

Novartis (NOVN VX)

Buy: CAR-T therapies – a blue-sky scenario

- ▶ Consensus forecasts imply only 900 patients will be treated with Kymriah by 2020; our forecast is double that amount
- ▶ If CAR-T therapies find utility in adults, other blood cancers and a small % of solid cancers, Novartis's sales could extend to above USD12bn at peak vs our current forecast of USD3.3bn
- ▶ 2023 revenue/EPS 14%/25% higher, and CHF112 fair value in a blue-sky scenario. Maintain Buy and CHF90 target price

Kymriah indicated for refractory ALL patients, but other indications are larger.

Although Kymriah is only approved in the US to treat the small number of patients with refractory acute lymphoblastic leukaemia (ALL), additional indications such as Diffuse Large B-Cell Lymphoma (DLBCL) represent a significantly larger addressable patient population. Kymriah is the first Chimaeric Antigen Receptor T-cell (CAR-T)-based treatment approved globally.

Blue-sky scenario not that much of a stretch... Over 100,000 patients die from leukaemias, lymphomas and myelomas (haematological cancers) annually in the US and Europe. They are largely, by definition, refractory to available treatments. In due course, this patient group, or a proportion of it, could be addressed by CAR-T-based treatments. Further, CAR-T-based treatments could potentially be used earlier in the treatment of cancers and potentially in some solid tumours as well. Note that these figures do not include Japan, China, or elsewhere.

...25% of refractory blood cancers, 2.5% of other cancers. In our blue-sky scenario for CAR-T treatments, an assumption that 25% of refractory blood cancers and 2.5% of other refractory cancers in the US and EU could be treated with CAR-T therapies in due course (although this would require sizeable manufacturing expansion by all CAR-T manufacturers) would yield peak sales of just under USD26bn. If Novartis garnered 50%, it would generate peak sales of just under USD13bn for Kymriah and other CAR-T therapies versus USD3.3bn that we currently forecast (27,000 patients treated versus 7,200 on our current forecast). In our view, this blue-sky scenario is not an unrealistic possibility in terms of patient numbers.

2023e revenue comes out 14% higher, EPS 25% higher. In this scenario, our sensitivity analysis yields a 2023e group revenue of USD84.6bn – 14% higher than our forecast, an EPS 25% higher at USD10.28, and a fair value (based on our current DCF assumptions), of CHF112, which is 24% higher than our CHF90 TP, with the CAR-T portfolio contributing CHF27 on a pre-R&D basis to the DCF calculation versus CHF3.58 currently. **Buy, TP CHF90:** Our CHF90 target price implies 12.4% upside and we rate the stock Buy as we view the Pharma R&D and Sandoz (biosimilar) pipelines as undervalued and the issues at Alcon as well understood.

Disclosures & Disclaimer

This report must be read with the disclosures and the analyst certifications in the Disclosure appendix, and with the Disclaimer, which forms part of it.

EQUITIES PHARMACEUTICALS

Switzerland



MAINTAIN BUY

TARGET PRICE (CHF)

90.00

PREVIOUS TARGET (CHF)

90.00

SHARE PRICE (CHF)

80.10

(as of 05 Sep 2017)

UPSIDE/DOWNSIDE

+12.4%

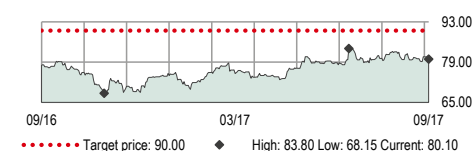
MARKET DATA

Market cap (CHFm)	209,609	Free float	100%
Market cap (USDm)	219,218	BBG	NOVN VX
3m ADTV (USDm)	594	RIC	NOVN.VX

FINANCIALS AND RATIOS (USD)

Year to	12/2016a	12/2017e	12/2018e	12/2019e
HSBC EPS	4.90	4.95	5.30	5.62
HSBC EPS (prev)	-	-	-	-
Change (%)	-	-	-	-
Consensus EPS	4.71	4.75	5.24	5.67
PE (x)	17.1	16.9	15.8	14.9
Dividend yield (%)	3.3	3.5	3.7	3.8
EV/EBITDA (x)	12.049	12.520	12.027	11.590
ROE (%)	15.4	15.8	17.4	18.2

52-WEEK PRICE (CHF)



Source: Thomson Reuters IBES, HSBC estimates

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Financials & valuation: Novartis

Buy

Financial statements

Year to	12/2016a	12/2017e	12/2018e	12/2019e
Profit & loss summary (USDm)				
Revenue	49,747	49,904	51,961	54,206
EBITDA	19,523	18,854	19,299	19,675
Depreciation & amortisation	-6,175	-5,971	-5,602	-5,274
Operating profit/EBIT	13,348	12,884	13,697	14,402
Net interest	-806	-678	-663	-609
PBT	13,676	13,416	14,341	15,204
HSBC PBT	13,676	13,416	14,341	15,204
Taxation	-2,001	-1,963	-2,098	-2,225
Net profit	11,661	11,439	12,229	12,966
HSBC net profit	11,661	11,439	12,229	12,966
Cash flow summary (USDm)				
Cash flow from operations	11,475	12,927	12,982	13,355
Capex	-1,862	-1,868	-1,945	-2,029
Cash flow from investment	-3,441	-1,868	-1,945	-2,029
Dividends	-6,540	-6,863	-7,093	-7,261
Change in net debt	-459	804	-3,945	-4,065
FCF equity	13,241	14,315	14,196	14,380
Balance sheet summary (USDm)				
Intangible fixed assets	62,320	62,320	62,320	62,320
Tangible fixed assets	42,873	38,770	35,113	31,869
Current assets	22,234	26,476	31,018	35,736
Cash & others	7,777	11,973	15,918	19,983
Total assets	130,124	130,263	131,149	132,621
Operating liabilities	4,873	4,888	5,090	5,310
Gross debt	23,802	28,802	28,802	28,802
Net debt	16,025	16,829	12,884	8,819
Shareholders' funds	74,832	69,942	70,612	71,851
Invested capital	114,777	110,704	107,444	104,632

Ratio, growth and per share analysis

Year to	12/2016a	12/2017e	12/2018e	12/2019e
Y-o-y % change				
Revenue	-1.2	0.3	4.1	4.3
EBITDA	0.8	-3.4	2.4	1.9
Operating profit	-3.2	-3.5	6.3	5.1
PBT	-3.0	-1.9	6.9	6.0
HSBC EPS	-2.1	1.0	6.9	6.0
Ratios (%)				
Revenue/IC (x)	0.4	0.4	0.5	0.5
ROIC	9.8	9.8	10.7	11.6
ROE	15.4	15.8	17.4	18.2
ROA	9.4	9.3	9.9	10.3
EBITDA margin	39.2	37.8	37.1	36.3
Operating profit margin	26.8	25.8	26.4	26.6
EBITDA/net interest (x)	24.2	27.8	29.1	32.3
Net debt/equity	21.4	24.0	18.2	12.3
Net debt/EBITDA (x)	0.821	0.893	0.668	0.448
CF from operations/net debt	71.6	76.8	100.8	151.4
Per share data (USD)				
EPS Rep (diluted)	4.90	4.95	5.30	5.62
HSBC EPS (diluted)	4.90	4.95	5.30	5.62
DPS	2.75	2.97	3.07	3.14
Book value	31.47	30.29	30.58	31.12

Valuation data

Year to	12/2016a	12/2017e	12/2018e	12/2019e
EV/sales	4.729	4.730	4.467	4.207
EV/EBITDA	12.049	12.520	12.027	11.590
EV/IC	2.050	2.132	2.160	2.179
PE*	17.1	16.9	15.8	14.9
PB	2.7	2.8	2.7	2.7
Dividend yield (%)	3.3	3.5	3.7	3.8

* Based on HSBC EPS (diluted)

Issuer information

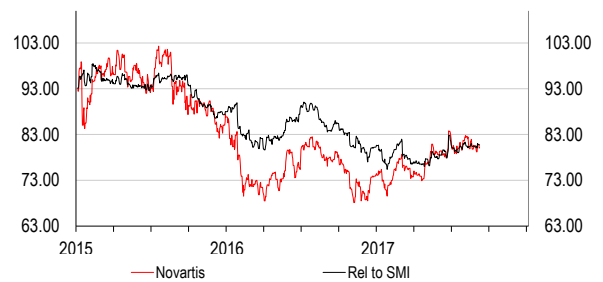
Share price (CHF)	80.10	Free float	100%
Target price (CHF)	90.00	Sector	Pharmaceuticals
Reuters (Equity)	NOVN.S	Country	Switzerland
Bloomberg (Equity)	NOVN VX	Analyst	Steve McGarry
Market cap (USDm)	219,218	Contact	+44 20 7991 3164

ESG metrics

Environmental Indicators		Governance Indicators	
GHG Intensity (kg/USD)	0.03	No. of board members	12
Energy Intensity (kWh/USD)	0.09	Average board experience (years)	7
CO2 reduction policy	Yes	Female board members (%)	25
Social Indicators		Board members Independence (%)	67
Employee costs as % of sales	n/a		
Employee turnover (%)	12		
Diversity policy	Yes		

Source: Company data, HSBC

Price relative



Source: HSBC

Note: Priced at close of 05 Sep 2017

CAR-T upside potential

- ▶ Our blue-sky scenario for Novartis's CAR-T portfolio suggests sales could exceed USD12bn versus our current forecast of USD3.3bn
- ▶ This is based on not-too-stretched assumptions in only the US and EU and does not include a similar scenario in Asia
- ▶ We conclude that current expectations for sales of CAR-T therapies are modest and there is notable potential upside in a blue-sky scenario. We maintain our Buy rating and CHF90 TP

Kymriah – the first approved CAR-T cell therapy

Kymriah is Chimaeric Antigen Receptor T-cell therapy. It contains a CD19 antigen binding domain, a 4-1BB co-stimulatory domain and a CD3-zeta chain signalling domain. The genetic material encoding it is transfected into a patient's T-cells using a lentiviral vector. Once the cell population is processed and expanded, the genetically modified blood cells are then infused back into the patient. As well as Kymriah (CART-19) for ALL and other indications, Novartis is developing CART-BCMA in multiple myeloma, CART-EGFRVIII in glioblastoma, CART-mesothelin (undisclosed) and CART-CD123 (undisclosed).

There are several companies developing CAR-T cell therapies, with Novartis and Kite Pharma (KITE US, USD178, not covered) notably ahead of their competitors. Below is a list of companies with CAR-T programmes:

- ▶ Novartis
- ▶ Kite Pharma; Gilead Sciences (GILD US, USD83, not rated) has agreed to acquire Kite for USD11.9bn
- ▶ Bellicum Pharmaceuticals (BLCM, US, USD11, not rated)
- ▶ bluebird bio (BLUE US, USD130, not rated)
- ▶ Cellectis (ALCLS FP, EUR26, not rated)
- ▶ Juno Therapeutics (JUNO US, USD42, not rated)

Current assumptions for Novartis's CAR-T programmes

Our current assumptions for Novartis's CAR-T programmes are outlined below. Although a blue-sky scenario would entail treating a larger number of patients and that would likely require a notable increase in manufacturing capacity, in our view, that should be manageable. Novartis has not disclosed its capacity in terms of its capability to treat patients, but we estimate that it has enough capacity currently in the US and Europe to treat 6,000-9,000 patients per annum; Kite Pharma apparently has capacity to treat 6,000 patients at its US facility, from previous company presentations.

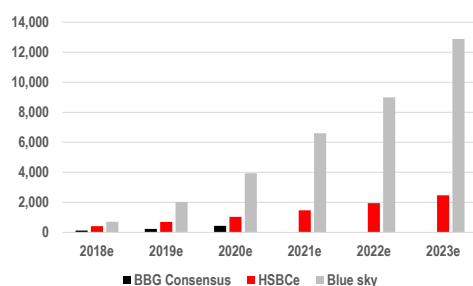
Assumptions in our blue-sky scenario

- ▶ CAR-T can be used and is effective in adult patients over the age of 25
- ▶ The price set by Novartis of USD475,000 per course of treatment in refractory ALL is the average across all cancer types and also for competing CAR-T treatments. We believe this sizeable price tag is achievable (despite US pricing pressures); one of the industry’s most thrifty bodies – the UK’s National Institute for Health and Care Excellence (NICE) – suggested a price of around USD686,000 could be justified for paediatric ALL patients
- ▶ CAR-T therapy is used in 25% of refractory patients with leukaemias, lymphomas and myelomas who would otherwise have no further treatment options; although in refractory patients, this number equates to just over 10% of the annually diagnosed cases of leukaemias, lymphomas a myelomas per annum
- ▶ CAR-T therapy is suitable for use in 2.5% of other refractory cancers
- ▶ Novartis’s CAR-T portfolio garners a 50% market share overall in CAR-T cell therapies
- ▶ Novartis is able to expand manufacturing capacity as needed
- ▶ There is no assumption of a similar expansion of CAR-T therapy use in Asia or elsewhere outside the US and EU

2023 revenue would be 14% higher and EPS 25% higher...

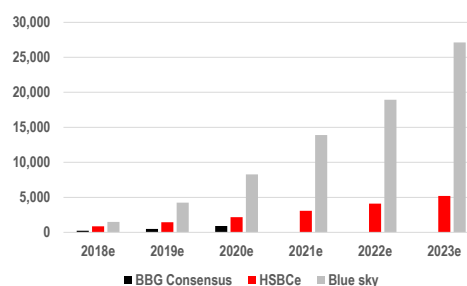
In this blue-sky scenario, which we do not see as too much of a stretch – i.e. we think it is achievable – Novartis’s revenue in 2023 comes out 14% higher than we currently forecast and EPS comes out 25% higher. As a result, all else being equal and assuming no change to our DCF assumptions, the DCF-driven fair value under our blue-sky scenario comes out at CHF112, versus our CHF90 target price.

Consensus, HSBCE and blue-sky CAR-T-derived revenues for Novartis (USDm)

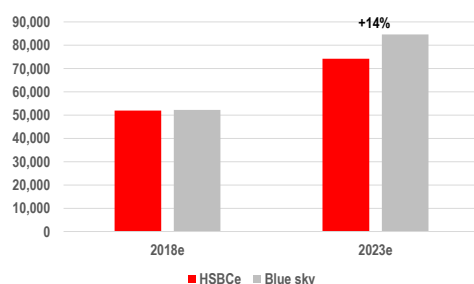


Source: Bloomberg, HSBC estimates

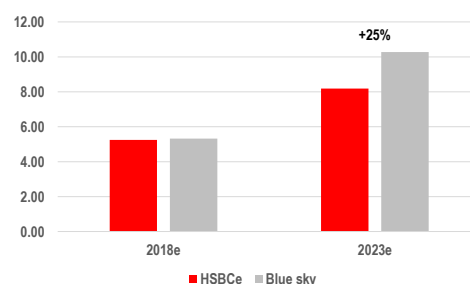
Consensus, HSBCE and blue-sky implied CAR-T-treated patients for Novartis



Source: Bloomberg, HSBC estimates

Novartis revenues – current forecast and blue-sky scenario (USDm)

Source: HSBC estimates

Novartis EPS – current forecast and blue-sky scenario (USDm)

Source: HSBC estimates

HSBC DCF-driven target price**CHF90**

Source: HSBC estimates

Blue-sky scenario DCF-driven fair value**CHF112**

Source: HSBC estimates

Novartis valuation and risks

Our long-term, product-by-product risk-adjusted DCF valuation, which takes account in detail of Novartis' commercially significant late-stage Pharma R&D pipelines, suggests the shares are undervalued. Our fair value target price is CHF90. Our DCF is based on a WACC of 7.5%, using a long-term risk-free rate of 2.5%, an equity risk premium of 5.0% and a beta of 1 (all unchanged). Our valuation has no terminal value or terminal growth rate. Our CHF90 target price implies c12.4% upside and we re-iterate our Buy rating as the likely news flow from the Pharma R&D pipeline in the short term (CAR-T programme, Immuno-Oncology, Oncology) is likely to outweigh ongoing negative sentiment from the protracted Alcon remediation, which has been a drag on the shares.

Downside risks include: a broadening of the DOJ investigation to other generics companies, including Novartis, the potential for any manufacturing issues to recur in any part of the group's businesses, the growth rate in various parts of the generics market in which Sandoz is active, especially biosimilars, failure of the new Alcon structure to deliver a return to growth, significant dilutive M&A, a greater-than-expected decline in sales of Exforge, Afinitor and Glivec due to genericisation, any issue relating to the integration of the acquired GSK Oncology business, any issues relating to the Consumer Health business over which Novartis no longer has operational control (GSK runs it), continued slower than expected ramp-up in sales of key new drugs such as Entresto, high-profile, late-stage development failures, the failure of further CART-based drugs to gain approvals in new indications, any intensification of US pricing pressure in Pharma and erosion of branded drug sales from biosimilars.

Novartis risk-adjusted DCF valuation summary – current forecasts

Drug	Phase next 12 months	Generic	Indication	Probability to reach market	Risk-adjusted DCFs/share						
					5%	6%	7%	8%	9%	10%	11%
Diovan	Launched	valsartan	Hypertension/heart failure	100%	1.49	1.42	1.36	1.30	1.25	1.57	1.53
Exforge	Launched	valsartan + amlodipine	Hypertension	100%	1.25	1.20	1.15	1.11	1.07	1.33	1.30
Tekturma/Rasilez	Launched	aliskiren	Hypertension	100%	0.14	0.14	0.14	0.13	0.13	0.16	0.16
Galvus	Launched	vildagliptin	Type II diabetes	100%	2.29	2.21	2.13	2.05	1.99	2.16	2.10
Entresto	Launched	LCZ696	Chronic heart failure	100%	4.49	4.21	3.96	3.72	3.50	3.29	3.10
Other CV/metabolic drugs	Launched	Various	Various	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glivec	Launched	imatinib	CML	100%	1.54	1.48	1.41	1.36	1.31	2.21	2.17
Tasigna	Launched	nilotinib	CML	100%	3.27	3.16	3.06	2.96	2.87	3.19	3.11
Zometa	Launched	zoledronate	Post menopausal osteoporosis	100%	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Sandostatin	Launched	octreotide	Acromegaly	100%	1.96	1.87	1.79	1.72	1.65	1.97	1.92
Femara	Launched	letrozole	Breast cancer	100%	0.41	0.39	0.38	0.36	0.35	0.44	0.43
Exjade/Jadenu	Launched	deferasirox	Iron overload	100%	3.46	3.26	3.07	2.90	2.75	2.91	2.78
Afinitor	Launched	everolimus	Cancers	100%	1.66	1.61	1.56	1.51	1.47	1.73	1.70
Jakafi	Launched	ruxolitinib	Myelofibrosis	100%	2.46	2.33	2.21	2.10	2.00	1.97	1.89
Zykadia	Launched	LDK378	ALK+ve NSCLC	100%	3.81	3.60	3.40	3.22	3.05	2.88	2.73
Farydak	Launched	panobinostat, LBH589	Multiple myeloma	100%	0.75	0.71	0.67	0.63	0.60	0.55	0.52
Buparlisib	Phase III	BKM120	Breast cancer	75%	1.71	1.59	1.48	1.39	1.29	1.21	1.13
Rydapt	Launched	midostaurin, PKC412	AML	100%	0.21	0.19	0.17	0.15	0.13	0.08	0.07
Odomzo	Launched	sonidegib, LDE225	Basal cell carcinoma	100%	0.87	0.81	0.76	0.71	0.66	0.60	0.56
Kymriah, CART other	Launched	CTL-019, CART	ALL	100%	4.43	3.98	3.58	3.23	2.91	2.63	2.38
Kisqali	Launched	ribociclib, LEE011	HER2-ve breast cancer	100%	8.16	7.44	6.78	6.19	5.66	5.17	4.74
Dovitinib	Phase II	TKI258	CRPC, breast, gastric cancer	25%	0.15	0.13	0.12	0.10	0.09	0.08	0.07
BHQ880	Phase II	-	Multiple myeloma	25%	0.57	0.51	0.46	0.42	0.38	0.34	0.31
EGF816	Phase II	-	T790M+ve NSCLC	25%	0.61	0.56	0.51	0.46	0.42	0.38	0.35
PDR001	Phase III	-	Melanoma, lung, other	75%	3.10	2.76	2.47	2.22	1.99	1.79	1.61
LAG525	Phase II	-	Cancers	25%	0.39	0.34	0.30	0.26	0.26	0.23	0.20
MCS110	Phase II	-	TNBC, PVNS, GCTTS	25%	0.60	0.53	0.46	0.41	0.36	0.32	0.29
Arzerra	Launched	ofatumumab	NHL, CLL	100%	0.09	0.09	0.08	0.08	0.07	0.08	0.08
Hycamtin	Launched	topotecan	Ovarian, other cancers	100%	0.08	0.08	0.07	0.07	0.07	0.07	0.07
Promacta	Launched	eltrombopag	ITP	100%	1.92	1.82	1.72	1.64	1.56	1.65	1.58
Tykerb	Launched	lapatinib	HER2+ve breast cancer	100%	0.49	0.47	0.44	0.42	0.40	0.42	0.40
Votrient	Launched	pazopanib	Renal cell carcinoma, other c	100%	1.83	1.78	1.73	1.69	1.64	1.76	1.72
Mekinist	Launched	trametinib	Melanoma, other cancers	100%	1.47	1.39	1.32	1.25	1.19	1.11	1.06
Tafinlar	Launched	dabrafenib	Melanoma, other cancers	100%	5.98	5.66	5.36	5.08	4.82	4.58	4.36
Other oncology drugs	Launched	Various	Various	100%	0.96	0.91	0.86	0.82	0.79	0.88	0.85
Lucentis	Launched	ranibizumab	Wet AMD, DME	100%	1.44	1.41	1.38	1.35	1.32	1.60	1.58
Brolucizumab	Launched	RTH-258, ESBA1008	Wet AMD, DME	100%	7.08	6.39	5.77	5.23	4.75	4.31	3.93
LFG316	Phase II	-	Dry AMD	25%	0.87	0.77	0.68	0.61	0.54	0.48	0.43
Erenumab	Phase III	AMG334	Migraine	75%	0.77	0.68	0.60	0.53	0.47	0.41	0.36
Exelon	Launched	rivastigmine	Alzheimer's Disease	100%	0.46	0.45	0.44	0.42	0.41	0.53	0.52
Comtan/Stalevo	Launched	entacapone + carbidopa	Parkinson's Disease	100%	0.16	0.15	0.15	0.14	0.14	0.17	0.16
Gilenya	Launched	fingolimod	RRMS	100%	2.33	2.26	2.20	2.14	2.08	2.48	2.43
Extavia	Launched	interferon-β1a	RRMS	100%	0.46	0.43	0.40	0.38	0.35	0.35	0.33
Jetrea	Launched	ocriplasmin	VMA	100%	-0.08	-0.07	-0.07	-0.06	-0.06	-0.06	-0.05
Siponimod	Phase III	BAF312	SPMS	50%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other CNS-based drugs	Launched	Various	Various	100%	2.74	2.54	2.36	2.20	2.05	2.04	1.92
Xolair	Launched	omalizumab	Allergic asthma, urticaria	100%	1.04	1.01	0.98	0.96	0.93	1.07	1.05
QGE031	Phase II	-	Allergic asthma, asthma	25%	1.03	0.91	0.79	0.70	0.62	0.54	0.48
Tobramycin	Launched	tobramycin	CF-related infections	100%	0.28	0.26	0.25	0.23	0.22	0.24	0.23
Onbrez	Launched	indacaterol	COPD, asthma	100%	0.01	0.01	0.01	0.01	0.01	-0.01	-0.01
Seebri	Launched	glycopyrronium bromide	COPD, asthma	100%	0.38	0.35	0.33	0.31	0.29	0.24	0.22
Ultibro	Launched	indacaterol + glycopyrron	COPD, asthma	100%	2.18	2.04	1.92	1.80	1.70	1.57	1.48
Foradil	Launched	formoterol	COPD, asthma	100%	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Other Respiratory drugs	Launched	Various	Various	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Neoral/Sandimmun	Launched	cyclosporin	Transplant rejection prophyl	100%	0.46	0.44	0.42	0.41	0.39	0.48	0.47
Myfortic	Launched	mycophenolate	Transplant rejection prophyl	100%	0.35	0.34	0.32	0.31	0.30	0.38	0.37
Zortress/Certican	Launched	everolimus	Transplant rejection prophyl	100%	0.57	0.54	0.51	0.49	0.47	0.53	0.52
Ilaris	Launched	canakizumab	CAPS	100%	3.50	3.14	2.82	2.55	2.31	2.12	1.94
Signifor	Launched	panreotide	Cushing's Syndrome	100%	0.11	0.10	0.09	0.09	0.08	0.07	0.06
Mavoglurant	Phase II	ARQ056	OCD	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cosentyx	Launched	secukinumab, AIN457	Psoriasis, related conditions	100%	9.34	8.64	8.01	7.44	6.92	6.24	5.81
Other strategic IHC drugs	Launched	Various	Various	100%	0.13	0.12	0.12	0.11	0.11	0.12	0.11
Other IHC drugs	Launched	Various	Various	100%	0.13	0.13	0.12	0.12	0.11	0.13	0.13
Voltaren	Launched	diclofenac	Osteoarthritis	100%	1.51	1.42	1.34	1.27	1.20	1.31	1.26
Ritalin/Focalin	Launched	methylphenidate	ADHD	100%	0.26	0.25	0.24	0.23	0.23	0.29	0.29
Tegretol	Launched	carbamazepine	Epilepsy	100%	0.27	0.26	0.25	0.24	0.23	0.28	0.28
Trileptal	Launched	oxcarbazepine	Epilepsy	100%	0.29	0.28	0.27	0.26	0.25	0.28	0.28
Everolimus stent	Launched	everolimus	Atherosclerosis prophylaxis	100%	0.30	0.28	0.27	0.25	0.24	0.26	0.25
Other drug revenues	Launched	Various	Various	100%	0.15	0.14	0.13	0.13	0.12	0.13	0.12
Ophthalmic Pharmaceuticals					6.18	5.79	5.45	5.14	4.87	5.34	5.11
Pharmaceuticals total					107.40	100.13	93.59	87.69	82.39	83.79	79.39
GP 2013	Launched	biosimilar Rituxan	NHL, CLL	100%	0.79	0.73	0.68	0.63	0.58	0.54	0.50
Erelzi (GP 2015)	Launched	biosimilar Enbrel	Psoriasis, RA	100%	0.99	0.89	0.81	0.73	0.66	0.60	0.55
GP 2017	Launched	biosimilar Humira	RA, Crohn's Disease, UC	100%	1.70	1.53	1.39	1.26	1.15	1.05	0.96
GP 1111	Launched	biosimilar Remicade	RA, psoriasis	100%	0.48	0.26	0.13	0.06	0.03	0.01	0.00
Existing biosimilars	Launched	Zarzio, others	Various	100%	1.51	1.40	1.30	1.22	1.14	1.11	1.05
Other Sandoz					10.12	9.29	8.56	7.92	7.36	7.47	7.02
Sandoz total					15.59	14.11	12.87	11.82	10.91	10.77	10.07
Surgical					4.78	4.43	4.11	3.83	3.58	3.59	3.39
Contact Lens Care					2.75	2.55	2.37	2.21	2.07	2.09	1.98
Alcon total					7.54	6.98	6.48	6.04	5.65	5.68	5.37
Other income/royalties					0.00	0.00	0.00	0.00	0.00	0.00	0.00
Corporate costs					-3.20	-3.20	-3.20	-3.20	-3.20	-3.20	-3.20
R&D					-28.30	-26.36	-24.62	-23.06	-21.66	-20.41	-19.27
Tech value (CHF/share)					99.0	91.7	85.1	79.3	74.1	76.6	72.4
Net cash/debt (CHF/share)					-5.61	-5.61	-5.61	-5.61	-5.61	-5.61	-5.61
Roche stake (CHF/share)					5.39	5.39	5.39	5.39	5.39	5.39	5.39
Associates (Consumer Health JV 36.5% stake) CHF/share					6.08	5.52	5.02	4.59	4.21	3.87	3.58
Equity value (CHF/share)					105	97	90	84	78	80	76

Source: HSBC estimates

Novartis risk-adjusted DCF valuation summary – blue-sky scenario (CHF)

Drug	Phase next 12 months	Generic	Indication	Probability to reach market	Risk-adjusted DCFs/share						
					5%	6%	7%	8%	9%	10%	11%
Diovan	Launched	valsartan	Hypertension/heart failure	100%	1.49	1.42	1.36	1.30	1.25	1.57	1.53
Exforge	Launched	valsartan + amlodipine	Hypertension	100%	1.25	1.20	1.15	1.11	1.07	1.33	1.30
Tekturma/Rasilez	Launched	alisikiren	Hypertension	100%	0.14	0.14	0.14	0.13	0.13	0.16	0.16
Galvus	Launched	vildagliptin	Type II diabetes	100%	2.29	2.21	2.13	2.05	1.99	2.16	2.10
Entresto	Launched	LCZ696	Chronic heart failure	100%	4.49	4.21	3.96	3.72	3.50	3.29	3.10
Other CV/metabolic drugs	Launched	Various	Various	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Glivec	Launched	imatinib	CML	100%	1.54	1.48	1.41	1.36	1.31	2.21	2.17
Tasigna	Launched	nilotinib	CML	100%	3.27	3.16	3.06	2.96	2.87	3.19	3.11
Zometa	Launched	zoledronate	Post menopausal osteoporosis	100%	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Sandostatin	Launched	octreotide	Acromegaly	100%	1.96	1.87	1.79	1.72	1.65	1.97	1.92
Femara	Launched	letrozole	Breast cancer	100%	0.41	0.39	0.38	0.36	0.35	0.44	0.43
Exjade/Jadenu	Launched	deferasirox	Iron overload	100%	3.46	3.26	3.07	2.90	2.75	2.91	2.78
Afinitor	Launched	everolimus	Cancers	100%	1.66	1.61	1.56	1.51	1.47	1.73	1.70
Jakafi	Launched	ruxolitinib	Myelofibrosis	100%	2.46	2.33	2.21	2.10	2.00	1.97	1.89
Zykadia	Launched	LDK378	ALK+ve NSCLC	100%	3.81	3.60	3.40	3.22	3.05	2.88	2.73
Farydak	Launched	panobinostat, LBH589	Multiple myeloma	100%	0.75	0.71	0.67	0.63	0.60	0.55	0.52
Buparlisib	Phase III	BKM120	Breast cancer	75%	1.71	1.59	1.48	1.39	1.29	1.21	1.13
Rydapt	Launched	midostaurin, PKC412	AML	100%	0.21	0.19	0.17	0.15	0.13	0.08	0.07
Odomzo	Launched	sonidegib, LDE225	Basal cell carcinoma	100%	0.87	0.81	0.76	0.71	0.66	0.60	0.56
Kymriah, CART other	Launched	CTL-019, CART	ALL	100%	33.22	29.84	26.88	24.27	21.98	19.96	18.16
Kisqali	Launched	ribociclib, LEE011	HER2+ve breast cancer	100%	8.16	7.44	6.78	6.19	5.66	5.17	4.74
Dovitinib	Phase II	TKI258	CRPC, breast, gastric cancer	25%	0.15	0.13	0.12	0.10	0.09	0.08	0.07
BHQ880	Phase II	-	Multiple myeloma	25%	0.57	0.51	0.46	0.42	0.38	0.34	0.31
EGF816	Phase II	-	T790M+ve NSCLC	25%	0.61	0.56	0.51	0.46	0.42	0.38	0.35
PDR001	Phase III	-	Melanoma, lung, other	75%	3.06	2.73	2.44	2.19	1.97	1.77	1.59
LAG525	Phase II	-	Cancers	25%	0.39	0.34	0.30	0.26	0.26	0.23	0.20
MCS110	Phase II	-	TNBC, PVNS, GCTTS	25%	0.60	0.53	0.46	0.41	0.36	0.32	0.29
Arzerra	Launched	ofatumumab	NHL, CLL	100%	0.09	0.09	0.08	0.08	0.07	0.08	0.08
Hycamtin	Launched	topotecan	Ovarian, other cancers	100%	0.08	0.08	0.07	0.07	0.07	0.07	0.07
Promacta	Launched	eltrombopag	ITP	100%	1.92	1.82	1.72	1.64	1.56	1.65	1.58
Tykerb	Launched	lapatinib	HER2+ve breast cancer	100%	0.49	0.47	0.44	0.42	0.40	0.42	0.40
Votrient	Launched	pazopanib	Renal cell carcinoma, other c	100%	1.83	1.78	1.73	1.69	1.64	1.76	1.72
Mekinist	Launched	trametinib	Melanoma, other cancers	100%	1.47	1.39	1.32	1.25	1.19	1.11	1.06
Tafinlar	Launched	dabrafenib	Melanoma, other cancers	100%	5.98	5.66	5.36	5.08	4.82	4.58	4.36
Other oncology drugs	Launched	Various	Various	100%	0.96	0.91	0.86	0.82	0.79	0.88	0.85
Lucentis	Launched	ranibizumab	Wet AMD, DME	100%	1.44	1.41	1.38	1.35	1.32	1.60	1.58
Brolucizumab	Launched	RTH-258, ESBA1008	Wet AMD, DME	100%	7.08	6.39	5.77	5.23	4.75	4.31	3.93
LFG316	Phase II	-	Dry AMD	25%	0.87	0.77	0.68	0.61	0.54	0.48	0.43
Erenumab	Phase III	AMG334	Migraine	75%	0.75	0.66	0.58	0.51	0.45	0.40	0.35
Exelon	Launched	rivastigmine	Alzheimer's Disease	100%	0.46	0.45	0.44	0.42	0.41	0.53	0.52
Comtan/Stalevo	Launched	entacapone + carbidopa	Parkinson's Disease	100%	0.16	0.15	0.15	0.14	0.14	0.17	0.16
Gilenya	Launched	fingolimod	RRMS	100%	2.33	2.26	2.20	2.14	2.08	2.48	2.43
Extavia	Launched	interferon-β1a	RRMS	100%	0.46	0.43	0.40	0.38	0.35	0.35	0.33
Jetrea	Launched	ocriplasmin	VMA	100%	-0.08	-0.07	-0.07	-0.06	-0.06	-0.06	-0.05
Siponimod	Phase III	BAF312	SPMS	50%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Other CNS-based drugs	Launched	Various	Various	100%	2.74	2.54	2.36	2.20	2.05	2.04	1.92
Xolair	Launched	omalizumab	Allergic asthma, urticaria	100%	1.04	1.01	0.98	0.96	0.93	1.07	1.05
QGE031	Phase II	-	Allergic asthma, asthma	25%	1.03	0.91	0.79	0.70	0.62	0.54	0.48
Tobramycin	Launched	tobramycin	CF-related infections	100%	0.28	0.26	0.25	0.23	0.22	0.24	0.23
Onbrez	Launched	indacaterol	COPD, asthma	100%	0.01	0.01	0.01	0.01	0.01	-0.01	-0.01
Seebri	Launched	glycopyrronium bromide	COPD, asthma	100%	0.38	0.35	0.33	0.31	0.29	0.24	0.22
Ultibro	Launched	indacaterol + glycopyrron	COPD, asthma	100%	2.18	2.04	1.92	1.80	1.70	1.57	1.48
Foradil	Launched	formoterol	COPD, asthma	100%	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Other Respiratory drugs	Launched	Various	Various	100%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Neoral/Sandimmun	Launched	cyclosporin	Transplant rejection prophylaxis	100%	0.46	0.44	0.42	0.41	0.39	0.48	0.47
Myfortic	Launched	mycophenolate	Transplant rejection prophylaxis	100%	0.35	0.34	0.32	0.31	0.30	0.38	0.37
Zortress/Certican	Launched	everolimus	Transplant rejection prophylaxis	100%	0.57	0.54	0.51	0.49	0.47	0.53	0.52
Ilaris	Launched	canakizumab	CAPS	100%	3.50	3.14	2.82	2.55	2.31	2.12	1.94
Signifor	Launched	panreotide	Cushing's Syndrome	100%	0.11	0.10	0.09	0.09	0.08	0.07	0.06
Mavoglurant	Phase II	ARQ056	OCD	0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Cosentyx	Launched	secukinumab, AIN457	Psoriasis, related conditions	100%	9.34	8.64	8.01	7.44	6.92	6.24	5.81
Other strategic IHC drugs	Launched	Various	Various	100%	0.13	0.12	0.12	0.11	0.11	0.12	0.11
Other IHC drugs	Launched	Various	Various	100%	0.13	0.13	0.12	0.12	0.11	0.13	0.13
Voltaren	Launched	diclofenac	Osteoarthritis	100%	1.51	1.42	1.34	1.27	1.20	1.31	1.26
Ritalin/Focalin	Launched	methylphenidate	ADHD	100%	0.26	0.25	0.24	0.23	0.23	0.29	0.29
Tegretol	Launched	carbamazepine	Epilepsy	100%	0.27	0.26	0.25	0.24	0.23	0.28	0.28
Trileptal	Launched	oxcarbazepine	Epilepsy	100%	0.29	0.28	0.27	0.26	0.25	0.28	0.28
Everolimus stent	Launched	everolimus	Atherosclerosis prophylaxis	100%	0.30	0.28	0.27	0.25	0.24	0.26	0.25
Other drug revenues	Launched	Various	Various	100%	0.15	0.14	0.13	0.13	0.12	0.13	0.12
Ophthalmic Pharmaceuticals					6.18	5.79	5.45	5.14	4.87	5.34	5.11
Pharmaceuticals total					136.13	125.94	116.84	108.70	101.42	101.08	95.13
GP 2013	Launched	biosimilar Rituxan	NHL, CLL	100%	0.79	0.73	0.68	0.63	0.58	0.54	0.50
Erelzi (GP 2015)	Launched	biosimilar Enbrel	Psoriasis, RA	100%	0.99	0.89	0.81	0.73	0.66	0.60	0.55
GP 2017	Launched	biosimilar Humira	RA, Crohn's Disease, UC	100%	1.70	1.53	1.39	1.26	1.15	1.05	0.96
GP 1111	Launched	biosimilar Remicade	RA, psoriasis	100%	0.48	0.26	0.13	0.06	0.03	0.01	0.00
Existing biosimilars	Launched	Zarzio, others	Various	100%	1.51	1.40	1.30	1.22	1.14	1.11	1.05
Other Sandoz					10.12	9.29	8.56	7.92	7.36	7.47	7.02
Sandoz total					15.59	14.11	12.87	11.82	10.91	10.77	10.07
Surgical					4.78	4.43	4.11	3.83	3.58	3.59	3.39
Contact Lens Care					2.75	2.55	2.37	2.21	2.07	2.09	1.98
Alcon total					7.54	6.98	6.48	6.04	5.65	5.68	5.37
Other income/royalties					0.00	0.00	0.00	0.00	0.00	0.00	0.00
Corporate costs					-3.20	-3.20	-3.20	-3.20	-3.20	-3.20	-3.20
R&D					-28.96	-26.95	-25.15	-23.55	-22.10	-20.81	-19.64
Tech value (CHF/share)					127.1	116.9	107.8	99.8	92.7	93.5	87.7
Net cash/debt (CHF/share)					-5.60	-5.60	-5.60	-5.60	-5.60	-5.60	-5.60
Roche stake (CHF/share)					5.53	5.53	5.53	5.53	5.53	5.53	5.53
Associates (Consumer Health JV 36.5% stake) CHF/share					6.08	5.52	5.02	4.59	4.21	3.87	3.58
Equity value (CHF/share)					133	122	112	104	97	97	91

Source: HSBC estimates

Disclosure appendix

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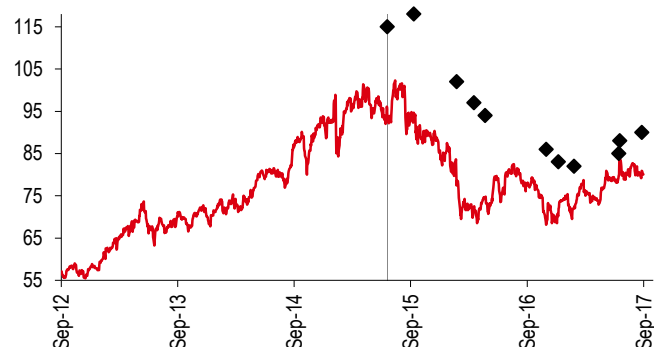
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For the purposes of the distribution above the following mapping structure is used during the transition from the previous to current rating models: under our previous model, Overweight = Buy, Neutral = Hold and Underweight = Sell; under our current model Buy = Buy, Hold = Hold and Reduce = Sell. For rating definitions under both models, please see “Stock ratings and basis for financial analysis” above.

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Share price and rating changes for long-term investment opportunities**Novartis (NOVN.S) share price performance CHF Vs****HSBC rating history**

Source: HSBC

Rating & target price history

From	To	Date	Analyst
N/A	Buy	25 Jun 2015	Steve McGarry
Target price	Value	Date	Analyst
Price 1	115.00	25 Jun 2015	Steve McGarry
Price 2	118.00	16 Sep 2015	Steve McGarry
Price 3	102.00	28 Jan 2016	Julie Mead
Price 4	97.00	22 Mar 2016	Julie Mead
Price 5	94.00	26 Apr 2016	Julie Mead
Price 6	86.00	04 Nov 2016	Steve McGarry
Price 7	83.00	12 Dec 2016	Steve McGarry
Price 8	82.00	30 Jan 2017	Steve McGarry
Price 9	85.00	20 Jun 2017	Steve McGarry
Price 10	88.00	23 Jun 2017	Steve McGarry
Price 11	90.00	31 Aug 2017	Steve McGarry

Source: HSBC

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Company	Ticker	Recent price	Price date	Disclosure
NOVARTIS	NOVN.S	80.10	05 Sep 2017	1, 5, 6, 7

Source: HSBC

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