ALANTRA

Fairness Opinion – Actelion Ltd.

Fairness Opinion on the Public Tender Offer by
Janssen Holding GmbH to Acquire Actelion Ltd.

16 February 2017

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Introduction
Background (1/2)

Background

- Actelion Ltd. ("Actelion" or the "Company") is listed on the SIX Swiss Exchange with a market capitalization of CHF 27,576m as at 3 February 2017. Actelion is a biopharmaceutical company focussing on the field of pulmonary arterial hypertension ("PAH") with treatments for diseases from WHO Functional Class II through IV, with oral, inhaled and intravenous medications
- Furthermore, the Company offers treatments for specialist diseases, including Type 1 Gaucher disease, Niemann-Pick type C disease, digital ulcers in patients suffering from systemic sclerosis and mycosis fungoides in patients with cutaneous T-cell lymphoma
- Actelion employs approx. 2,624 people and generated revenue of CHF 2.4bn in the financial year 2016. The company has its headquarters in Allschwil, Switzerland. Actelion has over 30 operative affiliates around the world including in the United States, Canada, Brazil, Australia, Japan, Switzerland as well as in a number of EU countries
- The Company's share capital is CHF 53,880,713.50 divided into 107,761,427 registered shares with a nominal value of CHF 0.50 per share ("Actelion share" or "Share"). The Shares are fully paid-in and each carries a voting right
- Actelion has been subject to takeover speculation since 16 November 2016(1). Consequently, Actelion's share price increased, and the corresponding weighted average share prices have to be seen as inflated by these speculations since 16 November 2016
- On 26 January 2017, Johnson & Johnson, through its indirect subsidiary Janssen Holding GmbH, Zug, Switzerland, published a pre-announcement stating its intention to submit an all-cash public tender offer to the Actelion shareholders to purchase all publicly held registered Shares for a price of USD 280.00 per Share (the "Johnson & Johnson Offer"). It has to be noted that the effective offer price in CHF terms will be subject to the future development of the USD/CHF exchange rate
- The proposed transaction combines the Johnson & Johnson Offer with a demerger of the Company's preclinical discovery and clinical pipeline business, accomplished through (1) the reorganization of the assets and liabilities of such business into a newly formed company ("R&D NewCo") and (2) the distribution of all of the shares of R&D NewCo by way of a dividend in kind ("Stock Dividend") to Actelion's current shareholders, whereby one Actelion share entitles to one share in R&D NewCo
- All shares of R&D NewCo will be listed on the SIX Swiss Exchange (the reorganisation, the distribution and the admission to listing, together "Demerger Transactions")
- In the following, the entity remaining subsequent to the Demerger Transactions shall be referred to as "Actelion New"
- In connection with the Demerger Transactions, Johnson & Johnson has agreed to provide a convertible loan to R&D NewCo totaling CHF 580m with a maturity of 10 years, which shall be convertible, in two tranches, up to an aggregate of 32% of the shares in R&D NewCo
- In addition, as part of the Demerger Transactions, R&D NewCo will receive CHF 420m in cash from Actelion. Together with the convertible loan of CHF 580m by Johnson & Johnson, R&D NewCo will be capitalized with CHF 1bn
- One day following the consummation of the Johnson & Johnson Offer and the completion of the Demerger Transactions, the first tranche of the convertible loan will be converted, so that a subsidiary of Johnson & Johnson will hold 16% of the shares of R&D NewCo, and the former Actelion shareholders will own 84% of the shares of R&D NewCo
- The remaining portion of the loan shall be convertible by a subsidiary of Johnson & Johnson into another 16% of shares of R&D NewCo at any time during the term of the convertible loan
- At maturity, R&D NewCo may settle the second tranche of the loan (if still outstanding) in cash or in new shares of R&D NewCo

Source: Bloomberg, Actelion annual report 2016, Actelion management information
(1) Swiss daily newspaper "Neue Zürcher Zeitung" 16 November 2016

Introduction
Background (2/2)

Background (cont'd)

- Johnson & Johnson has committed itself by contract for a period of 5 years following the consummation of the Johnson & Johnson Offer not to acquire any equity securities of R&D NewCo which would result in Johnson & Johnson holding more than 32% of R&D NewCo's issued share capital, subject to certain exceptions
- On 26 January 2017, Johnson & Johnson and Actelion entered into a transaction agreement pursuant to which the Actelion Board of Directors agreed, among other things, to recommend the Johnson & Johnson Offer for acceptance by the Actelion shareholders and to receive a fairness opinion from a financial adviser
- In connection with this mandate to provide a fairness opinion, Alantra AG ("Alantra") shall receive no compensation that is dependent on any statements regarding the valuation of Actelion or the success of a transaction with Johnson & Johnson. Alantra hereby confirms that it reached its opinion independently in accordance with TOB circular No. 3 governing assessment experts
- In accordance with the TOB decision of 27 September 2011, Alantra is suitably qualified to prepare fairness opinions for public takeover offers in Switzerland

Source: Actelion management information

Introduction
Mandate of Alantra

Mandate of the Board of Directors

- The Actelion Board of Directors has retained Alantra to prepare a fairness opinion assessing the financial adequacy of the Johnson & Johnson Offer from the perspective of the public shareholders of Actelion
- The scope of this fairness is limited to the assessment of the financial adequacy of the Johnson & Johnson Offer and does not consider the Demerger Transactions and Stock Dividend
- Therefore, the underlying object of assessment is limited to Actelion New
- The fairness opinion is intended solely for use by the Board of Directors of Actelion as part of its report to the shareholders in connection with the Johnson & Johnson Offer (in compliance with the TOB ordinance on public takeover offers) and, for the avoidance of doubt, assesses solely the financial adequacy of the Johnson & Johnson Offer for the holders of registered Actelion shares listed on the SIX Swiss Exchange
- This fairness opinion can be used for publication in connection with the public tender offer. It may also be referred to in the Swiss offer prospectus. Use for any other purposes is not permitted
- The fairness opinion does not constitute a recommendation to the public shareholders of Actelion to accept or reject the Johnson & Johnson Offer
- Furthermore, it does not assess the following:
  - Payment terms and other conditions of the Johnson & Johnson Offer
  - Legal and fiscal assessment of the transaction structure
  - Possible effects on shareholders if the Johnson & Johnson Offer is accepted or rejected
  - Future value of the Actelion share
- Alantra has neither performed an audit as defined by Swiss law, nor any kind of due diligence

Introduction
Evaluation Procedure

Evaluation procedure

- Alantra analyzed various valuation criteria and conducted comprehensive analyses on Actelion New in order to assess the financial adequacy of the Johnson & Johnson Offer
- The underlying object of assessment is Actelion New with its consolidated subsidiaries
- The valuation date is 3 February 2017
- The valuation analysis results in a value range for the enterprise value and equity value of Actelion New. The implied value range per share for Actelion New is an indication that can be used to assess the financial adequacy of the Johnson & Johnson Offer
- The valuation is carried out on a stand-alone basis and thus does not include any synergies a potential acquiror might generate
- No consideration has been given to possible effects at the individual shareholder level, such as tax implications
- The value range for Actelion New as a company and the derived value range per share was calculated primarily on the basis of the discounted cashflow (DCF) analysis. Sensitivity analyses were also carried out as part of the DCF analysis by varying the major value drivers. Additional valuation methods such as an analysis of comparable companies and an analysis of precedent transactions were considered to test the plausibility of the DCF results
- The valuation is based on the assumptions of the business plan for Actelion New prepared by Actelion's management. Technical assumptions for valuation purposes (e.g. cost of capital) were not part of the provided business plan
- Several meetings and conference calls with the management team were held to discuss the plausibility of the information as well as the business plan received

Introduction
Information Basis

Information basis

- Alantra made use of the following information for its assessment:
  - Publicly accessible information on Actelion that was considered relevant for the analysis. This includes the 2012-2016 annual reports for the financial years 2012 to 2016, the H1 2016 half-year report (unaudited), the Q3 2016 financial overview (unaudited) as well as company presentations and press releases
  - Internal company information about Actelion that was considered relevant for the analysis, particularly the long-term plan for the financial years 2017 to 2036 for Actelion New ("LTP"), the budget for the financial year 2017 for Actelion New as well as pro forma figures for the financial year 2016 for Actelion New. The LTP was prepared by Actelion's management and approved by the Board of Directors in December 2016. The rationale for the relatively long planning horizon is due to typically long innovation lead times, staggered product launches and subsequent life cycles lasting several years
  - Meetings and conference calls with Actelion's management focusing on the Company's financial situation and business performance, the current and future market environment, value drivers and underlying assumptions made in the LTP
  - Descriptive documents on strategy with details on the planning assumptions, as well as on the measures already implemented or planned in the LTP
  - Actelion strategy documents that include assumptions on planned initiatives and measures to be undertaken under the LTP as well as information on the market development and assumed market share development of Actelion New (based on internal and external estimates)
  - Information relating to the employee stock programs
  - Details of debt-like and cash-like balance sheet positions
  - Capital market and financial data for Actelion and selected comparable companies (primary sources: Bloomberg, Factset)
  - Data from precedent transactions in the sector (source: Mergermarket, company reports)
- In preparing this fairness opinion, Alantra assumed that the financial information and other data on Actelion and Actelion New were accurate and complete and has relied on this information without accepting any responsibility for independent verification thereof
- Actelion's management assured Alantra that it is unaware of any facts or circumstances that would render the information provided being incomplete, incorrect or misleading
- In the preparation of the fairness opinion, Alantra has not carried out any physical inspection of any building and / or sites of Actelion
- The information and criteria in this document are based on the prevailing market, corporate and economic conditions as at 3 February 2017. Any circumstances thereafter may impact the information, which has been used as a basis for the analysis. Alantra has no obligation to update, verify or confirm any information contained in this document

Company

- General Information
- Business Activities and Products
- Historical Key Financials
- Strategic Planning
- Overview on the Proposed Reorganization
- The Global PAH Market

Company
General Information

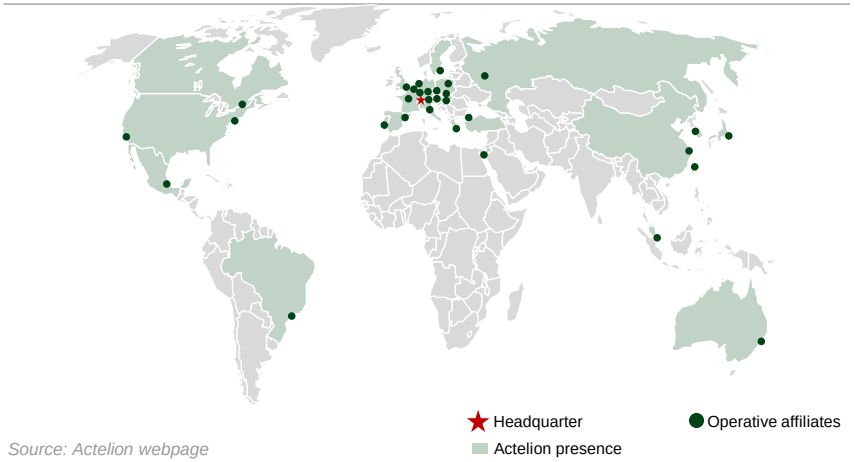
Company description

- Actelion is a leading biopharmaceutical company focused on the discovery, development and commercialization of innovative drugs for diseases with significant unmet medical needs
- The Company focuses on the field of PAH with treatments for diseases from WHO Functional Class II through to IV, with oral, inhaled and intravenous medications
- Although not available in all countries, Actelion also has treatments approved by health authorities for a number of specialist diseases including Type 1 Gaucher disease, Niemann-Pick type C disease, digital ulcers in patients suffering from systemic sclerosis, and mycosis fungoides type cutaneous T-cell lymphoma
- During the financial year 2016, Actelion posted revenue of CHF 2,418m and core operating income(1) of CHF 992m (41.0% core operating income margin)
- Actelion is listed on the SIX Swiss Exchange (SIX: ATLN) since 2000. In September 2008, Actelion shares began trading as part of the blue-chip Swiss Market Index (SMI)
- The company has its corporate headquarters in Allschwil, Switzerland, and has approx. 2,624 employees worldwide

Operational footprint

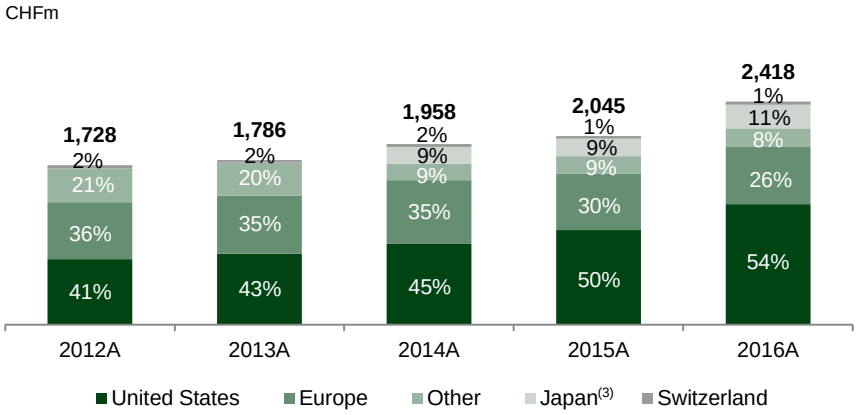
- Actelion has over 30 operative affiliates around the world including in the United States, Canada, Brazil, Australia, Japan, Switzerland as well as in a number of EU countries
- The company's subsidiaries mainly provide distribution, sales and marketing services

Geographic footprint



Source: Actelion webpage

Revenue by region (FY 2012 – 2016)



Source: Actelion annual reports 2012-2016

Source: Annual reports 2012-2016, Actelion management information, Actelion company profile, Actelion webpage
(1) Core operating income equals to operating income according to US GAAP adjusted for depreciation, amortization and impairment, stock-based compensation, doubtful debt movements and milestones for contracts (2) Segment information for Europe has been adjusted to include only the EU-28 member states. Segment information for European countries not belonging to EU-28 has been included in "Other" (3) Japan has not been reported separately prior to 2014 and has been included in "Other"

Company

Business Activities and Products (1/2)

Business model

- Actelion is a fully-integrated biopharmaceutical company with innovation at its core. Actelion is a market leader in the science and medicine of PAH with over 15 years of experience
- The company's understanding of the complex pathways and molecular mechanisms of this disease has enabled the development of tailored medicines that can make a real difference to patient outcomes
- Actelion leverages its scientific experience through in-house discovery, development and marketing talents
- Through its fully integrated business model, Actelion has the expertise in all areas of the value chain as well as the support functions and infrastructure for efficiently delivering innovative products to physicians, patients and payors

Marketed products

- PAH is a chronic, life-threatening disorder characterized by abnormally high blood pressure in the arteries between the heart and lungs of an affected individual
- Actelion's PAH franchise encompasses oral, inhaled and intravenous formulations of compounds for patients at various stages in the course of this disease (PAH Functional Classes II-IV), enabling the company to deliver treatments across the entire continuum of care
- Alongside PAH, Actelion is creating specialty franchises by discovering, developing and in-licensing or acquiring products in new therapeutic areas

Overview on marketed main products

PAH franchise

Tracleer®

- Orally available endothelin receptor antagonist
- First oral treatment approved for PAH
- Commercially available in over 60 markets, including the US, the European Union, and Japan

Veletri®

- Intravenous protacyclin stable at room temperatures for 24 hours, removing the need for patients to carry ice packs
- Commercially available in 17 markets, including the US, Canada, Japan and some European countries

Opsumit®

- Orally available endothelin receptor antagonist resulting from a tailored drug discovery process in Actelion's laboratories
- Commercially available in over 40 markets including the US, Germany and Japan

Uptravi®

- Only approved oral, selective IP receptor antagonist targeting the prostacyclin pathway in PAH, originally discovered by Nippon Shinyaku
- Commercially available in 6 countries including the US and Germany

Ventavis®

- Inhaled formulation of iloprost, a synthetic compound structurally similar to prostacyclin
- Marketed by Actelion in the US since 2007 and by Bayer Healthcare elsewhere

Specialty products

Valchlor®

- 0.016% gel applied topically once daily to affected areas of the skin approved for the treatment of Stage IA and IB mycosis fungoides
- Commercially available in the US and Israel

Zavesca®

- Oral capsules indicated as monotherapy for the treatment of adult patients with mild to moderate type I Gaucher disease for whom enzyme replacement therapy is not an option
- Available for type 1 Gaucher disease in 47 countries including the US and EU

Source: Actelion company profile

Source: Actelion company profile, Actelion webpage

Company
Business Activities and Products (2/2)

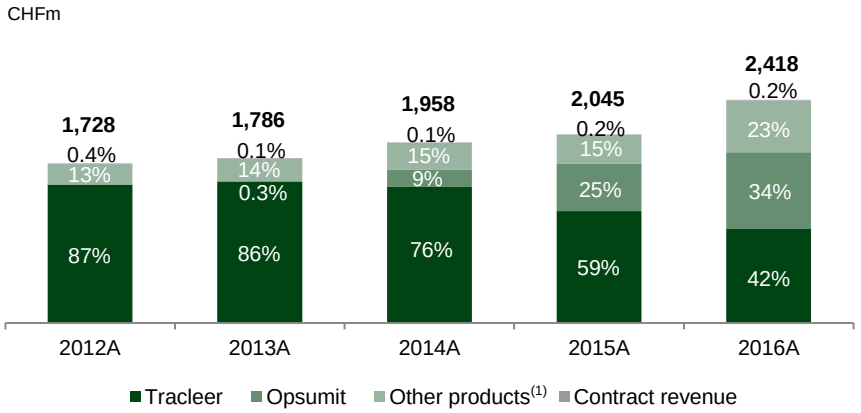
Clinical development

- Actelion's development pipeline comprises novel compounds addressing a broad range of diseases, including cardiovascular and immunological disorders as well as central nervous system disorders and infectious diseases
- Actelion's late-stage product candidates include: a novel antibiotic, cadazolid, under investigation for Clostridium difficile-associated diarrhea (CDAD) and a $S1P_1$ receptor modulator, ponesimod, investigated in multiple sclerosis

Drug discovery

- Actelion's efforts in drug discovery focus on the design, synthesis and optimization of small molecular weight molecules, which are active on molecular target families. This focus allows high productivity in the generation of innovative compounds potentially addressing a wide range of high unmet medical needs
- Initially, the company looked solely at G-protein coupled receptors (GPCRs) and a specific enzyme family known as aspartic proteinases
- As the company's capabilities have expanded, so too have the target platforms, adding anti-invectives, ion channels and a broad range of soluble enzymes

Revenue split by marketed products (FY 2012 – 2016)



Source: Actelion annual reports 2012-2016

Source: Annual reports 2012-2016, Actelion management information, Actelion webpage
(1) Other products include Toctino, Uptravi, Valchlor, Veletri, Ventavis, Xiaflex and Zavesca

Company
Historical Key Financials

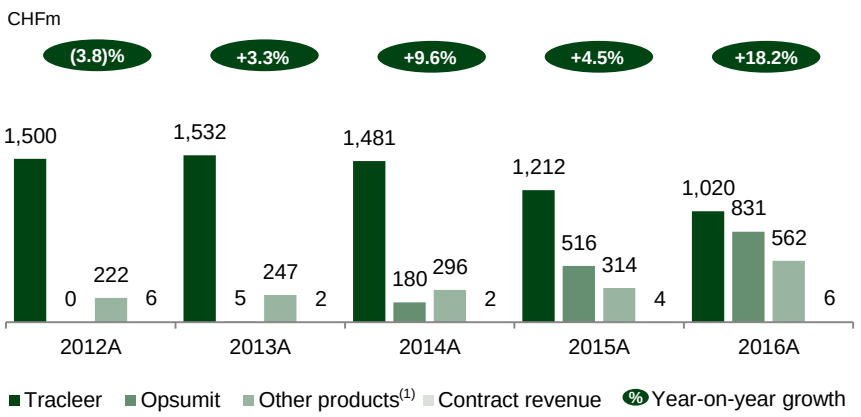
Revenue in financial years 2015 and 2016

- Product sales during the financial year 2015 rose to CHF 2,042m, an increase of 4.4% (7% at constant FX-rate) or 11% excluding the impact of prior-year US rebate reversals
- This strong growth was mainly driven by the sustained uptake in Opsumit® and the continued roll-out of Veletri® and the solid performance of all other products around the globe – including Tracleer, which is still growing in countries where Opsumit has not yet been launched
- During the financial year 2016, product sales rose to CHF 2,412m, an increase of 18.2% (15% at constant FX-rate)
- This strong commercial performance was driven by the Uptravi launch in the US and Opsumit's sustained strong growth trajectory. During the fourth quarter of 2016, combined sales of the company's outcome-based PAH portfolio, Opsumit, Uptravi and Veletri, reached 55% of total sales, demonstrating the significant progress made in the fundamental transformation of the PAH business given Tracleer's patent expiry and hence gradual substitution by generic products

Profitability in financial years 2015 and 2016

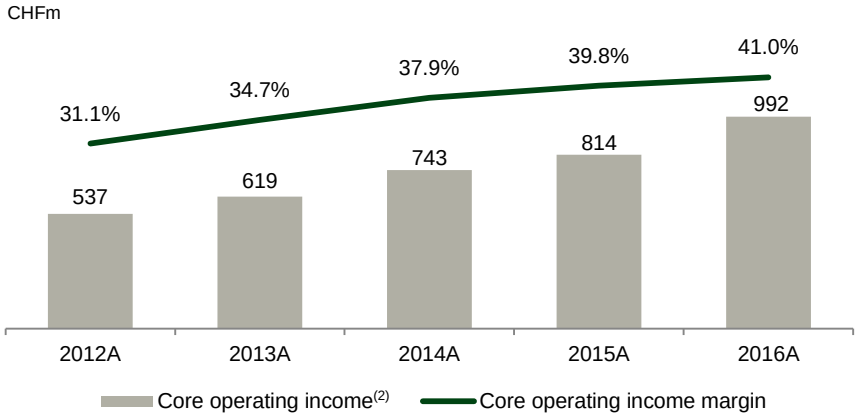
- Core operating income amounted to CHF 814m during the financial year 2015, an increase of 9.6% (14% at constant FX-rate) or 25% excluding the impact of prior-year US rebate reversals
- Core selling, general and administrative expenses increased by 6% at constant FX-rate, as the strong sales performance was supported by increased investment due to the global roll-outs of Opsumit and Veletri. Core R&D expenses increased by 10%
- During the financial year 2016, core operating income rose to CHF 992m, an increase of 21.9% (17% at constant FX-rate)
- Core marketing, selling and distribution expenses increased by 7% at constant FX-rate, driven mostly by the launch activities of Uptravi in several countries. Core R&D expenses increased by 25% at constant FX-rate

Revenue development FY 2012 – 2016



Source: Actelion annual reports 2012-2016

Profitability development FY 2012 – 2016



Source: Actelion annual reports 2012-2016

Source: Annual reports 2012-2016, Actelion management information, Actelion webpage
(1) Other products include Toctino, Uptravi, Valchlor, Veletri, Ventavis, Xiaflex and Zavesca
(2) Core operating income equals to operating income according to US GAAP adjusted for depreciation, amortization and impairment, stock-based compensation, doubtful debt movements and milestones for contracts

Company
Strategic Planning

Strategy

- Actelion's strategic goal is to become a new kind of biopharmaceutical company: one that blends biotech's innovation, speed and flexibility with big pharma's operating discipline and excellence in execution
- Actelion's strategy is designed to create value by leveraging the company's many strengths including its global leadership in the field of PAH therapy, a strong and effective worldwide specialty commercial organization, a highly productive discovery capability and a unique company culture that focuses on delivering innovative medicines that improve patients' lives
- The company focuses on carefully balancing investments so as to ensure future growth and delivery of appropriate shareholder return. Core R&D expenditure represents c. 20% of product sales, a ratio which management deems appropriate going forward

Partnerships and collaborations

- Consistent with Actelion's second strategic principle "Maximize the value of innovation", the company considers sophisticated partnerships to strategically access technologies or products, and to maximize the value of its discovery engine and late-stage pipeline
- In general, the purposes of Actelion's partnerships are to:
  - Expand the range of Actelion's marketed products, i.e. create a franchise
  - Continue to leverage existing infrastructure and know-how
  - Complement internal innovation with external projects
  - Find suitable partners for maximizing the value of internal projects
- As of today, Actelion has entered into in-licensing collaborations with ReveraGen BioPharma, Nippon Shinyaku, Bayer Schering Pharma and Oxford GlycoScience in order to benefit from innovation complementing its business approach

Four principles of Actelion's strategy

1	**Drive innovation forward**	▪ Pursue top quality science, internally and externally, balanced with medical need and commercial potential
2	**Maximize the value of innovation**	▪ Develop projects ourselves and seek partners or out-license, when necessary, to maximize value
3	**Leverage our global presence**	▪ Expand innovative commercial capabilities to new customers and regions. Manage alliances, putting the product first
4	**Insist on the highest quality in all we do**	▪ Quality is crucial and needs to be ingrained across all functions

Driving growth

Source: Actelion webpage

Source: Actelion company profile, Actelion webpage

Company
Overview on the Proposed Reorganization

Demerger Transactions

- Under the proposed reorganization, Actelion's current business will be separated into two parts
- The business and operations of Actelion relating to its marketed products, as well as two-late pipeline product candidates (ponesimod, cadazolid) and an additional compound (ACT-333679), will remain with Actelion New
- Actelion New will also retain the rights to any products that are developed as line extensions to currently marketed products
- The remainder of Actelion's drug discovery and development business and operations, including all of its other pipeline product candidates, will be transferred to two subsidiaries to be held by R&D NewCo

Revenue sharing in respect of ponesimod and cadazolid

- On the pre-announcement date, Johnson & Johnson and Actelion Pharmaceuticals Ltd, a subsidiary of Actelion, entered into a royalty rights agreement, as subsequently amended and restated into a revenue sharing agreement with respect to ponesimod and cadazolid, two late-stage pipeline products which will remain with Actelion New following the Demerger Transactions
- Under the terms of the revenue sharing agreement, a subsidiary of R&D NewCo is entitled to receive royalty payments of 8% of the aggregate net sales of ponesimod and cadazolid products
- For each of ponesimod and cadazolid, payments will be made under the revenue sharing agreement for 15 years from the latest launch of a product containing ponesimod or cadazolid in the (i) United States, (ii) Canada, or (iii) any one of the United Kingdom, France, Germany, Italy and Spain

IP cross-license

- On the date of the pre-announcement, Actelion entered into an IP cross-license agreement and agreed to procure that, upon incorporation, R&D NewCo will enter into the agreement to provide access to shared IP

IP cross-license (cont'd)

- Under the IP cross-license agreement, Actelion New and R&D NewCo agree to give each other a license to the IP owned or licensed by it to the other party at the date of the reorganization
- The license from R&D NewCo to Actelion New is exclusive for the business of Actelion and the field of pulmonary hypertension
- R&D NewCo will for the next ten years assign or exclusively license to Actelion New any new IP relating to pulmonary hypertension, while rights outside pulmonary hypertension remain with R&D NewCo

Collaboration between J&J and R&D NewCo in respect of ACT 132577

- Johnson & Johnson and Actelion have entered into a collaboration agreement in respect of the development and commercialization of ACT 132577 and any of its derivative compounds or products. ACT 132577 is a metabolite of macitentan which is being investigated for use in resistant hypertension
- Following completion of the ongoing phase II study, Johnson & Johnson may opt-in to the collaboration by paying R&D NewCo a milestone payment of USD 230m
- If Johnson & Johnson opts in, the parties will have joint development rights over ACT 132577, while Johnson & Johnson will have the sole manufacturing and commercialization rights
- Under the terms of the agreement, Johnson & Johnson will pay R&D NewCo royalties on products containing ACT 132577. Royalty payments will amount to 20% of annual net sales up to USD 500m, 30% of annual net sales between USD 500m and USD 2bn, and 35% of annual net sales over USD 2bn

Provision of services

- Actelion and R&D NewCo will enter into a services agreement under which both parties will agree to provide services to one another

Source: Actelion management information

Company
The Global PAH Market

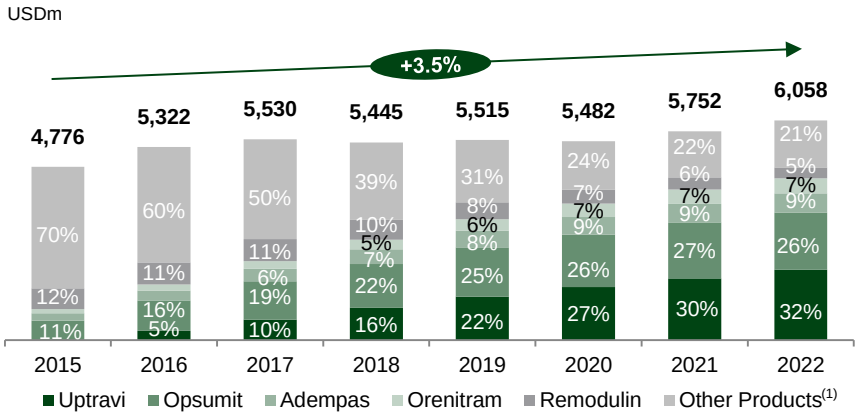
General market overview and outlook

- Evaluate Pharma, a market research provider, values the global PAH market size at USD 4.8bn in 2015 growing to USD 6.1bn by 2022, corresponding to a CAGR of 3.5%
- The global prevalence of PAH is around 15 to 50 cases per million, hence, it is classified as a rare disorder. Cumulatively, the cases of PAH are in the range of 100,000 to 200,000 per year
- However, in the past few years, the prevalence of this disorder is rising due to risk factors like sedentary lifestyle, HIV, smoking, alcohol consumption, and other idiopathic conditions
- The presence of a large population over 60 years, which has lower immunity levels and is prone to PAH and associated diseases, is another growth driver

Market share and positioning

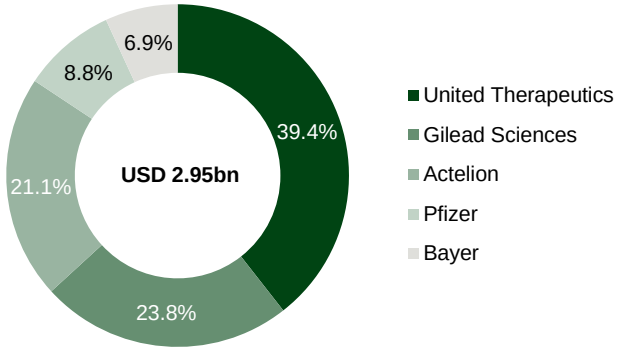
- The global PAH market is highly consolidated with the main players including Actelion, Gilead Sciences, United Therapeutics, GlaxoSmithKline, Pfizer and Bayer representing more than 90% of the total market
- While the well-established players are engaging in the development of new branded drugs, new companies are trying to enter the market with the generic versions of existing drugs. However, the massive capital requirements and stringent government regulations are alleviating the threat of new entrants considerably
- By 2015, Actelion had a market share of c. 21%(2) which is expected to increase to c. 65%(2) by 2022 due to the successful launch of Uptravi and the increasing market share of other products, such as Opsumit and Veletri

Expected development of global PAH market (2015 – 2022)



Source: Evaluate Pharma (meta-analysis based on analyst estimates)

Market shares based on selected products (2015)(2)



Source: Evaluate Pharma

Source: Evaluate Pharma, Grand View Research, Transparency Market Research
(1) Other products inter alia include Tyvaso, Revatio, Letairis, IK-7001 and Veletri
(2) Based on selected products including Opsumit, Adempas, Orenitram, Remodulin, Tyvaso, Revatio, Letairis and Veletri

Valuation Considerations

- Methodology
- DCF Analysis
- Share Price Analysis and Equity Research Analysts' Target Prices
- Analysis of Comparable Companies
- Analysis of Precedent Transactions
- Analysis of Takeover Premia

Valuation Considerations
Methodology (1/4)

General remarks

- The primary valuation method used in establishing a fair equity value for Actelion New was the discounted cashflow (DCF) analysis. The DCF analysis belongs to those valuation methods based on capitalized earnings value which enable a wide range of company-specific factors to be considered
- Actelion New's main products were considered separate from each other and were valued individually based on dedicated DCF analyses (sum-of-the-parts methodology). Details with regards to this approach can be found on the following pages
- The key assumptions of the underlying business plan provided by Actelion's management were checked for plausibility in specific discussions with the management team and by setting them against the historical performance of Actelion, historical and expected market development, expectations of equity research analysts as well as industry benchmarks
- In order to further check the plausibility of the results of the DCF analysis, several market-value-based valuation methods were deployed
- The valuation date is 3 February 2017[(1)]

Calculation of equity value per Actelion share

- The above mentioned valuation methods were used to determine Actelion New's enterprise value. The equity value was then calculated by deducting the enterprise value adjustments from the enterprise value
- The equity value per Actelion share was obtained by dividing the equity value by the number of Actelion shares outstanding, excluding treasury shares and factoring in dilution by restricted stock units, performance stock units and employee share option plans (diluted shares outstanding), based on information provided by management
- The table on the right shows the calculation of the number of diluted shares outstanding as at 25 January 2016

Calculation of equity value per Actelion share (cont'd)

- The enterprise value adjustments per 31 December 2016 of CHF (169m) ("Enterprise Value Adjustments") comprise:

  (i) net cash of CHF 593m, including cash and cash equivalents and cash received from the exercise of stock options

  (ii) other cash-like and debt-like items of CHF (763m), including unfunded pension liabilities, deferred income tax assets and liabilities, cash required to fund R&D NewCo as well as minimum operating cash requirements of Actelion New

Calculation of relevant shares outstanding

	No. of shares
Registered shares	107,761,427
Treasury shares	4,565,391
Shares outstanding	**103,196,036**
Dilution (RSUs, PSUs and ESOPs)	4,143,606
Diluted shares outstanding	**107,339,642**

Source: Actelion management information

- The precise total number of relevant shares outstanding, as shown in the above table, was used for all further calculations. For simplicity, however, only the rounded figure of 107.3m is mentioned on the following pages

(1) Any deviations from this date (e.g. date of enterprise value adjustments) are explicitly noted

Valuation Considerations
Methodology (2/4)

Valuation method based on capitalized earnings value

Discounted cashflow (DCF) analysis

- The DCF analysis is one of the most widely recognized valuation methods based on capitalized earnings value. The basis of this valuation method is explained in greater detail on the following pages

Market-value-based valuation methods

Analysis of the historical share price development and of equity research analysts' target prices

- Both the current target prices of equity research analysts and the share price development over the last 12 months were analyzed in order to draw conclusions about Actelion's market value prior to the pre-announcement

Analysis of comparable companies

- The current market valuation of comparable listed companies (peers) was analyzed (so-called trading multiples)
- Obtaining a meaningful valuation result from this method depends on ensuring a good level of comparability between Actelion New and its peers. This is ensured in particular if the companies are similar in their business models, size, risk and opportunity profiles, and ultimately in their growth and profitability profiles

Analysis of precedent transactions

- This valuation process entails analyzing precedent M&A transactions in which the target companies are comparable with Actelion New (so-called transaction multiples)
- The prices paid in these transactions (and the implied valuations) are heavily dependent on the specific interests of the parties involved and thus to a certain extent reflect subjective attributions of value. Therefore, a precise analysis of the relevant transaction parameters is essential

Analysis of takeover premia

- This analysis benchmarks the implied takeover premium of the existing offer price to takeover premia of selected precedent public takeovers in Switzerland

Comparison of market-value-based valuation methods to Actelion New

- Please note that all the above market-value-based valuation methods compare either (i) Actelion pre Demerger Transactions (historical share price development, equity analysts' target prices, takeover premia) or (ii) Actelion New to integrated companies (analysis of comparable companies, analysis of precedent transactions)
- R&D NewCo will be capitalized with CHF 1bn after the Demerger Transactions. Hence, we assume a value for R&D NewCo > 0. Therefore, comparing (i) Actelion pre Demerger Transactions to the Johnson & Johnson Offer for historical share price development, equity analysts' target prices and takeover premia, or (ii) only Actelion New for the analysis of comparable companies and precedent transactions, is considered conservative

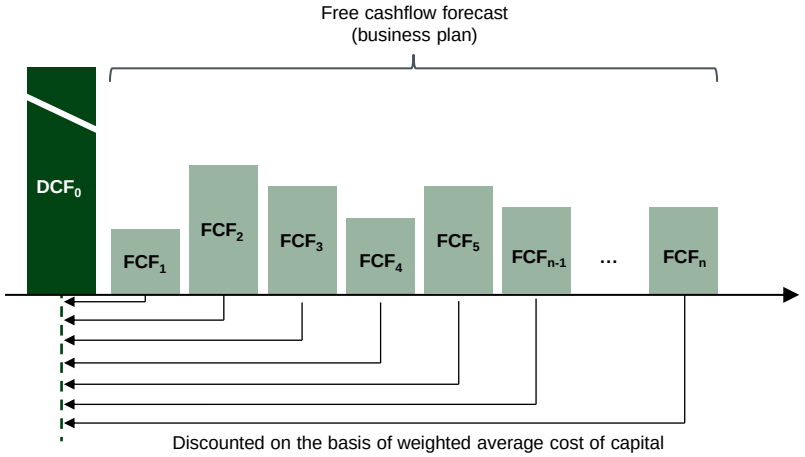
Valuation Considerations

Methodology (3/4)

DCF analysis: theoretical foundations

- The DCF analysis is based on free cashflows achievable in the future before financing activities. The analysis considers cashflows which are available to the providers of both debt and equity capital. These cashflows are discounted as per valuation date using the weighted average cost of capital (WACC) to reflect the present value and the inherent entrepreneurial risk of Actelion New
- The free cashflows have been established based on the business plan drawn up by Actelion's management . The free cashflows are calculated as the sum of product-specific risk-adjusted profit contributions. The probability-weighted profit contributions are consolidated at the enterprise level and decreased by the group's headquarter and other unallocated costs. By considering the forecasted investments and changes in net working capital, the risk-adjusted free cash flow is derived
- The table at the bottom of the page to the right shows the general approach to calculating annual free cashflow on the basis of core operating income
- For the purpose of the DCF analysis, the business plan FY 2017 to 2036 for Actelion New was used. Given the long planning horizon of the business plan, the run off of Actelion New's existing product portfolio and no extension beyond FY 2036, no assumptions about the sustained cash flow after the business plan period have been made. Therefore, no residual value has been calculated
- This means that the enterprise value of Actelion New is made up entirely of the present value of free cashflows during the projection period (FY 2017 to 2036) in line with market practice
- The WACC reflects the return expectations of providers of debt and equity capital. The cost of equity capital is derived in accordance with the capital asset pricing model (CAPM). The assumptions used to calculate Actelion's WACC are set out on the following pages

Graphic illustration of DCF analysis



Calculation of free cashflow *(general approach)*

Free cashflow:

Core operating income

- Other items
- Depreciation and amortization

= Operating income

− Adjusted taxes on operating income (unlevered)

= Net operating profit after taxes (NOPAT)

\+ Depreciation and amortization

− / + Investment in / divestment of non-current assets

− / + Increase / reduction in net working capital

− / + Increase / reduction in other relevant balance sheet positions

= Free cashflow

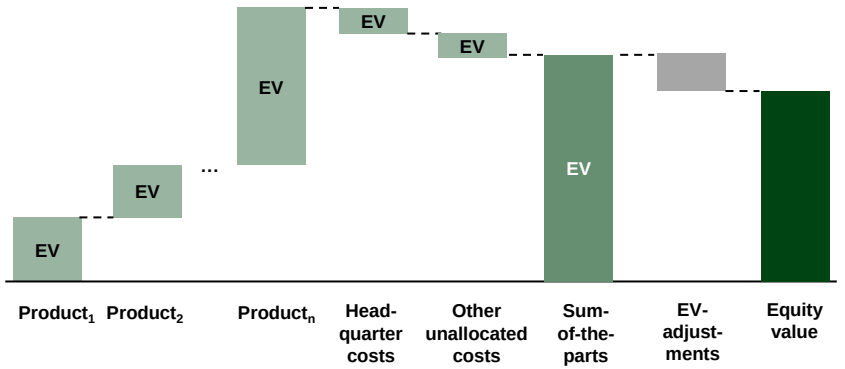
Source: Volkart, Suter & Vettiger (2002), Spremann (2007)

Valuation Considerations
Methodology (4/4)

Sum-of-the-parts methodology

- Actelion New's product portfolio consists of a number of marketed products (most notably Tracleer, Opsumit and Uptravi) as well as a set of late stage pre-approval pipeline product candidates (amongst others ponesimod and ACT-132577)
- The free cashflows of major products take into account their expected product lifecycles
- In order to capture the specific attributes of each of these products, they were valued separately from each other on the basis of their product-specific risk-adjusted profit contributions. The overall risk adjustment to Actelion New's product portfolio thus depends on the weighted probability of success of the individual products
- Actelion New also comprises a corporate center (headquarters) that combines all central management functions, such as corporate human resources, communication, controlling legal, tax and others. These headquarter costs have been considered in a separate DCF analysis
- The DCF methodology described and illustrated on the previous page was applied consistently for all major products as well as for headquarter and other costs that were not allocated to individual products
- The individually derived free cash flows of major marketed products and late-stage pre-approval pipeline product candidates, headquarter and other costs not allocated to individual products were added up to derive the (sum-of-the-parts) enterprise value for Actelion New

Graphic illustration of sum-of-the-parts methodology



Important limitation

- It should be noted, that the interpretation of the values of the contributions of Actelion New's product portfolio is limited to the purpose of this fairness opinion. They reflect the values as part of Actelion New and represent by no means stand-alone values
- Actelion New maintains local subsidiaries, infrastructure as well as central sales and marketing. Such elements would have to be accounted for if the individual products were to be valued on a stand-alone basis

Valuation Considerations

DCF Analysis (1/3)

Derivation of WACC: cost of equity[1]

- **Risk-free rate:** as Actelion generates nearly all of its revenue outside of Switzerland, a revenue-weighted risk-free rate was derived based on current yields of each respective national government's 10-year bond[2]
- **Beta:** unlevered beta was derived on the basis of regression betas for comparable listed companies and adjusted to Actelion's target capital structure (relevered). On the valuation date, an unlevered beta of 1.06 was observed
- **Market risk premium:** a market risk premium of 5.9% was used – this, according to Duff & Phelps, is the difference between the average annual total return on listed large company stocks and the average annual income return on long-term government bonds (period of 1926 to 2014)[3]

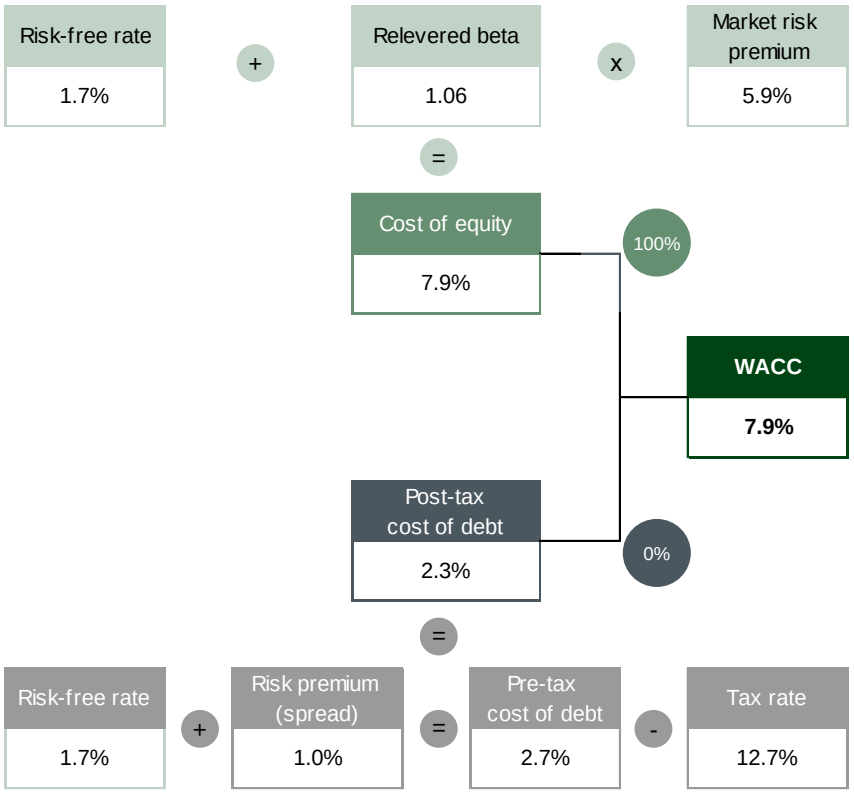
Derivation of WACC: cost of debt[1]

- **Risk-free rate:** see above
- **Risk premium for debt capital (spread):** the spread is defined as the difference between the calculated risk-free rate and the effective financing costs of Actelion according to management information
- **Tax rate:** in order to calculate post-tax cost of debt, a tax rate of 12.7% was used, in line with Actelion's long-term tax rate expectations

Derivation of WACC: target capital structure[1]

- As per discussions with Actelion's management, the long-term target capital structure will be composed of 100% equity. Therefore, a gearing of 0% (calculated as net financial debt / (net financial debt + equity)) was assumed which is also common for the industry

Weighted average cost of capital (WACC)[1]



Source: Bloomberg, Factset, Actelion management information, Duff & Phelps
(1) Further details on the WACC can be found in Appendix 1
(2) Based on top 10 countries contributing approx. 90% to revenue
(3) Excluding period of 1942 to 1951 due to World War II interest rate bias

Valuation Considerations

DCF Analysis (2/3)

Business plan assumptions

Business plan

- The valuation is generally based on the business plan drawn up by Actelion's management which covers the financial years 2017 to 2036 for Actelion New. The underlying planning assumptions were checked for plausibility in specific discussions with the management team and by setting them against historical pro forma performance of Actelion, historical and expected market development, expectations of equity research analysts as well as industry benchmarks
- This resulted in the following business plan assumptions:

Revenue (FY 2017 to 2036)

- The compound annual growth rate (CAGR) to peak revenue in FY 2026 amounts to 13.9%, the average revenue growth rate amounts to (6.3)% over the full business plan period. This is primarily caused by the decline in revenue after FY 2026 as no assumptions have been made about new products outside the current market portfolio and the late-stage development pipeline
- Key drivers for the positive development from FY 2017 to 2026 are (i) the growth in Opsumit and Uptravi sales overcompensating the phase-out of Tracleer sales due to increased competition by generics as well as (ii) late stage pre-approval pipeline product candidates (e.g. ponesimod and ACT-132577) coming to market in later years of the business plan period
- The FY 2026 revenue peak is followed by steadily declining revenue until FY 2036 across the overall product portfolio due to (i) expiry of IP protection and (ii) subsequent potential market entry of competing products / generics

Core operating income (FY 2017 to 2036)

- The average core operating income margin amounts to 65.3% over the planning period increasing from 54.5% in FY 2017 to 70.9% in FY 2026. The 2016 pro forma core operating margin was 53.0%
- The margin expansion until FY 2026 is primarily attributable to operating leverage based on assumed overall volume growth in conjunction with (i) savings in the costs of central functions that are forecasted to decrease in absolute and relative terms as percentage of revenue. This effect more than offsets (ii) higher sales and marketing costs and (iii) a slight increase in cost of sales and royalty costs, both of which increase in absolute terms, albeit underproportionate to the development of revenue
- After the revenue peak in FY 2026, overall cost positions above core operating income decrease slightly underproportionate to the decline in revenue given the run off of the product portfolio leading to an average core operating income margin of 65.9% from FY 2027 to 2036

Tax rate (FY 2017 to 2036)

- According to the business plan, the average tax rate is forecasted to be 12.7% over the entire planning period. This is in line with historical core effective tax rates

Capital expenditure, depreciation and amortization (FY 2016 to 2036)

- Over the planning period, capital expenditure (capex) are planned at an average of 0.6% of revenue. Depreciation and amortization (D&A) over the planning period are planned at an average of 121.0% of capex

Net working capital (FY 2017 to 2036)

- Net working capital developments are based on Actelion management information of the expected impact of the carve-out of R&D NewCo on working capital levels for the business plan period. The average level of net working capital is planned at 10.5% of revenue

Source: Actelion business plan, Actelion annual reports 2015 and 2016, Actelion management information

Valuation Considerations

DCF Analysis (3/3)

Valuation parameters at a glance

- Valuation date: 3 February 2017
- USD/CHF exchange rate per valuation date: 0.9930
- Enterprise value adjustments: CHF (169m)
- WACC: 7.4% - 8.4%
- Diluted shares outstanding: 107.3m
- Revenue growth to peak (FY 2017 to 2026): 13.9% (CAGR)
- Revenue growth (FY 2017 to 2036): (6.3)% (CAGR)
- Avg. core operating income margin (FY 2017 to 2036): 65.3%
- Avg. tax rate (FY 2017 to 2036): 12.7%
- Avg. capex (FY 2017 to 2036): 0.6% of revenue
- Avg. D&A (FY 2017 to 2036): 121.0% of capex
- Avg. net working capital (FY 2017 to 2036): 10.5% of revenue

Valuation of Actelion New

- The DCF analysis results in an enterprise value of CHF 23,525m per valuation date
- To derive Actelion New's equity value, enterprise value adjustments of CHF 169m were deducted from the enterprise value. This results in an equity value of CHF 23,356m per valuation date
- Based on 107.3m diluted shares outstanding, the value per Actelion share amounts to CHF 217.59 (mid-point). Applying a USD/CHF exchange rate of 0.9930 results in USD 219.13 per Actelion share. The table on the right illustrates this calculation
- The DCF analysis was sensitized using an adjustment to management's view of the weighted probability of success pertaining to pipeline product candidates in Actelion New's product portfolio (see table at the bottom of the page to the right) and the WACC
- The sensitivity analysis, applying a 10 percentage point adjustment to the weighted probability of success of the pre-market stage products and a WACC between 7.62% and 8.12%, results in a value per Actelion share of CHF 206.05 (lower end) to CHF 229.65 (upper end) per valuation date

Calculation of value per Actelion share

CHFm (unless otherwise stated)	
Present value of free cashflows	23,525
Enterprise value	**23,525**
Enterprise value adjustments	(169)
Equity value	**23,356**
Diluted shares outstanding (m)	107.3
Value per share (CHF)	**217.59**
USD/CHF exchange rate	0.9930
Value per share (USD)	**219.13**

Sensitivity analysis: value per share (CHF)

		Adjustment to weighted probability of success[1]				
		(20) pp[2]	(10) pp	-	10 pp	20 pp
WACC	8.37%	195.02	202.18	209.35	216.52	223.68
	8.12%	198.69	206.05	213.41	220.78	228.14
	7.87%	202.46	210.02	217.59	225.15	232.72
	7.62%	206.32	214.10	221.87	229.65	237.42
	7.37%	210.29	218.28	226.28	234.27	242.26

Source: Actelion business plan, Actelion annual report 2016, Actelion management information, Bloomberg
(1) The marketed products are not sensitized. The business plan for pre-market stage products assumes a probability of success between 70-90%
(2) The adjustment to the weighted probability of success in percentage points

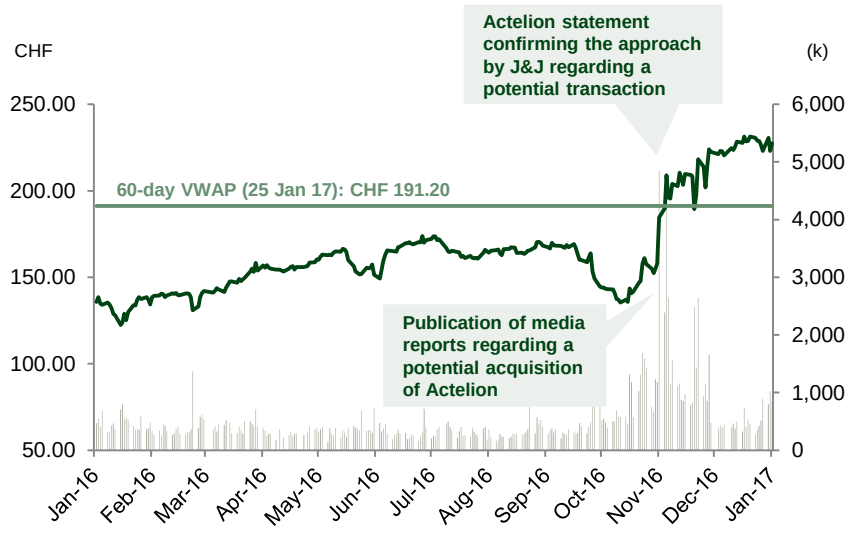
Valuation Considerations

Share Price Analysis and Equity Research Analysts' Target Prices (1/2)

Development of Actelion share price and trading volumes

- The chart on the right shows the historical development of Actelion's share price and trading volume over the last 12 months(1)
  - The Actelion share has gained 67.5% over the last 12 months
  - The share price ranged from CHF 122.50 to 231.40, with the average share price being CHF 164.55 over this period. As shown in the chart on the right, the Actelion share price experienced a significant increase following the publication of media reports regarding a potential acquisition of Actelion
  - The closing price on 15 November 2016, the day prior to media reports regarding a potential acquisition of Actelion, was CHF 147.80, reflecting an "unaffected" Actelion share price
  - On 25 November 2016, Actelion issued a statement confirming that it had been approached by Johnson & Johnson with regards to a potential transaction
  - The closing price on 25 January 2017, the day prior to the publication of the pre-announcement by Johnson & Johnson, was CHF 227.40
  - The 60-day VWAP was CHF 191.20 as at 25 January 2017, the day prior to the publication of the pre-announcement by Johnson & Johnson. The 60-day VWAP is the volume-weighted average price of all stock market transactions executed during the last 60 trading days and serves as minimum price as defined by Swiss takeover law
  - The 60-day VWAP as at 15 November 2016, unaffected by media reports' speculation regarding a potential acquisition of Actelion, was CHF 154.48
- Actelion is part of the SLI Swiss Leader Index of the SIX Swiss Exchange. Hence, the share is automatically considered liquid on the basis of Swiss takeover law(2)

Share price and trading volumes (last 12 months)



Source: Bloomberg, SIX Swiss Exchange

Source: Bloomberg, SIX Swiss Exchange
(1) Until and including 25 January 2017
(2) Art. 40 para. 4 Stock Exchange Ordinance-FINMA

Valuation Considerations

Share Price Analysis and Equity Research Analysts' Target Prices (2/2)

Equity research analysts' target prices

- This analysis is based on a review of target prices published by equity research analysts covering Actelion
- A target price can generally be taken as the value an equity research analyst expects a company's share price to reach within a 12-month timeframe on a theoretical basis, and is approximately equivalent to a per-share valuation of the company
- The median target price across all analysts is CHF 175.00 per Actelion share, with the target prices ranging from CHF 140.00 to 210.00
- The table on the right summarizes the target prices of the equity research analysts covering Actelion prior to the pre-announcement(2)

Target prices of equity research analysts (CHF)(1)

Date	Analyst	Recommendation	Target price
23-Jan-17	Bryan Garnier	Buy	196.00
23-Jan-17	AlphaValue	Sell	191.00
23-Jan-17	Morgan Stanley	Hold	176.00
23-Jan-17	Oddo	Hold	165.00
23-Jan-17	Bank am Bellevue	Buy	192.00
12-Jan-17	Exane BNP Paribas	Buy	180.00
04-Jan-17	RX Securities	Hold	160.00
03-Jan-17	J.P. Morgan	Hold	160.00
16-Dec-16	Barclays	Sell	145.00
14-Dec-16	Kepler Cheuvreux	Buy	160.00(3)
07-Dec-16	UBS	Hold	200.00
03-Dec-16	Mirabaud Securities	Buy	176.00
28-Nov-16	Jefferies	Hold	190.00(3)
28-Nov-16	HSBC	Hold	174.00
17-Nov-16	Day by Day	Buy	179.00(3)
27-Oct-16	Berenberg	Hold	155.00
24-Oct-16	Bank Vontobel	Hold	163.00
18-Oct-16	Goldman Sachs	Hold	172.00
03-Aug-16	MainFirst Bank	Buy	210.00
07-Jul-16	Baader-Helvea	Hold	140.00
Average			**174.20**
Median			**175.00**

Source: Bloomberg, equity research reports

Source: Bloomberg, equity research reports

(1) Overview of target prices published by equity research analysts before 26 January 2017; excluding equity research analysts who have not expressed an explicit target price for Actelion

(2) Please note that equity research analysts' target prices compare to Actelion pre Demerger Transactions. R&D NewCo will be capitalized with CHF 1bn after the Demerger Transactions. Hence, assuming a value > 0 for R&D NewCo, the comparison of Actelion New with equity research analysts' target prices is conservative (3) Reflects most recent stand-alone target price

Valuation Considerations

Analysis of Comparable Companies

Selection of comparable companies[(1),(2)]

- The universe of pure-play comparable listed companies is generally very limited. Hence, the comparable companies identified include biopharmaceutical companies which operate in similar fields as Actelion, having a particular focus on the discovery, development and commercialization of drugs for unmet or rare medical diseases
- Diversified life sciences groups such as GlaxoSmithKline, Pfizer or Bayer were not considered as peers, as their market valuations are largely impacted by other "non-biotech" businesses
- In order to ensure that the right companies for comparison were selected from as broad a universe as possible, the selection of comparable companies was matched against current assessments from equity research analysts and market studies

Valuation methodology

- For the group of comparable companies selected, the equity value was calculated based on their current market capitalization (per valuation date)
- This value was set against the consensus net income estimate for the financial year 2017 for each comparable company (IBES consensus). It has to be noted that in biotech transactions, the P/E multiple is typically used as reference point. In addition, a calendar adjustment was made for those companies with different financial years (Actelion reports per 31 December)
- The median from the resulting P/E trading multiples (15.6x) was applied to the Actelion New 2017 net income estimate (based on the 2017 budget), producing an equity value for Actelion New. Based on 107.3m diluted shares outstanding, an Actelion share is valued at CHF 161.79 (mid-point) per valuation date
- For the EBITDA multiple approach, in addition to the equity value, the latest available actual net debt / cash position (including debt-like and cash-like items) was included to arrive at enterprise value. From the enterprise value of Actelion New calculated using the 2017 EBITDA estimate, enterprise value adjustments of CHF 169m were deducted to derive the equity value, resulting in a value per Actelion share of CHF 148.63 (mid-point)
- The median of the trading multiples (15.6x and 12.0x) was increased by 10% (upper end) and reduced by 10% (lower end) to illustrate sensitivities

Calculation of value per Actelion share

CHFm (unless otherwise stated)	Lower end	Mid-point	Upper end
2017 Net income	1,115	1,115	1,115
2017 Trading multiple (x)	14.0x	15.6x	17.1x
Equity value	**15,630**	**17,366**	**19,103**
Diluted shares outstanding (m)	107.3	107.3	107.3
Value per share (CHF)	**145.61**	**161.79**	**177.97**

CHFm (unless otherwise stated)	Lower end	Mid-point	Upper end
2017 EBITDA	1,338	1,338	1,338
2017 Trading multiple (x)	10.8x	12.0x	13.3x
Enterprise value	**14,511**	**16,123**	**17,735**
Enterprise value adjustments	(169)	(169)	(169)
Equity value	**14,341**	**15,953**	**17,566**
Diluted shares outstanding (m)	107.3	107.3	107.3
Value per share (CHF)	**133.61**	**148.63**	**163.65**

Source: Bloomberg IBES consensus, Factset, Actelion business plan, Actelion annual report 2016, equity research reports, market studies

(1) An overview of the comparable companies selected (including trading multiples and financial metrics) can be found in Appendix 2 (2) Please note that the selected comparable companies are integrated companies and hence, compare to Actelion pre Demerger Transactions. R&D NewCo will be capitalized with CHF 1bn after the Demerger Transactions. Hence, assuming a value > 0 for R&D NewCo, the comparison of Actelion New with the selected comparable companies is conservative

Valuation Considerations

Analysis of Precedent Transactions

Selection of precedent transactions[1]

- In order to analyze precedent transactions in which the target companies are comparable with Actelion, relevant M&A transactions in the global biotech as well as in related life sciences markets were selected. A particular focus lies on public takeover transactions in order to reflect the typically higher premiums paid in such type of transactions. The analysis covers the period from 2006 to 2017
- Transactions for which no financial details were published and transactions with an implied deal size of less than CHF 100m were not considered as part of this analysis
- A detailed overview of the selected transactions can be found in Appendix 3

Valuation methodology

- For the selected precedent transactions, the implied equity value and the implied historical P/E multiple (transaction multiple) were calculated. The P/E multiple is typically used as reference point in biotech transactions
- The median of the calculated P/E transaction multiples (24.7x) was applied to the pro forma Actelion New 2016 net income, producing an equity value for Actelion New. In this method, intentional use was made of a historical net income figure (here 2016), since the transaction multiples are also calculated by means of historical values. Based on 107.3m diluted shares outstanding, an Actelion share is valued at CHF 226.25 (mid-point) per valuation date
- In analogy, the implied enterprise value was calculated using the EBITDA multiple approach resulting in the enterprise value. To derive the equity value, enterprise value adjustments of CHF 169m were deducted. This approach resulted in a value per Actelion share of CHF 226.05 (mid-point) per valuation date
- The median of the transaction multiples (24.7x and 20.5x) was increased by 10% (upper end) and reduced by 10% (lower end) to illustrate sensitivities

Calculation of value per Actelion share

CHFm (unless otherwise stated)	Lower end	Mid-point	Upper end
2016 Net income pro forma	985	985	985
Transaction multiple (x)	22.2x	24.7x	27.1x
Equity value	**21,857**	**24,285**	**26,714**
Diluted shares outstanding (m)	107.3	107.3	107.3
Value per share (CHF)	**203.62**	**226.25**	**248.87**

CHFm (unless otherwise stated)	Lower end	Mid-point	Upper end
2016 EBITDA pro forma	1,192	1,192	1,192
Transaction multiple (x)	18.5x	20.5x	22.6x
Enterprise value	**21,990**	**24,434**	**26,877**
Enterprise value adjustments	(169)	(169)	(169)
Equity value	**21,821**	**24,264**	**26,708**
Diluted shares outstanding (m)	107.3	107.3	107.3
Value per share (CHF)	**203.29**	**226.05**	**248.82**

Source: Mergermarket, Bloomberg, equity research reports, Actelion annual report 2016

(1) Please note that the target companies of the selected precedent transactions are integrated companies and hence, compare to Actelion pre Demerger Transactions. R&D NewCo will be capitalized with CHF 1bn after the Demerger Transactions. Hence, assuming a value > 0 for R&D NewCo, the comparison of Actelion New with the selected precedent transactions is conservative

Valuation Considerations

Analysis of Takeover Premia

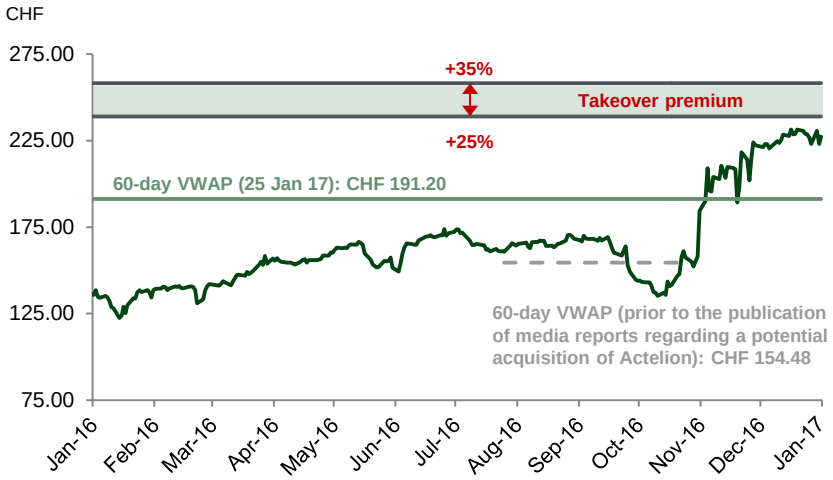
Analysis of premiums paid in public takeover situations in Switzerland

- Subjective interests play a major role in public takeovers. Potential acquirers may in some circumstances be willing to pay significant control premiums
- This is especially true in contested takeover situations, where potential acquirers outbid each other resulting in higher premiums paid
- Another important factor is, whether a bidder has already owned a controlling stake in the target company when the tender offer is announced. In such instances, the willingness to pay an additional control premium on the share price will typically be reduced
- When selecting relevant public takeover transactions for the purpose of this analysis, the following criteria were applied(1),(2):
  - Transactions since 1 January 2006
  - Target company was listed on the SIX Swiss Exchange at the time of the tender offer
  - "Pure" real estate companies were not considered
  - Implied equity value of at least CHF 100m
  - Consideration of voluntary as well as mandatory offers
  - Only cash offers were considered
- Since 2006, average premiums of 29.4% were paid compared to the 60-day VWAP on the day before the announcement of each tender offer
- Applying a premium range of 25% to 35% to Actelion's 60-day VWAP of CHF 191.20 as at 25 January 2017 results in a value range of CHF 239.00 to 258.12 per Actelion share. It has to be noted that the current VWAP is inflated by some element of takeover premium

Analysis of premiums paid in public takeover situations in Switzerland (cont'd)

- For illustrative purposes, the same methodology was applied on the "unaffected" 60-day VWAP, i.e. prior to the release of media reports regarding a potential acquisition of Actelion, of CHF 154.48 as at 15 November 2016). This results in an illustrative value range of CHF 193.10 to 208.55 per Actelion share
  - This tends to reflect a period with no/limited takeover inflation of Actelion's share price

Applying an average takeover premium of 25 to 35%



Source: Bloomberg, SIX Swiss Exchange

Source: Mergermarket, Bloomberg, Swiss Takeover Board, SIX Swiss Exchange

(1) An overview of the selected public takeover transactions can be found in Appendix 4 (2) Please note that prior to 26 January 2017, Actelion was valued pre Demerger Transactions. R&D NewCo will be capitalized with CHF 1bn after the Demerger Transactions. Hence, assuming a value > 0 for R&D NewCo, the takeover premia analysis is conservative

Result of the Fairness Opinion

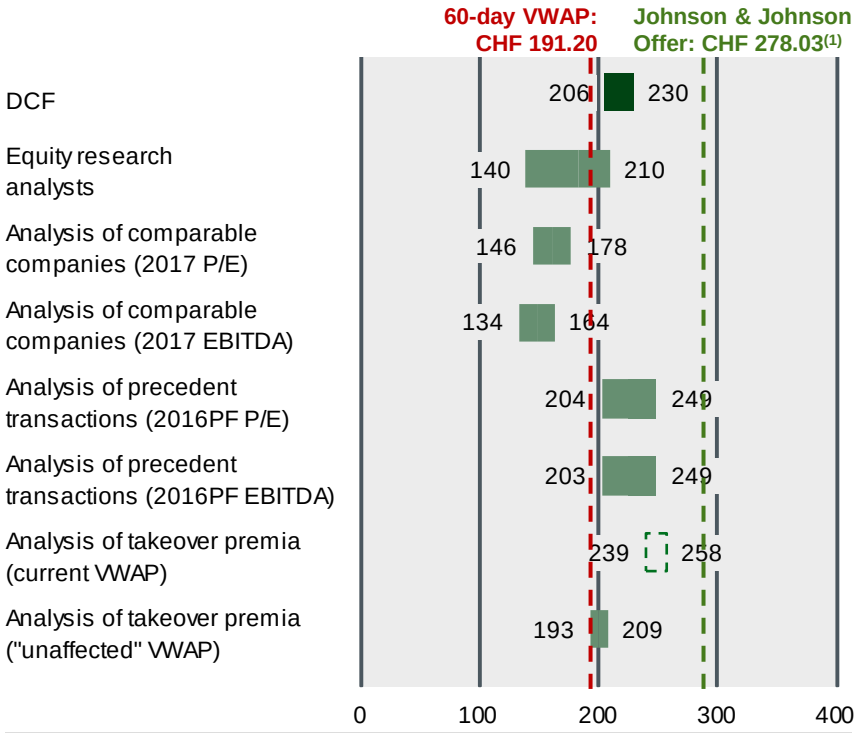
Result of the Fairness Opinion

Valuation Results for Actelion

Valuation assessment

- The illustration on the right summarizes the results of our valuation analysis. The DCF analysis was used as the primary valuation method, while selected market-value-based methods (target prices of equity research analysts, analysis of comparable companies, analysis of precedent transactions, analysis of takeover premia, 60-day VWAP) were used to test the plausibility of the results of the DCF analysis
- The valuation date is 3 February 2017
- The DCF analysis results in a value range of CHF 206 to 230 per Share
- Actelion equity research analysts value the Share at CHF 140 to 210 on a stand-alone basis (excluding a potential takeover premium)
- The analysis of comparable companies based on 2017 P/E trading multiples results in a value range of CHF 146 to 178 per Share, the analysis of 2017 EV/EBITDA trading multiples to CHF 134 to 164 per Share
- The analysis of precedent transactions based on historical P/E transaction multiples results in a value range of CHF 204 to 249 per Share, the analysis of historical EV/EBITDA transaction multiples to CHF 203 to 249 per Share
- The 60-day VWAP as at 25 January 2017 stands at CHF 191. It has to be noted that the current VWAP is inflated by takeover speculation based on the publication of media reports dated 16 November 2016 and Actelion's press statement dated 25 November 2016. Applying a typical takeover premia range of 25% to 35% to the 60-day VWAP results in a value range of CHF 239 to 258 per Share
- The 60-day VWAP as at 15 November 2016, unaffected by media reports' speculation regarding a potential acquisition of Actelion, was CHF 154. Applying a typical takeover premia range of 25% to 35% to the "unaffected" VWAP results in a value range of CHF 193 to 209 per Share

Valuation summary (CHF per Actelion share)



Based on the value range of CHF 206 to 230 per Actelion share resulting from the DCF analysis, the Johnson & Johnson Offer of CHF 278 per Actelion share(1) is considered financially fair and adequate as per valuation date (3 February 2017)

Martin Menzi
Managing Partner

Ralf Herrmann
Partner

(1) Based on an offer price of USD 280.00 per Share (which corresponds to CHF 278.03 per Share based on a USD/CHF exchange rate of 0.993 as at 3 February 2017. Potential future fluctuations of the USD/CHF exchange rate, that might influence the effective offer price and ultimately each shareholder's proceeds in CHF terms, are not taken into account

Appendices

- Cost of Capital
- Trading Multiples of Comparable Companies
- Overview of Precedent Transactions
- Public Takeover Premia Since 1 January 2006
- List of Abbreviations

Appendix 1
Cost of Capital (1/2)

Derivation of WACC

WACC components		Notes	Source
Risk-free rate (r_f)	1.7%	Sales-weighted risk-free rate based on current yields of each respective national government's 10-year bond[(1)]	Bloomberg, company information
Market risk premium (MRP)	5.9%	Difference between the average annual total return on listed large company stocks and the average annual income return on long-term government bonds (period: 1926-2014[(2)])	Duff & Phelps: "2015 Valuation Handbook"
Beta (unlevered)	1.06	Median regression beta of comparable companies (5-year regression against MSCI World Index based on weekly returns)	Factset
Beta (relevered)	1.06	Formula: $ß_L = ß_U \times [1+ ((D / E) \times (1-t))]$	Modigliani & Miller
Cost of equity	**7.9%**	**Formula: $k_e = r_f + ß_L \times MRP$**	
Risk-free rate (r_f)	1.7%	Sales-weighted risk-free rate based on current yields of each respective national government's 10-year bond[(1)]	Bloomberg, company information
Risk premium for debt capital (spread, c_s)	1.0%	Defined as the difference between the calculated risk-free rate and the effective financing costs of Actelion	Company information
Tax rate (t)	12.7%	Long-term tax rate expectations	Company information
Post-tax cost of debt	**2.3%**	**Formula: $k\ (post\text{-}tax)_d = (r_f + c_s) \times (1-t)$**	
Equity ratio (E)	100.0%		Company information
Debt ratio (D)	0.0%		Company information
WACC	**7.9%**		

(1) Based on top 10 countries contributing approx. 90% to revenue
(2) Excluding period of 1942 to 1951 due to World War II interest rate bias

Appendix 1
Cost of Capital (2/2)

Calculation of unlevered beta

Comparable companies	Levered beta[1]	Marginal tax rate	Net debt (LC m)[2]	MCap (LC m)	D / (D + E)	D / E	Unlevered beta[3]
Alexion	1.17	40.00%	1,963	28,434	6.5%	6.9%	1.12
Amgen	1.09	40.00%	(2,657)	124,629	0.0%	0.0%	1.09
Biogen	1.11	40.00%	5,025	57,585	8.0%	8.7%	1.06
Celgene	1.21	40.00%	7,435	89,645	7.7%	8.3%	1.15
Gilead Sciences	0.97	40.00%	14,805	95,305	13.4%	15.5%	0.89
Incyte	1.23	40.00%	(69)	22,670	0.0%	0.0%	1.23
Ipsen	0.65	33.33%	62	6,138	1.0%	1.0%	0.65
Lundbeck	0.18	22.00%	896	59,328	1.5%	1.5%	0.17
Regeneron	1.43	40.00%	(1,026)	37,786	0.0%	0.0%	1.43
Shire	0.97	12.50%	22,997	50,399	31.3%	45.6%	0.69
UCB	0.55	33.99%	2,027	12,521	13.9%	16.2%	0.50
United Therapeutics	1.19	40.00%	(978)	6,943	0.0%	0.0%	1.19
Vertex	0.97	40.00%	(651)	21,512	0.0%	0.0%	0.97
Average	**0.98**	**35.52%**			**6.4%**	**8.0%**	**0.93**
Median	**1.09**	**40.00%**			**1.5%**	**1.5%**	**1.06**

Sensitivity analysis: WACC

		Unlevered beta				
		0.91	**0.98**	**1.06**	**1.13**	**1.21**
D / (D + E)	**30.0%**	6.99%	7.41%	7.83%	8.26%	8.68%
	22.5%	6.99%	7.42%	7.84%	8.27%	8.70%
	15.0%	6.99%	7.42%	7.85%	8.29%	8.72%
	7.5%	6.99%	7.43%	7.86%	8.30%	8.74%
	0.0%	6.99%	7.43%	**7.87%**	8.31%	8.76%

Source: Factset, KPMG, company information

(1) Five-year regression against MSCI World Index based on weekly returns

(2) Net financial debt including pensions

(3) Unlevered beta = (levered beta / (1 + (1 – tax rate) x D/E)); assumption: beta of D = 0

Appendix 2

Trading Multiples of Comparable Companies (1/2)

Trading multiples[(1),(2)]

Company (country)	MCap (CHFm)	EV (CHFm)	EV/Sales			EV/EBITDA			P/E		
			2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E
Alexion (US)	28,185	30,121	8.60x	7.20x	5.97x	17.3x	13.5x	10.2x	22.7x	17.5x	13.3x
Amgen (US)	123,539	120,905	5.27x	5.23x	5.09x	9.4x	9.2x	9.6x	13.8x	13.5x	12.9x
Biogen (US)	57,082	62,036	5.55x	5.21x	4.87x	9.8x	9.5x	9.1x	12.8x	12.2x	11.5x
Celgene (US)	88,860	96,230	7.30x	6.30x	5.42x	12.7x	10.8x	9.6x	15.6x	13.1x	10.9x
Gilead Sciences (US)	94,471	109,634	3.93x	4.20x	4.25x	6.2x	6.8x	7.0x	7.0x	7.6x	7.6x
Incyte (US)	22,472	22,399	14.69x	13.65x	10.96x	n.m.	n.m.	n.a.	n.m.	n.m.	41.0x
Ipsen (FR)	6,564	6,628	3.48x	3.16x	3.09x	13.1x	11.2x	9.7x	21.8x	18.4x	13.9x
Lundbeck (DK)	8,531	8,660	3.57x	3.31x	3.30x	12.0x	10.0x	9.5x	21.6x	15.6x	13.1x
Regeneron (US)	37,455	36,438	6.43x	5.62x	4.91x	14.6x	12.5x	11.0x	22.6x	17.6x	14.3x
Shire (IE)	49,958	72,754	4.80x	4.47x	4.22x	11.1x	9.9x	9.0x	10.8x	9.4x	8.4x
UCB (BE)	13,391	15,443	3.30x	3.12x	2.89x	12.5x	10.9x	9.4x	18.2x	14.6x	12.7x
United Therapeutics (US)	6,882	5,902	3.56x	4.07x	4.01x	5.7x	7.9x	6.5x	9.3x	10.8x	11.3x
Vertex (US)	21,324	20,679	10.20x	8.22x	6.47x	n.m.	31.4x	18.8x	n.m.	31.6x	18.1x
Average			**6.20x**	**5.67x**	**5.03x**	**11.3x**	**12.0x**	**9.9x**	**16.0x**	**15.2x**	**14.5x**
Median			**5.27x**	**5.21x**	**4.87x**	**12.0x**	**10.4x**	**9.5x**	**15.6x**	**14.1x**	**12.9x**
Actelion (CH)[(3)]	**27,576**	**27,745**	**11.47x**	**10.28x**	**9.29x**	**29.0x**	**24.9x**	**21.6x**	**32.8x**	**28.3x**	**24.0x**

Source: Factset, company information, Actelion annual report 2016, Bloomberg IBES consensus

(1) Enterprise value adjusted for net financial debt or net cash, pensions, non-controlling interest (2) Underlying financials calendarized to Actelion's financial year-end (31-Dec)

(3) Actelion financials based on IBES consensus

Appendix 2

Trading Multiples of Comparable Companies (2/2)

Selected operating metrics[1]

Company (country)	Sales growth			EBITDA margin			Net income margin			Net income growth		
	2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E	2017E	2018E	2019E
Alexion (US)	14.4%	19.4%	20.6%	49.8%	53.3%	58.5%	35.4%	38.5%	42.1%	22.6%	29.8%	32.0%
Amgen (US)	0.7%	0.8%	2.7%	56.3%	57.0%	53.1%	39.0%	39.6%	40.3%	30.1%	2.4%	4.4%
Biogen (US)	(1.4)%	6.5%	7.0%	56.6%	55.0%	53.4%	39.7%	39.3%	38.8%	21.0%	5.4%	5.6%
Celgene (US)	18.5%	15.8%	16.3%	57.5%	58.5%	56.3%	43.3%	44.5%	46.1%	259.4%	19.0%	20.5%
Gilead Sciences (US)	(6.7)%	(6.5)%	(1.2)%	63.6%	61.5%	60.8%	48.4%	47.9%	48.0%	(12.7)%	(7.6)%	(0.9)%
Incyte (US)	39.2%	7.7%	24.5%	27.0%	21.4%	n.a.	21.5%	23.0%	26.8%	97.1%	15.4%	45.1%
Ipsen (FR)	10.0%	9.9%	2.2%	26.6%	28.2%	31.9%	15.8%	17.0%	22.0%	10.1%	18.6%	32.0%
Lundbeck (DK)	8.6%	7.8%	0.2%	29.6%	33.3%	34.8%	16.3%	20.8%	24.9%	43.5%	38.1%	19.9%
Regeneron (US)	15.8%	14.4%	14.5%	44.0%	44.9%	44.6%	29.3%	32.8%	35.3%	24.9%	28.0%	23.5%
Shire (JE)	35.1%	7.6%	5.9%	43.1%	45.1%	47.1%	30.6%	32.8%	34.4%	39.7%	15.2%	11.2%
UCB (BE)	6.4%	5.5%	8.2%	26.4%	28.6%	30.7%	15.7%	18.5%	19.7%	17.7%	24.5%	15.3%
United Therapeutics (US)	3.9%	(12.4)%	1.3%	62.3%	51.2%	62.1%	44.7%	44.0%	41.6%	3.0%	(13.7)%	(4.4)%
Vertex (US)	3.3%	24.1%	27.1%	19.3%	26.2%	34.4%	18.8%	26.8%	36.9%	2.0%	76.7%	74.6%
Average	**11.4%**	**7.7%**	**10.0%**	**43.2%**	**43.4%**	**47.3%**	**30.7%**	**32.7%**	**35.2%**	**43.0%**	**19.4%**	**21.4%**
Median	**8.6%**	**7.7%**	**7.0%**	**44.0%**	**45.1%**	**50.1%**	**30.6%**	**32.8%**	**36.9%**	**22.6%**	**18.6%**	**19.9%**
Actelion (CH)[2]	**0.6%**	**11.6%**	**10.7%**	**39.6%**	**41.3%**	**43.0%**	**34.7%**	**36.2%**	**38.4%**	**(2.4)%**	**16.2%**	**17.5%**

Source: Factset, company information, Actelion annual report 2016, Bloomberg IBES consensus
(1) Underlying financials calendarized to Actelion's financial year-end (31-Dec)
(2) Actelion financials based on IBES consensus

Appendix 3
Overview of Precedent Transactions

Date	Acquiror	Target	Country	Business description	Enterprise value (CHFm)	Hist. EV / EBITDA	Hist. P / E
09-Jan-17	Takeda	Ariad	US	Discoverer and developer of drugs to treat rare cancer	4,978	n.a.	n.m.
22-Aug-16	Pfizer	Medivation	US	Developer of drugs to treat rare genetic diseases	12,706	30.3x	n.m.
11-Jan-16	Shire	Baxalta	US	Manufacturer of drugs for orphan diseases	35,061	23.5x	28.1x
06-May-15	Alexion	Synageva	US	Developer of medicines for rare diseases and unmet medical needs	7,735	n.m.	n.m.
04-Mar-15	AbbVie	Pharmacyclics	US	Developer of new products to treat rare cancer such as MCL	18,435	n.m.	n.m.
08-Dec-14	Merck	Cubist	US	Researcher and developer of pharmaceutical products for rare diseases	7,770	n.m.	n.m.
24-Aug-14	Roche	InterMune	US	Developer of innovative therapies for rare disorders	7,323	n.m.	n.m.
25-Aug-13	Amgen	Onyx	US	Developer of pharmaceuticals products for the treatment of rare cancer	8,325	n.m.	n.m.
29-Jun-12	BMS	Amylin	US	Discoverer of innovative medicines for rare forms of lipodystrophy	6,023	n.m.	n.m.
09-May-12	GSK	Human Genome	US	Discoverer and developer of drugs for patients with unmet medical needs	2,721	n.m.	n.m.
25-Apr-12	Allergan	Actavis	IE	Developer and manufacturer of generic, brand and biosimilar products	5,288	13.9x	43.6x
21-Nov-11	Gilead	Pharmasset	US	Discoverer and developer of drugs to treat viral infections	9,500	n.m.	n.m.
02-May-11	Teva	Cephalon	US	Discoverer and developer of products to treat rare conditions	5,342	6.2x	12.4x
05-Apr-11	Merck	Inspire	US	Developer of products for rare diseases	346	n.m.	n.m.
04-Oct-10	Sanofi	Genzyme	US	Developer of products for rare inherited and cardiovascular diseases	18,893	33.1x	n.m.
05-Nov-09	Sobi	Swedish Orphan Int'l	SE	Developer of orphan drugs for treatment of rare disorders	506	17.5x	24.7x
06-Oct-08	Eli Lilly	ImClone	US	Developer of novel therapeutic products in the field of oncology	6,609	n.a.	n.m.
10-Apr-08	Takeda	Millennium	US	Discoverer and developer of medicines for rare cancer	7,712	n.m.	n.m.
23-Apr-07	AstraZeneca	MedImmune	US	Researcher and explorer of medical products for rare diseases	16,281	n.m.	n.m.
21-Sep-06	Merck	Serono	CH	Manufacturer of pharmaceutical products for rare disorders	15,802	n.m.	19.3x

Average	20.7x	25.6x
Median	20.5x	24.7x

Source: Mergermarket

Appendix 4

Public Takeover Premia Since 1 January 2006(1)

Date	Acquiror	Target	Consideration	Implied equity value (CHFm)	Premium (based on VWAP)(2)
19-Sep-16	Sempione Retail	Charles Vögele	Cash	56	0.0%
11-Apr-16	HNA Group	gategroup	Cash	1,420	37.8%
03-Feb-16	ChemChina	Syngenta	Cash	44,151	30.7%
02-Feb-16	EQT	Kuoni	Cash	1,388	33.6%
17-Dec-15	TDK	Micronas	Cash	223	69.7%
25-Sep-14	KUKA	Swisslog	Cash	339	14.4%
15-Sep-14	Danaher	Nobel Biocare	Cash	2,117	6.7%
16-May-14	Swisscom	PubliGroupe	Cash	501	73.4%
09-Oct-13	Alpine Select	Absolute Invest	Cash	156	3.3%
02-Oct-13	Avista Capital & Nordic Capital	Acino Holding	Cash	399	52.8%
05-Aug-13	SES	Società Elettrica Sopracenerina	Cash	164	2.2%
28-Jun-13	Venetos	Schmolz + Bickenbach	Cash	337	0.0%
10-Apr-13	Forty Plus / Fortimo Group	Fortimo Group	Cash	200	19.0%
31-Jul-12	Grupo Safra	Bank Sarasin	Cash	1,800	2.6%
12-Dec-11	ABB	New ave Energy	Cash	175	36.0%
08-Nov-11	Toyota Industries	Uster Technologies	Cash	393	47.6%(3)
20-Jun-11	Axpo	EGL	Cash	2,244	20.8%
26-Apr-11	HarbourVest	Absolute Private Equity	Cash	732	6.2%
17-Jan-11	Artemis	Feintool	Cash	267	7.1%
06-Dec-10	3M (Schw eiz)	Winterthur Technologie	Cash	364	23.0%
22-Sep-10	Credit Suisse	Neue Aargauer Bank	Cash	2,681	24.2%
28-Jul-10	Adobe Systems	Day Softw are	Cash	219	59.2%
02-Nov-09	BURU	Cham Paper Group	Cash	129	0.0%
04-May-09	Aquamit	Quadrant	Cash	237	57.8%
15-Sep-08	BASF	Ciba	Cash	3,410	64.3%
26-Aug-08	Robert Bosch	sia Abrasives	Cash	316	16.9%
10-Jul-08	Novartis	Speedel	Cash	920	80.1%
12-Dec-07	Von Finck family	Von Roll	Cash	1,558	0.0%
11-Dec-07	Lam Research	SEZ	Cash	641	53.8%
07-Aug-07	Capio	Unilabs	Cash	741	30.3%
05-Mar-07	CRH	Getaz Romang	Cash	537	24.7%
25-Sep-06	Rank Group	SIG	Cash	2,739	51.6%
07-Dec-06	Liechtensteinische Landesbank	Bank Linth	Cash	435	31.0%
21-Sep-06	Merck	Serono	Cash	16,079	31.4%
06-Sep-06	OC Oerlikon	Saurer	Cash	1,964	35.9%
22-Aug-06	Georg Fischer	Agie Charmilles	Cash	733	13.8%
06-Mar-06	Assicurazioni Generali	Generali (Schw eiz)	Cash	1,089	24.4%
				Average	**29.4%**
				Median	**24.7%**

Source: Swiss Takeover Board, Mergermarket

(1) List consists of selected public takeovers in Switzerland; selection criteria are mentioned in the main part of the document

(2) Based on 60-day VWAP prior to announcement of transaction (3) Including dividend payment

Appendix 5
List of Abbreviations (1/2)

- A actuals
- AG Aktiengesellschaft (public limited company)
- approx. approximately
- ATLN stock ticker of Actelion
- avg. average
- bn billion(s)
- c. circa, approximately
- CAGR compound annual growth rate
- capex capital expenditure
- CAPM capital asset pricing model
- CDAD clostridium difficile-associated diarrhea
- CHF Swiss francs
- D debt
- D&A depreciation and amortization
- DCF discounted cashflow
- EBIT earnings before interest and taxes
- EBITDA earnings before interest, taxes, depreciation and amortization
- E equity
- e.g. exempli gracia, for example
- ESOP employee share option plan
- EU European Union
- EV enterprise value
- FCF free cashflow
- FX foreign exchange
- FY financial year
- G-protein guanine nucleotide-binding protein
- GmbH Gesellschaft mit beschränkter Haftung, limited liability company
- GPCR g-protein coupled receptor
- H1 first half-year
- HIV human immunodeficiency virus
- IA / IB Stages of how far cancer has spread out
- IBES institutional brokers' estimate system
- i.e. id est, that is
- IP intellectual property
- IT information technology
- J&J Johnson & Johnson
- k cost
- LC local currency
- Ltd limited
- LTP long-term plan
- m million(s)
- M&A mergers & acquisitions
- MCap market capitalization
- MRP market risk premium
- MSCI MSCI world index (global equity index)
- n.a. not applicable

Appendix 5
List of Abbreviations (2/2)

n.m.	not meaningful
NOPAT	net operating profit after taxes
PAH	pulmonary arterial hypertension
P/E	price-to-earnings ratio
pp	percentage point
PSU	performance stock unit
Q3	third quarter
R&D	research and development
RSU	restricted stock unit
$S1P_1$	sphingosine-1-phosphate receptor 1
SIX	SIX Swiss Exchange
SLI	Swiss Leader Index
SMI	Swiss Market Index
t	taxe rate
TOB	(Swiss) Takeover Board
US / USA	United States of America
US GAAP	United States Generally Accepted Accounting Principles
USD	US dollar
VWAP	volume-weighted average price
WACC	weighted average cost of capital
WHO	World Health Organization

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