

1. INTRODUCTION

Risk is the possibility of an event occurring that will have a negative impact on the people, assets, environment, reputation, or strategic objectives of the Group, including forgoing potential opportunities. Calculated risk-taking within a pre-established risk appetite endorsed by the Board is an inherent aspect of the activities of Solvay. This risk appetite is translated through a number of Group policies approved by the Comex, and especially through the 25 “red lines” set out in the Solvay Management Book as mandatory rules.

The Group’s systematic risk management is integrated with strategy, business decisions and operations through the Enterprise Risk Management (ERM) approach, facilitated by the Internal Audit and Risk Management (IA/RM) department. This approach ensures that Solvay leaders identify, assess, and manage all potentially significant business risks and opportunities. Risk management is integrated into strategic and operational decision-making; it is seen as an essential management tool and an important aid in making the decisions needed to achieve the Company’s short, medium, and long-term objectives. In a context of global economic and political uncertainty, changing power balances, different growth dynamics, shortening market cycles, raw-material and energy price volatility, and quick technological evolution, Solvay also believes that monitoring and managing risks effectively is key to achieving its sustainability objectives.

The ERM methodology was refined in 2014, and then rolled out across the whole Group in 2015. The revisions introduced improvements that allow a better prioritization of relevant risks and a more focused risk response by individual GBUs and functions, and at Group level.

GBU Risk Coordinators were appointed in 2016, and their role has been clarified. They are part of a network facilitated by IA/RM to share best practices and methodology improvements. Also in 2016, GBUs updated their risk maps to take into account the status of the risk treatment actions launched previously.

The key steps of the ERM process are:

- an initial series of risk management exercises in which each GBU and each function, assisted by the IA/RM team, reviews and updates its own risk matrix, and also defines risk owners responsible for mitigating the most critical risks.
- a second phase in which a risk identification is conducted with the Leadership Council: building on an IA/RM team analysis of individual GBU/function transversal or correlated risks, a list of Group risks is generated and then assessed. This year, the correlation analysis has been extended to ensure a better risk response;
- in a further phase, Group risks (considered as the most critical risks for the Group) are closely reviewed by the Group Risk Committee (composed of the Executive Committee and the general managers of the Industrial, Legal & Compliance, Human Resources, and Sustainable Development functions). For each Group risk, a member of the Comex is appointed to be the risk sponsor and to ensure that the risk is adequately addressed.
- Finally, the Group risks update is presented at an extended Audit Committee session dedicated to this subject, where the Chairman of the Board, the CEO, and other Board members are present. The CEO presents and explains the key changes.

The mitigating actions and their status are monitored and reported by the IA/RM team in a Group risk dashboard. This dashboard is updated, published and formally reviewed by the Group Risk Committee twice during the year. The committee assesses both progress on mitigating actions and new developments in the risk environment. Group risks are also considered annually by the Audit Committee of the Board of Directors.

Internal control is one aspect of risk management. Please refer to section 8 of the Corporate Governance section of this Annual Report for a detailed description of the Solvay Group risk management and internal control system.

Crisis Preparedness, another important aspect of the response to risk, operates a structured network within the Group. Assigned members perform tasks and implement programs to ensure the readiness of their business units and functions. These programs include crisis simulations, media training for potential spokespersons, maintenance of key databases, and analysis of relevant internal and external events. The risks identified through the ERM approach influence the scenarios used in the simulations.

The description of the risks relevant to Solvay and the actions the Group takes to reduce those risks are listed below. The mitigation efforts described do not guarantee that risks will not materialize or impact the Group, but they show how Solvay is proactively managing risk exposures.

2. MAIN RISKS

The Group Risk Committee has assessed the impact and level of control of Group risks and the findings were considered and noted by the extended Audit Committee in December 2016. It uses four main types of impact: economic impact, impact on people, impact on the environment, and impact on reputation.

The level of control of the risks was assessed by considering the following questions:

- Are the mitigating/controlling actions defined?
- Are the actions implemented, fully or partially?
- Is the effectiveness of those actions monitored?

Criticality	Risk	Trend
High	Climate change*	→
	Security	↘
	Transport accidents	→
Moderate to High	Chemical product usage	→
	Ethics and Compliance	→
	Information protection and cyber-risk	↘
Moderate	Industrial safety	→
	Environmental strategy*	N/A

* Emerging risk: newly developing or changing risks that may have on the long-term, a significant impact which will need to be assessed in the future.

Climate change – emerging risk Description

Climate change increases the occurrence of extreme natural events, significantly impacting Solvay's sites and supply chain. These impacts could manifest themselves as one or more of the following consequences:

- Inability to operate plants
- Asset damage
- Difficulty supplying customers
- Disruption in the supply of raw materials, energy or utilities.

Each of these criteria has been rated on a four-level scale.

The criticality is determined by the combination of the risk's two ratings (impact and level of control) at the time of the assessment.

In the chart below, the trend reflects the direction of each risk's criticality, taking into account the implementation of mitigating actions in 2016, as well as external developments. Each key risk is sponsored and monitored by a Comex member.

Prevention and mitigation

This risk has a long-term horizon; nevertheless, Solvay is creating a consistent mitigation plan, the details of which are as follows.

- Build a methodology (type of impacts to be taken into account – major events, permanent changes, environmental, socio-economic impacts – level of impact, location, etc.)
- Consider the following impacts:
 - Greater frequency and higher amplitude of natural events such as floods and storms
 - Regulatory impact (intake water temperature, return water temperature)
 - Sea level rise
 - Drought/Hydric stress => update previous study
- Deploy the methodology onto the Industrial footprint and supply chain flows.

Security

Description

This heading includes intentional attacks on Solvay sites, information and people, with the intent to cause harm, damage or negative consequences.

Prevention and mitigation

- Solvay has a threat-based security risk-based approach to protecting sites, information and people.
- A Group Security Director, appointed in 2016, coordinates all security activities globally in order to ensure efficient mitigation of security risks.
- The Executive Committee has endorsed the creation of two governance bodies:
 - a Security Board, chaired by the CFO and another Comex member
 - a Security Coordination Working Group, chaired by the Group Security Director, with the objective of driving a continuous security threat monitoring program and an optimized security program for the Group
- In response to the heightened terror threat in Europe, immediate measures were taken to increase protection at a number of sites.
- Solvay Business Services (SBS) has launched a number of initiatives to mitigate cyber security risks.
- A travel security program has been approved and implemented to increase protection for business travelers.

Transport accident

Description

The risk of causing injury to neighbors or the public may be a consequence of an accident during transport activities.

Prevention and mitigation

The risk of an accident in connection with hazardous chemicals transportation is reduced by optimizing transport routes, relying on selected and audited hauliers, and calling upon worldwide emergency assistance from the Carechem service in the event of an accident. In addition, every effort is made to minimize the number of transportation activities by operating with integrated production units for hazardous intermediates. Solvay follows the safety recommendations of associations such as Eurochlor and CTEF (*Comité Technique Européen du Fluor*), and programs such as Responsible Care®.

Chemical product usage

Description

- Product-liability risk: Solvay's exposure stems from the possibility of injury to third parties or damage to their property arising from the use of a Solvay product, as well as from the resulting litigation.
- The possible consequences of a faulty product include exposure to liability for injury and damage, and product recalls. Product liability risk is generally higher for products used in healthcare and food & feed applications.
- Solvay is also exposed to adverse outcomes while developing new products and technologies or scaling up a process.

Prevention and mitigation

- Solvay Product Stewardship Management System (PSMS) manages product risks ensuring safety across the full-product life cycles.
- In-house product stewardship experts identify and assess the hazards and risks of Solvay products.
- The Group characterizes and manages risks related to the uses and applications of its products, and – in collaboration with the GBUs – prioritizes mitigation actions relating to potential inappropriate use.
- Stewardship programs give adequate information and technical assistance to customers, ensuring a good understanding of safe use and handling.
- Solvay Safety Data Sheets (SDS) ensure harmonized content by implementing a common worldwide SAP system for the Group. Control by SDS shipping allows confirmation that any product marketed by Solvay is accompanied by a compliant SDS. Solvay monitors the discrepancies registered during checks and manages failures due to shipping.
- The Group also develops and deploys recall procedures as prescribed by the product stewardship programs, a product stewardship management system, and a product safety management process that includes healthcare.
- Solvay takes out insurance to reduce the financial impact of a product liability risk, including for first and third-party product recall.

Ethics and compliance

Description

Risk arises from a potential failure to comply with:

- The Solvay Code of Conduct
- Supporting policies and procedures
- Laws and regulations in the jurisdictions in which Solvay operates.

Examples:

- Failure to implement good governance in a joint venture
- Direct or indirect involvement in human rights violations
- Intentional misstatement of financial reporting, corruption and by-passing of internal controls.

Prevention and mitigation

The Code of Conduct, policies and procedures adopted to enhance good governance apply to all employees wherever they are located. In addition:

- Third parties are expected to act within the framework of the Code of Conduct.
- All critical suppliers must confirm that they adhere to the principles set out in the Solvay Supplier code.
- Majority-owned joint ventures are held to the Solvay Code of Conduct or to a separate code adopted based on similar principles.

Compliance organization:

- This organization operates under the leadership of the Group General Counsel to enhance a Group-wide culture based on ethics and compliance. It also monitors compliance with applicable laws, the Code of Conduct, and supporting policies and procedures.

- Regional Compliance Officers serve in all four zones where the Group operates to ensure communication of the Code and the principles on which it is based.

- Every global business unit and function within Solvay appoints Compliance Liaisons to enhance adherence to compliance objectives and to instill a commitment to compliance throughout Solvay.

Training:

- Courses are developed internally and presented by the Legal & Compliance function to ensure understanding and adoption and to address behavioral risks in certain areas such as anti-trust, anti-bribery and corruption, human rights, and other aspects of Corporate Social Responsibility. Multi-lingual online training is also being developed.
- Special campaigns to maintain and/or enhance the level of awareness within the Group are identified and adopted annually.
- New employee training is organized as part of the orientation process.

Reporting violations:

- Is encouraged as a condition of employment through various internal avenues, including management, Human Resources, Legal & Compliance, and Internal Audit.
- An external third-party helpline active 24 hours a day, 365 days a year allows employees to ask questions, raise concerns or file reports. The Solvay Ethics Helpline is available on the web or by phone, operationally via the internet in 46 specific regions in more than 40 languages, and via the phone in more than 20 languages.
- This Group-wide Speak Up program is overseen by the Audit Committee of the Board of Directors.

Information protection and cyber risk

Description

Information and cyber risk includes theft, manipulation or destruction of information, and the inability to ensure continuity of services or to protect confidential, critical or sensitive information.

Prevention and mitigation

Cyber security program

Solvay's cyber security and confidential information loss prevention program was further enhanced in 2016:

- Outside experts conducted independent assessments, including penetration tests.
- Solvay Business Services (SBS) renewed its quality management program (ISO9001:2015) for all its activities and the ISO27001:2013 certification that encompasses cybersecurity for the majority of our information systems activities is ongoing (all SBS will be certified ISO27001 by end of 2017).
- Training on information systems security policies and best practices was completed for all SBS information systems professionals.
- End-user security training remains mandatory for all employees. Cybersecurity tips are published regularly to increase employee awareness.
- New fraud management tools have been implemented to identify and preempt fraud attempts.

In 2017, Solvay will continue to enhance its overarching cyber security strategy and governance, develop the corporate information security program, and explore other functions/capabilities to enrich the company's security posture and ability to respond to a cyber-related threat.

While the Company has a comprehensive, regularly updated cyber security program, a significant cyber attack could nevertheless result in the loss of critical business information and/or could negatively impact the company's operations and results.

Insurance

Solvay is insured against the potential financial impact of a cyber event with respect to assets, business interruptions, and cases of fraud.

Industrial safety

Description

- Accidents on industrial sites may cause injury to employees, contractors, or members of the public adjacent to those sites, especially in the context of major releases of chemical substances.
- Accidents involving employees or third-party individuals on Solvay's sites are generally linked to a failure of safety management relating to risks at the workplace.
- Accidents involving contractors include falls during work at height, in construction and maintenance activities, use of tools, and interaction with equipment during maintenance, as well as accidents due to non-compliance with work permit procedures.
- Risks of causing injury to neighbors or the public are mostly a consequence of major process accidents at manufacturing sites or during transport activities.

Prevention and mitigation

Occupational safety is the highest priority in managing the activities of Solvay. The Group has a long track record of good safety performance, and has made significant progress by sharing good practices.

- Safety results are considered monthly both at Executive Committee and GBUs level.
- The Health, Safety and Environment (HSE) department implements a management system entitled "Solvay Care Management System (SCMS)", integrating all Solvay requirements for HSE and fulfilling the international standards ISO14001 and OHSAS 18001. A new version of the benchmarks will be released in 2017.
- The HSE department supports sites and GBUs by collecting, validating, and distributing return on experience, lessons learned bulletins on typical accident scenarios and consequences. It is also part of external research, and academic and inter-company developments to identify new safety approaches: ICSI (Institut pour une Culture de Sécurité Industrielle), EPSC (European Process Safety Centre) and CERIC (European Chemical Industry Council) initiatives.
- Some actions in 2016: the first Solvay Safety Excellence Plan 2015-2016 to boost safety performance (being reviewed for the 2017-2018 period). The plan focuses on: defining clear expectations at management level, defining customized action plans through site and GBU roadmaps, and generating a safety excellence mindset. The most familiar initiative of this plan is the eight "Solvay Life Saving Rules", which address the eight most dangerous work-related activities (such as working at height).

Environmental strategy – emerging risk

This risk was added to the main risks in 2016 because it was becoming potentially significant for the Group.

Description

- Solvay's activities impact the environment through:
 - Use of raw materials based on fossil or non-renewable resources
 - Consumption of energy
 - Use of water
 - Production of waste (solid or liquid, hazardous or safe)
 - Greenhouse gases emission
 - NO_x, SO_x, Volatile Organic Compounds (VOC) or dust emission.
- Failure to adapt to changing market dynamics or to technological developments triggered by those environmental concerns may damage the Group's reputation. It may cause the Company to be undervalued by or unappealing to long-term investors, and cause it to lose competitiveness.

Prevention and mitigation

- The Group's strategy focuses on businesses with higher added value and less environmental exposure.
- Every year, the Sustainable Portfolio Management (SPM) tool assesses the environmental exposure of our sales and our innovation projects portfolio.
- The Carbon Intensity action plan has a 40% reduction target for 2025 (reference year 2014).
- Solvay has a new environmental plan and targets for 2020 on air emissions (SO_x, NO_x, VOC), water usage, and hazardous waste.
- Research & Innovation focuses on selected megatrends, including sustainability opportunities and concerns.

3. OTHER RISKS

Market and growth – Strategic risk

Description

- Strategic risk refers to Solvay's exposure to developments in its markets or its competitive environment, and the risk of making erroneous strategic decisions.
- Examples of risks:
 - Economic downturn, drastic changes in energy and raw material prices and availability
 - Reduction of demand in the Group's main markets as a consequence of either new legislation or competitive actions, or events affecting its most important customers
 - New entrants in a market, a price war, or significant imbalances between supply and demand in its markets
 - Technological leaps leading to the development of substitute products or more competitive manufacturing processes
 - Lack of success of a new product.

Prevention and mitigation

The potential impact of adverse events is continuously assessed and managed at both the GBU and corporate levels. This year, there was a particular focus on:

- Systematic and formal analysis of markets and marketing challenges on investments and innovation project ramp-ups.
- Development of GDP+ growth markets: Automotive & Aerospace, Resources & Environment, Electrical & Electronics and Agro, Feed & Food.
- Development of customized, mission-critical solutions with our key accounts.
- Adaptation of operations to new energy and CO₂ markets.
- Stronger focus on cash conversion and generation.

The integration of Cytec has already delivered on its promise in 2016, significantly exceeding targets for synergies and cash generation. The addition has already enabled the Group to expand its presence in the fast-growing advanced aerospace materials market. In 2016 the development of new aircraft platforms with high composite content was offset by lower production rates of older generation aircraft. However, Solvay remains well-positioned for growth as production of new aircraft programs (growth expected on A320neo, B737 MAX, and Joint Strike Fighter) with higher composite content.

The portfolio transformation continued in 2016, with the Group scaling back cyclical and low-growth businesses by selling stakes in Inovyn, Vinythai and Indupa, and by divesting the cellulose acetate business.

Supply chain and manufacturing reliability risk Description

Supply chain and manufacturing risk in production units and transportation refers to risks related to raw materials, energy, suppliers, production, storage units, and inbound/outbound transportation. Risks include major equipment failure or damage, natural disasters, strikes, and drastic shortages of raw materials, utilities or critical equipment.

The geographic distribution of production units around the world reduces the overall impact of one production unit being damaged or interrupted. Some specialty products are, however, produced only in a single plant.

Prevention and mitigation

Key risk areas are addressed with relevant dedicated policies and risk control programs, such as the property loss prevention program, process safety management procedures, the supplier qualification and assessment process, integrated resource planning and supply chain optimization systems, ERP (Emergency Response Plans), corporate and local crisis management

procedures, business continuity planning (including for pandemic risk), and networking groups for manufacturing and supply chain managers.

Solvay takes out insurance to reduce the financial impact of events that could cause **extensive damage and material business interruption**. It deploys a property loss prevention program with the support of a large network of risk engineers assigned by the insurers. The program focuses on the prevention and mitigation of damage to assets and loss of profit due to fire, explosion, accidental chemical release, and other adverse events. The program has been reinforced across the Group and includes: engineering visits to all locations, monitoring and providing updates on the status of agreed risk improvement actions for all locations, meetings with the GBUs on reducing property and business interruption risks, road maps designed to reduce property and business interruption risks, business impact analysis and, loss prevention training for plant employees.

To identify **supply chain risk**, Solvay takes into account environmental, social, security of supply, and innovation criteria and identifies a mitigation action for each specific risk. These strategic management reviews take place on a regular basis.

- Some suppliers are identified as critical based on their strategic importance or because they might represent a business, country, or product risk. Those suppliers have to engage in a CSR assessment and a continuous improvement process. All critical suppliers must also formally confirm that they adhere to principles that are consistent with those set out in the Solvay Supplier Code;
- Solvay owns several mines and quarries for the extraction of trona, limestone, and salt. This reduces the risk of a disruption in its raw material supplies (availability, reliability, and price), as key suppliers are included in the property loss prevention program whenever possible.

In the field of **energy supply**, Solvay has consistently implemented programs to reduce its energy consumption for many years. While Solvay has industrial activities with high energy consumption, mainly in Europe (synthetic soda ash plants, polyamides), it also operates a range of industrial activities whose energy content is relatively low as a percentage of sales price, particularly in the fluorinated polymers business. The Group considers secure and reliable energy supplies to be particularly important and has taken the following strategic initiatives:

- technological leadership in processes and high-performance industrial operations to minimize energy consumption;
- diversification and flexible use of the different types and sources of primary energy;
- upstream integration in steam and electricity generation (gas cogeneration, biomass or secondary fuels cogeneration, etc.);
- periodic review of the condition of industrial sites' energy assets and connections;
- a strategy of supply coverage with long-term partnerships and medium- to long-term contracts, with price-hedging protection mechanisms when needed;
- direct access to energy markets when possible (gas hubs, electrical grids, financial spot and futures exchanges);
- regular forecast reports on energy and raw material price trends sent to business to anticipate sales prices realignments.

Solvay Energy Services optimizes energy purchasing and consumption for the Group and helps GBUs manage energy and CO₂ emissions.

Project selection and management

Description

The allocation of resources to projects (capital expenditure (capex), mergers and acquisitions) could be misaligned with Solvay's growth strategy, leading to an inefficient use of Group financial resources and resulting in poor cash conversion. Also, a major project could experience difficulties and so fail to reach its objectives.

Prevention and mitigation

To increase the likelihood that project objectives are met, the Group has set up processes to manage both capital investments and acquisitions, including risk identification, assessment, and mitigation steps.

- The model of governance for major/medium-sized capex projects is designed to ensure that only the most effective capital projects are authorized and executed in the best possible way.
- The Investment Committee provides the Comex an analytical view of the capex allocation efficiency for the Group and the capex plan, consistent with the Roadmaps and Business Strategy Reviews of the GBUs.
- A performance analysis after implementation is conducted to assess the Capex efficiency. The lessons learned are used to continuously improve how the Group approaches the challenges inherent in the marketing, financial and industrial aspects of investment projects.

The methodology used to tackle major capital projects has been extended to the GBUs: they can apply it for their medium-sized projects.

The Group has progressively deployed a Capex Excellence methodology for project portfolio optimization on smaller projects.

The combination of these actions has led to much better control over EBITDA conversion into cash and a conversion level comparable to similar companies in the Industry.

Regulatory, political and legal risk

Description

Regulatory risk

- Regulatory risk refers to Solvay's exposure to changes in legislation and regulations. Solvay could be exposed to significant cost increases or business interruptions as a consequence of new legislation or regulations, or a more strict interpretation or application of current regulations by courts or authorities.
- Solvay must obtain and maintain regulatory approval to operate its production facilities and sell its products. Withdrawal of any previously granted approval or failure to obtain an authorization may have an adverse effect on its business continuity and operating results.
- For Europe in particular, all chemical substances manufactured, imported, or used by Solvay require registration under the REACH Regulation and must meet the deadlines imposed by this regulation. This is in addition to other, already existing requirements. 451 dossiers were successfully registered with the European Chemical Agency between 2010 and May 31, 2013. Around 332 substances have to be registered before the next REACH registration deadline of May 31, 2018. With respect to these, the registration schedule is on track as of the end of 2016. 123 dossiers had already been registered as of December 1, 2016.

Political risk

Political risk refers to Solvay's exposure to circumstances where the normal exercise of public authority is disrupted. This could be the consequence of a social crisis, political instability, civil war, nationalization, or terrorism in countries where the Group operates or sells products, resulting in delays or failure to deliver products, or an unavailability of raw materials or utilities, or logistical or transport facilities.

Legal risk

- Legal risk refers to the exposure to actual and potential judicial and administrative proceedings.
- The simple fact of doing business exposes Solvay to disputes and litigation, and adverse outcomes are always possible (see the Important Litigation section below).

- The Group may become a party to judicial or administrative proceedings in the conduct of its normal course of business, particularly in the areas of product liability, contractual obligations, antitrust laws, patent infringement, tax assessments, and environmental matters (see the Important Litigation section below).
- The Group's operations depend on the control of its key technologies and on the capacity to innovate. Legal challenges to the right of Solvay to use certain technologies could have an impact on its operations.

Prevention and mitigation

- The Group's geographic spread around the world helps reduce the impact of adverse regulatory and political developments.
- Properly designing and testing products and their production processes helps contain regulatory and legal risks, as does making sure that applications for necessary approvals are timely and thorough.
- Regulatory and political risk both within and outside the European Union is reduced through the continuous work of Solvay's Government and Public Affairs department, which works with public authorities and through the local Belgian Embassy.
- To manage its legal risk, Solvay maintains in-house legal and intellectual property professionals, as well as regulatory resources and tools. It also retains external professional resources when appropriate.
- Financial provisions are made based on Solvay's awareness of legal risks. Awareness is raised by dedicated training, sharing of information, self-assessment procedures, and internal audits.
- Trade secrets and patents protect Solvay's technological know-how on new products and processes, and continuous efforts are made to protect its proprietary information and its position as a leader in technological know-how for its production processes.
- With respect to political risks, Solvay's actions include risk-sharing with local or institutional partners, as well as monitoring of political developments in sensitive areas.

All risks that could trigger an eventual exposure (irrespective of probability of outcomes) are monitored centrally and are shared with Comex and with the Audit committee every quarter, whereby developments in the intervening period are considered and suitability of financial provisions considered.

Financial risk

Description

Below is a list of Solvay's financial risks and how they apply to the Company:

- Liquidity risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements)
 - To repay and refinance financial debt on time
 - To fund its business operations and generate cash from operations
 - To extract cash from divestments and not over-pay acquisitions
 - To preserve the Group "Investment grade" rating.
- Foreign exchange risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements)
 - The Group's largest forex exposure is to the euro and US dollar
 - The Group's overall activities generate an important net positive US dollar flow; thus, a depreciation of the US dollar will generally result in lower revenues and lower profit.
 - Furthermore, and to a significantly lesser extent, the Group is also exposed to the euro/Japanese yen, euro/Chinese yuan and Brazilian real/US dollar rates
- Interest-rate risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements)
 - Exposure to fluctuating interest rates
- Counterparty risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements)
 - Exposure to financial intermediates through its treasury activities and through the Group's commercial relationships
- Pension obligation risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements):
 - Exposure to a number of defined benefit plans subject to fluctuations in discount rates, expected inflation rates and social security coverage and expected longevity, as well as asset/liability matching, all of which may result in a major impact on the Group's net pension liability
 - Exposure of under-funded plans to interest rate and inflation risks

- Tax litigation risk (see [note F32 Financial instruments and financial risk management](#) to the consolidated financial statements)

– Exposure to increasing tax audit queries and the introduction of changing tax regulations.

Prevention and mitigation

Financial risks are analyzed, assessed, and managed by the Corporate Finance function broadly, and more specifically, by the Treasury, Group Accounting & Reporting, and Tax departments. Loss prevention and mitigation efforts guide the Group's financial policies and their strict monitoring:

A prudent financial profile, conservative financial discipline and strong liquidity reserves

A prudent financial profile and conservative financial discipline:

- After the acquisition of Cytec in December 2015, the two leading rating agencies confirmed the Group's Investment Grade status, with a Baa2/P2 rating (negative outlook) by Moody's and a BBB-/A3 rating (stable outlook) by Standard & Poor's.

Strong liquidity reserves:

- As of the end of 2016, the Group has € 1.1 billion in cash and equivalents (namely, other current financial instruments), as well as € 2.4 billion in liquidity reserves composed of committed credit facilities (two syndicated credit facilities of € 1.5 billion and € 550 million, respectively), and an additional € 350 million from bilateral facilities with key international banking partners.
- The Group has access to a Belgian Treasury Bill program for € 1 billion, and alternatively, to a US commercial paper program for US\$500 million.

Investment grade rating:

- The Group aims at preserving its investment grade rating and in that context maintains a prudent financial profile. Moreover, the Group's portfolio management and investment decisions, as well as cash flow generation objectives, take explicit account of their impact on the Group's credit metrics. Solvay has also developed a comprehensive financial methodology, and is advised by independent experts, making it possible to understand and anticipate impacts on credit worthiness derived from prospective financial and business developments.
- Solvay promotes transparent and regular discussions with leading rating agencies.

Geographic diversification and foreign exchange hedging policy

Geographic diversification of the manufacturing footprint and sales naturally mitigates foreign exchange risk, as income streams are matched with expenses in the same currency.

Currency hedging policy

Solvay monitors the foreign exchange market closely and takes hedging measures, principally for terms shorter than one year and generally not exceeding 18 months, whenever deemed appropriate.

- To hedge forex exchange exposure, Solvay uses forward and option contracts designed to secure the value of future cash flows in foreign currency.
- The Group manages its foreign exchange risk for receivables, payables and borrowings centrally for all affiliates of the Group where it is possible to enter into such transactions, and through local financial affiliates for other regions.

Interest rate hedging policy

The Group locks the majority of its net indebtedness with fixed interest rates. Solvay monitors the interest rate market closely and enters into interest rate swaps whenever they are deemed appropriate.

Monitoring of Group counterparties' ratings

For its treasury activities, Solvay works with banking institutions of the highest creditworthiness (selection based on major rating systems) and minimizes the concentration of risk by limiting its exposure to each of these banks to a certain threshold, set in relation to the institution's credit rating. In addition, Solvay may invest money with highly-rated money market funds, as well as in short-term debt securities from highly-rated sovereign issuers when appropriate.

For its commercial activities, Solvay's external customer risk and cash collection are monitored by a strong network of credit managers and cash collectors located in the Group's various operating regions and countries. Their controls are supported by a set of detailed procedures and managed through Corporate and GBU Credit Committees. These loss mitigation measures have led, over the past few years, to a record low rate of customer defaults.

Pension governance and pension plan optimization

Pension governance: Solvay has set guidelines to maximize its influence over local pension fund decisions within the limits provided by domestic laws, including investment and funding,

selection of advisors, appointment of employer-nominated trustees to local pension fund boards, and other cost management actions.

Pension plan optimization: This consists primarily of reducing the Group's exposure to defined benefit plans by either converting existing plans into pension plans with a lower risk profile for future services or closing them to new entrants. Examples of such lower risk plans include hybrid plans that combine cash balance plans and defined contribution plans.

A global ALM (Asset Liability Management) analysis of the Group's pension plans, representing about 90% of the Group's gross or net pension obligations, is performed on a triennial basis, in order to identify and manage corresponding risks on a global basis. Solvay conducted an ALM study in 2016.

Control processes for tax regulation compliance and transfer pricing policies

Control processes for tax regulation compliance include monitoring procedures and systems, thorough internal reviews, and audits performed by reputable external consultants. Efforts to prevent tax litigation risk include thorough analyses of the internal financing of affiliates, mergers, acquisitions, and divestments, or proposed changes in the business organization and operations. The Group seeks the assistance of external experts or law firms when the amounts at stake warrant it.

Transfer pricing policies, procedures and controls are aimed at meeting the requirements of the authorities. Transfer pricing documentation is prepared annually for each relevant Group legal entity that requires such documentation, in line with local national laws and practices. This is done with the assistance of internal or external experts to demonstrate the arm's length nature of cross-company pricing. The Internal Audit department regularly verifies the existence and timeliness of the documentation. Internal transfer pricing specialists assist the business in setting intra-Group prices that comply with the transfer pricing policy.

Moreover, Solvay's Tax department pays close attention to the correct interpretation and application of new tax rules to avoid future litigation. In this regard, among other things it implements the G20/OECD base erosion and profit shifting (BEPS) recommendations at the country level in order to ensure that tax positions remain consistent with changing requirements.

Occupational diseases and pandemic risk

Description

Occupational diseases are work-related diseases recognized as resulting from exposure to occupational hazards, generally repeated exposure. In most cases, health effects appear after a long period of latency, e.g. asbestos-related diseases or cancers.

Pandemic risk can affect employees, their families, and society at large.

Prevention and mitigation

- Conservative approaches to risk identification, assessment and management help avoid a real risk of exposure, including when new hazards are revealed.
- Solvay monitors occupational disease standards worldwide and a strong industrial hygiene program focused on comprehensive assessments of compliance with occupational hygiene standards.
- Conservative exposure limits are defined and shared by Solvay's worldwide toxicology team, supported by the internal "Solvay Acceptable Exposure Limit" Committee, which establishes Solvay Acceptable Exposure Limits (SAELs) for substances with no official occupational exposure limit (OEL) or an OEL considered insufficiently protective. High priority is given to nano-materials and technology, endocrine disruptors, SVHCs (Substances of Very High Concern) and health-related applications of Solvay products.
- All Solvay industrial sites and major administrative sites are required to ensure periodic medical monitoring of workers based on individual risk profiles and on Group recommendations, thereby helping to prevent the onset of occupational diseases and any other adverse health effects due to work.
- Internal industrial hygiene and occupational health IT tools are integrated at site level. With these tools, local teams benefit from easy and efficient management of – and access to – comprehensive hygiene assessments and medical surveillance data on their personnel. These tools help to identify and anticipate the occurrence of potential new occupational disease cases, improve the traceability of individual and collective exposure and medical data, and facilitate the daily work of Solvay physicians and hygienists.
- A global pandemic preparedness plan covering all plants and businesses, supported by a network of coordinators, has been developed. This plan can be reactivated to initiate a regional or local response.

Environmental risk

Description

- Managing or remediating historical soil contamination at a number of sites and complying with future changes in environmental legislation are top priorities.
- There is a global trend of legislation introducing an increasingly broader scope of environmental legal liabilities. However, in Europe, the legislation is reinterpreted in a pragmatic way using site-specific risk-based analyses to define intervention value and remedial objectives.

Prevention and mitigation

- ISO 14001 or integrated HSE management systems equivalent to ISO 14001 (Solvay Care Management System) for the environment are implemented in all manufacturing sites.
- Policies and risk control programs are applied in all production units and other facilities, and are implemented progressively in newly acquired plants. The Group takes the necessary steps to meet and even exceed regulatory standards concerning major risks, which includes detailed accident prevention measures.
- Sites facing historical soil contamination are carefully monitored and managed. A dedicated worldwide team is regularly trained and undertakes regular updates of appropriate provisions for monitoring and remediation according to a defined audit process.
- As a matter of policy, all concerned sites employ a risk characterization approach. It contains a diagnosis of potential problems based on hydrogeological studies and soil characterizations, an evaluation of the risks to aquifers, and the implementation of relevant remediation or confinement actions with authorities.
- Local regulatory monitoring is performed at all Solvay sites. Corrective actions are implemented whenever necessary, in close cooperation with environmental authorities.
- Solvay takes out insurance to reduce the financial impact of an environmental risk materializing. Solvay monitors the effects of climate change, as related risks and opportunities may affect the Group's business objectives. The risk is hedged to an extent through the geographic spread of both production units and markets for its products.

IT risk

Description

For Solvay, information and information service-related risks refer to the inability to ensure continuity of services or provide information services adapted to the business needs.

Prevention and mitigation

- The Group uses a dedicated data network and regional internet gateways that are managed by a trusted service provider. The critical data and applications are hosted in a data center operating in accordance with professional good practices, ensuring recovery capabilities in the event of an incident.
- In 2016, disaster recovery and crisis management tests were carried out for the data center as well as the main service centers and regional offices of Solvay's Business Services (SBS), involving various crisis scenarios.
- IT general controls are applied to critical information systems and are audited for compliance both internally and externally. Solvay has developed an annual IT audit program to ensure compliance with information systems security policies.

IMPORTANT LITIGATION

With its variety of activities and its geographic reach, the Solvay Group is exposed to legal risks, particularly in the areas of product liability, contractual relations, antitrust laws, patent disputes, tax assessments, and HSE matters. In this context, litigation cannot be avoided and is sometimes necessary so as to defend the rights and interests of the Group.

The outcome of proceedings cannot be predicted with certainty. It is therefore possible that adverse final court decisions or arbitration awards could lead to liabilities (and expenses) that are not covered or not fully covered by provisions or insurance, and that could have a material impact on the revenues and earnings of the Group.

Ongoing legal proceedings involving the Solvay Group that are currently considered to involve significant risks are outlined below. The legal proceedings described below do not constitute an exhaustive list.

The fact that litigation proceedings are reported below is unrelated to the merits of the cases. In all the cases cited below, Solvay is defending itself vigorously and believes in the merits of its defenses.

For certain cases, Solvay has created reserves/provisions in accordance with the accounting rules to cover financial risk and defense costs (see note 35D, "Provisions for litigation to the consolidated financial statements" of the present document).

Antitrust proceedings

In 2006, the European Commission imposed fines against Solvay (including Ausimont SpA, acquired by Solvay in 2002) for alleged breaches of competition rules in the peroxygens market, amounting after appeal to € 139.5 million for Solvay SA and € 12.8 million for Solvay Specialty Polymers Italy SpA. Joint civil lawsuits were filed before the Court of Dortmund (Germany) in 2009 against Solvay and other manufacturers based on the alleged antitrust violation, claiming damages from the manufacturers on a joint and several basis. The value of the claims is approximately € 240 million (excluding interest) against all six defendants. Several questions on the jurisdiction of the Court of Dortmund have been submitted to the European Court of Justice, and proceedings before the Court of Dortmund are pending.

In Brazil, Solvay is facing administrative claims related to alleged cartel activities in various markets. CADE (the Brazilian antitrust authority) issued fines against Solvay and others in May 2012 relating to H₂O₂ activity and in February 2016 related to perborate activity (Solvay's shares of these fines amount to € 29.6 million and € 3.99 million respectively). Solvay has filed a claim contesting these administrative fines before the Brazilian Federal Court.

HSE-related proceedings

In October 2009, the public prosecutor of the Criminal Court of Alessandria (Italy) charged several individuals (including employees and former employees of Solvay and Ausimont SpA, now Solvay Specialty Polymers Italy) in relation to alleged criminal violations of environmental laws (a failure to remediate) and public health legislation (intentional poisoning of potable waters). Solvay Specialty Polymers Italy - SSPI (formerly Solvay Solexis and Ausimont), a subsidiary of Solvay and legal successor to Ausimont SpA, named in the trial as the civilly liable party together with Edison SpA, may be exposed to claims for civil liability in the event of a negative outcome of the proceedings. The civil parties admitted to the trial have provisionally quantified their civil damages claims at about € 105 million. In December 2015 the Assize Court of Alessandria sentenced three SSPI managers to jail for 2.5 years and awarded civil damages of about € 400k. This judgment, which is not enforceable as it is not final, was appealed by all the parties and is currently pending before the Criminal Assize Court of Appeal of Turin.

In May 2008, the public prosecutors of the Criminal Court of Pescara (Italy) charged several individuals in relation to alleged criminal violation of environmental laws (environmental disaster) and to alleged crimes against public health (intentional poisoning of potable waters) that had taken place before 2002 (i.e. before Ausimont SpA's acquisition by Solvay). These individuals included former employees of Ausimont SpA, acquired by Solvay in 2002; no Solvay employee was charged, and Solvay SA and Solvay Specialty Polymers Italy were admitted to the trial as civil parties. The Assize Court of Chieti dismissed the intentional poisoning charge and found the former Ausimont employees guilty of culpable environmental pollution, but declared that this matter was time-barred. The public prosecutors and the civil parties lodged an appeal against this decision and the case is currently pending before the Criminal Assize Court of Appeal of L'Aquila.

As of the end of 2016, 17 civil proceedings had been brought before the Civil Court of Livorno by past workers and relatives of deceased workers at the Rosignano Site seeking damages (provisionally quantified at € 9 million) in relation to diseases allegedly caused by exposure to asbestos. The defendants in these civil proceedings are Solvay SA and Solvay Chimica Italia SpA, respectively the owner and manager of the Rosignano site.

Pharmaceutical activities (discontinued)

In the context of the sale of the pharmaceutical activities in February 2010, the contractual arrangements have defined terms and conditions for the allocation and sharing of liability arising out of the activities before the sale.

Subject to limited exceptions, Solvay's exposure for indemnifications to Abbott for liabilities arising out of sold activities is limited to an aggregate amount representing € 500 million and is limited in duration.

This includes indemnification against certain potential liabilities for the US hormone replacement therapy (HRT) litigation, re-activated Qui Tam litigation focusing on promotional and marketing practices that allegedly influenced sales of the drugs ACEON®, LUVOX®, and ANDROGEL®, and more recently filed testosterone replacement therapy (TRT) litigation also focusing on the drug ANDROGEL®. These claims are proceeding at varying rates of resolution.