CREDIT SUISSE

Global Biotechnology and Pharmaceuticals

Connections Series

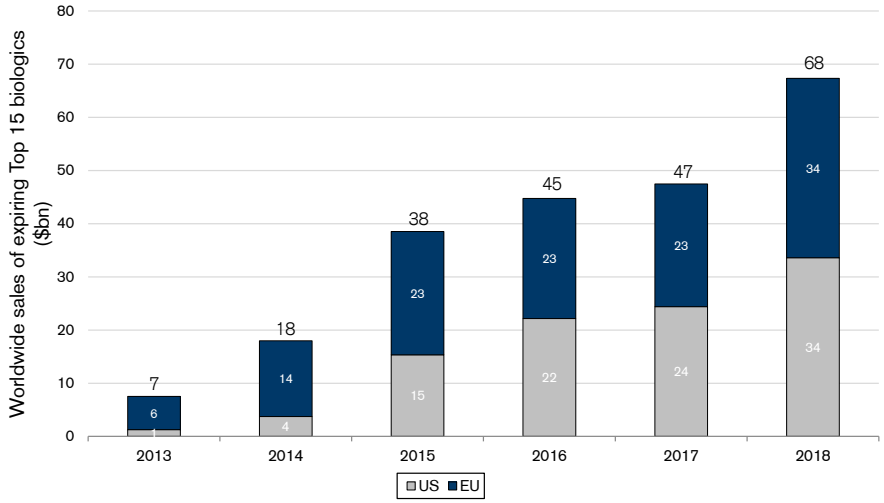
The Credit Suisse Connections Series leverages our exceptional breadth of macro and micro research to deliver incisive cross-sector and cross-border thematic insights for our clients.

Research Analysts

Ravi Mehrotra PhD
212 325 3487
ravi.mehrotra@credit-suisse.com
European Pharma Team
44 207 888 0304
creditsuisse.pharmateam@credit-suisse.com
Vamil Divan, MD
212 538 5394
vamil.divan@credit-suisse.com
Anubhav Aggarwal
91 22 6777 3808
anubhav.aggarwal@credit-suisse.com
Fumiyoshi Sakai
81 3 4550 9737
fumiyoshi.sakai@credit-suisse.com

Biosimilars 101 - Edition 1 - The $70B Near Term Biosimilars Land Grab - anti-TNF's key

Exhibit 1: The $70B Near-Term Biosimilars Land Grab - Cumulative (from 2013 base) Worldwide Sales of Expiring Biologics (From Within the Top 15)



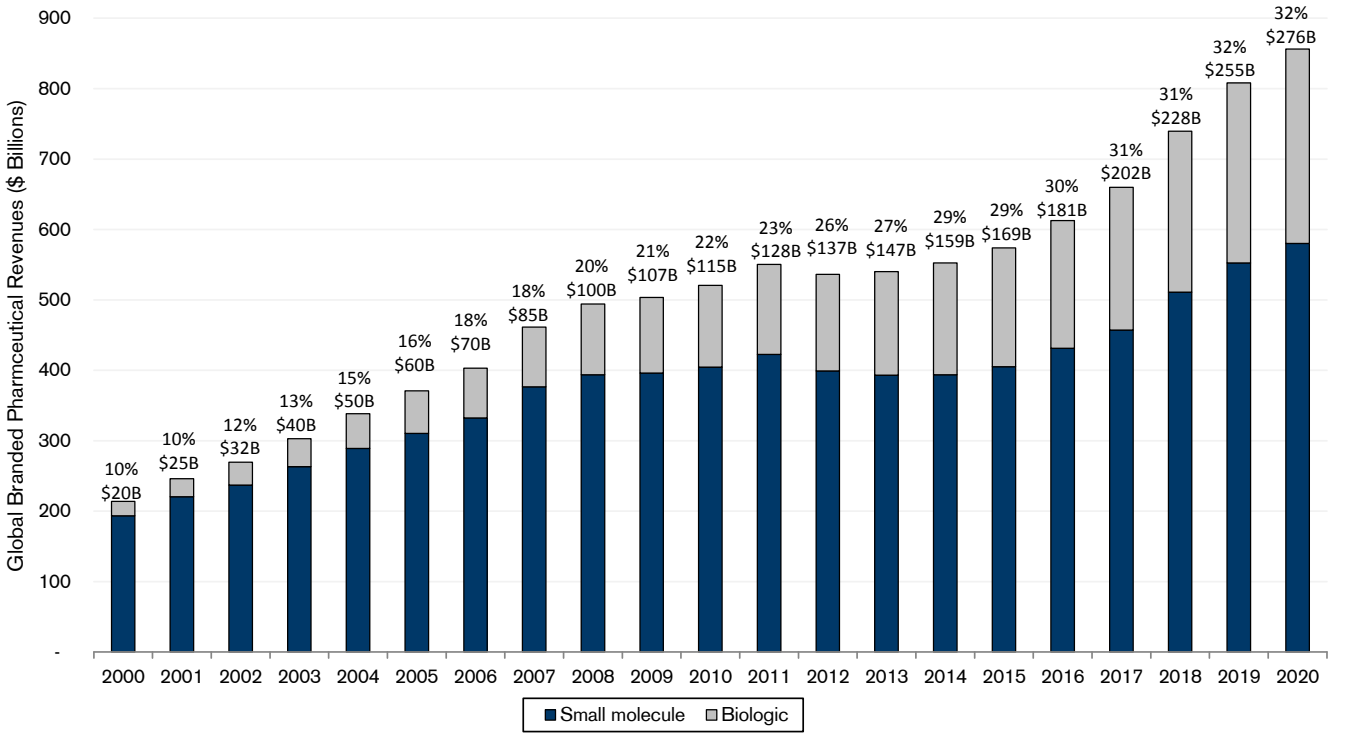
Source: Credit Suisse PharmaValues database, Credit Suisse research

- **Biosimilars is a "must understand" theme that will have very significant impact on the global biotechnology and pharmaceutical sectors:** The impact of biosimilars poses both a threat and an opportunity for the biotechnology and pharmaceutical sectors (and even with some read through to other multinational companies). Public companies most exposed to biosimilar impact include: AbbVie, Amgen, Cipla, LG, Merck Serono, Momenta, Novartis, Pfizer and Samsung.
- **This is the first edition of the "Credit Suisse Biosimilars 101" series of notes in which the Global Credit Suisse Biotech and Pharma teams have coordinated in the analysis and impact of biosimilars.** Each edition will focus on a specific element of biosimilars, building to the key reference source for investors. The key and common analytical tool we will use in all editions is our proprietary "PharmaValues" database. This first edition focuses on…
- **…The size of the biosimilar opportunity – just entering a near term $70B land grab – Anti-TNF's are the primary focus.** Biologics have become a very significant part of the global drugs market. This market grew from just $20B **…continued on the next page…**

…continued from the previous page…

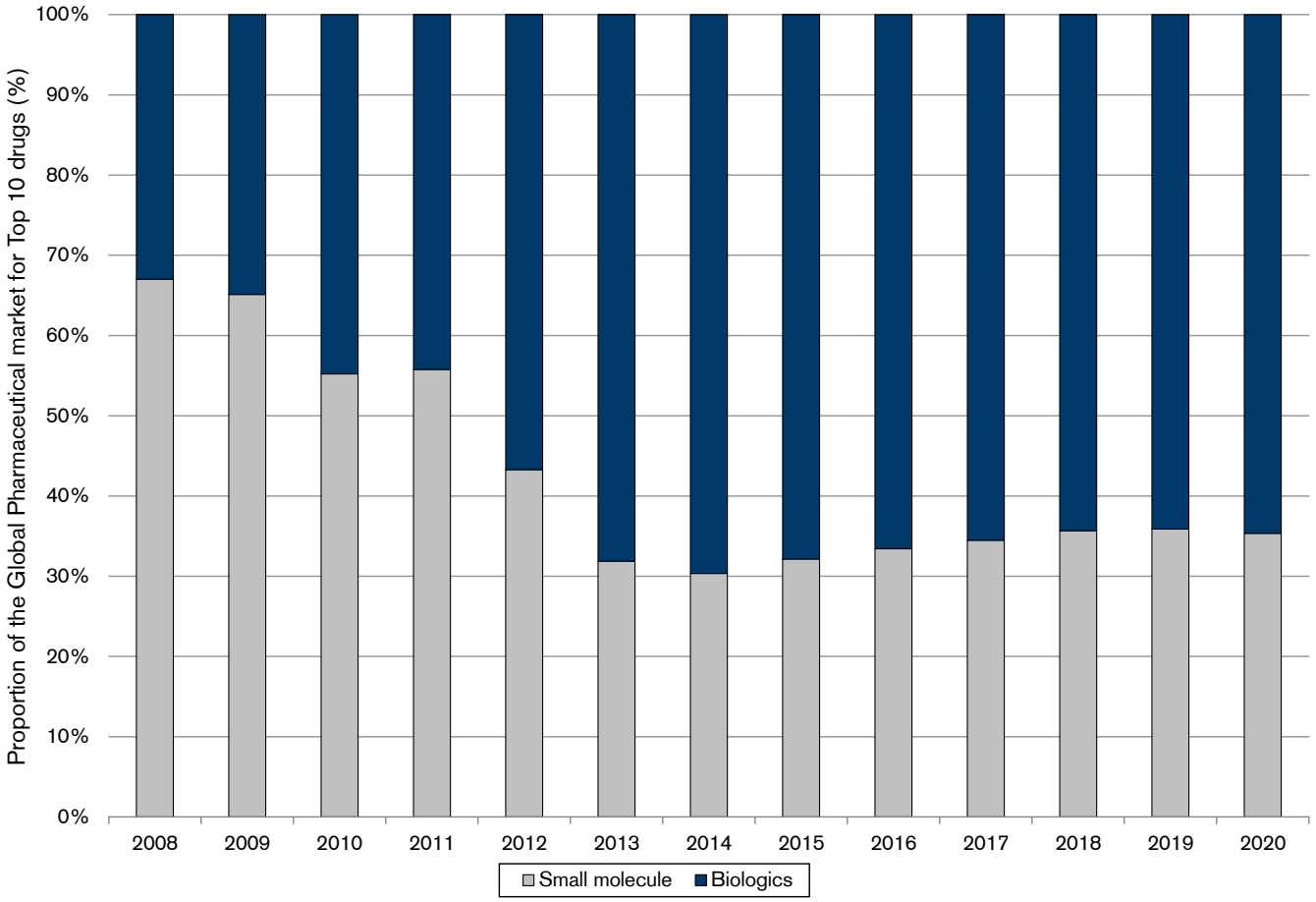
- ….(or 10% of the global drugs market) in 2000 to $159B/29% in 2014E, and $276B/32% by 2020E – Exhibit 2. Biologics dominance of the "Top 10" drugs is even greater with biologics representing *ca*70% of the value by 2015E- Exhibit 3 and Exhibit 4. By 2018, $69B of biologics will have undergone patent expiries in major markets ($35B in US and $34B in ROW) – Exhibit 1 and Exhibit 5. By far, the anti-TNF's represent the biggest near term biosimilar opportunity as they make up the largest single component of the global biologics market ($30B or 35% of 2015E total biologics sales – Exhibit 6 and Exhibit 7) and is potentially catalyzed by the Dec 2016 US patent expiry of Humira (although there is debate around this effective date due to the likely November 18th issuance of the '657 application/'135 patent – expiry 4th Jan 2025).
- **Implications for stocks;** ABBV and to a lesser extent AMGN and MRK/J&J are the most negatively exposed to the "1st wave of biosimilar" anti-TNFs. In contrast, AMGN, Coherus, NVS, Boehringer Ingelheim, PFE, and Samsung are most positively exposed to "1st wave of biosimilar" anti-TNFs.

Exhibit 2: Global Branded Pharmaceutical Revenues Broken Down Into Small Molecule and Biologics – By 2016 >30% Market Will Be Biologics.



Source: Credit Suisse PharmaValues Database, Credit Suisse research

Exhibit 3: Proportion of Top 10 Drugs in Global Pharmaceutical Market 2008-2020.



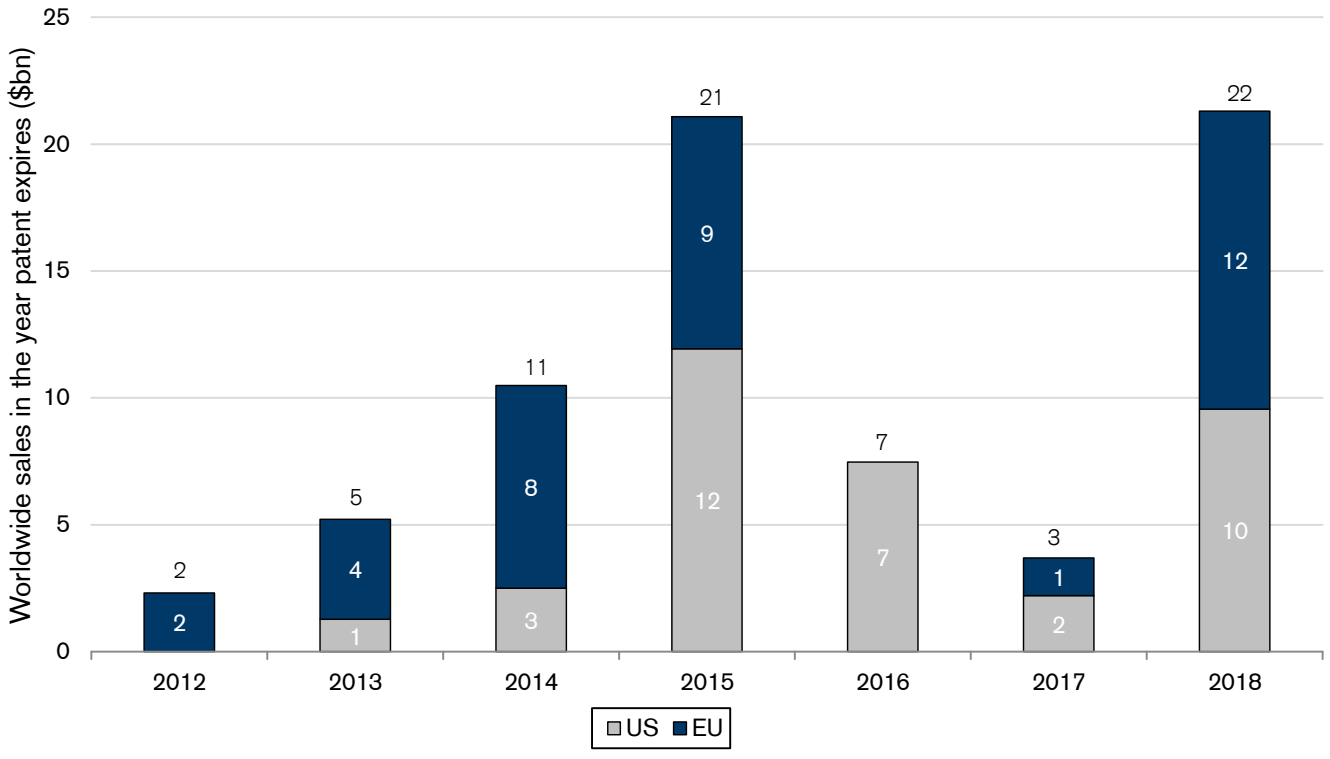
Source: Credit Suisse research, Credit Suisse PharmaValues Database

Exhibit 4: Worldwide Sales of Top 10 Drugs.

2010				2015				2020			
Product	Company	Class	WW Sales	Product	Company	Class	WW Sales	Product	Company	Class	WW Sales
Lipitor	Pfizer	Chiral Chem	11,838	Humira	AbbVie	MAb	13,961	Humira	AbbVie	MAb	15,155
Plavix	Sanofi	Small Molecule	9,148	Enbrel	Amgen/PFE	Fusion prot	8,756	Lantus	Sanofi	Hormone	7,875
Enbrel	Amgen/PFE	Fusion prot	7,014	Harvoni	Gilead	Small Molecule	8,000	Enbrel	Amgen/PFE	Fusion prot	7,549
Humira	AbbVie	MAb	6,737	Lantus	Sanofi	hormone	7,862	Harvoni	Gilead	Small Molecule	7,300
Remicade	JNJ/MRK	MAb	6,436	Herceptin	Roche	MAb	7,796	Ibrutinib	PCYC/JNJ	Small Molecule	6,751
Diovan	Novartis	Small Molecule	6,053	Remicade	JNJ/MRK	MAb	6,667	Januvia/Janumet	Merck	Small Molecule	6,599
Crestor	AstraZeneca	Small Molecule	5,654	Rituxan	Roche	MAb	6,513	Herceptin	Roche	MAb	6,456
Herceptin	Roche	MAb	5,220	Januvia/Janumet	Merck	Small Molecule	6,274	Tecfidera	Biogen	Small Molecule	6,168
Rituxan	Roche	MAb	5,157	Crestor	AstraZeneca	Small Molecule	5,505	Rituxan	Roche	MAb	5,887
Singulair	Merck	Small Molecule	4,987	Revlimid	Celgene	Small Molecule	4,856	Remicade	JNJ/MRK	MAb	5,723
Total	**% Biologic**	**45%**	**68,244**	**Total**	**% Biologic**	**68%**	**76,190**	**Total**	**% Biologic**	**65%**	**75,462**

Source: Credit Suisse research, Credit Suisse PharmaValues Database

Exhibit 5: The 2012-2018 Biosimilar Land Grab - Originator Sales in The Year Of Patent Expiries.



Source: Credit Suisse PharmaValues Database, Credit Suisse Research

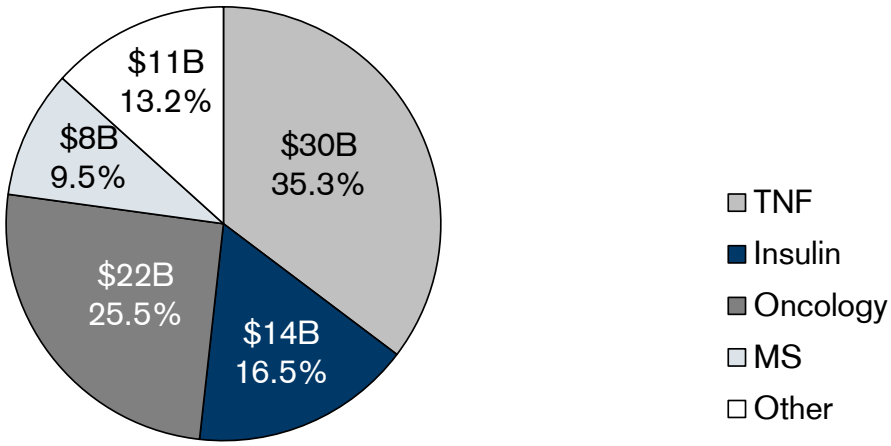
Exhibit 6: 2012-2018 Biologic Drug Patent Expiries.

	2012	2013	2014	2015	2016	2017	2018
US		Rebif [$1.3B]	Copaxone [$2.5B]	Lantus* [$4.6B] Rituxan [$3.6B] Neulasta [$3.4B]	Humira [$7.4B]	NovoLog [$2.2B]	Herceptin [$1.9B] Avastin [$3B] Remicade [$4.6B]
ROW	Avonex [$1.1B] Rebif [$1.2B]	Rituxan [$3.9B]	Herceptin [$4.8B] Remicade [$3.2B]	Enbrel [$4.3B] Lantus [$3B] Neulasta [$0.9B] Copaxone [$0.9B]		NovoLog [$1.5B]	Humira [$7.2B] Avastin [$4.5B]

**The Lantus patent expires in the US in 2015, but the 30 month stay runs to 2016.*

Source: Credit Suisse PharmaValues Database, Credit Suisse Research

Exhibit 7: Anti-TNFs Are The Largest Single Component of The Global Biologics Market (2015).



Source: Credit Suisse PharmaValues Database, Credit Suisse Research

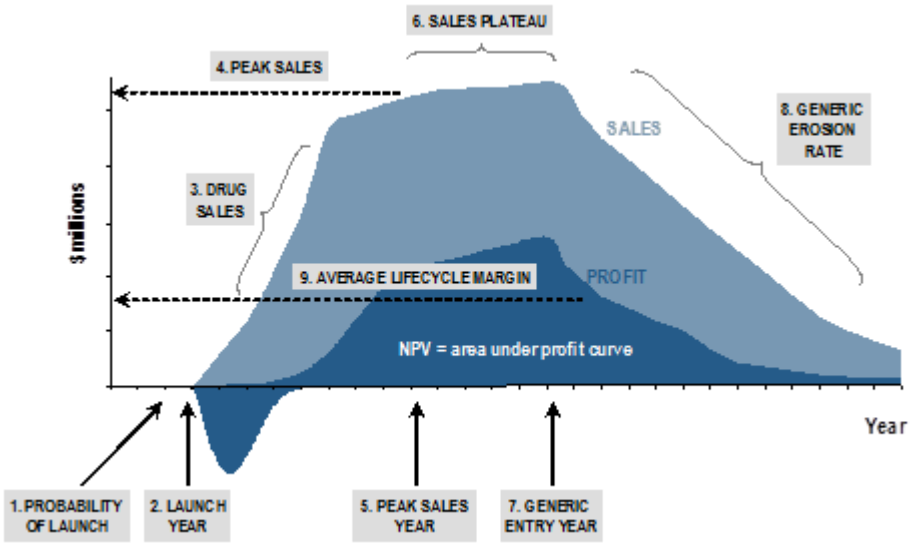
Exhibit 8: Top 15 Biologics by 2013 Worldwide Sales ($ Millions).

Biologic	Company	Indication	MoA	Patent Exp US	Patent Exp EU		2013 Sales	2014 Sales	2015 Sales	2016 Sales	2017 Sales	2018 Sales
Humira	AbbVie	RA	TNF	Dec-16	Apr-18	US	5,236	6,144	6,972	7,472	7,775	7,748
						ROW	5,500	6,225	6,800	7,225	7,375	7,225
						WW	10,736	12,369	13,772	14,697	15,150	14,973
Enbrel	Amgen	RA	TNF	Nov-28	Feb-15	US	4,256	4,625	4,368	4,412	4,412	4,191
						ROW	4,252	4,409	4,346	4,292	4,223	4,146
						WW	8,508	9,034	8,714	8,704	8,635	8,337
Lantus	Sanofi	Diabetes	LA Insulin	Feb-15	May-15	US	4,984	5,500	4,855	4,808	5,208	5,608
						ROW	2,617	2,826	3,006	3,458	3,473	3,414
						WW	7,601	8,326	7,861	8,266	8,681	9,022
Herceptin	Roche	Breast/Gastric Cancer	HER2	Dec-18	Jul-14	US	1,922	1,952	1,952	1,952	1,952	1,952
						ROW	4,615	4,805	4,799	4,596	4,388	4,169
						WW	6,537	6,757	6,751	6,548	6,340	6,121
Avastin	Roche/Genentech	Lung Cancer	VEGF	Jul-18	Jul-18	US	2,760	2,866	2,931	3,011	3,041	2,991
						ROW	4,132	4,211	4,457	4,650	4,567	4,526
						WW	6,892	7,077	7,388	7,661	7,608	7,517
Remicade	MRK/J&J	RA	TNF	Sep-18	Aug-14	US	3,891	4,161	4,434	4,599	4,697	4,609
						ROW	3,004	3,187	3,272	3,221	3,029	2,787
						WW	6,895	7,348	7,706	7,820	7,726	7,396
Rituxan	BIIB	Cancer	CD20	Jan-15	Sep-13	US	3,480	3,540	3,660	3,700	3,655	3,619
						ROW	3,944	4,012	3,939	3,870	3,676	3,450
						WW	7,424	7,552	7,599	7,570	7,331	7,069
Neulasta	Amgen	Neutropaenia	CSF	Oct-15	Feb-15	US	3,499	3,527	3,421	3,147	2,770	2,354
						ROW	893	956	937	890	846	786
						WW	4,392	4,483	4,358	4,037	3,616	3,140
Lucentis	Roche/Novartis	Macular Degeneration	VEGF	Jun-20	Jun-22	US	1,820	1,916	2,022	2,123	2,210	2,303
						ROW	2,358	2,446	2,437	2,437	2,437	2,437
						WW	4,178	4,362	4,459	4,560	4,647	4,740
Copaxone	Teva/Sanofi	MS	Immuno-modulator	May-14	Jan-15	US	2,740	2,500	2,300	2,000	1,800	1,620
						ROW	1,045	1,025	860	455	374	300
						WW	3,785	3,525	3,160	2,455	2,174	1,920
Avonex	BIIB/Roche	MS	Interferon beta	Jan-26	Jul-12	US	1,902	1,903	1,845	1,700	1,530	1,300
						ROW	1,105	1,085	975	830	690	550
						WW	3,007	2,988	2,820	2,530	2,220	1,850
NovoLog/ NovoRapid	Novo	Diabetes	SA Insulin	Jan-17	Jan-17	US	1,771	1,895	2,066	2,210	2,210	2,210
						ROW	1,227	1,303	1,300	1,417	1,480	1550
						WW	2,998	3,198	3,366	3,627	3,690	3,760
Rebif	MRK-KGA	MS	Interferon beta	Dec-13	Feb-12	US	1,272	1,240	1,115	1,050	985	907
						ROW	1,208	1,163	1,064	975	900	830
						WW	2,480	2,403	2,179	2,025	1,885	1,737
Advate	Baxter	Haemophilia	Factor 8			US	1,100	1,140	1,178	1,198	1,200	1,200
						ROW	1,260	1,340	1,375	1,410	1,440	1,470
						WW	2,360	2,480	2,553	2,608	2,640	2,670
Victoza	Novo	Diabetes	GLP-1 analogue	Jun-22	Jul-22	US	1,341	1,583	1,867	2,054	2,157	2,265
						ROW	730	862	992	1,085	1,140	1197
						WW	2,071	2,445	2,859	3,139	3,297	3,462

Source: Credit Suisse PharmaValues Database, Credit Suisse Research

Appendix 1 – PHARMAVALUES BACKGROUND

Nine key data inputs drive PharmaValues algorithm



Source: Credit Suisse estimates

1. Probability of launch
For pipeline compounds, we take standard values for each stage of development which we then modulate to reflect data for each specific drug, including clinical data seen so far, the therapeutic area, problems experienced for similar products and the company's track record. We regularly compare our PharmaValues probabilities with success rates from other industry sources, such as the Centre for Medicines Research (CMR International). For marketed drugs, the probability of launch is 100%.

2. Launch year
This represents the first launch date of the product. For key drugs we usually separate revenue potential into major geographical regions (eg, US, Europe and Japan) and reflect the first launch in each geography.

3. Drug sales
Multiple points on the sales curve are driven directly by the drug revenue assumptions in our company P&L models. Outside our normal modelling range, we use an algorithmic best-fit curve between the last modelled revenue point and our life-cycle assumptions.

4. Peak sales
The Credit Suisse Global Pharmaceutical and Biotech Teams' assessment of the maximum sales potential of a given product for a given indication in a specific region. All sales forecasts are in US$ millions.

5. Peak sales year
This is largely driven by the generic entry year and the competitive environment in the therapeutic category for each drug. For example, a major competitor going generic could limit the growth of another brand many years before its own patent expiry. The peak sales year defines the start of the sales plateau.

6. Sales plateau
Once a product has reached its peak sales potential, it may show limited further growth until patent expiry. If the Credit Suisse forecast revenue growth is less than the assumed discount rate (10%), we assume that a product has plateaued.

7. Generic entry year

This is driven by the composition of matter patent in the US Orange Book and equivalent European patents. It can be moderated by additional exclusivity protection (orphan drug, Supplementary Protection Certificate etc.) or device patents where relevant (inhaled drugs, pen devices, etc.). For unknown patent dates and pipeline drugs where patent restoration is expected (but not yet granted), we assume generic entry is 10–12 years after launch. It is important to note that sometimes the generic entry date does not correspond with the quoted patent expiry date. In special cases where a patent has been challenged and we have concerns on its validity, we may use an earlier generic entry date. Similarly, regulatory issues or the absence of an approved generic may push the generic entry date beyond the quoted patent expiry (e.g. Flovent).

8. Generic erosion rate

This controls the rate of decline of drug sales following the generic entry year. Key inputs in selecting this rate include the molecule type (biologics are much slower than small molecules) and the geographical region (US faster than EU, which is faster than Japan).

9. Average lifecycle margin

To calculate the PharmaValues NPV, we input an average margin for each product over its life-cycle. We estimate margins after tax but before R&D. Within the algorithm, the average margin is interpolated progressively across the remaining life-cycle to take into account launch investments in the early years and supra-normal profitability during the plateau/peak period. A typical average margin for a large pharma drug in a primary care setting is 30–40%. This may be reduced if in-licensing royalties are paid and if the therapeutic area is particularly competitive. For specialty drugs or unique products with high innovation, the average life-cycle margin could be considerably higher. For each company, the sum of individual product margins is checked to be consistent with the last reported pharma margin (pre-R&D) and projected margins are checked against forecasts

Advantages of the PharmaValues NPV approach

- By looking at the contribution from each individual drug, PharmaValues can highlight the relative importance of each product for a company. Unlike short-term earnings, PharmaValues' NPV will reflect the sustainability of this contribution based on the time to patent expiry. In many cases, the largest short-term earnings driver is not a major contributor to NPV (eg, Nexium for AZN, or Abilify for BMY and Otsuka, both major drugs with near term patent expiries).

- PharmaValues can value pipeline projects on the same basis as marketed drugs. This value can be modulated based on clinical data and regulatory timelines as they become clear during development.

- It can accommodate income streams, often not reported in turnover, including royalty income from out-licensed products or intellectual property and value generated from non-consolidated drug sales (eg, Lucentis royalty income from Novartis, to Roche, and co promotional income for Pfizer from Spiriva).

- It can provide a solid scenario analysis on the impact of future outcomes on a drug value. For example, as drugs pass development milestones, regulatory decisions or patent trial outcomes.

- It also allows for a rapid estimate of an individual drug's value following 'shock' events such as a withdrawal due to safety concerns.

- PharmaValues allows pharmaceutical and biotech companies to be compared on a global basis. By using a standard algorithmic methodology and only one probability and revenue assumption for each product in each geography (critical where drugs are co-marketed), it provides a consistent approach for global investors.

- The methodology is suitable for all lifecycle-based healthcare products, including small biotech, specialty pharma and major drug companies. This provides investors with a unifying valuation approach across multiple healthcare sectors and across geographies.

Limitations of the PharmaValues NPV approach

- Unlike traditional DCF approaches, PharmaValues NPV is based on a pre-R&D, post-tax EBIT assumption, and it does not differentiate between highly cash-generative companies and those reinvesting aggressively in infrastructure. This is particularly important for specialty pharmaceutical companies that decide to enter a new market with major infrastructure spend (eg, Ipsen investing to market somatuline in NETs directly in the US) or companies whose product manufacturing is capital intensive (eg, UCB's Cimzia).

- Individual product margins over a drug life-cycle are difficult to predict and very little information is available on direct contribution of margins by product.

- Pipeline disclosures vary between companies and thus the aggregate value of drugs in development will be influenced by the information available. Offsetting this discrepancy is the limited value attributed to early-stage pipeline owing to low probabilities and the aggressive discounting of the NPV from distant launch expectations.

- We ignore R&D costs within PharmaValues. By doing this, we assume that all companies are sufficiently cash-generative to fund future R&D expense for the disclosed pipeline. This is particularly important for small biotech companies where future funding rounds may be required to complete development. As it does not take into account R&D spend, we believe the PharmaValues NPV should not be used for a specific company valuation. Instead we use a relative valuation metric of EV/NPV to compare companies.

- Our methodology does not factor in 'intangible' elements of a company story such as management strategy, sales force effectiveness and attractiveness as an in-licensing partner. However, some of these will be reflected indirectly in our user-defined inputs.

- PharmaValues considers each product to be additive onto a notional central infrastructure. Nowhere do we account for this central overhead separately—instead a small amount is spread over each product. In the normal course of business this has no material consequence. However, when a major product is unexpectedly lost (withdrawal/early patent loss), our methodology assumes that the attributable central overheads are no longer required. In reality, they will become a greater burden on the remaining products in the portfolio.

- PharmaValues is, by its very nature, a sum-of-the-parts methodology. We do not assume any conglomerate discount, even for diversified healthcare companies.

CREDIT SUISSE

Companies Mentioned *(Price as of 29-Oct-2014)*

AbbVie Inc. (ABBV.N, $59.98)
Amgen Inc. (AMGN.OQ, $158.88)
Boehringer Ingelheim (Unlisted)
Cipla Limited (CIPL.BO, Rs655.6)
Coherus BioSciences (Unlisted)
LG Chem Ltd. (051910.KS, W201,500)
Merck KGaA (MRCG.DE, €71.21)
Momenta Pharm (MNTA.OQ, $10.95)
Pfizer (PFE.N, $29.49)
Samsung Securities (016360.KS, W47,600)

Disclosure Appendix

Important Global Disclosures

Ravi Mehrotra PhD, Vamil Divan, MD, Ari Jahja and Ronak H. Shah, Pharm.D., CFA each certify, with respect to the companies or securities that the individual analyzes, that (1) the views expressed in this report accurately reflect his or her personal views about all of the subject companies and securities and (2) no part of his or her compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this report.

The analyst(s) responsible for preparing this research report received Compensation that is based upon various factors including Credit Suisse's total revenues, a portion of which are generated by Credit Suisse's investment banking activities

As of December 10, 2012 Analysts' stock rating are defined as follows:

Outperform (O) : The stock's total return is expected to outperform the relevant benchmark*over the next 12 months.

Neutral (N) : The stock's total return is expected to be in line with the relevant benchmark* over the next 12 months.

Underperform (U) : The stock's total return is expected to underperform the relevant benchmark* over the next 12 months.

**Relevant benchmark by region: As of 10th December 2012, Japanese ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. As of 2nd October 2012, U.S. and Canadian as well as European ratings are based on a stock's total return relative to the analyst's coverage universe which consists of all companies covered by the analyst within the relevant sector, with Outperforms representing the most attractive, Neutrals the less attractive, and Underperforms the least attractive investment opportunities. For Latin American and non-Japan Asia stocks, ratings are based on a stock's total return relative to the average total return of the relevant country or regional benchmark; prior to 2nd October 2012 U.S. and Canadian ratings were based on (1) a stock's absolute total return potential to its current share price and (2) the relative attractiveness of a stock's total return potential within an analyst's coverage universe. For Australian and New Zealand stocks, 12-month rolling yield is incorporated in the absolute total return calculation and a 15% and a 7.5% threshold replace the 10-15% level in the Outperform and Underperform stock rating definitions, respectively. The 15% and 7.5% thresholds replace the +10-15% and -10-15% levels in the Neutral stock rating definition, respectively. Prior to 10th December 2012, Japanese ratings were based on a stock's total return relative to the average total return of the relevant country or regional benchmark.*

Restricted (R) : In certain circumstances, Credit Suisse policy and/or applicable law and regulations preclude certain types of communications, including an investment recommendation, during the course of Credit Suisse's engagement in an investment banking transaction and in certain other circumstances.

Volatility Indicator [V] : A stock is defined as volatile if the stock price has moved up or down by 20% or more in a month in at least 8 of the past 24 months or the analyst expects significant volatility going forward.

Analysts' sector weightings are distinct from analysts' stock ratings and are based on the analyst's expectations for the fundamentals and/or valuation of the sector* relative to the group's historic fundamentals and/or valuation:

Overweight : The analyst's expectation for the sector's fundamentals and/or valuation is favorable over the next 12 months.

Market Weight : The analyst's expectation for the sector's fundamentals and/or valuation is neutral over the next 12 months.

Underweight : The analyst's expectation for the sector's fundamentals and/or valuation is cautious over the next 12 months.

**An analyst's coverage sector consists of all companies covered by the analyst within the relevant sector. An analyst may cover multiple sectors.*

Credit Suisse's distribution of stock ratings (and banking clients) is:

Global Ratings Distribution

Rating	Versus universe (%)	Of which banking clients (%)
Outperform/Buy*	46%	(54% banking clients)
Neutral/Hold*	39%	(51% banking clients)
Underperform/Sell*	13%	(43% banking clients)
Restricted	3%	

**For purposes of the NYSE and NASD ratings distribution disclosure requirements, our stock ratings of Outperform, Neutral, and Underperform most closely correspond to Buy, Hold, and Sell, respectively; however, the meanings are not the same, as our stock ratings are determined on a relative basis. (Please refer to definitions above.) An investor's decision to buy or sell a security should be based on investment objectives, current holdings, and other individual factors.*

Credit Suisse's policy is to update research reports as it deems appropriate, based on developments with the subject company, the sector or the market that may have a material impact on the research views or opinions stated herein.

Credit Suisse's policy is only to publish investment research that is impartial, independent, clear, fair and not misleading. For more detail please refer to Credit Suisse's Policies for Managing Conflicts of Interest in connection with Investment Research: http://www.csfb.com/research and analytics/disclaimer/managing_conflicts_disclaimer.html

Credit Suisse does not provide any tax advice. Any statement herein regarding any US federal tax is not intended or written to be used, and cannot be used, by any taxpayer for the purposes of avoiding any penalties.

See the Companies Mentioned section for full company names

The subject company (ABBV.N, AMGN.OQ, 051910.KS, PFE.N, 016360.KS) currently is, or was during the 12-month period preceding the date of distribution of this report, a client of Credit Suisse.

Credit Suisse provided investment banking services to the subject company (ABBV.N, AMGN.OQ, PFE.N, 016360.KS) within the past 12 months.

Credit Suisse has managed or co-managed a public offering of securities for the subject company (AMGN.OQ, PFE.N) within the past 12 months.

Credit Suisse has received investment banking related compensation from the subject company (ABBV.N, AMGN.OQ, PFE.N, 016360.KS) within the past 12 months

Credit Suisse expects to receive or intends to seek investment banking related compensation from the subject company (ABBV.N, AMGN.OQ, CIPL.BO, 051910.KS, MRCG.DE, PFE.N, 016360.KS) within the next 3 months.

As of the date of this report, Credit Suisse makes a market in the following subject companies (ABBV.N, AMGN.OQ, PFE.N).

As of the end of the preceding month, Credit Suisse beneficially own 1% or more of a class of common equity securities of (016360.KS).

As of the date of this report, an analyst involved in the preparation of this report has the following material conflict of interest with the subject company (PFE.N). As of the date of this report, an analyst involved in the preparation of this report, Vamil Divan, has following material conflicts of interest with the subject company. The analyst or a member of the analyst's household has a long position in the common stock Pfizer (PFE.N). A member of the analyst's household is an employee of Pfizer (PFE.N).

As of the date of this report, an analyst involved in the preparation of this report has the following material conflict of interest with the subject company (PFE.N). As of the date of this report, an analyst involved in the preparation of this report, Ronak Shah, has the following material conflict of interest with the subject company. The analyst has a long position in the common stock Pfizer (PFE.N).

For other important disclosures concerning companies featured in this report, including price charts, please visit the website at https://rave.credit-suisse.com/disclosures or call +1 (877) 291-2683.

Important Regional Disclosures

Singapore recipients should contact Credit Suisse AG, Singapore Branch for any matters arising from this research report.

The analyst(s) involved in the preparation of this report have not visited the material operations of the subject company (ABBV.N, AMGN.OQ, CIPL.BO, 051910.KS, MRCG.DE, PFE.N, PFE.N, PFE.N) within the past 12 months

Restrictions on certain Canadian securities are indicated by the following abbreviations: NVS--Non-Voting shares; RVS--Restricted Voting Shares; SVS--Subordinate Voting Shares.

Individuals receiving this report from a Canadian investment dealer that is not affiliated with Credit Suisse should be advised that this report may not contain regulatory disclosures the non-affiliated Canadian investment dealer would be required to make if this were its own report.

For Credit Suisse Securities (Canada), Inc.'s policies and procedures regarding the dissemination of equity research, please visit http://www.csfb.com/legal_terms/canada_research_policy.shtml.

Credit Suisse has acted as lead manager or syndicate member in a public offering of securities for the subject company (AMGN.OQ, PFE.N) within the past 3 years.

As of the date of this report, Credit Suisse acts as a market maker or liquidity provider in the equities securities that are the subject of this report.

Principal is not guaranteed in the case of equities because equity prices are variable.

Commission is the commission rate or the amount agreed with a customer when setting up an account or at any time after that.

To the extent this is a report authored in whole or in part by a non-U.S. analyst and is made available in the U.S., the following are important disclosures regarding any non-U.S. analyst contributors: The non-U.S. research analysts listed below (if any) are not registered/qualified as research analysts with FINRA. The non-U.S. research analysts listed below may not be associated persons of CSSU and therefore may not be subject to the NASD Rule 2711 and NYSE Rule 472 restrictions on communications with a subject company, public appearances and trading securities held by a research analyst account.

Credit Suisse Securities (Europe) Limited.....European Pharma Team

For Credit Suisse disclosure information on other companies mentioned in this report, please visit the website at https://rave.credit-suisse.com/disclosures or call +1 (877) 291-2683.

CREDIT SUISSE

References in this report to Credit Suisse include all of the subsidiaries and affiliates of Credit Suisse operating under its investment banking division. For more information on our structure, please use the following link: https://www.credit-suisse.com/who_we_are/en/This report may contain material that is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or which would subject Credit Suisse AG or its affiliates ("CS") to any registration or licensing requirement within such jurisdiction. All material presented in this report, unless specifically indicated otherwise, is under copyright to CS. None of the material, nor its content, nor any copy of it, may be altered in any way, transmitted to, copied or distributed to any other party, without the prior express written permission of CS. All trademarks, service marks and logos used in this report are trademarks or service marks or registered trademarks or service marks of CS or its affiliates. The information, tools and material presented in this report are provided to you for information purposes only and are not to be used or considered as an offer or the solicitation of an offer to sell or to buy or subscribe for securities or other financial instruments. CS may not have taken any steps to ensure that the securities referred to in this report are suitable for any particular investor. CS will not treat recipients of this report as its customers by virtue of their receiving this report. The investments and services contained or referred to in this report may not be suitable for you and it is recommended that you consult an independent investment advisor if you are in doubt about such investments or investment services. Nothing in this report constitutes investment, legal, accounting or tax advice, or a representation that any investment or strategy is suitable or appropriate to your individual circumstances, or otherwise constitutes a personal recommendation to you. CS does not advise on the tax consequences of investments and you are advised to contact an independent tax adviser. Please note in particular that the bases and levels of taxation may change. Information and opinions presented in this report have been obtained or derived from sources believed by CS to be reliable, but CS makes no representation as to their accuracy or completeness. CS accepts no liability for loss arising from the use of the material presented in this report, except that this exclusion of liability does not apply to the extent that such liability arises under specific statutes or regulations applicable to CS. This report is not to be relied upon in substitution for the exercise of independent judgment. CS may have issued, and may in the future issue, other communications that are inconsistent with, and reach different conclusions from, the information presented in this report. Those communications reflect the different assumptions, views and analytical methods of the analysts who prepared them and CS is under no obligation to ensure that such other communications are brought to the attention of any recipient of this report. Some investments referred to in this report will be offered solely by a single entity and in the case of some investments solely by CS, or an associate of CS or CS may be the only market maker in such investments. Past performance should not be taken as an indication or guarantee of future performance, and no representation or warranty, express or implied, is made regarding future performance. Information, opinions and estimates contained in this report reflect a judgment at its original date of publication by CS and are subject to change without notice. The price, value of and income from any of the securities or financial instruments mentioned in this report can fall as well as rise. The value of securities and financial instruments is subject to exchange rate fluctuation that may have a positive or adverse effect on the price or income of such securities or financial instruments. Investors in securities such as ADR's, the values of which are influenced by currency volatility, effectively assume this risk. Structured securities are complex instruments, typically involve a high degree of risk and are intended for sale only to sophisticated investors who are capable of understanding and assuming the risks involved. The market value of any structured security may be affected by changes in economic, financial and political factors (including, but not limited to, spot and forward interest and exchange rates), time to maturity, market conditions and volatility, and the credit quality of any issuer or reference issuer. Any investor interested in purchasing a structured product should conduct their own investigation and analysis of the product and consult with their own professional advisers as to the risks involved in making such a purchase. Some investments discussed in this report may have a high level of volatility. High volatility investments may experience sudden and large falls in their value causing losses when that investment is realised. Those losses may equal your original investment. Indeed, in the case of some investments the potential losses may exceed the amount of initial investment and, in such circumstances, you may be required to pay more money to support those losses. Income yields from investments may fluctuate and, in consequence, initial capital paid to make the investment may be used as part of that income yield. Some investments may not be readily realisable and it may be difficult to sell or realise those investments, similarly it may prove difficult for you to obtain reliable information about the value, or risks, to which such an investment is exposed. This report may provide the addresses of, or contain hyperlinks to, websites. Except to the extent to which the report refers to website material of CS, CS has not reviewed any such site and takes no responsibility for the content contained therein. Such address or hyperlink (including addresses or hyperlinks to CS's own website material) is provided solely for your convenience and information and the content of any such website does not in any way form part of this document. Accessing such website or following such link through this report or CS's website shall be at your own risk. This report is issued and distributed in Europe (except Switzerland) by Credit Suisse Securities (Europe) Limited, One Cabot Square, London E14 4QJ, England, which is authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority. This report is being distributed in Germany by Credit Suisse Securities (Europe) Limited Niederlassung Frankfurt am Main regulated by the Bundesanstalt fuer Finanzdienstleistungsaufsicht ("BaFin"). This report is being distributed in the United States and Canada by Credit Suisse Securities (USA) LLC; in Switzerland by Credit Suisse AG; in Brazil by Banco de Investimentos Credit Suisse (Brasil) S.A or its affiliates; in Mexico by Banco Credit Suisse (México), S.A. (transactions related to the securities mentioned in this report will only be effected in compliance with applicable regulation); in Japan by Credit Suisse Securities (Japan) Limited, Financial Instruments Firm, Director-General of Kanto Local Finance Bureau (*Kinsho*) No. 66, a member of Japan Securities Dealers Association, The Financial Futures Association of Japan, Japan Investment Advisers Association, Type II Financial Instruments Firms Association; elsewhere in Asia/ Pacific by whichever of the following is the appropriately authorised entity in the relevant jurisdiction: Credit Suisse (Hong Kong) Limited, Credit Suisse Equities (Australia) Limited, Credit Suisse Securities (Thailand) Limited, regulated by the Office of the Securities and Exchange Commission, Thailand, having registered address at 990 Abdulrahim Place, 27th Floor, Unit 2701, Rama IV Road, Silom, Bangrak, Bangkok 10500, Thailand, Tel. +66 2614 6000, Credit Suisse Securities (Malaysia) Sdn Bhd, Credit Suisse AG, Singapore Branch, Credit Suisse Securities (India) Private Limited (CIN no. U67120MH1996PTC104392) regulated by the Securities and Exchange Board of India (registration Nos. INB230970637; INF230970637; INB010970631; INF010970631), having registered address at 9th Floor, Ceejay House, Dr.A.B. Road, Worli, Mumbai - 18, India, T- +91-22 6777 3777, Credit Suisse Securities (Europe) Limited, Seoul Branch, Credit Suisse AG, Taipei Securities Branch, PT Credit Suisse Securities Indonesia, Credit Suisse Securities (Philippines) Inc., and elsewhere in the world by the relevant authorised affiliate of the above. Research on Taiwanese securities produced by Credit Suisse AG, Taipei Securities Branch has been prepared by a registered Senior Business Person. Research provided to residents of Malaysia is authorised by the Head of Research for Credit Suisse Securities (Malaysia) Sdn Bhd, to whom they should direct any queries on +603 2723 2020. This report has been prepared and issued for distribution in Singapore to institutional investors, accredited investors and expert investors (each as defined under the Financial Advisers Regulations) only, and is also distributed by Credit Suisse AG, Singapore branch to overseas investors (as defined under the Financial Advisers Regulations). By virtue of your status as an institutional investor, accredited investor, expert investor or overseas investor, Credit Suisse AG, Singapore branch is exempted from complying with certain compliance requirements under the Financial Advisers Act, Chapter 110 of Singapore (the "FAA"), the Financial Advisers Regulations and the relevant Notices and Guidelines issued thereunder, in respect of any financial advisory service which Credit Suisse AG, Singapore branch may provide to you. This research may not conform to Canadian disclosure requirements. In jurisdictions where CS is not already registered or licensed to trade in securities, transactions will only be effected in accordance with applicable securities legislation, which will vary from jurisdiction to jurisdiction and may require that the trade be made in accordance with applicable exemptions from registration or licensing requirements. Non-U.S. customers wishing to effect a transaction should contact a CS entity in their local jurisdiction unless governing law permits otherwise. U.S. customers wishing to effect a transaction should do so only by contacting a representative at Credit Suisse Securities (USA) LLC in the U.S. Please note that this research was originally prepared and issued by CS for distribution to their market professional and institutional investor customers. Recipients who are not market professional or institutional investor customers of CS should seek the advice of their independent financial advisor prior to taking any investment decision based on this report or for any necessary explanation of its contents. This research may relate to investments or services of a person outside of the UK or to other matters which are not authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority or in respect of which the protections of the Prudential Regulation Authority and Financial Conduct Authority for private customers and/or the UK compensation scheme may not be available, and further details as to where this may be the case are available upon request in respect of this report. CS may provide various services to US municipal entities or obligated persons ("municipalities"), including suggesting individual transactions or trades and entering into such transactions. Any services CS provides to municipalities are not viewed as "advice" within the meaning of Section 975 of the Dodd-Frank Wall Street Reform and Consumer Protection Act. CS is providing any such services and related information solely on an arm's length basis and not as an advisor or fiduciary to the municipality. In connection with the provision of the any such services, there is no agreement, direct or indirect, between any municipality (including the officials, management, employees or agents thereof) and CS for CS to provide advice to the municipality. Municipalities should consult with their financial, accounting and legal advisors regarding any such services provided by CS. In addition, CS is not acting for direct or indirect compensation to solicit the municipality on behalf of an unaffiliated broker, dealer, municipal securities dealer, municipal advisor, or investment adviser for the purpose of obtaining or retaining an engagement by the municipality for or in connection with Municipal Financial Products, the issuance of municipal securities, or of an investment adviser to provide investment advisory services to or on behalf of the municipality. If this report is being distributed by a financial institution other than Credit Suisse AG, or its affiliates, that financial institution is solely responsible for distribution. Clients of that institution should contact that institution to effect a transaction in the securities mentioned in this report or require further information. This report does not constitute investment advice by Credit Suisse to the clients of the distributing financial institution, and neither Credit Suisse AG, its affiliates, and their respective officers, directors and employees accept any liability whatsoever for any direct or consequential loss arising from their use of this report or its content. Principal is not guaranteed. Commission is the commission rate or the amount agreed with a customer when setting up an account or at any time after that.

Investment principal on bonds can be eroded depending on sale price or market price. In addition, there are bonds on which investment principal can be eroded due to changes in redemption amounts. Care is required when investing in such instruments.

When you purchase non-listed Japanese fixed income securities (Japanese government bonds, Japanese municipal bonds, Japanese government guaranteed bonds, Japanese corporate bonds) from CS as a seller, you will be requested to pay the purchase price only.