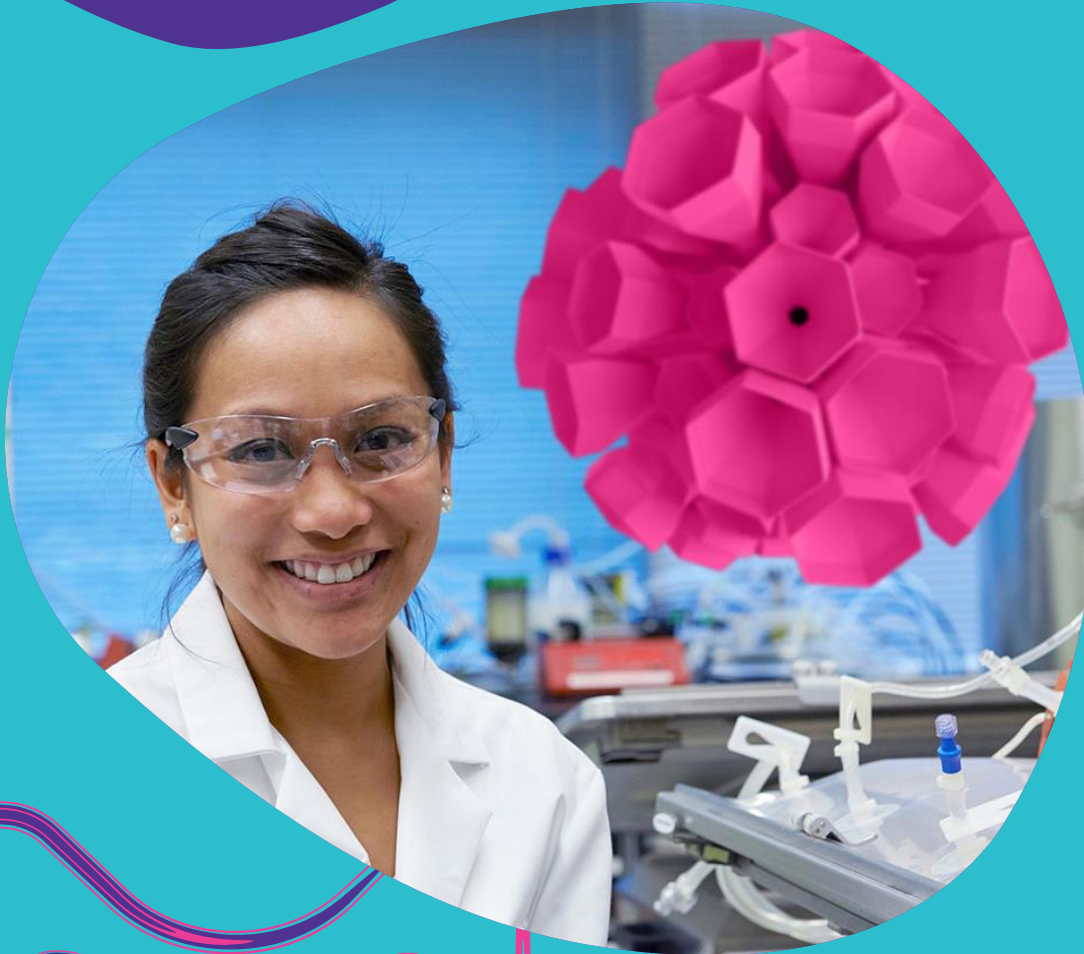


A QUARTER OF STRONG PERFORMANCE

Merck Q2 2019 results

Stefan Oschmann, CEO
Marcus Kuhnert, CFO

August 8, 2019



MERCK

Disclaimer

Cautionary Note Regarding Forward-Looking Statements and financial indicators

This communication may include “forward-looking statements.” Statements that include words such as “anticipate,” “expect,” “should,” “would,” “intend,” “plan,” “project,” “seek,” “believe,” “will,” and other words of similar meaning in connection with future events or future operating or financial performance are often used to identify forward-looking statements. All statements in this communication, other than those relating to historical information or current conditions, are forward-looking statements. We intend these forward-looking statements to be covered by the safe harbor provisions for forward-looking statements in the Private Securities Litigation Reform Act of 1995. These forward-looking statements are subject to a number of risks and uncertainties, many of which are beyond control of Merck KGaA, Darmstadt, Germany, which could cause actual results to differ materially from such statements.

Risks and uncertainties include, but are not limited to: the risks of more restrictive regulatory requirements regarding drug pricing, reimbursement and approval; the risk of stricter regulations for the manufacture, testing and marketing of products; the risk of destabilization of political systems and the establishment of trade barriers; the risk of a changing marketing environment for multiple sclerosis products in the European Union; the risk of greater competitive pressure due to biosimilars; the risks of research and development; the risks of discontinuing development projects and regulatory approval of developed medicines; the risk of a temporary ban on products/production facilities or of non-registration of products due to non-compliance with quality standards; the risk of an import ban on products to the United States due to an FDA warning letter; the risks of dependency on suppliers; risks due to product-related crime and espionage; risks in relation to the use of financial instruments; liquidity risks; counterparty risks; market risks; risks of impairment on balance sheet items; risks from pension obligations; risks from product-related and patent law disputes; risks from antitrust law proceedings; risks from drug pricing by the divested Generics Group; risks in human resources; risks from e-crime and cyber attacks; risks due to failure of business-critical information technology applications or to failure of data center capacity; environmental and safety risks; unanticipated contract or regulatory issues; a potential downgrade in the rating of the indebtedness of Merck KGaA, Darmstadt, Germany; downward pressure on the common stock price of Merck KGaA, Darmstadt, Germany and its impact on goodwill impairment evaluations as well as the impact of future regulatory or legislative actions.

The foregoing review of important factors should not be construed as exhaustive and should be read in conjunction with the other cautionary statements that are included elsewhere, including the Report on Risks and Opportunities Section of the most recent annual report and quarterly report of Merck KGaA, Darmstadt, Germany. Any forward-looking statements made in this communication are qualified in their entirety by these cautionary statements, and there can be no assurance that the actual results or developments anticipated by us will be realized or, even if substantially realized, that they will have the expected consequences to, or effects on, us or our business or operations. Except to the extent required by applicable law, we undertake no obligation to update publicly or revise any forward-looking statement, whether as a result of new information, future developments or otherwise.

This presentation contains certain financial indicators such as EBITDA pre exceptionals, net financial debt and earnings per share pre exceptionals, which are not defined by International Financial Reporting Standards (IFRS). These financial indicators should not be taken into account in order to assess the performance of Merck in isolation or used as an alternative to the financial indicators presented in the consolidated financial statements and determined in accordance with IFRS. The figures presented in this statement have been rounded. This may lead to individual values not adding up to the totals presented.

Disclaimer

Additional Important Information and Where to Find It

This communication does not constitute an offer to buy or solicitation of an offer to sell any securities. This communication relates to a proposal which Merck Group has made for a business combination transaction with Versum Materials, Inc. ("Versum"). In furtherance of this proposal and subject to future developments, Merck Group (and, if a negotiated transaction is agreed, Versum) intends to file relevant materials with the SEC, including a proxy statement on Schedule 14A (the "Proxy Statement"). This communication is not a substitute for the Proxy Statement or any other document Merck Group, Versum or Entegris, Inc. may file with the SEC in connection with the proposed transaction. **STOCKHOLDERS OF VERSUM ARE URGED TO READ ALL RELEVANT DOCUMENTS FILED WITH THE SEC, INCLUDING THE PROXY STATEMENT, BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT THE PROPOSED TRANSACTION.** Any definitive Proxy Statement will be delivered to the stockholders of Versum. Investors and security holders will be able to obtain free copies of these documents (if and when available) and other documents filed with the SEC by Merck Group through the website maintained by the SEC at <http://www.sec.gov>.

Participants in Solicitation

Merck Group and its directors and executive officers may be deemed to be participants in the solicitation of proxies from the holders of Versum common stock in respect of the proposed transaction. Information regarding the participants in the proxy solicitation and a description of their direct and indirect interests, by security holdings or otherwise, will be contained in the Proxy Statement and other relevant materials to be filed with the SEC in respect of the proposed transaction when they become available.

Agenda

01 Executive summary

02 Financial overview

03 Guidance



01 EXECUTIVE SUMMARY

MERCK

Highlights

Operations

- ▶ Healthcare – Underlying profitability better than Q1 and further boosted by non-recurring business-related income
- ▶ Life Science – Sustained strong organic growth driven by all businesses with Process Solutions as main contributor
- ▶ Performance Materials – Strong OLED growth more than offset by (1) lower LC due to decreasing China ramp-up support, and (2) market slowdown in Semiconductor Solutions and Surface Solutions

Financials

- ▶ Q2 2019 organic sales growth of +5.6%; Q2 2019 organic EBITDA pre growth of +20.3%
- ▶ Full-year 2019 guidance confirmed: net sales: €15.3 to 15.9 bn; EBITDA pre: € 4,150 to 4,350 m; EPS pre: € 5.30 to 5.65
- ▶ Financing structure for Versum Materials acquisition in place – €1.5 bn hybrid bonds and €2 bn EUR bonds* successfully issued

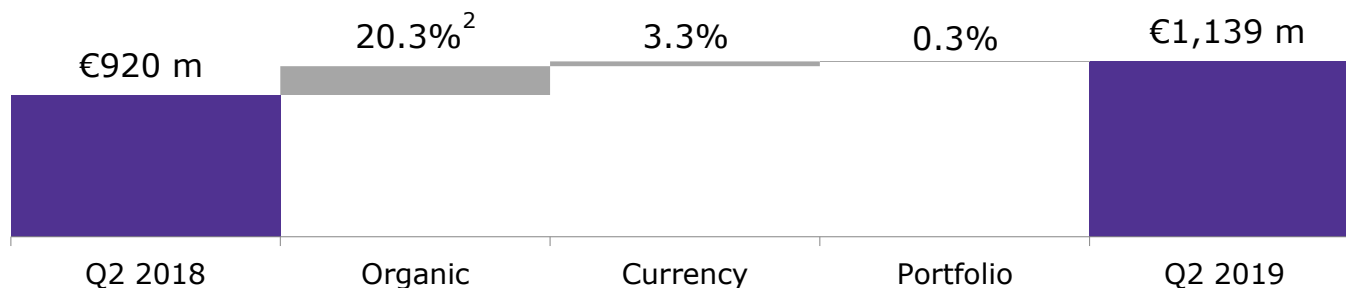
Life Science and Healthcare drive organic growth supported by FX tailwinds

Q2 2019 YoY net sales

	Organic	Currency	Portfolio	Total
Healthcare	5.2%	0.7%	0.0%	5.9%
Life Science	9.0%	2.1%	-0.6%	10.5%
Performance Materials	-2.0%	2.4%	0.0%	0.4%
Merck Group	5.6%	1.5%	-0.2%	6.9%

- Solid growth in Healthcare reflects stable core business and increasing contributions from Mavenclad[®] and Bavencio[®]
- Above-market organic growth in Life Science due to strong demand across all businesses and regions
- Performance Materials reflects lower LC due to reduced China ramp-up support and softer market demand in Semiconductor and Surface Solutions; OLED again strong

Q2 YoY EBITDA pre

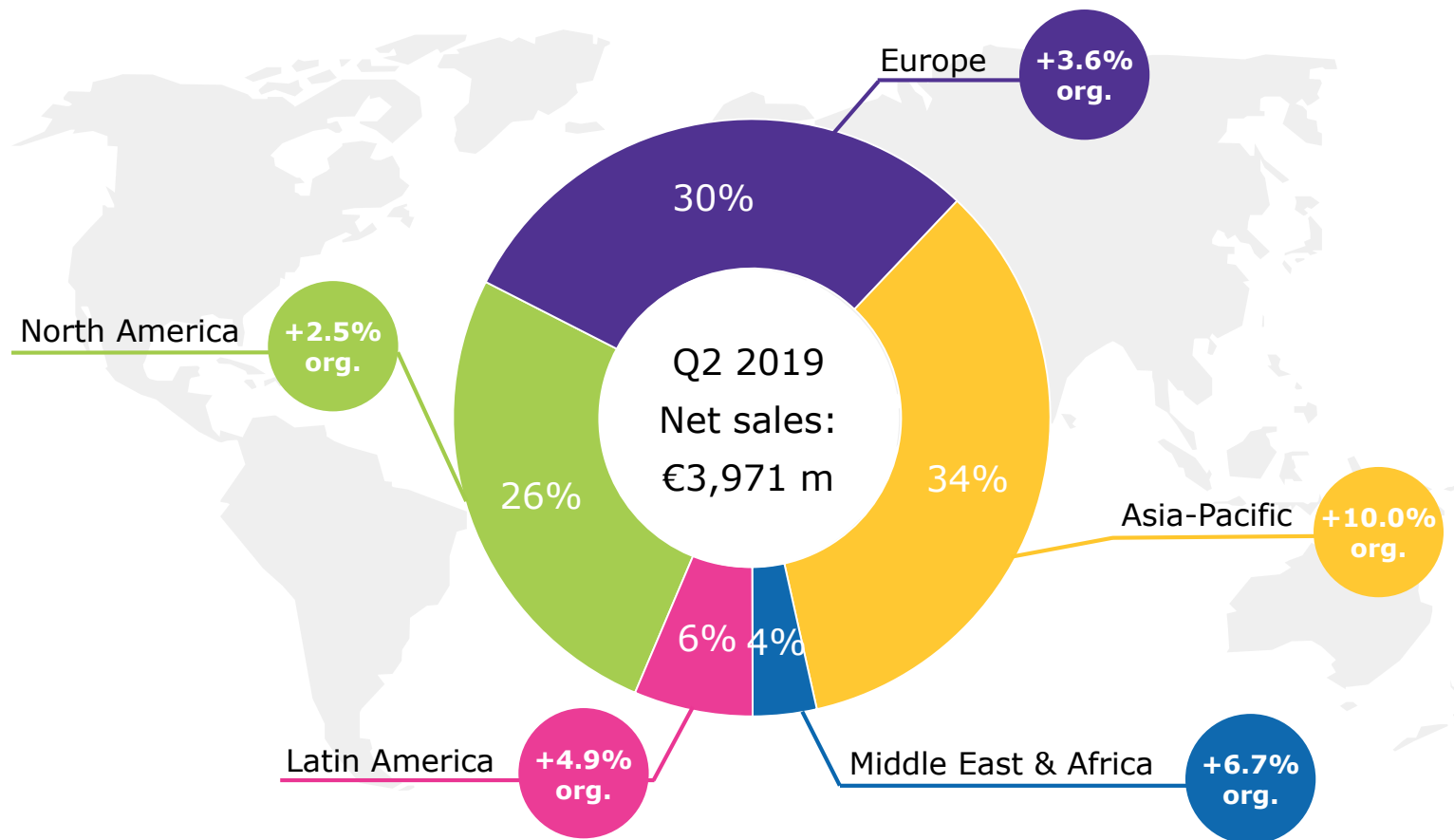


- Increased organic EBITDA pre driven by milestone payments and deferred income in HC as well as ongoing strong performance of LS
- Positive FX impact on EBITDA pre due to EUR/USD development and last years' ARS¹ devaluation burdened by hedging losses

¹ARS – Argentine peso; ²Thereof IFRS 16 effect with +3.5% (+€32 m); Totals may not add up due to rounding

Organic growth driven by all regions

Regional breakdown of net sales [€m]



Regional organic development

- Strong APAC due to double-digit growth of Glucophage[®], Erbitux[®] and OLED; Life Science with ongoing strong demand
- Europe driven by strong demand in Life Science; strong Mavenclad[®] ramp-up overcompensates Rebif[®] decline
- North America reflects double-digit growth of Process Solutions, Fertility and Mavenclad[®] ram-up, outweighing double-digit decline of Rebif[®]
- Solid performance in LATAM due to strong Life Science, Erbitux and N&I franchise
- Middle East and Africa driven by strong Rebif[®] and Glucophage[®]



02 FINANCIAL OVERVIEW

MERCK

Q2 2019: Overview

Key figures

[€m]	Q2 2018	Q2 2019	Δ
Net sales	3,714	3,971	6.9%
EBITDA pre	920	1,139	23.8%
Margin (in % of net sales)	24.8%	28.7%	
EPS pre	1.23	1.54	25.2%
Operating cash flow	367	743	102.2%

[€m]	Dec. 31, 2018	June 30, 2019	Δ
Net financial debt	6,701	7,829	16.8%
Working capital	3,486	3,866	10.9%
Employees	51,749	53,051	2.5%

Comments

- Net sales growth driven by Life Science and Healthcare
- EBITDA pre & margin reflect Peg-Pal (~€75 m) and Bavencio® (~€35 m) milestones, GSK deferred income (~€30 m) and strong performance of LS
- Strong operating cash flow due to higher profit after tax and GSK upfront payment
- Working capital reflects increased business activity and FX
- Higher net financial debt mainly due to IFRS 16 adoption, dividends and temporary investment of cash proceeds from CH divestment

Reported figures

Reported results

[€m]	Q2 2018	Q2 2019	Δ
EBIT	392	618	57.6%
Financial result	-65	-61	-5.4%
Profit before tax	328	557	70.0%
Income tax	-84	-136	62.8%
<i>Effective tax rate (%)</i>	25.5%	24.4%	
Net income [*]	247	471	90.8%
EPS (€)	0.57	1.08	89.5%

Comments

- Increased EBIT due to Peg-Pal and Bavencio[®] milestones, GSK deferred income as well as strong top-line contribution from Life Science
- Effective tax rate within guidance range of ~24-26%
- Higher net income and EPS reflect higher EBIT

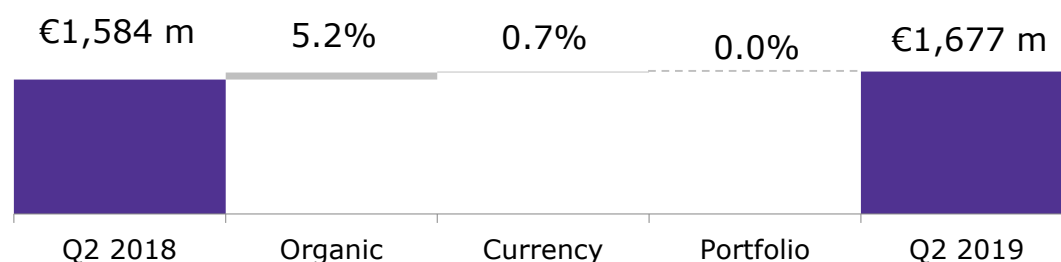
^{*}From continuing and discontinued operations;
Totals may not add up due to rounding

Healthcare: Underlying profitability increases vs. Q1 driven by organic performance and cost discipline, further boosted by non-recurring business-related income

Healthcare P&L

[€m]	Q2 2018 ¹	Q2 2019
Net sales	1,584	1,677
Marketing and selling	-592	-599
Administration	-82	-84
Research and development	-407	-395
EBIT	155	345
EBITDA	338	523
EBITDA pre	379	528
Margin (in % of net sales)	23.9%	31.5%

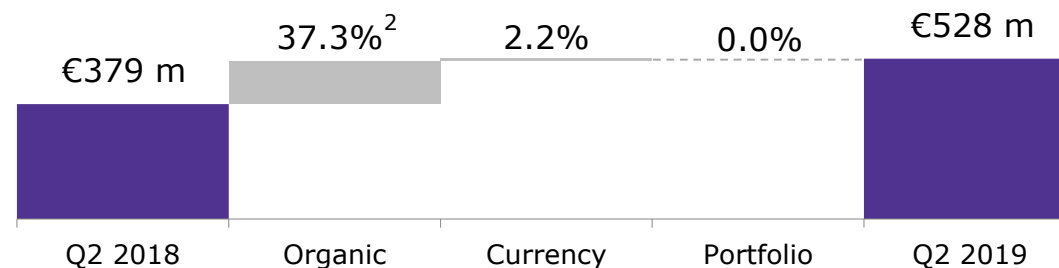
Net sales bridge



Comments

- Solid growth in Healthcare driven by General Medicine, Mavenclad[®], Erbitux[®], Fertility and Bavencio[®], more than offset strong Rebif[®] decline
- Mavenclad[®] with continued strong uptake supported by initial U.S. sales following approval (+41% vs. Q1)
- Bavencio[®] on track; Erbitux[®] benefiting from China reimbursement, still facing ongoing competition and price pressure in major markets
- R&D below prior year due to stringent project prioritization
- Higher EBITDA pre driven by Peg-Pal (~€75 m) and Bavencio[®] (~€35 m) milestone as well as GSK deferred income (~€30 m), sequential underlying³ margin increase

EBITDA pre bridge



¹LY numbers have been modified, due to disclosure changes of adjustments; ²Thereof IFRS 16 effect with +3.2% (+€12 m); ³EBITDA pre adjusted for €140 m non-recurring income; Totals may not add up due to rounding

Life Science: Strong organic growth fueled by all businesses

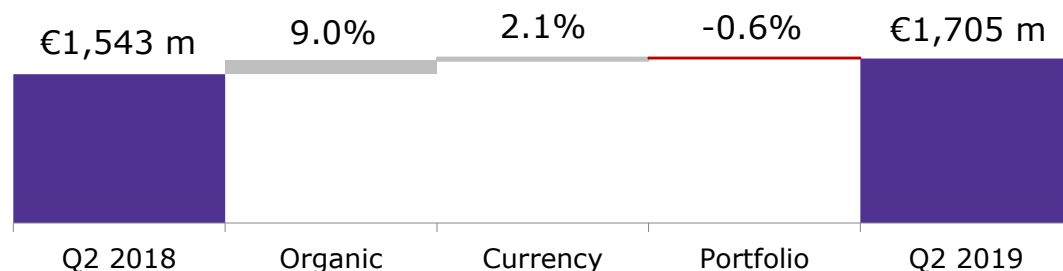
Life Science P&L

[€m]	Q2 2018 ¹	Q2 2019
Net sales	1,543	1,705
Marketing and selling	-452	-490
Administration	-65	-68
Research and development	-61	-69
EBIT	254	322
EBITDA	442	518
EBITDA pre	452	533
Margin (in % of net sales)	29.3%	31.3%

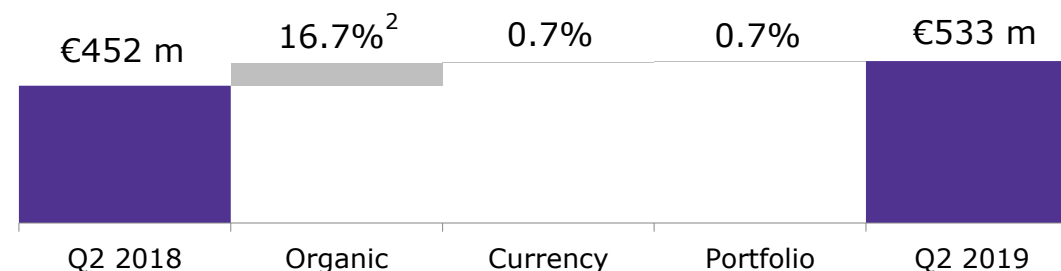
Comments

- Process Solutions with continued strong demand: double-digit growth in all major business fields, especially single-use
- Advanced Analytical and Lab Water main contributor to Applied Solutions solid organic growth, all business segments and regions contributing
- Moderate organic growth of Research Solutions due to ongoing strong demand for lab chemicals and workflow tools, especially in APAC and NA
- M&S increase reflects volume growth and investments in eCommerce
- EBITDA pre and margin increase driven by strong top-line

Net sales bridge



EBITDA pre bridge



¹LY numbers have been modified, due to disclosure changes of adjustments; ²Thereof IFRS 16 effect with +2.8% (+€12 m); Totals may not add up due to rounding

Performance Materials: Reduced China support for Liquid Crystals mitigated by strong demand for OLED, amid market slowdown in Semiconductor and Surface

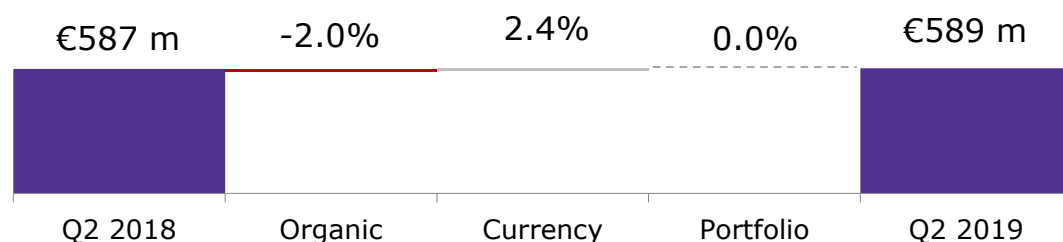
Performance Materials P&L

[€m]	Q2 2018 ¹	Q2 2019
Net sales	587	589
Marketing and selling	-61	-66
Administration	-27	-25
Research and development	-59	-74
EBIT	131	100
EBITDA	192	161
EBITDA pre	196	190
Margin (in % of net sales)	33.4%	32.3%

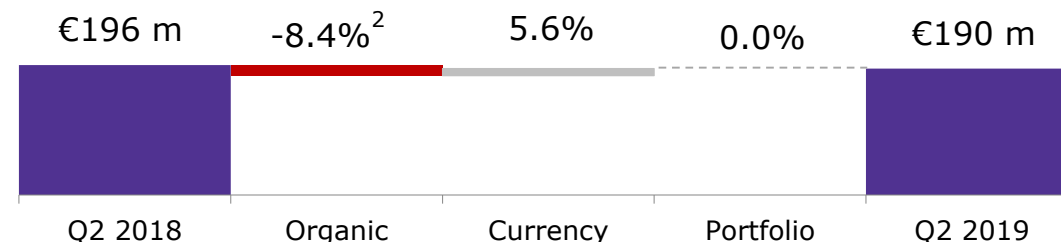
Comments

- About stable Display Solutions sales driven by strong demand for OLED, almost offset by decline in LC due to deceleration of China ramp-up support
- Softness of Semiconductor Solutions reflects market slowdown
- Surface Solutions below prior year due to weak automotive market
- Provisions related to Bright Future program drive M&S and R&D increase; adjusted for EBITDA pre - decrease in R&D reflecting cost control
- EBITDA pre impacted by ongoing liquid crystal price decline and slowing China ramp up contribution as well as reduced fixed cost leverage due to softness in Surface Solutions and Semiconductor Solutions

Net sales bridge

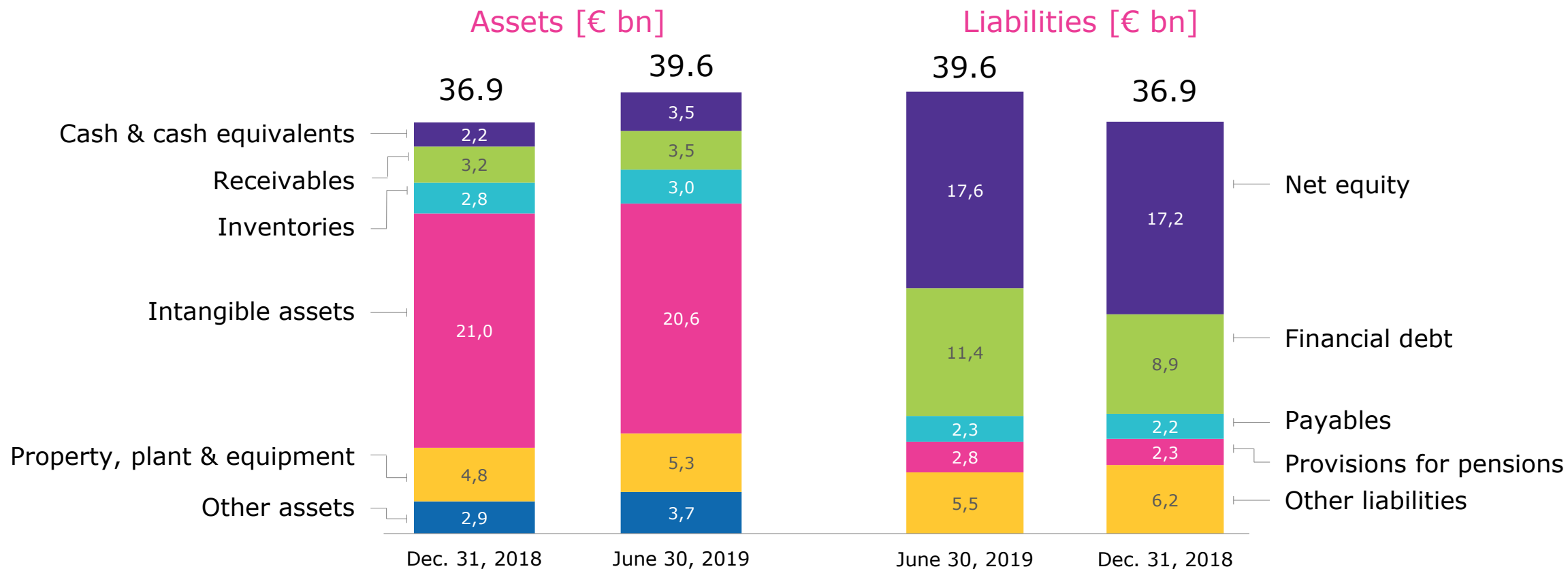


EBITDA pre bridge



¹LY numbers have been modified, due to disclosure changes of adjustments; ²Thereof IFRS 16 effect with +1.3% (+€3 m); Totals may not add up due to rounding

Balance sheet – Reflecting bond placements and IFRS 16 adoption



- Higher cash & cash equivalents driven by bond placements (€1.5 bn)
- Property, plant and equipment increase mainly due to IFRS 16 adoption
- Other assets reflect temporary investment of cash proceeds from Consumer Health divestment

- Increase in equity reflects profit after tax (equity ratio of 44.4%)
- Higher financial debt due to bond placements (€1.5 bn) and IFRS 16 reclassification of lease liabilities
- Increase of provisions for pensions reflects decline in interest rate

Cash flow statement

Q2 2019 – cash flow statement

[€m]	Q2 2018	Q2 2019	Δ
Profit after tax	251	471	220
D&A	448	453	5
Changes in provisions	34	-47	-80
Changes in other assets/liabilities	-243	-26	217
Other operating activities	25	-51	-76
Changes in working capital	-148	-58	90
Operating cash flow	367	743	375
Investing cash flow	-200	-870	-671
thereof Capex on PPE	-168	-165	3
Financing cash flow	-295	1,244	1,539

Cash flow drivers

- Profit after tax in line with higher EBIT
- Changes in provisions driven by LTIP* adjustment
- Changes in other assets/liabilities reflects GSK upfront and Peg-Pal milestone payment
- Changes in working capital driven by increased trade accounts payable
- Increased investing cash flow due to temporary investment of cash proceeds from Consumer Health divestment
- Higher financing cash flow reflects the issuance of new hybrid bonds (€1.5 bn)

*LTIP – long-term incentive plan;
Totals may not add up due to rounding



03 GUIDANCE

MERCK

Merck Group

Key earnings drivers to remember for 2019



EBITDA¹-supporting factors

- Strong sales contribution from Mavenclad® ramp-up and Bavencio®

NEW

Ongoing strength in Life Science with 7% to 8% organic above-market net sales growth and 20-30 bps underlying margin progression

- Successful partnering of bintrafusp alfa with ~€100 m of deferred income from upfront payment recognized as other operating income in Q2 to Q4 2019
- Income from milestones and management of pipeline (part of operating business in Healthcare) materializing in Q2 and Q4 2019

- Lower expected license payments for Erbitux®

- High level of cost consciousness and prioritization

- Adoption of IFRS 16 contributes ~€130 m² to organic growth YoY

NEW

Positive FX impact: Emerging market currencies remain weak but offset by favorable EUR/USD development (range 2019: 1.12-1.16)



EBITDA¹-reducing factors

NEW

About stable R&D costs budgeted for Healthcare and decrease as % of sales (actual development will be subject to clinical data outcome of priority projects and prioritization decisions)

- Healthcare underlying margins negatively impacted by product mix

NEW

Performance Materials sales and earnings reaching trough due to expected decline in Liquid Crystals in H2; economic environment may lead to moderate decline in Semiconductors, returning to growth in 2020

¹EBITDA pre; ²~€130m contribution from IFRS 16 (Healthcare ~40%, Life Science ~40%, PM ~10%, CO ~10%)

Merck Group

Full-year 2019 guidance¹

Net sales:

Organic +3% to +5% YoY
FX ~ 0% to +2% YoY
~ € 15.3 – 15.9 bn

EBITDA pre:

Organic +10% to +13% YoY²
FX 0% to +2% YoY
~ € 4,150 – 4,350 m³

EPS pre:

~ € 5.30 – 5.65

¹Merck stand-alone, i.e. without acquisition of Versum Materials and Intermolecular Inc.; ²Incl. ~€130 m YoY contribution from adoption of IFRS 16 (Healthcare ~40%, Life Science ~40%, PM ~10%, CO ~10%); ³CO guidance 2019: -€420 m to -€480 m (assuming FX adjusted CO costs -€390 m to -€400 m)

Merck Group

2019 business sector guidance¹



Healthcare

Net sales

- Solid organic growth +4% to +6%
- Base business at least stable organically
- Strong contributions from launches including Mavenclad[®]

EBITDA pre²

- Organic +19% to +23% YoY
- FX -1% to +2% YoY
- ~ €1,830 – 1,940 m



Life Science

Net sales

- Organic growth +7% to +8%, above expected market growth
- Main growth driver Process Solutions but all businesses contributing

EBITDA pre²

- Organic +11% to +13% YoY
- FX +0% to +2% YoY
- ~ €2,020 – 2,120 m with 20-30 bps³ underlying margin progression



Performance Materials

Net sales

- Organic decline -4% to -7%
- LC resuming decline, following temporary capacity ramp-up in China
- Economic environment may lead to moderate decline in Semiconductor, return to growth in 2020

EBITDA pre^{2, 4}

- Organic -9% to -13% YoY
- FX +1% to +4% YoY
- ~ €685 – 745 m

¹Divisional guidances are only support to the group guidance and do not have to add up; ²Incl. ~€130 m YoY contribution from adoption of IFRS 16 (Healthcare ~40%, Life Science ~40%, PM ~10%, CO ~10%); ³bps = basis points; ⁴Merck stand-alone, i.e. without acquisition of Versum Materials and Intermolecular Inc.





APPENDIX

MERCK

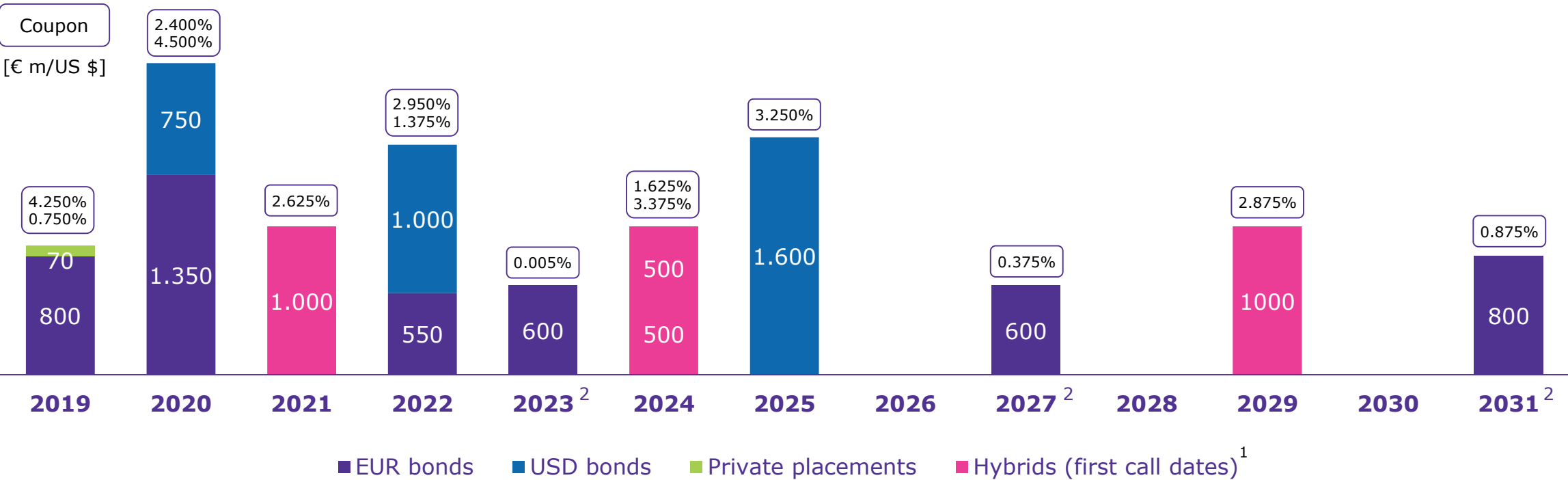
Additional financial guidance 2019

Further financial details

Corporate & Other EBITDA pre*	~ -€420 – -480 m
Interest result	~ -€260 – -280 m
Effective tax rate	~ 24% to 26%
Capex on PPE	~ €1.1 bn – 1.2 bn
Hedging/USD assumption	FY 2019 hedge ratio ~60% at EUR/USD ~1.20
2019 Ø EUR/USD assumption	~ 1.12 – 1.16

Maturity profile reflects Sigma-Aldrich and Versum financing transactions

Maturity profile as of June 30, 2019



Balanced maturity profile in upcoming years avoids refinancing risks and provides sufficient flexibility for deleveraging

¹No decision on call rights taken yet;
²EUR bonds had been placed at July 1st, 2019

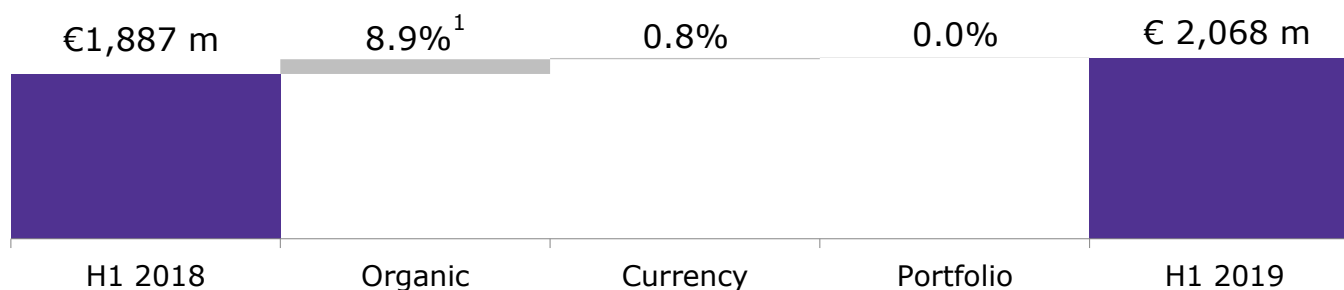
All businesses drive organic growth supported by FX tailwinds

H1 2019 YoY net sales

	Organic	Currency	Portfolio	Total
Healthcare	4.1%	0.5%	0.0%	4.6%
Life Science	9.2%	2.5%	-0.5%	11.1%
Performance Materials	0.6%	3.1%	0.0%	3.7%
Merck Group	5.7%	1.8%	-0.2%	7.2%

- Healthcare with solid growth driven by General Medicine, Mavenclad[®], Fertility, Erbitux[®] and Bavencio[®], offsetting strong Rebif[®] decline
- Above-market growth in Life Science due to strong momentum across all business units
- Performance Materials about stable due to decelerated LC support from China ramp-up and softer Surface and Semiconductor mitigated by strong OLED

H1 YoY EBITDA pre



- Increased organic EBITDA pre reflects milestone payments in HC and strong performance of LS, mitigated by ongoing LC price decline
- Slightly positive FX effects on EBITDA pre

¹Thereof IFRS 16 effect with +3.4% (+€64 m); Totals may not add up due to rounding

H1 2019: Overview

Key figures

[€m]	H1 2018	H1 2019	Δ
Net sales	7,199	7,717	7.2%
EBITDA pre*	1,887	2,068	9.6%
Margin (in % of net sales)	26.2%	26.8%	
EPS pre	2.56	2.67	4.3%
Operating cash flow	748	1,235	65.2%

[€m]	Dec. 31, 2018	June 30, 2019	Δ
Net financial debt	6,701	7,829	16.8%
Working capital	3,486	3,866	10.9%
Employees	51,749	53,051	2.5%

*LY numbers have been modified, due to Consumer Health disposal;
Totals may not add up due to rounding.

Comments

- Net sales reflect sales growth across all businesses supported by FX tailwinds
- EBITDA pre & margin increase due to milestone payments and deferred income in HC and operational leverage in LS
- Higher EPS pre reflects improved EBITDA pre, mitigated by impairment of asset from F-star collaboration (~€27 m)
- Strong operating cash flow driven by higher profit after tax and GSK upfront payment
- Working capital reflects increased business activity and FX effects
- Higher net financial debt mainly due to IFRS 16 adoption, dividends and temporary investment of cash proceeds from CH disposal

Reported figures

Reported results

[€m]	H1 2018	H1 2019	Δ
EBIT	895	997	11.5%
Financial result	-126	-174	38.1%
Profit before tax	769	824	7.1%
Income tax	-192	-203	6.1%
<i>Effective tax rate (%)</i>	24.9%	24.7%	
Net income ¹	588	659	12.2%
EPS (€)	1.35	1.52	12.6%

Comments

- Higher EBIT reflects strong topline contribution from Life Science and non-recurring income in Healthcare
- Lower financial result driven by revaluation of F-Star purchase option (-€45 m)
- Effective tax rate within guidance range of ~24-26%
- Higher net income and EPS in line with increased EBIT

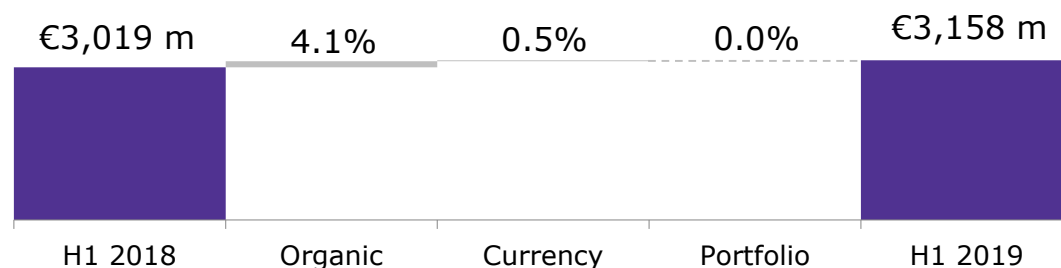
¹From continuing and discontinued operations;
Totals may not add up due to rounding

Healthcare: Profitability driven by topline growth and milestone payments

Healthcare P&L

[€m]	H1 2018 ¹	H1 2019
Net sales	3,019	3,158
Marketing and selling	-1,142	-1,150
Administration	-159	-172
Research and development	-785	-775
EBIT	350	473
EBITDA	717	852
EBITDA pre	760	860
Margin (in % of net sales)	25.2%	27.2%

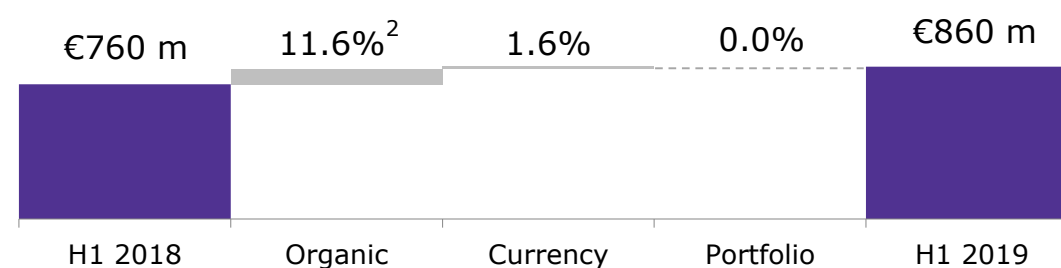
Net sales bridge



Comments

- Solid growth in Healthcare driven by General Medicine, Mavenclad[®], Erbitux[®], Fertility and Bavencio[®], more than offset strong Rebif[®] decline
- Mavenclad[®] with continued strong uptake after U.S. approval in March 2019
- Bavencio[®] ramp-up on track; Erbitux[®] benefitting from China reimbursement, still facing ongoing competition and price pressure in major markets
- Stable M&S reflects pre-launch investments attributable to Mavenclad[®] and Bavencio[®] as well as investments to drive growth in China mitigated by lower investments in mature products
- Higher EBITDA pre driven by Bavencio[®] (~€35 m) milestone, GSK deferred income (~€30 m) and Peg-Pal (~€75 m), outweighing last years Peg-Pal milestone (~€50 m)

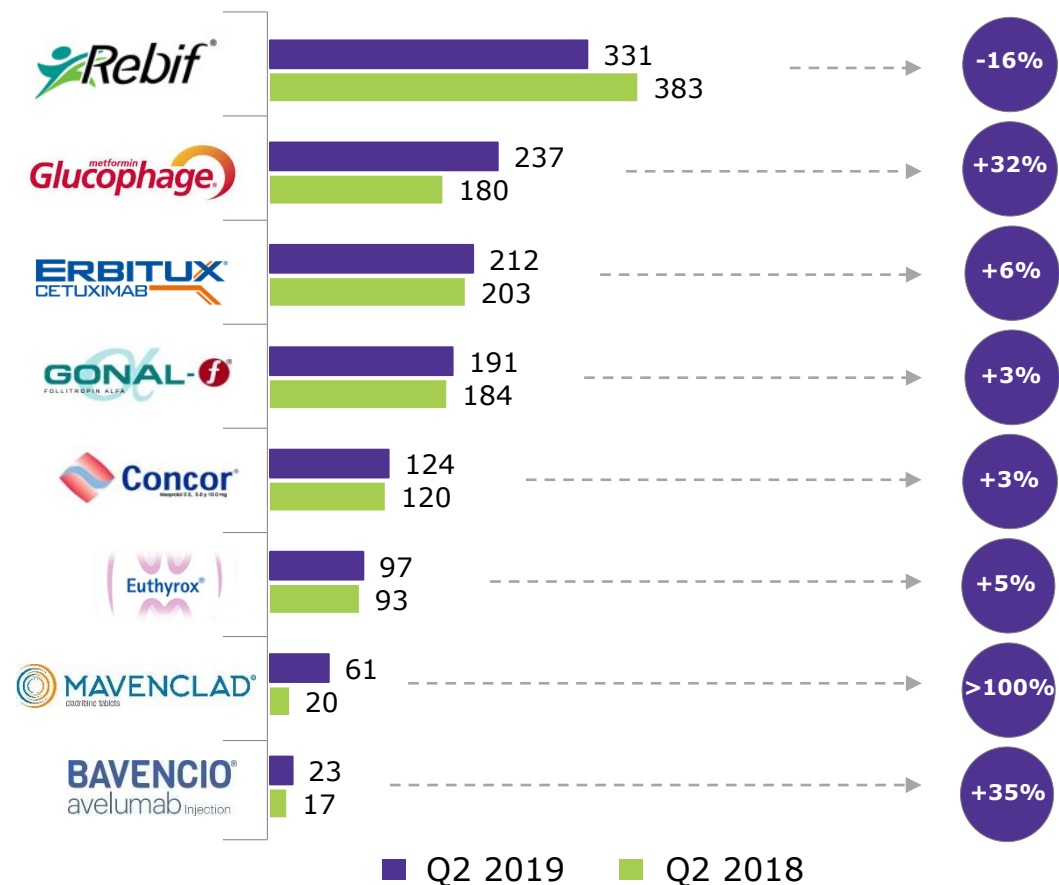
EBITDA pre bridge



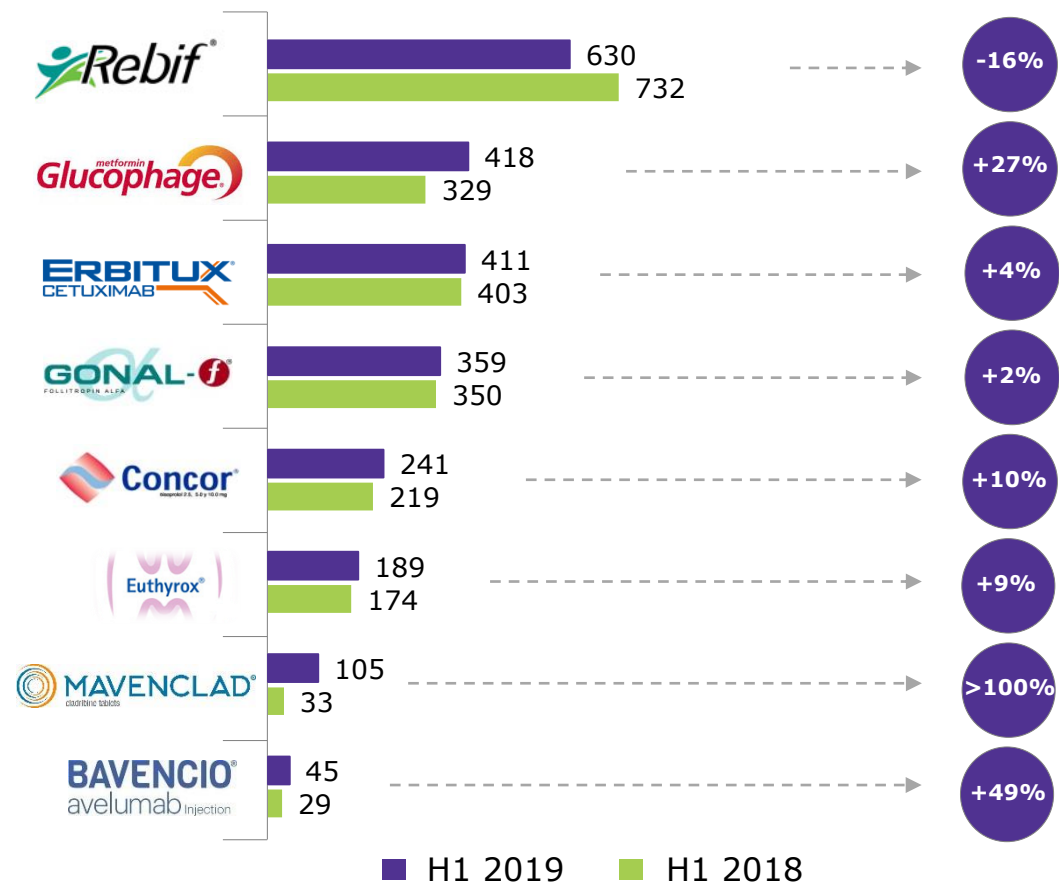
¹LY numbers have been modified, due to Consumer Health disposal and disclosure changes of adjustments; ²Thereof IFRS 16 effect with +3.3% (+€25 m); Totals may not add up due to rounding

Healthcare organic growth by franchise/product

Q2 2019 organic sales growth [%]
by key product [€m]

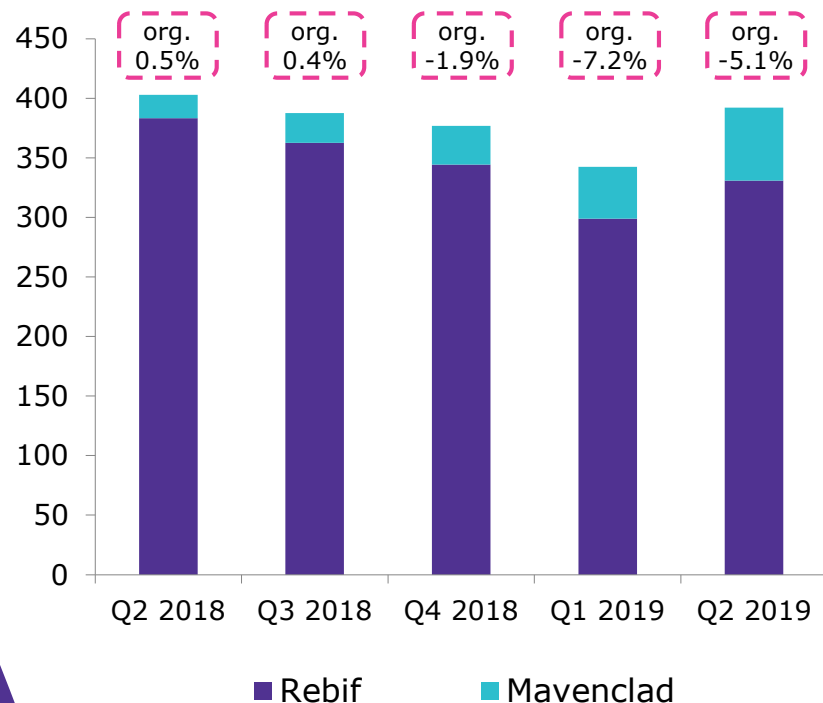


H1 2019 organic sales growth [%]
by key product [€m]

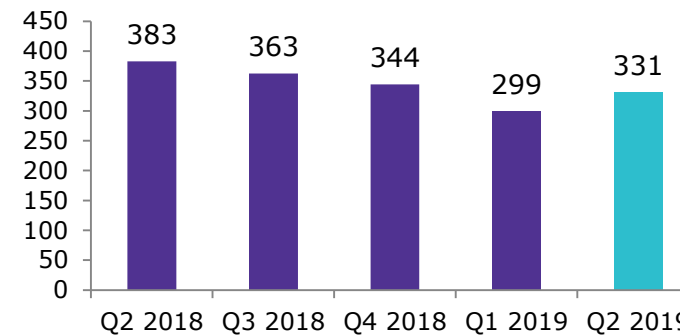


Neurodegenerative Diseases: Strong growth of Mavenclad[®] still overcompensated by Rebif[®] decline

Sales development NDI, [€m]

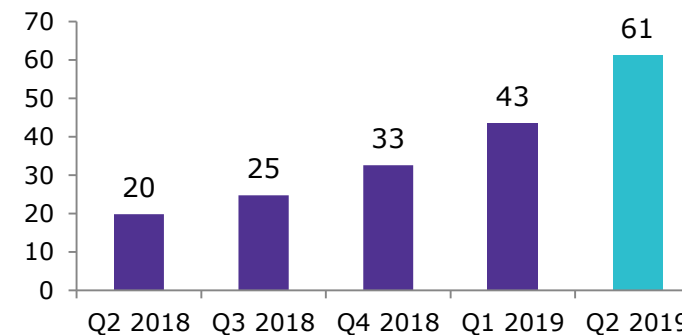


Rebif[®] net sales, [€m]



- Rebif[®] sales of €331 m in Q2 2019 reflects organic decline of -16.1% mitigated by FX effect of +2.5%
- U.S. and European volume decline mainly due to competition
- U.S. decline in line with IFN market dynamics

Mavenclad[®] net sales, [€m]



Mavenclad[®] launch on track with increasing contribution

FY 2019 guidance of up to mid triple-digit €m

Multiple Sclerosis: Mavenclad® launch continues to make progress with sales +41% Q2 vs Q1 2019



Global Launch Update

- **Approval in 61 countries with reimbursement in ~50% to date, consistent with expectations**
- **>3,000 neurologists have now prescribed Mavenclad®**
- **Advancing clinical perception:** relative perception vs approved high-efficacy agents continues to improve across major launch markets
- **Increasing share of high-efficacy dynamic patients (new + switch)¹ in major launch markets vs LY**
 - Germany: from 9% to 14% (Q1/18 vs Q1/19)²
 - UK: from 8% to 20% (Q1/18 vs Q1/19)³
- **Increasing use in earlier lines of therapy in major launch markets:** ~30% of starts are treatment naïve⁵; Switches predominantly from platform orals & platform injectables
- **MS Franchise in early launch markets returning to growth:** Mavenclad® complementing Rebif® to drive franchise growth

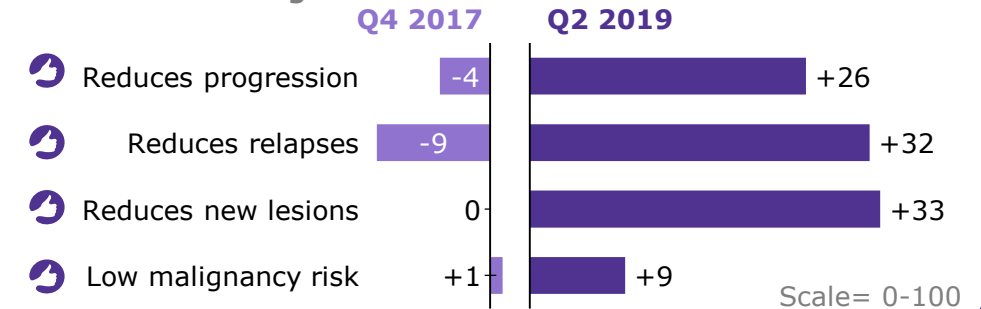


On track for up to mid-triple digit m€ sales in 2019

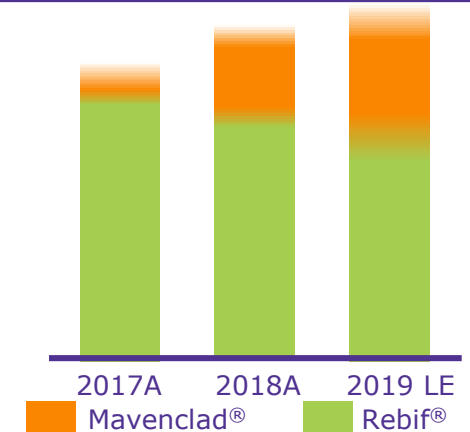


Improved clinical perception versus leading HE oral (Germany)⁴

Deviation vs leading HE Oral



- **MS Franchise sales evolution (Germany)**
- **Rebif maintaining share in IFN class**
- **Mavenclad competing in HE class**



¹High efficacy treatments include MAV, Gil, Ocr, Tys, Lem; ²IQVIA LRx data; consolidated retail + hospital data; ³IQVIA – fully consolidated Q1/19 data; ⁴Global MAVENCLAD ATU, DE neurologists (n=62), bar charts indicate difference between Mavenclad® and leading HE oral: positive numbers imply Mavenclad® strength vs. competitor;

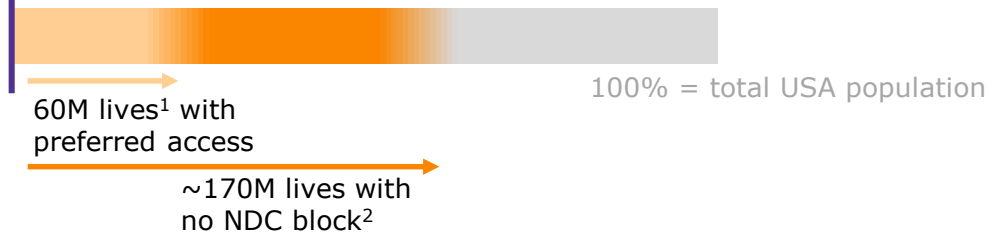
⁵excludes US prescriptions

Multiple Sclerosis: Mavenclad® gaining momentum in the first 13 weeks of launch in the USA



Payer & Physician Feedback

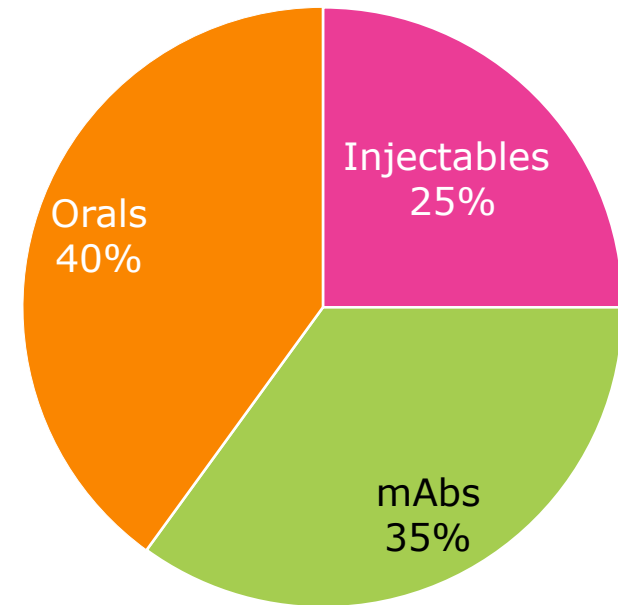
- **Positive, early payer acceptance:**



- **Strong physician access** resulting in **leading share of voice**³
- **86% of neurologists willing to prescribe Mavenclad®**⁴
- **~ 3% high efficacy dynamic share in RRMS,** and **~11% high efficacy dynamic share in SPMS/other** (new + switch, April to June)³
- **Broad spectrum of early adopters:** both neurologists from **academic centers** and from **community practices** initiating patients on Mavenclad® (equal proportions to date)
- **Mavenclad®'s novel mechanism, posology, and efficacy profile** have made it a **candidate for switches from all approved agents**



Source of Prescription⁵



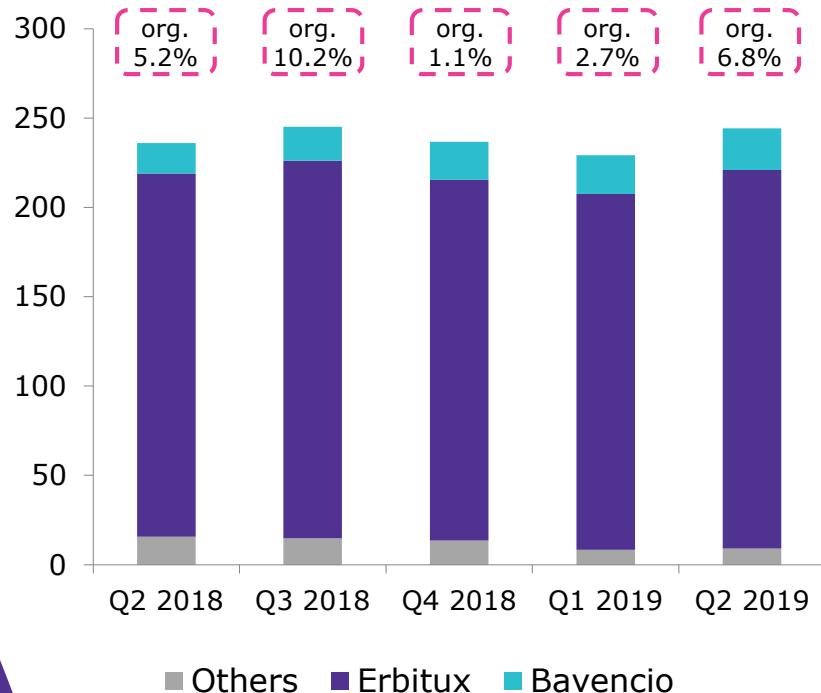
¹Appropriate USA patients as per MAVENCLAD FDA label; ²The NDC (National Drug Code) is a unique product identifier code for all drugs in the USA;

³IQVIA/BrandImpactRx rolling 3 months end June: MAVENCLAD ranked 2nd across full panel on SOV, and shares reflecting NWRx, HE incl. Tys, Gil, Ocr, May, Mav, Lem;

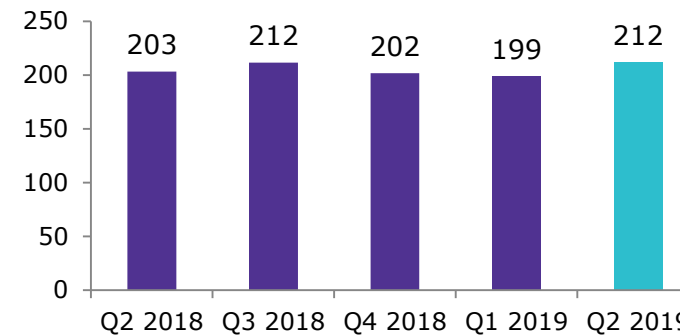
⁴Spherix Global Insights RealTime Dynamix – MS Q2/19; ⁵Company data based on MAVENCLAD patient support program “MS Life Lines”

Oncology: Solid organic growth reflects strong demand for Erbitux[®] in China and Bavencio[®] ramp up

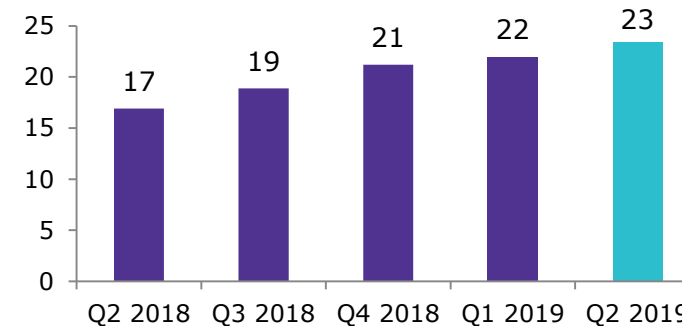
Sales development Oncology, [€m]



Erbitux[®] net sales, [€m]



Bavencio[®] net sales, [€m]



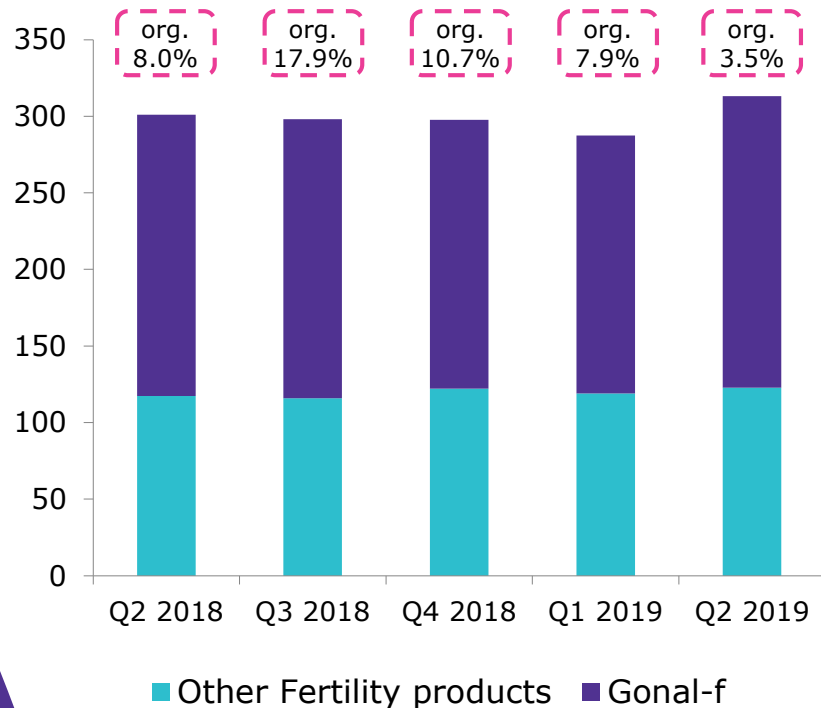
- Absolute sales of €212 m reflect solid growth (org. 5.7%; FX -1.5%)
- Decline in Europe reflects ongoing competition, price reductions and shrinking market size
- LATAM strong, while MEA affected by tender phasing due to import permit
- Strong APAC driven by China reimbursement recognition

Bavencio[®] approved for RCC in US mid May 2019

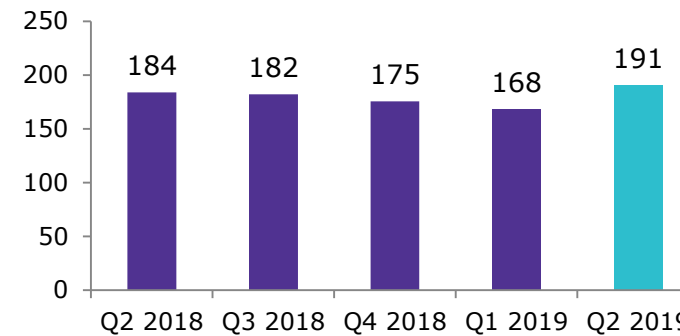
FY 2019 guidance of high double-digit €m

Fertility: Moderate organic growth driven by ongoing demand for Gonal-f in the U.S.

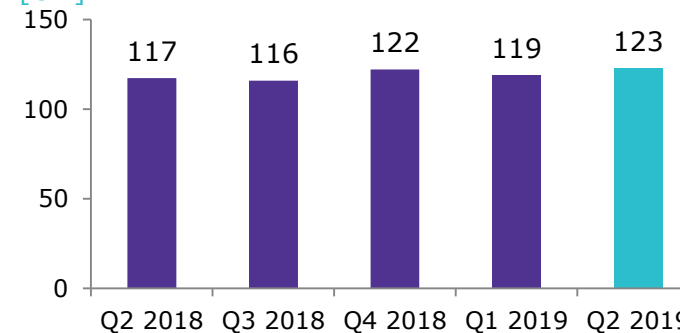
Sales development Fertility, [€m]



Gonal-f[®] net sales, [€m]



Other Fertility products net sales, [€m]

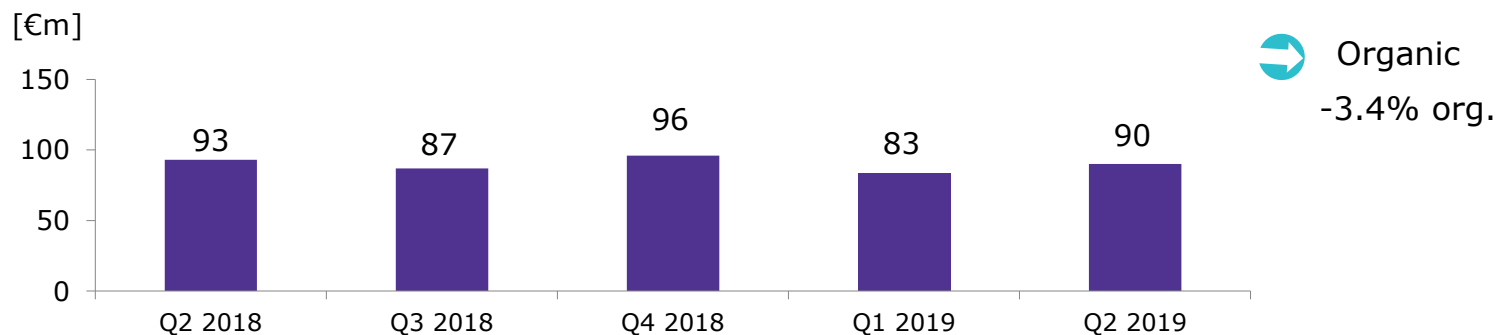


- Fertility franchise posts moderate organic growth driven by North America and APAC
- Gonal-f[®] absolute sales reflect moderate growth posting €191 m (org. 2.8%; FX 0.9%)
- Gonal-f[®] driven by ongoing strong demand in the U.S. despite tough comps last year
- Other Fertility products with solid growth driven by APAC and Europe

Double digit organic growth of General Medicine fueled by China and LATAM

Sales evolution

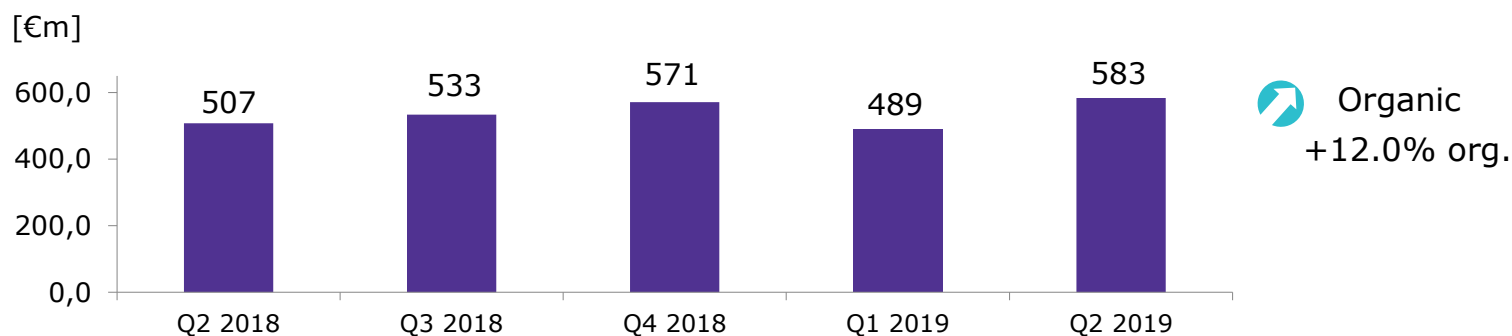
Endocrinology



Q2 2019 organic drivers

- Endocrinology declines organically due to lower demand and higher sales deductions in the U.S. mitigated by higher demand in LATAM and APAC

General Medicine*



- General Medicine reflects double digit growth of Glucophage[®], ongoing strong demand for Concor[®] and Euthyrox[®] driven by China and LATAM

*includes CardioMetabolic Care & General Medicine and Others

Merck pipeline

August 5, 2019

Phase I

M2698
p70S6K & Akt inhibitor
Solid tumors

M3541
ATM inhibitor
Solid tumors

M3814
DNA-PK inhibitor
Solid tumors¹

M4344 (VX-803)
ATR inhibitor
Solid tumors

M6620 (VX-970)
ATR inhibitor
Solid tumors

M7583
BTK inhibitor
Hematological malignancies

M8891
MetAP2 inhibitor
Solid tumors

avelumab
anti-PD-L1 mAb
Solid tumors

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Solid tumors

M9241 (NHS-IL12)
Cancer immunotherapy
Solid tumors¹

M5049
Immune receptor inhibitor
Immunology

M6495
anti-ADAMTS-5 nanobody
Osteoarthritis

M5717
PeEF2 inhibitor
Malaria

Phase II

tepotinib
MET kinase inhibitor
Non-small cell lung cancer

tepotinib
MET kinase inhibitor
Hepatocellular cancer

M3814
DNA-PK inhibitor
Rectal cancer

M6620 (VX-970)
ATR inhibitor
Ovarian cancer¹

abrituzumab²
pan-αv integrin inhibiting mAb
Colorectal cancer 1L

avelumab
anti-PD-L1 mAb
Merkel cell cancer 1L

avelumab
anti-PD-L1 mAb
Solid tumors³

avelumab
anti-PD-L1 mAb
Non-small cell lung cancer³

avelumab
anti-PD-L1 mAb
Urothelial cancer³

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Non-small cell lung cancer 1L

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Non-small cell lung cancer 1L/2L

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Locally advanced non-small cell lung cancer

bintrafusp alfa
TGFbeta trap/anti-PD-L1
Biliary tract cancer 2L

atacept
anti-BlyS/APRIL fusion protein
Systemic lupus erythematosus

atacept
anti-BlyS/APRIL fusion protein
IgA nephropathy

evobrutinib
BTK inhibitor
Rheumatoid arthritis

evobrutinib
BTK inhibitor
Systemic lupus erythematosus

sprifermin
fibroblast growth factor 18
Osteoarthritis

M1095 (ALX-0761)⁴
anti-IL-17 A/F nanobody
Psoriasis

Phase III

avelumab - anti-PD-L1 mAb
Non-small cell lung cancer 1L

avelumab - anti-PD-L1 mAb
Gastric cancer 1L-M

avelumab - anti-PD-L1 mAb
Urothelial cancer 1L-M

avelumab - anti-PD-L1 mAb
Locally advanced head and neck cancer

evobrutinib - BTK inhibitor
Multiple sclerosis⁵

Registration

avelumab
anti-PD-L1 mAb
Renal cell cancer 1L⁶

- Oncology
- Immuno-Oncology
- Immunology
- Neurology
- Global Health

1L, first-line treatment; 1L-M, first-line maintenance treatment; 2L, second-line treatment.

¹ Includes studies in combination with avelumab. ² As announced on May 2 2018, in an agreement with SFJ Pharmaceuticals Group, abrituzumab will be developed by SFJ for colorectal cancer through Phase II/III clinical trials.

³ Avelumab combination studies with talazoparib, axitinib, ALK inhibitors, cetuximab, chemotherapy, or novel immunotherapies. ⁴ As announced on March 30 2017, in an agreement with Avillion, anti-IL-17 A/F nanobody will be developed by Avillion for plaque psoriasis and commercialized by Merck. ⁵ Enrollment anticipated in Q3 2019. ⁶ As announced on May 15 2019, the US Food and Drug Administration (FDA) has approved avelumab in combination with axitinib for the first-line treatment of patients with advanced renal cell carcinoma (RCC) and as announced on March 8 2019, the European Medicines Agency (EMA) validated for review the Type II variation application for avelumab in combination with axitinib for patients with advanced RCC.

Life Science: Strong organic growth fueled by all businesses across all regions

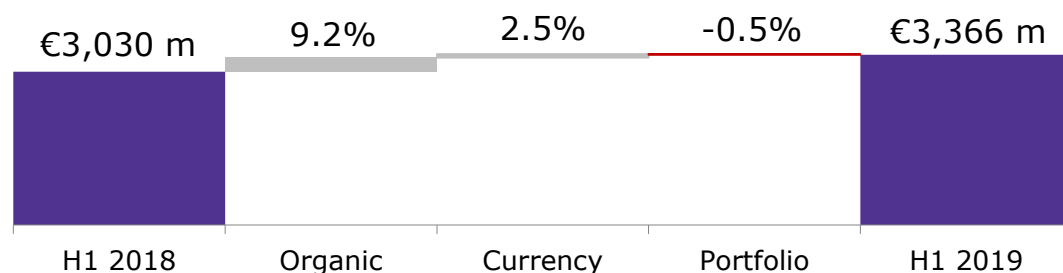
Life Science P&L

[€m]	H1 2018 ¹	H1 2019
Net sales	3,030	3,366
Marketing and selling	-861	-959
Administration	-143	-156
Research and development	-120	-131
EBIT	527	635
EBITDA	884	1,025
EBITDA pre	906	1,049
Margin (in % of net sales)	29.9%	31.2%

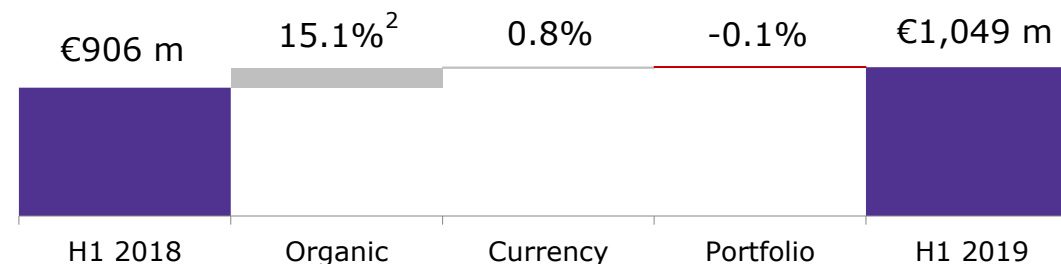
Comments

- Process Solutions with double-digit growth due to ongoing strong demand in all businesses and all major regions
- Solid growth of Applied Solutions fueled by all businesses across all regions, especially Advanced Analytical and Lab Water
- Research Solutions posts moderate organic growth driven by ongoing strong demand for lab chemicals and workflow tools across all regions
- M&S increase reflects volume growth, investments in eCommerce and strategic initiatives
- EBITDA pre reflects strong top-line growth

Net sales bridge



EBITDA pre bridge



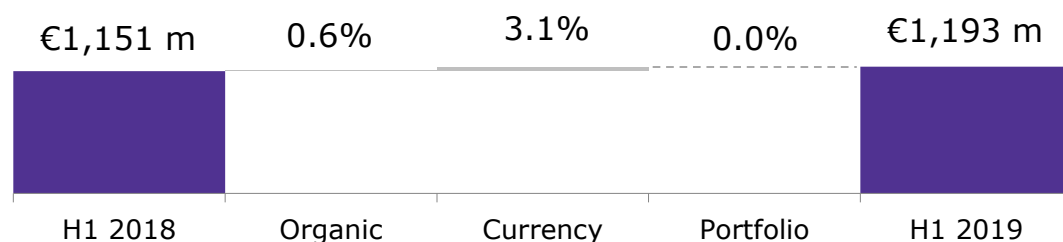
¹LY numbers have been modified, due to disclosure changes of adjustments; ²Thereof IFRS 16 effect with +2.8% (+€25 m); Totals may not add up due to rounding

Performance Materials: Ongoing strong demand for OLED and support from LC capacity ramp-up, amid market slowdown in Semiconductor and Surface Solutions

Performance Materials P&L

[€m]	H1 2018 ¹	H1 2019
Net sales	1,151	1,193
Marketing and selling	-121	-132
Administration	-49	-49
Research and development	-118	-146
EBIT	267	195
EBITDA	384	318
EBITDA pre	392	383
Margin (in % of net sales)	34.0%	32.1%

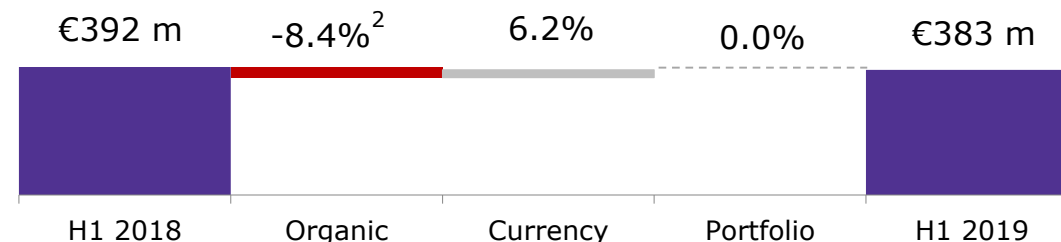
Net sales bridge



Comments

- Performance Materials about stable reflecting strong demand for OLED, LC benefits from new panel plant ramp-up projects in China and low comps
- Softness of Semiconductor Solutions reflects observed market slowdown
- Surface Solutions below expectations, attributable to automotive market decline
- Provisions related to Bright Future program drive M&S and R&D increase; adjusted for EBITDA pre - decrease in R&D reflecting cost control
- EBITDA pre driven by ongoing liquid crystal price decline and slowing China contribution as well as reduced fixed cost leverage due to Surface Solutions softness

EBITDA pre bridge



¹LY numbers have been modified, due to disclosure changes of adjustments; ²Thereof IFRS 16 effect with +1.2% (+€5 m); Totals may not add up due to rounding

Cash flow statement

H1 2019 – cash flow statement

[€m]	H1 2018	H1 2019	Δ
Profit after tax	593	660	68
D&A	876	927	51
Changes in provisions	50	54	3
Changes in other assets/liabilities	-478	-115	363
Other operating activities	15	-55	-69
Changes in working capital	-309	-236	72
Operating cash flow	748	1,235	488
Investing cash flow	-412	-1,199	-787
thereof Capex on PPE	-396	-374	22
Financing cash flow	-298	-1,241	1,539

Cash flow drivers

- Profit after tax in line with higher EBIT
- D&A increase mainly due to IFRS 16 reclassification
- Changes in other assets/liabilities reflects GSK upfront and Peg-Pal milestone payment
- Increased investing cash flow due to temporary investment of cash proceeds from Consumer Health divestment
- Higher financing cash flow reflects the issue of new bonds (€1.5 bn)

Adjustments in Q2 2019

Adjustments in EBIT

[€m]	Q2 2018		Q2 2019	
	Adjustments	thereof D&A	Adjustments	thereof D&A
Healthcare	40	0	5	0
Life Science	26	16	15	0
Performance Materials	5	1	29	0
Corporate & Other	26	0	16	0
Total	97	17	65	0

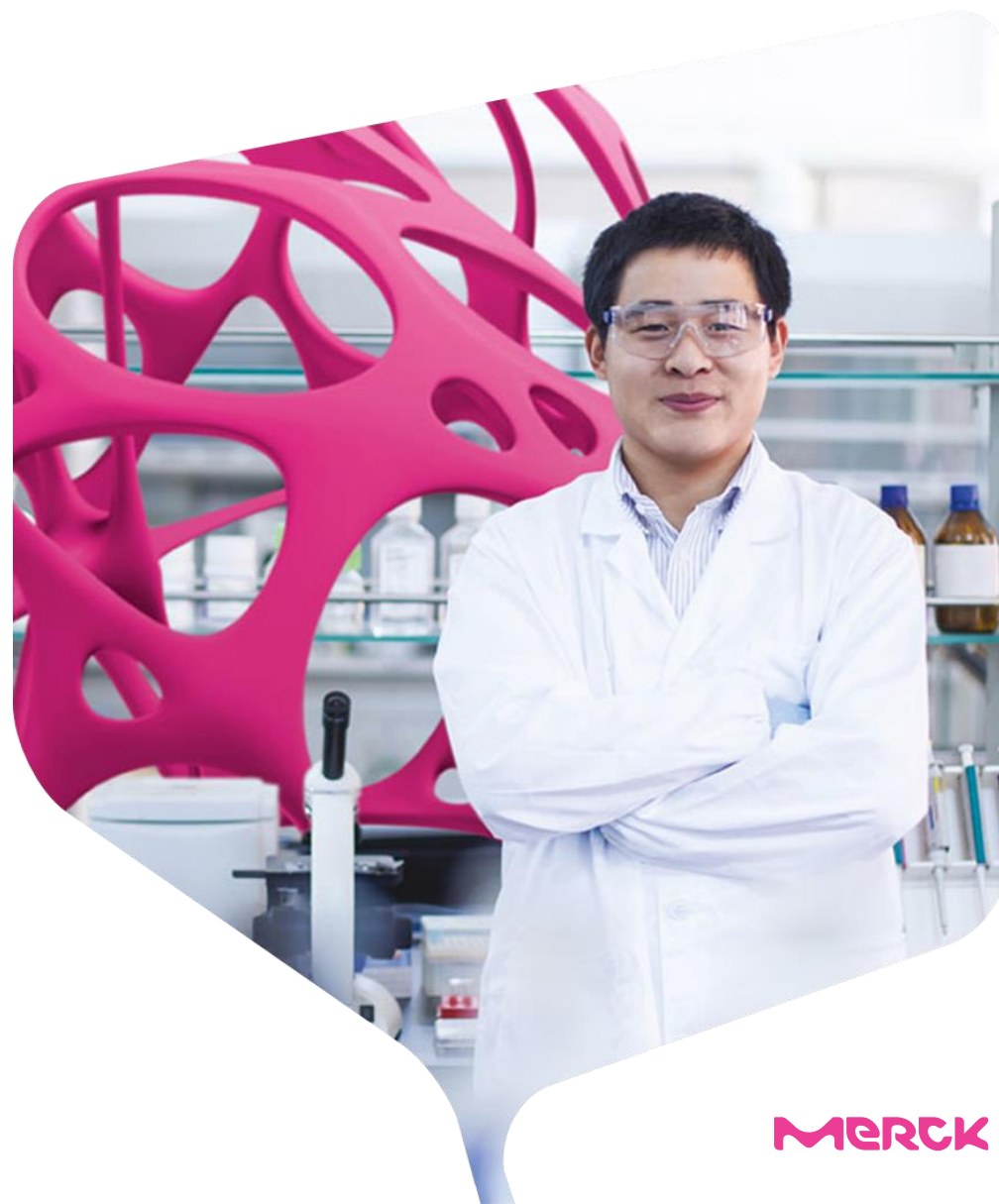
Adjustments in H1 2019

Adjustments in EBIT

[€m]	H1 2018		H1 2019	
	Adjustments	thereof D&A	Adjustments	thereof D&A
Healthcare	43	0	8	0
Life Science	39	16	24	0
Performance Materials	9	1	65	0
Corporate & Other	50	0	44	0
Total	140	17	141	0

Financial calendar

Date	Event
November 14, 2019	Q3 2019 Earnings release
March 5, 2020	FY 2019 Earnings release
April 24, 2020	Annual General Meeting
May 14, 2020	Q1 2020 Earnings release



CONSTANTIN FEST



Head of Investor Relations
+49 6151 72-5271
constantin.fest@merckgroup.com

SVENJA BUNDSCHUH



Assistant Investor Relations
+49 6151 72-3744
svenja.bundschuh@merckgroup.com

ALESSANDRA HEINZ



Assistant Investor Relations
+49 6151 72-3321
alessandra.heinz@merckgroup.com

AMELIE SCHRADER



Institutional Investors /
Analysts
+49 6151 72-22076
amelie.schrader@merckgroup.com

PATRICK BAYER



Institutional Investors /
Analysts
+49 6151 72-5642
patrick.bayer@merckgroup.com

EMAIL: investor.relations@merckgroup.com

WEB: www.merckgroup.com/investors

FAX: +49 6151 72-913321

EVA STERZEL



ESG / Institutional & Retail
Investors / AGM
+49 6151 72-5355
eva.sterzel@merckgroup.com

