AGESA HAYAT VE EMEKLİLİK A.Ş.
MARKET CONSISTENT EMBEDDED VALUE REPORT
FULL – YEAR 2021

Actuary & Business Risk

Market Consistent Embedded Value Report

1. Introduction

Embedded value is a financial reporting metric specifically developed for long-term life insurance and pension business over the years. It aims to overcome the known shortcomings of accounting metrics by taking into account the projected cash flows throughout the lifetime of the products using best estimate assumptions. This is necessary to give a more economic and transparent picture of the profitability of the long-term life insurance products since writing new business typically leads to a financial loss on day one in the financial statements. The projected expected profits arising out of the cash flows are adjusted by a risk allowance to reflect the inherent uncertainties of such projections. Additionally, there is an allowance for cost of capital, to reflect the cost of holding capital. This report should be considered as an addition to and not as a substitute for AgeSA's primary financial statements.

This report provides the Market Consistent Embedded Value (MCEV) results of AgeSA on a 100% ownership basis as of December 31, 2021 and the value of new business and related metrics for the full year ended December 31, 2021.

2. Definition of Embedded Value

MCEV is the sum total of the estimated value of the inforce portfolio (VIF) plus the shareholders' net worth. The VIF represents the present value of shareholders' interests in the earnings distributable from assets allocated to the covered business after making sufficient allowance for the aggregate risks in the covered business. The allowance for risk is calibrated to match the market price for risk where reliably observable.

The value of future new business is excluded from the MCEV. New business is defined as business arising from the sale of new contracts and includes expected renewals on those contracts (noting the exception for yearly renewable life insurance term business, which is detailed below in section 6) and expected future contractual alterations to those contracts. Non-contractual increases in premiums, such as additional contributions to the pensions business, is included within new business. For group pension and auto-enrolment pension business, new business is defined as newly obtained schemes or additional members within existing schemes.

The results have been prepared under the European Insurance CFO Forum Market Consistent Embedded Value Principles (''MCEV Principles'', copyright Stichting CFO Forum Foundation 2008) which were first published October 2009.

Calculations are performed after allowing for reinsurance and on an after-tax basis taking into account current legislation and practice, together with future known and certain changes.

The methodology, assumptions and results have been reviewed by PwC. Their opinion is included in section 15.

3. Covered Business

The MCEV Principles draw a distinction between "covered business" to which the MCEV methodology is applied, and "non-covered business" which is reported on an unadjusted IFRS net asset value basis. All of AgeSA's business is regarded as covered business for purposes of MCEV reporting as all of the company's business is related to insurance business and the assets backing that business. As such, no non-covered business or Group MCEV are presented.

4. Methodology and Components of MCEV

The methodology used in calculating each of the components of the Company's MCEV is provided below:

a. Shareholders' Net Worth

Shareholders' net worth is defined as the market value of assets allocated to the covered business not required to back the in-force regulatory liabilities at the valuation date. The shareholders' net worth is calculated on the basis of the local regulatory surplus.

The shareholders' net worth is comprised of required capital and free surplus. The required capital is the market value of assets allocated to the covered business over and above that required to back liabilities for the covered business, whose distribution to shareholders is restricted. The required capital is defined as 150% of the Turkish regulatory capital requirements, in-line with management's target capital ratio.

The free surplus is the market value of any assets allocated to, but not required to back liabilities or support required capital of the in-force covered business at the valuation date. The free surplus excludes any DAC asset. A reconciliation of the shareholders' net worth and the IFRS shareholders' equity (referred to as "IFRS net asset value" in the MCEV Principles) is provided under section 9.

b. Value of In-force Covered Business

The in-force portfolio consists of policies underwritten up to the valuation date and excluding future new business.

The value of in-force (VIF) of covered business is the value arising from the in-force portfolio, and consists of the following components:

- the present value of future profits (PVFP), where profits are taken as post taxation shareholder cash flows from the in-force covered business and the assets backing the associated liabilities;
- the time value of financial options and guarantees (TVOG);
- the frictional costs of required capital (FC); and
- the costs of residual non-hedgeable risks (CNHR).

The methodology used to calculate each of these components is set out below.

Present value of future profits (PVFP)

The PVFP is the present value of the profits distributable to shareholders arising from the in-force covered business projected on a best estimate basis. Distributable profits generally arise when they are released following valuations carried out in accordance with Turkish regulatory requirements, which are designed to demonstrate and ensure solvency.

Future distributable profits are projected using best estimate non-economic assumptions and market consistent economic assumptions. The PVFP is calculated using the certainty equivalent approach, consistent with MCEV Principles, under which the same reference rate is used for both the projected investment return and the discount rate.

Time value of financial options and guarantees (TVOG)

An allowance for TVOG must be required with respect to Principle 7 where policyholders are provided with financial options and guarantees. Guarantees are present for certain unit-linked life savings run-off portfolios which are closed to new business. For certain unit-linked life savings contracts, the policyholder has been provided with financial guarantees around the level of financial return on its investment. The analysis carried out to determine the TVOG indicates that the financial guarantees is immaterial due to the size of the unit-linked life savings portfolio and the high interest rate environment in Turkey relative to the guaranteed level of financial return on the contracts. Therefore, the TVOG for all covered business has been approximated to be immaterial.

Frictional costs of required capital (FC)

The FC reflects the present value of additional costs to shareholders of holding the assets backing required capital within an insurance company. The frictional costs allowed for are the taxation costs applicable to investment returns and any additional investment expenses on the assets backing the required capital. These frictional costs are projected and then discounted at the reference rate to determine the FC.

Cost of residual non-hedgeable risks (CNHR)

The CNHR allows for risks which have not been sufficiently allowed for elsewhere in the valuation by using weighted averages. The allowance for relevant risks within the CNHR, includes but is not limited to following risks:

- operational risk, in so far as this has generally not been allowed for elsewhere;
- uncertainty related to chosen assumptions as actual experience can vary from best estimate assumptions (including mortality, mass lapse and expenses); and
- counterparty default risk of business partners.

The CNHR is allowed for by using a 'cost of capital' approach, where the charge assumed has been set to ensure that the total CNHR is sufficient to meet the impact of the risks considered as outlined above. The method to derive relevant required capital levels has been aligned with the Solvency II framework for deriving the capital for non-hedgeable risks. The CNHR has been calculated by projecting the relevant risk capital using appropriate risk drivers over the term of the business. The reference rate has been used as the discount rate for this calculation.

The CNHR calculation allows for diversification between different non-hedgeable risks, but no diversification between hedgeable and non-hedgeable risk is taken into account.

5. Value of New Business

The value of new business (VNB) is calculated consistent with the methodology used for calculating the VIF and represents the value arising from new business written in the year ended December 31, 2021.

The VNB consists of the present value of future distributable profits of business written in the relevant reporting period, with allowance for related CNHR, FC and TVOG. This is calculated using a point of sale approach where separate calculations are carried out for each quarter's new business, using economic assumptions as at the end of the previous quarter and non-economic assumptions as of the valuation date of December 31, 2021.

6. Additional Matters Relating to the MCEV Methodology

Treatment of yearly renewable term assurance

All yearly renewable products are assumed to have a term of one year. Any renewals on the in-force business are classified as new business. Given the current volumes of in-force and new yearly renewable products, the methodology set out here does not have a material impact on the VIF or VNB.

Policy data treatment as of the valuation date

The in-force business data is extracted from the administration systems as of 31 December 2021. The value of new business and other new business metrics are based on twelve months of actual policy data.

Calculation of paid-up coverage of Return of Premium product

AgeSA applies deductions in accordance with the tariff technical principles of the product for the mathematical reserves of the policies exempt from premium payment (paid-up policy) within the scope of Return of Premium product. As of December 31, 2022, AgeSA has recorded life mathematical reserve amount of TRY 127.5 million for the policies that are in the paid-up status and have not yet matured. In the articles of the "Circular on Mathematical Provision Account" published on April 6, 2022, it is stated that "In policies that are exempt from premium payment (deduction), the amount of insurance amount to be taken as a basis for calculations is determined within the framework of the relevant legislation from the date the policy is deducted". AgeSA has started to evaluate and work on whether the aforementioned legislative change will have an impact on the company's financials. If adjustments are made as a result of these evaluations, the Company's MCEV results may be significantly affected.

7. Assumptions

This section describes the key assumptions used in preparing the MCEV results. The assumptions used to value new business are consistent with those used to value in-force business.

a. Economic Assumptions

Reference rate

The table below sets out the reference rates used in the MCEV calculations as of December 31, 2021 and December 31, 2020 at sample durations, expressed in spot rates (%).

Table 1 ***TL Spot rates (%)***

Term	***As of December 31, 2021***	***As of December 31, 2020***
1	21.6	15.0
2	23.2	14.4
3	24.4	13.7
4	25.0	13.1
5	25.4	12.7
6	25.4	12.4
7	25.2	12.3
8	24.9	12.2
9	24.6	12.2
10	24.3	12.2
20	20.7	10.8
30	16.9	9.4

Table 2 ***USD Spot rates (%)***

Term	***As of December 31, 2021***	***As of December 31, 2020***
1	0.44	0.02
2	0.84	0.03
3	1.08	0.07
4	1.19	0.16
5	1.28	0.26
6	1.33	0.38
7	1.38	0.49
8	1.43	0.59
9	1.46	0.69
10	1.50	0.77
20	1.67	1.18
30	1.64	1.27

EIOPA spot rates are used to be consistent with the Solvency II Directive. This is specifically required to address the lack of a deep and liquid market at the longer end of Turkish Lira yield curve, exacerbated in light of the inverted nature of the curve. Those rates are then converted in the forward rates to be used in the projections.

No liquidity premium is assumed in the reference rate.

Foreign exchange rates

The MCEV and VNB are calculated in the currency applicable to each of the underlying contracts and then converted to Turkish Lira using the corresponding exchange rates as of the valuation dates for the VIF and end of the previous quarter for the VNB. The U.S. dollar exchange rates used in the MCEV calculations as of December 31, 2020 and December 31, 2021 are given below:

Table 3

	December 31, 2021	***December 31, 2020***
U.S dollar/Turkish Lira	13.3290	7.4194

Real-world investment returns

Spot rates are materially at the same level as the yield on the interest-bearing assets in Turkey. In light of this, the real-world yields are set equal to the reference rates as given above. Any equity risk premium that would be earned on equity assets is ignored on grounds of materiality and will be reflected in economic variances. The resulting yield is consistent with management's expectation of the return on the business. Real-world investment returns are used for calculating the expected return in the analysis of MCEV earnings, IRR and payback period new business metrics.

Inflation assumption

As there is no liquid market in inflation-linked swap instruments, management's ability to set reliable inflation assumption with reference to the swap curve is reduced.

Inflation assumption has been set to reflect the current macro-economic environment. Inflation forecast of the Central Bank of Turkey was used as of December 31, 2021. According to the Central Bank inflation report, the TL inflation rate was 36.08% and the USD inflation rate was 7.04% as of year-end 2021. The inflation assumptions used in projections can be seen below.

	2022	2023	2024	2025	2026	2027
TRY	36.0	20.0	15.0	10.0	7.0	7.0
USD	4.0	3.0	3.0	2.0	2.0	2.0

The expense inflation is assumed to be the same as the inflation assumption.

Cost of capital for CNHR

AgeSA's methodology includes a charge on non-hedgeable risk capital set at 6% per annum (after tax) over and above the risk free rate. This charge is applied to the non-hedgeable risk capital, in line with the risk margin derivation as defined by the Solvency II Directive.

b. Non-Economic Assumptions

Operating assumptions are reviewed on a regular basis, and updated typically at each year-end date to reflect changes in emerging experience when considered appropriate to do so, unless management becomes aware of a material change in the emerging experience that should be reflected sooner at the end of the year. In light of the emerging experience, assumptions were updated for expenses, lapse and paid up rates as of December 31, 2021 both for new business and in-force.

Expense assumptions

The best estimate expense assumptions have been set on a going concern basis and are based on the level of expenses allocated to the covered businesses.

Management expenses are analysed and split between expenses relating to segments and further with respect to the acquisition of new business, the maintenance of in-force business, exceptional development and one-off expenses.

For maintenance expenses (excluding investment expenses), assumptions are derived for each product line and are typically expressed as per policy amounts. Per policy maintenance expenses are assumed to increase in the future in accordance with the level of inflation as described in the previous section. The amount of acquisition expenses in the relevant period is allowed for as a deduction in the calculation of the VNB for that period.

Expenses of an exceptional nature are excluded from the expense assumptions used in the VIF and VNB calculations. These are identified separately when they occur and will impact the shareholder's net worth when they are incurred. Accordingly, future investment management expenses paid to third parties are allowed for in the projection.

Persistency assumptions

Assumptions have been made in respect of future levels of lapses, premium persistency and surrenders. The assumptions reflect the best estimates of the likely future experience, and are based on recent experience and relevant industry data where available, as well as management judgement.

The long-term value arising from the pensions business is highly dependent on the persistency assumptions such as surrenders and premium collection. These assumptions have been set with reference to AgeSA's relevant historical experience to provide a credible estimate of future experience. No allowance has been made for future improvements in persistency rates.

Since the final wave of enrolments into the auto-enrolment system was completed at the beginning of 2019, pension lapse levels have remained fairly consistent. The launch of the auto-enrolment system starting in 2017 had a significant cannibalization effect on the voluntary pension portfolio resulting in elevated lapses. However, since the beginning of Q4 2019 we have continued to see lapse rates remain slightly elevated compared to previous levels for certain channels. Therefore for year-end 2021, we have decided to increase the lapse assumptions for the initial years for the Bancassurance and Corporate channel.

Lapse assumptions for the long term credit life product have been decreased. As of Q2 2021, the ability to lapse separately from the loan contract will not be offered for new credit life sales during the first policy year. This product's lapse experience has subsequently decreased and we expect to remain at lower levels.

The COVID-19 pandemic began to spread throughout Turkey as of March 2020. The effect of the pandemic on the persistency of our portfolio has also been limited. Management actions (including additional customer calls to customers at risk of lapsing, as well as delaying automatic lapses for policies with unpaid premiums) have helped to limit the effect of the pandemic on lapse and paid-up levels.

Any external developments such as regulatory changes are taken into the decision process when considering assumptions changes.

Claims assumptions

Future morbidity and mortality level assumptions reflect the best estimates of the likely future experience, and are based on recent experience and relevant industry data, where available, and management judgement.

The assumptions for future mortality rates for the pensions, individual life and group whole life businesses are based on the company's experience to date. No allowance is made for the expected improvements in mortality of the business.

The COVID-19 pandemic began to spread throughout Turkey as of March 2020. Although the pandemic led to mortality experience for the first 6 months of 2021 is more than 80% above the experience level of the 2 years prior to the pandemic, the experience variance compared to mortality assumptions was limited. We have proposed no changes to the mortality experience assumptions as any long-term effects from the COVID-19 pandemic will need to be monitored in the years following the pandemic.

Any external developments such as regulatory changes are taken into the decision process when considering assumptions changes.

Tax assumptions

The corporate tax rate assumptions used in the projection of the distributable earnings at each valuation date has been set to the Turkish corporate tax rate of 25% for the year 2021, 23% for the year 2022 and 20% thereafter.

8. Market Consistent Embedded Value Results

The table below shows the summary statement of the AgeSA MCEV as of December 31, 2021 and as of December 31, 2020.

Table 4

(TL Millions)	*As of December 31, 2021*	*As of December 31, 2020*	*Change (%)*
Value of In-force	**2,312.2**	**1,602.8**	***44.3%***
PVFP	2,832.0	1,884.0	*50.3%*
FC	-108.7	-43.6	*149.1%*
CNHR	-411.1	-237.6	*73.0%*
TVOG	0.0	0.0	*N/A*
Net Worth	**893.0**	**689.0**	***29.6%***
Free surplus	-69.6	135.2	*-151.5%*
Required capital	962.6	553.8	*73.8%*
AgeSA MCEV	**3,205.1**	**2,291.8**	**39.9%**

The capital level of AgeSA is at 145% as of the end of 2021 which is slightly below the management target of 150%. This results in a negative free surplus result of 69.6m TL.

The table below shows the VIF broken down by segment.

Table 5

(TL Millions)	*As of December 31, 2021*	*As of December 31, 2020*	*Change (%)*
Individual Pensions	1,034.5	863.4	*19.1%*
Group Pensions	145.2	176.2	*-18.5%*
Life Protection	1,127.6	559.9	*104.3%*
Personal Accident	11.0	20.6	*-46.6%*
Life Savings	-6.1	-17.5	*-65.4%*
AgeSA VIF	**2,312.2**	**1,603.0**	**44.2%**

Although the combined pensions business remains the most significant portion of the in-force book, the life protection portfolio now represents almost 49% of the VIF.

9. Reconciliation from IFRS Shareholders' Equity to MCEV Shareholders' Net Worth

The table below shows the reconciliation between the IFRS shareholders' equity and the MCEV shareholders' net worth.

Table 6

(TL Millions)	*As of December 31, 2021*	*As of December 31, 2020*	*Change (%)*
IFRS shareholders' equity	1,368.6	1076.0	*27.2%*
IFRS deferred acquisition costs	-468.9	-393.5	*19.2%*
IFRS deferred income reserve	28.9	36.2	*-20.2%*
Difference in technical provisions between IFRS and MCEV	-41.6	-36.0	*15.6%*
Legal Outstanding Claims	6.0	6.4	*N/A*
MCEV shareholders' net worth	**893.0**	**689.1**	**29.6%**

The MCEV shareholders' net worth differs from the IFRS shareholders' equity with respect to the following items:

- IFRS deferred acquisition costs in relation to the covered business are not included in the MCEV shareholders' net worth, which amounted to 468.9 mTL as of December 31, 2021.
- IFRS deferred income reserves in relation to the covered business are not included in the MCEV shareholders' net worth, which amounted to 28.9 mTL as of December 31, 2021.
- The difference in technical provisions between IFRS and MCEV arises because the IFRS basis does not allow for equalisation reserves which are included in the statutory reserves used to derive the MCEV shareholders' net worth.

The increase in MCEV shareholders' net worth is due to the capital generation capability of the business after allowing for the dividend payment made in 2021.

10. Analysis of MCEV Earnings

The table below set out the analysis of the embedded value earnings for the period from December 31, 2020 to December 31, 2021.

Table 7

(TL millions)	Free Surplus	Required Capital	VIF	MCEV
Opening MCEV	**135.3**	**553.7**	**1,602.6**	**2,291.7**
Value of new business	-49.7	140.7	382.2	473.2
Expected existing business contribution (reference rate)	21.9	89.7	306.9	418.6
Expected existing business contribution (in excess of reference rate)	0.0	0.0	0.0	0.0
Transfers from VIF and required capital to free surplus	638.1	-107.6	-530.5	0.0
Experience variances	-423.4	78.5	102.3	-242.6
Assumption changes	0.0	0.0	-113.4	-113.4
Management Actions and Product Changes	0.0	0.0	0.0	0.0
Other operating variances	1.0	-1.0	-8.0	-8.0
Operating MCEV earnings	**187.9**	**200.4**	**139.5**	**527.8**
Economic variances	-126.1	196.6	570.0	640.5
Other non-operating variance	0.0	0.0	0.0	0.0
Total MCEV earnings	**61.7**	**397.0**	**709.6**	**1,168.3**
Capital movements	-266.7	11.9	0.0	-254.8
Closing MCEV	**-69.6**	**962.6**	**2,312.2**	**3,205.1**

The following section explains the drivers of changes between the opening and closing MCEV. The value of new business is separately discussed in “New business results” below.

Expected existing business contribution

The expected existing business contribution represents the unwinding of the reference rate on the opening MCEV and reflects management’s expectation of the earnings on this business. This is essentially the change in MCEV during the reporting period arising from the in-force at the start of the year. The existing business contribution in excess of reference rate is nil, consistent with the real-world investment returns being set to be the same as the reference rate.

Transfer of VIF and required capital to free surplus

This denotes the capital generation from the in-force business at the start of the period. It is composed of two items: the monetization of VIF following the emergence of earnings of 530.5m TL and the release of required capital running off which totalled 107.6m TL.

Experience variances

Experience variances represent the impact on the MCEV as a result of the difference between assumed and actual operating experience in the reporting period, including expense, mortality and persistency experience.

The negative persistency variance is mainly due to lower lapse rates than expected for 2021.

Expenses during the period were higher than expected in part due to lower than expected sales mainly caused by the COVID-19 pandemic.

Paid claims results are higher than expected for 2021, but this is expected to decrease as the effects of the COVID-19 pandemic wane.

Assumption changes

AgeSA maintains its discipline around monitoring the experience against best estimate assumptions regularly throughout the year.

As noted earlier, lapse levels for long-term credit life have been decreased while pension lapse levels for the Bank channel have been increased. The effects of two changes have largely offset each other.

Expense assumptions are set with respect to the activity based costing methodology. Lower cost allocation to in-force policies has led to a maintenance expense assumption change effect of -117.8m TL.

CI rider claims experience assumptions have been decreased according to past years' experience. This has led to an effect on VIF of +5.8 m TL

Economic variances

This item includes the impact of both economic assumption changes and economic variances. Economic variance reflects the impact of actual investment return experience in the period differing from assumed investment returns.

The combined effect of the updated spot rates for the Turkish Lira and US Dollar is a positive impact of 279.9 m TL, of which 254.6 m TL comes from the US Dollar portfolio. The depreciation of the Turkish Lira during period against the US Dollar leads to exchange rate gains (+294.7m TL MCEV) due to dollar denominated products.

The effect of real world investment returns on pension management charge income leads to an increase of 207.4m TL.

Capital movements

Capital movements are mainly composed of dividends, the cash up streamed to AgeSA's holding companies, which totalled 160.0m TL for 2021.

11. New Business Results

VNB is one of the key indicators that AgeSA uses to measure the profitability and steer the growth of new business written in the life and pensions segments. The table below sets out an overview of the value of new business and other related metrics (defined below) for December 31, 2021 and December 31, 2020.

Table 8

(TL Millions)	*As of December 31, 2021*	*As of December 31, 2020*	*Change (%)*
Value of New Business (VNB)	473.2	314.1	*50.7%*
Present Value New Business Premiums (PVNBP) (1)	8,124.7	5,839.8	*39.1%*
New business margin (PVNBP basis) (2)	5.8%	5.4%	*0.4%*
Single premium	2,391.3	1,594.4	*50.0%*
Annual premium	1,444.9	909.2	*58.9%*
Average annual premium multiplier (3)	4.0	4.7	*-15.0%*
Annual Premium Equivalent (APE) (4)	1,757.4	1,132.1	*55.2%*
Internal Rate of Return (IRR) (5)	197.5%	80.7%	*116.7%*
Payback period (in years)	0.9	1.2	*-0.3*

Note (1): The present value of premiums arising from new business calculated by projecting the premiums expected in each future year from point of sale.Note (2): Calculated as VNB divided by PVNBP.

Note (3): Calculated by the following formula: (PVNBP - single premium)/annual premium.

Note (4): APE = annual premium + 10% of single premium.

Note (5): IRR is calculated with no explicit allowance for CnHR.

Note (6): Payback period is calculated with no explicit allowance for CnHR.

a. New Business Bridging

Table 9

December 31, 2021 (TL Millions)	***VNB***	***NB Margin***	***PVNBP***
Opening	314.1	5.4%	5,839.8
Volume Impact	189.5	2.6%	456.7
Mix Impact	19.6	0.3%	0.0
Expense Overrun	38.2	0.6%	0.0
Assumption Change	-88.2	-3.6%	2,668.1
Closing	**473.2**	**6.7%**	**8,124.7**

VNB has increased by 50% primarily due to increases in volume.

The following tables set out the VNB and other new business metrics by product for December 31, 2021 and December 31, 2020 respectively.

Table 10

December 31, 2021	***Life Protection(*)***	***Personal Accident***	***Individual Pensions***	***Group Pensions***	***Pensions***	***Total***
Value of New Business (VNB)	417.6	2.8	59.6	-6.8	52.8	**473.2**
Present Value New Business Premiums (PVNBP) (1)	2,422.1	69.1	4,227.9	1,405.5	5,633.4	**8,124.7**
New business margin (PVNBP basis) (2)	17.2%	4.0%	1.4%	-0.5%	0.9%	**5.8%**
Single premium	1,024.0	69.1	1,940.8	90.6	2,031.4	**3,124.5**
Annual premium	260.9	0.0	767.0	417.1	1,184.0	**1,444.9**
Average annual premium multiplier (3)	5.4	N/A	3.0	3.2	3.0	**3.5**
Annual Premium Equivalent (APE) (4)	363.3	6.9	961.1	426.1	1,387.2	**1,757.4**
Internal Rate of Return (IRR)	>1000%	25.2%	23.2%	25.1%	23.4%	**197.5%**
Payback period (in years)	0.0	1.0	4.2	5.9	4.3	**0.9**

* There is no new business attributable to the life savings segment.

Table 11

December 31, 2020	*Life Protection(*)*	*Personal Accident*	*Individual Pensions*	*Group Pensions*	*Pensions*	*Total*
Value of New Business (VNB)	261.5	13.9	28.2	10.5	38.6	**314.1**
Present Value New Business Premiums (PVNBP) (1)	1,617.1	87.7	3,041.9	1,093.1	4,134.9	**5,839.8**
New business margin (PVNBP basis) (2)	16.2%	15.9%	0.9%	1.0%	0.9%	**5.4%**
Single premium	615.5	87.7	1,455.0	70.9	1,525.9	**2,229.1**
Annual premium	183.9	0.0	453.5	271.8	725.3	**909.2**
Average annual premium multiplier (3)	5.4	N/A	3.5	3.8	3.6	**4.0**
Annual Premium Equivalent (APE) (4)	245.5	8.8	599.0	278.9	877.9	**1,132.1**
Internal Rate of Return (IRR)	259.8%	58.9%	16.2%	19.0%	17.3%	**83.6%**
Payback period (in years)	0.5	1.0	5.4	7.4	6.2	**1.2**

* There is no new business attributable to the life savings segment.

The life protection and personal accident businesses have higher new business margins, compared to the pensions mainly due to the value from the projected release of prudent mortality and morbidity margins from the statutory reserves. This is supported by favourable past experience.

Life protection

New business margin has slightly decreased year-on-year in part due to increased penetration of an unemployment rider to the credit-life product. However, the addition of this rider was one of the main drivers in the 50% jump in premium production. In addition, a regulation change requiring gross surrender payments for long-term credit-life policies has led to a drop in profit margins. Also, increased ROP sales within the sales mix has put pressure on the VNB margin. Life protection business is highly capital generative with fast payback periods of less than 1 year for the credit-life product and less than 2 years for the Return of Premium product.

Personal accident

New business margin has dropped as a result of the increase in per policy expense level. Lower sales volumes have also contributed to lower VNB levels.

Individual pensions

Individual pensions business has exhibited low sales volumes in another year of transition and challenging market conditions. This has led to higher per policy expense levels and thus lower VNB margins year-on-year. However, higher sales have compensated for the lower margins, resulting in an increase in VNB overall.

Group pensions

Group pensions segment is now primarily auto-enrolment with lower fees compared to retail (group) pensions. Higher sales volumes have compensated for a drop in margins leading to a higher VNB result.

12. Maturity Profile of Business

The tables below represent the profile of the VIF emergence expected to turn into undiscounted profits over the projection years for in-force and new business respectively.

Table 12 - In-force

In Years	FY2021	FY2020
1	14.9%	20.0%
2	33.9%	37.6%
3	51.3%	51.9%
4	65.1%	63.5%
5	75.4%	72.9%
6	82.4%	80.3%
7	87.4%	85.7%
8	90.8%	89.7%
9	92.9%	92.2%
10	94.3%	93.8%
11 to 15	98.2%	98.2%
16 to 20	99.5%	99.6%
Above 20	100.0%	100.0%

More than half of the VIF is expected to monetise into profits within three years with an acceleration from 2019. This is due to higher weighting of the life protection in the VIF mix.

Table 13 - New Business

In Years	FY2021	FY2020
1	19.1%	30.5%
2	37.4%	46.5%
3	54.3%	59.7%
4	67.6%	70.1%
5	76.7%	77.8%
6	83.1%	83.9%
7	88.1%	88.9%
8	91.9%	92.9%
9	94.7%	95.7%
10	96.3%	96.7%
11 to 15	98.7%	98.2%
16 to 20	99.7%	99.4%
Above 20	100.0%	100.0%

The pace of VIF monetisation for new business has slowed year-on-year primarily due to the inclusion of gross surrender payments (and the resulting increase in reserves) as well as increased rider penetration levels with lower margins within the credit-life portfolio.

13. Sensitivity Analysis

Embedded value calculations rely upon best estimate assumptions such as expense, interest rate, investment return, lapse rate and mortality rate assumptions.

Sensitivity testing of the embedded value outcomes for alternative assumptions is provided in the tables below. AgeSA does not have material exposure to equity or property assets so no sensitivity has been provided for these asset classes.

The sensitivities are applied proportionately for the non-economic assumptions but as an additive for the economic assumptions.

Table 14		As of December 31, 2021
(TL millions)	***MCEV***	***Value of New business***
Base Value	**3,205.1**	**473.2**
Sensitivity to non-economic assumptions		
Lapse rates +10%	-53.4	-20.0
Lapse rates -10%	60.3	22.2
Maintenance expenses +10%	-103.6	-15.0
Maintenance expenses -10%	103.6	15.0
Assurance mortality/morbidity +10%	-36.1	-7.8
Assurance mortality/morbidity -10%	36.0	7.8
Paid-up rates +10%	71.3	5.8
Paid-up rates -10%	-75.5	-6.4
Required capital at the Solvency I level	36.2	2.9
Market interest rates +1%	197.5	38.5
Market interest rates -1%	-238.6	-46.4
Year-end Real Lapse Experience	-256.6	-6.7
Pension	3.1	5.6
Life	-259.7	-12.3

Table 15		As of December 31, 2020
(TL millions)	***MCEV***	***Value of New business***
Base Value	**2,291.8**	**314.1**
Sensitivity to non-economic assumptions		
Lapse rates +10%	-52.8	-18.1
Lapse rates -10%	59.1	19.8
Maintenance expenses +10%	-63.6	-8.7
Maintenance expenses -10%	63.5	8.7
Assurance mortality/morbidity +5%	-11.1	-3.3
Assurance mortality/morbidity -5%	11.0	3.3
Paid-up rates +10%	40.2	5.7
Paid-up rates -10%	-42.8	-6.3
Required capital at the Solvency I level	14.5	1.5
Market interest rates +1%	152.7	32.6
Market interest rates -1%	-89.9	-34.3
2020 Q4 YTD Lapse Experience	-100.1	-18.9
Pension	65.7	10.7
Life	-165.8	-29.5

A brief explanation of each of the sensitivities is provided below.

Lapse rates +10%/-10%: To illustrate the impact of a different level of projected lapses, lapse rates were increased and decreased by 10% of the base assumption. Premium collection rates are excluded from the lapse sensitivity. The relatively large MCEV impact of the lapse sensitivity is due to loss of future charges for the pensions business partially offset by higher deferred entry fee income, which is charged to participants at the time of exit. The drop in VNB is shared across both Life and Pension portfolios.

Maintenance expenses +10%/-10%: MCEV increases when maintenance expenses are lowered by 10% due to decreased future liability levels.

Assurance mortality/morbidity +10%/-10%: To illustrate the effect of changes to mortality/morbidity, it was assumed that mortality and morbidity rates decrease by 10% of the base assumptions. The effect is significant for the life protection portfolio.

Paid-up rates +10%/-10%: To illustrate the impact of a different level of projected premium collection, premium collection rates were increased and decreased by 10% of the base assumption. An increase in paid-up rates implies that there are less contracts paying contributions leading to a lower embedded value and vice versa for the pensions business. Life protection business benefits from higher paid-ups due to the subsequent changes in coverage levels and increased reserve releases as defined by the related product specifications for policies in paid-up status.

Required capital at 100% Solvency I requirement level: This is to show the impact of targeting a higher internal required capital in the base MCEV, which is an addition of 50% on top of the Solvency I capital requirement.

Market interest rates +1%/-1%: When the market interest rate sensitivities are performed, consequential changes in yield and values are allowed for on all interest-bearing assets and liabilities, including updating the assumptions for indexation of regular premiums and expense inflation. Pensions' VIF increases when interest rates decrease and decreases when interest rates increase due to its exposure to the fee-based pensions business, which is of a longer duration than the life insurance business. Underlying assets backing life savings liabilities are assumed to be invested in cash when carrying out the interest rate sensitivities. An increase in interest rates have a positive overall impact on both MCEV and VNB. This is due to the spread nature of Return of Premium product where higher profits are projected as a result of higher interest rates.

Year-End Real Lapse Experience: This sensitivity shows the effect of using the latest actual lapse experience on MCEV results. The negative effect on pension is due to a slightly higher real lapse experience than expected lapse rate. The negative effect on life protection is mostly due to lower lapse rates for return of premium product, as higher lapse rates result in a higher profitability due to surrender charges.

14. Statement of Directors' Responsibilities in respect of the MCEV Basis

When compliance with the MCEV Principles is stated, those principles require the directors to prepare supplementary information in accordance with the methodology contained in the MCEV Principles and to disclose and explain any non-compliance with the guidance included in the MCEV Principles. In preparing this supplementary information, the directors have done so in accordance with these MCEV Principles and have also fully complied with all the guidance. Specifically the directors have:

- determined assumptions on a realistic basis, having regard to past, current and expected future experience and to relevant external data, and then applied them consistently;
- made estimates that are reasonable and consistent; and
- provided additional disclosures when compliance with the specific requirements of the MCEV Principles is insufficient to enable users to understand the impact of particular transactions, other events and conditions, and AgeSA's financial position and financial performance.

15. Independent Opinion

PwC has been engaged to review the Market Consistent Embedded Value ('MCEV') results of AgeSA Emeklilik ve Hayat AS (hereafter: 'AgeSA') as of 31 December 2021 (hereafter: 'valuation date'), which includes: Value of the In-Force Business (VIF), Value of New Business ('VNB') and Analysis of Change as disclosed in the relevant parts AgeSa's Full Year 2021 report.

Management's responsibilities for the MCEV report

The CFO Forum MCEV Principles & Guidelines (published in June 2008 and amended in October 2009) (hereafter: 'Guidelines'), have been adopted by AgeSA. Management is responsible for the preparation and fair presentation of the MCEV, using these Principles and the market consistent methodology and assumptions as set out in AgeSA's Full Year 2021 MCEV Report, and by performing the internal controls as management deems it necessary to enable the preparation of its calculations and documentation free from material misstatement.

Inherent limitations

The MCEV FY2021 Reporting is based on numerous assumptions with respect to economic conditions, operating conditions, policyholders' behaviour, taxes and other matters, many of which are beyond the Management's control. Although the assumptions used represent AgeSA's best estimates as at the valuation date, actual experience in the future may vary from assumptions used in the calculation of the MCEV and such variation may be material. The projections and the figures developed have been constructed on a 'going concern' basis and assume continuation of the current economic, taxation, legal and regulatory environment prevailing in Turkey. PwC has not considered possible financial implications arising from the changes in these areas.

Scope of the work

PwC undertook a review of the aggregated results from AgeSA's models in order to satisfy itself on the basis of a number of checks that the disclosed results have been prepared in accordance with the methodology and assumptions disclosed. In arriving at its conclusions PwC has relied without independent verification upon the completeness and accuracy of the data, models and information provided by AgeSA, both orally and in written form. This review opinion is made to AgeSA in accordance with the terms of the Engagement Letter.

On the basis of the scope above, PwC has concluded that the disclosed results in scope of its review have been prepared, in all material aspects in accordance with the methodology and assumptions set out in this report. The operating assumptions are reasonable in the context of available experience and management expectations about the future operating environment and policyholder behaviour.

In arriving at these conclusions PwC has relied on data and information provided by AgeSA. This review opinion is in accordance with the terms of the engagement letter. To the fullest extent permitted by applicable law, PwC does not accept or assume any responsibility, duty of care or liability to anyone other than AgeSA for or in connection with its review work, the opinion it has formed, or any statement set forth in this opinion.

Theo Berg

Yours sincerely,
PricewaterhouseCoopers Pensions, Actuarial & Insurance Services B.V.

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