

# Market Risks and Investment Performance

This section covers market risk related to the Mandatum Life's with profit business i.e. that part of the business where Mandatum Life carries investment risk.

In Mandatum Life, the approach to market risk management is based on an analysis of technical provisions' expected cash flows, interest level and current solvency position. A common feature for all with profit technical provisions is the guaranteed rate and bonuses. The cash flows of Mandatum Life's technical provisions are relatively well predictable because in most of the company's with profit policies, surrenders and extra investments are not possible.

Mandatum Life's market risks arise mainly from equity investments and interest rate risk related to fixed income assets and insurance liabilities with a guaranteed interest rate. The most significant interest rate risk in the life insurance business is that fixed income investments will not, over a long period of time, generate a return at least equal to the guaranteed interest rate of technical provisions. The probability of this risk increases when market interest rates fall and stay at a low level. The duration gap between balance sheet's technical provisions and fixed income investments is constantly monitored and managed. Control levels based on

internal risk capacity model are used to manage and ensure adequate capital in different market situations

Mandatum Life has prepared for low interest rates on the liability side by e.g. reducing the minimum guaranteed interest rate in new contracts and by supplementing the technical provisions by applying a lower discount rate. In addition, existing contracts have been changed to accommodate improved management of reinvestment risk. Guarantees and other main features of with profit liabilities are presented in [Section Underwriting risks and performance](#).

Fixed income investments and listed equity instruments form a major part of the investment portfolio, but the role of alternative investments - real estate, private equity, biometric and other alternative investments - is also material being 11.7 per cent.

Investment allocations and average maturities of fixed income investments as at year-end 2017 and 2016 are presented in the table Investment Allocation Mandatum Life, 31 December 2017 and 31 December 2016.

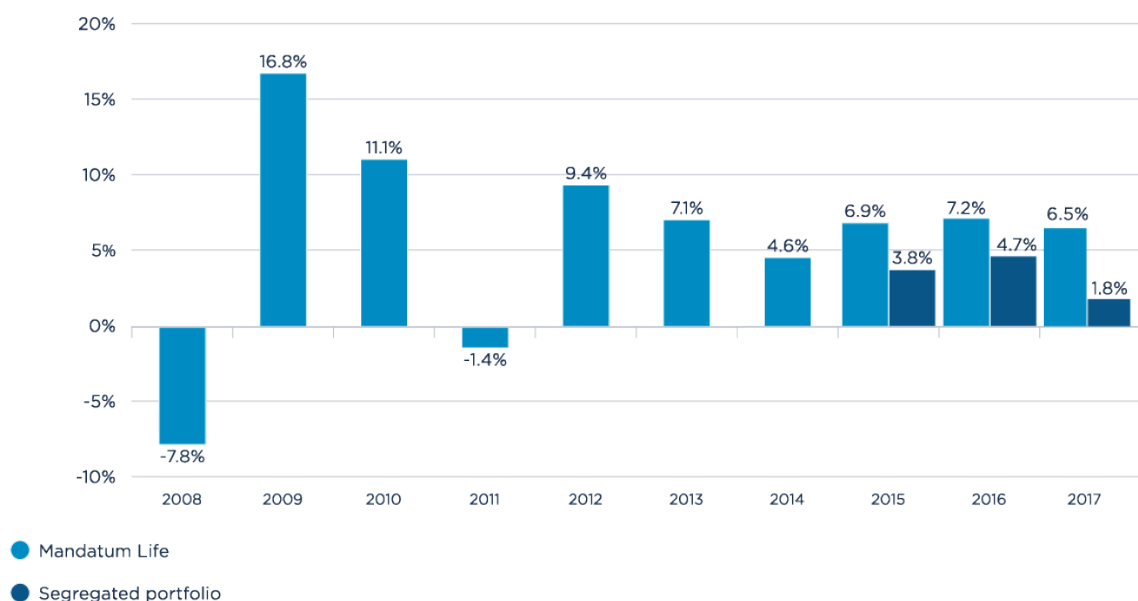
## Investment Allocation Mandatum Life, 31 December 2017 and 31 December 2016

Asset Class	Mandatum Life 31 Dec 2017			Mandatum Life 31 Dec 2016		
	Market value, EURm	Weight	Average maturity, years	Market value, EURm	Weight	Average maturity, years
<b>Fixed income total</b>	<b>3,953</b>	<b>63%</b>	<b>2.5</b>	<b>3,938</b>	<b>60%</b>	<b>2.7</b>
Money market securities and cash	904	14%	0.0	859	13%	0.5
Government bonds	54	1%	2.5	64	1%	5.1
Credit bonds, funds and loans	2,994	48%	3.2	3,009	46%	3.3
Covered bonds	163	3%	2.0	178	3%	2.6
Investment grade bonds and loans	1,793	29%	2.8	1,586	24%	2.7
High-yield bonds and loans	760	12%	3.2	884	13%	3.7
Subordinated / Tier 2	55	1%	7.3	52	1%	8.1
Subordinated / Tier 1	223	4%	6.6	310	5%	4.7
Hedging swaps	0	0%	-	0	0%	-
Policy loans	0	0%	1.8	6	0%	1.9
<b>Listed equity total</b>	<b>1,578</b>	<b>25%</b>	<b>-</b>	<b>1,737</b>	<b>26%</b>	<b>-</b>
Finland	494	8%	-	623	9%	-
Scandinavia	0	0%	-	1	0%	-
Global	1,084	17%	-	1,114	17%	-
<b>Alternative investments total</b>	<b>731</b>	<b>12%</b>	<b>-</b>	<b>907</b>	<b>14%</b>	<b>-</b>
Real estate	214	3%	-	278	4%	-
Private equity*	226	4%	-	269	4%	-
Biometric	16	0%	-	26	0%	-

Commodities	0	0%	-	0	0%	-
Other alternative	274	4%	-	334	5%	-
<b>Trading derivatives</b>	<b>2</b>	<b>0%</b>	<b>-</b>	<b>0</b>	<b>0%</b>	<b>-</b>
<b>Asset classes total</b>	<b>6,263</b>	<b>100%</b>	<b>-</b>	<b>6,582</b>	<b>100%</b>	<b>-</b>
<b>FX Exposure, gross position</b>	<b>679</b>	<b>0%</b>	<b>-</b>	<b>833</b>	<b>-</b>	<b>-</b>

\*Private Equity also includes direct holdings in non-listed equities

### Annual Investment Returns at Fair Values since 2008 Mandatum Life



## Market Risks of Fixed Income and Equity Exposures

Fixed income and equity exposures are presented by Sector, Asset Class and Rating together with counterparty risk exposures relating to reinsurance and derivative transactions. Counterparty default risks are described in more detail in

section [Counterparty Default Risks](#). Due to differences in the reporting treatment of derivatives, the figures in the table may not be fully comparable with other tables in this annual report.

### Exposures by Sector, Asset Class and Rating Mandatum Life, 31 December 2017

EURm	AAA	AA+ - AA-	A+ - A-	BBB+ - BBB-	BB+ - C	D	Non-rated	Fixed income total	Listed equities	Other	Counterparty risk	Total	Change 31 Dec 2016
Basic Industry	0	0	13	8	24	0	38	82	63	0	0	145	-124
Capital Goods	0	0	38	10	0	0	101	148	160	0	0	308	36
Consumer Products	0	24	104	79	30	0	33	270	238	0	0	508	-77
Energy	0	27	0	0	0	0	18	45	7	0	0	52	-28
Financial Institutions	0	481	1,463	244	24	0	0	2,212	38	1	2	2,253	191
Governments	0	0	0	0	0	0	0	0	0	0	0	0	-18
Government Guaranteed	0	0	0	0	0	0	0	0	0	0	0	0	0
Health Care	0	29	17	8	42	0	58	153	47	0	0	200	11

Insurance	0	0	1	52	0	0	0	54	3	8	0	64	-14
Media	0	0	14	0	0	0	16	30	0	0	0	30	-11
Packaging	0	0	0	0	19	0	9	28	1	0	0	28	-40
Public Sector, Other	0	37	42	0	0	0	0	80	0	0	0	80	9
Real Estate	0	0	1	32	0	0	37	70	0	185	0	255	-56
Services	0	0	0	20	49	0	66	135	86	0	0	221	-10
Technology and Electronics	15	0	44	0	27	0	11	96	119	0	0	215	-17
Telecommunications	0	0	0	45	8	0	16	69	32	0	0	102	-6
Transportation	0	0	4	3	11	0	8	26	27	0	0	53	9
Utilities	0	2	1	115	25	0	0	142	0	0	0	142	-24
Others	0	0	0	0	4	0	2	7	0	36	0	42	-37
Asset-backed Securities	0	0	0	0	0	0	0	0	0	0	0	0	0
Covered Bonds	141	12	0	10	0	0	0	163	0	0	0	163	-15
Funds	0	0	0	0	0	0	142	142	760	500	0	1,402	-120
Clearing House	0	0	0	0	0	0	0	0	0	0	4	4	-1
<b>Total</b>	<b>155</b>	<b>612</b>	<b>1,741</b>	<b>626</b>	<b>263</b>	<b>0</b>	<b>555</b>	<b>3,952</b>	<b>1,578</b>	<b>731</b>	<b>6</b>	<b>6,267</b>	<b>-342</b>
<b>Change 31 Dec 2016</b>	<b>-22</b>	<b>-223</b>	<b>485</b>	<b>-90</b>	<b>-220</b>	<b>0</b>	<b>84</b>	<b>14</b>	<b>-159</b>	<b>-176</b>	<b>-21</b>	<b>-342</b>	

The role of non-investment grade bonds is material in Mandatum Life's portfolio although it has decreased from its highs. Within fixed income investments part of the money market securities issued by Nordic banks and cash in Nordic banks form a liquidity buffer within fixed income investments. At the moment the total amount of these investments is higher than what is needed for liquidity purposes.

Nordic equity exposure include almost only direct investments to Finnish equities and they account for almost one third of equity exposure. Two thirds of equity investments are globally allocated consisting mainly of fund investments, but the role of direct investments are increasing in that part of the portfolio as well.

### Breakdown of Listed Equity Investments by Geographical Regions Mandatum Life, 31 December 2017 and 31 December 2016

Mandatum Life	31 Dec 2017		31 Dec 2016	
	%	EURm	%	EURm
Denmark	0%	0	0%	0
Norway	0%	0	0%	0
Sweden	0%	0	0%	1
Finland	31%	494	36%	623
Western Europe	40%	637	31%	541
East Europe	1%	20	1%	19
North America	16%	251	24%	420
Latin America	0%	0	0%	0
Far East	11%	176	8%	135
Japan	0%	0	0%	0
<b>Total</b>		<b>1,578</b>		<b>1,737</b>

## Alternative Investments

The role of alternative investments has been material in Mandatum Life over the years. The current allocation weight is 12 per cent. The weight of these investments will be maintained at current levels.

Within total portfolio the size of private equity investments

has declined. At the same time Mandatum Life has increased its commitments in selectively picked high yield credit funds. These asset classes have been managed, in most cases, by external asset managers with the exception of the real estate portfolio which is managed by Sampo Group's own real estate management unit. The real estate portfolio includes both direct investments in properties and indirect investments in real estate funds as well as in shares of real estate companies and it has been quite stable.

## Market Risks of Balance Sheet

The Board of Directors of Mandatum Life annually approves the Investment Policies for both segregated assets and other assets regarding the company's investment risks. These policies set principles and limits for investment portfolio activities and they are based on the features of insurance liabilities, risk taking capacity and shareholders return requirements.

The Investment Policy for segregated assets defines the risk bearing capacity and the corresponding control levels. Since the future bonus reserves of the segregated group pension portfolio is the first buffer against possible investment losses, the risk bearing capacity is also based on the amount of the future bonus reserve. Different control levels are based on the fixed stress scenarios of assets.

The Investment Policy for other investment assets defines the control levels for the maximum acceptable risk and respective measures to manage the risk. The control levels are set above the Solvency II SCR and are based on predetermined capital stress tests. The general objective of these control levels and respective guidelines is to maintain the required solvency. When the above mentioned control levels are breached, the ALCO reports to the Board which then takes responsibility for the decisions related to the capitalization and the market risks in the balance sheet.

The cash flows of Mandatum Life's with profit technical provisions are relatively predictable, because in most of the company's with profit products, surrenders and premiums are restricted. In addition the company's claims costs do not contain a significant inflation risk element.

The long-term target for investments is to provide sufficient return to cover the guaranteed interest rate plus bonuses based on the principle of fairness as well as the shareholder's return requirement with an acceptable level of risk. In the long run, the most significant risk is that fixed income investments will not generate an adequate return compared to the guaranteed rate.

In addition to investment and capitalization decisions, Mandatum Life has implemented active measures on the liability side to manage the balance sheet level interest rate risk. The company has reduced the minimum guaranteed interest rate in new contracts, supplemented the technical

provisions with discount rate reserves and adjusted policy terms and conditions as well as policy administration processes to enable more efficient interest rate risk management.

### Interest Rate Risk

Mandatum Life is negatively affected when rates are decreasing or staying at low levels, because the duration of liabilities is longer than the duration of assets. Growing part of Mandatum Life's business, i.e. unit-linked and life and health business, is not interest rate sensitive, which partially mitigates whole company's interest rate risk.

The average duration of fixed income investments was 2.1 years including the effect of hedging derivatives. The respective duration of insurance liabilities was around 10 years. Interest rate risk is managed at the balance sheet level by changing the duration of assets and by using interest rate derivatives.

### Currency Risk

Currency risk can be divided into transaction and translation risk. Mandatum Life is exposed to transaction risk, which refers to currency risk arising from contractual cash flows in foreign currencies. For more detailed risk definition of currency risk see [Appendix 2 \(Risk Definitions\)](#).

In Mandatum Life, transaction risk arises mainly from investments in currencies other than euro as the company's technical provisions are almost completely denominated in euro. Mandatum Life does not automatically close its FX position in foreign currencies, but the currency risk strategy is based on active management of the currency position. The objective is to achieve a positive return relative to a situation where the currency risk exposure is fully hedged.

The transaction risk positions of Mandatum Life against EUR is shown in the table Transaction Risk Position, Mandatum Life, 31 December 2017. The table shows the net transaction risk exposures and the changes in the value of positions given a 10 per cent decrease in the value of the base currency.

**Transaction Risk Position**  
Mandatum Life, 31 December 2017

	Base currency	EUR	USD	JPY	GBP	SEK	NOK	CHF	DKK	Other	Total, net
<b>Mandatum Life</b>	<b>EURm</b>										
Technical provisions		0	0	0	0	-2	0	0	0	0	-2
Investments		0	2,054	4	136	52	9	186	20	143	2,603
Derivatives		0	-1,744	-3	-134	77	102	-182	-13	-30	-1,928

<b>Total transaction risk, net position, Mandatum Life</b>	<b>0</b>	<b>310</b>	<b>1</b>	<b>2</b>	<b>127</b>	<b>111</b>	<b>4</b>	<b>7</b>	<b>113</b>	<b>674</b>
Sensitivity: EUR -10%	0	31	0	0	13	11	0	1	11	67

## Liquidity Risks

Liquidity risk is relatively immaterial because liability cash flows in most lines of business are fairly stable and predictable and an adequate share of the investment assets are in cash and short-term money market instruments.

In life companies in general, a large change in surrender rates could influence the liquidity position. However in Mandatum Life, only a relatively small part of the insurance policies can be surrendered and it is therefore possible to forecast short-term cash flows related to claims payments with a very high

accuracy.

The maturities of technical provisions and financial assets and liabilities are presented in the table Cash Flows According to Contractual Maturity, Mandatum Life, 31 December 2017. The average maturity of fixed income investments was 2.5 years in Mandatum Life.

The table shows the financing requirements resulting from expected cash inflows and outflows arising from financial assets and liabilities as well as technical provisions.

### Cash Flows According to Contractual Maturity Mandatum Life, 31 December 2017

EURm	Carrying amount total			Cash flows						
	Carrying amount total	Carrying amount without contractual maturity	Carrying amount with contractual maturity	2018	2019	2020	2021	2022	2023-2032	2033-
<b>Mandatum Life</b>										
Financial assets	6,210	3,287	2,923	486	381	773	345	768	397	16
of which interest rate swaps	2	0	2	0	0	0	0	0	1	2
Financial liabilities	168	0	168	-9	-4	-5	-5	-5	-64	-215
of which interest rate swaps	-1	0	-1	0	0	0	0	1	-2	0
Net technical provisions	4,026	0	4,026	-503	-328	-328	-300	-275	-1,908	-1,391

In the table, financial assets and liabilities are divided into contracts that have an exact contractual maturity profile, and other contracts. Only the carrying amount is shown for the other contracts. In addition, the table shows expected cash flows for net technical provisions, which by their nature, are associated with a certain degree of uncertainty.

Mandatum Life has one issued financial liability and thus

refinancing risk is immaterial.

