# M&A in a Solvency II World
## *- An introduction to the S2AV methodology*

Presented by

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Warsaw

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# Why Solvency II can be very helpful in an M&A context



Solvency II

TEV, EEV, MCEV

Cash-flow models

Simple balance sheet and P&L
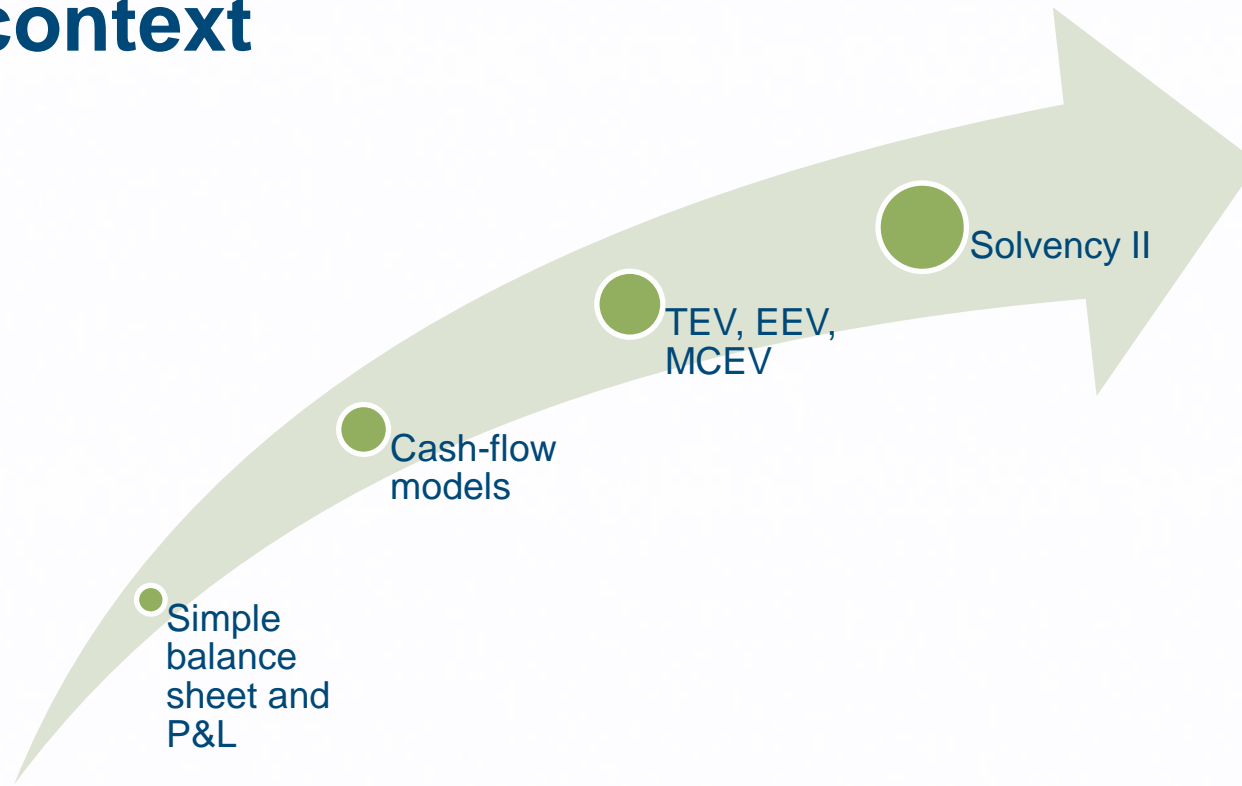
**Simplified valuation:**
**Gordon model ($P = \frac{D}{rdr-i}$)**

**?**

# Why Solvency II can be very helpful in an M&A context

- It helps to get a clear vision of the attractiveness of possible acquisitions

- It is an economic valuation approach which also has the rigour of a statutory capital standard (i.e. is subject to supervisor oversight etc)

- S2 allows non-life and life to be looked at on a consistent standard – something not typically done under existing methodologies

- It captures a risk based view of a company

- Capital synergies can be identified (e.g. due to diversification, potential for de-risking, offsetting risks etc)

- Valuation upsides can be identified (e.g. conservatism built into approaches)

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# What we saw in Recent Projects (1)

- Buyers are increasingly focusing on Solvency II numbers because:
  - It is now becoming the official capital standard
  - It drives distributable profit (and in particular buyers have worries about need to recapitalise companies after acquisition and/or knowing what dividend stream they can achieve)
  - They want to know what scope there is to improve the numbers or for them to worsen (e.g. due to investment strategies, over-aggressive assumptions etc)
  - They want to quantify capital synergies from combing the acquisition target with their existing businesses
- At the same time buyers still don't have a good "feel" for Solvency II numbers
  - They are outside their comfort zone in assessing SII numbers
  - They do not necessarily understand the significance of some methodological choices (e.g. use of transitional measures, risk margin methodology etc)

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# What we saw in Recent Projects (2)

- Quality of S2 numbers provided by sellers is often quite poor:
    - Often companies are refusing to release detailed SII spreadsheets and prefer to just show some high level results (probably because of a lack of confidence in the numbers)
    - In terms of visibility.  E.g. assumptions and methodology are not stated in detail – particularly in respect to own funds/technical provisions
    - In terms of process - e.g. multiple linked spreadsheets, messy processes, lack of good documentation etc
- Dependency on management actions and decisions makes the numbers much more unstable than SI capital position
- The selling companies themselves are struggling to bed down the figures. Errors are quite common.
- Projections of Solvency position in particular are often simplistic (e.g. based on high level drivers which are unrealistic)

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# Issues with a TEV approach

# Issues with a TEV approach

- Traditional Embedded Value (TEV) approaches have been widely used for M&A work, but may be less relevant under the S2 framework

- It is difficult to combine TEV approach with S2 for various reasons

- Discounting projected statutory (Solvency I) profits has various issues:

  - Distributable surpluses depend on movements in own funds and required capital

  - Own funds already capture expected release of prudential margins which would not emerge until the future on a statutory accounting/Solvency I basis

  - Solvency II SCR is meant to be consistent with economic value of liabilities (technical provisions), not prudent Solvency I reserves

  - Basing projected required capital on some ratio of Solvency I minimum solvency margin may result in capital running off too slowly

- It risks mixing apples (market consistent based view of capital) with pears (real world view of future profits)

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# Issues with a TEV approach (example)

Assume:

- 20 year non-participating life liability with a fixed payment after 20 years and no surrender values, expenses or charges (for simplicity).

- Initial values: Own funds=15, SCR(life)=5, SCR(mkt)=4, Risk Margin =2.7

- Investor required return on capital = 10%

**Example 1** - Solvency II risk-free rate = Solvency I technical rate = 2%, so that BEL = Solvency I mathematical reserve; Assume required capital under both Solvency I and II = SCR

**Example 2** – technical interest rate = 1% => mathematical reserves > BEL

**Example 3** – assume initial required capital under Solvency I = Solvency II SCR; thereafter assume capital changes pro-rata with movement in mathematical reserves (which might be used as a simplifying approach to "convert" a TEV to be on a SII basis)

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# Issues with a TEV approach (example (cont'd))

PV (distributable surplus) at required rate of return
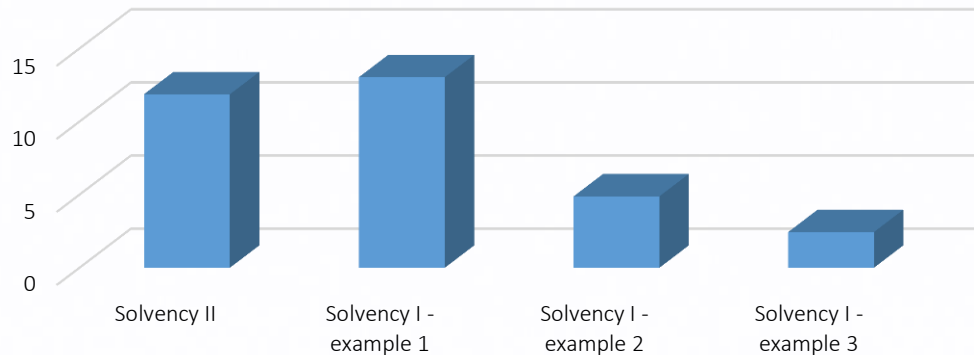


The base case (i.e. "Solvency II") shows the actual present value of distributable surplus on a SII basis if a full projection was made

Example 1: PV (distributable surplus) on a SI basis is higher than SII, as there is no risk margin

Example 2: the PV (distributable surplus) reduces due to slower release of surplus (higher reserves under SI)

Example 3: the PV (distributable surplus) reduces further due to slower release of required capital under the approximation used

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# What valuation methodology makes sense under SII?

- Is EV needed or is an assessment of own funds (OF) and its trend enough?

- MCEV and S2 OFs are conceptually similar, but with some differences.

- Some aspects of MCEV have never gained widespread support, particularly in the context of transactions

- However S2 numbers have the significant advantage of being on a standardised basis which is used for regulatory reporting and therefore valuers can use (hopefully) robust and readily available models and results

- There is less scope for cherry picking methodology and assumptions in SII than in EV (since the former is subject to supervisor oversight and is ruled by a well defined norm – although with significant choices available that can influence results materially)

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# Two different views of the same thing

Under any accounting basis, we have an equivalence between:

| | | |
|---|---|---|
| **NPV (projected profits) – CoC**<br><br>**("actuarial view")** | *and* | **NPV (distributable profits) ("investment bankers' view")** |

Conceptually this is because cost of capital represents the cost of delaying distribution of surplus through a need to hold capital.

# Two different views (2)

This equivalence can be demonstrated, supposing required capital C(t) at time t, investment return on capital = i%, discount rate = d% over n years:

*NPV (distributable profits)*

$$= NPV(profits) + \sum_{t=1}^{n} \left( \frac{C(t-1)*(1+i)-C(t)}{(1+d)^t} \right)$$

$$= NPV(profits) + C(0)*\frac{1+i}{1+d} + \sum_{t=1}^{n-1} \left( C(t) * \left(-\frac{1}{(1+d)^t} + \frac{1+i}{(1+d)^{t+1}}\right) \right)$$

$$= NPV(profits) + C(0) + (i\text{-}d) *\sum_{t=0}^{n-1} \left( \frac{C(t)}{(1+d)^{t+1}} \right)$$

$$= NPV(profits) + initial\ capital - CoC$$

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# Solvency II Appraisal Value

- This equivalence carries through into the Solvency II world

- We define "Solvency II Appraisal Value" or "S2AV" which is:

NPV (distributable profits under SII)

*or*

Adjusted own funds

- Own funds are adjusted to get the estimated economic value of the shareholders ownership of own funds,

- We then allow for investors requirements for return on capital by adjusting the risk margin,

- We allow for any additional value in excess of the cost of capital which the investor believes can be generated by taking hedgeable risks

- Finally we allow for the franchise value (goodwill) based on the value generation by the company in one year multiplied by a factor reflecting expected new business growth and uncertainty over future volumes and profitability

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# Cost of Capital Adjustment

- Solvency II Risk Margin methodology allows for the cost of capital

- Generally investors will have a different view for the following reasons:

  - They may have a different required return on capital

  - They are likely to assume that some hedgeable risks will be taken and want a return on the capital required for these. However we handle this item with an explicit element in our valuation (see next slide)

  - They are likely to assume a need to hold more than SCR as a level of capital (it is unlikely to be possible to run a company at a 100% solvency ratio)

- This can obviously be done with varying levels of sophistication.

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# Value from Hedgeable Risks

- If risks are hedgeable, then logically it can be argued that the shareholder is not obliged to take them(*).  Therefore it can be argued that the value calculated assuming that no hedgeable risks are taken is a minimum value.  Because if taking additional risks did not increase value then it would not be done.

- In practice a valuation may be desired of the impact of the actual expected situation with some hedgeable risks and hence higher real world expected investment returns and higher capital requirements.

- It is convenient to separately identify this component in the valuation.

- Note that the value in the case of participating business should take account of what part of the additional return will go to participating policyholders and the Loss Absorbing Capacity of Technical Provisions which may reduce the SCR

(*) It may be considered that on occasions there are other constraints on investment strategy, like the requirements of participating policyholders.  This may lead to this value from hedgeable risks being negative.

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# S2 AV example 1

Example:

- Non-participating life liabilities with 20 year duration

- Starting own funds of 50

- Non-hedgeable risks only (investments in risk-free assets), with initial SCR (life) = 10 and initial Risk Margin of 5.5.

- If investor's required cost of capital = 6% (as per risk margin), then:

**PV of distributable surplus = own funds = 50**

Projected distributable surplus



Legend: distributable surplus | change in OF (at start = OF-SCR) | less change in SCR
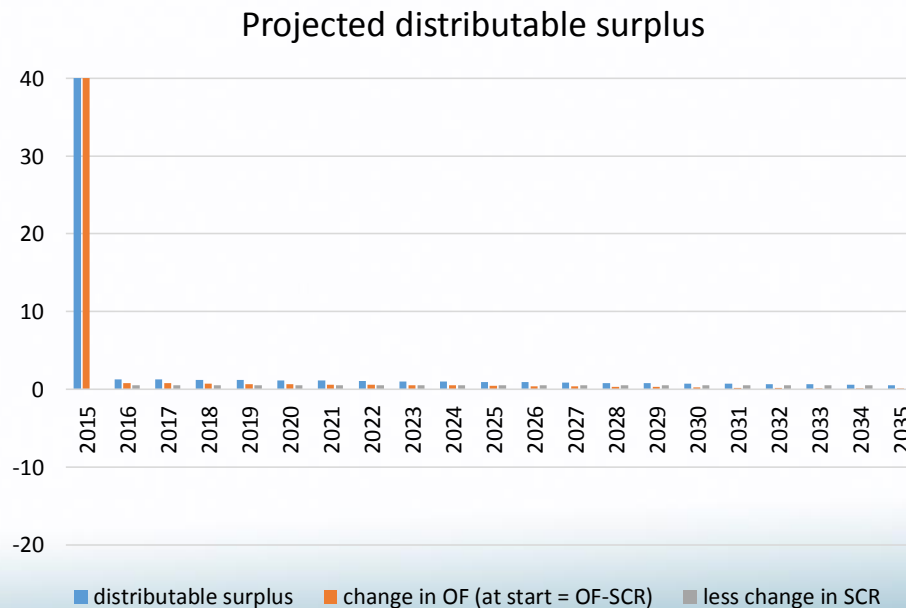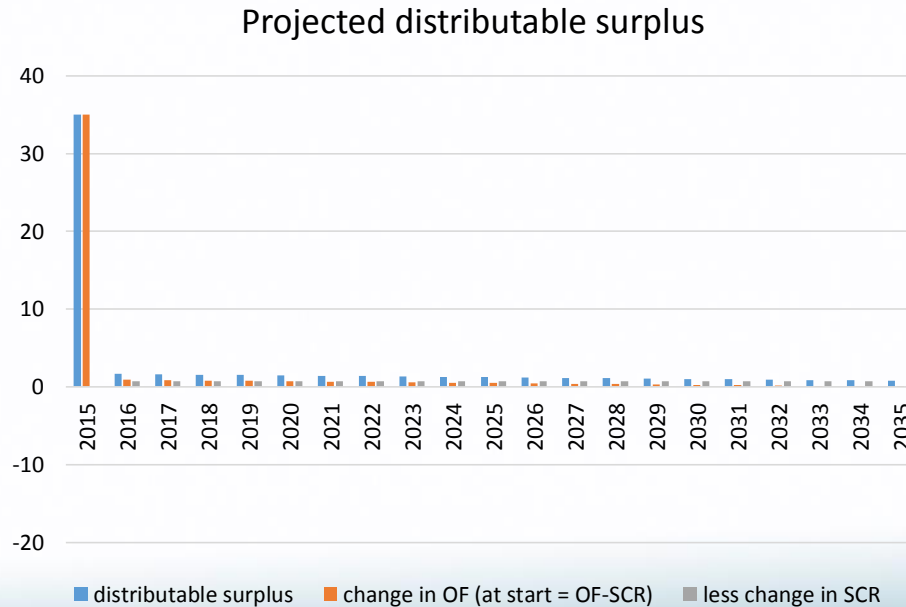
# S2 AV example 2

Now assume:

- Investor's required cost of capital = 10%
- Investor's required capital = 150% of SCR

Then:

**PV of distributable surplus reduces to 45.3**

**= OF − adjustment to risk margin for higher capital and required CoC**

Projected distributable surplus



Legend: distributable surplus · change in OF (at start = OF-SCR) · less change in SCR
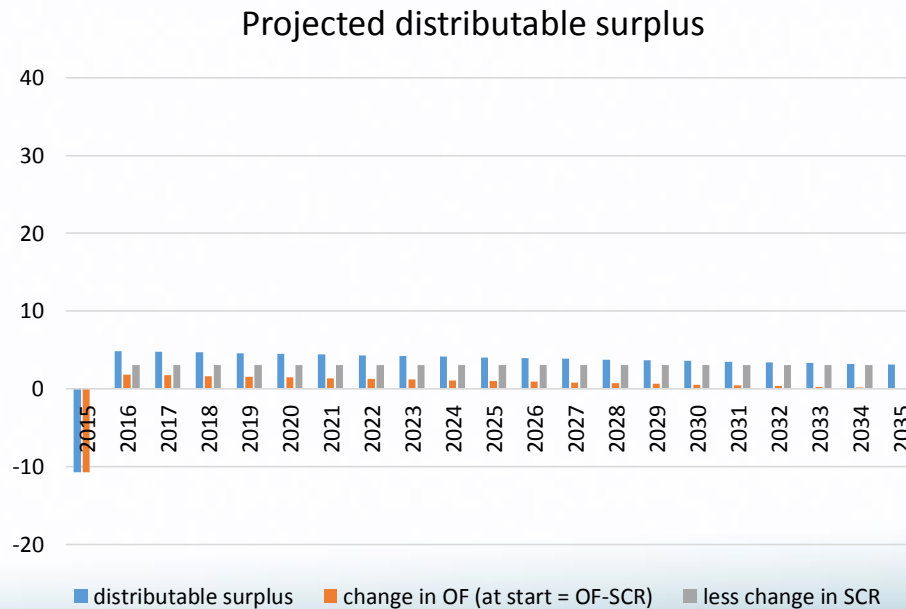
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# S2 AV example 3

Now assume:

- Investments made in BBB corporate bonds, with SCRmkt=36.8
- Assets still assumed to earn risk free

Then:

**PV of distributable surplus reduces to 21.4**

**= OF – adjustment to risk margin for higher capital and required CoC**

Projected distributable surplus



distributable surplus    change in OF (at start = OF-SCR)    less change in SCR
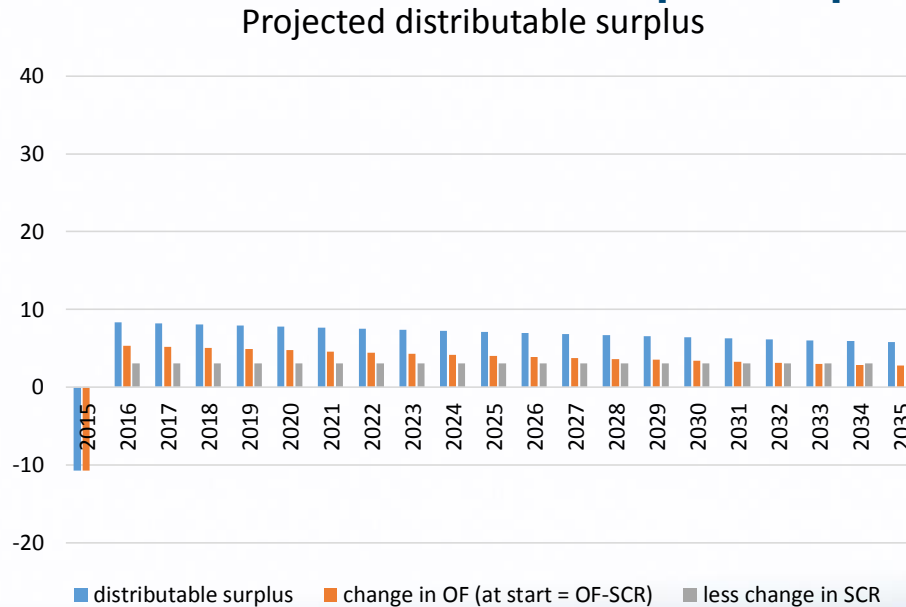
# S2 AV example 4

Now assume:

- Assets earn 2.63% above risk free (which is exactly the rate to compensate the additional capital).

Then:

**PV of distributable surplus increases to 45.3 = as example 2**

**=> Additional return covers increased capital requirement**

Projected distributable surplus

# Franchise Value (1)

- It is possible to calculate the value that a year's new premiums adds to the own funds

- Strictly speaking this should be to own funds allowing for the same adjustments as made previously

- A marginal basis should be used where possible (e.g. diversification with in-force)

- The most appropriate way to make the marginal calculation is by calculating an adjusted Solvency II balance sheet and SCR with and without the business included;

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# Franchise Value (2)

- A new business multiplier should be applied reflecting the expected growth in new business values, trend in margins and associated risk

- This could allow for factors like the expected underwriting cycle and the value of any distribution agreements.

- The way in which contract boundaries come into the SII valuation / adjusted own funds may impact future expected volumes and their certainty

- It may be appropriate to use a higher pre-issue risk discount rate to reflect the uncertainty over the volumes and profitability of future new business

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# Practical and other issues (1)

- Allocating capital to understand profitability by line

- Sensitivity to assumptions (in theory allowed for in the standard formula definition, in practice may not reflect real volatility)

- The standard formula doesn't allow for all risks (e.g. sovereign debt)

- Transitional measures

- Availability of information

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# Practical and other issues (2)

- Simplicity <>= conservativism (e.g. non-allowance for dynamic policyholder behaviour, modelling of management actions)

- Impact of tax

- Other constraints on distribution of surplus
  - Local statutory accounting
  - Asset coverage requirements

  This may be allowed for by having a target level of solvency which reflects any expected constraint on dividend distribution.

- Standard formula vs alternatives like internal models and USPs

- Group solvency

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# Questions?

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