AAP Life Settlement Roundtable

Securitization of life settlements – looking at it from an asset class perspective

Agenda

- Securitization – Investor experience
- The stochastic cash flow of life settlement portfolios
- Investor experience – Review
- Securitizations 2.0

Investor experience

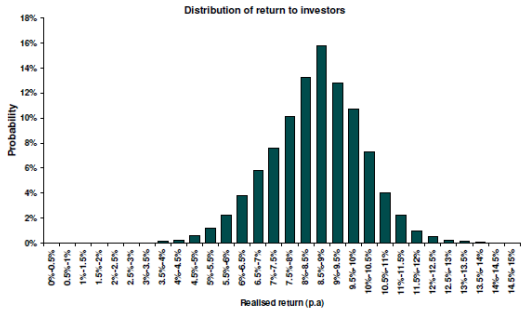
Securitization –Investor experience

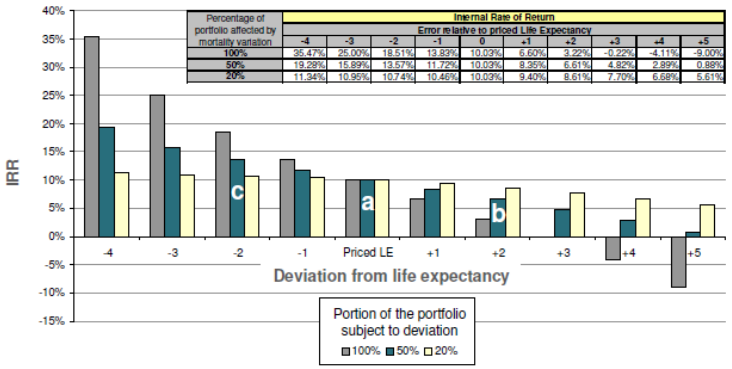
Example from 2006 - Structured note by an investment bank – 10 year / 8% IRR

The example refers to a life settlement portfolio of about 300 policies. The policies were acquired for around 37% of their face value. Extracts from the marketing documentation:

- The header of the first chart says «Distribution of return to investors», with an IRR range from 15% p.a. in the best case to 2.5% p.a. in the worst case, implying that there is hardly any loss risk.
- It further stated that the net average IRR is 8.6% p.a. with an IRR volatility of 1.47% p.a.
- Just on the next page the second chart can be found. Showing again different IRR outcomes, this time in relation to longevity.
- For the calculation the LE has been extended or shortened by up to 5 years. The annual returns vary on this chart from 35% to -9%, with the base case being a gross return of 10.4% p.a.

=> The return expectations for the portfolio obviously differ significantly between the two charts. **What is the link?**





The stochastic cash flows of life settlement portfolios

The stochastic cash flows of life settlement portfolios

The random occurrence of mortality creates stochastic cash flows

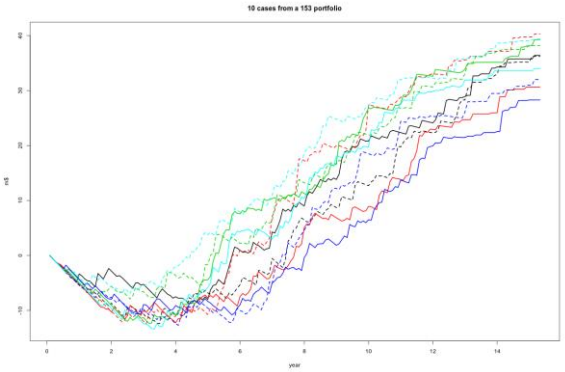
Monte Carlo simulations are well suited to highlight the stochastic nature of projected cash flows from life settlement portfolios.

- In each run a specific date of death is defined for every individual.
- For each run the combination is different.
- The date of death are determined based on the mortality curve (i.e. the mortality probability at a certain point in time).
- None of the runs is more correct than the other. They all match with the underlying LE curves.

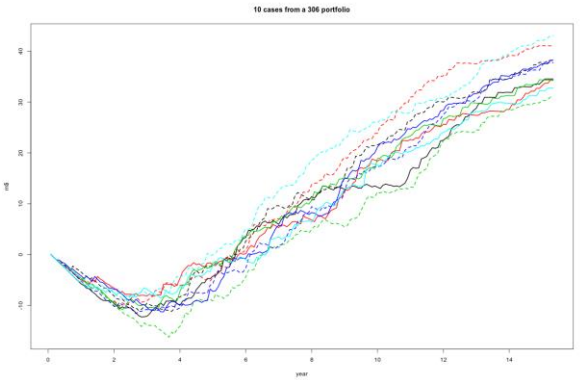
- **The different outcomes of the runs are not a result of longevity** but of the random occurrence of death.

- With more policies the shape of the cash flows gets smoother and the results converge, i.e. the outcome is less diverse. **More polices reduce the stochastic risk.**

Cumulative cash flows for single runs (153 lives)



Cumulative cash flows for single runs (306 lives)

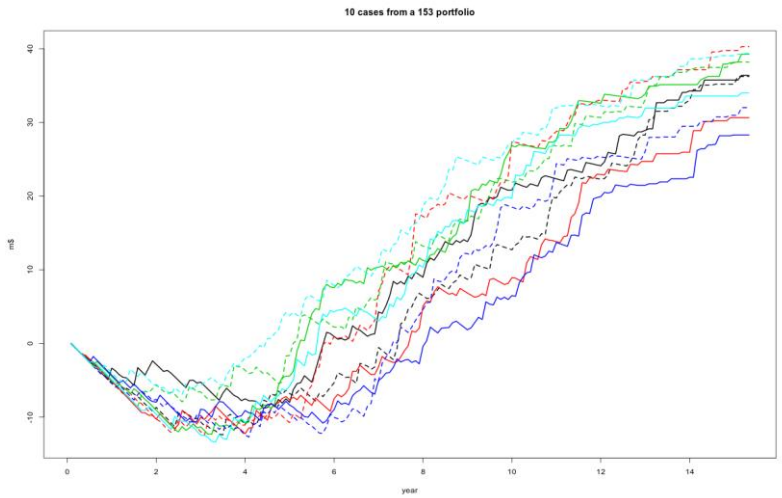


Net cash probability

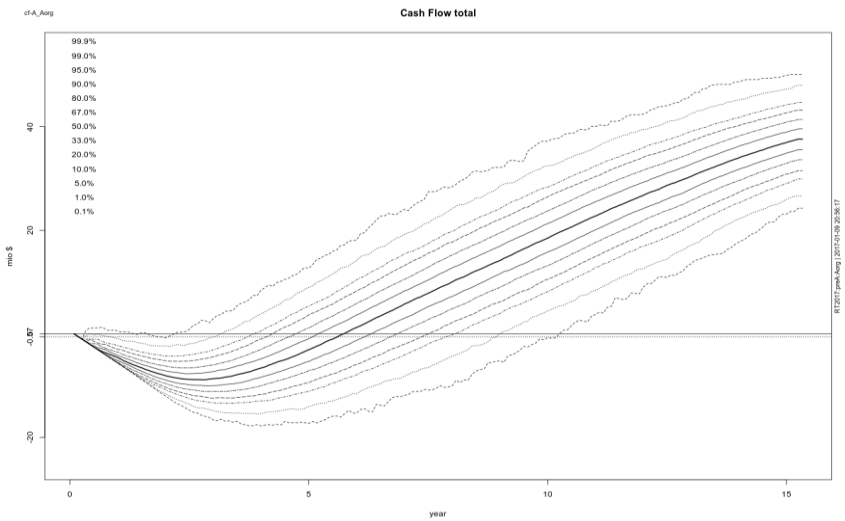
To better understand the characteristic of a life settlement portfolio probability curves need to be derived from the simulated cash flow runs.

- For a securitization one needs to know the available cash at a given point in time. For this purpose, and for quantifying the respective risk, probability curves of the available cash are necessary.
- For each point in time it is calculated how many of the runs exceed a certain cash amount.
- Each lines in the right chart represents a defined possibility in the range from 99.9% to 0.1%.
- Keep in mind, the lines to not reflect a particular cash flow of an actual simulated run!

Cumulative cash flows



Net cash probability

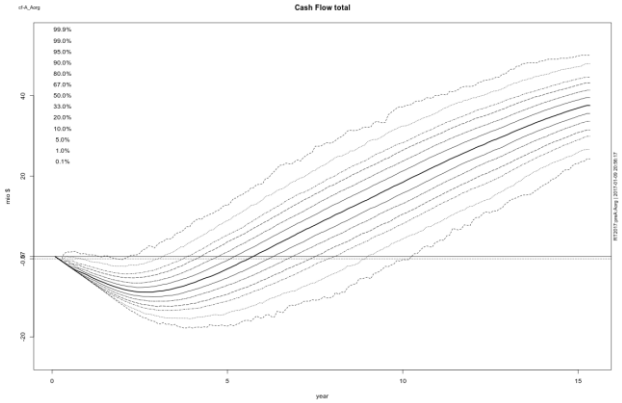


A/E of stochastic simulations

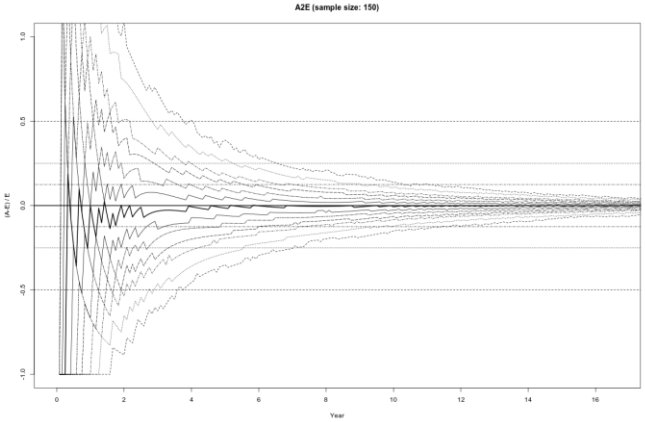
Stochastic risk and longevity risk show similar results but are two different effects

- The chart on the right shows the A/E (actual to expected mortality) of the modelled portfolio.
- For each run, the A/E was calculated at each point in time and the distribution than plotted.
- The A/E was calculated in the form (A-E)/E to better show how the results converge towards the baseline (100% A/E)
- In the early years of the simulation the A/E distribution is rather wide with most of the runs showing a higher or lower A/E than 100%, but overtime they converge towards 100% (= base line in the chart).

Net cash probability

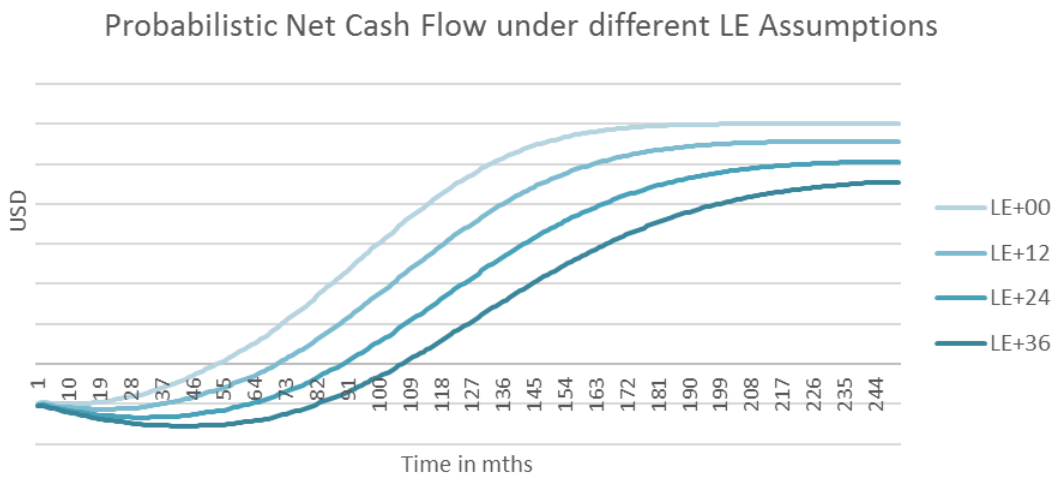


Actual / Expected



The effect of longevity

- Longevity, in the sense that a population lives longer on average than expected, is a significant risk in any life settlement transaction.
- The effect of longevity on the net cash flow looks similar to the stochastic distribution of the different outcomes of a portfolio. However, as we have shown, these are two separate effects.
- Longevity reduces the mortality in a portfolio and thereby reduces the net cash flow.
- In the example the LE of each policy has been extended by 12, 24 or 36 months.
- The lines only show the average expected cash flow and not the full range of stochastic returns.



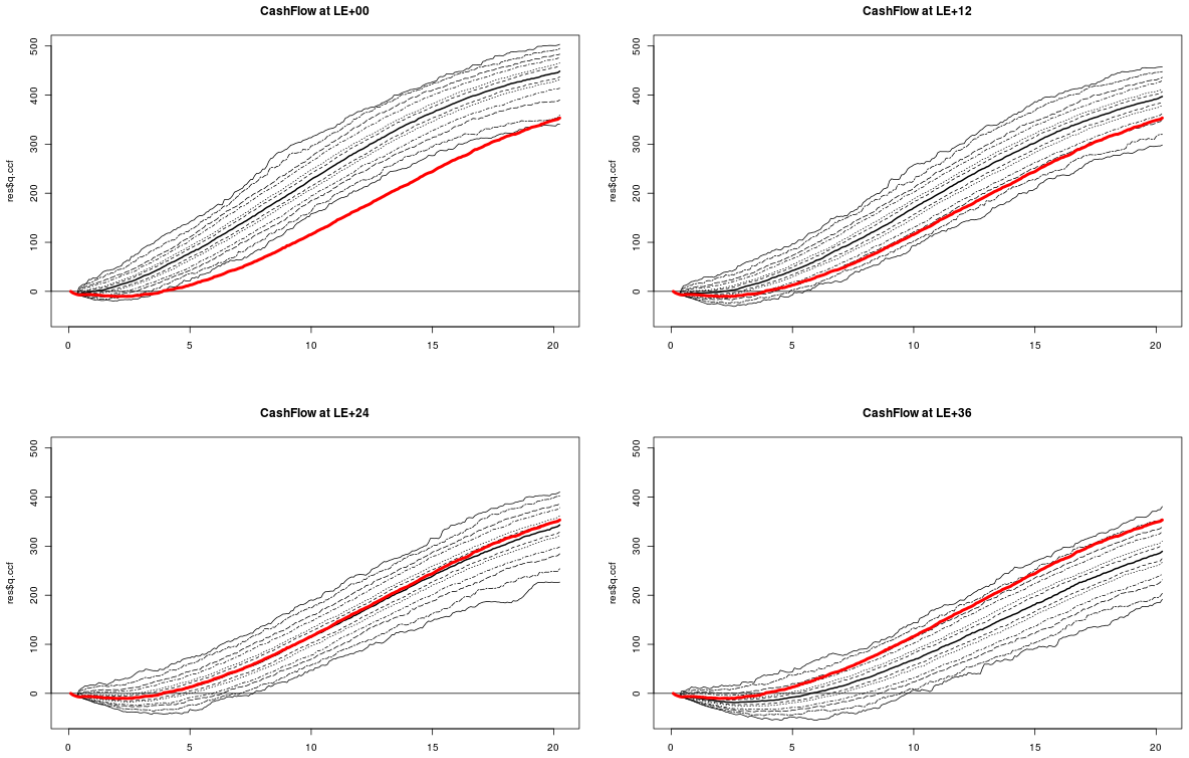
Longevity and stochastic

To properly reflect the longevity risk it is not sufficient to just show the figures for the average expected returns but to combine it with the stochastic probabilities.

To better show the effect, the average net cash flow of the LE+24 simulation has been shown in each chart in red.

In the example the worst case (0.01%) in the regular scenario becomes the best case in the scenario where LEs are extended by 36 months.

The longevity risk cannot be reduced by increasing the size of the portfolio.



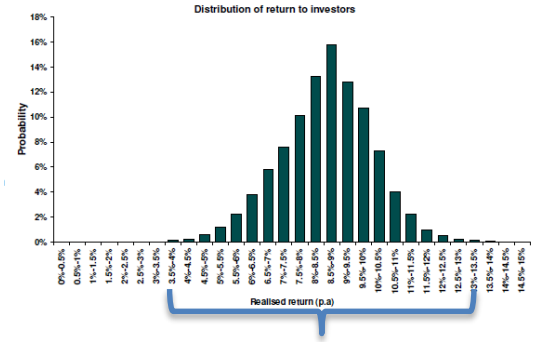
Investor experience - Review

Investor experience - review

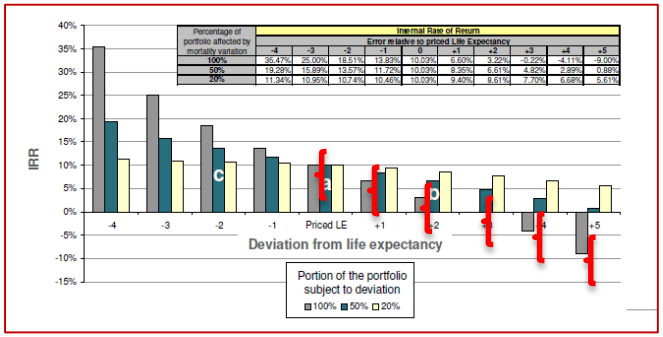
Example - Structured note by an investment bank – 10 year / 8% IRR

While the investment bank didn't provided the full picture regarding the LE risk we can use a rule of thumb to make it more transparent.

From the «Distribution of return to investors» chart we calculate the IRR spread so that we now can adjust the return expectation in the LE simulation chart.



IRR Spread: 9.5%



- Now the charts indicates that the return for investors can go as low as 0% p.a. assuming modest longevity of 1 year. In case the portfolio experience longevity in the range of 2 years, investors are most likely to suffer a substantial loss.

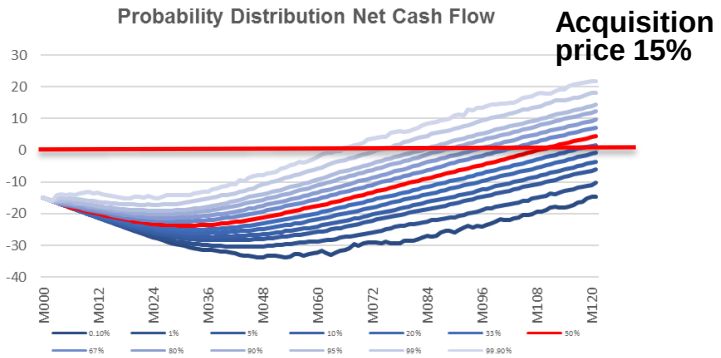
Effect of pricing

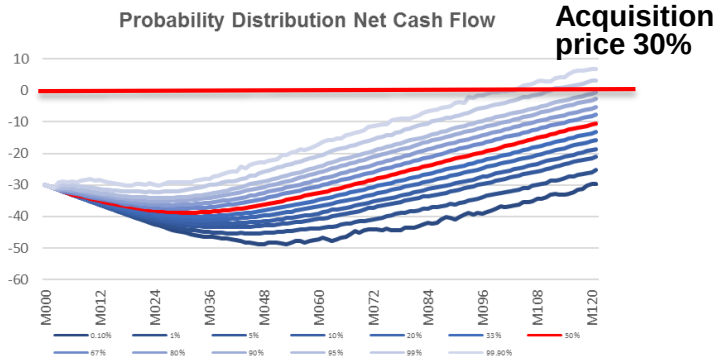
Buying at the right price is crucial

- In todays market a portfolio with the characteristics of the example trades between 15% to 20% of face value.
- At such price, the portfolio offers a potential gross return of 9% p.a. (cash only) and 16% p.a. (including the sale of the residual portfolio) according to our own calculations.
  .
  - Given the LE of the portfolio of about 8 years, only 70% of the insured are expected to have passed away until year 10 in the base scenario. The return of 16% p.a. is based on a sales price of 50% of the face amount.

- In 2006 when the product was launched it booked the portfolio at around 37% of face amount according to marketing documentation.
- At such a high price there was little buffer left to account for any longevity or stochastic risk. The investment bank had to assume very high sale prices for the residual portfolio to achieve its target net return of 8.4% p.a.

Investor experience: 70% loss on the notional in year ten.





Securitizations 2.0

Securitizations 2.0

How can investor experience be improved?

- Safe pricing
  - Make sure the portfolio is valued at market prices.
- State of the art portfolio construction
  - Well balanced portfolios have less stochastic risk.
- Clear risk differentiation
  - How are risk split between investors, which are shared.
- Transparent communication and documentation
  - The impact and range of risks have to be well documented (longevity, stochastic, market risk of resale, lapse risk, …).
- Longevity protection
  - Supplementing the investment with a longevity protection offers additional value.

Securitizations 2.0 – A sample case

For the purpose of the presentation we have put together a sample portfolio based on actual market data (policies that were in fact traded in the market).

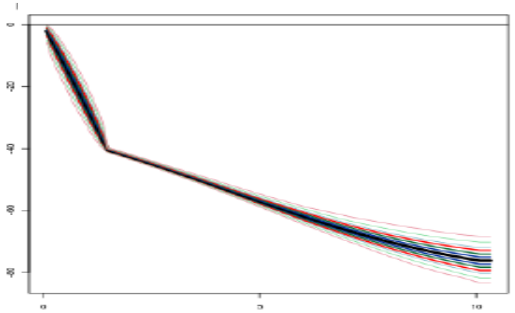
Sample portfolio

- Total face amount: USD 150 mio
- Nr of policies: 135
- Average age: 82.8 years
- Average LE: 78 months

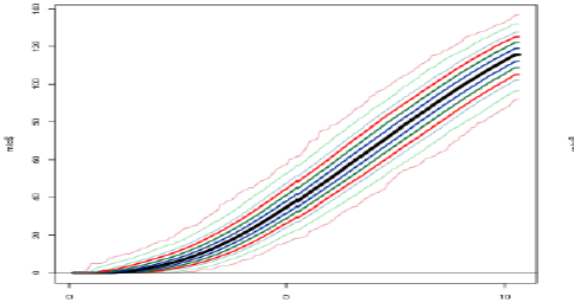
Settings for the simulation:

- Cash at beginning: USD 72 mio
- Standard cost structure applied
- 5000 runs
- Duration: 10 years
- Sales price of residual portfolio 30% of face amount

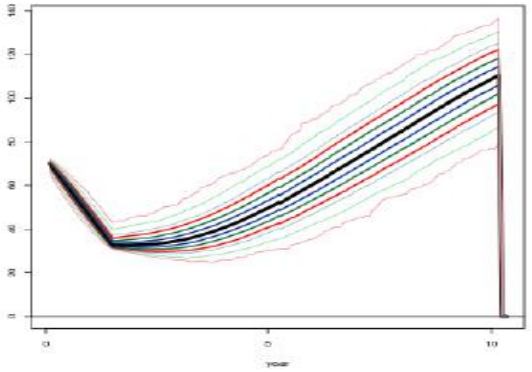
Premium cost (LE+00)



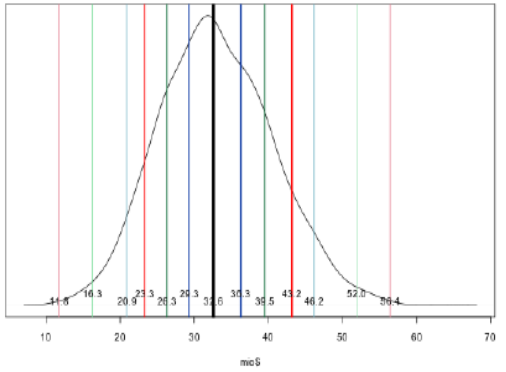
Death benefits claimed (LE+00)



Net cash flow (LE+00)



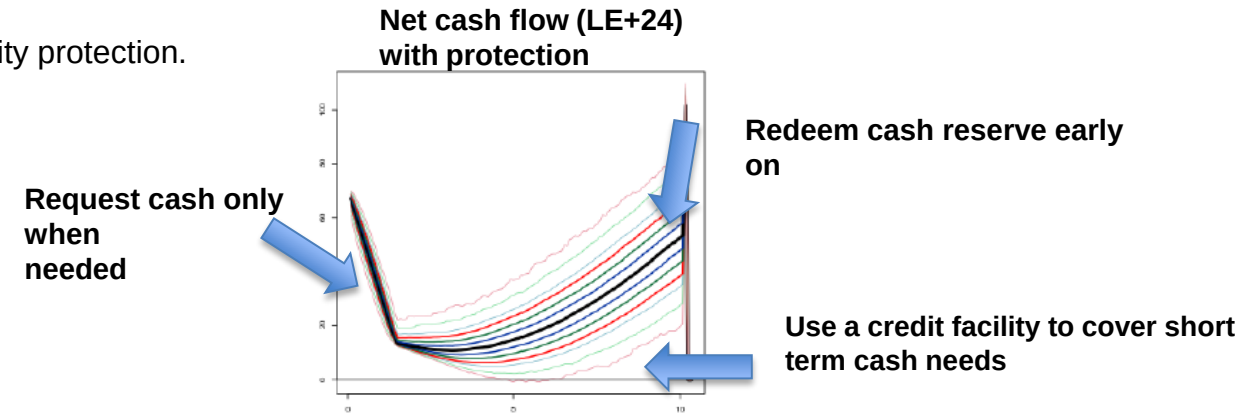
Remaining face amount in year 10



Securitizations 2.0 –Optimization of investment

Parameters to optimise the return for a given life settlement portfolio are:

- Liquidity buffer
  - Optimising the cash reserve via capital calls and early redemptions.
- Leverage
  - Using credit lines for short term cash needs, thereby reducing the initial volume of the investment.
- Duration
  - Aligning duration of the investment with the LE of the portfolio to reduce the size of the residual portfolio at the end of the tenor. The residual portfolio is prone to market risk.
- Risk tranches
  - Creating different risk tranche (senior / junior / …).
- Longevity protection
  - Applying a longevity protection.



Securitizations 2.0 – Equity / Bond structure with longevity protection

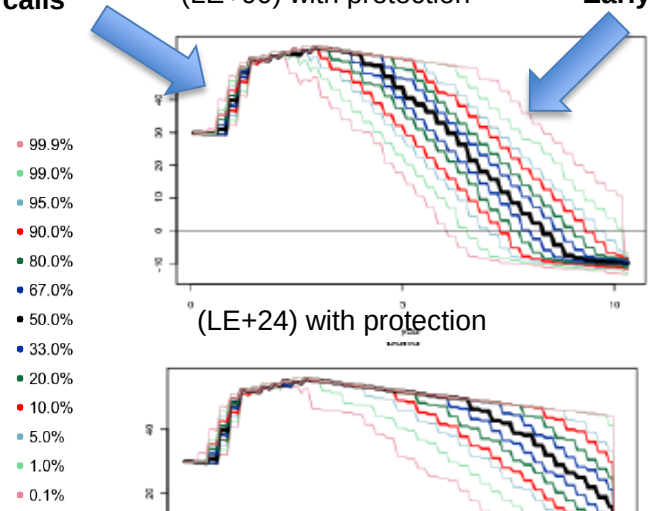
The sample portfolio is wrapped into an Equity/Bond structure and enhanced with a longevity protection:

- Equity/Bond – 12mio/60mio (interest 3.5%, paid annually)
- Duration 10 years
- Capital calls and early capital redemptions for equity and bonds
- A reinsurance is taking over the residual portfolio for 90% of the face amount in year 10. One-off costs for the reinsurance are incurred at the launch of the product.

Capital calls

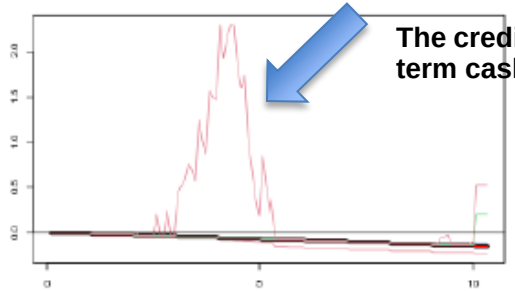
Outstanding bond volume
(LE+00) with protection

Early redemptions



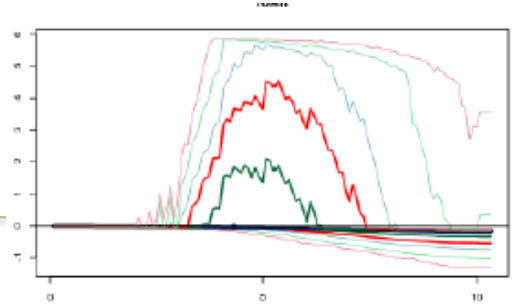
(LE+24) with protection

Credit line balance
(LE+00) with protection



The credit line covers short term cash needs

(LE+24) with protection



Even at LE+24 cash is not need permanently (red line is 90% probability)

Securitizations 2.0 – The pass rate – A new risk measure

The “pass rate” is the default risk of life settlement portfolios

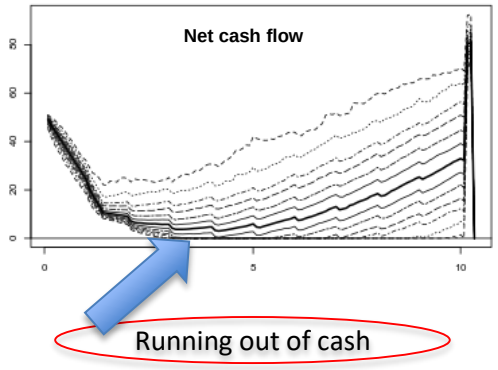
The pass rate is defined as the probability of running into liquidation, missing an interest payment or being unable to repay the investment in full. While the default rate for bonds has to be assessed via equity prices or fundamental analysis of the underlying company, the pass rate can be calculated.

The pass rate is calculated by running Monte Carlo simulations and counting the number of runs that encounters cash problems (running out of cash, unable to pay, etc.)

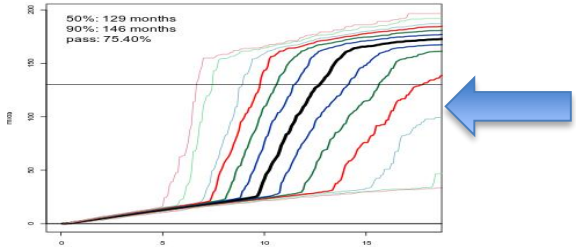
A pass rate of 100% means all runs have been successful.

The pass rate accounts for stochastic risk and longevity risk as well.

Example 1



Example 2

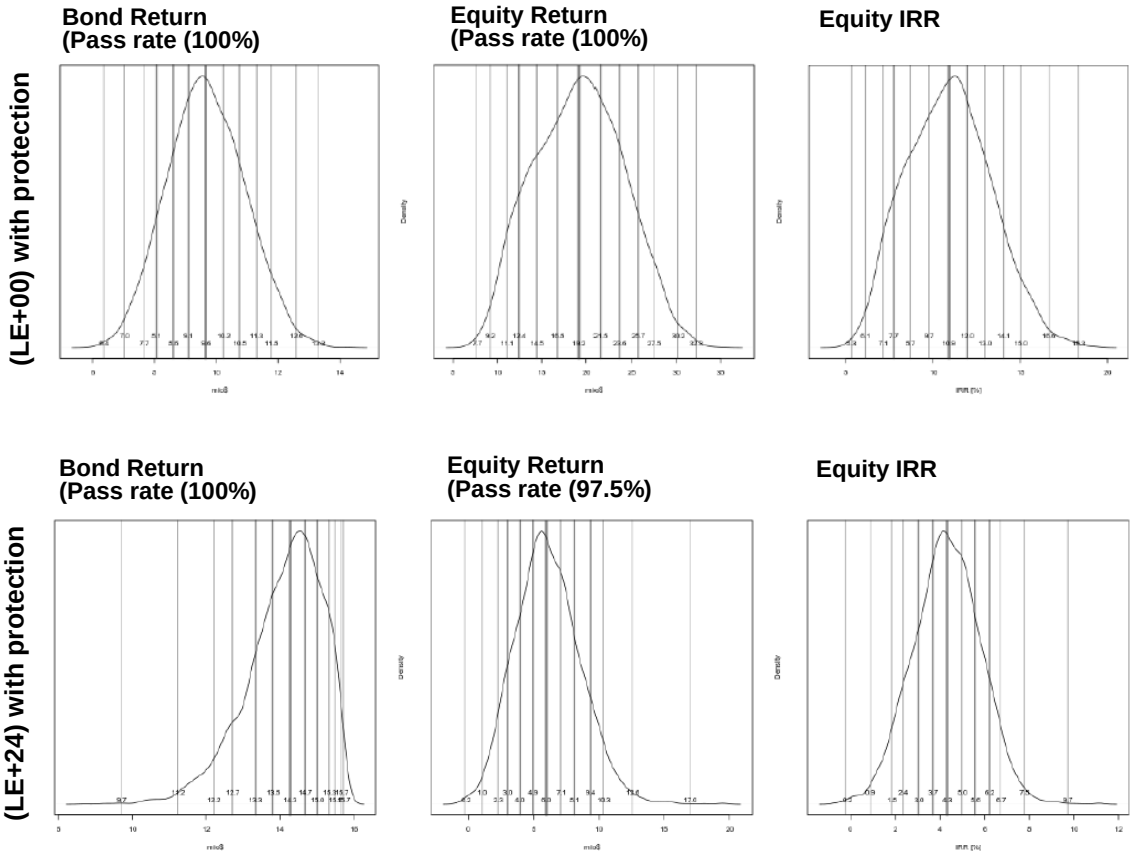


Unable to repay the investment in full

Securitizations 2.0 – Results (I)

Risk of return

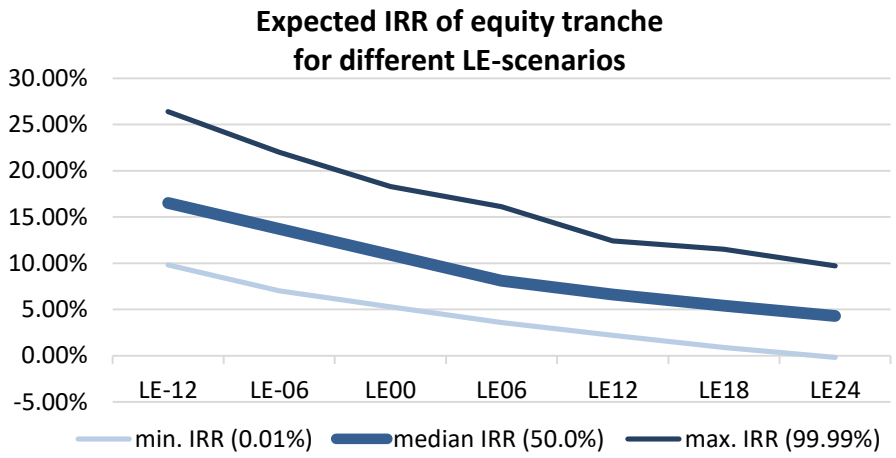
- Both, the bond and equity tranche, have a pass rate of 100% for all scenarios except the most severe longevity assumption. At LE+24 the pass rate of the equity tranche is 97.5%.
- There is a 2.5% risk that the equity tranche can't repay the full notional. The expected loss for the equity tranche in the LE+24 scenario is 3%.
- The variation in return for bond investors is due to the capital calls and early redemptions.



Securitizations 2.0 – Results (II)

The life settlement market today offers very attractive risk/return opportunities.

- The average expected IRR of the equity tranche is 10.9% p.a. in the base scenario and declines to 4.3% at LE+24.
- Thanks to the longevity protection the upside potential is higher than the downside risk.



Securitizations 2.0 – What is different today

- The life settlement market offers a much better return today than back in the boom years of 2008, projected IRRs are substantially higher.

- Medical underwriting improved significantly. The medical underwriters have 8 years more of underwriting history.

- **The lessons from the past, why securitizations did not succeed, are known today as well as the key measures which describe the riskiness of a securitization:**
  - **Purchase price is critical, fair value is absolute crucial.**
  - **Pass rate for every tranche of a securitization needs to be provided.**
  - **Transparency regarding used medical underwriters a must.**

Dedicated to uncorrelated arbitrage

Thank you very much

AA-Partners Ltd.,
Witikonerstrasse 36,
8032 Zurich, Switzerland
Tel: +41 (0)79 834 3863
Email: info@aa-partners.ch
www.aa-partners.ch

Global Disclaimer

This report has been prepared by and the opinions expressed are those of AA-Partners Ltd. as of the date of writing.

This report is for distribution only under such circumstances as may be permitted by applicable law. Nothing in this report constitutes a representation that any investment strategy or recommendation contained herein is suitable or appropriate to a recipient's individual circumstances or otherwise constitutes a personal recommendation. It is published solely for information and illustration purposes and may not be relied on in any way. It does not constitute an advertisement and is not to be construed as a solicitation or an offer to buy or sell any securities or related financial instruments in any jurisdiction. No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained herein, nor is it intended to be a complete statement or summary of the securities, markets or developments referred to in the report. AA-Partners Ltd. does not undertake that investors will obtain profits, nor will it share with investors any investment profits nor accept any liability for any investment losses. Investments involve risks and the report should not be regarded by recipients as a substitute for the exercise of their own judgment. Any opinions expressed in this report are subject to change without notice and may differ or be contrary to opinions expressed by other market participants as a result of using different assumptions and criteria. AA-Partners Ltd. is under no obligation to update or keep current the information contained herein.

The securities described herein may not be eligible for sale in all jurisdictions or to certain categories of investors. Any reference to past performance is not necessarily a guide to the future. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument mentioned in this report. Neither AA-Partners Ltd. nor any of its directors, employees or agents accepts any liability for any loss or damage arising out of the use of all or any part of this report. AA-Partners Ltd. does not provide any legal or tax advice.

Issuers of the securities referred herein or AA-Partners Ltd. may have acted upon the information and analysis contained in this publication before being made available to recipients. AA-Partners Ltd. may, to the extent permitted by law, participate or invest in other financial transactions with issuers of the securities referred herein, perform services or solicit business from such issuers, and/or have a position or effect transactions in the securities or options thereof.

The disclosures contained in research reports produced by AA-Partners Ltd. shall be governed by and construed in accordance with Swiss law. The report is assigned to the use of the subscriber to this publication. AA-Partners Ltd. prohibits the redistribution of this material in whole or in part without the written permission of AA-Partners Ltd. to any other person or company or legal entity, and AA-Partners Ltd. accepts no liability whatsoever for the actions of third parties in this respect.