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Life Settlement Funds: Current Valuation Practices and Areas for Improvement

Prof. Dr. Alexander Braun 5th Anniversary Symposium of ELSA June 16, 2014 London, UK

Motivation

- Lack of academic research on life settlement funds and their valuation practices
- Signs of overvaluation and anecdotal evidence of fading investor trust in the industry

Contribution

- Analysis based on a sample of eleven funds covering a large portion of the market
- Evidence for substantial overvaluations of fund portfolios
- Likely reasons are understated life expectancies (LEs) and discount rates
- Suggestions for improvement of the situation to recover investor trust



Definition

- Life insurance policies of senior US citizens traded in the secondary (or tertiary) market
- Investor pays premiums and collects the death benefit when the insured passes away
- Main risks: longevity risk (biometric), valuation risk, liquidity risk

The investor's perspective

- Can be an attractive portfolio diversifier (low correlation with traditional asset classes)
- Direct investment or exposure to the asset class through dedicated funds
- Complex and comparatively lengthy transaction process



Transaction process

A typical life settlement deal involves several parties





Actuarial notation and discrete-time setting

$$P_0 = \sum_{t=0}^{\infty} \frac{{}_t p_x \cdot q_{x+t} \cdot DB}{(1+r)^{t+1}} - \sum_{t=1}^{\infty} \frac{{}_t p_x \cdot \pi_t}{(1+r)^t}$$

- *DB*: death benefit
- π_t : premium payable in year t
- r: discount rate
- $_t p_x$: probability that an x-year old survives for t years (t-year survival rate)
- $_tq_x$: probability that an x-year old dies within t years (t-year mortality rate)
- $_t p_x \cdot q_{x+t}$: probability that an x-year old lives for t years and then dies within one year

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The actuarial link

• Curtate LE (in complete years) of an individual aged *x*:

$$e_x = \sum_{t=1}^{\infty} {}_t p_x$$

- Can be interpreted as the expected value of the random variable "being alive"
- Implication: higher LEs are associated with higher survival rates (lower mortality rates)

Medical underwriting

- Classification of the insured into a mortality risk category (outcome: multiplier)
- Application of the multiplier to a standard mortality table and determination of the LE

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Definition

• Measure for the accuracy of the medical underwriting

 $A/E Ratio = \frac{\text{Actual Death Benefit Payments}}{\text{Expected Death Benefit Payments}}$

• Numerator and denominator relate to a specific measurement period

Interpretation

- A/E Ratio = 1: mortality experience is in line with expectations
- A/E Ratio < 1: less-than-expected death benefit proceeds have been received
- A/E Ratio > 1: more-than-expected death benefit proceeds have been received



The fair value method

- After the introduction of FASB ASC 325-30 in 2006, it was possible to chose between the <u>investment method</u> and the <u>fair value method</u> for the valuation of life settlements
- IFRS 13 became effective in January 2013 and now life settlement funds need to apply the fair value method (FASB ASC 820-10)
- The classification in the fair value hierarchy is driven by the availability of input values



Pure "Mark-to-model" assets

AAP Life Settlement Market Review for May 2013

- Transactions that occurred in the 12-month period between May 2012 and April 2013
- Additional deal data back to January 2011 (overall, USD 1.56 bn of traded face amount)
- Policyholders ages between 71 and 90 years (below 75 and above 86 are "tail markets")
- The deals included in our analysis represent about USD 1.178 bn in face value

Life Settlement Fund Data

- Survey information for 11 life settlement funds (voluntary response per email)
- Missing data was collected from websites and publicly available documents



The data collection process of AAP



The market is largely covered

- Dealflow Media regularly publishes a ranking of life settlement providers based on official data from US Regulators
- Ten of the Top 15 providers in 2012 currently report to AAP
- In addition, LifeTrust, Life Settlement Solutions, and Q Capital as well as two asset managers report transactions
- Total Paid/Total Face Value: AAP=15.45%, Dealflow=14.81%

Rank	Provider	# of Deals	Total Paid [USD Mio]	Face Value [USD Mio]
1	Coventry First	597	72.3	393.8
2	Magna Life Settlements	85	24	209.2
3	Legacy Benefits	54	10.2	41
4	Settlement Group	53	24.7	149.7
5	Life Equity	50	12	137.7
6	Berkshire Settlements	41	15.5	47.9
7	Abacus Settlements	36	6.5	76.8
8	Credit Suisse Life Settlements*	34	40.2	302.5
9	Maple Life Settlements	30	8.2	49.9
10	CMG Life Services	30	29.2	208.1
11	Institutional Life Services	25	10.8	85.5
12	Habersham Funding	24	11.9	33.8
13	Lifeline Program	20	5.5	61.4
14	Institutional Life Services (FL)	15	6.8	44.9
15	Montage Financial Group	14	2.9	53.3
		1108	280.7	1895.5

AAP Transparent Providers

* Went out of business

Source: AAP (2013)

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A representative snapshot of the market

Fund Information	Minimum	Maximum
Inception Date	2003	2012
NAV (in Million US Dollars)	2.8	1,026.0
Book Value (in Million US Dollars)	1.9	932.6
Face Value (in Million US Dollars)	11.3	1355.0
Number of Policies	32	599
Average Age (Years)	77	86
Average LE (Months)	20	127



Some portfolios seem to be substantially overvalued





Differences are not large enough



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Source: AAP (2013)

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Inadequately short LEs are a likely driver of the values





Potential explanatory factors: LE estimates (II)

A/E ratio example for fund 6



- Portfolio LE of 23 months and total face value of USD 1,705 mn (February 2011)
- ≈ USD 853 mn in death benefits should have been paid out before 02/2013 in case of correct LE estimate
- Subtract inflows before 2011 from the total amount of payments up to February 2013
- USD 270 mn in death benefits were actually received by the fund up to 02/2013, implying a gap of ≈ USD 583 mn
- The resulting A/E Ratio of 36% indicates that the LE was severely underestimated
- Therefore, the fund's portfolio value can be considered to be exaggerated

Inadequately low discount rates are another driver

- Consider fund 7 with a market-consistent average LE of 92 months (average age: 81)
- Yet, the portfolio valuation (28.7% of FV) equals roughly double the market price level
- Reason: the asset manager values the portfolio with an IRR of 12%
- However, the average IRR used to close recent transactions for an age of 81 is 22.6%:

Age	75	76	77	78	79	80	81	82	83	84	85	86
Avg. (%)	29.1	22.3	26.0	16.6	21.4	16.9	22.6	25.9	17.0	18.7	26.3	28.4
Max. (%)	54.2	33.9	31.7	19.2	37.5	25.7	36.9	50.1	35.5	26.5	41.0	81.6
Min. (%)	18.2	13.2	19.6	13.4	14.1	0.2	8.6	16.1	0.0	8.4	14.3	12.2



An illustration for fund 9 (closed-end)





LE estimates

- Price life settlement with an LE that is too short right from the outset
- Refrain from updates in line with market-wide shifts (e.g., revisions by AVS and 21st)
- Start with correct LE but subsequently shorten it excessively to inflate asset values

Discount factors

- Use of wrong discount factor (e.g., from another asset class such as government bonds)
- Retention of the IRR that was used upon purchase (no changes in line with the market)
- Reduce IRR after the purchase of a policy without referral to market data



Temptation to maximize own income

- Without market-consistent valuations, there is no incentive to buy at fair prices
- Funds may overpay for policies to reap upfront profits and increase management fees
- Subsequent inflation of values generates phantom gains and thus performance fees

Integrations of life settlement providers and funds

- Some providers have a stake in funds, which clearly causes a conflict of interest
- The funds tend to be heavily overvalued, although the providers know the market well
- Providers may deliberately distort deal prices to help their funds vindicate inflated values



Three major detrimental effects





Data-related limitations

- Despite its representativeness, certain transactions are not included in our market data
- Key fund information is essentially self-reported and may therefore be biased
- A more granular analysis would be desirable but requires policy level data

Market-related limitations

- A certain markup in value may be justifiable during distressed market environments
- The policy mix of certain funds could heavily differ from recent market activity
- Investors might accept markups for synthetic exposure (lower transaction costs)



Results based on average figures need to be interpreted with caution





Shift focus from model to input

- Reliance on third parties exclusively for the valuation model is not sufficient!
- Input values need to come from independent sources to avoid conflicts of interest
- Cross-checks of market data from several providers help to prevent price manipulations

Accounting standards and fee structures

- Enforcement of IFRS 13 and shift of life settlements to level 2 in the fair value hierarchy
- Introduction of incentive-compatible fee structures: focus on realized death benefits
- Intensify disclosure requirements (e.g., for A/E ratios) to promote market discipline



Thank you for your attention!



