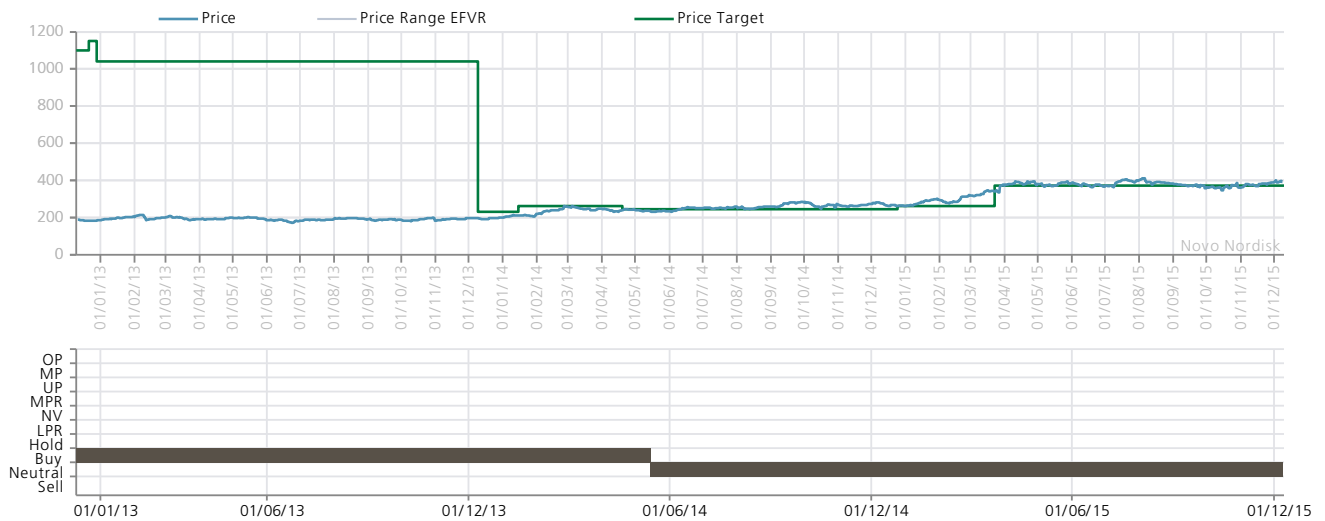
Global rating history -- GlaxoSmithKline, GSK LN



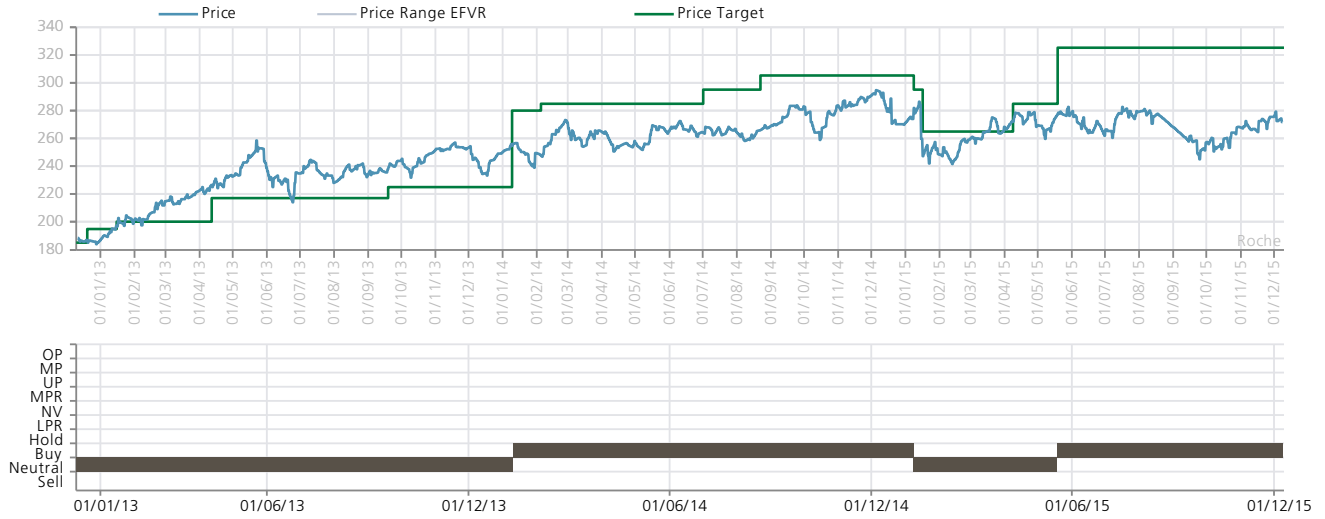
Global rating history -- Novartis, NOVN VX



Global rating history -- Novo Nordisk, NOVOB DC

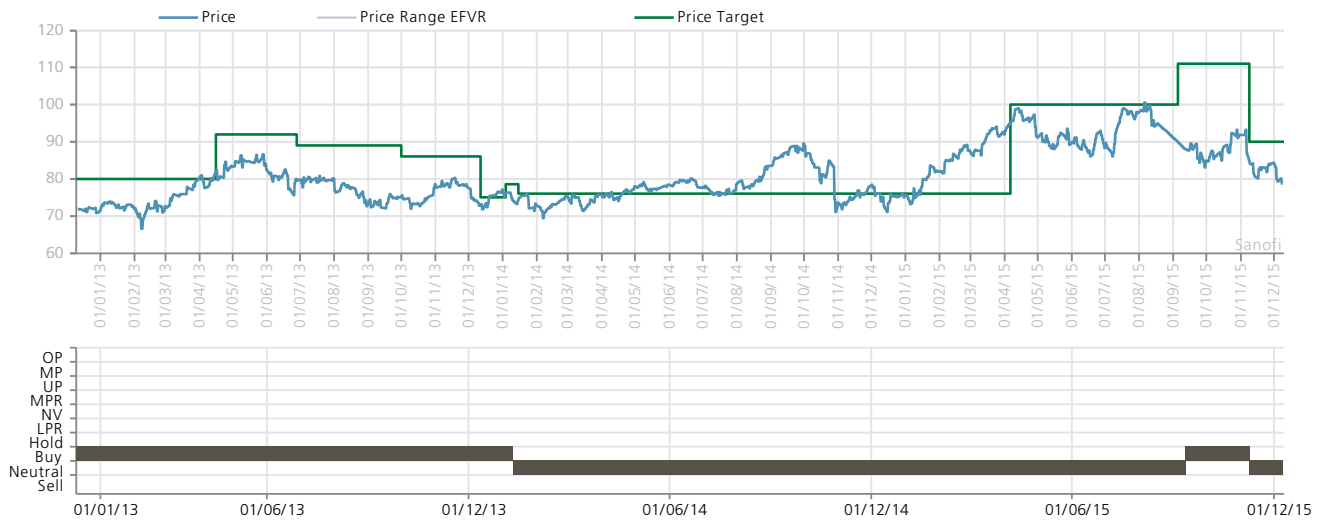


Global rating history -- Roche, ROG VX



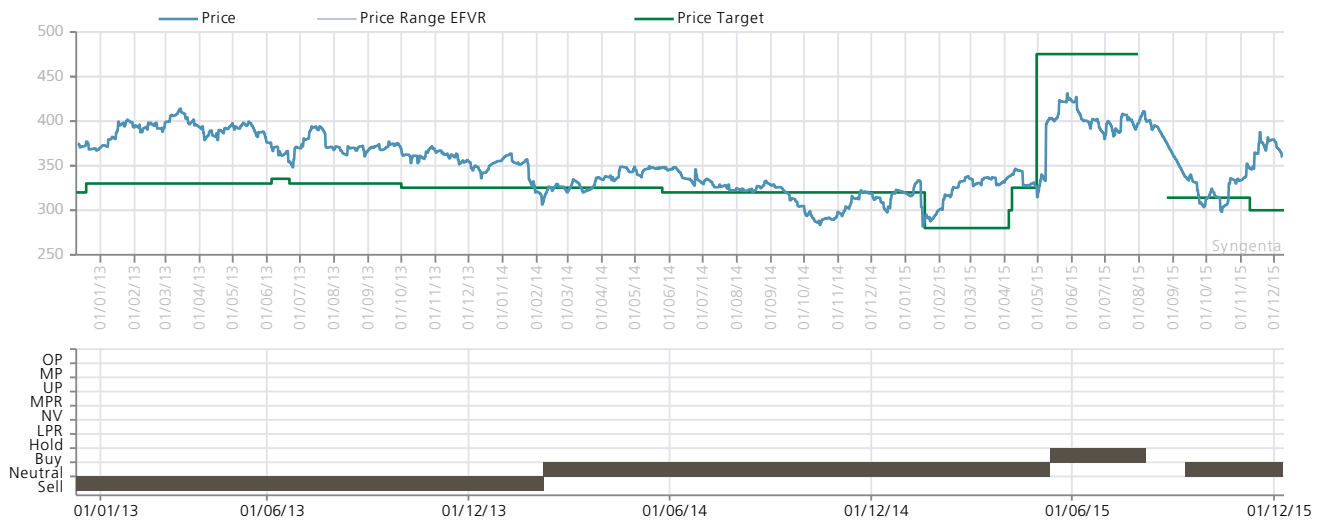
Source: UBS CIO as of 9 December 2015

Global rating history -- Sanofi, SAN FP



Source: UBS CIO as of 9 December 2015

Global rating history -- Syngenta, SYNN VX



Source: UBS CIO as of 9 December 2015

Terms and Abbreviations

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
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Bayer

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
1H, 2H, etc. or 1H11, 2H11, etc.	First half, second half, etc. or first half 2011, second half 2011, etc.	1Q, 2Q, etc. or 1Q11, 2Q11, etc.	First quarter, second quarter, etc. or first quarter 2011, second quarter 2011, etc.
2011E, 2012E, etc.	2011 estimate, 2012 estimate, etc.	A	actual i.e. 2010A
ADR	American depositary receipt	ARPU	Average Revenue Per User
AUM	Assets under management = total value of own and third-party assets managed	Avg.	average
bn	Billion	bp or bps	Basis point or basis points (100 bps = 1 percentage point)
BVPS	Book value per share = shareholders' equity divided by the number of shares	CAGR	Compound annual growth rate
Cant Inc/Capita	Cantonal income per capita (Switzerland only)	Capex	Capital expenditures
CF	Cash flow	CFO	1) Cash flow from operations, 2) Chief financial officer
COGS	Cost of goods sold	COM	Common shares
Cons.	Consensus	Core Tier 1 Ratio	Tier 1 capital minus tier 1 hybrid securities
Cost/Inc Ratio (%)	Costs as a percentage of income	CPI	Consumer price index
CR	Combined ratio = ratio of claims and expenses as a percentage of premiums (for insurance companies)	CY	Calendar year
DCF	Discounted cash flow	DDM	Dividend discount model
Dividend Yield (%)	Dividend per share divided by price per share expected i.e. 2011E	DPS	Dividend per share
E		EBIT	Earnings before interest and taxes
EBIT Margin (%)	EBIT divided by revenues	EBITDA	Earnings before interest, taxes, depreciation and amortization
EBITDA Margin (%)	EBITDA divided by revenues	EBITDA/Net Interest	EBITDA divided by net interest expense
EBITDAR	Earnings before interest, taxes, depreciation, amortization and rental expense	EFVR	Estimated fair value range
EmV	Embedded value = net asset value + present value of forecasted future profits (for life insurers)	EPS	Earnings per share
Equity Ratio (%)	Shareholders' equity divided by total assets	EV	Enterprise value = market value of equity, preferred equity, outstanding net debt and minorities
FCF	Free cash flow = cash a company generates above outlays required to maintain/expand its asset base	FCF Yield (%)	Free cash flow divided by market capitalization
FFO	Funds from operations	FY	Fiscal year / financial year
GDP	Gross domestic product	Gross Margin (%)	Gross profit divided by revenues
H	half year	h/h	Half-year over half-year; half on half
hist av.	Historical average	Interbank Ratio	Interbank deposits due from banks divided by interbank deposits due to banks
Interest Coverage	Ratio that expresses the number of times interest expenses are covered by earnings	Interest exp	Interest expense
ISIN	International securities identification number	K	One thousand
LLP/Net Int Inc (%)	Loan loss provisions divided by net interest income	LLR/Gross Loans (%)	Loan loss reserves divided by gross loans
LPR	Least Preferred: The stock is expected to both underperform the relevant benchmark and depreciate in absolute terms.	Market cap	Number of all shares of a company (at the end of the quarter) times closing price
m/m	Month-over-month; month on month	mn or m	Million
M and A	Merger and Acquisition	MP	Marketperform: The stocks expected performance is in line with the sector benchmark
MPR	Most Preferred: The stock is expected to both outperform the relevant benchmark and appreciate in absolute terms.	n.a.	Not available or not applicable
NAV	Net asset value	Net Debt	Short- and long-term interest-bearing debt minus cash and cash equivalents
Net DPS	Net dividends per share	NIM or Net Int Margin (%)	Net interest income divided by average interest-bearing assets
Net Margin (%)	Net income dividend by revenues	NV	Neutral View: The stock is expected to neither outperform nor underperform the relevant benchmark nor significantly appreciate or depreciate in absolute terms.
n.m. or NM	Not meaningful	NPL	Non-performing loans
OP	Outperform: The stocks is expected to outperform the sector benchmark	Op Margin (%)	Operating income divided by revenues
p.a.	Per annum (per year)	P/BV	Price to book value
P/E or PE	Price to earnings / Price Earnings Ratio	P/E Relative	P/E relative to the market
P/EmV	Price to embedded value	PEG Ratio	P/E ratio divided by earnings growth

Bayer

Term / Abbreviation	Description / Definition	Term / Abbreviation	Description / Definition
PPI	Producer price index	Prim Bal/Cur Rev (%)	Primary balance divided by current revenue (total revenue minus capital revenue)
Profit Margin (%)	Net income divided by revenues	q/q or QQQ	Quarter-over-quarter; quarter on quarter
R and D	Research and development	ROA (%)	Return on assets
ROAE (%)	Return on average equity	ROCE (%)	Return on capital employed = EBIT divided by difference between total assets & current liabilities
ROE (%)	Return on equity	ROIC (%) or ROI	Return on invested capital
Shares o/s	Shares outstanding	Solvency Ratio (%)	Ratio of shareholders' equity to net premiums written (for insurance companies)
sotp or SOTP	Sum of the parts	Tax Burden Index	Swiss tax index; 100 = average tax burden of all cantons
tgt	Target	Tier 1 Ratio (%)	Tier 1 capital divided by risk-weighted assets; describes a bank's capital adequacy
tn	Trillion	UP	Underperform: The stock is expected to underperform the sector benchmark
Valor	Swiss company identifier	WACC	Weighted average cost of capital
CIO	UBS WM Chief Investment Office	x	multiple / multiplier
y/y or YOY	Year-over-year; year on year	yr	Year
YTD	Year-to-date		

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