

SWEDBANK FÖRSÄKRING AB

2018 European Embedded Value

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1 Introduction

European Embedded Value (EEV) is a measure of the consolidated value of shareholders' interests in the covered business. EEV comprises the free surplus, required capital and value of in-force. The value of future new business is not included in EEV. The calculation of EEV is based on various economic and non-economic assumptions, such as swap rates, mortality rates, lapse rates and expenses. Further details of the various assumptions underlying EEV can be found in section 10.

The embedded value of Swedbank Försäkring AB (SFAB) has been calculated in accordance with the European Embedded Value Principles and Guidance published in May 2016 by the European Insurance CFO Forum. The required capital has been calculated based on the capital requirements under Solvency II as well as on internal objectives. SFAB's EEV is based on a market consistent bottom up approach to EEV.

This report, which covers the reporting year 2018, is the sixth time that EEV has been published externally by SFAB.

2 Overview of results

- EEV of Swedbank Försäkring AB amounted to SEK 11 468m at year-end 2018 (year-end 2017: SEK 11 281m).
- The EEV earnings (including economic effects) for 2018 were SEK 711 m, producing a 6% return on the opening EEV (year-end 2017: SEK 1 910 respectively 19%).
- The operating EEV earnings (excluding economic effects) for 2018 were SEK 1 140m, resulting in an operating return of 10% (year-end 2017: SEK 1 218m respectively 12%).
- The value of new business written in 2018 was SEK 794m. The APE margin and PVNBP margin amounted to 25.3% and 3.4% respectively (year-end 2017: SEK 752m and 27.4% respectively 3.6%).

3 Covered business

The covered business includes all business written within and legally contained in Swedbank Försäkring AB with the exception of business where Swedbank acts as a distributor of third party insurance business (white-label products). The key types of products within the covered business are:

- Unit linked and custody business
- Traditional business with a premium-back guarantee ('Traditional Pension Premium Guarantee')
- Traditional business with a step-up guarantee ('Traditional Pension')
- Long-term disability business
- Term insurance business
- Short-term disability business
- Group life business

The Short-term disability business has been included for the first time in covered business as of 2018 Q4.

4 EEV results

The reported EEV is split by net asset value (NAV) and value of in-force (VIF). The NAV comprises free surplus and required capital. The VIF comprises the present value of future profits (PVFP) in a certainty equivalent scenario, an allowance for the time value of options and guarantees (TVOG), frictional costs of

required capital (FC) and an allowance for the cost of non-hedgeable risks (CNHR). The following table shows the EEV at year-end 2018 and 2017 with its components:

EEV results (SEKm)	2018-12-31	2017-12-31	Change
Net asset value	2 192	1 916	276
Free surplus	-45	47	-92
Required capital	2 237	1 869	368
Value of in-force business	9 276	9 366	-90
Present value of future profits	12 365	12 155	210
Time value of options and guarantees	-96	-104	8
Cost of non-hedgeable risks	-2 829	-2 524	-304
Frictional costs of required capital	-164	-161	-3
European Embedded Value	11 468	11 281	186

The EEV increased from SEK 11 281m to SEK 11 468m. It should be noted that on 29 March 2018, SEK 600m was paid in dividends and SEK 275m was paid in group contribution to the mother company Swedbank AB. The net asset value included in EEV is reported before these payments to the mother company. The main drivers of the change in EEV are explained below:

- A weak stock market performance in the end of 2018 decreased the EEV in total by SEK -414m. Year to date the unit linked and the custody portfolio investment performances were -4.0% and -4.8% respectively. For 'Traditional Pension', the investment performance was 0.27% and 0.28% for occupational pension and other pension respectively. For 'Traditional Pension Premium Guarantee', the investment performance was 0.51% year to date.
- Value of new business amounted to SEK 794m, which is an increase from previous year (SEK 752m). The increase is driven mostly by the inclusion of Short-term disability business (SEK 34m) and by increased margins within the occupational pension business.
- Assumption changes sum up to SEK -145m and consists mainly of changes in expense assumptions, partly offset by changes in rebates stemming from the unit linked business.

According to the EEV Principles, profits or losses to service companies for managing the covered business are to be valued on a look-through basis. The present value of look-through profits arising in the asset management companies within Swedbank Group is SEK 910m post tax as at year-end 2018. As of 2018 Q4 the method for calculating the Look-through profit has been revised.

Total IFRS equity of SFAB at year-end 2018 amounted to SEK 2 497m (year-end 2017: SEK 2 258m), with the amount allocated to covered business of SEK 2 192m (year-end 2017: SEK 1 916m), reflected in EEV results above.

An implied discount rate (IDR) of 5.3% at year-end 2018 has been derived for SFAB (year-end 2017: of 5.7%). The approach for deriving the IDR is described in section 9.

5 Value of new business

The value of new business (VNB) represents the value added from new business sold in the year. VNB is calculated at the date of issue with opening economic assumptions and closing non-economic assumptions. New business is defined as the sale of new contracts and increases to existing contracts during the reporting period. Only increases above levels already accounted for in the value of in-force are taken into account. VNB includes the value of expected renewals on those new contracts and expected future contractual alterations to those new contracts.

The following table shows the value of new business written in 2018:

Value of new business (SEKm)	2018-12-31	2017-12-31	Change
Value of new business	794	752	
New sales (APE)	3 135	2 749	
New business margin (%APE)	25.3 %	27.4%	
Present value of new business premium (PVNBP)	23 309	20 704	
New business margin (%PVNBP)	3.4%	3.6%	

In addition to VNB, the table above shows annual premium equivalent (APE) and present value of new business premiums (PVNBP). These measures are defined in section 9.

The derived IDR for VNB in 2018 was 5.3% (year-end 2017: 5.2%).

6 Analysis of EEV earnings

The following table shows the movements in EEV from year-end 2017 to year-end 2018.

Analysis of EEV earnings (SEKm)	Free surplus	Required capital	VIF	EEV
Opening EEV	47	1 869	9 366	11 281
Opening adjustments	75	22	151	249
Adjusted opening EEV	122	1 891	9 517	11 530
Value of new business	-106	73	826	794
Expected existing business contribution (reference rate)	-1	-5	172	166
Expected existing business contribution (in excess of reference rate)	0	0	203	203
Transfers from VIF and required capital to free surplus	946	19	-965	0
Experience variances	-30	37	64	71
Assumption changes	0	0	-145	-145
Other operating variance	0	0	51	51
Operating EEV earnings	809	125	206	1 140
Economic variances	92	-76	-475	-459
Other non-operating variances	-295	296	28	30
Total EEV earnings	606	345	-241	711
Closing adjustments	-773	0	0	-773
Closing EEV	-45	2 237	9 276	11 468

- **Opening EEV** is the EEV at year-end 2017. The required capital has been determined based on the solvency II ratio.
- **Opening adjustments** reflect the EEV for Short-term disability business for in-force business at year-end 2017 using closing operating assumptions for year 2018. The value of new business and the economic variance for the Short-term disability business have been included in the EEV earnings.
- **Adjusted opening EEV** is calculated as the sum of the EEV at year-end 2017 and the opening adjustments.
- **Value of new business** as shown in the EEV earnings of SEK 794m includes the unwinding to year-end 2018. The negative contribution to free surplus from new business amounts to SEK -106m and is due to required capital (SEK -73m) and profits on new business during the reporting period mainly consisting of the acquisition costs. The Short-term disability business has been included in the VNB for the first time, increasing the VNB by SEK 34m.

- **Expected existing business contribution (reference rate)** reflects the unwinding of the discounting on the VIF with the opening reference rate. Additionally, the release of the allowance for TVOG and CNHR for 2018 and the risk-free return on the components of the net asset value are also included.
- **Expected existing business contribution (in excess of reference rate)** reflects the additional return on the opening EEV expected by the management during the reporting period based on real world investment returns described in section 10.1.4.
- **Transfers from VIF and required capital to free surplus** reflect expected profits that were included in the VIF at the previous year-end and expected to be transferred into the free surplus over the reporting period. The total impact on the EEV earnings is zero.
- **Experience variances** result from deviations between actual and expected profits regarding operational and demographic assumptions such as mortality, lapses and expenses.
- **Assumption changes** are defined as changes from year-end 2017 to year-end 2018 of non-economic assumptions. The assumption changes of SEK -145m are mainly a result of changes in expenses, partly offset by changes in rebates for the unit linked business.
- **Other operating variances** denote model improvements and corrections. In 2018 this impacted the VIF by SEK 51m.
- **Operating EEV earnings** is the sum of the earnings items listed above.
- **Economic variances**, which amounts in total to SEK -459m, include the deviations between actual and expected investment return (SEK -414m), the effect of changing the economic assumptions from the start of the year to the end of the year (SEK -28m) and variation in investment results (SEK -17m). The change in economic assumptions led to an increase in the time value of options and guarantees mainly due to lower long term interest rates.
- **Other non-operating variances** reflect the change in frictional cost arising from the required capital (SEK -30m).
- **Total EEV earnings** are calculated as the sum of operating EEV earnings, economic variances and non-operating variances.
- **Closing adjustments** amount in total to SEK -773m, mainly reflecting dividends paid to the parent company in March 2018 and group contributions during 2018.
- **Closing EEV** is the EEV for SFAB at year-end 2018.

7 Sensitivities

The following table shows the sensitivity to important financial market parameters and to operational and demographic assumptions of the EEV and of the VNB respectively.

Sensitivities of EEV (SEKm)	EEV	Change	Change in %
Base value	11 468		
1. 100 basis points increase of interest rates	11 601	133	1%
2. 100 basis points decrease of interest rates	11 065	-403	-4%
3. 10% fall in equity market values	10 893	-575	-5%
4. 25% multiplicative increase in implied swaption volatilities	11 413	-55	0%
5. 25% multiplicative increase in implied equity volatilities	11 456	-12	0%
6. 10% proportionate decrease in lapse rates	11 819	351	3%
7. 10% decrease in future administration expenses	11 960	492	4%
8. 5% decrease in mortality rates for products with mortality risk	11 798	330	3%
9. 5% decrease in mortality rates for products with longevity risk	11 175	-292	-3%

Sensitivities of VNB (SEKm)	VNB	Change	Change in %
Base value	794		
1. 100 basis points increase of interest rates	793	0	0%
2. 100 basis points decrease of interest rates	789	-4	-1%
3. 10% fall in equity market values	769	-25	-3%
4. 25% multiplicative increase in implied swaption volatilities	794	0	0%
5. 25% multiplicative increase in implied equity volatilities	794	0	0%
6. 10% proportionate decrease in lapse rates	843	49	6%
7. 10% decrease in future administration expenses	828	34	4%
8. 5% decrease in mortality rates for products with mortality risk	825	31	4%
9. 5% decrease in mortality rates for products with longevity risk	771	-23	-3%

- **Sensitivity 1:** A parallel shift upwards of 100 basis points is applied to the observed market swaps rates and the reference rate is then constructed as described in section 10.1.1. Inflation rates are assumed to be unchanged in the stress as the real interest yield curve is adjusted accordingly.
- **Sensitivity 2:** A parallel shift downwards of 100 basis points is applied to the observed market swaps rates and the reference rate is then constructed as described in section 10.1.1. Inflation rates are assumed to be unchanged in the stress as the real interest yield curve is adjusted accordingly. Where applicable, risk free interest rates are allowed to fall below 0% in this sensitivity.
- **Sensitivity 3:** A 10% decrease in market values of all equity holdings at the valuation date.
- **Sensitivity 4:** A 25% multiplicative increase in implied swaption volatilities.
- **Sensitivity 5:** A 25% multiplicative increase in implied equity volatilities.
- **Sensitivity 6:** A permanent 10% proportionate decrease in lapse rates.
- **Sensitivity 7:** A 10% decrease in future administration expenses.
- **Sensitivity 8:** A permanent 5% proportionate decrease in mortality rates for products exposed to mortality risk.
- **Sensitivity 9:** A permanent 5% proportionate decrease in mortality rates for products exposed to longevity risk. The sensitivity is shown before management actions, whereas it was shown after management action in last year.

8 Reconciliation of IFRS equity to EEV net asset value

The following table shows a reconciliation of the IFRS equity to EEV net asset value for the life insurance business at year-end 2017:

Reconciliation (SEKm)	
IFRS equity	2 497
Adjustments for non-covered business (white-label products)	-180
DAC and other intangible assets	0
Goodwill	0
Adjustments for reinsurance recoverable	-124
EEV Net asset value	2 192

9 Methodology

European Embedded Value (EEV) is the present value of shareholders' interests in the earnings distributable from assets allocated to the covered business after sufficient allowance for the aggregate risks in the covered business. The EEV consists of the following components:

- Free surplus allocated to the covered business
- Required capital
- Value of in-force business (VIF)

The VIF comprises the present value of future profits (PVFP) in a certainty equivalent scenario, an allowance for the time value of options and guarantees (TVOG), frictional costs of holding required capital (FC) and an allowance for cost of non-hedgeable risks (CNHR).

SFAB's EEV is based on a market consistent bottom-up approach to EEV.

EEV earnings are defined as the change in EEV before capital movements and dividends. The EEV earnings are split between the expected return (unwinding of discounting and excess return above the reference rate), value of new business, experience variances, assumption changes, other operational variances, economic variances and other non-operating variances.

EEV operating earnings are defined as EEV earnings excluding economic variances and non-operating variances.

Covered business is the business written within and legally contained in SFAB. The non-life business and business where Swedbank acts as a distributor of third party insurance business are excluded from covered business.

Value of New Business (VNB) reflects the additional value to shareholders created through the activity of writing new business. New business is defined as the sale of new contracts and increases to existing contracts during the reporting period. Only increases above levels already accounted for in the value of in-force are taken into account. VNB includes the value of expected renewals on those new contracts and expected future contractual alterations to those new contracts.

VNB is calculated after allowing for TVOG, FC and CNHR using opening economic assumptions and closing operating and demographic assumptions. VNB is calculated after tax at the date of issue.

Net Asset Value is defined as the market value of assets allocated to the covered business in excess of statutory policy reserves and other liabilities at the valuation date. It is made up of the required capital and free surplus.

Required Capital is the portion of assets held in excess of statutory liabilities whose distribution to shareholders is restricted in order to meet insurance obligations. Following the transition to Solvency II, SFAB has determined the required capital as the amount of eligible own funds above the value of future profits, i.e. mainly the shareholder equity, needed in the business to comply with all internal and external requirements, under a set of stressed scenarios.

Free Surplus is calculated as the net asset value less the required capital.

Value of In-Force (VIF) is defined as the present value of future profits (PVFP) less the time value of options and guarantees (TVOG) less the frictional cost of holding required capital (FC) less the cost of non-hedgeable risks (CNHR).

Present Value of Future Profits (PVFP) is the certainty equivalent present value of future profits under a single scenario, reflecting future cash flows arising from the existing covered business. Risk-free rates are used for the investment yield assumptions and the discount rates. The intrinsic value of options and guarantees is included in the certainty equivalent present value of future profits.

The stream of future after-tax profits is determined using best estimate assumptions for future operating conditions regarding such items as expenses, taxation, lapses and mortality rates.

Time Value of Options and Guarantees (TVOG) is derived as the difference between the average PVFP based on the future cash flows under 3 000 risk-neutral scenarios and the certainty equivalent PVFP.

TVOG is evaluated for SFAB's products with guarantees. Allowance is made for management actions in the stochastic scenarios, including dynamic asset allocation in accordance with the dynamic asset strategy adopted by SFAB and the collectivisation of the financial risk for policies with a collective conditional bonus fund.

Frictional Cost of holding required capital (FC) reflects the taxation on expected return and the frictional investment management costs in relation to the required capital. Frictional investment management costs are set to zero since the assets covering required capital is held at a deposit account at Swedbank AB at zero cost.

Cost of Non-Hedgeable Risks (CNHR) is an allowance for non-hedgeable risks not already reflected in the TVOG or PVFP. The EEV Principles require sufficient allowance to be made for the aggregate risks in the covered business and sufficient allowance for certain risks may not have been made within the PVFP, TVOG and FC. These include an allowance for uncertainty in the best estimate of the cash flows related to non-hedgeable risks, including lapse, expense, mortality, longevity and catastrophe (CAT) risk. The CNHR also includes allowance for the illiquidity of the Swedish swap market.

The allowance for CNHR has been made by using a cost of non-hedgeable risk capital approach for the reflected risks. The risk capital has been derived using stress scenarios from SFAB's internal economic capital model with aggregation of risk capitals using correlations to allow for diversification between the risks. SFAB's economic capital model uses similar but not identical stress scenarios and correlations as used in the Solvency II standard model. No allowance is made for diversification between non-hedgeable and hedgeable risks, nor between covered and uncovered business. Future management actions are allowed for in the longevity risk stress where it is assumed that the pricing basis would be adjusted following a longevity shock. The risk capital relating to the illiquidity of the Swedish swap market is calculated by shifting the illiquid part of the yield curve. Future risk capitals are estimated using selected risk drivers. The cost of capital charge is set to 4.0% per annum.

The certainty equivalent scenario is a single deterministic scenario where it is assumed that all assets earn the risk-free rate of return and all cash flows are discounted with the risk-free rate.

Look-through adjustments for SFAB are expected future profits arising in Swedbank's asset management company which stem from SFAB's covered business. These expected profits are allowed for in the EEV and VNB (referred to in the EEV Guidance as a "look through" basis). The value of the look-through profits are stated in section 4.

Reinsurance has not been considered in the valuation of savings business since there are only immaterial amounts of reinsurance within SFAB's covered business.

Annual Premium Equivalent (APE) is a measure for new sales for insurance companies and is defined as the sum of the regular premiums and 10% of the single premiums stemming from new businesses sold during the reporting period.

Present Value of New Business Premiums (PVNBP) is a measure for new sales and is calculated as the sum of single premiums and the present value of regular premiums. The present value of regular premiums is calculated in accordance with VNB using opening economic assumptions and closing operating and demographic assumptions.

Implied Discount Rate (IDR) is defined as the single discount rate which, when applied to a deterministic projection of future shareholder distributable profits using real world economic assumptions as described in section 10.1.4, results in the same value as the one which is produced in accordance with the methodology and assumptions used for calculating SFAB's EEV results.

Internal Rate of Return (IRR) is derived as the single discount rate which, when applied to a deterministic projection of future shareholder distributable profits arising from new business sold in the reporting period using real world economic assumptions as described in section 10.1.4, results in a discounted value of zero.

10 Assumptions

10.1 Economic assumptions

10.1.1 Risk-free reference rate

The risk-free reference rates used for calculating the EEV at year-end 2017 and 2018 have been derived according to the following approach:

- The reference rate is based on Swedish swap rates.
- Swap market interest rates are applied from the liquid part of the risk-free interest rate curve up to the last liquid point (LLP) of 10 years. SFAB does not consider the quoted swap rates beyond 10 years as liquid. No adjustment is made for credit risk or liquidity premium.
- The ultimate forward rate (UFR) is set to 4.05% and the convergence period between the LLP and UFR is set to 50 years. The last observable market point is 30 years.

The reference rate between the LLP and the last observable market point is calculated as a weighted average of implied forward rates from observed market swap rates and the extrapolated forward rate using the Smith Wilson extrapolation technique, where weights decrease linearly between the LLP and the last observable market point. The impact of using a LLP of 30 years compared to using a LLP of 10 years is immaterial on EEV and VNB.

The table below shows the model risk-free reference spot rate curve:

Spot reference rate curve	1	2	5	10	20	30
2017-12-31	-0.4%	-0.2%	0.5%	1.2%	2.0%	2.5%
2018-12-31	-0.1%	-0.1%	0.5%	1.2%	1.8%	2.3%

10.1.2 Calibration of economic scenarios

An economic scenario contains information regarding equity and bond returns, yield curves and inflation rates under a defined projection horizon. The time value of options and guarantees has been calculated based on simulated market consistent economic scenarios. Market consistent scenarios are calibrated to fit market prices at the valuation date. The economic scenario generator (ESG) and the calibration used for generating the market consistent economic scenarios have been provided by Moody's Analytics. The model parameters are calibrated to fit key economic assumptions at valuation date, such as initial yield curve, implied swaption volatilities, implied equity volatilities for relevant equity indices and correlations between asset classes. For estimating the time value of options and guarantees, 3 000 scenarios have been used.

Interest rates are modelled using a so-called Libor Market Model Plus (LMM+). The calibration of LMM+ requires market implied volatilities for at-the-money swaptions for different terms and tenors, as well as market implied volatilities for out-of-the-money swaptions with a 10-year tenor.

The table below shows model implied volatilities for different terms based on market implied volatilities of at-the-money swaptions with a 10-year tenor.

At-the-money swaptions with a 10-year tenor	1	2	5	10	20	30
2017-12-31	0.58%	0.61%	0.67%	0.71%	0.65%	0.56%
2018-12-31	0.56%	0.59%	0.64%	0.69%	0.63%	0.55%

The interest rate model used for calculating the EEV has been calibrated to absolute swaption implied volatilities using a model that assumes that the underlying swap rates exhibit a normal distribution.

Equity prices are simulated using a time varying deterministic volatility model. The equity model has been calibrated to forward implied volatilities on at-the-money OMX30 options. In the calibration, a parametric form has been used to fit the entire term structure of volatilities which also was adjusted for stochastic interest rate effect. The specific model long term excess volatility was calibrated to 20.0% and 19.1% in year-end 2018 and year-end 2017, respectively.

10.1.3 Inflation

Price inflation rates have been set equal to the difference between nominal risk-free reference interest rates and real interest rates. The real interest rates are based on market data and have been extrapolated consistently with the risk-free reference rates. In addition salary inflation affects premiums within corporate pension scheme business and maintenance expenses which in part stem from salary expenses. The salary inflation above price inflation is 2.0% and premiums on occupational pension schemes are inflated at this rate. Inflation of maintenance expenses is equal to price inflation plus 0.8% reflecting that part of the expense is inflated at price inflation and part is inflated at salary inflation.

10.1.4 Real world assumptions

Real world assumptions are used in the EEV earnings analysis for calculating the expected existing business contribution in excess of reference rate and for the derivation of IDRs and IRRs. The following risk premiums have been added to the risk-free reference rates used in the certainty equivalent projection:

Corporate bonds	0%
Equity	3%

Investments of SFAB in real estate are immaterial.

10.2 Non-economic assumptions

10.2.1 Expenses

Assumptions on maintenance, acquisition and claims handling expenses are set by considering past, current and expected future experience. Productivity gains are not included beyond what has been achieved by the end of the experience period. All expenses incurred have been allocated between products into acquisition, maintenance and claims expenses in accordance with the activity-based costing analysis recently performed by SFAB. Expenses are translated into per policy costs and are subject to salary inflation.

10.2.2 Demographic

The assumptions for surrenders, paid up and premium reduction rates are based on company experience. The assumptions for best estimate mortality for savings business are based on the mortality investigation Dödlighetsundersökning 2014 (DUS14), which was carried out by a working group established by the Research Council for Actuarial Science (Försäkringstekniska Forskningsnämnden (FTN)), adjusted for SFAB's company experience. For group life business, the mortality assumption is solely based on internal experience. Morbidity assumptions include assumptions on recovery rates and sickness rates, and have been determined based on company experience.

10.2.3 Tax

Tax regulations specify a company tax of 22% until year-end 2018 that will be successively lowered to 20.6% in 2021. The tax is applicable on returns on shareholder capital and on profits from risk business.

11 Statement of the Board of Directors

The Board of Directors of SFAB confirms that the EEV as at 31 December 2018, and the EEV earnings including the value added by new business in 2018, have been determined using methodology and assumptions which are compliant with EEV Principles and Guidance.

The EEV results have been approved by the Board of Directors of SFAB.

12 Disclaimer

The EEV results includes statements of future expectations that are based on SFAB's current view and assumptions which are exposed to known and unknown risks that could cause actual results to differ materially from those expressed herein. SFAB assumes no obligation to update any forward-looking statement nor any information contained herein.