Galapagos NV (GLPG NA)

Biotechnology

BERENBERG CAPITAL MARKETS

Path of least resistance is higher

- **We reiterate our Buy rating and raise our price target to €225 from €195.** Following the robust data released at ACR2019, a well-executed and well received R&D Day in New York on November 14, and an upbeat presentation and day of meetings with CFO Bart Filius at our Pennyhill Park European Conference on December 4, we view the Galapagos story as likely to continue to trend favorably. To us, 2020 is shaping up to be a transformational year when, for the first time since Galapagos' founding in 1999, a compound that originated from Galapagos' discovery engine, filgotinib, could be approved and launched in the EU and U.S. Moreover, investors should expect a steady flow of clinical data on early- and mid-stage pipeline assets, which could further validate a discovery platform with potential to originate multiple blockbuster drugs over the next decade. Refer to our separate industry piece, Disruptive Discussions (Part III): inflammatory conditions, published today, for additional details.
- **Filgotinib's long-term efficacy and differentiated safety profile gives us confidence in our peak un-risk adjusted sales estimate of $5bn.** Rheumatologists report a high level of comfort with the JAK inhibitors (JAKi) for RA, particularly Xeljanz (tofacitinib, Pfizer), a first generation pan-JAKi. Galapagos'/Gilead's filgotinib is part of a class of next gen JAKi that demonstrate JAK specificity. With filgotinib being the fourth JAKi on the market in RA, we believe the differentiation initially will be safety/tolerability, dosing, and price. In particular, we think the data presented at ACR2019 demonstrates robust long-term efficacy of filgotinib and a differentiated safety profile that could support approval of a 100 mg and 200 mg dose of filgotinib in RA; if so, filgotinib would be the only JAKi on the U.S. market approved for RA in a low and high dose. Moreover, we believe long-term value creation will also depend on additional indications; with potentially five, or more, additional inflammatory conditions on label, we believe filgotinib will be among the best positioned JAKi on the market. We look forward to the Phase III trial top-line data in ulcerative colitis (UC) expected by mid-2020.
- **GLPG1972 could become a first-in-class disease-modifying osteoarthritis drug (DMOAD).** Phase IIb top-line data is expected in H220. With no DMOAD on the market and few in development, we believe GLPG1972, if approved, could become Galapagos' most significant value driver long term.
- **Expect updates on the early stage pipeline throughout 2020 and 2021.** The TOLEDO program, of particular interest for investors, consists of multiple compounds targeting multiple areas of inflammation; expect further updates throughout 2020 and 2021.
- Our valuation is based on our SOTP and DCF. Our price target revision to €225 (from €195) owes primarily to our increased confidence in Galapagos' pipeline. The key risk to our thesis is disappointing clinical data readouts.

Y/E 12/31, EURm	2017	2018	2019E	2020E	2021E
Sales	156	318	882	593	670
EBITDA	-86	-40	390	12	-18
EBIT	-90	-45	378	0	-31
Net profit	-116	-29	250	3	-28
Y/E net debt (net cash)	-1,151	-1,291	-5,496	-5,136	-4,746
EPS (reported)	-2.34	-0.56	4.37	0.04	-0.45
EPS (recurring)	-2.34	-0.56	4.37	0.04	-0.45
CPS	23.27	24.77	95.80	83.99	76.35

Source: Company data, BCM estimates

December 10, 2019

BUY

Current price	Price target
EUR196.00	EUR225.00

12/09/2019 Amsterdam Close

Market cap (EURm)	11,245
Reuters	GLPG.AS
Bloomberg	GLPG NA

Changes made in this note

Rating:	Buy (no change)
Price target:	EUR225.00 (195.00)

Estimates changes

	2019E		2020E		2021E	
	old	Δ %	old	Δ %	old	Δ %
Sales	882	-	591	0.3	653	2.7
EBIT	378	-	-2	89.3	-22	-38.4
EPS	4.37	-	0.02	166.0	-0.31	-44.1

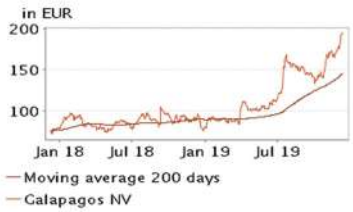
Source: BCM estimates

Share data

Shares outstanding (m)	57
Enterprise value (EURm)	5,749
Daily trading volume	60,269

Key data

Price/book value	4.4
Net debt/equity	-217.4%
CAGR sales 2019-2021	-12.8%
CAGR EPS 2019-2021	n.m.



Source: Thomson Reuters Datastream

See pages 22-25 for analyst certifications and important disclosures

Patrick R. Trucchio, CFA
Analyst
+1 646 949 9027
patrick.trucchio@berenberg-us.com

Shanshan Xu, M.D., Ph.D.
Analyst
+1 646 949 9023
shanshan.xu@berenberg-us.com

Iris Long, CPA
Associate
+1 646 949 9029
iris.long@berenberg-us.com

Galapagos NV (GLPG NA)

Biotechnology

BUY

December 10, 2019

Current price	Price target
EUR196.00	EUR225.00

12/09/2019 Amsterdam Close

Reuters	GLPG.AS
Bloomberg	GLPG NA
Market cap (EURm)	11,245
EV (EURm)	5,749
Trading volume	60,269
Free float	74.4%

Non-institutional shareholders

Gilead - 12.4%
Van Herk Investments - 9.9%

Share performance

High 52 weeks	EUR196.00
Low 52 weeks	EUR75.60

Business description

Galapagos is a biopharmaceutical company specializing in the discovery and development of small molecule medicines.

Performance relative to

	S&P 500	AEX
1mth	14.2%	14.7%
3mth	29.5%	28.8%
12mth	102.5%	99.8%

Investment thesis

- Filgotinib, a JAK1 inhibitor partnered with Gilead, has so far shown best-in-class safety and tolerability, and we estimate has the potential to deliver €4.5bn ($5bn) in peak sales. Risk-adjusted to 50-95%, depending on the indication, we value filgotinib at €60 per share.
- Galapagos' IPF fibrosis portfolio has shown good progress into Phase III development and, even on conservative estimates, is worth €35 per share, in our view.
- GLPG1972 recently showed encouraging progress into Phase II development. Risk-adjusted, we value this program at €19 per share.
- Galapagos' platform is differentiated and has potential to generate many successful drugs over the long term. For now, we value the platform at €60 per share.
- Based on an SOTP valuation of the pipeline, our valuation of €225 per share offers solid upside potential, particularly as filgotinib for RA could soon be approved in the U.S. and EU, and as additional top-line data further validates the pipeline.

Profit and loss summary

EURm	2017	2018	2019E	2020E	2021E
Revenues	156	318	882	593	670
EBITDA	-86	-40	390	12	-18
EBITA	-	-	-	-	-
EBIT	-90	-45	378	0	-31
Associates contribution	-	-	-	-	-
Net interest	-	-	-	-	-
Tax	0	0	-17	0	0
Minorities	0	0	0	0	0
Net income adj.	-116	-29	250	3	-28
EPS reported	-2.34	-0.56	4.37	0.04	-0.45
EPS adjusted	-2.34	-0.56	4.37	0.04	-0.45
Year end shares	49	52	57	61	62
Average shares	49	52	57	61	62
DPS	-	-	-	-	-

Cash flow summary

EURm	2017	2018	2019E	2020E	2021E
Net income	-116	-29	250	3	-28
Depreciation	4	5	12	12	13
Working capital changes	-13	20	38	-10	-10
Other non-cash items	-23	-138	2,928	-337	-334
Operating cash flow	-147	-142	3,229	-332	-359
Capex	-5	-10	-21	-28	-32
FCFE	-142	-132	3,250	-304	-327
Acquisitions, disposals	-	-	-	-	-
Other investment CF	-	-	-	-	-
Dividends paid	-	-	-	-	-
Buybacks, issuance	-	-	-	-	-
Change in net debt	-	-	-	-	-
Net debt	-1,151	-1,291	-5,496	-5,136	-4,746
FCF per share	-2.86	-2.53	56.64	-4.97	-5.26

Growth and margins

	2017	2018	2019E	2020E	2021E
Revenue growth	2.8%	103.9%	177.4%	-32.8%	13.1%
EBITDA growth	-	-	-	-	-
EBIT growth	-	-	-	-	-
EPS adj growth	-	-	-	-	-
FCF growth	-	-	-	-	-
EBITDA margin	-	-	-	-	-
EBIT margin	-	-	-	-	-
Net income margin	-	-	-	-	-
FCF margin	-	-	-	-	-

Key ratios

	2017	2018	2019E	2020E	2021E
Net debt / equity	-113.8%	-106.3%	-217.4%	-200.1%	-184.1%
Net debt / EBITDA	-	-	-	-	-
Avg cost of debt	-	-	-	-	-
Tax rate	-	-	-	-	-
Interest cover	-	-	-	-	-
Payout ratio	-	-	-	-	-
ROCE	-	-	-	-	-
Capex / sales	-	-	-	-	-
Capex / depreciation	-	-	-	-	-

Valuation metrics

	2017	2018	2019E	2020E	2021E
P / adjusted EPS	-	-	-	-	-
P / book value	9.6	8.4	4.4	4.7	4.7
FCF yield	-	-	-	-	-
Dividend yield	-	-	-	-	-
EV / sales	17.7	9.1	6.5	11.6	11.1
EV / EBITDA	-	-	-	-	-
EV / EBIT	-	-	-	-	-
EV / FCF	-	-	-	-	-
EV / cap. employed	-	-	-	-	-

Source: Company data, BCM estimates

Key risks to our investment thesis

- The key risk to our thesis is disappointing clinical data readouts on important assets such as filgotinib (RA, IBD, PsA, AS), GLPG1690 (IPF), and GLPG1972 (OA knee).
- Additional risks to our thesis include: 1) drug development risk; 2) competitive risks, including if competitor products in development generate superior clinical data or if competitors conduct commercialization activities better than Galapagos or its partners; 3) government regulatory risk; 4) payer reimbursement risk; 5) pricing risk; 6) capital market risk; and 7) business development risk, among others.

Patrick R. Trucchio, CFA
Analyst
+1 646 949 9027
patrick.trucchio@berenberg-us.com

Shanshan Xu, M.D., Ph.D.
Analyst
+1 646 949 9023
shanshan.xu@berenberg-us.com

Iris Long, CPA
Associate
+1 646 949 9029
iris.long@berenberg-us.com

Raising our price target to €225 from €195

Our discounted cash flow (DCF) and sum-of-the-parts (SOTP) valuation point to an equity value per share of €225 (vs. prior €195). We outline key changes to our valuation below.

- Filgotinib – €60. No change to our prior estimate. We raised our probabilities-of-success assumptions, which were offset by incremental launch and R&D expenses.
- GLPG1690 – €35. No change to our prior estimate.
- GLGP1972 – €19. No change to our prior estimate.
- Platform value – €60 vs. prior €40. We raised our estimated value generated by Galapagos' platform primarily attributable to Galapagos' R&D discovery platform that we believe could generate multiple shots on goal over the next decade. Moreover, we believe our updated platform value more accurately reflects the potential value creation to be generated from Galapagos' early-stage pipeline.
- Cash and securities, net – €54. No change to our prior estimate.

Exhibit 1: We raised our price target to €225 (from €195)

Expressed as € in millions, unless noted

Sum of the parts valuation	Per share	FCFF DCF valuation	
Filgotinib (Gilead U.S., EU)	€ 60	PV of Free Cash Flow	4,410
GLPG1690 (Gilead U.S.)	€ 35	PV of Terminal Value	3,872
GLPG1972 (Servier EU / Gilead U.S.)	€ 19	Implied Enterprise Value	8,283
CF program (AbbVie)	€ 5	Plus: Cash and Securities (Q419)	5,496
Platform value	€ 60	Less: Total Debt (Q419)	0
Cash and Securities, net	€ 54	Implied Value of Equity	13,779
All Other	-€ 8	Diluted Shares Outstanding	61
Implied Value	**€ 225**	**Implied Value per Share**	**€ 225**

Source: Company filings, Berenberg Capital Markets

Refer to our separate industry piece, Disruptive Discussions (Part III): inflammatory conditions, and/or request our Excel model for further details regarding our assumptions for Galapagos.

An R&D pipeline full of potential blockbuster drugs

Exhibit 2: 2020 is lining up to be a transformational year, with important studies enrolling and generating top-line data, and with potential approval of Galapagos' first drug (filgotinib in RA)

Program	H119	H219	2020
Filgotinib	• FINCH 1 top-line wk 24 • FINCH 3 top-line wk 24 • FINCH 2 manuscript publication	• Phase III PsA start • Filings for approval in RA	• Potential commercial launches in RA in the U.S., EU, and Japan • Phase III AS start H120 • Phase III top-line data in UC Q220
Fibrosis	• First dosing NOVESA SSc GLPG1690 • ATS (possibly ISABELA poster) GLPG1690	• PINTA recruited • ERS • ACS (structure)	• 28% enrollment for futility analysis (GLPG1690 in IPF) • NOVESA top-line data H220 (GLPG1690 in SSc)
GLPG1972	• OARSI symposium	• ROCCELLA recruited	• ROCCELLA top-line H220 (GLPG1972 in knee OA)
Earlier programs	• Start Phase I GLPG3312 (first generation TOLEDO), GLPG3121	• Top-line GLPG3121 (TOLEDO) • Start GLPG3970 Phase I (TOLEDO) • Start PoC GLPG3312 in IBD (TOLEDO)	• GLPG3312 and GLPG3970 Phase I top-line (TOLEDO) • GLPG3312 Phase II in UC top-line (TOLEDO) • GLPG3970 multiple Phase II PoC starts (TOLEDO) • GLPG4399 Phase I initiation (TOLEDO)

Source: Company filings, Berenberg Capital Markets

Exhibit 3: Galapagos' high-quality pipeline has many studies underway with potential to create value

Area	Therapy	Mechanism	Indication	Status
Inflammation	Filgotinib	Selective JAK1 inhibitor	Rheumatoid arthritis	Commercial launches in RA in U.S., EU, Japan
			Crohn's disease (CD) DIVERSITY 1	Phase III fully recruited H220
			Ulcerative colitis (UC) SELECTION 1	Top-line data expected in Q220
			Ankylosing spondylitis (AS) TORTUGA	Initiation of Phase III in H120
			Psoriatic arthritis (PsA) EQUATOR	Phase III enrolling Results published in *The Lancet*
			Small bowel CD	Phase II recruiting
			Fistulizing CD	Phase II recruiting
			Sjögren's	Companies evaluating next steps
			Cutaneous lupus	Companies evaluating next steps
			Lupus nephropathy	Phase II no longer recruiting
			Uveitis	Phase II recruiting
	GLPG1972	ADAMTS-5 inhibitor	Osteoarthritis of the knee (OA knee) ROCCELLA	Phase II fully recruited Q319 Top-line data expected in H220
	TOLEDO program	Undisclosed	IBD, PsA, SLE, OA, OP	
	GLPG3312			Top-line Phase I data expected in 2020 Top-line Phase II in UC expected in 2020
	GLPG3970			Top-line Phase I data expected in 2020
	GLPG3970			Initiaiton of Phase II PoC trials in 2020
	GLPG4399			Initiation of Phase I in 2020
Fibrosis	GLPG1690	Autotaxin inhibitor	Idiopathic pulmonary fibrosis (IPF)/fibrosis ISABELA	Phase III enrolling throughout 2020
			FLORA	Phase II results published in *The Lancet*
	GLPG1690	Autotaxin inhibitor	Systemic sclerosis (SSc) or scleroderma NOVESA	Phase II fully recruited Top-line data in SSc expected in H220
	GLPG1205	GRP84 inhibitor	Idiopathic pulmonary fibrosis (IPF)/fibrosis PINTA	Phase II close to enrollment completion Top-line data expected in H220

Note: IR = inadequate response; MTX = methotrexate; FINCH = Phase III program evaluating filgotinib in rheumatoid arthritis (RA); DIVERSITY = Phase III program evaluating filgotinib in Crohn's disease (CD); SELECTION = Phase III program evaluating filgotinib in ulcerative colitis (UC) patients; EQUATOR = Phase II trial with filgotinib in psoriatic arthritis (PsA) patients; TORTUGA = Phase II trial with filgotinib in patients with ankylosing spondylitis (AS); ROCCELLA = global Phase II trial together with collaboration partner Servier, investigating GLPG1972/S201086 in osteoarthritis (OA) patients; ISABELA = Phase III program investigating GLPG1690 in IPF patients; FLORA = a double-blind, placebo-controlled exploratory Phase IIa trial with GLPG1690 in up to 24 IPF patients, which generated top-line data in August 2017; NOVESA = Phase II trial with GLPG1690 in patients with systemic sclerosis (SSc) or scleroderma; PINTA = Phase II trial of GPR84 inhibitor GLPG1205 in IPF patients
Source: Company filings, Berenberg Capital Markets

Filgotinib for inflammation could generate peak sales of €4.5bn

Background. Galapagos discovered JAK1 in an inflammation target discovery assay in 2003 and subsequently discovered filgotinib as a JAK1 specific inhibitor small molecule. In a human whole blood assay, Galapagos demonstrated that filgotinib, with a nearly 30-fold selectivity for JAK1 over JAK2 and for JAK1 over JAK3, is more selective for JAK1 than any other JAK inhibitor either approved for sale or in clinical development in inflammation. These findings were independently corroborated by Dr. Iain McInnes in "*Ex Vivo Comparison of Baricitinib, Upadacitinib, Filgotinib, and Tofacitinib for Cytokine Signaling in Human Leukocyte Subpopulations*," at ACR (American College of Rheumatology) 2017.

JAK1 specificity appears to be meaningful in the targeting of cytokines relevant for a range of autoimmune and inflammatory diseases, including rheumatoid arthritis (RA), inflammatory bowel disease (IBD, comprising ulcerative colitis, UC, and Crohn's disease,

CD), spondyloarthritis (including ankylosing spondylitis, AS) and psoriatic arthritis (PsA).

Exhibit 4: Key cytokines and JAKs in target diseases

Rheumatoid arthritis		IBD		Spondyloarthritis		Psoriatic arthritis	
Cytokine	**JAKs**	**Cytokine**	**JAKs**	**Cytokine**	**JAKs**	**Cytokine**	**JAKs**
IL-7	JAK1, JAK3	IL-7	JAK1, JAK3	IL-17	-	IL-17	-
IL-15	JAK1, JAK3	IL-15	JAK1, JAK3	IL-23	JAK2, TYK2	IL-23	JAK2, TYK2
IL-21	JAK1, JAK3	IL-21	JAK1, JAK3	IL-12	JAK2, TYK2	IL-12	JAK2, TYK2
IL-10	JAK1, TYK2	IL-6	JAK1, JAK2, TYK2	IFN-α/IFN-β	JAK1, TYK2	IFN-α/IFN-β	JAK1, TYK2
IFN-α/IFN-β	JAK1, TYK2	IL-10	JAK1, TYK2	IL-22	JAK1, JAK2, TYK2	IL-22	JAK1, JAK2, TYK2
IL-6	JAK1, JAK2, TYK2	IL-27	JAK1, TYK2	IL-10	JAK1, TYK2	IL-20	JAK1, JAK2, TYK2
IL-12	JAK2, TYK2	IL-12	JAK2, TYK2	IL-6	JAK1, JAK2, TYK2	IL-6	JAK1, JAK2, TYK2
IL-23	JAK2, TYK2	IL-23	JAK2, TYK2	IFN-γ	JAK1, JAK2	IFN-γ	JAK1, JAK2
IL-1	-	IL-1	-	IL-21	JAK1, JAK3	TNF	-
IL-17	-	IL-17	-			IL-1	-
IL-18	-	TGF-β	-				
TGF-β	-	TNF	-				
TNF	-						

Source: JAK inhibitors as therapeutic strategy for inflammatory rheumatic diseases, (Massimo Gadina session), ACR, Berenberg Capital Markets

Gilead collaboration. Galapagos and Gilead entered into a global collaboration for the development and commercialization of filgotinib in inflammatory indications in 2015. The original terms included a split on development expenses of 80% to Gilead and 20% to Galapagos, with tiered royalties starting at 20% for revenues generated in the U.S. and a 50/50 profit share arrangement for the EU; the terms of the collaboration were updated in July 2019 whereby Galapagos and Gilead will split the cost of development evenly. Gilead has noted that the costs of the program are trending ahead of expectations, though this is actually a positive in that it suggests filgotinib's label may be expanded beyond what was originally expected.

The next key events: Study starts on the Phase III program in AS (expected H120), top-line data in the Phase III UC program (expected by mid-2020), and approvals in RA in the EU (expected by mid-2020) and the U.S. (expected by late 2020 or early 2021).

Given the proximity to ACR2019 and the importance of RA for the success of filgotinib, the focus of the next section in this report is on RA.

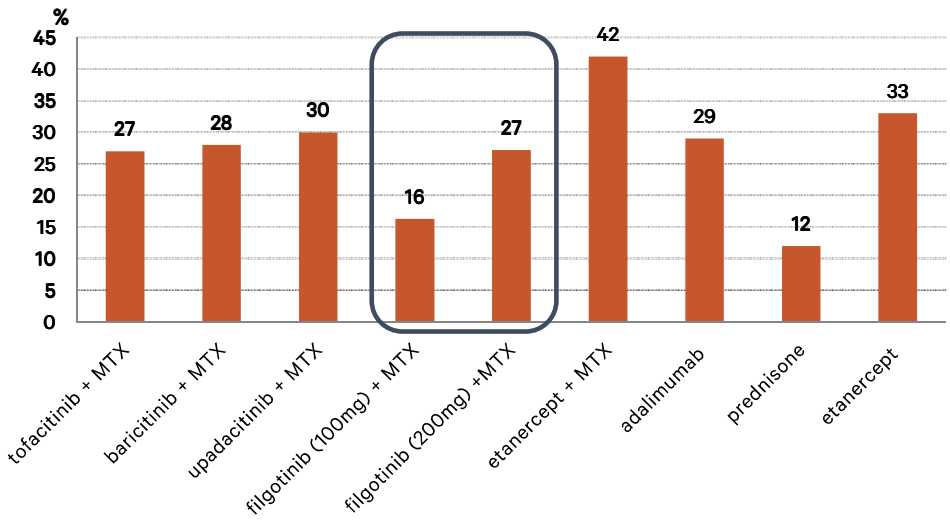
Exhibit 5: Filgotinib clinical development plan is robust

Area	Preclinical	Phase I	Phaes II	Phase III	Status	Time	Peak Un-risk adjusted (€m)	Peak risk adjusted (€m)
Rheumatoid arthritis					Potential product launch: U.S., EU, Japan	mid-2020 (EU) late 2020 (US)	1,204	1,144
Ulcerative colitis					Phase III top-line data	Q220	612	459
Crohn's disease					Phase III recruiting		1,148	861
Small bowel CD					Phase II recruiting			
Fistulizing CD					Phase II recruiting			
Sjögren's					Company evaluating next steps			
Ankylosing spondylitis					Initiate Phase III	H120	823	617
Psoriatic arthritis					Phase III recruiting			
Cutaneous lupus					Company evaluating next steps			
Lupus nephropathy					Phase II ongoing			
Uveitis					Phase II recruiting			
All other indications:							713	356

Source: Company filings, Berenberg Capital Markets

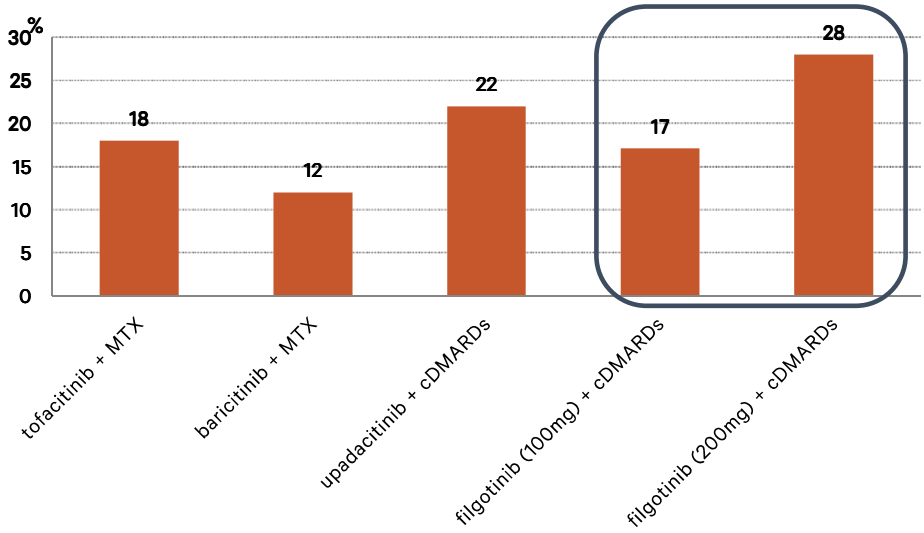
The efficacy of the JAK inhibitors in RA is well established. As shown in the Exhibits that follow, the first generation JAK inhibitors, tofacitinib (Xeljanz, Pfizer), and baricitinib (Olumiant, Incyte/Eli Lilly), as well as the next-generation JAK inhibitors, upadacitinib (Rinvoq, AbbVie), and filgotinib (Galapagos/Gilead) have demonstrated improvements in ACR20/50/70 that are comparable to standard of care biologics such as etanercept (Enbrel, Amgen) and adalimumab (Humira, AbbVie). In the Exhibits that follow, we show placebo-adjusted efficacy based on ACR50 for the JAKi, biologics, and prednisone. Additional details regarding the JAKs in RA is presented in Appendix B of our note entitled *Disruptive Discussion Part III: Inflammatory Conditions.*

Exhibit 6: Placebo-adjusted ACR50 in patients who have an inadequate response to methotrexate (MTX-IR)



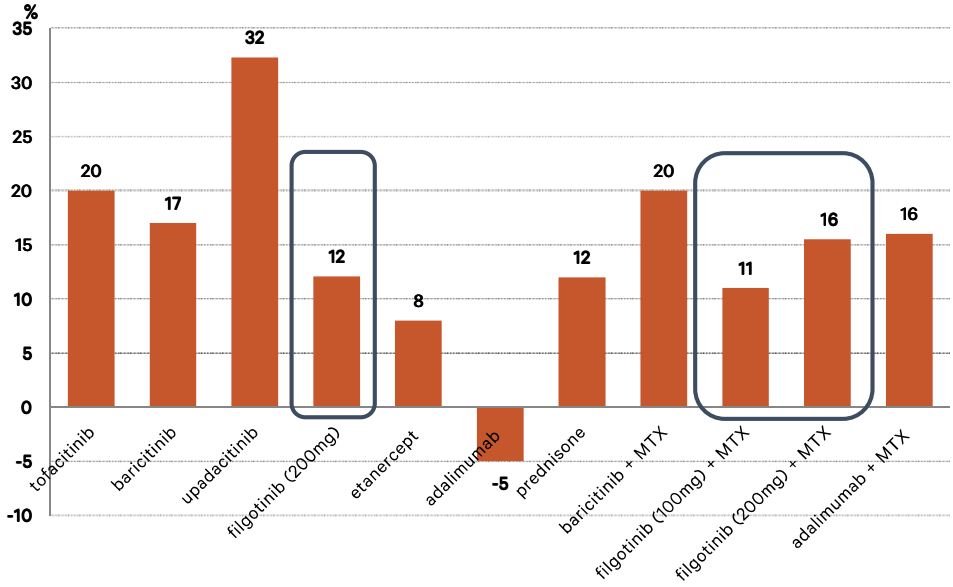
Note: 1. the baricitinib data is for the 4 mg high dose, which is not approved by FDA; all other data are for the approved dose; 2. The adalimumab data is at Week 24 while all other data are at Week 12
Source: NEJM (tofacitinib), NEJM (baricitinib), USPI (upadacitinib, etanercept, adalimumab, prednisone), British Society for Rheumatology, Company filings, Berenberg Capital Markets

Exhibit 7: Placebo-adjusted ACR50 in patients who have an inadequate response to biologic DMARDs (bDMARDs)



Note: 1. All data are for the approved dosage; 2. all data are at Week 12
Source: USPI (tofacitinib, upadacitinib), PubMed (baricitinib), British Society for Rheumatology, Company filings, Berenberg Capital Markets

Exhibit 8: Placebo-adjusted ACR50 in patients who are methotrexate naïve (MTX-naïve)



Note: 1. The baricitinib data is for the 4mg high dose which is not approved by FDA, all other data are for the approved dose; 2. All data (tofacitinib, baricitinib, upadacitinib, and filgotinib) data are at Week 24, while prednisone data are at Week 12 and adalimumab data are at Week 52.
Source: NEJM (tofacitinib), PubMed (baricitinib), USPI (upadacitinib, etanercept, adalimumab, prednisone), British Society for Rheumatology, Company filings, Berenberg Capital Markets

To us, safety is the key consideration for the JAKi in inflammatory conditions. Clinical trials to date have shown that filgotinib is well-tolerated, with atherogenic index improvement, absence of anemia, low infection rates, and low incidence of deep venous thrombosis (DVT) and pulmonary embolisms (PE). This is important because Olumiant (baricitinib) was at first rejected by FDA owing to concern regarding the risk/benefit profile across various doses, specifically the rate of thromboembolic events, diagnosed as DVT and PE, which were reported in five patients who received baricitinib during the controlled period of two of seven completed Phase II or Phase III trials in RA. The FDA eventually approved only the lower dose of baricitinib in RA. Pfizer's Xeljanz was also only approved at the low doses (5 mg twice daily; 11 mg once daily) as the FDA decided the modest incremental benefit at the high doses was not enough to offset apparent incremental toxicity. Finally, AbbVie's Rinvoq (upadacitinib) was recently approved for RA at the low dose (15 mg once daily); AbbVie did not even submit for approval at the high dose. Importantly, in long-term safety data generated by DARWIN 3, filgotinib appears to have demonstrated a differentiated safety profile.

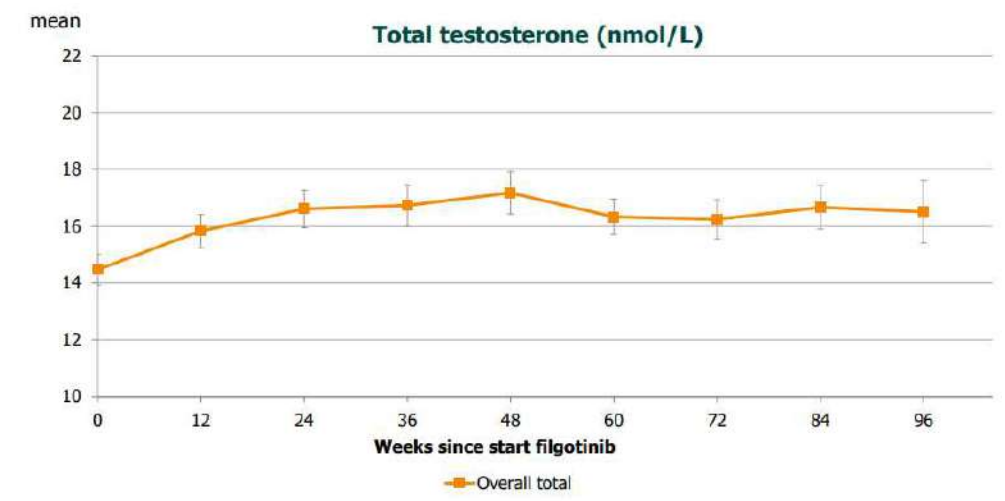
Exhibit 9: Filgotinib's long-term safety data compares well to other JAKs and biologics for RA

Event per 100 PYE	Filgotinib 50 - 200 mg	Baricitinib 2 and 4 mg	Tofacitinib 5 mg	Upadacitinib 6 and 12 mg	Tocilizumab 4 and 8 mg/kg	Adalimumab
PYE	**2,042**	6,637	5,278	725	14,994	23,943
Serious infection	**1.0**	2.9	2.4	2.3	4.5	4.6
Herpes zoster	**1.5**	3.2	3.8	3.7	ND	ND
DVT/PE	**0.1**	0.5	0.2	0.7	ND	ND
Deaths	**0.2**	0.3	0.6	0.3	0.6	0.8
Source	**DARWIN3**	ACR2017	ACR2017	ACR2017	ACR2012	Burmester 2011

Note: PYE = patient year experience; DARWIN 3 was the long-term open-label extension portion of the Phase II DARWIN program evaluating filgotinib in RA patients
Source: Company filings, Berenberg Capital Markets

One area of controversy unique to filgotinib is potential testicular toxicity. The concern was first raised during the Phase II trials (DARWIN) where the FDA enforced a maximum daily dose of 100 mg among men at U.S. clinical trial sites primarily as pre-clinical tests suggested the 200 mg dose of filgotinib affected the production of sperm cells. Galapagos has noted that the testosterone levels of males in the DARWIN program were stable.

Exhibit 10: Testosterone levels measured in males in the DARWIN program were stable



Note: Normal ranges (nmol/L) males: 8.40 – 28.70 (≥18y); Gilead is conducting a male safety study in Ph3
Source: Company filings

Encouragingly, following the end of Phase II meetings with FDA, Galapagos/Gilead confirmed the pivotal program (FINCH) would include arms that give the 100 mg and 200 mg daily doses to both men and women. In addition, a Phase II trial (MANTA + MANTA-RA) designed to evaluate the sperm count of filgotinib in men with moderate-to-severe UC (MANTA), as well as other inflammatory conditions (MANTA-RA) is underway. At its R&D Day on November 14, Galapagos confirmed that the MANTA trial readouts will not act as a gating factor for the submission of filgotinib in RA in the U.S., though it remains unclear to us how much if any of the data from the testicular toxicity studies will be available for the Gilead medical affairs and marketing teams at the time of the potential U.S. launch.

However, the FDA views the risk of thrombosis as a class effect for the JAK inhibitors. This was evident in the summary document regarding Rinvoq's approval, and also clearly stated at ACR2019 during an FDA safety update presentation we attended. Thus, we doubt filgotinib's label will look different from Rinvoq's from a safety perspective; we think this is in line with investors' expectations.

Areas of differentiation for filgotinib: safety, dosing, indications, and pricing. Galapagos/Gilead presented several abstracts at ACR2019 (see Appendix C of our note entitled *Disruptive Discussion Part III: Inflammatory Conditions*) that we think are an effort to 1) distinguish the safety profile of filgotinib compared to other JAK inhibitors; 2) demonstrate the persistence of efficacy of filgotinib; and 3) demonstrate the risk-benefit of filgotinib 200 mg, which appears to have improved efficacy without a concurrent increase in the rate of adverse events vs. placebo. The case will have to be made to the FDA that filgotinib 100 mg and 200 mg are both safe and effective options and that having a high dose on the market would increase the potential benefits for patients without increasing the risk of serious adverse events.

We think investor expectations are mixed regarding the prospect for the high dose receiving FDA approval in RA. Some believe the submission of the high dose in a New Drug Application (NDA) could lead to an advisory committee, which could be received negatively by the Street; others view the prospect of an advisory committee as being positive, as this will give Galapagos/Gilead a chance to make the case to the expert panel regarding the short and long-term safety data generated to-date for filgotinib at both the low and high doses.

To us, the number of indications on filgotinib's label will be a more significant driver of long-term value creation. Perhaps the biggest differentiator will be having more than one, and possibly up to five or six indications on the filgotinib label, which we believe could ease the path for reimbursement with payors, something which will be critical for commercial success, particularly in the U.S., in our view. This will be particularly true if payors move to a more indication-focused regime for reimbursement, something which the president of a major think tank told us is likely in the years ahead (see Disruptive Discussions: Part II, here, for additional details).

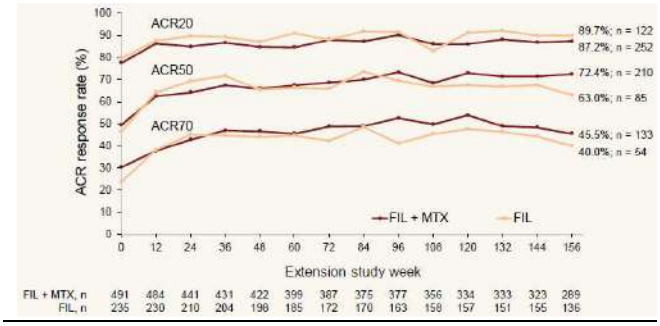
Finally, there is the pricing for filgotinib, which if priced at a discount to Rinvoq could provide an incentive to payors. We discuss our pricing assumptions in greater detail later on in this section of this report.

ACR2019 showcased filgotinib's compelling attributes in RA

Galapagos/Gilead maintained a strong presence at ACR2019, including with several abstracts highlighting the robust long-term efficacy, as well as the safety of filgotinib in RA. We think the efficacy data presentation for DARWIN 3 and the pooled safety analysis of FINCH 1-3 in particular highlight the compelling risk-benefit profile of filgotinib 100 mg and 200 mg in RA. Moreover, the persistency of efficacy and the benign safety profile demonstrated in the ACR abstracts could point to potentially fewer drug discontinuations for filgotinib in the real-world setting, in our view. For additional details, refer to Appendix C of our note entitled *Disruptive Discussion Part III: Inflammatory Conditions*.

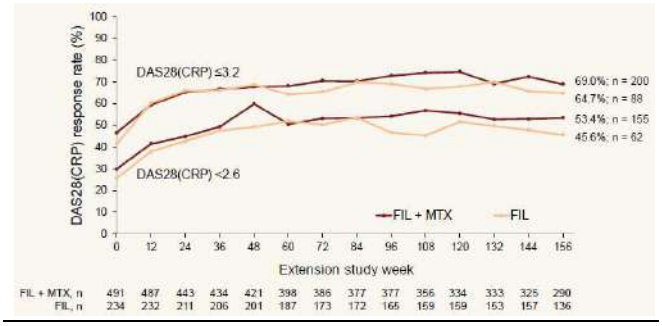
- The DARWIN 3 trial is an ongoing, open-label, long-term extension study of earlier Phase IIb trials evaluating the longer-term safety and efficacy of filgotinib in RA.
- The Phase IIb DARWIN 1 and 2 trials (core studies) evaluated filgotinib with and without methotrexate (MTX), respectively, for 24 weeks in patients with moderate to severely active RA and inadequate response to methotrexate (MTX-IR).
- All patients completing DARWIN 1 and 2 were eligible to roll over to DARWIN 3.
- All patients in DARWIN 3 received filgotinib 200 mg/day with the exception of 15 males in the U.S. who received 100 mg/day.
- The week 156 (extension 156) interim data cutoff was May 30, 2018.
- Exposure was calculated up to the data cutoff date for patients continuing the study at the time of analysis.

Exhibit 11: Robust, durable rates of ACR20/50/70 improvement demonstrated by both filgotinib monotherapy and FIL + MTX



ACR, American College of Rheumatology; FIL, filgotinib; MTX, methotrexate.
Source: ACR

Exhibit 12: Robust, durable rates of disease activity improvement demonstrated by both filgotinib monotherapy and FIL + MTX



DAS28(CRP), Disease Activity Score 28 C-reactive protein; FIL, filgotinib; MTX, methotrexate.
Source: ACR

- The safety and efficacy of FIL has been investigated in the FINCH clinical program that includes four Phase III, randomized, multicenter studies in patients with moderate to severely active RA.
- The studies were designed to characterize the efficacy and safety of FIL in several key patient populations following the typical RA treatment pathway.
- These included: 1) patients who had an inadequate response (IR) to methotrexate (MTX) (FINCH-1); 2) patients with difficult-to-treat RA and an IR to biological disease-modifying antirheumatic drugs (bDMARDs) (FINCH-2); and 3) MTX-naïve patients (FINCH-3).
- Instances of DVT/PE with FIL 200 mg + MTX/csDMARD were less than placebo. No instances of DVT/PE were reported for FIL 200 mg monotherapy (n=210).

Exhibit 13: Incidence of treatment-emergent AEs and all deaths across FINCH 1-3 (weeks 0-24)

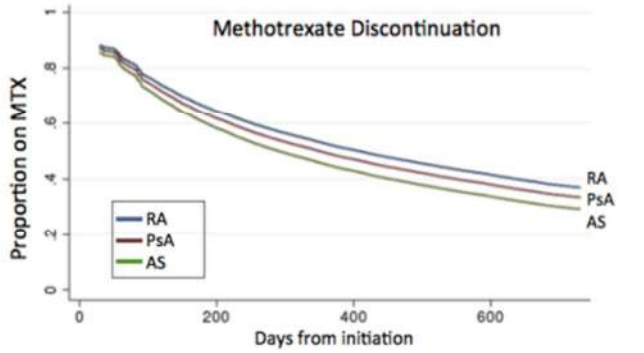
n (%)	Placebo + MTX/ csDMARD N = 1,039	ADA 40 mg + MTX N = 325	FIL 100 mg + MTX/ csDMARD N = 840	FIL 200 mg + MTX/ csDMARD N = 1,038	FIL 200 mg Monotherapy N = 210	FIL Total N = 2,088
Treatment-emergent AE	614 (59.1)	185 (56.9)	527 (62.7)	663 (63.9)	113 (53.8)	1303 (62.4)
Treatment-emergent serious AE	37 (3.6)	14 (4.3)	37 (4.4)	44 (4.2)	10 (4.8)	91 (4.4)
Treatment-emergent AE of interest						
Infectious AE	244 (23.5)	88 (27.1)	229 (27.3)	283 (27.3)	53 (25.2)	565 (27.1)
Serious Infectious AE	10 (1.0)	8 (2.5)	13 (1.5)	13 (1.3)	3 (1.4)	29 (1.4)
Herpes Zoster	4 (0.4)	2 (0.6)	5 (0.6)	6 (0.6)	1 (0.5)	12 (0.6)
Hepatitis B or C	1 (< 0.1)	1 (0.3)	0	2 (0.2)	0	2 (< 0.1)
Opportunistic Infections	0	1 (0.3)	0	1 (< 0.1)	0	1 (< 0.1)
Active TB	0	0	0	0	0	0
MACE*	5 (0.5)	1 (0.3)	2 (0.2)	2 (0.2)	1 (0.5)	5 (0.2)
DVT/PE†	3 (0.3)	0	0	2 (0.2)	0	2 (< 0.1)
Malignancy Excluding NMSC	4 (0.4)	1 (0.3)	1 (0.1)	0	0	1 (< 0.1)
NMSC	0	0	0	1 (< 0.1)	0	1 (< 0.1)
Gastrointestinal Perforations	0	0	0	0	0	0
Treatment-emergent AE leading to premature discontinuation of study drug	29 (2.8)	13 (4.0)	19 (2.3)	34 (3.3)	4 (1.9)	57 (2.7)
Treatment-emergent AE leading to premature discontinuation of study	16 (1.5)	5 (1.5)	13 (1.5)	19 (1.8)	4 (1.9)	36 (1.7)
Death	2 (0.2)	0	1 (0.1)	3 (0.3)	0	4 (0.2)

Rates of cardiovascular and thrombotic events at high dose FIL similar to or less than placebo and ADA

*Note: *Only positively adjudicated MACEs were included; †Unadjudicated events. Adverse events were coded using the Medical Dictionary for Regulatory Activities. All reports of hepatitis B and C occurred in subjects who were at risk and were monitored during the study and none were associated with clinically significant liver enzyme elevation or clinical disease. Opportunistic infections included one case of serious PCP pneumonia (ADA 40 mg + MTX) and one case of non-serious esophageal candidiasis (FIL 200 mg + MTX/csDMARD) ADA, adalimumab; csDMARD, conventional synthetic disease-modifying anti-rheumatic drug; DVT, deep vein thrombosis; FIL, filgotinib; MACE, major adverse cardiac event; MTX, methotrexate; NMSC, Nonmelanoma Skin Cancer; PBO, placebo; PE, pulmonary embolism; TB, tuberculosis*
Source: ACR

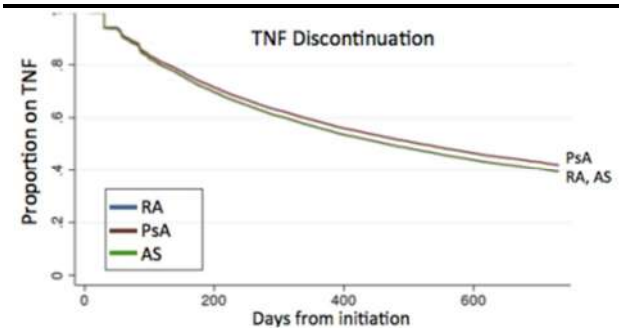
Persistence of efficacy and benign safety profile of filgotinib could predict fewer discontinuations in the real-world setting. We note that RA patients typically discontinue their therapy owing to loss of efficacy and/or safety/tolerability issues or concerns; thus, filgotinib's persistent efficacy and differentiated safety profile could help it stand out. In long-term extension (LTE) studies of bDMARDs in RA patients, the proportion of patients remaining on treatment after five years ranges from 40-66%. In a retrospective study, persistence of RA therapy (2-year drug survival) was higher for TNF inhibitors than csDMARDs at 38.7% vs. 29.5%, respectively. In a longitudinal observational study of patients with RA receiving bDMARDs between 1999 and 2013, discontinuations were mainly due to adverse events (45.8%) and lack of efficacy (40.8%). In 4,967 tofactinib-treated patients entering LTE studies, mean (maximum) treatment duration was 3.5 (9.4) years. Median drug survival was 4.9 years; overall, 50.7% of patients discontinued tofacitinib; of these, 47.2% were owing to adverse events and 7.1% for lack/loss of efficacy. An increased risk of discontinuation was associated with baseline diabetes, hypertension, negative anticyclic citrullinated peptide (anti-CCP), negative rheumatoid factor (RF), and inadequate response to tumor necrosis factor inhibitors (TNFi-IR). See here and here for details.

Exhibit 14: Patients with rheumatic disease tend to discontinue MTX over time



Note: The above chart represents the time to methotrexate discontinuation in rheumatoid arthritis (RA), psoriatic arthritis (PsA), and ankylosing spondylitis (AS).
Source: The Journal of Rheumatology

Exhibit 15: Patients with rheumatic disease tend to discontinue TNFi over time



Note: The above chart represents the time to TNFi discontinuation in rheumatoid arthritis (RA), psoriatic arthritis (PsA), and ankylosing spondylitis (AS).
Source: The Journal of Rheumatology

Filgotinib has also generated compelling data in other indications

Inflammatory bowel disease (IBD) – Phase III data expected in 2020

Filgotinib generated very compelling Phase II data in anti-TNF naïve CD patients. The FITZROY Phase II trial evaluated once-daily filgotinib in 174 patients versus placebo in patients with moderate-to-severely active Crohn's disease (CD) and mucosal ulceration. Patients recruited were either anti-TNF naïve or anti-TNF failures. We note that FITZROY was the first trial in CD to require endoscopic confirmation of lesions at entry, and also to include a placebo control on endoscopy.

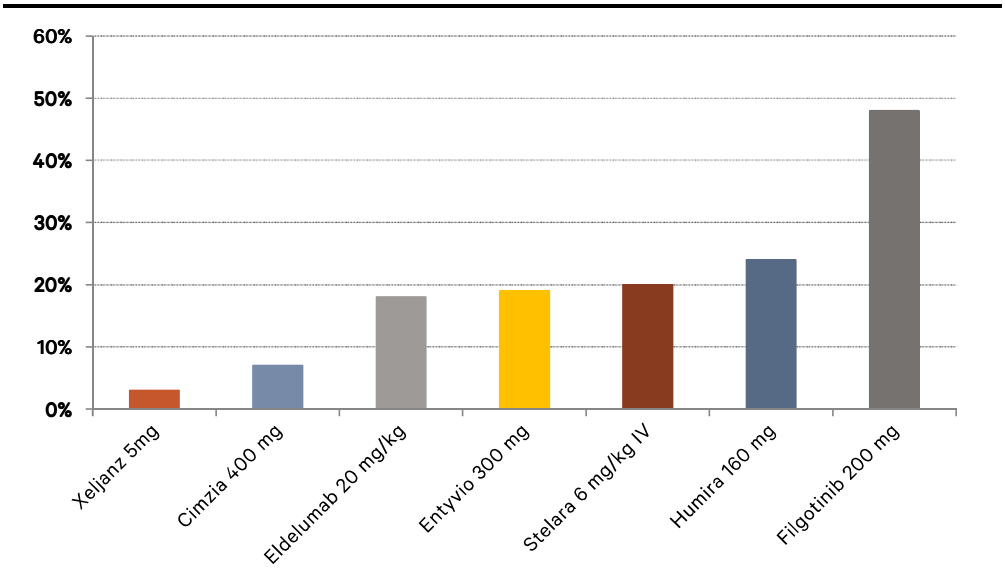
The trial comprised two parts, each of 10 weeks duration: the first part investigated the safety and efficacy of filgotinib 200 mg once daily versus placebo, while the second part of the trial investigated continued treatment through 20 weeks in an observational exploratory design.

The FITZROY trial achieved the primary endpoint of clinical remission at 10 weeks: the percentage of patients overall achieving a Crohn's Disease Activity Index (CDAI) score lower than 150 was statistically significantly higher in patients treated with filgotinib (47%) versus patients receiving placebo (23%). The share of patients achieving 100 points clinical response (60%) also was significant versus those receiving placebo (41%). Clinical responses were maintained from week 10 to week 20. Non-responders in the placebo arm from the first ten weeks received filgotinib 100 mg in the second ten weeks and showed improvement in clinical remission during the second part of the trial.

Overall, in the FITZROY trial at 20 weeks of treatment, filgotinib demonstrated a favorable safety profile consistent with the DARWIN trials in RA. An increase in hemoglobin was also observed in FITZROY, without difference between filgotinib and placebo. No clinically significant changes from baseline in neutrophils or liver function tests were observed.

Exhibit 16: Filgotinib performs very well in anti-TNF naïve patients

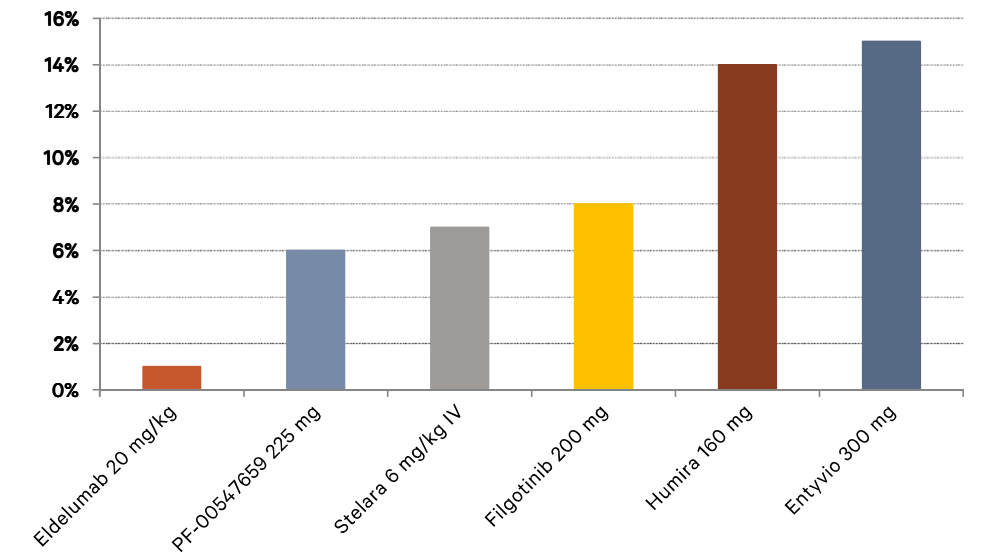
Expressed as % remission, induction study, placebo-adjusted



Source: Company filings, Berenberg Capital Markets

Exhibit 17: Filgotinib's efficacy is comparable to Stelara in patients who failed anti-TNF therapy

Expressed as % remission, induction study, placebo-adjusted



Source: Company filings, Berenberg Capital Markets

Gilead initiated a Phase III trial (DIVERSITY) with filgotinib in CD in November 2016. DIVERSITY will investigate efficacy and safety of 100 mg and 200 mg filgotinib once-daily compared to placebo in patients with moderately to severely active disease, including those with prior antibody therapy failure. Gilead will recruit approximately 1,300 patients from the United States, Europe, Latin America, Canada, and Asia/Pacific regions. Men and women in the DIVERSITY trial will be randomized to receive placebo, 100 mg, or 200 mg filgotinib. In the United States, males may receive 200 mg if they failed at least one anti-TNF and vedolizumab, a monoclonal anti-integrin antibody sold by Takeda. Gilead expects to complete recruitment for DIVERSITY in H220. Refer to details, here.

Gilead initiated the SELECTION Phase IIb/III trial in UC in December 2016. SELECTION investigates efficacy and safety of 100 mg and 200 mg filgotinib once-daily compared to placebo in patients with moderately to severely active disease, including those with prior

antibody therapy failure. Gilead will recruit approximately 1,300 patients from the United States, Europe, Latin America, Canada, and Asia/Pacific regions. SELECTION included a futility analysis, serving as the Phase IIb part of this integrated Phase II/III trial. Men and women in SELECTION will be randomized to receive placebo, 100 mg, or 200 mg filgotinib. In the United States, males may receive 200 mg if they failed at least one anti-TNF and vedolizumab. Refer to details, here.

Filgotinib advanced to Phase III in UC in 2018. On May 30, 2018, Galapagos/Gilead announced that the independent Data Monitoring Committee (DMC) conducted a planned interim futility analysis after 350 patients completed the induction period in the Phase IIb portion of the study. The DMC recommended that the study proceed into Phase III as planned at both the 100 mg and 200 mg once-daily dose level in biologic-experienced and biologic-naïve patients. Galapagos received a $15m payment from Gilead for this progression from Phase II to Phase III in the SELECTION trial. **SELECTION is fully recruited, which implies top-line data should be available around Q220.**

Separately, we note that in March 2017, Gilead initiated a Phase II trial in small bowel CD and a Phase II trial in fistulizing CD. These trials are currently recruiting.

Psoriatic arthritis (PsA) – Phase III study started enrollment in H219

Galapagos/Gilead announced positive Phase II data (EQUATOR) in April 2018. EQUATOR was a multi-center, randomized, double-blind, placebo-controlled trial that assessed the safety and efficacy of filgotinib 200 mg once-daily treatment in adult patients with moderately to severely active PsA. The primary goal of EQUATOR was to evaluate the effect of filgotinib compared to placebo on the signs and symptoms of PsA as assessed by the ACR20 at Week 16. The trial also explored the effects of filgotinib on the skin manifestations (psoriasis), as well as other domains like fingers (dactylitis), tendon insertions (tendinitis), spine involvement (spondylitis), and nail involvement.

Between March 9 and September 27, 2017, 191 patients in eight European countries were screened and 131 were randomly allocated to treatment (65 to filgotinib 200 mg and 66 to placebo); 60 (92%) patients in the filgotinib group and 64 (97%) patients in the placebo group completed the study; five patients (8%) in the filgotinib group and two patients (3%) in the placebo group discontinued treatment.

Filgotinib met the primary endpoint in EQUATOR; 52 (80%) of 65 patients in the filgotinib group and 22 (33%) of 66 in the placebo group achieved ACR20 at week 16 (treatment difference 47%, p<0.0001). In terms of safety, 37 (57%) patients who received filgotinib and 39 (59%) patients who received placebo had at least one treatment-emergent adverse event. Six participants had an event that was grade 3 or worse. The most common events were nasopharyngitis and headache, occurring at similar proportions in each group. One serious treatment-emergent adverse event was reported in each group (pneumonia and hip fracture after a fall), one of which (pneumonia) was fatal in the filgotinib group. The full results were published in *The Lancet*.

Ankylosing spondylitis (AS) – Phase III study start expected H120

Galapagos/Gilead announced positive Phase II data (TORTUGA) in September 2018. TORTUGA was a multi-center, randomized, double-blind, placebo-controlled trial to assess the safety and efficacy of filgotinib in adult patients with moderate to severely active AS. The primary goal of TORTUGA was to evaluate the effect of filgotinib compared to placebo on the signs and symptoms of AS, as assessed by the Ankylosing Spondylitis Disease Activity Score (ASDAS) at Week 12. The trial also explored signs and symptoms of AS, physical function, spinal mobility, enthesitis, spinal and sacroiliac joint inflammation, and safety.

Between March 7, 2017, and July 2, 2018, 263 patients in eight European countries were screened and 116 randomly assigned to filgotinib (n=58) or placebo (n=58); 55 (95%) patients in the filgotinib group and 52 (90%) in the placebo group completed the study; three (5%) patients in the filgotinib group and six (10%) in the placebo group discontinued treatment.

TORTUGA met the primary endpoint; the mean ASDAS change from baseline to week 12 was −1.47 in the filgotinib group and −0.57 in the placebo group (p<0.0001). In addition, approximately 76% of patients who received filgotinib achieved an ASAS20 (Assessment in Ankylosing Spondylitis response, at least 20% improvement), versus 40% of patients who

received placebo (p<0.0001).

Treatment-emergent adverse events were reported in 18 patients in each group, the most common being nasopharyngitis (in two patients in the filgotinib group and in four patients in the placebo group). Treatment-emergent adverse events led to permanent treatment discontinuation in two patients, including a case of grade 3 pneumonia in the filgotinib group and of high creatine kinase in the placebo group. No deaths were reported during the study. The full results were published in *The Lancet*.

Clinician view

Broadly, clinicians we spoke to at ACR and afterward (including one who attended ACR) report to us that they believe the current treatment armamentarium for RA is the strongest it has ever been. Methotrexate (MTX) is the preferred conventional synthetic disease modifying anti-rheumatic drug (csDMARD) for RA. From here, if patients are still demonstrating disease activity, the clinicians move on to the biologic DMARDs (bDMARDS) with the anti-TNF antibodies being preferred, particularly Enbrel (Amgen) and Humira (AbbVie). Some reported to us their desire to move from a csDMARD directly to a JAK inhibitor, typically Xeljanz, with payor hurdles being the primary barrier to more usage; payors may require a patient to fail at least one biologic before covering a JAK inhibitor.

Additional takeaways:

- The JAK inhibitor sessions were among the most well attended of the sessions we went to during ACR2019.
- Few clinicians we spoke to had experience with Rinvoq (AbbVie) though all were curious about it; we were hard pressed to walk to a part of the convention center in Atlanta that did not include a massive wall-to-wall Rinvoq advertisement.
- Clinicians we caught up with afterward and during the poster tours tell us their experience has been mostly positive with the JAK inhibitors in their RA patients.
- At the upper end, some clinicians reported moving more advanced disease stage patients to biologics and JAKs in a 50/50 split.
- The biggest concern regarding the JAK inhibitors is regarding safety, specifically thrombosis and potential cardiovascular disease events, particularly given the impact on cholesterol.
- The topic of JAK specificity continues to be of high interest among rheumatologists; generally, those we spoke to place this in the to-be-determined category; clinicians want to see how their patients respond to the next generation JAKs (Rinvoq and filgotinib) and to see more long-term data before making a final determination.
- Galapagos/Gilead and AbbVie's abstracts regarding the short and long-term safety and efficacy of filgotinib and Rinvoq, respectively, was helpful. However, both assets appear to have a long way to go in the view of many clinicians in terms of distinguishing safety of their JAK1 selective compounds.

Additional details regarding the clinician views on rheumatic diseases can be found in Appendix D of our note entitled: *Disruptive Discussion Part III: Inflammatory Conditions*.

Our view

Filgotinib could generate peak revenues of €4.5bn (or $5bn) in all indications. We think filgotinib in RA will be approved at both doses in major markets; we also are viewing the potential in additional indications incrementally more favorably. As a result, we are now modeling approvals in RA, IBD, AS, and PsA at probabilities of success (POS) of 75-95% (vs. prior 70%-90%); we continue to model additional indications at a 50% POS (unchanged). Overall we view the number of indications as being the most important determinant of success for filgotinib, both in terms of patient population and payor coverage.

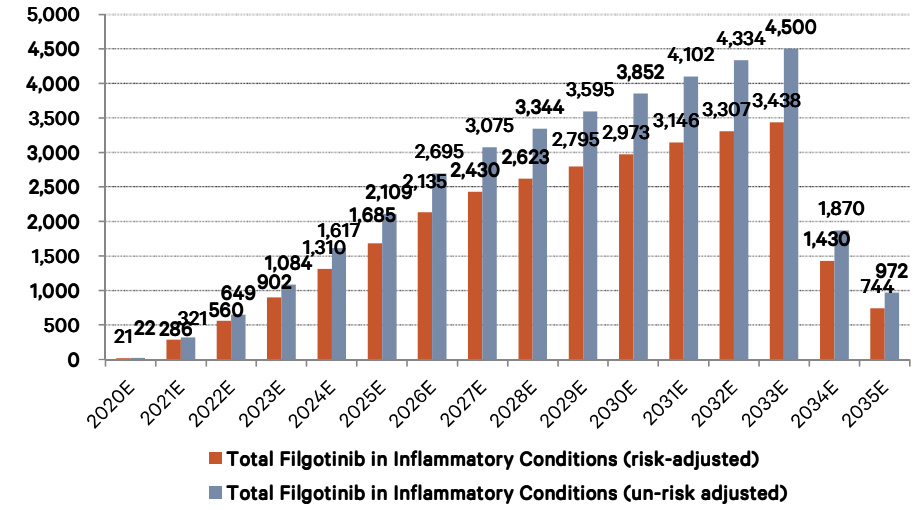
In terms of U.S. pricing at launch in late 2020, we think the Street will be very focused on Gilead's commercial strategy; we are modeling a gross price of $45,000 with a gross-to-net (i.e., GTN, the differential between the gross price and net price, which primarily represents the payments to payors in the form of rebates and discounts) of 25%, implying a net price $33,750 in 2020. This would represent more than a 20% discount to Humira and Rinvoq based on a recently released ICER report (see here).

We think our pricing assumption could be conservative, though with filgotinib being the fourth JAKi on the market in RA, a significant price discount to existing compounds is possible, in our view. We model modest pricing going forward, except in 2023 and 2025 when biosimilars of Humira and generics of Xeljanz could be introduced, respectively. We assume sharper expansions of GTN percentages in those years, something which may not be fully appreciated by the Street, based on consensus estimates for the JAKi and also for the anti-TNFs on the market.

Request our Excel model for the complete details regarding our modeling assumptions.

Exhibit 18: Filgotinib could generate peak sales of €4.5bn in all indications

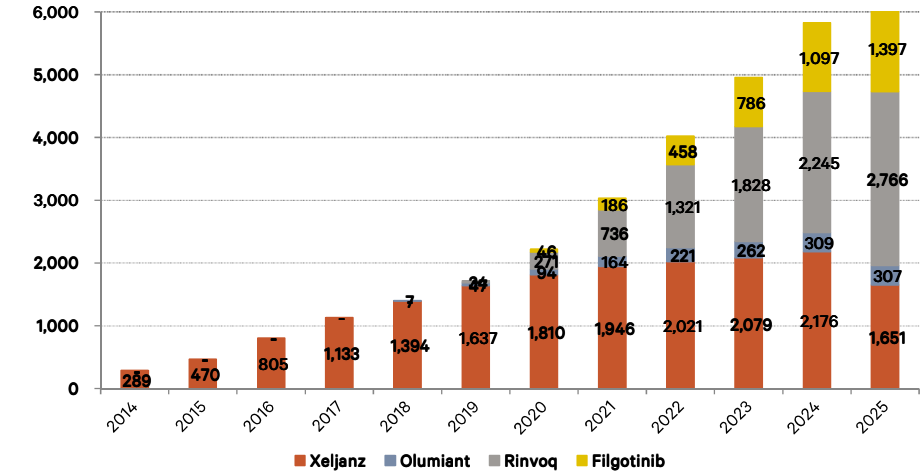
€ in millions



Source: Company filings, BCM estimates

Exhibit 19: By 2025, JAKinibs for inflammation could reach sales of $6bn (or €5.5bn)

$ in millions



Source: Company filings, First Order Analytics, BCM estimates

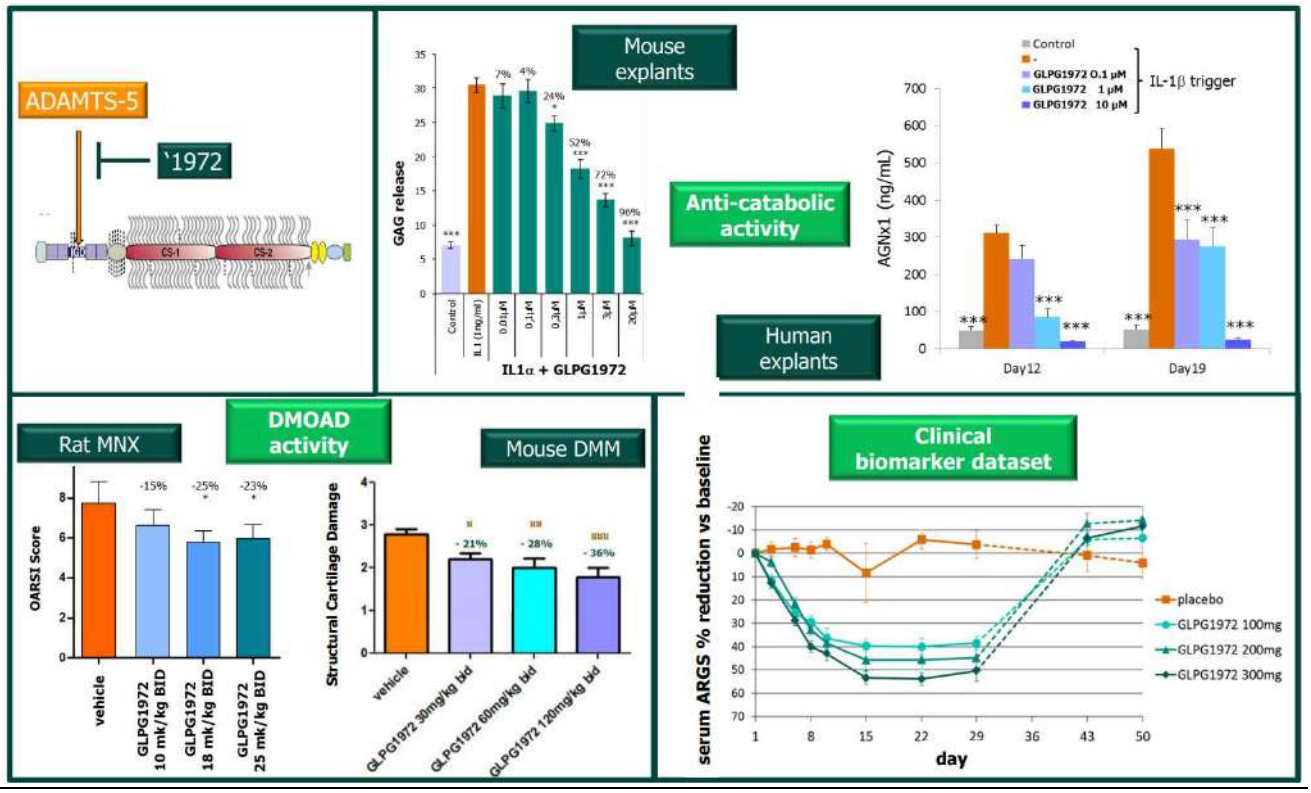
GLPG1972 for OA could generate peak sales of nearly €3bn

Therapeutic area snapshot. Osteoarthritis (OA), the most common type of arthritis, is also known as degenerative joint disease. OA afflicts a large and growing patient population; for instance, it is estimated that OA affects 14% of adults aged 25 and older and 34% of those aged 65 and older. Nearly eight million Americans receive intra-articular (IA) (i.e., in the joint) injections to treat their knee OA pain each year. Thus, to us, the OA market is a significant market with robust opportunities for non-opioid pain treatments, as well as disease-modifying therapies. See Appendix E of the *Disruptive Discussion Part III: Inflammatory Conditions* note for further details regarding the pathogenesis of OA.

GLPG1972 is currently being evaluated in a Phase IIb study (ROCCELLA) for knee OA. GLPG1972 is a novel therapeutic targeting ADAMTS-5, a disintegrin and metalloproteïnase with thrombospondin-motif-5, a key aggrecan-cleaving enzyme involved in cartilage degradation. Differentiated from other current OA treatments on the market or in development, GLPG1972 may have disease-modifying effects for OA patients.

Early stage data has demonstrated the potential for GLPG1972 to inhibit ADAMTS-5, leading to a reduction in serum ARGS level, which is a biomarker for the release of N-terminal ARGS-aggrecan neoepitope fragments.

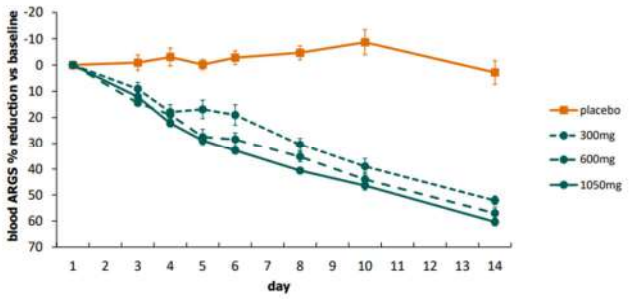
Exhibit 20: GLPG1972 – mechanism of action, preclinical data, and clinical biomarker data



**Note: ARGS is a biomarker for aggrecan cleavage by ADAMTS-5, resulting in release of N-terminal ARGS-aggrecan neoepitope fragments.*
Source: Galapagos OARSI presentation

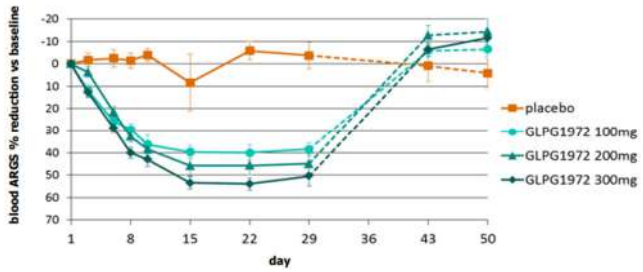
In a Phase Ib trial, three doses (100mg, 200mg, and 300mg) of GLPG1972 were evaluated in OA patients. In the trial, GLPG1972 was well-tolerated and a dose-dependent reduction of ARGS was observed with similar pharmacokinetic (PK) profile as in healthy subjects. The treatment effect is reversible as ARGS returned to baseline after treatment was halted.

Exhibit 21: Phase I study in healthy subjects: max reduction of about 60% of key biomarker ARGS with no plateau effect



Source: Galapagos

Exhibit 22: Phase Ib study in OA patients: dose-dependent reduction of ARGS with a plateau effect from Day 15 onwards



Source: Galapagos

Top-line data from the Phase IIb trial is expected in H220

ROCCELLA was initiated in June 2018; top-line data is expected in H220. The next potential positive event in Galapagos' OA program is the top-line data release in the Phase IIb trial (ROCCELLA) evaluating GLPG1972 in knee OA patients. In ROCCELLA, Galapagos and partner Servier intend to recruit approximately 850 patients in up to 15 countries for a randomized, double-blind, placebo-controlled, dose ranging trial evaluating the efficacy and safety of three difference once-daily doses of GLPG1972 in patients with knee OA. The primary objective of ROCCELLA is to demonstrate the efficacy of at least one dose of GLPG1972 compared to placebo in reducing cartilage loss after 52 weeks of treatment. Cartilage thickness will be measured using quantitative magnetic resonance imaging of the central medial tibiofemoral compartment of the target knee. Secondary objectives include safety and tolerability, several additional measures of structural progression, changes in bone area, pain, function, stiffness, and patient global assessment. We note that enrollment in ROCCELLA completed on June 11, 2019, and top-line data is expected in H220.

KOL view

The KOL we hosted at a recent pain seminar is an orthopedic surgeon who specializes in shoulder and knee surgery with extensive knowledge and experience treating patients with OA.

The KOL noted the excitement among orthopedists for the potential of GLPG1972 to demonstrate disease-modifying effects on cartilage degradation in knee OA patients. The KOL believes the compound, if approved, would be prescribed heavily among patients with earlier stage disease, and possibly even in those with later stage disease, depending on 1) the level of pain severity experienced by the patient; and 2) the potential impact of GLPG1972 on pain symptoms.

It is not clear to the KOL that a disease-modifying therapy such as GLPG1972 (or Samumed's lorecivivint; see Appendix E of the *Disruptive Discussion Part III: Inflammatory Conditions* note.) would also have an impact on pain symptoms. To the KOL, if a disease-modifying therapy for OA also has an impact on pain symptoms, the potential market would be very substantial. Even if a disease-modifying therapy does not impact pain symptoms, if it slows or halts the degradation of cartilage, the KOL believes the drug would still be prescribed heavily. The caveat is whether or not a disease-modifying therapy that does not impact pain symptoms could even be approved by the FDA, which historically has focused on improvement in pain symptom scores for approvals of knee OA drugs.

If ROCCELLA is successful, the KOL believes the data will help guide discussions with the FDA in determining what the proper endpoints are for the Phase III pivotal program. Moreover, the KOL thinks that immediate- and extended-release steroid injections for the knee are likely to maintain their place as an important treatment option for pain for knee OA for the foreseeable future.

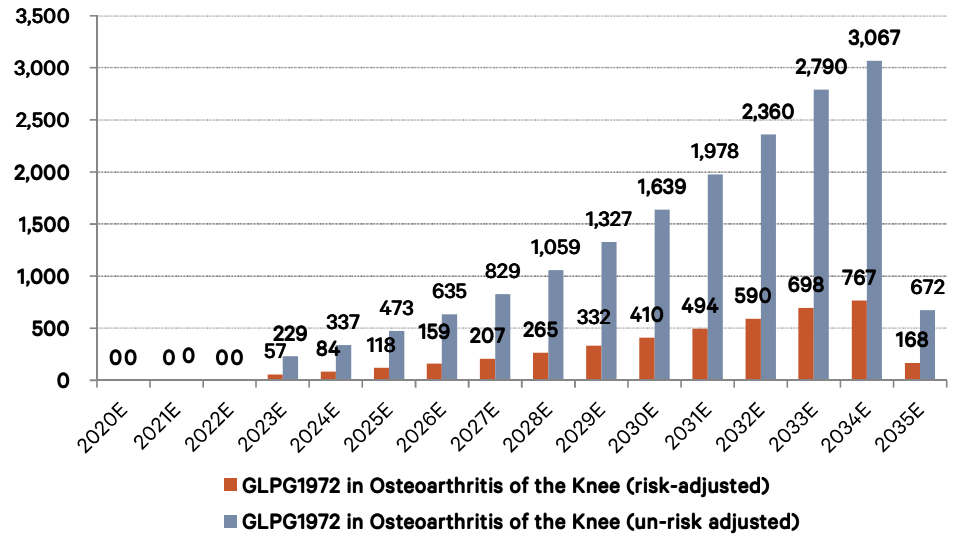
Our view

GLPG1972, if eventually approved, could generate peak sales of nearly €3bn. The key takeaway for us from the pain seminar and from discussions with rheumatologists at ACR is that our peak sales estimate for GLPG1972 is not only feasible, it could be conservative.

Although we admit that GLPG1972 still has a long way to go, if approved, we think the compound could reach peak sales of nearly €3bn; risk-adjusted (25%), our model includes peak revenue of more than €700m.

Exhibit 23: GLPG1972 could generate peak sales of nearly €3bn in OA

€ in millions



Source: BCM estimates

Risks

The key risk to our thesis is disappointing clinical data readouts on important assets such as filgotinib (RA, IBD, and other indications), '1690 (IPF), and '1972 (OA knee).

Additional risks to our thesis include: 1) drug development risk; 2) competitive risks, including if competitor products in development generate superior clinical data or if competitors conduct commercialization activities better than Galapagos or its partners; 3) government regulatory risk; 4) payer reimbursement risk; 5) pricing risk; 6) capital market risk; and 7) business development risk, among others.

Financials

Profit and loss account

€ in millions, unless otherwise noted

	2013A	2014A	2015A	2016A	2017A	2018A	1Q19A	2Q19A	3Q19A	4Q19E	2019E	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E
Total revenues and other income	**96.6**	**90.0**	**60.6**	**151.6**	**155.9**	**317.8**	**40.9**	**67.6**	**644.0**	**129.2**	**881.7**	**131.1**	**131.1**	**133.2**	**197.2**	**592.5**	**670.4**
% chg		-6.8%	-32.7%	150.3%	2.8%	103.9%	-8.7%	18.5%	523.9%	14.6%	177.4%	220.3%	93.9%	-79.3%	52.6%	-32.8%	13.1%
Cost of sales	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	15.0	20.0	33.5
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	67.6%
% of sales	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.8%	7.6%	3.4%	5.0%
Gross profit	**96.6**	**90.0**	**60.6**	**151.6**	**155.9**	**317.8**	**40.9**	**67.6**	**644.0**	**129.2**	**881.7**	**131.1**	**131.1**	**128.2**	**182.2**	**572.5**	**636.9**
% chg		-6.8%	-32.7%	150.3%	2.8%	103.9%	-8.7%	18.5%	523.9%	14.6%	177.4%	220.3%	93.9%	-80.1%	41.0%	-35.1%	11.2%
% of sales	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	96.2%	92.4%	96.6%	95.0%
bps chg		0	0	0	0	0	0	0	0	0	0	0	0	(380)	(760)	(340)	(160)
Research and development expenses	**99.4**	**111.1**	**129.7**	**139.6**	**218.5**	**322.9**	**83.2**	**94.4**	**120.7**	**110.5**	**408.7**	**100.4**	**100.4**	**100.4**	**100.4**	**401.7**	**421.7**
% chg		11.8%	16.7%	7.6%	56.6%	47.8%	19.3%	15.5%	50.3%	21.3%	26.6%	20.7%	6.4%	-16.8%	-9.1%	-1.7%	5.0%
% of sales	102.9%	123.4%	214.1%	92.1%	140.1%	101.6%	203.3%	139.6%	18.7%	85.5%	46.4%	76.6%	76.6%	75.4%	50.9%	67.8%	62.9%
General and administrative expenses	**12.4**	**13.9**	**19.1**	**21.7**	**24.4**	**35.6**	**9.2**	**13.7**	**28.6**	**29.5**	**81.0**	**30.0**	**31.0**	**32.0**	**33.0**	**126.0**	**166.0**
% chg		12.3%	37.9%	13.7%	12.3%	45.9%	37.7%	61.2%	193.7%	175.5%	127.3%	225.3%	126.1%	12.0%	11.9%	55.6%	31.7%
% of sales	12.8%	15.4%	31.6%	14.3%	15.7%	11.2%	22.5%	20.3%	4.4%	22.8%	9.2%	22.9%	23.7%	24.0%	16.7%	21.3%	24.8%
Sales and marketing expenses	**1.5**	**1.0**	**1.2**	**1.8**	**2.8**	**4.1**	**1.7**	**3.9**	**4.1**	**4.6**	**14.3**	**7.0**	**10.0**	**13.0**	**15.0**	**45.0**	**80.0**
% chg		-32.2%	19.2%	51.0%	57.0%	47.9%	322.8%	543.7%	354.1%	105.0%	244.4%	300.9%	158.1%	218.8%	227.7%	215.2%	77.8%
% of sales	1.5%	1.1%	2.0%	1.2%	1.8%	1.3%	4.3%	5.7%	0.6%	3.5%	1.6%	5.3%	7.6%	9.8%	7.6%	7.6%	11.9%
Restructuring and integration costs	0.3	0.7	0.0		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total operating expenses	**113.5**	**126.6**	**150.0**	**163.1**	**245.7**	**362.7**	**94.2**	**112.0**	**153.3**	**144.6**	**504.0**	**137.4**	**141.4**	**145.4**	**148.4**	**572.7**	**667.7**
% chg		11.6%	18.5%	8.7%	50.7%	47.6%	22.5%	23.3%	68.6%	38.9%	39.0%	46.0%	26.3%	-5.1%	2.7%	13.6%	16.6%
% of sales	117.5%	140.7%	247.6%	107.6%	157.6%	114.1%	230.1%	165.6%	23.8%	111.9%	57.2%	104.9%	107.9%	109.2%	75.3%	96.7%	99.6%
Operating profit (loss)	**(16.9)**	**(36.6)**	**(89.4)**	**(11.5)**	**(89.8)**	**(44.8)**	**(53.2)**	**(44.4)**	**490.6**	**(15.4)**	**377.7**	**(6.4)**	**(10.4)**	**(17.2)**	**33.7**	**(0.2)**	**(30.8)**
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
% of sales	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
bps chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Depreciation and amortization	8.2	4.6	3.4	4.2	4.3	5.1	2.8	2.9	3.2	3.2	12.0	12.0	0.0	13.0	0.0	12.0	13.0
IFRS EBITDA	**(8.8)**	**(32.0)**	**(86.0)**	**(7.3)**	**(85.5)**	**(39.7)**	**(50.5)**	**(41.5)**	**493.8**	**(12.2)**	**389.7**	**5.6**	**(10.4)**	**(4.2)**	**33.7**	**11.8**	**(17.8)**
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
% of sales	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
bps chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Share subscription agreement	0.0	0.0	(30.6)	57.5	0.0	0.0	0.0	0.0	(142.3)	0.0	(142.3)	0.0	0.0	0.0	0.0	0.0	0.0
Other financial income	2.2	2.3	2.0	10.0	4.9	18.3	7.0	(1.3)	34.8	1.5	41.9	2.2	2.2	2.2	2.2	8.7	8.7
Other financial expenses	(1.4)	(0.9)	(1.5)	(1.7)	(30.6)	(2.7)	(2.3)	(1.5)	(38.6)	(1.0)	(43.4)	(1.5)	(1.5)	(1.5)	(1.5)	(5.8)	(5.8)
Total non-operating income (expense)	**0.8**	**1.4**	**(30.2)**	**65.7**	**(25.7)**	**15.6**	**4.7**	**(2.8)**	**(146.2)**	**0.5**	**(143.9)**	**0.7**	**0.7**	**0.7**	**0.7**	**2.9**	**2.9**
Pretax income (loss)	**(16.1)**	**(35.2)**	**(119.6)**	**54.2**	**(115.5)**	**(29.2)**	**(48.6)**	**(47.190)**	**344.4**	**(14.9)**	**233.8**	**(5.6)**	**(9.6)**	**(16.5)**	**34.5**	**2.7**	**(27.9)**
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
% of sales	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Taxes	0.7	2.1	(1.2)	0.2	0.2	0.1	0.1	0.1	(16.8)	0.0	(16.7)	0.0	0.0	0.0	0.0	0.0	0.0
Tax rate	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
IFRS net income (loss)	**(16.8)**	**(37.3)**	**(118.4)**	**54.0**	**(115.7)**	**(29.3)**	**(48.7)**	**(47.3)**	**361.2**	**(14.9)**	**250.5**	**(5.6)**	**(9.6)**	**(16.5)**	**34.5**	**2.7**	**(27.9)**
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
% of sales	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
IFRS EPS	**€ -0.58**	**€ -1.24**	**€ -3.32**	**€ 1.14**	**€ -2.34**	**€ -0.56**	**€ -0.89**	**€ -0.86**	**€ 6.03**	**€ -0.25**	**€ 4.37**	**€ -0.09**	**€ -0.16**	**€ -0.27**	**€ 0.56**	**€ 0.04**	**€ -0.45**
% chg		NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM	NM
Shares outstanding	28.8	30.1	35.7	47.3	49.5	52.1	54.6	54.8	59.9	60.2	57.4	60.4	60.7	60.9	61.2	61.2	62.2

Source: Company data, BCM estimates

Balance sheet

€ in millions, unless otherwise noted

	2013A	2014A	2015A	2016A	2017A	2018A	1Q19A	2Q19A	3Q19A	4Q19E	2019E	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E
Inventories	0.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	5.0	7.5	10.0	10.0	20.0
Trade and other receivables	19.2	3.2	3.9	9.7	28.0	18.6	15.3	42.1	32.6	35.6	35.6	38.1	40.6	43.1	45.6	45.6	55.6
Current R&D incentives receivables	10.6	7.4	9.2	10.2	11.8	11.2	11.6	11.6	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7	9.7
Cash and cash equivalents	138.2	187.7	340.3	973.2	1,151.2	1,290.8	1,222.9	1,147.9	5,599.8	5,496.4	5,496.4	5,400.9	5,301.4	5,195.0	5,136.3	5,136.3	4,745.7
Current restricted cash	0.0	10.4	6.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Current financial asset, share sub. agreement	0.0	0.0	8.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other current assets	5.1	4.6	5.5	14.1	6.7	8.2	9.4	7.0	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
Total current assets	**173.3**	**213.6**	**374.5**	**1,007.2**	**1,197.6**	**1,328.9**	**1,259.2**	**1,208.6**	**5,651.0**	**5,550.6**	**5,550.6**	**5,460.1**	**5,365.6**	**5,264.2**	**5,210.5**	**5,210.5**	**4,840.0**
Goodwill	39.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Intangible assets	7.8	2.0	1.6	1.0	2.5	3.6	6.5	7.2	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5	23.5
Property, plant, and equipment	19.5	10.1	13.8	15.0	16.7	23.1	49.5	51.2	61.9	62.4	62.4	65.5	68.7	71.9	78.4	78.4	97.3
Deferred tax assets	4.6	0.3	1.7	2.0	2.0	2.5	2.5	2.5	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4	19.4
Non-current R&D incentives receivables	39.3	43.9	49.4	54.2	64.0	73.4	76.0	82.6	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0	90.0
Non-current restricted cash	3.3	0.3	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other non-current assets	0.2	0.2	0.6	4.0	3.5	7.9	6.4	5.7	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Total assets	**287.4**	**270.5**	**442.5**	**1,083.3**	**1,286.3**	**1,439.5**	**1,400.2**	**1,357.8**	**5,851.8**	**5,751.8**	**5,751.8**	**5,664.5**	**5,573.1**	**5,475.0**	**5,427.8**	**5,427.8**	**5,076.1**
Provisions	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lease liabilities	0.0	0.0	0.0	0.0	0.0	0.0	4.6	0.0	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3	5.3
Finance lease liabilities	0.2	0.1	0.1	0.1	0.0	0.0	0.0	5.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Trade and other payables	29.4	30.0	29.5	31.9	48.3	68.9	69.9	86.2	156.3	156.3	156.3	158.8	161.3	163.8	166.3	166.3	176.3
Current tax payable	0.1	2.6	2.6	1.0	0.9	1.2	1.2	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Accrued charges	3.9	0.6	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred income	79.0	27.0	39.8	70.8	122.5	149.8	123.8	96.3	468.8	468.8	468.8	468.8	468.8	468.8	468.8	468.8	468.8
Total current liabilities	**112.6**	**60.4**	**72.4**	**103.8**	**171.7**	**219.9**	**199.5**	**188.7**	**631.3**	**631.3**	**631.3**	**633.8**	**636.3**	**638.8**	**641.3**	**641.3**	**651.3**
Pension liabilities	2.2	2.9	2.7	3.5	3.6	3.8	3.9	3.9	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Provisions	0.7	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred tax liabilities	2.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Finance lease liabilities	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.0	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7	19.7
Lease liabilities	0.0	0.0	0.0	0.0	0.0	0.0	20.4	20.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other non-current liabilities	2.5	0.9	2.3	2.5	1.7	1.6	0.7	1.4	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Deferred income	0.0	0.0	0.0	214.8	97.3	0.0	0.0	0.0	2,659.0	2,565.9	2,565.9	2,472.8	2,379.7	2,286.6	2,193.5	2,193.5	1,821.0
Total liabilities	**120.2**	**64.3**	**77.5**	**324.6**	**274.3**	**225.2**	**224.4**	**214.5**	**3,316.5**	**3,223.4**	**3,223.4**	**3,132.7**	**3,042.1**	**2,951.5**	**2,860.9**	**2,860.9**	**2,498.5**
Share capital	154.5	157.3	185.4	223.9	233.4	236.5	237.3	238.5	272.6	272.6	272.6	272.6	272.6	272.6	272.6	272.6	272.6
Share premium account	112.5	114.2	357.4	649.1	993.0	1,277.8	1,280.5	1,283.7	2,268.6	2,276.6	2,276.6	2,285.5	2,294.5	2,303.4	2,312.3	2,312.3	2,351.1
Other reserves	0.0	(0.2)	(0.0)	(1.0)	(1.3)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)	(0.7)
Translation differences	0.2	(1.2)	(0.5)	(1.1)	(1.8)	(1.6)	(1.3)	(1.5)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)	(1.3)
Accumulated losses	(100.1)	(63.9)	(177.3)	(112.3)	(211.4)	(297.8)	(340.0)	(376.5)	(3.9)	(18.8)	(18.8)	(24.4)	(34.1)	(50.5)	(16.1)	(16.1)	(44.0)
Total stockholders' equity	**167.1**	**206.1**	**365.0**	**758.7**	**1,012.0**	**1,214.2**	**1,175.8**	**1,143.4**	**2,535.3**	**2,528.4**	**2,528.4**	**2,531.7**	**2,531.0**	**2,523.5**	**2,566.9**	**2,566.9**	**2,577.7**
Total liabilities and stockholders' equity	**287.4**	**270.5**	**442.5**	**1,083.3**	**1,286.3**	**1,439.5**	**1,400.2**	**1,357.8**	**5,851.8**	**5,751.8**	**5,751.8**	**5,664.5**	**5,573.1**	**5,475.0**	**5,427.8**	**5,427.8**	**5,076.1**

Source: Company data, BCM estimates

Cash flow statement

€ in millions, unless otherwise noted

	2013A	2014A	2015A	2016A	2017A	2018A	1Q19A	2Q19A	3Q19A	4Q19E	2019E	1Q20E	2Q20E	3Q20E	4Q20E	2020E	2021E
Net income (loss)	**(8.1)**	**33.2**	**(118.4)**	**54.0**	**(115.7)**	**(29.3)**	**(48.7)**	**(47.3)**	**361.2**	**(14.9)**	**250.5**	**(5.6)**	**(9.6)**	**(16.5)**	**34.5**	**2.7**	**(27.9)**
Tax income and expenses	(3.1)	2.3	(1.2)	0.2	0.2	0.1	0.1	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other net financial income and expense	0.2	(1.8)	(0.4)	(1.6)	(2.1)	(4.4)	(1.6)	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fair value of share subscription agreement	0.0	0.0	30.6	(57.5)	0.0	0.0	1.5	(1.5)	142.3	0.0	142.3	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation and amortization	8.2	4.6	3.4	4.2	4.3	5.1	2.8	2.9	3.2	3.2	12.0	3.0	3.0	3.0	3.0	12.0	13.0
Impairment loss	0.0	0.0	0.0	0.0	0.0	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Net loss on foreign exchange transactions	(2.1)	(0.3)	(0.4)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Share-based compensation	2.7	3.0	5.0	11.0	16.5	26.8	6.0	10.8	11.4	8.0	36.1	8.9	8.9	8.9	8.9	35.8	38.8
Increase or decrease in retirement benefits	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.1	0.1	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0
Gains and losses and other financial expenses	0.0	0.0	0.0	(5.5)	27.5	(10.1)	(4.8)	3.4	(30.8)	0.0	(32.3)	0.0	0.0	0.0	0.0	0.0	0.0
Discounting effect of deferred income						0.0	0.0	0.0	2.1	0.0	2.1	0.0	0.0	0.0	0.0	0.0	0.0
Change in fair value of financial assets	0.0	0.0	0.0	0.0	0.0	(1.2)	0.0	2.1	(0.2)	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0
Increase or decrease in provisions	(0.1)	0.0	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Increase in pension liabilities	0.2	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gain on disposal of fixed assets	0.0	0.0	(0.1)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Gain on sale of service division	0.0	(67.5)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Deferred income	0.0	0.0	0.0	245.8	(65.7)	(153.3)	(26.0)	(27.5)	2,943.8	(93.1)	2,797.2	(93.1)	(93.1)	(93.1)	(93.1)	(372.4)	(372.4)
Adjustments for investing and financing	0.0	0.0	0.0	(0.0)	0.0	(0.7)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Interest paid	(0.2)	(0.1)	(0.0)	(0.0)	(0.3)	(1.1)	(0.3)	0.2	(0.0)	0.0	(0.2)	0.0	0.0	0.0	0.0	0.0	0.0
Interest received	1.0	1.0	1.1	1.1	1.3	4.6	1.6	(1.1)	(2.7)	0.0	(2.3)	0.0	0.0	0.0	0.0	0.0	0.0
Income taxes paid and received	(0.1)	0.1	(0.1)	(1.8)	(0.2)	(0.0)	(0.0)	0.1	(16.9)	0.0	(16.8)	0.0	0.0	0.0	0.0	0.0	0.0
Changes in working capital																	
Inventory	(0.0)	(0.0)	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(2.5)	(2.5)	(2.5)	(2.5)	(10.0)	(10.0)
Receivables	1.1	(10.1)	(7.2)	(13.0)	(27.7)	(0.1)	(1.2)	(31.7)	4.8	(3.0)	(31.1)	(2.5)	(2.5)	(2.5)	(2.5)	(10.0)	(10.0)
Payables	2.2	(40.3)	(26.7)	2.1	14.8	20.0	(1.1)	18.0	52.3	0.0	69.3	2.5	2.5	2.5	2.5	10.0	10.0
Total changes in working capital	**3.3**	**(50.5)**	**(34.0)**	**(10.9)**	**(12.9)**	**19.9**	**(2.3)**	**(13.6)**	**57.0**	**(3.0)**	**38.1**	**(2.5)**	**(2.5)**	**(2.5)**	**(2.5)**	**(10.0)**	**(10.0)**
Cash from operating activities	**1.8**	**(75.6)**	**(114.6)**	**239.4**	**(147.0)**	**(142.5)**	**(71.7)**	**(70.0)**	**3,470.5**	**(99.8)**	**3,229.0**	**(89.3)**	**(93.3)**	**(100.1)**	**(49.2)**	**(332.0)**	**(358.6)**
Purchase of property, plant, and equipment	(7.3)	(2.1)	(6.1)	(4.5)	(5.3)	(10.4)	(2.1)	(2.9)	(12.3)	(3.7)	(21.0)	(6.2)	(6.2)	(6.3)	(9.5)	(28.0)	(31.9)
Purchase of intangible fixed assets	(0.5)	(0.7)	(0.6)	(0.3)	(2.1)	(3.3)	(1.2)	(2.3)	(1.9)	0.0	(5.5)	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, disposal of intangibles	0.0	0.0	0.1	0.0	0.0	0.0	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, disposal of PP&E	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	(0.0)	0.0	(0.0)	0.0	0.0	0.0	0.0	0.0	0.0
Acquisition of financial assets	0.0	0.0	0.0	0.0	0.0	0.0	(0.2)	0.0	0.0	0.0	(0.2)	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, sale of financial assets	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Acquisitions of subsidiaries	(1.2)	0.0	0.0	(2.8)	0.0	(4.6)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Disposals of subsidiaries	0.0	130.8	0.0	0.0	0.0	2.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, available for sale securities					0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Change in restricted cash	(3.0)	(7.4)	2.3	0.2	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cash from investing activities	**(12.0)**	**120.6**	**(4.3)**	**(7.3)**	**(0.5)**	**(15.9)**	**(3.4)**	**(5.3)**	**(14.2)**	**(3.7)**	**(26.5)**	**(6.2)**	**(6.2)**	**(6.3)**	**(9.5)**	**(28.0)**	**(31.9)**
Repayments, finance leases and other debts	(0.3)	(0.2)	(0.0)	(0.0)	(0.1)	(0.0)	(1.2)	(0.9)	(1.7)	0.0	(3.8)	0.0	0.0	0.0	0.0	0.0	0.0
Issue cost paid for capital and share premium	0.0	0.0	0.0	(0.3)	(15.8)	(16.0)	0.0	7.8	(7.8)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, exercise of warrants	0.0	0.0	0.0	4.3	5.3	7.7	3.5	(3.5)	14.5	0.0	14.5	0.0	0.0	0.0	0.0	0.0	0.0
Proceeds, capital and share premium inc., net	54.8	4.4	271.4	392.1	363.9	296.2	0.0	0.0	960.1	0.0	960.1	0.0	0.0	0.0	0.0	0.0	0.0
Cash from financing activities	**54.5**	**4.2**	**271.4**	**396.0**	**353.4**	**287.9**	**2.2**	**3.4**	**965.1**	**0.0**	**970.7**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**	**0.0**
Effect of currency rate changes on cash	(0.5)	0.3	0.1	4.8	(27.8)	10.1	5.0	(3.1)	30.5	0.0	32.4	0.0	0.0	0.0	0.0	0.0	0.0
Net changes in cash	43.8	49.5	152.6	632.9	178.0	139.6	(67.9)	(75.0)	4,451.9	(103.4)	4,205.6	(95.5)	(99.5)	(106.4)	(58.7)	(360.1)	(390.6)
Beginning cash and equivalents	94.4	138.2	187.7	340.3	973.2	1,151.2	1,290.8	1,222.9	1,147.9	5,599.8	1,290.8	5,496.4	5,400.9	5,301.4	5,195.0	5,496.4	5,136.3
Ending cash and equivalents	**138.2**	**187.7**	**340.3**	**973.2**	**1,151.2**	**1,290.8**	**1,222.9**	**1,147.9**	**5,599.8**	**5,496.4**	**5,496.4**	**5,400.9**	**5,301.4**	**5,195.0**	**5,136.3**	**5,136.3**	**4,745.7**
Free cash flow	**(5.5)**	**(77.6)**	**(120.7)**	**234.9**	**(152.3)**	**(152.9)**	**(73.8)**	**(73.0)**	**3,458.2**	**(103.4)**	**3,208.0**	**(95.5)**	**(99.5)**	**(106.4)**	**(58.7)**	**(360.1)**	**(390.6)**
FCF/share	€ -0.19	€ -2.58	€ -3.38	€ 4.97	€ -3.08	€ -2.93	€ -1.35	€ -1.33	€ 57.73	€ -1.72	€ 55.91	€ -1.58	€ -1.64	€ -1.75	€ -0.96	€ -5.89	€ -6.28

Source: Company data, BCM estimates

RATING AND PRICE TARGET HISTORY

Disclosures

This document has been prepared by Berenberg Capital Markets, LLC, a registered broker-dealer and member of FINRA.

Analyst Attestations

I Patrick R. Trucchio, CFA hereby certify that all of the views in this report accurately reflect my personal views about any and all of the subject securities or issuers discussed herein.
I hereby certify that no part of my compensation was, is, or will be, directly or indirectly related to the specific recommendations or views expressed in this research report, nor is it tied to any specific investment banking transaction undertaken by Berenberg Capital Market, LLC ("BCM") or its affiliates.

I Shanshan Xu, M.D., Ph.D. hereby certify that all of the views in this report accurately reflect my personal views about any and all of the subject securities or issuers discussed herein.
I hereby certify that no part of my compensation was, is, or will be, directly or indirectly related to the specific recommendations or views expressed in this research report, nor is it tied to any specific investment banking transaction undertaken by Berenberg Capital Market, LLC ("BCM") or its affiliates.

I Iris Long, CPA hereby certify that all of the views in this report accurately reflect my personal views about any and all of the subject securities or issuers discussed herein.
I hereby certify that no part of my compensation was, is, or will be, directly or indirectly related to the specific recommendations or views expressed in this research report, nor is it tied to any specific investment banking transaction undertaken by Berenberg Capital Market, LLC ("BCM") or its affiliates.

Important Disclosures

Berenberg Capital Markets, LLC Disclosures

Company	Disclosures
Galapagos NV	no disclosures

(1) BCM or its affiliates owned 1% or more of the outstanding shares of any class of the subject company by the end of the prior month.

(2) The subject company is or was, during the 12-month period preceding the date of distribution of this report, a client of BCM or its affiliates. BCM or its affiliates provided the subject company non-investment banking, securities-related services.

(3) BCM or its affiliates received compensation from the subject company during the past 12 months for products or services other than investment banking services.

(4) During the previous 12 months, BCM or its affiliates has managed or co-managed any public offering for the subject company.

(5) BCM is making a market in the subject securities at the time of the report.

(6) BCM or its affiliates received compensation for investment banking services in the past 12 months, or expects to receive such compensation in the next 3 months.

(7) There is another potential conflict of interest of the analyst(s), BCM, of which the analyst knows or has reason to know at the time of publication of this research report.

(8) The research analyst or a member of the research analyst's household serves as an officer, director, or advisory board member of the subject company.

(9) The research analyst or a member of the research analyst's household has a financial interest in the equity or debt securities of the subject company (including options, rights, warrants, or futures).

(10)The research analyst has received compensation from the subject company in the previous 12 months.

Please refer to https://www.berenberg-us.com/compliance-disclosures/ for company-specific disclosures referenced in this report. Disclosure information is also available from Compliance, 1251 Avenue of the Americas, 53rd Floor, New York, NY 10020.

Valuation Basis/Rating Key

Recommendations made by BCM's Equity Research department are made on an absolute basis for which the following rating key is applicable:

Buy: Sustainable upside potential of more than 15% to the current share price within 12 months.

Sell: Sustainable downside potential of more than 15% to the current share price within 12 months.

Hold: Upside/downside potential regarding the current share price limited; no immediate catalyst visible.

NR: The investment rating and price target have been temporarily suspended. Such suspensions are in compliance with applicable regulations or BCM policies.

Suspended: Coverage Suspended. BCM has suspended coverage of this company.

NC: Not covered. BCM does not cover this company.

Restricted: Describes issuers where, in conjunction with BCM engagement in certain transactions, company policy or applicable securities regulations prohibit certain types of communications, including investment recommendations.

Under Review: Following the release of significant news from this company, the rating has been temporarily placed under review until sufficient information has been obtained and assessed by the analyst.

NB: During periods of high market, sector, or stock volatility, or in special situations, the recommendation system criteria may be breached temporarily.

BCM Equity Research ratings distribution and in proportion to investment banking services on a quarterly basis, as of October 1, 2019

Rating Category	Percent	IB Serv./Past 12 Mos.
Buy	73.29%	100.00%
Sell	2.74%	0.00%
Hold	23.97%	0.00%

General Disclosures

BCM has made every effort to carefully research all information contained in this financial analysis. The information on which the financial analysis is based has been obtained from sources that we believe to be reliable such as, Thomson Reuters, Bloomberg, and other relevant specialized press, as well as the subject company of this financial analysis.
Only those parts of a draft research report necessary for factual review may be made available to the subject company prior to publication. Should this result in material changes this will be disclosed in the Berenberg Capital Markets, LLC Disclosures section of this report. Opinions expressed in this financial analysis are our current opinions as of the issuing date indicated on this document. The functional job title of the person(s) responsible for the recommendations contained in this report is 'Equity Research Analyst'.

Legal Disclaimer

This document has been prepared exclusively by BCM. This document does not claim accuracy, completeness, timeliness, suitability, or otherwise regarding all the information on the securities, stock markets, or developments referred to within.
On no account should the document be regarded as a substitute for the recipient procuring information for himself/herself or exercising his/her own judgments. BCM is not responsible for any recipient(s) use of this information.
The document has been produced for informational purposes for institutional client(s) and market professionals, but not for retail investors or private customers. It is not for distribution to or the use of retail investors or private customers. This document is not a solicitation or an offer to buy or sell any of the securities contained herein. This information does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of clients. Clients should

consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of securities referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain securities.
The document may include certain descriptions, statements, estimates, and conclusions underlining potential market and company development. These reflect assumptions, which may turn out to be incorrect. BCM nor its employees accept no liability whatsoever for any direct or consequential loss or damages of any kind arising out of the use of this document or any part of its content.
BCM or its employees, excluding BCM Research Department employees, may hold, buy, or sell positions in any securities mentioned in this document, related derivatives, or related financial products. BCM or its affiliate(s) may underwrite issues for any securities mentioned in this document, related derivatives, or related financial products or seek to perform capital market or underwriting services.

Remarks Regarding Foreign Investors

The preparation of this document is subject to regulation by U.S. law. The distribution of this document in other jurisdictions may be restricted by law, and persons into whose possession this document comes should inform themselves about, and observe, any such restrictions.
This document has been prepared exclusively by BCM. Although Joh. Berenberg, Gossler & Co. KG ("Berenberg"), an affiliate of BCM, distributes this document to certain customers on a third party basis, Berenberg does not provide input into its contents, nor does this document constitute research of Berenberg. In addition, this document is meant exclusively for institutional investors and market professionals.

Disclosures in respect of Article 20 of Regulation (EU) No. 596/2014 of the European Parliament and of the Council of 16 April 2014 on market abuse (market abuse regulation - MAR)
Affiliate Research Disclosures (Joh. Berenberg, Gossler & Co. KG ("Berenberg")

Company	Disclosures
Galapagos NV	no disclosures

(1) Berenberg and/or its affiliate(s) was Lead Manager or Co-Lead Manager over the previous 12 months of a public offering of this company.

(2) Berenberg acts as Designated Sponsor/Market Maker for this company.

(3) Over the previous 12 months, Berenberg and/or its affiliate(s) has effected an agreement with this company for investment Banking services or received compensation or a promise to pay from this company for investment banking services.

(4) Berenberg and/or its affiliate(s) holds 5% or more of the share capital of this company.

(5) Berenberg holds a long position in shares of this company.

(6) Berenberg holds a short position in shares of this company.

Production of the recommendation completed: 12.10.2019, 10:29 GMT

Historical price target and rating changes for Galapagos NV in the last 12 months

Date	Price target - EUR	Rating	First dissemination GMT	Initiation of coverage
December 10, 2018	112.00	Under review	2018-12-11 08:03	March 13, 2018
February 05, 2019	112.00	Buy	2019-02-05 12:04	
April 12, 2019	140.00	Buy	2019-04-12 11:59	
September 10, 2019	200.00	Buy	2019-09-10 09:15	
November 15, 2019	195.00	Buy	2019-11-15 09:09	
December 10, 2019	225.00	Buy	-	

Berenberg, an affiliate of Berenberg Capital Markets, LLC, distributes this document on a third-party basis to certain customers outside of the U.S. Berenberg is authorized to carry out banking business and provide financial services by the German Federal Financial Supervisory Authority (BaFin) at Graurheindorfer Str. 108, 53117 Bonn, Germany (Banking Supervision) and Marie-Curie-Str. 24-28, 60439 Frankfurt on the Main, Germany (Securities Supervision/ Asset Management).

The dissemination to clients of BCM happens at the same time than the dissemination to clients of Berenberg. Please see Rating and Price Target History for date and time of first dissemination.

Contacts

BERENBERG CAPITAL MARKETS LLC Member FINRA & SIPC

Internet www.berenberg-us.com E-mail: firstname.lastname@berenberg-us.com

EQUITY RESEARCH

GENERAL MID CAP - US

Samuel England	+1 646 949 9035
Alex Maroccia	+1 646 949 9033
Brett Knoblauch	+1 646 949 9032

CAPITAL GOODS

Andrew Buscaglia	+1 646 949 9040

CONSTRUCTION

Robert Muir	+1 646 949 9028
Daniel Wang	+1 646 949 9025

FOOD MANUFACTURING

Donald McLee	+1 646 949 9026

HEALTHCARE

BIOTECH/THERAPEUTICS

Shanshan Xu	+1 646 949 9023

MED. TECH/SERVICES

Ravi Misra	+1 646 949 9028

HEALTHCARE (cont'd)

SPECIALTY PHARMA/BIOTECH

Iris Long	+1 646 949 9029
Patrick R. Trucchio	+1 646 949 9027

INDUSTRIAL MATERIALS

Paretosh Misra	+1 646 949 9031

REAL ESTATE

Keegan Carl	+1 646 949 9052
Nate Crossett	+1 646 949 9030
Connor Siversky	+1 646 949 9037

SOFTWARE & IT SERVICES

Joshua Tilton	+1 646 949 9036
Francois Yoshida-Are	+1 646 949 9152

TECHNOLOGY HARDWARE

Andrew DeGasperi	+1 646 949 9044

ECONOMICS

Mickey Levy	+1 646 949 9099
Roiana Reid	+1 646 949 9098

EQUITY SALES

SALES

David Alonso	+1 415 802 2523
Albert Aguiar	+1 646 949 9218
Jason Cantrell	+1 415 802 2523
Daniel Claeys	+1 646 949 3144
Mike Davis	+1 646 949 9230
Nate Emerton	+1 617 292 82 11
Kelleigh Faldi	+1 617 292 8288
Ted Franchetti	+1 646 949 9231
Rich Harb	+1 617 292 8228
Zubin Hubner	+1 646 949 9202
Zachary Krivine	+1 646 949 9051
Jessica London	+1 646 949 9203
Anthony Masucci	+1 646 949 9217
Ryan McDonnell	+1 646 949 9214
Emily Mouret	+1 415 802 2525
Peter Nichols	+1 646 949 9201
Kieran O'Sullivan	+1 617 292 8292
Rodrigo Ortigao	+1 646 949 9205

CRM

Alexandra Angove	+1 646 949 9211
Sammy Chea	+1 646 949 9241

CORPORATE ACCESS

Michelle Backmann	+1 646 949 9215
Adriane Klein	+1 617 292 8202
Olivia Lee	+1 646 949 9207

EVENTS

Meridian Della Penna	+1 646 949 9208
Laura Hawes	+1 646 949 9209

SALES TRADING

Marc Castagnera	+1 646 949 9107
Ronald Cestra	+1 646 949 9104
Mark Corcoran	+1 646 949 9105
Chris Davidson	+1 617 292 9140
Michael Haughey	+1 646 949 9106
Christopher Kanian	+1 646 949 9103
Lars Schwartau	+1 646 949 9101
Bob Spillane	+1 646 949 9102
Donato Tierno	+1 646 949 9109

Contacts

BERENBERG
CAPITAL MARKETS

JOH. BERENBERG, GOSSLER & CO. KG

Internet www.berenberg.com E-mail: firstname.lastname@berenberg.com

EQUITY RESEARCH

GENERAL MID CAP

MID CAP - DACH

Carl-Oscar Bredengen	+44 20 3753 3160
Marta Bruska	+44 20 3753 3187
Charlotte Friedrichs	+44 20 3753 3077
Gustav Froberg	+44 20 3465 2655
James Letten	+44 20 3753 3176
Alexander O'Donoghue	+44 20 3207 7804
Gerhard Orgonas	+44 20 3465 2635
Benjamin Pfannes-Varrow	+44 20 3465 2620
Lasse Stueben	+44 20 3753 3208

MID CAP - EU core

Beatrice Allen	+44 20 3465 2662
Fraser Donlon	+44 20 3465 2674
Remi Grenu	+44 20 3207 7806
Christoph Greulich	+44 20 3753 3119
Andreas Markou	+44 20 3753 3022
Anna Patrice	+44 20 3207 7863
Trion Reid	+44 20 3753 3113
Jan Richard	+44 20 3753 3029

MID CAP - UK

Calum Battersby	+44 20 3753 3118
Joseph Bloomfield	+44 20 3753 3248
Robert Chantry	+44 20 3207 7861
Sam Cullen	+44 20 3753 3183
Ned Hammond	+44 20 3753 3017
Tom Horne	+44 20 3207 7913
Edward James	+44 20 3207 7811
Kieran Lee	+44 20 3465 2736
Lush Mahendrarajah	+44 20 3207 7896
Benjamin May	+44 20 3465 2667
Alex Medhurst	+44 20 3753 3047
Anthony Plom	+44 20 3207 7908
Eoghan Reid	+44 20 3753 3055
Owen Shirley	+44 20 3465 2731
Donald Tait	+44 20 3753 3031
Harleen Teja	+44 20 3753 3214
Sean Thapar	+44 20 3465 2657

BUSINESS SERVICES, LEISURE & TRANSPORT

BUSINESS SERVICES

Tom Burlton	+44 20 3207 7852

LEISURE

Jack Cummings	+44 20 3753 3161
Stuart Gordon	+44 20 3207 7858
Annabel Hay-Jahans	+44 20 3465 2720

TRANSPORT & LOGISTICS

Conor Dwyer	+44 20 3753 3216
William Fitzalan Howard	+44 20 3465 2640
Joel Spungin	+44 20 3207 7867
Adrian Yanoshik	+44 20 3753 3073

CONSUMER

BEVERAGES

Javier Gonzalez Lastra	+44 20 3465 2719
Ellis Gooden	+44 20 3753 3199

FOOD MANUFACTURING AND HPC

Fulvio Cazzol	+44 20 3207 7840
Mary-Anne Sixsmith	+44 20 3465 2728
James Targett	+44 20 3207 7873

FOOD RETAIL

Thomas Davies	+44 20 3753 3104

GENERAL RETAIL

Michael Benedict	+44 20 3753 3175
Oliver Anderson	+44 20 3753 3173
Graham Renwick	+44 20 3207 7851
Michelle Wilson	+44 20 3465 2663

ENERGY

OIL & GAS

Baha Bassatne	+44 20 3753 3158
Ilkin Karimli	+44 20 3465 2684
Henry Tarr	+44 20 3207 7827

UTILITIES

Andrew Fisher	+44 20 3207 7937
Lawson Steele	+44 20 3207 7887

FINANCIALS

BANKS

Adam Barrass	+44 20 3207 7923
Frederick Brennan	+44 20 3753 3171
Michael Christodoulou	+44 20 3207 7920
Andrew Lowe	+44 20 3465 2743
Eoin Mullany	+44 20 3207 7854
Peter Richardson	+44 20 3465 2681

DIVERSIFIED FINANCIALS

Panos Ellinas	+44 20 3753 3149
Chris Turner	+44 20 3753 3019

REAL ESTATE

Kai Klose	+44 20 3207 7888

HEALTHCARE

Scott Bardo	+44 20 3207 7869
Michael Healy	+44 20 3753 3201
Tom Jones	+44 20 3207 7877
Odysseas Manesiotis	+44 20 375 3200

INDUSTRIALS

AEROSPACE & DEFENCE

Andrew Gollan	+44 20 3207 7891
Ross Law	+44 20 3465 2692
George McWhirter	+44 20 3753 3163

AUTOMOTIVES

Asad Farid	+44 20 3207 7932

CAPITAL GOODS

Philippe Lorrain	+44 20 3207 7823
Joel Spungin	+44 20 3207 7867

MATERIALS

CHEMICALS

Sebastian Bray	+44 20 3753 3011
Xian Deng	+44 20 3753 3014
Kai Lux	+44 20 3753 3202

MATERIALS

CHEMICALS (cont'd)

Anthony Manning	+44 20 3753 3092
Rikin Patel	+44 20 3753 3080

METALS & MINING

Oliver Grewcock	+44 20 3753 3215
Richard Hatch	+44 20 3753 3070
Laurent Kimman	+44 20 3465 2675
Michael Stoner	+44 20 3465 2643

TMT

TECHNOLOGY

Tammy Qiu	+44 20 3465 2673
Tej Sthankiya	+44 20 3753 3099
Lou Ann Yong	+44 20 3753 3159

MEDIA

Jamie Bass	+44 20 3753 3217
Robert Berg	+44 20 3465 2680
Keisi Hysa	+44 20 3207 7817
Laura Janssens	+44 20 3465 2639
Sarah Simon	+44 20 3207 7830

TELECOMMUNICATIONS

David Burns	+44 20 3753 3059
Usman Ghazi	+44 20 3207 7824
Laura Janssens	+44 20 3465 2639
Abhilash Mohapatra	+44 20 3465 2644
Carl Murdock-Smith	+44 20 3207 7918

THEMATIC RESEARCH

Steven Bowen	+44 20 3753 3057
Julia Schrameier	+44 20 3753 3172
Georgina Webb	+44 20 3753 3236

ECONOMICS

Florian Hense	+44 20 3207 7859
Kallum Pickering	+44 20 3465 2672
Holger Schmieding	+44 20 3207 7889

EQUITY SALES

SPECIALIST SALES

AEROSPACE & DEFENCE & CAPITAL GOODS

Cara Luciano	+44 20 3753 3146

AUTOS, CHEMICALS & TECHNOLOGY

Edward Wales	+44 20 3207 7815

BANKS & DIVERSIFIED FINANCIALS

Eleni Papoula	+44 20 3465 2741

BUSINESS SERVICES, LEISURE & TRANSPORT

Rebecca Langley	+44 20 3207 7930

CONSUMER DISCRETIONARY

Pauline Chevalier	+44 20 3753 3209

CONSUMER STAPLES

Ramnique Sroa	+44 20 3753 3064

HEALTHCARE

David Hogg	+44 20 3465 2628

MEDIA & TELECOMS

Jonathan Smith	+44 20 3207 7842

METALS & MINING, OIL & GAS AND UTILITIES

Jason Turner	+44 20 3753 3063

THEMATICS

Chris Armstrong	+44 20 3207 7809

SALES

BENELUX

Miel Bakker	+44 20 3207 7808
Bram van Hijfte	+44 20 3753 3000

SALES (cont'd)

FRANCE

Alexandre Chevassus	+33 1 5844 9512
Dalila Farigoule	+33 1 5844 9510
Kevin Nor	+33 1 5844 9505
Guillaume Viret	+331 5844 9507

SCANDINAVIA

Marco Weiss	+49 40 3506 0719

UK

Thomas Baker	+44 20 3753 3062
James Burt	+44 20 3207 7807
Marta De-Sousa Fialho	+44 20 3753 3098
Katie Jackson	+44 20 3753 3041
Robert Floyd	+44 20 3753 3018
David Franklin	+44 20 3465 2747
Sean Heath	+44 20 3465 2742
Stuart Holt	+44 20 3465 2646
James Hunt	+44 20 3753 3007
James McRae	+44 20 3753 3036
David Mortlock	+44 20 3207 7850
Bhavin Patel	+44 20 3207 7926
Kushal Patel	+44 20 3753 3038
Richard Payman	+44 20 3207 7825
Christopher Pyle	+44 20 3753 3076
Adam Robertson	+44 20 3753 3095

SALES (cont'd)

UK (cont'd)

Mark Sheridan	+44 20 3207 7802
George Smibert	+44 20 3207 7911
Paul Walker	+44 20 3465 2632

GERMANY

Simone Arnheiter	+49 69 91 30 90 740
Nina Buechs	+49 69 91 30 90 735
André Grosskurth	+49 69 91 30 90 734

SWITZERLAND, AUSTRIA & ITALY

Duncan Downes	+41 22 317 1062
Andrea Ferrari	+41 44 283 2020
Gianni Lavigna	+41 44 283 2038
Jamie Nettleton	+41 44 283 2026
Yeannie Rath	+41 44 283 2029

CRM

Megan Connelly	+44 20 3753 3244
Laura Cooper	+44 20 3753 3065
Beau Dibbs	+44 20 3753 3048
Jessica Jarmyn	+44 20 3465 2696
Madeleine Lockwood	+44 20 3753 3110
Vikram Nayar	+44 20 3465 2737
Fenella Neill	+44 20 3207 7868

CORPORATE ACCESS

Lindsay Arnold	+44 20 3207 7821
Sally Fitzpatrick	+44 20 3207 7826
Maz Gentile	+44 20 3465 2668
Robyn Gowers	+44 20 3753 3109
Dipti Jethwani	+44 20 3207 7936
Phoebe Lindsay	+44 20 3753 3246
Ross Mackay	+44 20 3207 7866
Stella Siggins	+44 20 3465 2630
Lucy Stevens	+44 20 3753 3068
Abbie Stewart	+44 20 3753 3054

EVENTS

Miranda Bridges	+44 20 3753 3008
Charlotte David	+44 20 3207 7832
Suzy Khan	+44 20 3207 7915
Natalie Meech	+44 20 3207 7831
Eleanor Metcalfe	+44 20 3207 7834
Sarah Weyman	+44 20 3207 7801

COO Office

Greg Swallow	+44 20 3207 7833

SALES TRADING

LONDON

Charles Beddow	+44 20 3465 2691
Mike Berry	+44 20 3465 2755
Joseph Chappell	+44 20 3207 7885
Stewart Cook	+44 20 3465 2752
Mark Edwards	+44 20 3753 3004
Tom Floyd	+44 20 3753 3136
Tristan Hedley	+44 20 3753 3006
Will Kain	+44 20 3753 3167
Peter King	+44 20 3753 3139
AJ Pulleyn	+44 20 3465 2756
Paul Somers	+44 20 3465 2753

LONDON (cont'd)

Sean Taylor	+44 20 3753 3369
Frans Van Wakeren	+44 20 3753 3079

PARIS

Vincent Klein	+33 1 58 44 95 09

EQUITY TRADING

HAMBURG

David Hohn	+49 40 350 60 761
Lukas Niehoff	+49 40 350 60 798
Lennart Pleus	+49 40 350 60 596
Marvin Schweden	+49 40 350 60 576
Philipp Wiechmann	+49 40 350 60 346
Christoffer Winter	+49 40 350 60 559

LONDON

Matthew Belton	+44 20 3753 3302
Christopher Brown	+44 20 3753 3085
Edward Burlison-Rush	+44 20 3753 3005
Jack Clayton	+44 20 3753 3166

LONDON (cont'd)

Sam Hart	+44 20 3753 3303
Perry Lavin	+44 20 3753 3370
Chris McKeand	+44 20 3207 7938
Ross Tobias	+44 20 3753 3137
Robert Towers	+44 20 3753 3262

ELECTRONIC TRADING

Frederik Bröker	+49 40 3506 0463
Jonas Doehler	+44 40 3506 0391
Matthias Führer	+49 40 3506 0597
Sven Kramer	+49 40 3506 0347