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European Pharma

1Q17 Quarterly Prep Pack

18th April 2017

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Overview

- In this slide pack we set out key company and industry trends to help prepare for the upcoming quarterly results season.
- **Review of quarterly pharma trends**
 - 1Q17 US prescription demand: 1Q17 US Rx growth for Pharma slowed +0.8% (vs. +2.6% at 4Q16).
 - US prescriptions brand vs. generics: Decline in branded Rx prescription volumes in 1Q17 of -6.6% has accelerated (vs. -2.8% decline in 4Q16). Generic/branded generic growth was 2.4% (vs. 3.7% in 4Q16)
- **Pricing trends**
 - Key US Price rises for Individual Companies: average YoY list price rise was 8.3% in 1Q17 broadly in line with 8.4% in 4Q, and 2ppt below 1Q 2016 (the first quarter is typically the highest quarter for list price rises on average). Both EU price rises (+6.9% vs. +6.9% 4Q16 & +8.5% 1Q16) and US price rises (+8.8% vs. 9.1% 4Q16 & 10.9% 1Q16) remained stable vs 4Q and down vs 1Q. We highlight most list price rises in January are <10%. From 2017, both Allergan and AbbVie have taken a 'pledge' to only increase list prices once year. Novo Nordisk has also stated that it will limit list price increases to sub-10% in the future.
- **Therapeutic prescription trends**
 - Asthma/ COPD: GSK's total respiratory franchise volume growth accelerates to 4% vs 3% in 4Q16
 - Cholesterol lowering: Praluent and Repatha scripts modest with reimbursement still the hurdle
 - ADHD, Epilepsy & Psychiatry: Trintellix and Rexulti TRx growth slows despite DTC campaigns
 - Diabetes: Insulin 1Q17 growth decreases to 0.6% YoY vs. +4% in 4Q driven by Sanofi (-2.8%)
 - Multiple sclerosis: Total market decline of -10% in 1Q17. Gilenya saw a 1Q YoY decline of -7%
 - Dermatology: Cosentyx TRx QoQ growth slows (5% in 1Q vs 11% 4Q16) as Taltz competition increases
 - Rheumatoid arthritis: Disconnect between sales growth vs. scripts growth remains

Overview

■ Share Price Performance and Sector Valuation

- EU and US sector share price performance (1Q 2017): *European Major Pharma -5.8% vs. STOXX 50 +6.4% vs. Biotech +2%. In the US Major Pharma 5.8% vs. S&P500 +5.5% vs. Biotech 5.9%*
- Comparative Valuation: *EV/NPV: EU Major of 0.99 vs. EU Specialty of 1.28 vs. US Major of 1.08*

■ Key catalysts and therapeutic data in 2Q17

- *AZN: (1) MYSTIC PFS data mid-17; (2) Acalabrutinib P2 haem-onc data and filing*
- *GSK: (1) Generic Advair GDUFA May 10th (HIK),*
- *NVS: (1) RTH258 P3 AMD data, (2) BAF SPMS potential US filing, (3) CMD 31st May*
- *NOVO: (1) N9-GP hemophilia FDA approval, (2) Tresiba EU/US label update*
- *ROG: (1) APHINITY data (ASCO), (2) Perjeta JACOB data in gastric cancer*
- *SAN: (1) Monthly Praluent potential FDA approval, (2) Sarilumab RA EU approval*
- *SHP: (1) SHP465 Adult ADHD PDUFA 20 June, (2) SHP643 HAE P3 data*

1Q17 Reporting Calendar

Mon	Tue	Wed	Thurs	Fri
17/04/2017	18/04/2017 JNJ	19/04/2017 Abbott	20/04/2017 Actelion	21/04/2017
24/04/2017 UCB	25/04/2017 Novartis Lonza Eli Lilly Biogen Chugai	26/04/2017 GSK Orion Amgen Baxter Vertex*	27/04/2017 Roche AstraZeneca Bayer Ipsen Bristol-Myers Squibb AbbVie Celgene Biomarin Alexion*	28/04/2017 Sanofi
01/05/2017 Alnylam*	02/05/2017 Shire Pfizer Merck & Co Gilead	03/05/2017 Novo Nordisk	04/05/2017 Recordati Alkermes* Five Prime Therapeutics* Akebia* Tesaro* Accelaron Pharma* Clovis Oncology* OvaScience* PTC Therapeutics*	05/05/2017
08/05/2017 Almirall Incyte* FibroGen* Ultragenyx*	09/05/2017 Prothena*	10/05/2017 H Lundbeck Eisai Takeda Santen	11/05/2017 Teva Regeneron* Agiros Pharma* Sumitomo Dainippon Daiichi Sankyo	12/05/2017 Dr Reddy's*
15/05/2017 Puma Biotechnology* Ignyta* Coherus*	16/05/2017	17/05/2017	18/05/2017	19/05/2017 Merck KGaA Hikma

Source: Company data, Credit Suisse estimates, Bloomberg

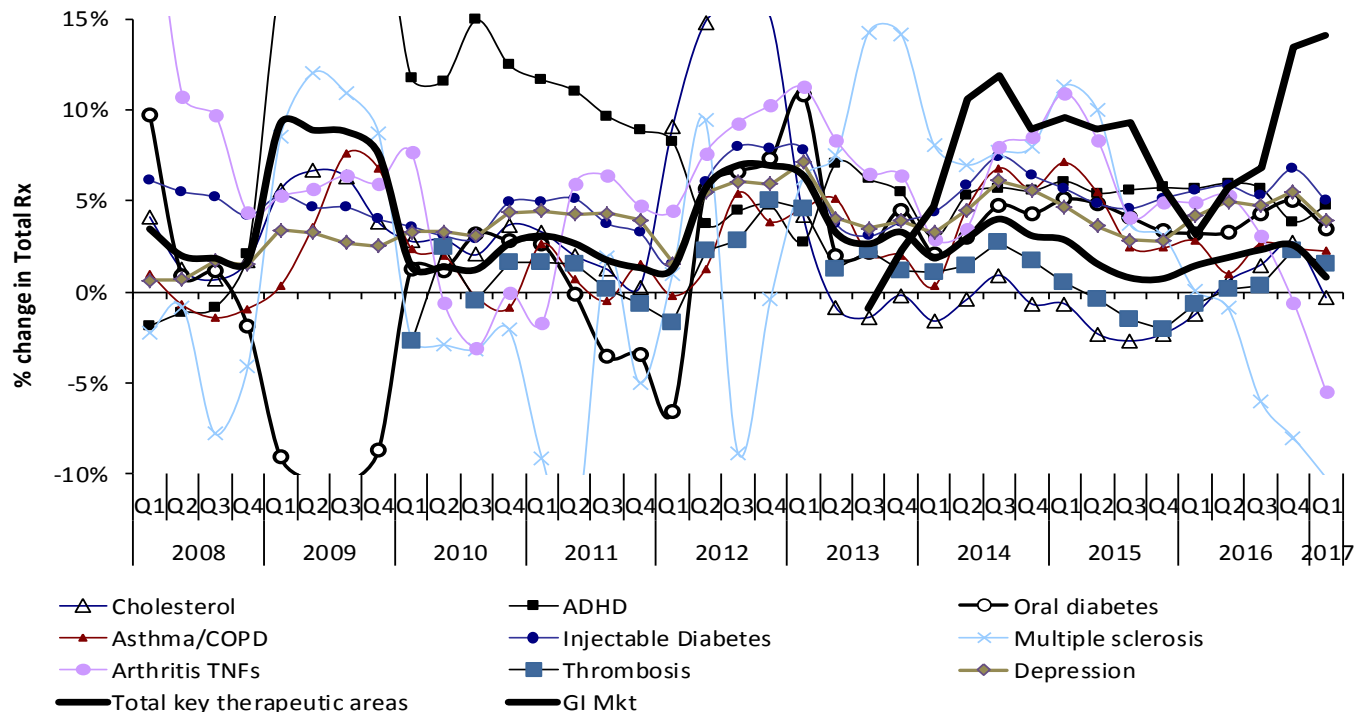
* (star) marked companies are estimates



Review of US quarterly pharma trends

US prescription demand

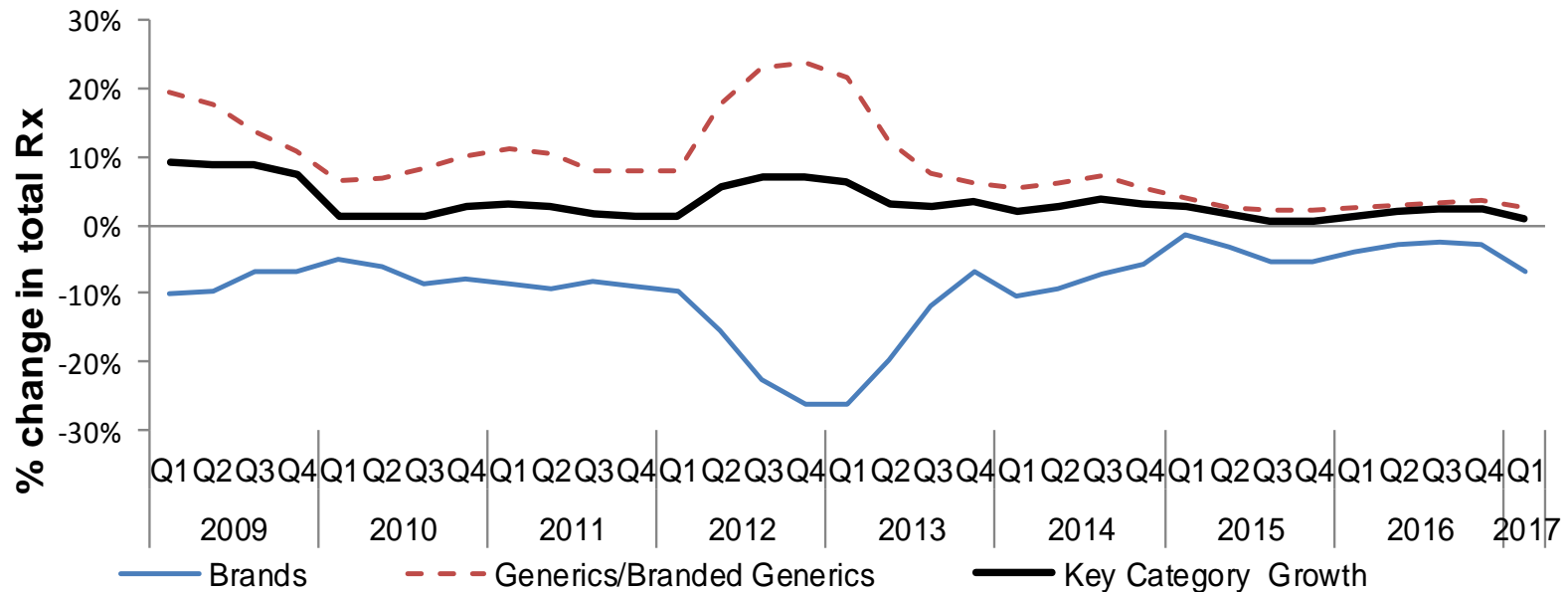
1Q17 Overall Key Category Rx growth +0.8% vs. 4Q16 +2.6% YoY (brands -6.6%; generics +2.4%)



- The strongest growth category in 1Q17 was GI, having accelerated from a dip in 1Q16 of 3.2% YoY to growth of 14.1% in 1Q17 driven by generics (+20% YoY). ADHD & Injectable Diabetes product growth remains high at around 5% YoY in 1Q17.
- Cholesterol lowering scripts declined this quarter to -0.3% YoY following growth throughout 2016. The rollout of the PCSK9's (Praluent and Repatha) is still modest.
- In 1Q17 Multiple Sclerosis products saw a -10% decline YoY, largely stemming from a fall in the interferons (average -19%) but also Copaxone (-13%), Tecfidera (-11%) and Gilenya (-7%). This could be potential warehousing ahead of Ocrevus launch.

Source: IMS Health, Credit Suisse research

US prescriptions – breakdown of brands and generics

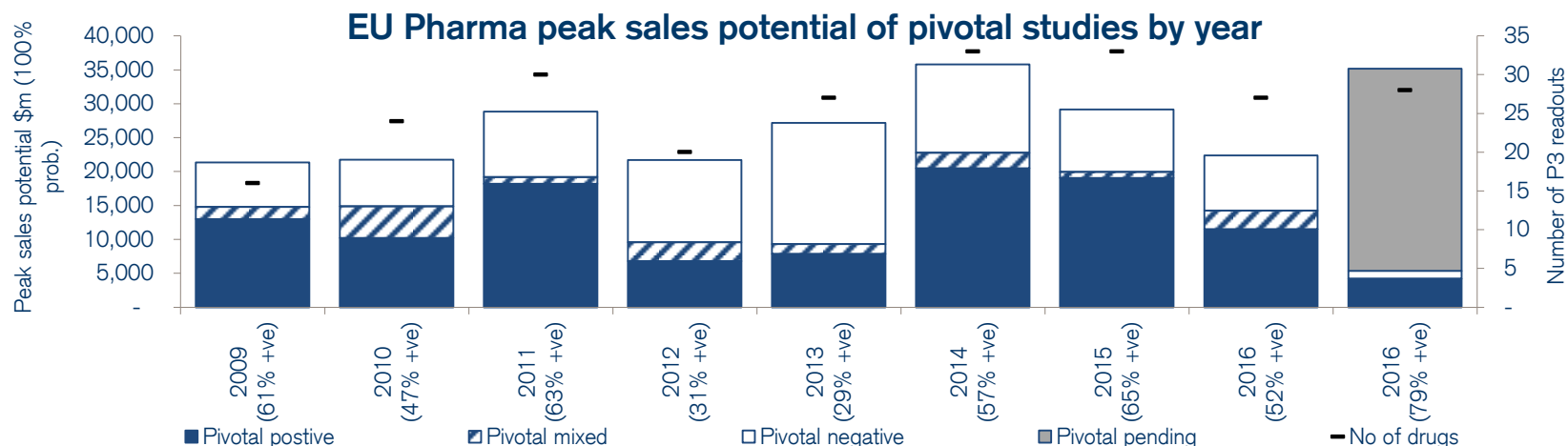


- QoQ decline of branded Rx prescription volumes saw a step down in 1Q17 (-2.8% vs. -6.6% in 4Q16)
- Generics QoQ Rx prescription volume growth declined slightly in 1Q17 compared to 4Q16 (+2.4% in 1Q17 vs. +3.7% in 4Q16)

Source: IMS Health, Credit Suisse research

Our key questions for 1Q results include:

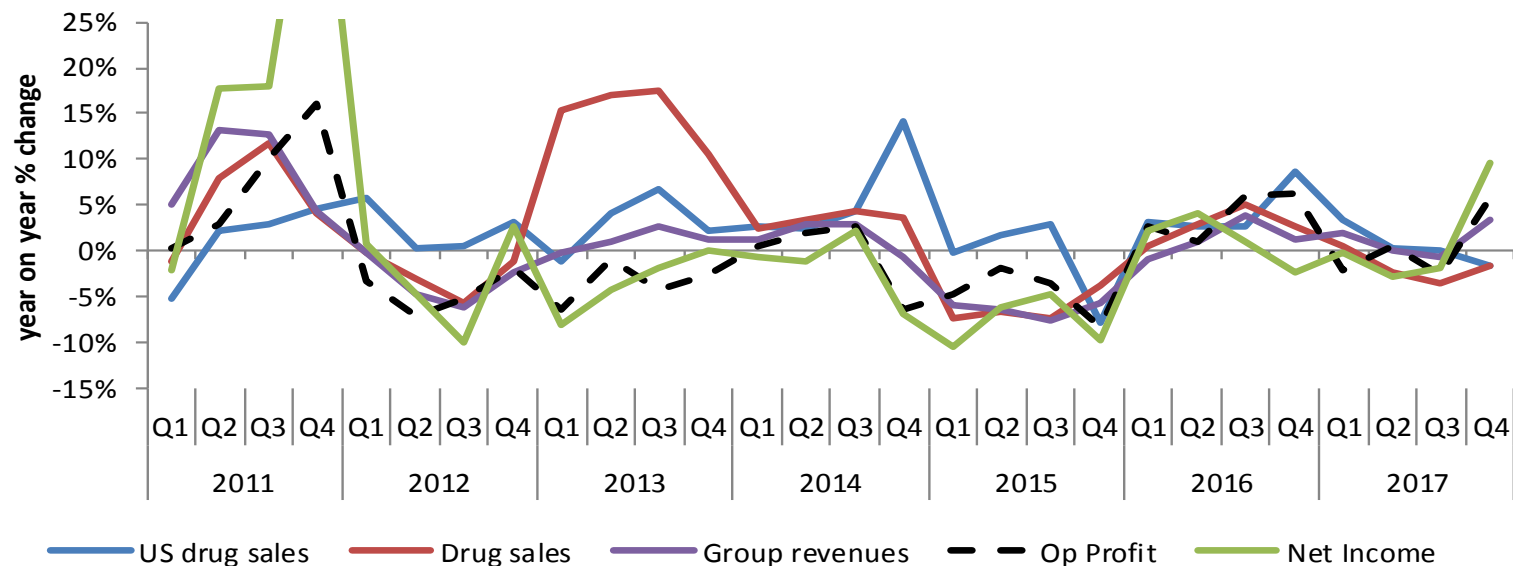
- **New products:** Update on progress for key drug launches such as Entresto, Xiidra, Ocrevus and Dupixent. Any changes to formulary positions and barriers to adoption from payers?
- **US politics:** How does the industry expect net prices to develop following President Trump's failed repeal of the ACA? Following JNJ 1Q commentary on 'higher access charges' and 'donut hole adjustments' for Xarelto, we expect a lot of discussion about US gross to net adjustments ([CS Ideas Engine US pricing](#))
- **Biosimilars:** 2017 will be the first year for many biosimilars including EU biosimilar Rituxan, Truxima, approval in the EU in Feb '17 with Herceptin expected to be approved in 1Q17. We expect discussion and questions around company assumptions of speed of adoption
- **ASCO:** We look for the announcement of key data to be presented at ASCO (IO, IO-combo, APHINITY).
- **Emerging market performance:** How has currency volatility impacted the underlying purchasing of drugs in EM and how has FX volatility impacted translation of sales/profits back to home countries?
- **R&D productivity:** In 2017 we expect total of \$35bn of peak sales of drugs to be derisked in pivotal trials for EU majors. \$5.3bn has been derisked to-date (79% positive). However, there has been a number of CRLs from the FDA – has there been a personnel change that might explain this more risk adverse approach?



What we expect for 1Q17 results

- In 1Q17 we are looking for 0.6% drug sales growth but Operating profit decline of -2.1%.
- We believe this is partly driven by generic erosion (Lantus, Gleevec, Crestor, Seroquel etc.), and launch investments (Ocrevus, Dupixent, Praluent, and Cosentyx)

Aggregate universe growth (underlying data in \$m)



Source: Credit Suisse estimates



US Pricing trends

US list prices and rebates

Company	2016 US Rx sales \$m	List Price Rises									Rebates			2016 Net Price (est)*
		FY2015	FY2016	1Q	2Q	3Q	4Q	2017 1Q	2017 Apr	Avg 2017 YTD	FY13	FY14	FY15	
Abbvie	15927	23.2%	22.2%	32.7%	23.5%	16.1%	16.6%	15.5%	15.5%	15.5%	32%	35%	40%	17.3%
Alexion	118	3.3%	3.1%	0.0%	2.4%	5.0%	5.0%	5.0%	5.0%	5.0%				
Allergan	11663	14.3%	10.2%	14.0%	10.1%	8.9%	7.8%	7.5%	6.6%	7.3%				
Amgen	17923	6.2%	10.6%	6.3%	12.3%	14.1%	9.6%	13.2%	13.2%	13.2%	27%	29%	31%	9.0%
BIIB	8500	11.7%	11.0%	10.4%	14.8%	12.8%	6.0%	10.3%	10.3%	10.3%	23%	23%	25%	8.7%
Biomarin	595	0.4%	0.8%	0.3%	0.3%	0.3%	2.4%	5.6%	5.6%	4.0%		8%	9%	-0.2%
BMJ	10720	7.7%	6.2%	3.8%	6.9%	6.6%	7.3%	7.7%	6.6%	7.4%	35%	35%	35%	6.2%
Celgene	6979	4.3%	16.4%	14.3%	15.2%	18.0%	18.2%	10.6%	11.4%	16.9%	14%	15%	16%	15.2%
Gilead	19298	0.7%	5.5%	5.1%	5.1%	5.9%	5.9%	3.0%	3.0%	2.5%	21%	20%	36%	-10.8%
Incyte	853	9.3%	9.7%	10.2%	10.2%	9.2%	9.2%	3.0%	9.1%	7.6%				
JNJ	20125	9.7%	9.6%	9.3%	10.4%	9.3%	9.3%	11.5%	8.5%	11.2%	30%	32%	37%	4.1%
Lilly	9942	16.8%	13.7%	14.9%	12.1%	16.1%	11.5%	11.0%	11.0%	13.0%	26%	32%	39%	7.0%
Merck	17074	11.6%	9.4%	9.4%	10.1%	10.6%	7.5%	5.6%	5.1%	5.7%	28%	32%	34%	7.8%
Pfizer	20119	13.8%	11.4%	12.8%	11.3%	10.6%	10.9%	9.6%	9.6%	9.6%	28%	31%	34%	8.7%
Regeneron	3337	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		6%	7%	0.0%
Teva	6724	13.8%	7.8%	7.2%	7.6%	8.3%	8.3%	7.9%	7.9%	7.9%	41%	50%	56%	1.8%
Vertex	1289	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		9%	10%	0.0%
AZN	7474	10.8%	9.1%	9.9%	10.1%	8.8%	7.7%	7.7%	6.4%	7.3%	55%	57%	60%	5.7%
Bayer	4655	11.0%	8.8%	7.5%	9.7%	8.9%	8.9%	7.7%	7.1%	7.4%				8.8%
GSK	11431	7.1%	8.3%	9.5%	9.5%	7.1%	7.0%	5.6%	6.1%	5.7%	31%	37%	50%	-4.9%
Novartis	10897	13.6%	11.8%	11.5%	14.2%	12.3%	9.3%	9.9%	9.7%	9.3%	28%	27%	25%	13.9%
Novo N	8498	18.9%	7.5%	9.5%	6.3%	9.3%	4.8%	7.9%	7.9%	7.1%	46%	47%	55%	-0.1%
Roche	18782	5.1%	5.9%	5.7%	5.7%	5.9%	6.1%	6.1%	6.3%	6.1%				5.9%
Sanofi	12777	12.4%	4.4%	5.3%	5.4%	3.4%	3.5%	4.4%	4.1%	4.4%	40%	45%	49%	0.6%
Lundbeck	1249	30.8%	22.3%	29.6%	25.7%	17.3%	16.4%	8.6%	11.4%	12.1%		11%	22%	11.3%
Merck KGaA	1783	12.9%	8.2%	9.3%	9.3%	7.1%	7.1%	9.5%	9.5%	9.5%		14%	18%	4.2%
Shire	8901	7.9%	9.2%	9.7%	9.7%	8.1%	9.5%	6.5%	6.5%	6.3%	33%	32%	33%	8.5%
UCB	1955	9.2%	4.5%	4.5%	4.5%	4.5%	4.5%	9.5%	9.5%	9.5%		24%	25%	3.5%
Universe	265327	10.5%	9.6%	10.2%	10.1%	9.6%	8.5%	8.3%	8.0%	8.4%	40%	27%	31%	4.5%
US average	176926	10.2%	10.3%	10.9%	10.8%	10.4%	9.1%	8.8%	8.4%	9.1%	28%	26%	31%	4.8%
EU average	88401	10.5%	7.9%	8.5%	8.6%	7.6%	6.9%	6.9%	6.8%	6.7%	72%	28%	32%	3.4%

Source: Wolters Kluwer, Pricing database, Credit Suisse estimates. *Net price estimate based on avg. 2016 list price rise less change in rebates 2015/14, Jan price rises up to 10% Jan

Key US Price rises for Individual EU Companies

Company	Drug Name	Within 1Q 2017			YoY price rise (1Q17/1Q16)	Apr-17
		Jan	Feb	Mar		
Almirall	Acticlate	5%			5%	
	Monodox					
AstraZeneca	Nexium					
	Tudorza Pressair	7%			7%	
	Onglyza	6%			6%	
	Crestor	5%			5%	
	Bydureon	8%			13%	
	Symbicort	6%			6%	
	Prilosec					
	Tagrisso	5%				
	Lynparza	5%			5%	
	Brilinta	8%			8%	
	Byetta	10%			15%	
Bayer	Beyaz				21%	10%
	Xarelto		8%		16%	
	Betaseron				3%	
	Natazia				21%	10%
GSK	Nexavar	9%			14%	
	Lovaza					
	Flovent Diskus	8%			8%	
	Lamictal				10%	
	Coreg CR	9%			9%	
	Advair Diskus	8%			8%	
	Avodart	9%			9%	
	Promacta	7%			14%	
	Requip					
	Veramyst					
	Ventolin HFA	3%			3%	
	Imitrex	9%			9%	
	Wellbutrin SR	9%			9%	
	Breo	8%			8%	
	Anoro					
	Triumeq	8%			8%	
	Tivicay	8%			8%	
	Flonase					
	Benlysta				3%	1%
Ipsen	Dysport		3%		3%	
	Somatuline				9%	4%
Lundbeck	Sabril	10%			10%	
	Trintellix	9%			20%	
	Rexulti				8%	8%
	Xenazine	10%			10%	
Merck KGaA	Onfi				5%	10%
	Rebif	6%			11%	
	Gonal-F	6%			6%	
	Saizen	5%			5%	

Company	Drug Name	Within 1Q 2017			YoY price rise (1Q17/1Q16)	Apr-17
		Jan	Feb	Mar		
Novartis	Exforge	5%			15%	
	Femara					
	Gleevec					
	Afinitor	7%			14%	
	Trileptal	5%			15%	
	Stalevo	5%			15%	
	Extavia	7%			10%	
	Pataday	5%			5%	
	Neoral	3%			8%	
	Travatan Z	4%			4%	
	Lamisil				10%	
	Vigamox	4%			4%	
	Exjade	7%			14%	
	Lotrel	5%			15%	
	Comtan	5%			15%	
	Myfortic	3%			6%	
	Tasigna	7%			9%	
	Arcapta Neohaler					10%
	Mekinist	2%			2%	
Novo Nordisk	Tafinlar	3%			3%	
	Gilenya			6%	11%	
	Cosentyx			6%	10%	
	Entresto				8%	
	Sandostatin LAR	5%			12%	
	Levemir (inc vial)					
Novo Nordisk	Levemir flextouch					
	Novolog		8%		16%	
	Novolog Mix 70/30		8%		16%	
	Novolin 70/30				8%	
	Victoza				8%	
Orion	NovoSeven RT		14%		14%	
	Comtan	5%			15%	
Roche	Boniva	5%			5%	4%
	Esbriet				5%	
	Tamiflu				7%	
	Tarceva				8%	
	Herceptin	3%			6%	
	Rituxan	4%			8%	
	Avastin	2%			5%	
	Actemra	5%			10%	
	Pegasys	5%			5%	
Sanofi	Lantus					
	Lantus solostar					
	Ambien				10%	5%
	Ambien CR				10%	5%
	Aubagio				3%	
Shire	Renagel					
	Multaq				10%	5%
	Vyvanse	9%			9%	
UCB	Lialda				9%	
	Elaprase		4%		4%	
	Cimzia	5%			10%	
UCB	Vimpat	10%			10%	
	Neupro	10%			10%	
	Keppra	5%			5%	

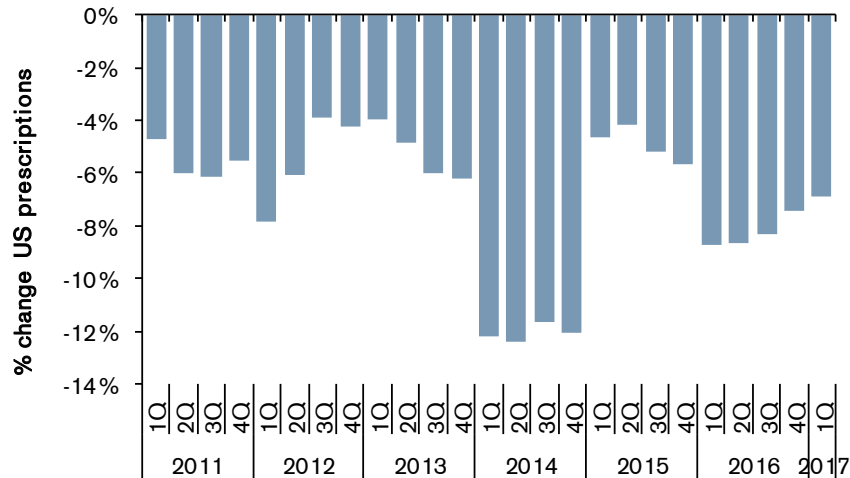
Source: Wolters Kluwer Pricing database Credit Suisse estimates



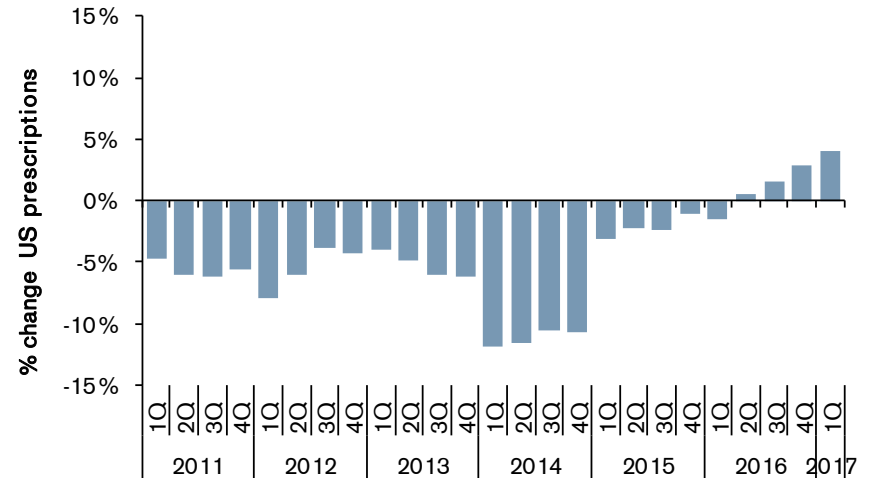
Therapeutic prescription trends

Asthma/ COPD

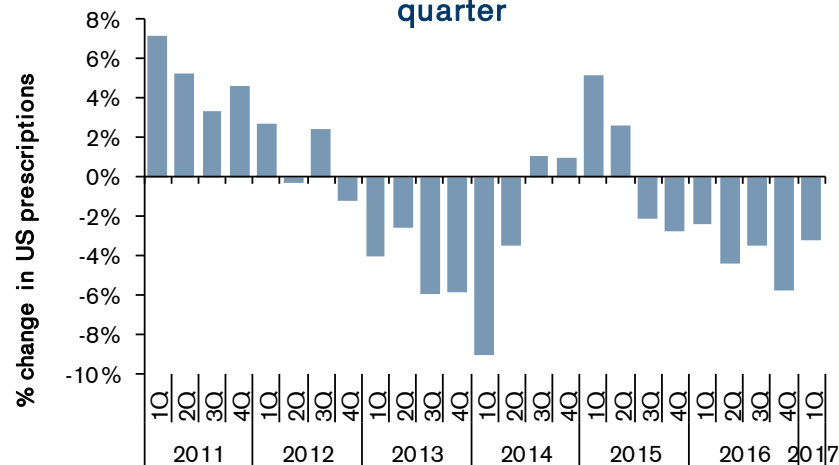
Qtlly TRx % change for GSK's Advair remains stable at negative c7%



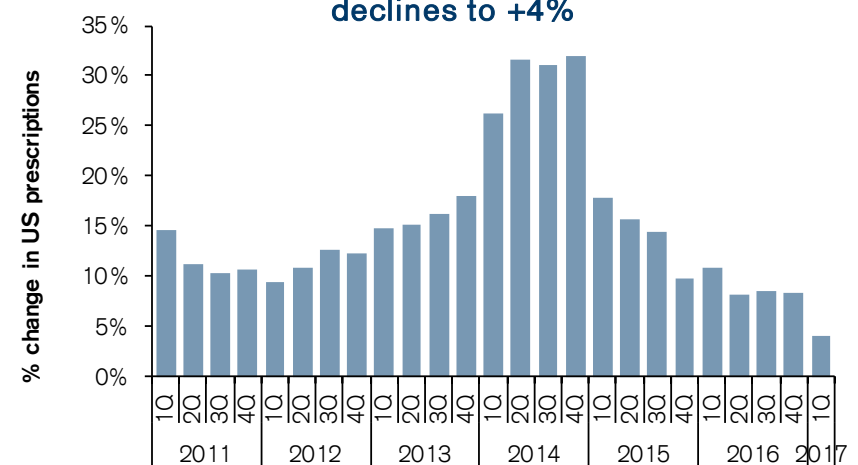
GSK's inhalable respiratory franchise shows growth accelerating (1Q17 +4%) driven by Breo



Qtlly TRx for GSK's Flovent decline slows in the first quarter



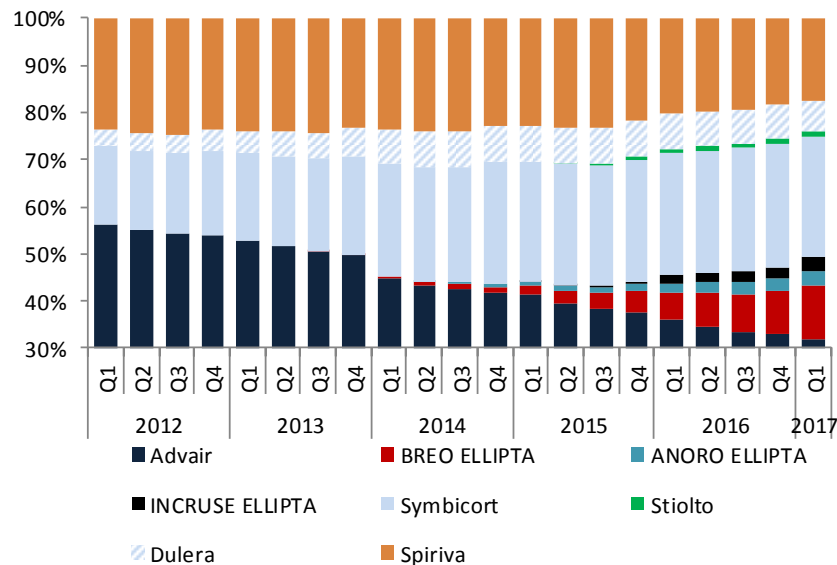
Qtlly TRx growth trend for AZN's Symbicort declines to +4%



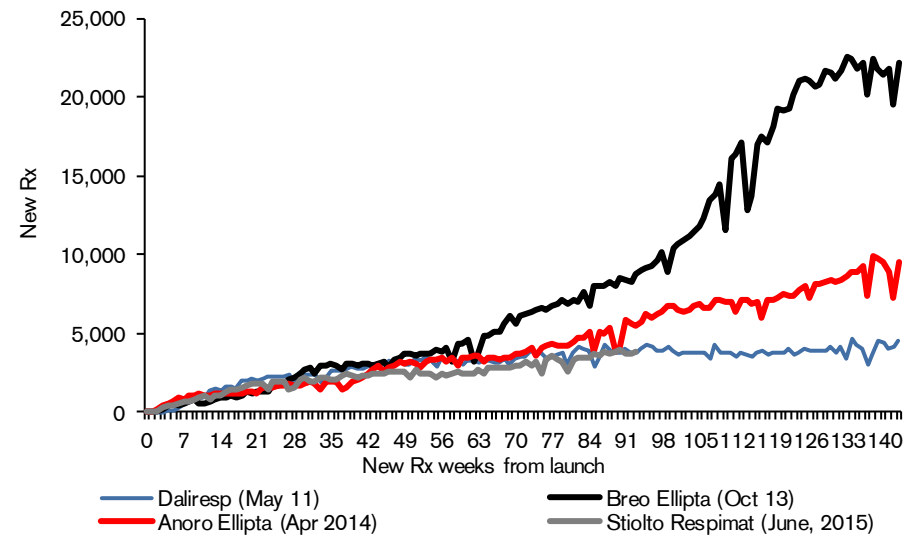
Source: IMS Health, Credit Suisse research

Asthma/ COPD

Share of New Rx for key products: Breo continues to grow as Advair & Spiriva are squeezed



New Rx ramp for selected respiratory launches: BI's Stiolto Ramp in line with GSK's Anoro.

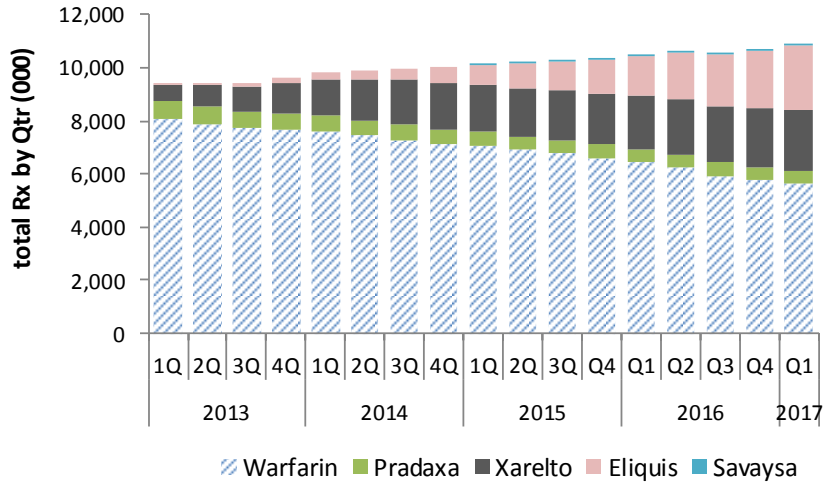


- 1Q17 continued to see stable growth (+5.5%) in Asthma and COPD.
- GlaxoSmithKline's Advair + Breo + Anoro continued to grow through 2016 after six years of decline ahead of Advair generics in 2017 (GDUFA: Hikma 10 May).
- Breo shows strong uptake post the addition of the asthma indication.
- On IMS data Tudorza continues to see significant decline (-33% yoy in 1Q17, -33% in 4Q16 vs. +33% for 2015 average). AZN, which acquired the product from Almirall, has recently entered a strategic collaboration with Circassia for Tudorza and Duaklir.

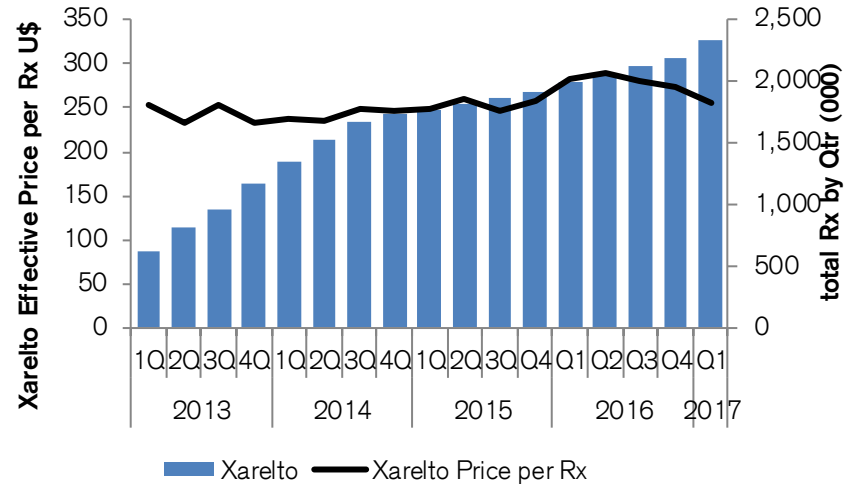
Source: IMS Health, Credit Suisse research

Cardiovascular: Thrombotics

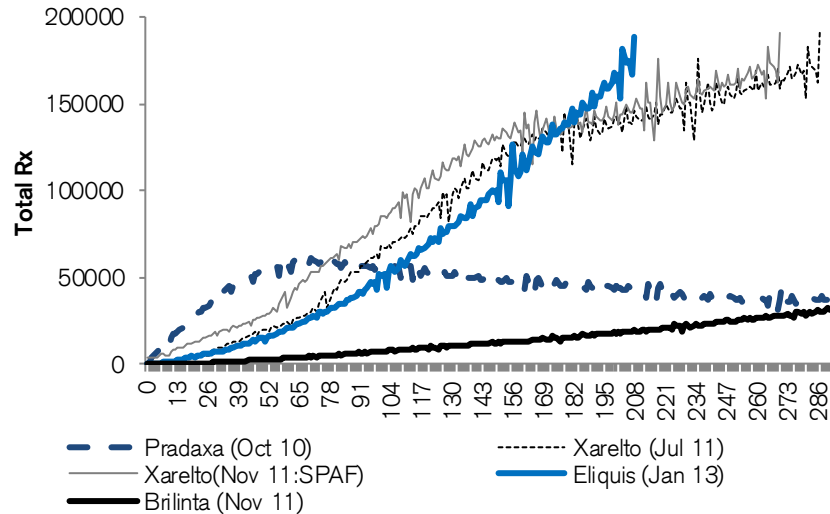
Qtlly TRx for New anti-thrombotics: Gains against warfarin continue (share 52% 1Q17 vs. 62% 1Q16)



Xarelto (Bayer/J&J) growth continues



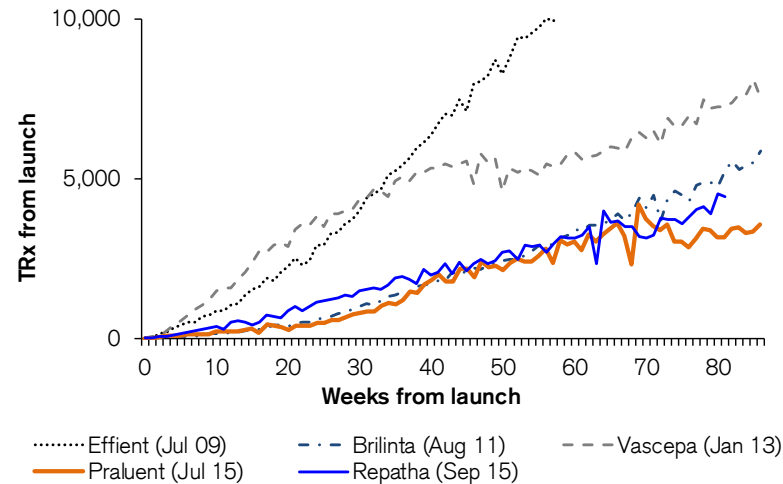
No change in the ramp for Brilinta



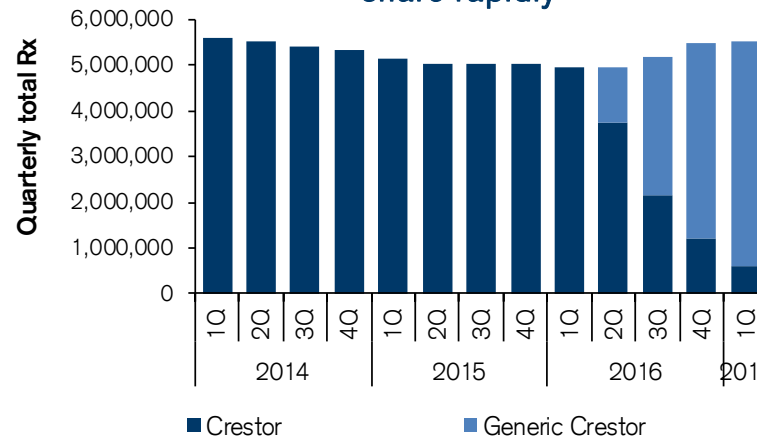
Source: IMS Health, Credit Suisse research

Cardiovascular: Cholesterol lowering

Qtrly TRx for Cardiovascular launches: Modest growth from PCSK9's as reimbursement and access continues to stall launches



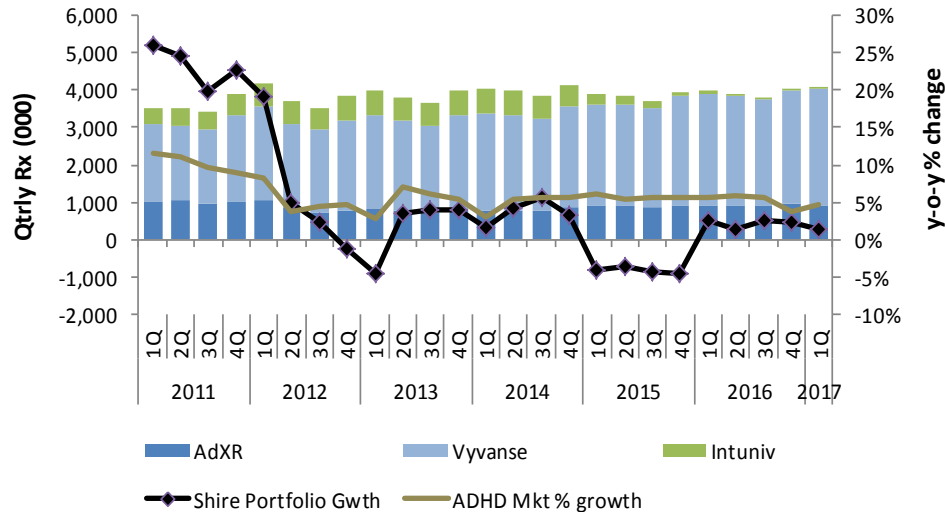
Qtrly Growth in TRx for cholesterol mkt: Crestor generics erode share rapidly



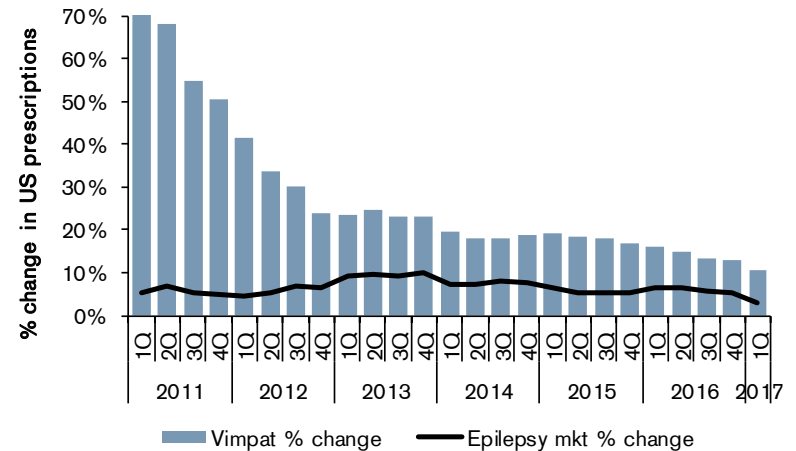
Source: IMS Health, Credit Suisse research

ADHD, Epilepsy & Psychiatry

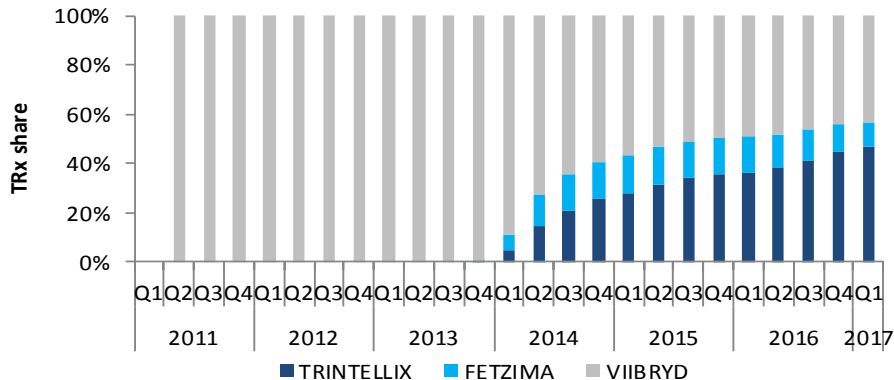
Shire's Vyvanse TRx increased +5.3% QoQ in 1Q17



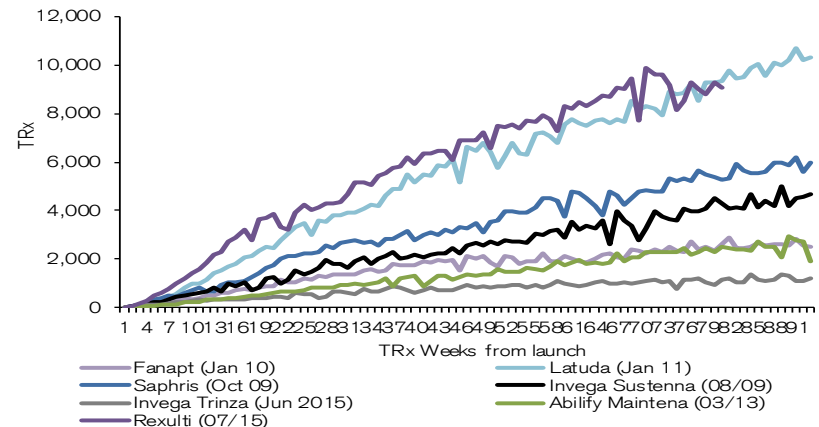
Qtrly TRx for Vimpat continued to grow (+12%) for UCB driven by monotherapy treatment (vs market at 3.1%)



Qtrly TRx for Antidepressants: Trintellix is increasing its share of branded Rx. 1Q at 20% (vs. 19% at 4Q)



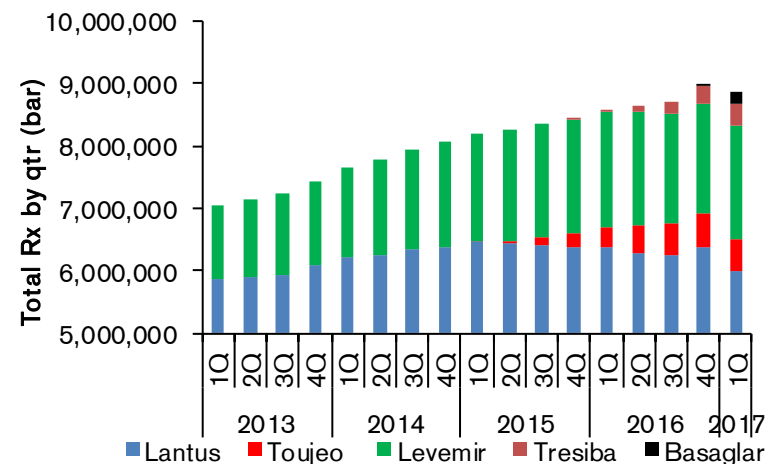
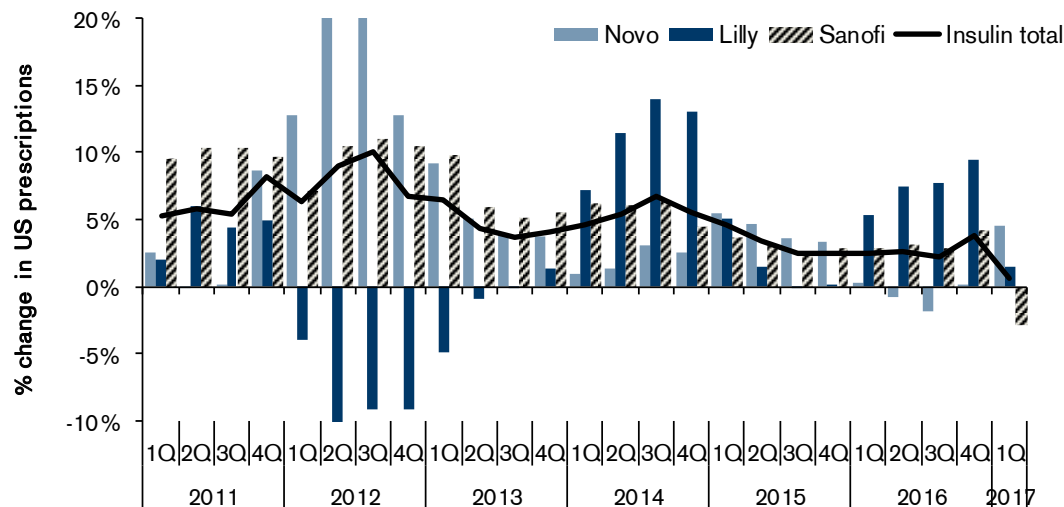
Antipsychotics: Rexulti (Lundbeck) launch slowing



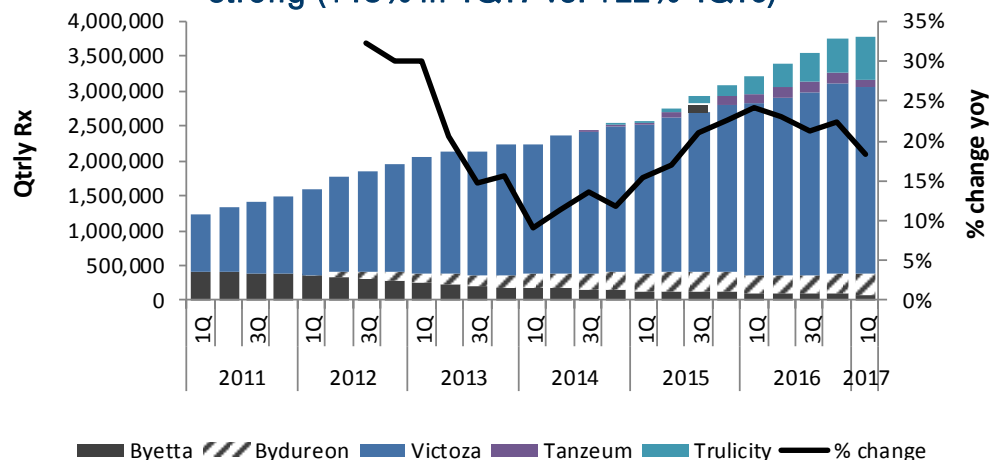
Source: IMS Health, Credit Suisse research

Diabetes Injectables Treatment

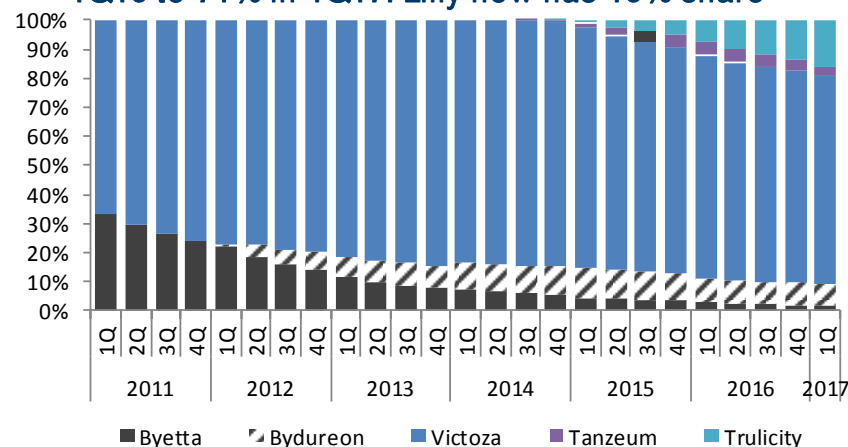
YoY Growth in TRx for insulin decreased marginally (0.6% in 1Q17 vs +4% in 4Q16)



YoY growth in GLP Rx 1Q17 remains strong (+18% in 1Q17 vs. +22% 4Q16)



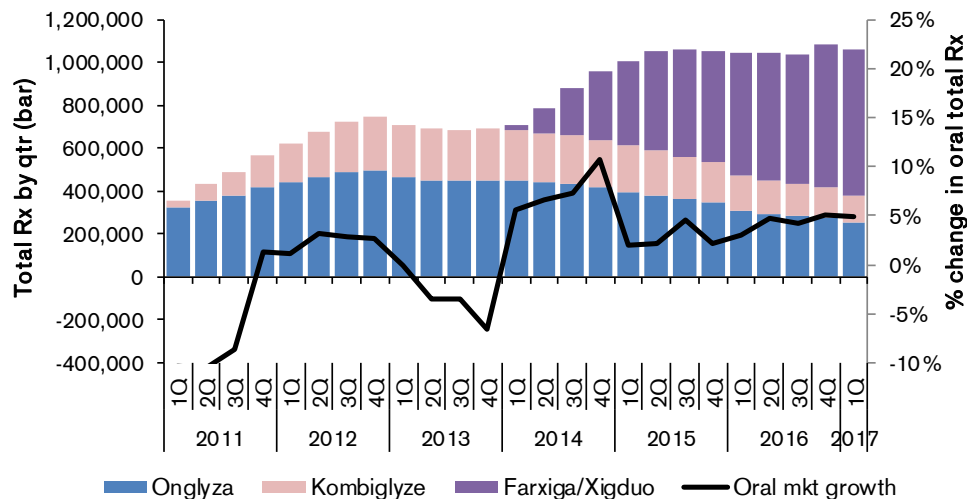
Novo's Victoza market share has fallen from 77% in 1Q16 to 71% in 1Q17. Lilly now has 16% share



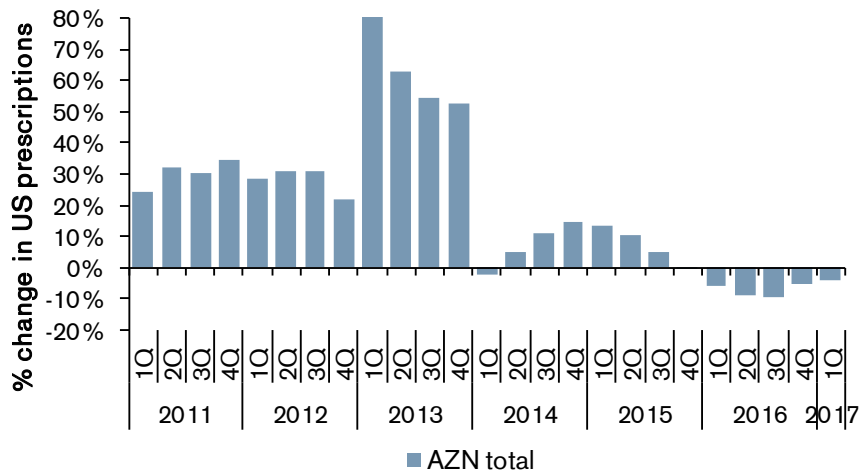
Source: IMS Health, Credit Suisse research

Diabetes oral anti-diabetic drugs

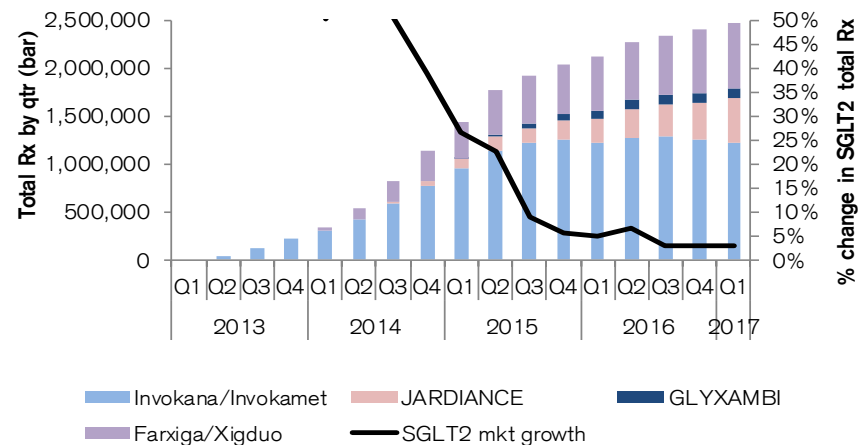
TRx category and AstraZeneca oral anti-diabetic drugs



AstraZeneca diabetes franchise TRx growth



TRx for SGLT-2s

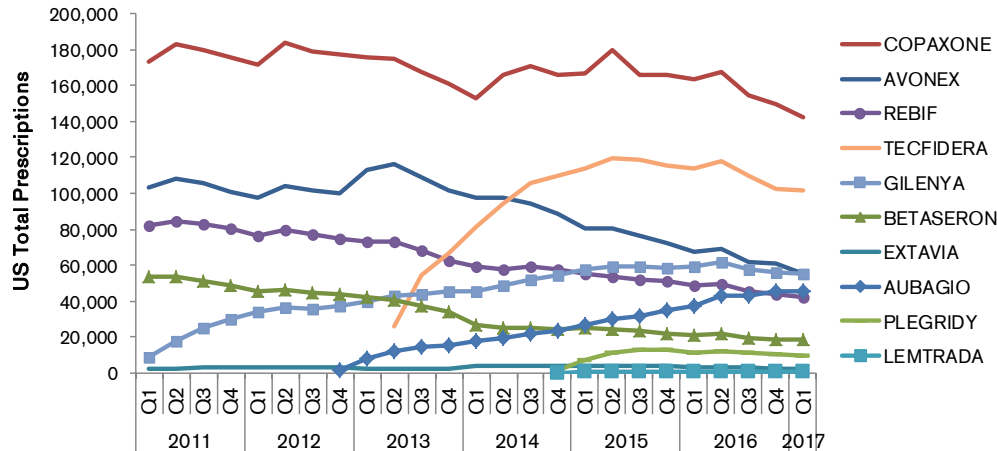


- The Branded oral anti diabetic category TRx growth was +6.6% YoY in 1Q17 (+8.7% in 4Q16)
- In the SGLT-2 market, overall growth was +3% YoY in 1Q17, in line with 4Q16. Jardiance is growing the fastest, while Invokana's scripts remain stable.
- AZN's DPP-4 inhibitors Onglyza/Kombiglyze declined -20% YoY in 1Q17, while SGLT-2 Farxiga and Xigduo grew +20% YoY.
- AZN's total diabetes franchise declined 4% YoY in 1Q17.

Source: IMS Health, Credit Suisse research

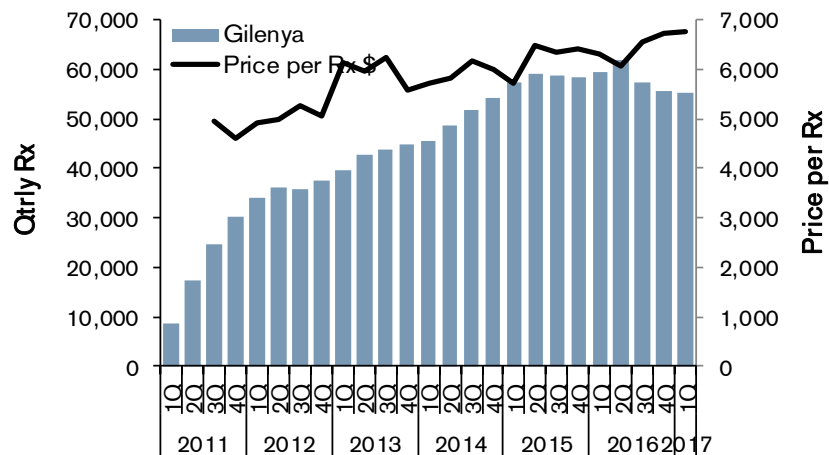
Multiple sclerosis

Qtrly TRx for MS: YoY growth for the category was -10% in 1Q17 (vs -8% in 4Q16)

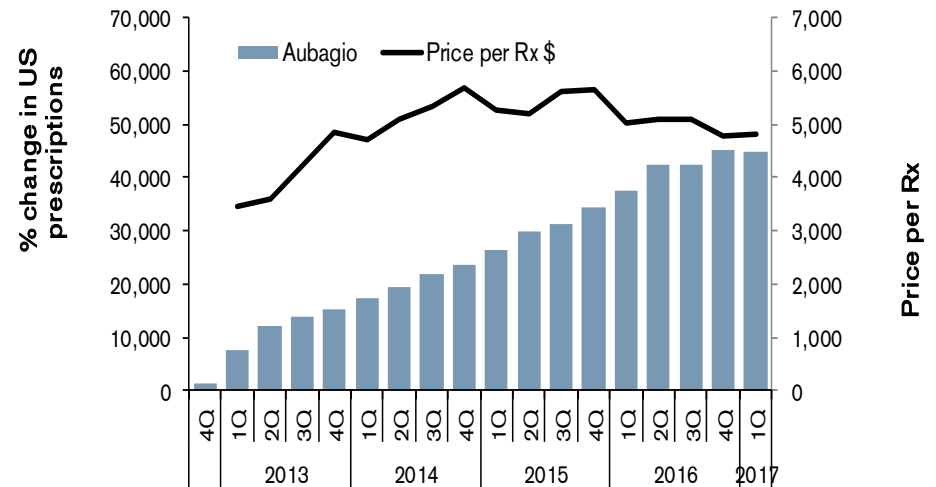


- YoY Aubagio is the only growing oral product (1Q17 +20%)
- In 1Q17 YoY growth for Gilenya (-7%) and Tecfidera (-11%) were negative
- Rebif volumes fell by -14% YoY and -3% QoQ
- We believe the decline is from “warehousing” of patients ahead of the Ocrevus launch

Gilenya (Novartis) Rx and price per Rx – volumes decline in 1Q17



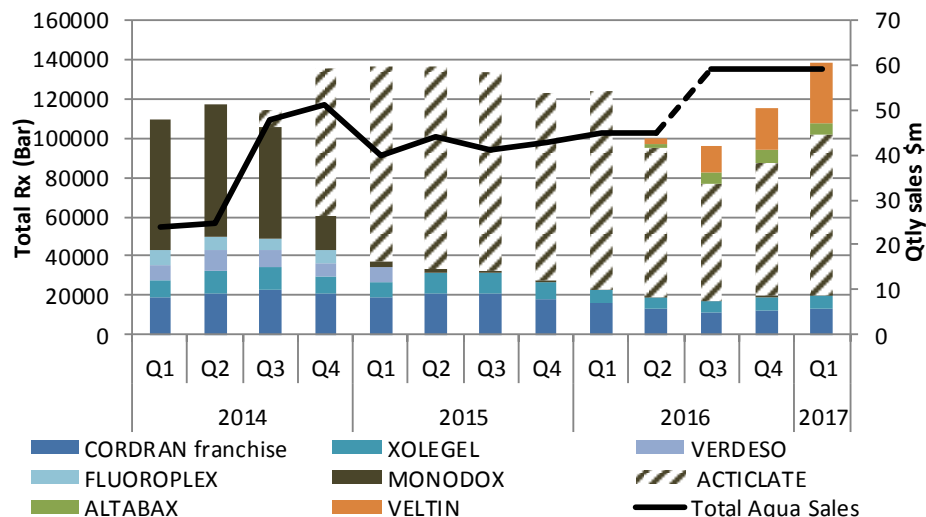
Aubagio Rx– the only growing oral therapy



Source: IMS Health, Credit Suisse research

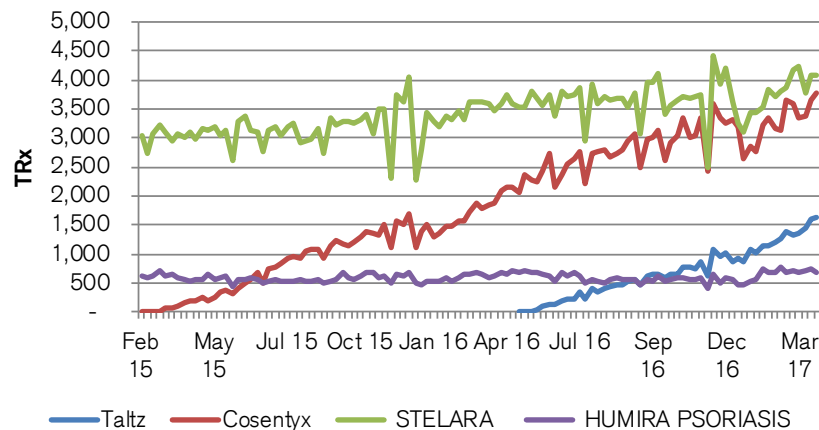
Dermatology

Dermatology assets for Aqua the US division of Almirall



- 1Q17 sales of Acticlate have dropped 20% YoY but +19% QoQ as the market improves for Aqua.
- Vetin and Albatax growth accelerated in 2H16 as Almirall relaunched the products.
- Overall Almirall derm scripts had +6% growth YoY in 1Q17. There is no IMS data to help us gauge the uptake of Thermigen.
- Generic prices in dermatology have been under pressure impacted by scrutiny from the US election year and price increases, notably from Valeant.

Novartis Cosentyx launch slowing from competition by Taltz

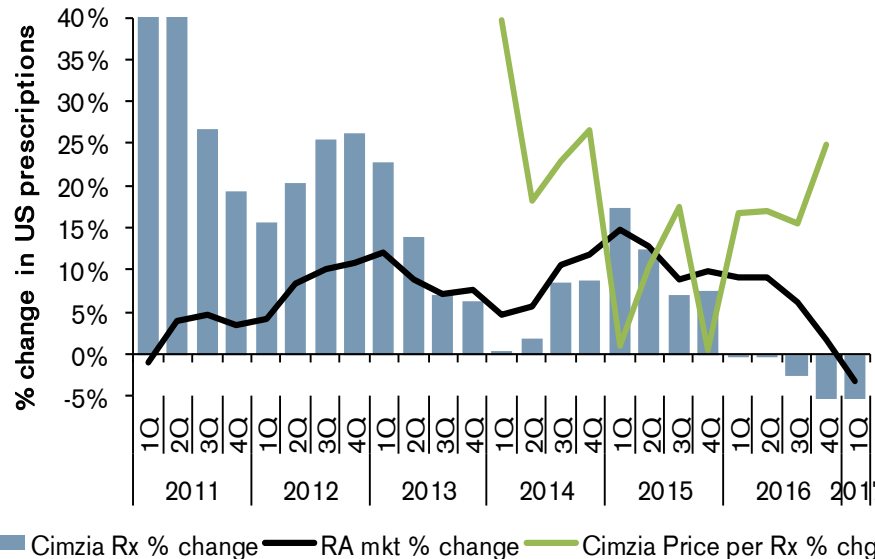


- Cosentyx launch has continued well, as its psoriatic arthritis ankylosing spondylitis indication drives growth, though it is now slowing slightly as it competes with Taltz in psoriasis.
- We expect further pressure on Cosentyx with Taltz's potential approval in psoriatic arthritis, and launch of IL-23 guselkumab in 2017.
- Stelara remains stable

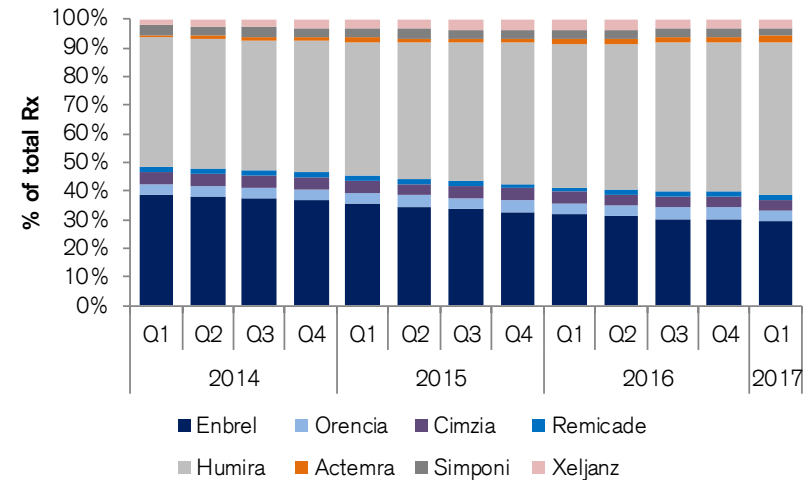
Source: IMS Health, Credit Suisse research

Rheumatoid Arthritis

TRx category and Cimzia (UCB)



% split of TRx the RA market, Humira (AbbVie) & Enbrel (Amgen) account for >80% of the market

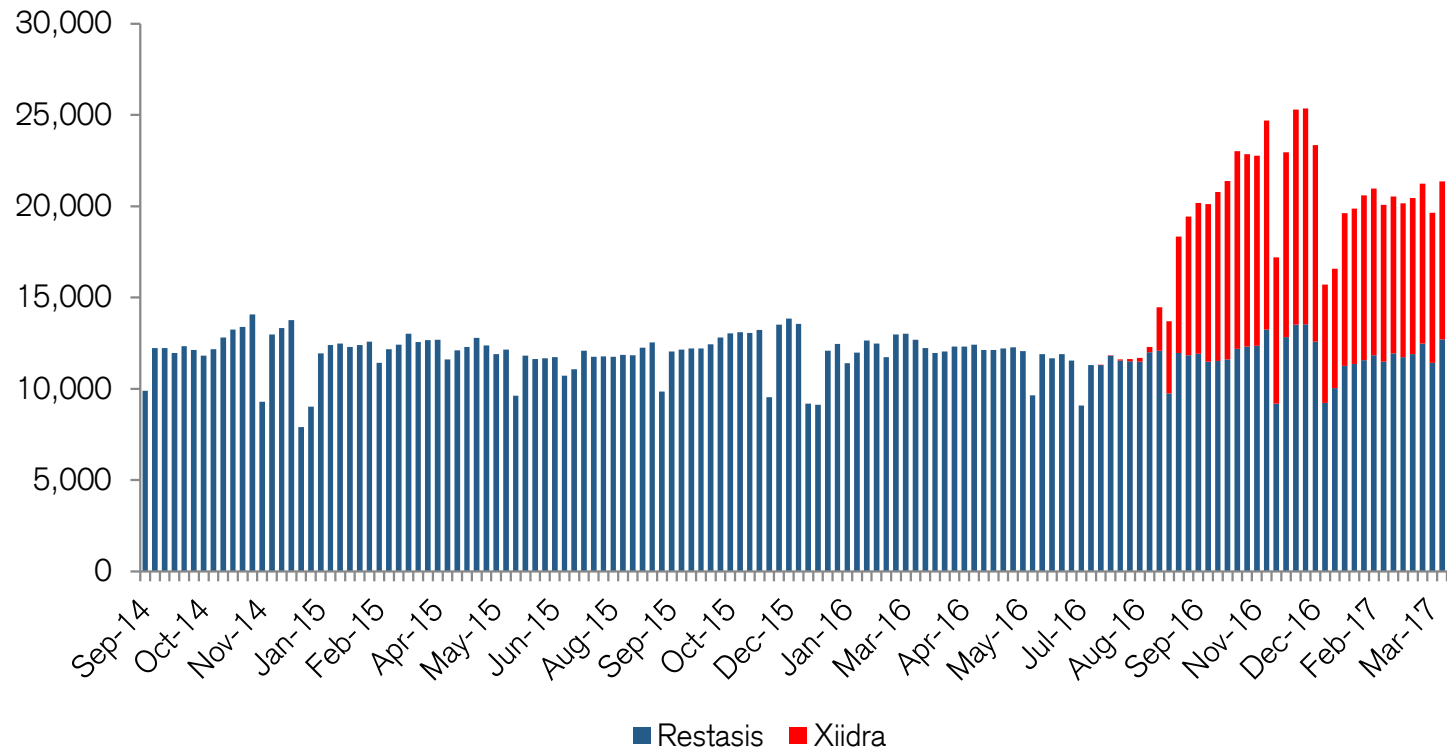


- IMS prescription data shows Cimzia volume growth declining in 1Q17 (4Q -10% & 3Q -2.5%).
- However, we highlight anti-TNF distribution is handled via specialist wholesalers where UCB claim the scripts do not get counted. This has been a problem in 2016, and UCB say they are as frustrated as investors because UCB say that their growth IS coming from volume rather than price.

Source: IMS Health, Credit Suisse research

Dry Eye

Weekly NBRx of Xiidra and Restasis



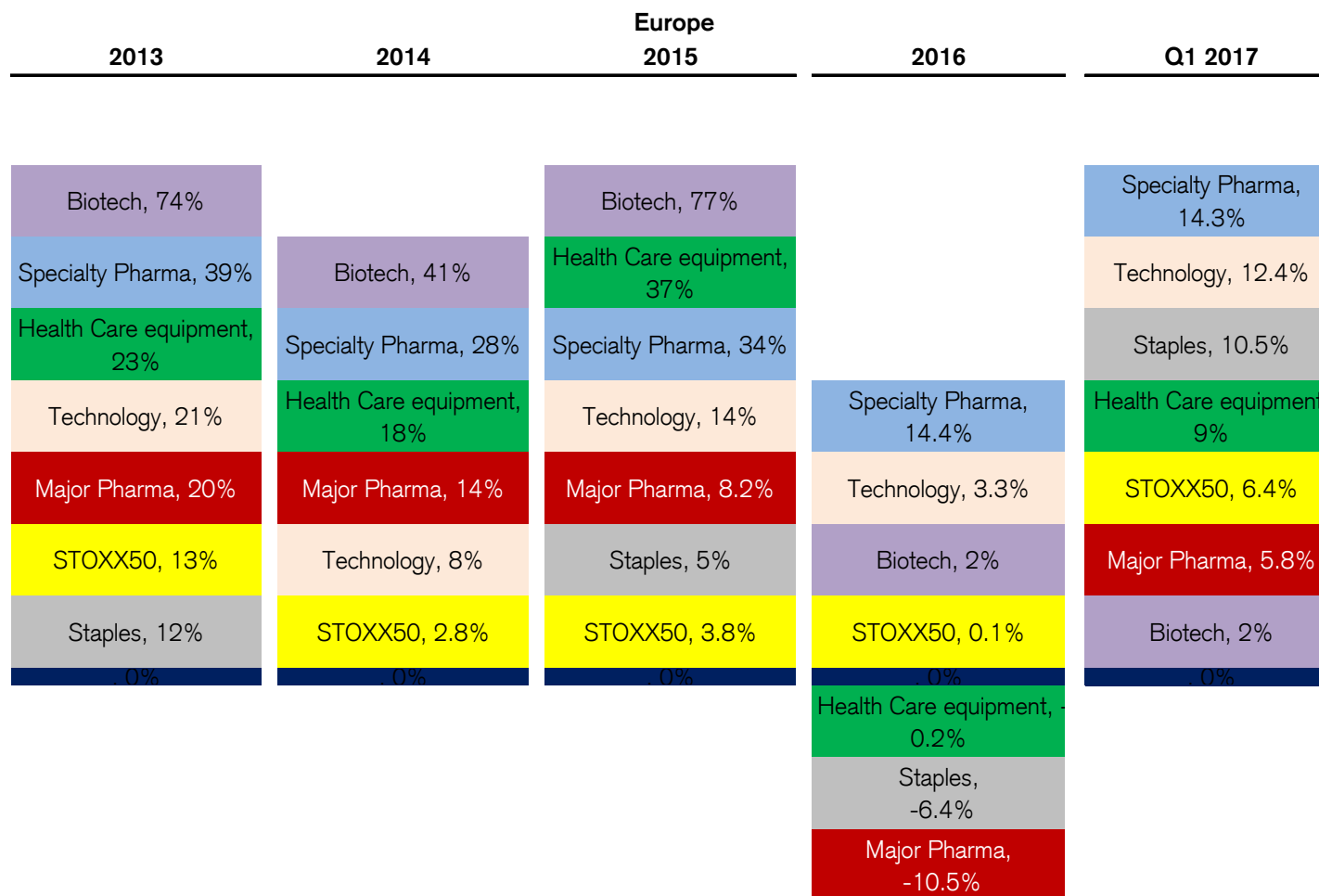
- We continue to see a flattening of the NBRx scripts for Xiidra, which has a one week delay to the TRx data.
- Restasis New to brand scripts have not been impacted, suggesting Xiidra is expanding the market through the broad signs and symptom indication on its label. In addition, Restasis is probably defending its share in part through an increase in advertising, and promotion.
- We look to 1Q17 to further understand what may be sampling vs. paid demand.

Source: IMS Health, Credit Suisse research



Share Price Performance and Sector Valuation

EU sector share price performance



Source: Thomson Reuters, **EU Major Pharma**: Novo, Sanofi, GSK, Bayer, Astra, Shire, Roche, Novartis. **Specialty Pharma**: Almirall, Ipsen, Lundbeck, Merck KGaA, Orion, Meda, Recordati, UCB. European **Biotech**: Actelion, Galapagos, Morphosys, Ablynx, Genmab, Adocia, Sobi, Innate, Cosmo. **Health Care Equi & Services**: Sonova, Getinge, Sartorius, William Demant, Straumann, Smith & Nephew, Coloplast, GN Store Nord, Fresenius, Fresenius Med Care. Pricing as of 18th January

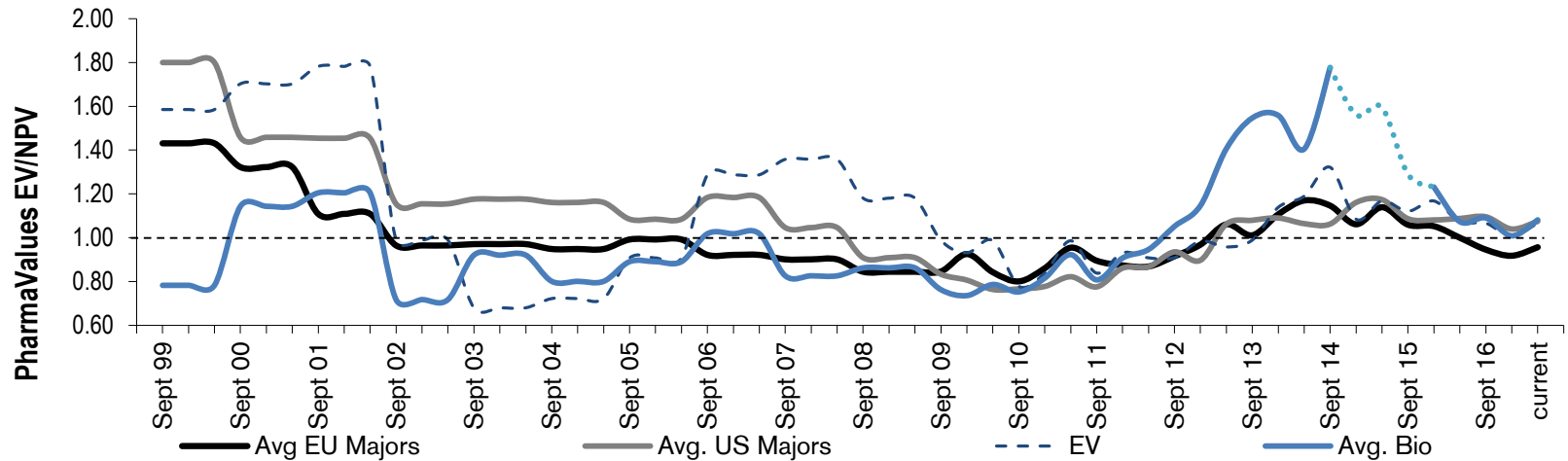
US sector share price performance

2013	2014	US 2015	2016	Q1 2017
Biotech, 70%	Health Care providers & services, 36%			Life Sciences tools, 19.1%
Health Care providers & services, 49%	Life Sciences tools, 33%	Health Care providers & services, 16%		Hospital equipment, 11.2%
Life Sciences tools, 30%	Biotech, 31%	Hospital equipment, 14%		Technology, 11.2%
Hospital equipment, 30%	Hospital equipment, 25%	Life Sciences tools, 13%	Technology, 13.1%	Biotech, 5.9%
Major pharma, 29%	Technology, 19%	Biotech, 7%	S&P, 9.5%	Major pharma, 5.8%
S&P, 25%	Major pharma, 18%	Technology, 4%	Staples, 3.1%	Health Care providers & services, 5.6%
Technology, 22%	Staples, 14%	Major pharma, 4%	Hospital equipment, 2.4%	S&P, 5.5%
Staples, 19%	S&P, 12%	Staples, 3.8%	Major pharma, 0.6%	Staples, 5.4%
0%	0%	0%	0%	0%
		S&P, -0.7%	Health Care providers & services, -2.9%	
			Life Sciences tools, -12.2%	
			Biotech, -14%	

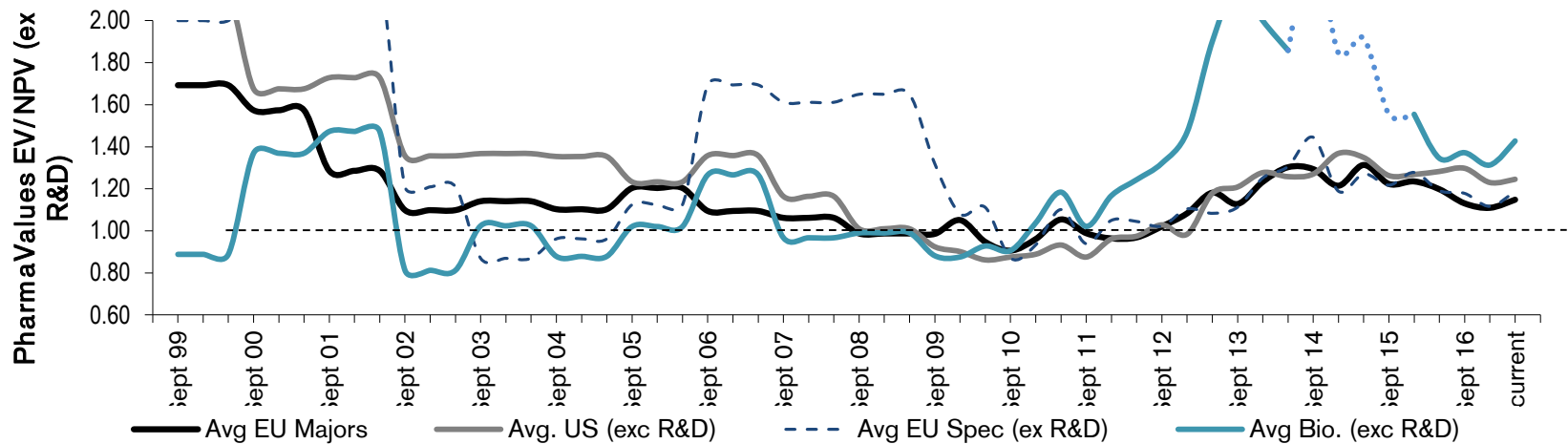
Source: Thomson Reuters. **US Major Pharma:** J&J, Pfizer, Merck, BMS, Lilly, Abbvie. **Biotech:** Gilead, Amgen, Abbvie, Celgene, Biogen, Regeneron, Alexion, Baxalta, Vertex, Incyte, Biomarin, Alkermes, Ionis, Alnylam, Medivation, United Therapeutics. **Hospital Equipment:** Edwards, Mead Johnson, St. Jude, Sirona, Hologic, Thermo, Illumina, Agilent, Waters, Mettler, Myriad. **Health Care providers & Services:** Humana, Centene, Molina, McKesson, Cardinal, UnitedHealth, Express Scripts, Aetna, Cigna, Anthem. **Life Science Tools:** Medtronic, Abbot, Styker, Becton, Boston, Zimmer, Pricing as of 18th January

Sector valuation

EV/NPV

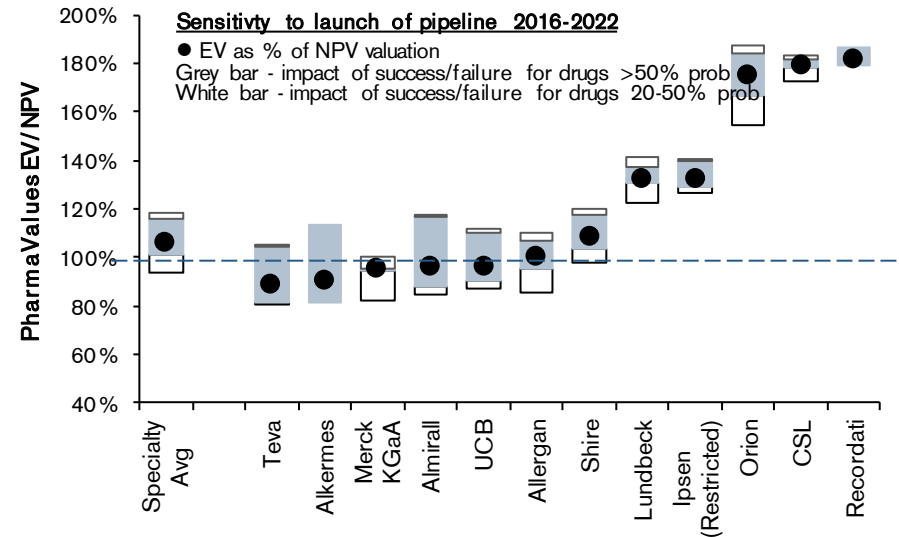
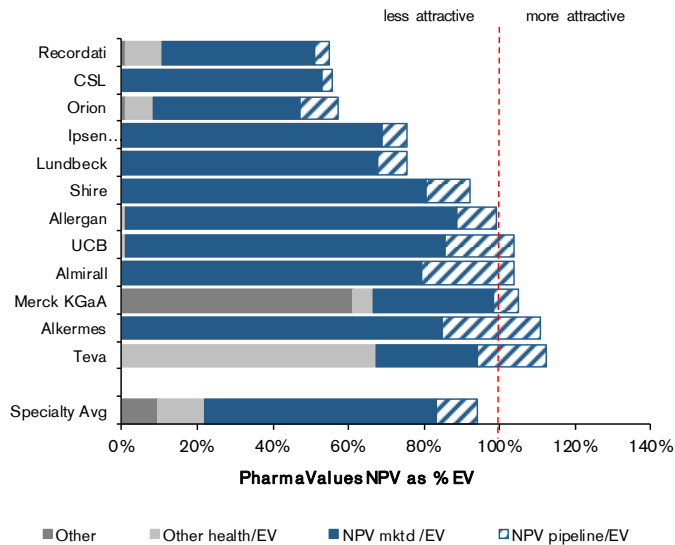
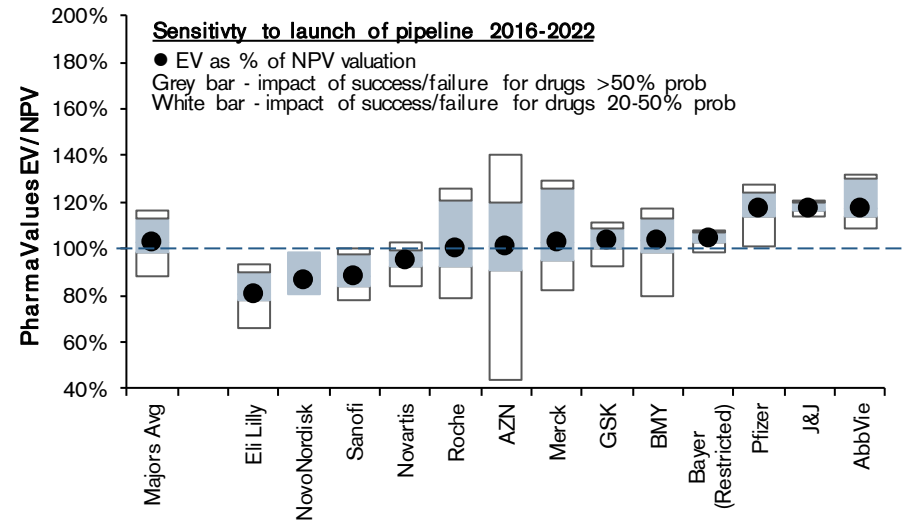
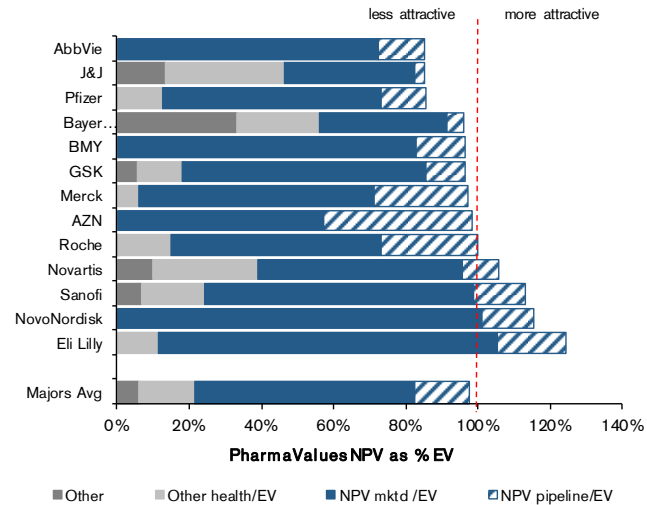


EV/NPV (excluding Pipeline valuation)



Source Credit Suisse PharmaValues

EV NPV and EV/NPV upside/downside on P3 success



Source Credit Suisse PharmaValues

Comparative Valuation

		PE									16-21 L.C Sales growth	16-21 L.C EPS growth	Div Yield 2016E			Equity NPV/ share
		price	2015A	2016E	2017E	2018E	2019E	2020E	2021E					EV/NPV	NPV/ share	
AbbVie Inc.	NEUTRAL	\$	64.3	14.9	13.3	11.8	10.0	9.0	8.3	7.7	5.1%	11.4%	3.7%	1.19	68.0	52.7
Bristol-Myers Squibb Co.	NEUTRAL	\$	53.0	26.3	18.7	19.0	20.5	19.2	17.4	16.8	0.5%	2.2%	2.8%	1.10	49.4	51.1
Eli Lilly & Co.	OUTPERFORM	\$	82.4	24.0	23.4	20.1	20.5	16.6	13.7	11.8	4.6%	14.6%	2.5%	0.79	109.5	107.7
JNJ (IBES data)	RESTRICTED	\$	125.7	20.3	18.7	17.8	17.0	16.0	15.3	14.0				1.17	96.9	108.6
Pfizer	OUTPERFORM	\$	34.0	15.5	14.2	13.3	12.4	12.2	11.3	10.6	1.5%	5.9%	3.5%	1.18	32.1	28.5
Merck & Co., Inc.	OUTPERFORM	\$	62.8	17.5	16.6	16.6	14.9	13.5	12.5	11.5	2.9%	7.6%	2.9%	1.04	61.8	61.2
US Majors average			19.7	17.5	16.4	15.9	14.4	13.1	12.1		2.9%	8.3%	3.1%	1.08		
AstraZeneca	UNDERPERFORM	p	4,743.0	23.5	29.3	45.8	31.5	24.2	16.3	13.0	3.0%	17.7%	4.8%	1.04	5862	4529
Bayer	RESTRICTED	€	106.6	15.7	14.7	14.5	14.1	13.1	12.5	12.1	3.1%	4.0%	253.4%	1.05	13724	9839
GlaxoSmithKline plc	NEUTRAL	p	1,647.0	25.5	17.7	16.5	16.5	15.2	13.8	12.6	5.6%	7.0%	4.9%	1.05	2167	1511
Novartis	NEUTRAL	SF	73.9	15.6	16.5	17.0	14.7	13.5	12.6	11.6	2.6%	7.3%	3.7%	0.96	89.0	78.2
Novo Nordisk A/S	NEUTRAL	DK	253.5	19.9	16.9	16.3	15.0	13.8	12.5	11.2	4.1%	8.5%	3.0%	0.82	270.2	276
Roche	OUTPERFORM	SF	256.7	19.5	18.6	17.2	16.0	15.1	14.0	13.0	3.4%	7.5%	3.2%	1.01	276.9	254
Sanofi	OUTPERFORM	€	85.3	15.1	15.2	15.4	14.5	12.8	11.5	10.8	3.8%	7.0%	3.5%	0.88	115.4	98
Shire Pharmaceuticals	OUTPERFORM	p	4,585.0	14.8	13.2	11.7	10.0	9.1	8.5	8.2	NA	11.8%	0.0%	1.11	56.9	40
EU Majors average			18.7	17.8	19.3	16.1	14.6	12.7	11.6		3.7%	8.2%	34.6%	0.99		
Global Majors average			19.1	17.6	18.1	16.3	14.5	12.9	11.8					1.03		
Almirall	NEUTRAL	€	16.1	58.7	36.7	36.8	31.8	24.4	20.6	18.1	9.4%	15.2%	1.2%	0.93	17.0	16.4
Ipsen	OUTPERFORM	€	95.8	33.9	30.3	27.7	23.7	20.2	17.9	16.2	6.7%	13.3%	0.9%	1.36	68.4	69.7
Lonza	NEUTRAL	SF	193.6	28.2	23.5	18.6	16.8	15.7	14.8	13.9	5.5%	11.1%	1.4%			
Lundbeck	OUTPERFORM	DK	340.0	nr	29.2	22.5	20.8	21.1	20.0	18.3	2.2%	9.7%	0.7%	1.28	234	246
Merck KGaA	OUTPERFORM	€	105.5	22.0	17.2	16.4	15.4	13.8	13.0	12.8	3.1%	6.1%	1.1%	0.96	142	110
Orion	UNDERPERFORM	€	50.0	34.9	32.1	31.3	30.5	28.8	27.3	25.2	4.3%	5.0%	3.1%	1.73	27.4	28.3
Recordati	NEUTRAL	€	33.3	31.6	25.4	24.3	23.9	22.5	21.1	19.8	4.8%	5.0%	1.8%	1.74	18.3	17.9
UCB	OUTPERFORM	€	73.5	40.8	23.4	19.6	19.0	16.3	15.7	15.5	2.8%	8.6%	1.6%	0.95	80.3	75.3
EU Specialty average			35.7	27.2	24.7	22.7	20.4	18.8	17.5		4.9%	9.3%	1.7%	1.28		

Source: Company data, Credit Suisse estimates, prices as of 13th April 2017

Companies Mentioned (Price as of 13-Apr-2017)

AbbVie Inc. (ABBV.N, \$64.13)
Almirall (ALM.MC, €16.07)
AstraZeneca (AZN.L, 4743.0p)
Bayer (BAYGn.DE, €106.55)
Bristol-Myers Squibb Co. (BMY.N, \$52.83)
Eli Lilly & Co. (LLY.N, \$85.88)
GlaxoSmithKline plc (GSK.L, 1647.0p)
Ipsen (IPN.PA, €95.8)
Johnson & Johnson (JNJ.N, \$124.99)
Lonza (LONN.S, SFr193.6)
Lundbeck (LUN.CO, Dkr340.0)
Merck & Co., Inc. (MRK.N, \$62.61)
Merck KGaA (MRCG.DE, €105.45)
Novartis (NOVN.S, SFr73.9)
Novo Nordisk A/S (NOVOB.CO, Dkr253.5)
Orion (ORNBV.HE, €49.95)
Pfizer (PFE.N, \$33.88)
Recordati (RECI.MI, €33.33)
Roche (ROG.S, SFr256.7)
Sanofi (SASY.PA, €85.33)
Shire Pharmaceuticals (SHP.L, 4585.0p)
UCB (UCB.BR, €73.46)

Disclosure Appendix

Analyst Certification

Rebekah Harper, Trung Huynh, James Wallis, PhD, Jo Walton and Matthew Weston PhD 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.

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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, the expected total return (ETR) calculation includes 12-month rolling dividend yield. An Outperform rating is assigned where an ETR is greater than or equal to 7.5%; Underperform where an ETR less than or equal to 5%. A Neutral may be assigned where the ETR is between - 5% and 15%. The overlapping rating range allows analysts to assign a rating that puts ETR in the context of associated risks. Prior to 18 May 2015, ETR ranges for Outperform and Underperform ratings did not overlap with Neutral thresholds between 15% and 7.5%, which was in operation from 7 July 2011.*

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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.

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Global Ratings Distribution		
Rating	Versus universe (%)	Of which banking clients (%)
Outperform/Buy*	45%	(64% banking clients)
Neutral/Hold*	39%	(61% banking clients)
Underperform/Sell*	14%	(54% banking clients)
Restricted	2%	

**For purposes of the NYSE and FINRA 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.*

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See the Companies Mentioned section for full company names

The subject company (ABBV.N, LUN.CO, SHP.L, AZN.L, BAYGn.DE, BMY.N, PFE.N, SASY.PA, GSK.L, IPN.PA, JNJ.N, LLY.N, LONN.S, MRK.N, NOVN.S, ROG.S, UCB.BR, MRCG.DE) 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, SHP.L, BAYGn.DE, BMY.N, PFE.N, IPN.PA, JNJ.N, LLY.N, LONN.S, MRK.N, NOVN.S, ROG.S) within the past 12 months.

Credit Suisse provided non-investment banking services to the subject company (LUN.CO, SHP.L, BAYGn.DE, BMY.N, PFE.N, GSK.L, LLY.N, MRK.N, NOVN.S, ROG.S) within the past 12 months

Credit Suisse has managed or co-managed a public offering of securities for the subject company (ABBV.N, SHP.L, BAYGn.DE, BMY.N, PFE.N, LLY.N, LONN.S, NOVN.S) within the past 12 months.

Credit Suisse has received investment banking related compensation from the subject company (ABBV.N, SHP.L, BAYGn.DE, BMY.N, PFE.N, IPN.PA, JNJ.N, LLY.N, LONN.S, MRK.N, NOVN.S, ROG.S) within the past 12 months

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