

It has been necessary to make a number of simplifying assumptions and calculations, including the following:

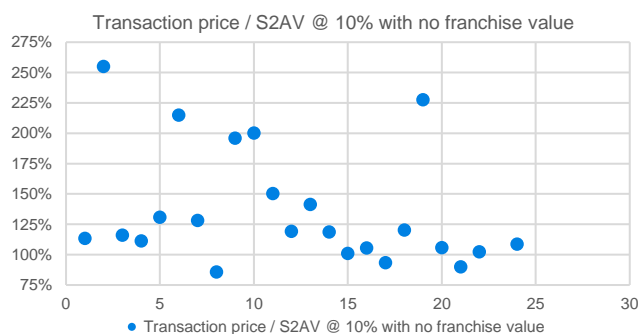
- A 150% solvency ratio is maintained and all capital in excess of this is distributed
- The duration of liabilities is estimated from the risk margin and corresponding capital for non-hedgeable risks, and the cost of capital is then a function of this duration, allowing for the shareholders' required rate of return
- Real-world uplifts from investing in risky investments such as equities and corporate bonds have been assumed to be proportional to the amount of market risk as measured by SCR market and calibrated to roughly equate to a 5% per annum (p.a.) equity risk premium
- Considering the target entities on a standalone basis, without any post-acquisition actions (e.g., de-risking, synergies with acquirer's existing business)
- Deducting subordinated debt included in own funds and adding back foreseeable dividends that had been deducted from own funds.

These assumptions were made to allow us to cover a large sample of companies in a consistent and relatively simple way. If it was of interest to look at a specific company, it would generally be possible to find additional information (e.g., from the annual report and accounts, the SFCR narrative etc.) and to make judgemental assumptions which are more tailor-made to the circumstances of the particular cases. We have not attempted to do so in this article because we wanted to prepare a simple and objective exercise to show the great potential we see in the methodology rather than to make definite conclusions about particular transactions.

Results

We have initially assumed a required return on capital of 10% p.a. above the risk-free rate and compared the estimated S2AV value of the company, assuming zero franchise value, with the actual transaction price. Particular outliers are marked on the graph in Figure 2, and we comment on some of those below.

FIGURE 2: PARTICULAR OUTLIERS



Note: In the above graph we have restricted the y-axis to go up to only 275% (to avoid the y-axis range being too large), so Unisalute has been added manually as an 'off graph' item. Also note that we have only used the labels for cases which are more outliers.

In several of the cases the transaction prices are ending up fairly close to 100% of the S2AV estimates on this basis, with 15 of the 24 transactions having a ratio below 130%. A transaction price above 100% means that, on these assumptions, the buyer is seeing value in excess of the in-force value. This might be due to expectations of profitable future new business, or potential post-acquisition actions, for instance:

- Changing the level of market risk taken
- Synergies with the acquirer's existing insurance business, e.g., diversification benefit in respect of capital requirements, eligibility of capital, expense synergies, tax synergies

A value of less than 100% could mean that the shareholder is looking for a higher rate of return than 10% p.a. above risk-free, or that there are some value-destroying aspects of the company which are not being captured in the Solvency II numbers in the QRTs. In some cases there may also have been capital or other material movements between the SFCR date and the transaction date leading to inconsistencies between the two valuations.

Particular cases which might lead to higher or lower prices compared to the S2AV (excluding franchise value) could be cases where the transaction price is influenced by factors other than pure economic valuation. For example, this may include:

- Shareholder agreements linked to bancassurance arrangements which specify particular criteria for the value to be used in a transaction (e.g., Popolare Vita, which has a ratio of price to S2AV, without franchise value, of 228%).
- Health insurance business with short contract boundaries, meaning that there may be a high probability of future renewals which are not captured in the S2AV valuation (e.g., Unisalute with a ratio of 459%). We note that, in this case, the underwriting profit in 2017 was €61 million, meaning that the implied franchise value at a shareholder rate of return of 10% p.a. above risk-free of €568 million is not unreasonable.

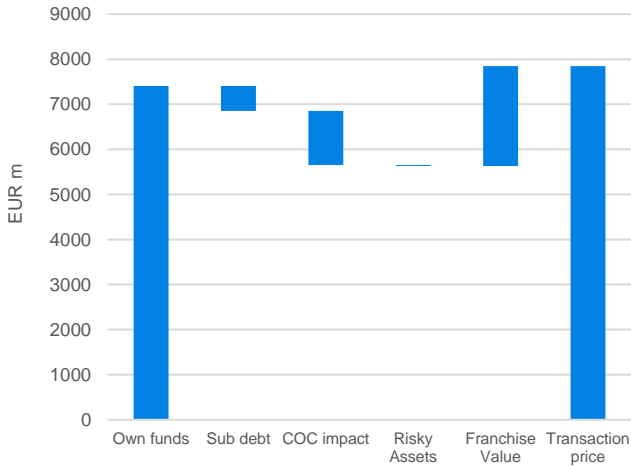
We should point out that these explanations are speculative and there may be other factors which we are not aware of or which are not showing up in the disclosed Solvency II numbers in the QRTs.

BUILD-UP OF VALUE

One of the particular advantages of the S2AV methodology is to break down the value of an insurer into components starting from own funds (with foreseeable dividends added back), adjusted for subordinated debt, and then considering the cost of capital for nonmarket (which we are taking as the same as non-hedgeable) risks at the shareholders' required rate of return and level of capitalisation, the impact of investing in 'risky' assets (both the expected additional real-world return and the cost of the capital associated with the corresponding market risks) and the franchise value. In Figure 3 we show, for the 24 companies in total, the bridge between own funds and the transaction price if we assume that the difference between the estimated S2AV and the transaction price can be attributed

to franchise value. Once again S2AV is calculated assuming a 10% return on capital and a 150% solvency ratio.

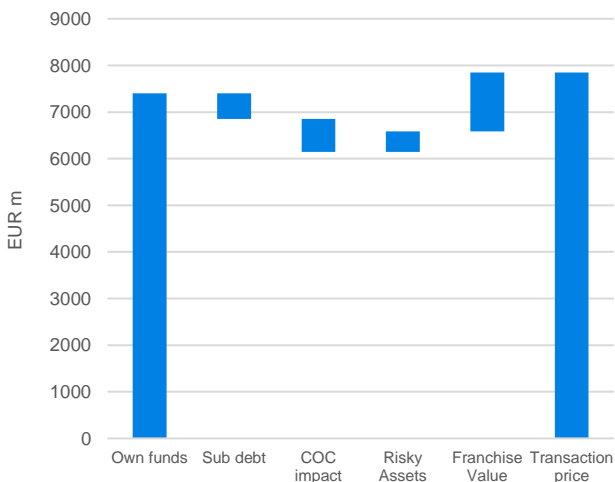
FIGURE 3: OWN FUNDS AND TRANSACTION PRICE, 10% COST OF CAPITAL AND 150% SOLVENCY RATIO



It can be seen that assuming the cost of capital is charged at 10%, and a 150% solvency ratio, means that the cost of capital for nonmarket risks (including the cost of capital associated with the risk margin) is much higher than in the own funds, which includes a risk margin based on a 6% cost of capital and a 100% solvency ratio. The value added by investing in risky assets overall is close to zero and the implied franchise value is around 28% of the total of the transaction prices.

If, alternatively, the shareholders' required rate of return is reduced from 10% p.a. above risk-free to 8% p.a. above risk-free, and a 125% solvency ratio, rather than a 150% ratio, is maintained, then the graph looks like the one shown in Figure 4, with the implied franchise value now being only 16% of the total of the transaction prices.

FIGURE 4: OWN FUNDS AND TRANSACTION PRICE, 8% COST OF CAPITAL AND 125% SOLVENCY RATIO

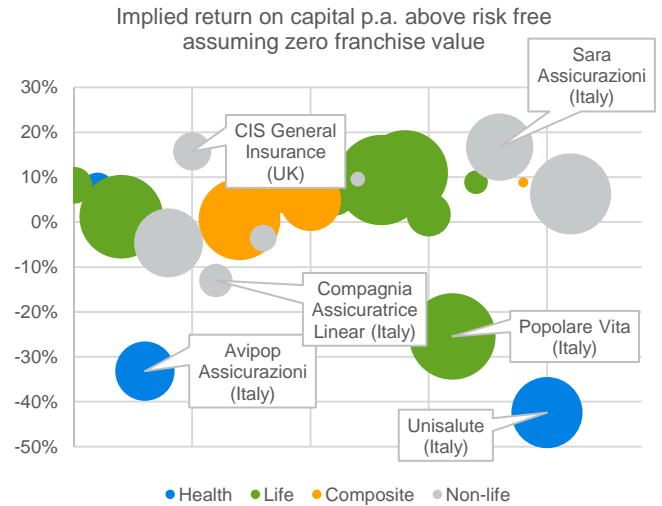


RETURN ON CAPITAL

We can also calculate the return on capital implied by the transaction prices assuming zero franchise value.

The cases are shown in Figure 5, with the sizes of the bubbles representing the value of the companies implied by the transaction prices.

FIGURE 5: IMPLIED RETURN ON CAPITAL ABOVE RISK-FREE, ASSUMING ZERO FRANCHISE VALUE



Note: Labels in the above only used for cases which are outliers.

The return on capital varies significantly, with a cluster of values around 10%. The very negative values represent cases which probably have significant franchise value. On these assumptions, the median return on capital of these transactions was 6%, but we would note that if some franchise value is assumed (which would clearly be the case on some transactions) this value would increase.

We have not attempted to estimate what could be a reasonable franchise value for particular cases in this sample, but it should be possible to do that based on information about new business premiums and some measure of profitability as well as capital consumption. This could be particularly feasible for companies like non-life and some health insurers, where accounting profitability is a reasonable proxy for new business added value before cost of capital

Conclusions

We do not claim that it is possible to make many generalised conclusions about the pricing of these particular transactions from the analysis in this paper. As we have explained, to do that would require more in-depth analysis of particular cases using additional publicly available information.

What we hope we have shown is that the availability of publicly disclosed Solvency II data and the S2AV methodology do allow us to get insights into the possible valuations of companies and the factors influencing these values.

This can be particularly useful for others, such as investors, investment analysts and those wanting to benchmark potential transactions, who want to understand the economic value of insurance companies from publicly available data.



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Appendix: Transactions included

The following table lists the transactions included in this analysis:

ENTITY	YEAR	COUNTRY	TYPE	TRANSACTION PRICE (EUR M)
Abbey Life Assurance Company Ltd	2016	UK	Life	1,085
Adriatic Slovenica d.d.	2018	Slovenia	Composite	245
Aegon Ireland plc	2018	Ireland	Life	194
Aegon Pojistovna, a.s.; Aegon Slovensko	2018	Slovakia and Czech	Health	155
Antarius SA (50% Stake)	2017	France	Life	502
Avipop Assicurazioni SpA (50% Stake)	2018	Italy	Health	252
BPCE Assurances SA (40% Stake)	2017	France	Non-life	272
CIS General Insurance Limited	2019	UK	Non-life	209
Compagnia Assicuratrice Linear S.p.A.	2017	Italy	Non-life	160
Ethniki Hellenic General Insurance S.A. (75% Stake)	2017	Greece	Composite	718
Folksam Non-Life Insurance Limited	2018	Finland	Non-life	103
Friends First Life Assurance Company Limited	2018	Ireland	Composite	220
Generali Belgium SA	2018	Belgium	Composite	540
Generali PanEurope	2018	Ireland	Life	286
Net Insurance SpA (30% Stake)	2018	Italy	Non-life	9
Nordea Liv & Pension, livsforsikringsselskab A/S (25% Stake)	2017	Denmark	Life	292
Nordea Liv & Pension, livsforsikringsselskab A/S (45% Stake)	2018	Denmark	Life	475
Old Mutual Wealth Italy S.p.A	2017	Italy	Life	278
Popolare Vita SpA (50% Stake)	2017	Italy	Life	536
Pramerica Life SpA	2018	Italy	Life	80
Sara Assicurazioni S.p.A.	2018	Italy	Non-life	135
UBB Life Insurance EAD (40% Stake)	2018	Bulgaria	Composite	6
Unisalute S.p.A. (98.53% Stake)	2017	Italy	Health	715
Vittoria Assicurazioni SpA (40.76% Stake)	2018	Italy	Non-life	384