AAP Life Settlement Valuation – Manual

Version 4.0
# TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual - Overview</td>
<td>3</td>
</tr>
<tr>
<td>About Life Settlements &amp; the Markets</td>
<td>5</td>
</tr>
<tr>
<td>AAP Life Settlement Data Collection</td>
<td>9</td>
</tr>
<tr>
<td>'Fair Value' Valuation of Life Settlements</td>
<td>11</td>
</tr>
<tr>
<td>The Use of Transaction Data for the 'Fair Value' Valuation</td>
<td>12</td>
</tr>
<tr>
<td>Reporting</td>
<td>15</td>
</tr>
<tr>
<td>Annex</td>
<td></td>
</tr>
<tr>
<td>The Medical Underwriting and the IRR Calculation</td>
<td>17</td>
</tr>
<tr>
<td>'Fair Value' Valuation of Life Settlements</td>
<td>19</td>
</tr>
<tr>
<td>Extracting Information for the Valuation</td>
<td>21</td>
</tr>
<tr>
<td>Disclaimer</td>
<td>25</td>
</tr>
</tbody>
</table>
Manual - Overview

Introduction

In general financial assets are valued using market prices. However this approach is challenging with asset classes which are not standardized as for instance life settlements or real estate. And with life settlements a general lack of reliable market data withstood so far a valuation according to the ‘fair value’ approach.

In January 2011 AA-Partners Ltd. (‘AAP’) started a life settlement transaction data collection initiative. Based on the collected data life settlements can be valued referring to actually closed transactions.

This document describes the valuation of life settlements according to a ‘fair value’ approach in line with IFRS 13/FASB ASC 820 using actually closed life settlement transactions.

Sections of the manual

The manual starts with a short explanation of a life settlement and how the market works. The life settlement markets are not fully efficient and consequently there is not THE right value of a life settlement for book keeping purposes but it is more a price range which can be appropriate.

In the second section AAP’s data collection is explained including the involved parties and the collected data points. The collected data as per each transaction enclose the information which can be relevant for the transfer of a life settlement.

The sections three and four link the collected life settlement transaction data with the ‘Fair Value’ valuation of life settlements. Life settlements can be valued according to market prices using transaction data. The necessary information is extracted from the data using two distinct methods: the Neighborhood Approach and the Factor Model.

The section five is about the reporting. A client is provided a reporting which can be used towards auditors, authorities, investors and so forth.

Additional information with regards to different facets can be found in the Annex. The sections in the Annex cover the medical underwriting in the markets and the respective implications, the regulatory background with regards to fair value valuation as well as a summary of the processes which are used to extract the information from the collected transaction data.

Characteristics and strengths of the AAP approach

A valuation of life settlements in line with actual market conditions is of imperative importance for a prospering life settlement industry. A misrepresentation of the true value leads to various frictions and problems: with open-end structures an equal treatment of the investor can’t be assured, management fees may be too high based on a too high value of the assets, investors may pay too much taxes on the background of too high valuation and so forth. To value life settlements in line with market values avoids all this problems. The strengths of the AAP approach are as follows:
- The AAP approach bases on actually closed transactions and therefore mirrors actual market conditions.
- The market data is collected on a multi provider basis. The data base therefore is very broad and reliable.
- The extraction of the relevant information from the transaction data is based on sound statistical methods which appropriately consider the driving factors in the markets.
- Each client is provided a reporting which can be used towards auditors, administrators, depository banks and clients. In addition the models can be assessed by third parties.
- The AAP approach is in line with the requirements of IFRS 13/ASC 820 as well as AIFMD and allows therefore asset managers to comply with the regulatory requirements.
- AA-Partners Ltd. is not conflicted. It can offer the respective information/services as unbiased third party.

AA-Partners Ltd. improves the data collection on an ongoing basis. In addition the models for extracting the relevant information for fair value valuation of life settlements are consequently optimized.
About Life Settlements & the Markets

What are life settlements?
US Life settlements are transactions in which unwanted or unneeded in-force life insurance policies of senior US citizens are sold to investors for a lump sum. The seller remains the insured person, while the buyer, i.e. the investor, becomes the new owner and the beneficiary of the death benefit proceeds. Furthermore, the investor is responsible for the payment of future premiums to keep the policy in force. The profit for the investor in a US life settlement is the difference between the fixed death benefit and the acquisition cost together with any future premium payments.

Secondary and tertiary life settlement market
The life settlement market consists of two different sections: the secondary and the tertiary market. In a secondary market transaction a policy owner sells a policy to a buyer. If the buyer resells the policy such a transaction is classified as a tertiary market transaction.

The secondary and the tertiary market interact since the underlying investment is the same, and accordingly the prices of the two markets can deviate however they can’t completely decouple from each other. Between the two markets the secondary market is the lead market. And per definition a transaction the secondary market is not a ‘distressed sale’ since no policy owner can be forced to sell and since a seller can step back after having received the final bid.

How does the market work?
In the life settlement markets there is no central exchange where policies are traded. Life settlements are traded ‘over-the-counter’, so in private transactions between sellers and buyers. Between the seller of a policy and a buyer so called life settlement providers facilitate the transfer of the policies.

The bidding process usually has the form of an auction. A policy is offered via one, two or several providers to potential buyers which analyze a policy and bid against each other. The highest bid usually gets the policy and the trade is settled thereafter. However the seller has the right to turn down bids and not to sell an offered policy, so there is just a relatively small fraction of offered policies traded at the end.
The life settlement markets therefore have more the characteristics of real estate where also no central exchange exists. And similar as with real estate the variance of the market prices is considerable. This can be shown using actual market data.

Fig. 1: The graph shows the paid transaction price of secondary and tertiary market transactions expressed in percent of face amount and referring to insured aged 78 to 80 years. The average age of the sample is 78.9 years, and on average the policies were transferred for 11.66% of face amount. So on average one dollar face amount was sold to investors for 11.66 cents. Depending on the LE, the projected future premium streams as well as further factors (premium finance status, size of the police etc.) the paid prices vary considerably.
Fig. 2: The graph shows the LE used for closing secondary and tertiary market transactions referring to insured aged 78 to 80 years. The variance of the used LE is significant. The average LE of the whole sample is 113 months. The average of the secondary market transactions is 112.2 months, the respective number for tertiary market transactions is 114.6 months. The medical underwriting is significantly different between secondary and tertiary market transactions.

Fig. 3: The graph shows the projected IRR of secondary and tertiary market transactions referring to insured aged 78 to 80 years. A majority of the projected IRR are in a band between about 10% and 25%, with a few outliers under 10% and over 25%. The average projected IRR of the whole sample is 19.4%. However the average projected IRR of the secondary market transactions is 20.3%, the respective number for tertiary market transactions is 18.1%. The difference in projected IRR can be at least partly attributed to different medical underwriting. The medical underwriting for secondary and tertiary market transactions is significant different which leads to the difference in average projected IRR.
It should be noted that the policy characteristics and the insured’s LE can’t explain the whole variance of the transaction prices, the market is not efficient.

- Depending on the sophistication of the buyer and the number of buyers bidding for a policy the realized prices may vary substantially even for identical policies with the same insured. If there is just one buyer a policy may be transferred for a very cheap price. Or if the buyer is not well informed he may pay too much for a policy.
- The insured’s health is THE most important variable in a life settlement transaction. The bidders may have completely different views with regards to the obtained LE estimates and therefore may be willing to pay significantly different prices for the same policy.

It is therefore important to remember, that the value (for instance for book keeping purposes) and the price (when a policy is effectively transferred) of a life settlement may be different. In AAP’s view there is not one single correct value for a given policy but actually more a range of possible values which can be all reasonable and achievable in a given market environment. However it goes without saying that the higher a valuation the more ambitious it is to achieve actually a respective price in the market. And it goes without saying that valuations which are far away from actual market environment are unrealistic even though there may be a small probability to find a buyer which is willing to pay a respective price.
AAP Life Settlement

Data Collection

Life settlements are traded over-the-counter (OTC) and therefore no data from an exchange or a central market maker exists. Clean life settlement transaction data in the form of exit prices exist at two interfaces, compare the red circles below: secondary and tertiary market data at the interface between the providers and the investors and tertiary market data between investors.

AAP collects data referring to both interfaces. It has closed agreements with providers as well as with asset management companies and collects data referring to closed transactions on a monthly basis.

AAP mandated one of the largest audit companies worldwide with the collection of the data.

AAP collects data from providers and asset managers.
The data providers send their data to the audit company. The audit company compiles all data in one file and sends the full data to AAP.

A separate set of asset managers support the collection of clean market data by buying just from providers which are part of the data collection. The asset managers then provide their data to the audit company which compares the data sets. With this set-up a control of a part of the provided data is achieved.

The data providers oblige themselves to provide all closed transactions as per each month. The requested data as per each trade include the following:

- Information regarding the insured person(s): gender, age, smoker status, life expectancies from different medical underwriters and the LE which was used for closing a transaction.
- Information regarding the policy: issuing insurance company and rating of the insurance carrier, state of issuance, date of issuance, type of policy, face value, cash surrender value, projected premium streams, premium financing status, secondary or tertiary market transaction.
- Exit price of a transaction: transaction price, so the total amount an investor paid.

Based on the collected information an IRR can be calculated per each LE of a given transaction. The used methodology for the IRR calculation can be assessed by third parties.

As per June 2015 the following 16 companies provided data (in alphabetical order): Abacus Settlements, Berkshire Settlements, Carlisle Management Company, FairMarket, Habersham Funding, Institutional Life Services, Legacy Benefits, Life Equity, Life Settlement Solutions, The Lifeline Program, LifeTrust LLC, Magna Life Settlements/Vida Capital, Q Capital Strategies, Settlement Group, RiverRock Partners, SL Investment Management Ltd.
‘Fair Value’- Valuation of Life Settlements

The basis for every prospering asset class is an accurate valuation. Accurate valuation builds investors’ confidence whereas wrong valuation opens the door for misrepresentation and fraud. Therefore a sound valuation of financial assets is of imperial importance.

The regulation also supports a valuation of assets in line with market prices. IFRS 13 respective FASB ASC820 ask for a valuation according to the fair value principle. The AIFM guidelines as well oblige asset managers to value assets as close to market prices as possible.

The valuation of pools of standardized securities as shares or bonds which are traded at an exchange is straightforward – the closing prices from the exchange are used for the valuation. However with non-standardized assets as real estate, private equity or life settlements a valuation in line with current market conditions is challenging. How shall a real estate portfolio be valued? Or what’s the value of private equity portfolio? Or of a life settlement portfolio?

Given this situation methods were developed which allow a fair value valuation even of non-standardized assets. As a general rule actually closed transactions are used.

- A house in a real estate portfolio is valued by comparing the house (exposition, size, connection to public transportation, quality of the building etc.) to similar objects that were recently traded. The realized discount factors of the reference transactions, of course with credits and debits, are used as discount factor for the house which shall be valued. As a result the house is valued at a fair value.

- For the valuation of private equity holdings private equity transactions are used. Again the discount factors from reference transactions are applied to the projected cash flow of the private equity holding which leads to a fair value.

With life settlements it works exactly the same. For the valuation of life settlements actually closed transactions can be used. The discount factors of reference transactions is applied to the projected cash flow streams and leads to a fair value of the life settlements.

The transaction data which AA-Partners Ltd. collects, compare previous sections, are perfectly suitable for the fair value valuation of life settlement portfolios.
The Use of Transaction Data for the ‘Fair Value’ Valuation

AAP has collected a large number of actually closed transactions. Various factors influence the price which buyers are willing to pay for a given life policy. The factors can be attributed to the policy itself (face amount, premium streams and so forth) as well as to the insured (life expectancy estimate, age and so forth).

AAP investigated how the collected transaction data can be used for fair value valuation of life settlements. For this purpose the data base was analyzed using multiple linear regression analysis. The analysis showed that several factors (‘drivers’) have a significant influence on the transaction price respective the IRR and consequently need to be considered if the data is used for the valuation of life settlements. If the factors are not appropriately considered a valuation may be misleading and the resulting values may be a misrepresentation of a fair value.

The statistical analysis shows that the identified drivers can explain a significant part of the observed variance, and consequently the findings can be used for the valuation of life settlements.
Fig. 4: The graphs show how the paid prices can be explained with the identified factors. The two used methods (the Factor Model (upper graph) and the Neighborhood Method (lower graph), compare next section), explain a large part of the observed variance of the purchase prices. This is shown with the data cloud draped around the regression lines. If the variance of paid prices could not be explained by certain factors, the dots in the graphs would form a formless cloud.

It is of imperial important to consider the factors which drive the purchase behavior of investors. If the factors are not diligently considered the value of life settlements for book keeping purposes may not represent a fair value although the value was derived using actual market information.

Based on the findings of the statistical analysis the information for a fair value valuation of life settlements can be extracted. AAP uses two different methods, the Neighborhood Method and the Factor Model.

- The Neighborhood Method bases on the principle that similar assets are priced similarly by investors. Therefore with this approach most similar trades are identified and used for the valuation of a life settlement. The projected IRR from the reference transactions can be used for discounting the projected cash flows of the life settlement.

Please be aware that the Neighborhood-Method can systematically lead to lower projected IRR than the market average if from the selected trades the highest and lowest values are disregarded. The reason for this effect is that market IRR are skewed towards higher values, and if symmetric the highest and lowest values of a selection are disregarded it can lead to lower projected IRR than the market average.
In the Annex a separate section explains the medical underwriting in the markets. Since the medical underwriting of the LE provider is systematically different also the discount factors relating to the respective medical underwriters are different. The model can provide projected IRR based on the Neighborhood Method for different medical underwriters.

- The Factor Model estimates a fitting discount factor directly. This method is purely based on statistical findings and principles. Basically the model uses the results of the multiple linear regression for estimating the discount factor.

  The projected IRR estimated using the Factor Model reflects the projected IRR in the markets. Unlike the projected IRR according to the Neighborhood-Approach it is not skewed towards lower IRR.

  The projected IRR differs between different medical underwriters, compare also the Annex.

  The model can estimate projected IRR for different medical underwriters.

Please be aware that the projected IRR according to the Neighborhood Approach is systematically different if compared to the projected IRR from the Factor Model. The reason is that two different approaches are used to extract the information.

With both methods, the Neighborhood Approach and the Factor Model, a discount factor for a single life settlement can be estimated. The value of the life settlement is then calculated using the probabilistic cash flow stream (compare Annex in the section ‘Fair Value Valuation of Life Settlements’).

A client needs to decide which of the two approaches, neighborhood method or factor model, shall be used.
Reporting

AAP offers to provide the necessary information for the valuation of life settlements according to collected market information. The used models as well as the results can be assessed by third parties. For each client respective run the results, the used base data, the used models and the used formula are stored and can be reviewed. Therefore there is a ‘paper trail’ of each delivery stored and available for review.

In addition a client receives a reporting which may be used towards third parties. A sample reporting is available on request.
Annex
The Medical Underwriting and the IRR Calculation

As per each life settlement AAP receives different LE information. First it gets the LE which was used by the investor for closing a transaction. In addition the LE from different medical underwriters are provided, and last but not least the audit company provides the standard LE for each transaction.

![Graph showing LE in months (Y-axis) in the secondary market for insured aged 75-86 years (X-axis). The chart shows four distinct data sets, all referring to the same sample of insured. The data sets are the LE which was used for closing the transaction, the LE from AVS and from 21st Services, and the standard mortality. The standard mortality refers to the VBT 2008 tables. It assumes a very large sample of insured and therefore average health. Although all LE estimates refer to the same lives the medical underwriting of the different medical underwriters is significantly and consistently different. The average LE of the whole set of data referring to the medical underwriting of 21st Services is 83 months, the respective figure referring to LE from AVS is 105 months. Source: AAP Life Settlement Market Review – December 2013, p. 9.

Since for a given life settlement different LE are available, per each LE a separate projected IRR can be calculated. And since the medical underwriting between the different medical underwriters is different, compare chart above, accordingly the respective projected IRR are also different. The projected IRR referring to LE from 21st Services which provide shorter LE are significantly higher than projected IRR referring to the LE from AVS. The higher projected IRR referring to LE of 21st
Services lead to exactly the same transaction price as the lower projected IRR in combination with the on average longer LE from AVS.

**For valuation purposes it is of imperative importance to use discount factors which fit to the used LE information.** For instance the combination of discount factors derived from AVS LE with mortality curves calculated based on 21st Services LE lead to a very significant misrepresentation of the fair value of life settlements.

**IRR calculations**

Life settlements transactions data is collected as it is, data don’t need to be ‘transformed’. However there is one figure which needs to be calculated, the projected IRR. The projected IRR connects the purchase price of a transaction with the mortality curve of an insured and the respective cash flows. It is a standardized measure regarding returns which investors may realize given a certain transaction price, a LE and a projected premium stream.

The formula for the calculation of the projected IRR is common knowledge in the industry. However the result of such calculations depends on the modeled mortality curve based on a given LE as well as from the so called ‘settings’. ‘Settings’ mean variables as for instance the mortality improvement factor, the death benefit collection delay and so forth.

Given the importance of reliable projected IRR information AAP relies on the model of one of the largest and most reputed audit companies worldwide, and all projected IRR for valuation purposes provided by AAP bases on the model of that audit company. The settings for the AAP calculations are as follows:

- Mortality table: VBT 2008 ANB.
- Premium payments: monthly.
- Mortality improvement: 0.5% p.a. for non-smokers and both genders, starting at the transaction date and for 15 years. With insured with smoker status no mortality improvement is used.
- LE date: three months prior to the transaction date.
- Death benefit collection: 2 months delay.
- Maturity date: 30 years from transaction date or age 100.
‘Fair Value’ Valuation of Life Settlements

As per 1st of January 2013 IFRS 13 came into force which requires life settlement portfolios to be valued according to the fair value principle. ‘Fair value principle’ means ‘the amount for which an asset could be exchanged or a liability settled, between knowledgeable and willing parties in an arm’s length transaction’. Therefore the fair value is an exit price.

- The objective of determining a fair value is to estimate the price at which an orderly transaction would take place between market participants at the measurement date.
- Fair value is a market-based measurement. Fair value is measured using the assumptions that market participants would use when pricing the asset or liability.
- Market participants are independent, knowledgeable, able and willing to enter into a transaction, although the price in a related party transaction may be used as an input to a fair value measurement if there is evidence that the transaction was entered into on market terms.

Irrespective of the level in the fair value hierarchy used to measure the fair value of a financial instrument, the method chosen must maximize the use of relevant observable inputs and minimize the use of unobservable inputs. An input is observable if it can be observed as a market price or can be derived from an observed market price. In each case, it is not necessary for the market to be active.

IFRS 13 is largely in line with US GAAP ASC 820.

Life settlement transactions are closed using a probabilistic valuation, using the following general formula:

\[
P = \sum_{t=0}^{\infty} v_{\text{IRR}}^{t+1} \cdot \tilde{p}(x,t) \cdot \tilde{q}(x,t) \cdot DB_t - \sum_{t=0}^{\infty} v_{\text{IRR}}^{t} \cdot \tilde{p}(x,t) \cdot \Pi_t,
\]

where:

- \( P \) – Price (value of a policy)
- \( v_{\text{IRR}} = \left( \frac{1}{1 + \text{IRR}} \right)^{1/12} \) – Monthly discount factor at the target IRR
- \( x \) – Age (last birthday of the insured at the date of purchase)
- \( t \) – Future month of the projection
\[ \tilde{p}(x,t) \]  – Probability of a live aged \(x\) to survive \(t\) months, given monthly death rates

\[ \tilde{q}(x,t) \]  – Probability of a live aged \(x+t\) to die within the next month

\(DB_t\)  – Death benefit payable in month \(t\)

\(\Pi_t\)  – Premium payable in month \(t\)

The ongoing valuation of life settlements has to use the same formula since exit prices in the market refer to this formula. The transmission belt between actual market prices and a fair value is the discount factor (IRR). This can be illustrated using a dummy transaction:

- Assume a policy is transferred today for USD 300'000. In this case the projected IRR of the transaction is 17.22%, compare below.

- If the policy is immediately resold tomorrow, so without material changes regarding projected premiums or LE, and realizing a different exit price just the IRR in the equation changes.

- So the value of a life settlement can be adjusted to changing market conditions by using an appropriate discount factor.

Therefore life settlements can be valued according to current market conditions using an appropriate discount factor, of course in combination with an actual LE. And consequently the use of a discount factor which does not mirror the current market environment leads to wrong valuation.

For valuation purposes it is of significant importance to use discount factors which mirror actual market conditions. The use of discount factors not in line with actual market environment may lead to significant misrepresentation of the fair value of life settlements.
Extracting Information for the Valuation

Starting point for extracting the necessary information for a fair value valuation are the collected transactions data. The model excludes in a first step trades with essential data missing (i.e. missing LE). In addition the underlying data universe can be tailored using the parameters of the data cloud. The parameters of the data cloud are the variables (age, gender, face amount, date of transaction etc.).

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Standard Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projected IRR referring the LE of medical underwritings (restriction to certain LE, to certain IRR bands etc.)</td>
<td>Exclusion of IRR lower than 2%; or higher than 50% referring to the LE used for closing</td>
</tr>
<tr>
<td>Age of insured at time of closing transaction (restriction to certain age brackets, etc.)</td>
<td>60 up to age 100</td>
</tr>
<tr>
<td>Face value (restriction to certain face value bands, etc.)</td>
<td>Maximum of USD 20 Mio</td>
</tr>
<tr>
<td>Transaction date from ..to (until today, from Jan 2011 to Dec 2012, etc.; depending on client portfolio)</td>
<td>36 months of data;</td>
</tr>
<tr>
<td>Gender (just male insured, just female, etc.)</td>
<td>All, joint policies excluded</td>
</tr>
<tr>
<td>Transaction price (exclusion of certain transaction price brackets, etc.)</td>
<td>All</td>
</tr>
<tr>
<td>Secondary respective tertiary market trades (restriction to just one market segment, higher weight of secondary market transactions, etc.)</td>
<td>All</td>
</tr>
</tbody>
</table>

The result of phase 1 is a defined data cloud which serves as basis for the following steps. The settings can be tailored according to clients’ needs. The chosen settings are accordingly mentioned in a client’s reporting.

Having selected a fitting reference trade universe three further points need to be fixed for the data can be used for valuation purposes:

- Used equation set: for each defined data universe, compare above, a separate regression analysis is run which leads each time to a different set of factors with different strength and accordingly to a distinct equation set. For instance a client can ask for a valuation as per end of 2012, or that just a certain standard is used, or the settings of a certain client. In this step it is fixed which equation set is used.
• Fixing of the weight of a given transaction depending on how recent a transaction was closed: the life settlement markets change over time. From a valuation perspective more recent transactions therefore should be more important than older transactions. In this step it is defined how important the recent transactions shall be.

• The use of the data for the ‘Neighborhood’-Method: the variance of transaction data is considerable, and accordingly it can make sense to select a certain number of reference trades to have a more meaningful projected IRR. In this step the number of reference trades and the procedures for the calculation of the projected IRR from reference trades are defined.

<table>
<thead>
<tr>
<th>Parameters equation set &amp; aging</th>
<th>Standard Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equation set (current, referring to a certain point in time f.i. Dec 2012, to a specific client selection etc.)</td>
<td>Current and referring to the standard settings above</td>
</tr>
<tr>
<td>Aging of trade information (which weight shall a trade from a previous period have if compared to today; is in the standard model ongoing optimized according to actual market environment)</td>
<td>50% weight after twelve months, exponential decrease</td>
</tr>
</tbody>
</table>

Settings for Neighborhood- respective Best-Fit-Method:

<table>
<thead>
<tr>
<th>Parameters for selection reference trades</th>
<th>Standard Settings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of selected neighborhood trades</td>
<td>5 trades</td>
</tr>
<tr>
<td>Deletion of outliers (highest IRR, lowest IRR; two highest and two lowest, etc.)</td>
<td>Highest and lowest value</td>
</tr>
<tr>
<td>Weighting of secondary &amp; tertiary market transactions</td>
<td>Tertiary double weighted</td>
</tr>
<tr>
<td>Weighting according to distance</td>
<td>Equal weighted</td>
</tr>
<tr>
<td>Weighting according to transaction date (which weight shall a trade from a previous period have if compared to today)</td>
<td>50% weight after six months, exponential decrease</td>
</tr>
</tbody>
</table>

Phase 3 – running a multiple linear regression

Having selected a fitting reference trade universe and all necessary factors a multiple linear regression is run on the data.

• Used statistical software: R, version 2.14

• Used data set: as defined via settings. Face amount, transaction price and IRR are logarithmized (first-aid transformation). The projected premium streams are split into four sections, each section comprising LE/2 values and taking the average per each section.
• The analysis is run against the projected IRR of the closed transactions.

Result of the linear regression is a set of factors (‘drivers’) and their respective strength which have a significant influence on the transaction price respective the projected IRR and consequently need to be considered if the data is used for the valuation of life settlements.

Having the factors for the IRR in the market as well as their relative importance fitting reference trades can be selected (‘Best-Fit’-Approach, ‘Neighborhood’-Approach). With a best fit approach the data points which are most similar are selected. The result is a discount factor which is taken from the reference trades and which can be used as discount factor for a given life settlement.

For the different factors can be used it is necessary to make them directly comparable. This is achieved by multiplication of the data base with the strength of the drivers. Having this ‘transformed’ data base the distance between two data points can be calculated using a n-dimensional Pythagoras where a and b are different life settlements.

\[ d = \sqrt{(a_1 - b_1)^2 + (a_2 - b_2)^2 + \ldots + (a_n - b_n)^2} \]

Using this formula the distance (=similarity) between a life settlement for which an appropriate IRR is needed and closed transactions, for which this information is available, can be calculated. The reference trades with the highest similarity can be selected and an average IRR can be derived which can be used as discount factor for the life settlement which need to be valued.

The results from the regression analysis, the ‘drivers’ respective their respective strength, describe the behavior of life settlement investors. And consequently this information can be used to view single life settlements or whole portfolios as trades and the model estimates projected IRR. The results are estimated projected IRR which reflect the overall know-how in the market, the behavior of market participants as well as the pricing level in the market.

In a first step a client’s data is transformed into the same format as the life settlement transaction data base. In a second step all columns are multiplied with the factors which resulted from the regression analysis. The results are projected IRR for each position of a client’s portfolio in the format of the data base (logarithmized projected IRR). In addition each estimated value is linked to a prediction error. Then the data is transformed back to the original format. This step is necessary since the model works with logarithmized data.

The results at this point are as follows: A.) an estimated projected IRR for each life settlement including respective prediction errors; and B.) by summing/averaging the values of the single positions a projected IRR for the whole portfolio.

However at this point the standard deviation of a portfolio’s projected IRR isn’t calculated yet. The standard deviations of the estimated values on a portfolio level can be calculated using the prediction errors of the single positions. Using the error propagation (Gauss) the uncertainty of a whole portfolio can be calculated using the prediction errors of the single positions of a portfolio using the following formula.
\[ S_{ISP} = \sqrt{\sum_i \left( \frac{10^{ISP_i}}{\sum_j 10^{ISP_j}} S_{ISP_i} \right)^2} \]

where

'SP' means Price

'I' means logarithmized

The standard deviations derived from the error propagation are applied to the estimated values which lead to the standard deviations of the values in the logarithmized scale. The calculated values of the standard deviations are then transformed back into the non logarithmized scale and show the standard deviations on a portfolio level.

The results of this step are the standard deviations of the estimated projected IRR on a portfolio level.
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 assets, 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 value and the price of a life settlement can deviate from each other given the character of the assets, the structure of the market, based on market conditions, depending on the behavior of market participants and competitors, external circumstances and so forth. Therefore AA-Partners Ltd. is not able to give any assurance that the price of an asset will be close to the value of the asset, and AA-Partners Ltd. has no liability whatsoever if the value and the price of an asset deviates from each other.

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.