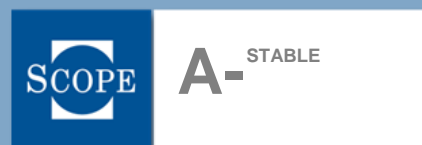


Merck KGaA

Germany, Chemicals/Pharmaceuticals



Corporate profile

Merck KGaA is a diversified chemicals/pharmaceuticals group that was founded in 1668 with the opening of a Merck pharmacy in Darmstadt, Germany, where the group is still based. The Merck family holds 70% of the voting rights with the remainder in public ownership. After several acquisitions and divestments, the group now consists of three divisions: healthcare (pharmaceuticals and consumer healthcare), life science and performance materials (centred on its global market leadership in liquid crystals). In 2015, Merck acquired the US-based life science company Sigma Aldrich for a price of USD 17bn and became one of the consolidators in that industry. In pharmaceuticals, it is a specialised, mid-sized producer of drugs, relying on two blockbuster products, Erbitux and Rebif, but has developed a new focus on immuno-oncological products, mainly represented by its antibody avelumab. At the end of 2014, US-based big pharma company Pfizer acquired partial ownership of the molecule as well as US distribution rights for USD 850m.

Key metrics

Scope credit ratios	Scope estimates				
	2016	2017F	2018F	2019F	2020F
EBITDA/interest cover (x)	13.0x	13.1x	15.2x	15.6x	18.8x
SaD/EBITDA	2.9x	2.7x	2.1x	2.0x	1.6x
Scope-adjusted FFO/SaD	25%	27%	34%	38%	44%
FOCF/SaD	21%	17%	20%	22%	23%

Rating rationale

Scope Ratings affirms its issuer rating of A- on Germany-based Merck KGaA. The short-term rating is S-1. The rating Outlook is Stable.

The rating affirmation reflects our view of Merck's credit-supportive business risk profile, consisting of the mostly stable and cash-generative business models of its three critically-sized divisions. In addition, the group's diversified structure reflects the owning family's strategy of achieving balanced cyclical exposure. Merck's healthcare division still depends on its mature product portfolio and is only gradually moving towards a broader pharma portfolio by expanding into the immuno-oncology therapeutic area. Recent developments around its leading pipeline molecule avelumab (anti PD-L1; currently in 8 phase 3 projects) are positive. The molecule could receive US approval in the second half of 2019 for its most important indication – lung cancer. It has already received approvals for two more minor indications (Merkel cell carcinoma, bladder cancer) under its brand name Bavencio. Merck's new multiple sclerosis drug Mavenclad is due for potential US approval in around March/ April 2019. This would represent a major breakthrough in our view, as it could open up blockbuster potential for the drug. The other group divisions could offset potentially weaker pharma profitability thanks to their stable cash flows. The ratings also reflect our view of Merck management's conservative financial policy which has focused on organic growth and deleveraging since the debt-funded acquisition of Sigma Aldrich in 2015. Credit metrics are presently sub-par for the ratings because of the acquisition's immediate impact. However, management's financial policy was supportive of quick deleveraging following the Serono (2007) and Millipore (2010) acquisitions.

Ratings & Outlook

Corporate Ratings	A-/Stable
Short Term Rating	S-1/Stable

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Related methodology

Corporate Rating Methodology,
January 2018

European Pharmaceuticals,
January 2018

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We continue to assess Merck's business risk profile as A. This is based on a weighted approach with regard to the three divisions' industry risk and competitive positioning. The group's exposure to the relatively stable and high-margin liquid crystals and life science industries supports the ratings.

The group still has extremely large global market shares and operating margins in liquid crystals, with life sciences offering growth potential and comparatively high profitability. The liquid crystals business has come under strong competitive pressure lately and management has introduced cost measures aimed at stabilising margins. We continue to view the healthcare division, in its present transitional state, as slightly diluting the group's business risk profile, despite initial success with new drug approvals for Bavencio and Mavenclad. Margin pressure in performance materials as a consequence of stronger competitive forces in the liquid crystals area does not have a negative bearing on our business risk assessment yet. This is because the performance materials division's operating profit margins are expected to stabilise at around 30% in the future, which is a comparatively high level in our view.

Our assessment of Merck's financial risk profile continues to reflect our expectation that management is both able and willing to reduce debt continuously in the coming years. This was confirmed with a reduction in gross financial debt of EUR 1.3bn in 2017, despite the operational headwinds faced. However, the group's growth strategy involves budgeted rises in R&D as well as marketing and capital expenditures. In parallel the group also has to cope with the profit downturn in performance materials. Thus, in the period of slower profit growth foreseen for 2018 and 2019 – until the healthcare division possibly starts to increase profit generation again – the divestiture proceeds from Merck's consumer healthcare division are likely to be the main driver of credit metrics' assumed improvement. In light of management's conservative financial policy, we expect the bulk of net proceeds to be available for deleveraging. For 2018, including the divestiture, we expect the FFO/Scope-adjusted-debt (SaD) ratio to recover to 34% and the adjusted EBITDA-to-SaD ratio to improve to 2.1x.

Outlook

The Stable Outlook reflects our expectations that Merck should improve its financial risk profile in 2018 to levels of about 2.5x with regard to SaD/EBITDA. We view credit metrics of SaD/EBITDA of 2.5x and FFO/SaD of 30%-35% as indicative of the current rating and outlook and reflective of a financial risk profile assessment in the BBB category.

A higher rating could be triggered by both an improved business risk assessment, if the healthcare division performs well in the future, and a sustainable enhancement of credit metrics below 2.5x on a sustainable basis. A negative rating action could result from a more aggressive financial policy (which we do not anticipate) or a sustained negative deviation from the ratio levels commensurate with the present ratings (SaD/EBITDA of above 2.5x and FFO/SaD of below 30%).

Rating drivers

Positive rating drivers	Negative rating drivers
<ul style="list-style-type: none"> • Diversified group structure with positive effects on internal risk balancing • World market leader by far in liquid crystal production • Potential pharma blockbuster in development • Significant and consistent free cash generation • Acquisition of Sigma Aldrich has led to group becoming a life science consolidator • Conservative financial policy with good track record 	<ul style="list-style-type: none"> • Healthcare division in transition • Margin pressure in liquid crystals • Credit metrics currently at sub-par levels for the rating

Rating-change drivers

Positive rating-change drivers	Negative rating-change drivers
<ul style="list-style-type: none"> • Considerable, uninterrupted improvement in credit metrics • Significant turnaround in healthcare division, for example through the approval of new antibody avelumab 	<ul style="list-style-type: none"> • Inability to deleverage quickly, resulting in no significant improvement in credit metrics • Change to more aggressive financial policy



Financial overview

	Scope estimates				
Scope credit ratios	2016	2017	2018F	2019F	2020F
EBITDA/interest cover (x)	13.0x	13.1x	15.2x	15.6x	18.8x
SaD/EBITDA	2.9x	2.7x	2.1x	2.0x	1.6x
Scope-adjusted FFO/SaD	25%	27%	34%	38%	44%
FOCF/SaD	21%	17%	20%	22%	23%
Scope-adjusted EBITDA in EUR m	2016	2017	2018F	2019F	2020F
EBITDA	4,086	3,931	3,590	3,550	3,915
Operating lease payment in respective year	98	118	126	118	118
Other	0	0	0	0	0
Scope-adjusted EBITDA	4,184	4,049	3,719	3,672	4,038
Scope funds from operations in EUR m	2016	2017	2018F	2019F	2020F
EBITDA	4,086	4,049	3,719	3,672	4,038
less: (net) cash interest as per cash flow statement	-305	-269	-250	-230	-210
less: cash tax paid as per cash flow statement	-788	-629	-570	-670	-800
Scope funds from operations	3,091	3,151	2,899	2,772	3,028
Scope-adjusted debt in EUR m	2016	2017	2018F	2019F	2020F
Reported gross financial debt	12,597	10,823	7,989	7,489	6,689
Hybrid bond	-744	-744	-744	-744	-744
less: cash, cash equivalents	-1,084	-679	-890	-1,005	-783
Cash not accessible	300	300	300	300	300
add: pension adjustment	969	931	902	950	951
add: operating lease obligations	293	451	373	373	373
Other	-128	-150	-150	-149	-148
Scope-adjusted debt	12,203	10,932	7,779	7,214	6,637

Business risk profile

Three critically sized divisions

Based on its long-term commitment to diversified pharmaceuticals/chemicals exposure, Merck has built its group structure around three sizeable divisions holding, in part, significant market shares. The acquisition of US-based Sigma Aldrich for the group's life science division in 2015, positioned it among the top three producers of laboratory equipment and related products globally. While its liquid crystals business (as part of its performance materials division) continues to hold strong global market positions, Merck's pharmaceutical subdivision is a mid-sized drug producer which has only recently been able to gain approval for novel pipeline projects ending a period of years without innovation.

Internal risk balancing

We believe Merck's group structure can effectively protect group cash generation in recessions and in a potential downturn in pharmaceuticals. This is based on our view of both the life science and liquid crystals industries' comparatively low cyclicality and high cash flow generation. While the pharmaceutical industry is generally less exposed to macroeconomic downturns, cyclicality risk is of a more long-term nature, defined by product lifecycles and the pipeline replacement of patent-expired products.

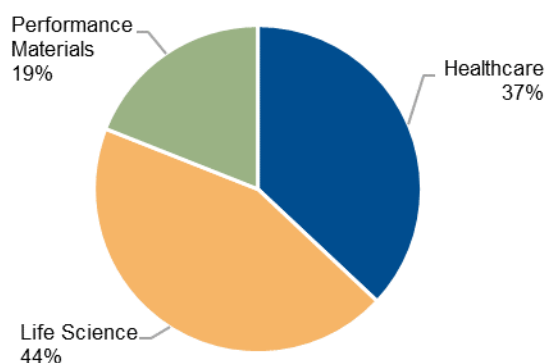
Solid business risk profile

In accordance with our corporate ratings methodology, we assess each division's business risk profile separately, taking the divisions' different characteristics into account. By applying weights related to the divisions' individual profit contribution to the group (see Figure 1), we have determined that Merck's group business risk profile falls within the A category.

Credit-supportive mix of industries

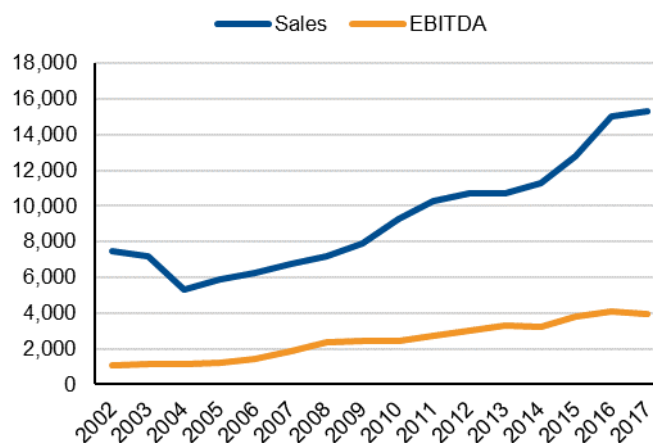
We view the mix of industries which Merck is exposed to as very credit supportive. It is our belief that all of the underlying industries are only very faintly exposed to macroeconomic downturns. The life science and healthcare divisions are driven by ageing societies and unhealthy lifestyles, as well as innovation. The performance materials division generally supplies speciality products for a large number of industrial applications, making a sharply negative cyclical impact less likely for the overall division. We also believe that barriers to entry are high in pharmaceuticals (R&D, marketing expertise) and liquid crystals (technical expertise and a high degree of concentration in the industry). While we consider that the group's other performance material activities (pigments and electronics) shift the divisional entry barrier risk slightly downwards, we view the life science industry, which deals with medical equipment, as well protected by medium-risk barriers to entry due to its focus on speciality products and increasing network requirements.

Figure 1: EBITDA breakdown by division, 2018E



Source: Scope estimates

Figure 2: Stable long-term trends, in EUR m



Source: Scope estimates

Group's competitive position weighed down by healthcare

Merck's pharmaceutical activities suffer from an aged and comparatively small product portfolio. While its two mature blockbusters Erbitux (oncology) and Rebif (multiple sclerosis) are already past patent expiry in major markets, both are still holding up sales extremely well, which is important in the present transitional phase of the overall division. While first indication approvals of Bavencio (avelumab), Merck's prospective anti-PDL-1 blockbuster, and Mavenclad, its oral multiple sclerosis treatment, are positive, they have not yet changed our assessment of the group's competitive position in healthcare overall, as first sales generation is still comparatively low. Important milestones for both drugs will be set in the first half of 2019. While healthcare margins are still mediocre, good pipeline prospects (avelumab, TGF beta trap, tepotinib) are credit supportive, despite the heavy focus on avelumab. However, the rating is held back by the group's small market shares and high product concentration rates, with the top three products generating 46% of pharmaceutical revenues in the first half of 2018 (compared with 41% at Bayer, for example).

Performance materials: liquid crystals weaker but still strong

The competitive position of Merck's performance materials division is very comfortable from a ratings point of view. This is now less firmly based on its liquid crystals exposure but also on its electronics and semiconductor positions. While operating margins for liquid crystals have fallen from above 45% to 30%-35%, due to competitive pressure and reduced innovation, the other performance materials activities are not generating significantly lower margins on average. We have slightly downgraded performance materials' business risk profile to reflect the lower liquid crystals profitability which we do not expect to return to previous levels. This does not affect the group's overall business risk assessment. Merck's pigments and electronics activities (integrated circuit materials, OLEDs) diminish the division's strength somewhat from a rating perspective, but they nevertheless have good market shares and margins, attesting to the highly specialised nature of the products.

Life sciences: enhanced competitive position

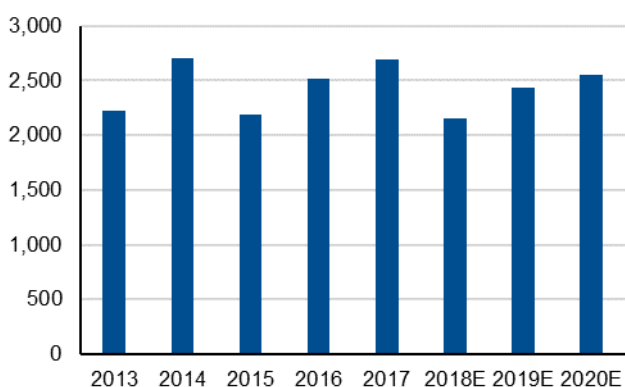
With the inclusion of Sigma Aldrich, Merck's life science division now ranks among the top three suppliers worldwide. All major product categories are covered (except for diagnostic instruments) and market shares are significant. We therefore regard diversification as key to our assessment of the division's competitive position. Furthermore, Sigma Aldrich's industry-leading EBITDA margin of 32% (2015) and strong cash generation are likely to drive Merck's divisional profitability going forward. In the first six months of 2018, divisional EBITDA margins improved to more than 29%, up from 28% in the same period in 2017. In addition, the division looks set to benefit from growth levels that are expected to be well above that of GDP in the mid-term (+4% in the first half of 2018 on a like-for-like basis). From a geographic perspective, the Sigma Aldrich acquisition will significantly strengthen the division's US exposure within an already global structure. On a combined basis, the division is well represented in Europe and North America, which are home to about 80% of the life science industry.

Financial risk profile**Improving credit metrics**

Merck's key credit metrics came close to a net cash position in 2014, based on continuous deleveraging after 2011, the year of the EUR 5bn Millipore takeover. The Sigma Aldrich transaction in 2015 led to a steep increase in gross financial debt by about EUR 8bn compared with the year before, and was responsible for adjusted leverage rising above 3x, its highest historical level. While we originally expected a strong rise in operating cash flows from a low base in 2015, this has been disrupted by the problems in liquid crystals which are likely to lead to a EUR 500m decrease in operating cash flows in 2018, in a year-over-year comparison. We expect 2018 to reflect the trough year for group cash flows followed by a partial recovery in 2019. Merck's management had recently dampened excessively high profit expectations for 2018 and 2019, although

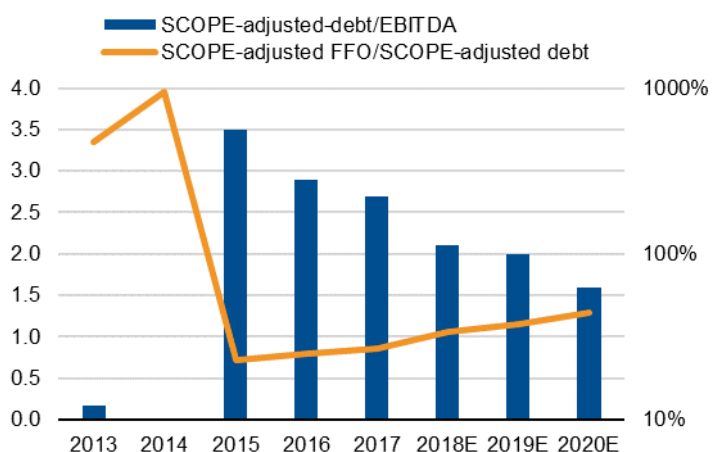
deleveraging can continue due to the announced divestiture of its consumer healthcare activities. This is despite the planned increase in R&D and marketing expenses as well as higher capital expenditures in the coming years, coupled with lower expected liquid crystals profits. Financial debt has already been reduced by more than EUR 2bn since the end of 2015, in line with the management strategy of prioritising deleveraging in 2018 and 2019.

Figure 3: Sigma boosts operating cash flow, in EUR m



Source: Scope estimates

Figure 4: ... enabling continuous credit quality recovery



Source: Scope

Committed financial policy

We consider Merck's financial policy to be sound and committed, as underlined by the deleveraging trend following the acquisitions in 2012 and 2015. After the Sigma Aldrich takeover, the group's management stated publicly that it would enter a phase of consolidation and organic growth with a focus on reducing debt quickly, not least motivated by the intention of keeping ratings stable. This strategy is very credible in our view, as it is supported by a positive track record in the cases of the Serono (2007) and Millipore (2010) acquisitions. It shows that the group is willing to deleverage, and its ability to do so is underscored by a projected increase in annual operating cash flows including Sigma (see Figure 3). After dividends to outside shareholders and the Merck family, we believe that a free cash flow level of over EUR 1bn is likely on an annual basis.

Conservative liquidity management

We continue to view Merck's liquidity management as conservative, based on the sustained excess cash that acts as a cushion on the balance sheet. While we have determined about EUR 200m in cash as the minimum level necessary to run the business from a technical perspective, Merck has historically kept balance sheet liquidity at more than EUR 1bn. Short-term maturities at the end of June 2018 were at a high EUR 3.3bn. While this is down by about EUR 1bn since June 2017, it is still about EUR 1bn above the historical average. This reflects the funding of Sigma Aldrich through the partial use of Merck's EUR 2bn commercial paper programme, as well as additional bank lines, which are effectively rolled over but which technically constitute short-term debt. We expect the group's short-term debt to fall rapidly in the coming quarters, as the bilateral bank lines should be paid back first. Our analysis also considered the continued availability of EUR 2bn in committed back-up facilities and the group's increasing free cash generation.

S-1 short-term rating

Based on our positive assessment of liquidity as well as Merck's solid investment grade rating, Scope has assigned a short-term rating of S-1. This rating also reflects our perception of the group's sustainable cash-generative business model which continues to improve thanks to the Sigma Aldrich acquisition. Including all internal and external sources of liquidity, coverage of short-term debt is projected at 2x, a level we deem commensurate with the rating.



Outlook

The Stable Outlook reflects our expectations that Merck should improve its financial risk profile in 2018 to levels of about 2.5x with regard to SaD/EBITDA. We view credit metrics of SaD/EBITDA of 2.5x and an FFO/SaD ratio of 30%-35% as indicative of the current rating and outlook, and reflective of a financial risk profile assessment in the BBB category.

A higher rating could be triggered by both an improved business risk assessment, if the healthcare division performs well in future, and a sustainable enhancement of leverage levels below 2.5x on a sustainable basis. A negative rating action could result from a more aggressive financial policy (which we do not anticipate) or a sustained negative deviation from the ratio levels commensurate with present ratings (SaD/EBITDA of above 2.5x and FFO/SaD of below 30%).



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