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LIFE SETTLEMENT FUNDS: CURRENT VALUATION PRACTICES AND AREAS FOR IMPROVEMENT

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LIFE SETTLEMENT FUNDS: CURRENT VALUATION PRACTICES AND AREAS FOR IMPROVEMENT

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Abstract

We analyze the prevailing valuation practices in the life settlement industry based on a sample of 11 funds that cover a large portion of the current market. The most striking result is that a majority of asset managers seem to substantially overvalue their portfolios relative to the prices of comparable transactions that have recently been closed. Drawing on market-consistent estimates with regard to medical underwriting, it is possible to trace back the observed discrepancies to inadequately low model inputs for life expectancies and discount rates. The consequences are a dissimilar treatment of investor groups in open-end fund structures as well as an unduly high compensation for managers and third parties. To address this predicament, we suggest defining life settlements as level 2 assets in the fair value hierarchy of IFRS 13, improving transparency and disclosure requirements, and developing new incentive-compatible fee structures.

1. Introduction

Life insurance protects a policyholder's dependents against possible financial hardship in case of his or her death. For this reason, about 70% of US families hold some type of life insurance contract and the market is still growing. In 2011, the coverage in the United States was USD 19.2 trillion, an increase of 4% from 2010 (American Council of Life Insurers [ACLI], 2012). Due to its classical risk management function, however, it has long been overlooked that life insurance is also a financial asset. In fact, actuarial values are frequently positive while the policyholder is still alive (see, e.g., Doherty et al., 2004). The shorter the remaining life expectancy (LE) of a person, the more valuable the insurance policy, since its actuarial value converges to its face value.

Historically, life insurance policies have been classified as illiquid assets, since, in contrast to tradable securities such as common stocks, there was no active secondary market. Policyholders who were no longer in need of coverage therefore had only two options: lapsing the contract or selling it back to the insurance company for its predetermined surrender value (Kohli, 2006). In the latter case, insurance carriers were able to dictate prices as they held monopsony power for the repurchase of their products. Nowadays, however, it is also possible to sell to third parties in transactions called life settlements (Kohli, 2006). Regardless of their short history, life settlements have managed to attract a lot of investor interest (Life Insurance International [LII], 2008). The main reason for this success is the independence of the underlying biometric risks from the broader financial markets that leads to low return correlations with traditional asset classes (Keating, 2009).

Considering the rapid evolution of the market for life settlements, it is not surprising that the number of investment funds focusing on this asset class has also grown continuously over the last decade. In recent years, however, many funds have either struggled or failed altogether. Industry experts regularly attribute this circumstance to the difficulties involved in adequately valuing the funds' portfolios. Owing to the unique character of each underlying life settlement asset, a mark-to-market approach cannot be applied and one needs to resort to mark-to-model techniques, implying that, in cases where the corresponding input parameters are not derived in a market-consistent way, the funds' portfolio valuations may significantly differ from the observed price levels of current transactions. As a consequence, fund managers enjoy considerable leeway that they may exploit to the detriment of their investors. Against this background, it is astonishing that the valuation practices of the life settlement industry have not been thoroughly analyzed in the literature to date.

Instead, previous studies cover a broad range of other aspects concerning life settlements. Doherty and Singer (2002) as well as Doherty et al. (2004), for example, discuss the bene-

fits and risks of a secondary market for life insurance policies. Gatzert (2010) provides an industry overview for the United Kingdom, Germany, and the US. In addition, more recent studies of market size and development have been undertaken by Conning (2011, 2012). While the impact of the secondary market on life insurers' surrender profits is explored by Gatzert et al. (2009), Fang and Kung (2010) discuss the corresponding implications for consumer welfare. Moreover, Doherty and Singer (2003), Kohli (2006), Evans et al. (2009), and Casey and Lowe (2011) review regulatory and tax issues. Further topics that have been considered in the extant literature are the ethical aspects of life settlement investing (Quinn, 2008; Nurnberg and Lackey, 2010), the purchasing and due diligence process (Ingraham and Salani, 2004; Freeman, 2007), the challenges and opportunities from a life settlement provider's viewpoint (Seitel, 2007), and the issues involved in securitization (Stone and Zissu, 2006; Ortiz et al., 2008). Similarly, some authors have examined the risk, return, and correlation characteristics of this asset class. Smith and Washington (2006), for example, consider the diversification process for life settlement portfolios, Dorr (2008) illustrates how they can be employed to extend the efficient frontier, and Bajo Davò et al. (2013) derive the optimal portfolio weight for this asset class in a classical Markowitz framework. Finally, Rosenfeld (2009) explores benefits and risks for institutions, Braun et al. (2012) measure the performance of open-end life settlement funds, and Januário and Naik (2013) estimate expected returns based on a data set of US transactions.

Our contribution is a critical analysis of the valuation practices for life settlement fund portfolios that currently prevail in the industry. After a brief overview of the development and the state of the market as well as the typical transaction process, we revisit the probabilistic model for life settlement pricing and discuss its sensitivities with regard to different input factors. We then conduct a comparison of fund portfolio valuations with actual market prices based on survey responses, publicly available information from fund websites, and market data included in the May 2013 life settlement market review of AA-Partners Ltd. (AAP), a specialist firm based in Switzerland. Finally, we discuss potential reasons for value differences, point out the key implications, and suggest areas for improvement.

The remainder of this paper is structured as follows. In Section 2, we provide some background information on the life settlement market and the probabilistic pricing model that forms the basis for the subsequent analyses. Section 3 is the empirical part, comprising the description of our data set, the comparative analysis of portfolio values, and the discussion of possible causes for deviations. Implications of our findings as well as suggestions for an improvement of life settlement valuation practices are then discussed in Section 4. Lastly, in Section 5 we summarize our findings and present our conclusion.

2. US Senior Life Settlements

2.1 Historical Development and Current State of the Market

The life insurance sector in the United States comprises three segments. In the primary market individuals enter into contracts with insurance companies, in the secondary market policies are sold to third parties such as life settlement companies, and in the tertiary market trading takes place between investors (Siegert and Mick, 2012). Consistent with this categorization, life settlements are defined as transactions in which individuals sell their life insurance policies to third parties (Rosenfeld, 2009). The price paid by the investor is generally higher than the surrender value, but lower than the death benefit. After the acquisition, the investor is responsible for paying all future premiums to the insurance company and he or she collects the death benefit of the policy when the original policyholder dies. This means that, the shorter the insured's remaining life, the higher the return on the investment.

The secondary market for life insurance policies started in 1989 in response to the AIDS epidemic in the United States. People suffering from AIDS suddenly faced a need for cash to finance their medical treatment and to maintain their standard of life. One way to obtain money was to sell their life insurance policy to a third party for a lump sum. Due to the severely shortened LEs of these AIDS patients, the surrender values of the policies were much lower than the actuarial values and, in turn, the prices paid by investors (Doherty and Singer, 2003). Such transactions with policies of terminally ill individuals are commonly referred to as viatical settlements. During the 1990s, the viatical settlement market grew rapidly. According to Sippel and Buerger (2002), the value the of policies that were viaticated increased from USD 50 million to USD 1.2 billion between 1990 and 1999. However, medical breakthroughs delivering better drugs led to a 60% decline in mortality rates of AIDS patients in the United States between 1996 and 2001 (Centers for Disease Control and Prevention [CDC], 2001). Hence, by the end of the 1990s the secondary market for life insurance policies was changing. While the viaticals industry experienced a constant decline, a new segment for life settlements emerged: senior citizens over the age of 65 with no terminal illness but a below-average LE[1] started to sell their policies to investors.

The life settlement market grew rapidly in the middle of the 2000s but began to decline again toward the end of the decade. The United States Government Accountability Office estimates that the face value of life insurance policies settled dropped from USD 12.95 billion in 2008 to USD 7.01 billion in 2009 (GAO, 2010). According to Conning (2009), this downturn was caused by the financial crisis due to which a number of life settlement investors experienced problems in financing premiums. Other industry experts see the nature of the required investment as an impediment to growth. Some have referred to life settlements

[1] The remaining LE associated with senior life settlements is usually between 2 and 12 years (Braun et al., 2012).

as a “wasting asset” that requires “significant up-front capital to pay premiums of 5 to 10% of face per year” while it takes at least three years before any death benefits are paid out (Life Settlements Task Force, 2010). Despite the recent decline, a positive future development of the industry is not unlikely. In fact, for the first time since the crisis, signs of rehabilitated investor interest have been recognized (Conning, 2012). Moreover, the projected growth in the number of US citizens over 65 by 2050, the constant increase in new life insurance policies purchased over the last few years, and the growing costs of health care favor an increase in the life settlement market (ACLI, 2012).

2.2 The Typical Transaction Process

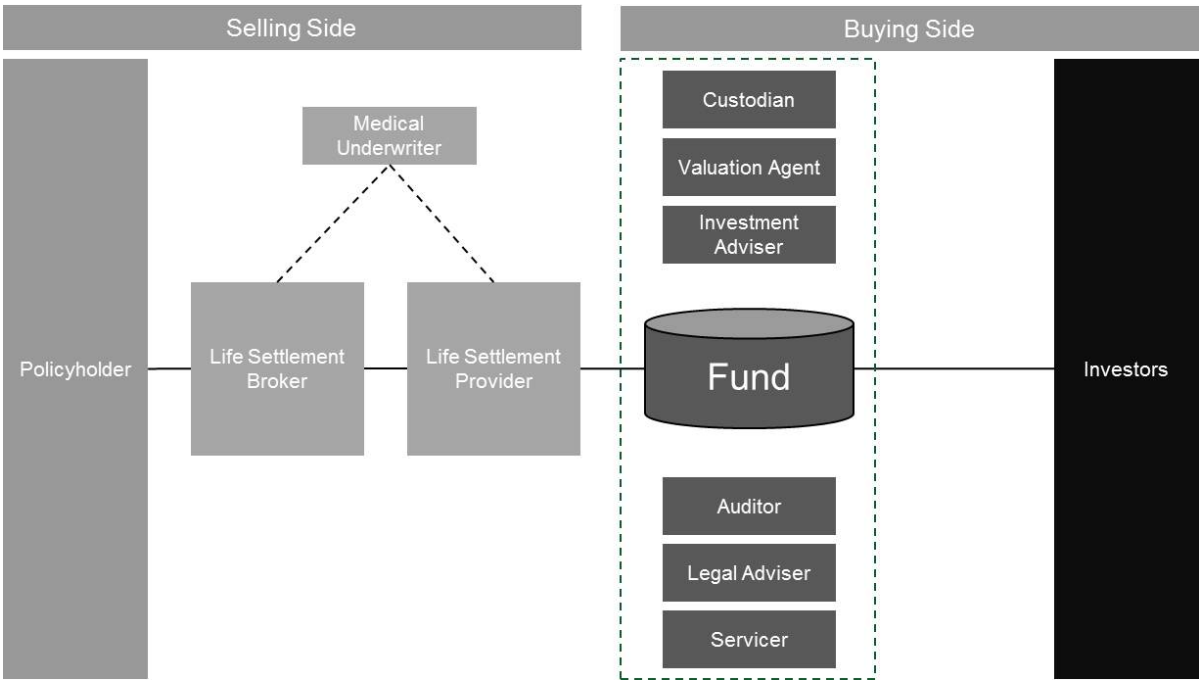
A schematic illustration of a life settlement transaction is shown in Figure 1. The process typically starts with a policyholder who, for some reason, is interested in selling his or her contract.[2] He or she may, for example, not be able to afford the premiums any more, require cash to finance medical treatment, or feel that the coverage for the beneficiaries is redundant (Kohli, 2006). Since most policyholders are unfamiliar with life settlements, their insurance agents are usually the ones initiating the transaction (Aspinwall et al., 2009). A broker stands in between the selling and the buying side. The broker’s main role is to represent the policyholder’s interests and to achieve a competitive price. Life settlement providers on the other hand represent investor interests and try to negotiate discounts (McNealy and Frith, 2006). For this purpose, they review policies based on factors such as LE information or the financial situation of the insurance company (Life Settlements Task Force, 2010). As different providers present their offers for the policies that are on the market, an auction-like environment arises and helps to establish fair prices (McNealy and Frith, 2006).

An important determinant of the price for a life insurance policy is the LE, which is estimated by specialized underwriters who analyze the policyholder’s medical records and thus evaluate the corresponding mortality risk (Braun et al., 2012). After classifying the individual in a certain group based on risk factors (e.g., age, health status, gender), they come up with a multiplier (mortality rating) that is used to modify a certain standard mortality table (see A.M. Best, 2012). Methodologies for the derivation of multipliers as well as the mortality tables referenced differ between medical underwriters. This is a key stage in a life settlement transaction, as discrepancies in LE estimations imply different prices for life settlements and therefore have an impact on fund returns (A.M. Best, 2012).[3]

[2] According to Blake and Harrison (2008), universal life insurance policies are the most frequently traded product in the secondary market. A reason for the attractiveness of universal life insurance policies for life settlements are their flexible premiums, which exhibit the option of paying at various times and in different amounts. In contrast, premiums in traditional whole life policies are paid periodically and remain constant over the life of the policy (Aspinwall et al., 2009).

[3] The effects of differences in LE on life settlement valuations are illustrated in the empirical part.

Figure 1: The Life Settlement Transaction Process



Source: Own representation

Investments in life settlements can be conducted directly or through specialized funds, among which the open-end format seems to have prevailed.[4] Life settlement funds offer investors a convenient way to gain access to this asset class, since they may rely on professional expertise for the construction and management of a diversified portfolio. Due to the complexities associated with the transaction process, a variety of third parties are typically involved in the fund's activities (Ernst & Young, 2012a). First of all, a custodian is responsible for the safekeeping and administration of the assets. In addition, some funds rely on a valuation agent with in-depth actuarial know-how to estimate policy prices and determine their net asset values (NAV). There may also be an investment adviser supporting the portfolio management process and the selection of suitable life insurance policies. Auditors evaluate the fund's financial statements and write annual reports, whereas legal advisers assist the fund manager with regard to transaction documentation and contract design. Finally, the servicer provides a variety of supporting services such as ordering medical records and LE estimations from medical underwriters as well as ensuring regular premium payments by providing custodians with disbursement instructions. Additionally, he stays in contact with the insurance carriers to verify the life/death status of the insured individuals (Braun et al., 2012). Taking these considerations into account, it seems obvious that life settlement investments are associated with considerable transaction costs for investors.

[4] Braun et al. (2012) characterize open-end life settlement funds as follows: they are perpetual, offer ongoing subscriptions and redemptions, permit active trading, tend to reinvest cash returning from maturing policies, and exhibit a fee structure that is similar to hedge funds. Furthermore, they are mostly domiciled in offshore financial centres and therefore subject to rather lenient regulations.

2.3 Relevant Accounting Guidelines

In line with the rapid growth of the industry, the importance of appropriate accounting standards for life settlements has increased throughout the last decade. In the early days of the market, life settlement investments were reported at cash surrender value (CSV).[5] The main problem of this method is that the CSVs of most policies tend to be very small and therefore the investor has to incur a substantial up-front expense on earnings (Life Settlement Industry Guidelines Group [LSIGG], 2006). The release of the 2006 FSP Technical Bulletin 85-4-1, *Accounting for Life Settlement Contracts by Third-Party Investors,* resolved this issue by offering a choice between the investment and the fair value method, subsequently established in the FASB Accounting Standards Codification (ASC) 325-30, *Investments in Insurance Contracts* (Soomro and Zass, 2012). Under both approaches, initial measurement is based on the purchase price plus direct transaction costs. The investment method provides for further valuation by capitalizing any continuing payments, such as policy premiums. Gains, on the other hand, are only recognized when the insured dies or the policy is resold, and are measured by the difference between the carrying amount of a contract and the death benefit payment or sales proceeds. If new information indicates that the projected policy payoff will not be sufficient to cover the carrying amount plus expected undiscounted future premiums, an impairment loss has to be recognized (Braun et al., 2012). Ongoing valuation under the fair value method, in contrast, requires policies to be reported in a market-consistent way, thereby impacting periodic earnings (FASB, 2006).

A few years later, the FASB issued a new exposure draft containing proposed accounting standard updates that effectively abandoned the investment method (see FASB, 2010).[6] Today, the fair value measurement of life settlement assets is governed by FASB ASC 820-10 and IFRS 13.[7] These standards comprise a three-level hierarchy that reflects the level of judgment involved in the determination of fair asset values, which ultimately depends on the availability of reliable inputs for the corresponding valuation techniques (Ernst & Young, 2012b; IAS Plus, 2013):

- Level 1: quoted prices for identical assets and liabilities in active markets
- Level 2: inputs other than quoted market prices that are directly or indirectly observable
- Level 3: unobservable inputs

[5] The CSV is the amount that the owner receives when a life insurance policy is terminated before its maturity. It is defined as the policyholder reserve less any outstanding premium loans and surrender fees.

[6] Board Comment 40 in the exposure draft FASB (2010) reads: "The Board decided that life settlement contracts should be included in the scope of the proposed guidance. The Board observed that requiring fair value measurement would, in effect, eliminate the option to use the *investment method* described in Subtopic 325-30".

[7] FASB ASC 820 was updated by ASU 2011-04 in May 2011. ASU 2011-04 amends and explains how principles in ASC 820 should be applied (Ernst & Young, 2012b). IFRS 13 became effective for periods beginning on or after January1, 2013 (Ernst & Young, 2012b).

Since the fair value of life settlements is based on unobservable quantities, such as the survival probabilities of the insured, these products are currently classified as level 3 assets (Mazonas et al., 2010). Nevertheless, inputs must reflect assumptions that market participants would use when pricing assets, and companies are required to disclose level 3 fair value measurements in detail (Ernst & Young, 2012b).

2.4 Valuation of Life Settlement Assets

Since each policy differs with regard to the insured life, it is not possible to observe market values for individual life settlements on a regular basis. It is therefore necessary to resort to pricing models that rely on certain assumptions. As in the case of any other financial asset, the price of a life insurance policy equals the sum of its discounted expected future cash flows. Three ways to determine the net present value (NPV) have emerged in practice (Zollars et al., 2003). Firstly, the essentially obsolete *deterministic approach* assumes that death occurs exactly at the end of the LE (Bayston et al., 2010). A probability-weighting of cash flows does not take place.[8] While being straightforward to understand and implement, this basic model does not take into account variation around the LE. As a corollary, it may significantly misestimate the value of a life settlement contract and is thus not appropriate for fair value measurement (Soomro and Zass, 2012). Secondly, there is the *stochastic approach,* which centers around a Monte Carlo simulation of the insured's remaining lifetime (LSIGG, 2006). For each simulated trajectory, the future cash flows of a contract as well as their present value can be determined analogously to the deterministic method. The price is then obtained by calculating the expected value of the resulting NPV distribution. Thirdly, the *probabilistic* or *actuarial approach* was developed to overcome the weaknesses of the deterministic method and represents the current market convention. Instead of assuming a fixed time of death, this method relies on a mortality table that matches the insured's age, gender, and health status (Lubovich et al., 2008). The probabilistic pricing model can be expressed as follows:

$$P_0 = \sum_{i=0}^{T} \frac{p(x,t) \cdot DB}{(1+r)^t} - \sum_{i=0}^{T} \frac{\big(1 - p(x,t)\big) \cdot prem_t}{(1+r)^t}, \tag{1}$$

where P_0 denotes the price of the life insurance policy, $p(x,t)$ is the probability of an individual aged x dying at time t, DB equals the death benefit, $prem_t$ represents the premium payable at time t, and r is the applicable discount rate. Since the death benefit is fixed in the documentation of the policy, there are essentially three main inputs: the premium schedule, the discount rate, and the mortality rates associated with a designated LE.

[8] The deterministic pricing model has its origins in the viaticals industry, where LEs were much shorter and better predictable.

In the case of universal life insurance, which provides for flexible premium payments, investors may choose to optimize cash outflows after the acquisition of the policy. The resulting schedule will frequently be based on a considerable degree of discretion and can hardly be derived from comparable transactions. In contrast, it is indeed possible to obtain market-consistent inputs in the sense of the fair value hierarchy for the LE and the discount rate as a measure for the risk premium. Both factors can be updated on a regular basis, taking into account changes in the market environment. In fact, if these input factors are chosen carefully, the resulting life settlement valuations closely reflect current price levels.

It is essential to note that market-implied values for the LE and the discount rate cannot be estimated independent of each other. In fact, when analyzing current life settlement transactions at closing, one needs to begin with the projected premium schedule and the LE estimate or rather the mortality curve on which the counterparties have agreed. Once these inputs and the actual purchase price have been obtained, an internal rate of return (IRR) may be calculated and subsequently used as a discount rate for comparable deals. Consequently, an implied IRR for the valuation of a life settlement asset is only valid and meaningful if, at the same time, the mortality rates are based on the associated LE.

2.5 Book-to-Face Value and Actual-to-Expected Ratio

To ensure comparability, we will express the life settlement fund valuations and current market levels based on relative figures, i.e., in percent of face value:

$$V = \frac{\textit{Book Value of the Policies}}{\textit{Face Value of the Policies}} \cdot 100 \qquad (2)$$

Furthermore, the portfolio LE reported by the funds will be benchmarked with the actual medical underwriting that was brought to bear in recent transactions. For this purpose, we rely on the average of the LE estimates per age group as provided by the two largest US medical underwriters, 21st Services and AVS. Similarly, the average of the LE figures per age group that were ultimately used to close the deals will be considered.

In addition, we aim to perform an exemplary accuracy check with regard to the LE information provided by one of the funds using the actual-to-expected ratio (A/E ratio):

$$A/E \text{ ratio} = \frac{\textit{Actual Death Benefit Payments}}{\textit{Expected Death Benefit Payments}} \qquad (3)$$

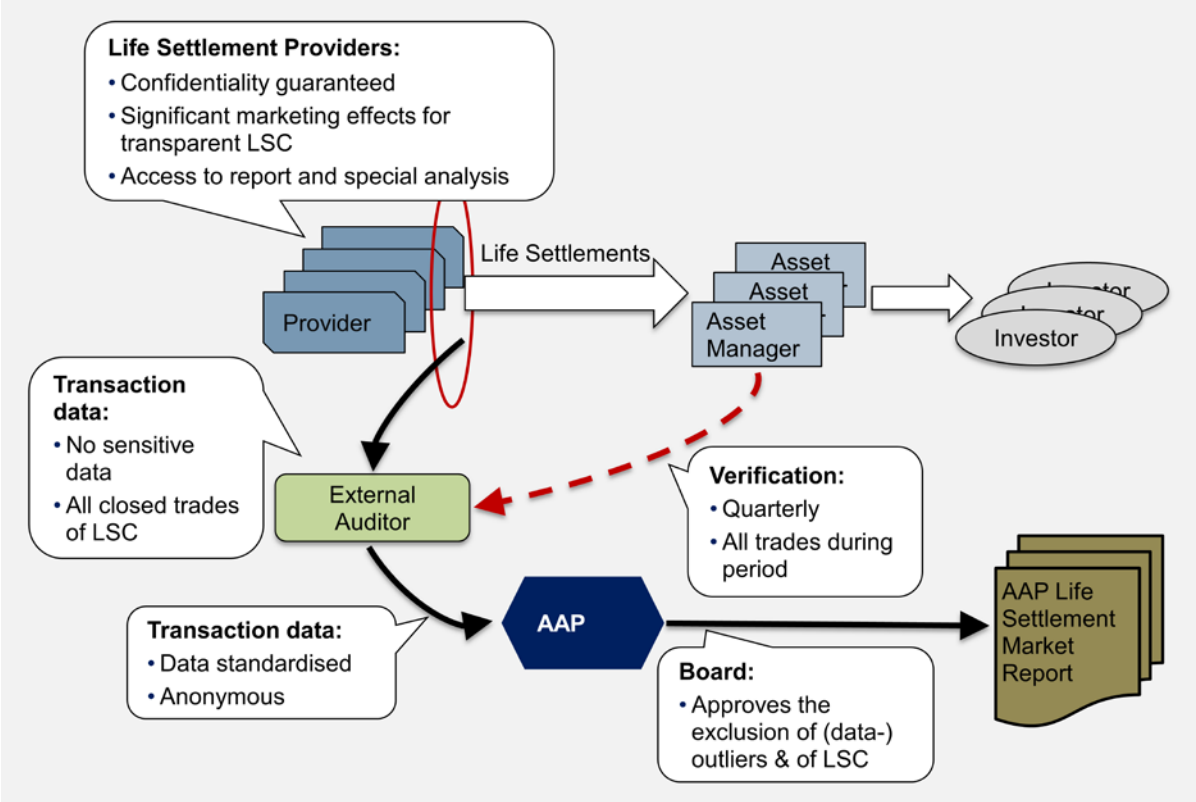
Clearly, if actual mortality experience is in line with expectations, the A/E ratio equals one. An A/E measure above (or below) one, however, indicates that more (or less) death benefit proceeds than expected have been received during the time period under consideration.

3. Empirical Analysis

3.1 Data and Sample Selection

Market data for our analysis was obtained from the *AAP Life Settlement Market Review,* which is released on a monthly basis by AAP, a Zurich-based boutique company specializing in life settlements. AAP maintains a large network with life settlement providers, distribution agents, and asset managers, enabling the company to collect data for recently closed US life settlement transactions directly from market participants. Their goal is to provide "investors and other interested parties with actual, independent and unbiased information with regard to the secondary market for traded US life insurance policies" (AAP, 2013c).

Figure 2: Monthly Data Collection of Closed US Life Settlement Transactions



Source: AAP (2013b)

The data collection and verification procedure that forms the basis for the AAP Life Settlement Market Review is depicted in Figure 2 (AAP, 2013b). Each month, US life settlement providers as well as tertiary market participants such as asset managers, banks, or hedge funds report predefined and standardized information with regard to all completed transactions to an external auditor.[9] In exchange for their participation in the process, these data providers gain access to special analyses and reports offered by AAP. More importantly,

[9] Transparent data providers are listed in the *AAP Life Settlement Market Review* and on the website of AAP under http://www.aa-partners.ch/aap-ls-market-review/wwwaa-partnerschdata-providers/. The transparent providers in the used release of the market review are: Abacus Settlements, Berkshire Settlements, Institutional Life Services, Life Equity, The Lifeline Program, LifeTrust, Magna Life Settlements/Vida Capital, Q Capital Strategies, and Settlement Group.

however, they are known to promote transparency and integrity in the life settlement market and thus benefit from valuable reputation effects. After having received the transaction information, the external auditor tests for consistency between the different sources, anonymizes the figures, and then sends them to AAP (AAP, 2013b). In a further step, AAP delivers the data to an independent third party that computes market-implied IRR figures based on a predefined transparent set of assumptions.[10] Each stage in the production of the life settlement market review follows strict guidelines and is overseen by an independent advisory board (AAP, 2013c).[11]

The benchmark figures used in this study were obtained from the publication's May 2013 release. All secondary and tertiary market transactions that qualified for the report relate to policyholders between 71 and 90 years of age and occurred in the 28 months between January 2011 and April 2013. Together, the respective life settlements represent about USD 1.178 billion in face value or more than 93% of the total number of executed trades. Since Conning (2012) estimated a transaction volume of USD 1.2 billion in the secondary market in 2011, it is safe to state that our sample represents a significant and representative part of the market. The report supplies average relative transaction prices per two-year age bracket (net of CSV) as well as LE information for the time period from May 2012 to April 2013 in combination with the corresponding IRR projections. Therefore, it conveys a comprehensive image of the price levels and medical underwriting practices that currently prevail in the US life settlement market.

In addition to the benchmark figures, a critical prerequisite for our analysis was the sourcing of meaningful information about life settlement funds. For this purpose, 11 asset management companies were contacted by mail and asked to participate in the study.[12] The complete list of survey items can be found in the Appendix. Since we guaranteed the respondents complete anonymity, recognizable information such as inception date, face value, fund volume, or cash amount is only presented on an aggregated level. A total of eight funds collaborated, six of which provided the requested information directly while the other two referred to their websites. One company, Ress Capital Fund Management S.A. located in Luxembourg, even wanted its data to be explicitly identified, as it is aiming to build trust and offer complete transparency for investors.[13] The missing data for the three funds that refused to answer our inquiry was procured from their websites as well as publicly available documents.

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10 The associated cash flows can be simulated through a dummy trade that reflects a generic policy (AAP, 2013a).

11 The guidelines as well as the members of the board are publicly available on the home page of AAP under http://www.aa-partners.ch/aap-ls-market-review/adv-board-and-guidelines/

12 Due to the rather short history of the life settlement asset class, the number of asset managers in the industry is still quite small. Accordingly, the 11 funds included in the analysis represent a sufficiently large portion of the overall market.

13 For more information about Ress Uncorrelated Assets Fund see http://www.resscapital.com/

Table 1: Life Settlement Funds in the Sample

Fund Number	Collaboration	Information from	Information as of
1 (Ress Capital)	Yes	Fund Management	April 2013
2	Yes	Fund Management	March 2013
3	Yes	Fund Management	March 2013
4	Yes	Fund Management	March 2013
5	Yes	Fund Management	March 2013
6	Yes	Fund Management	March 2013
7	Yes	Website	December 2012
8	Yes	Website	December 2012
9	No	Website	December 2011
10	No	Website	December 2012
11	No	Public Sources	March 2012

Table 2: Descriptive Statistics

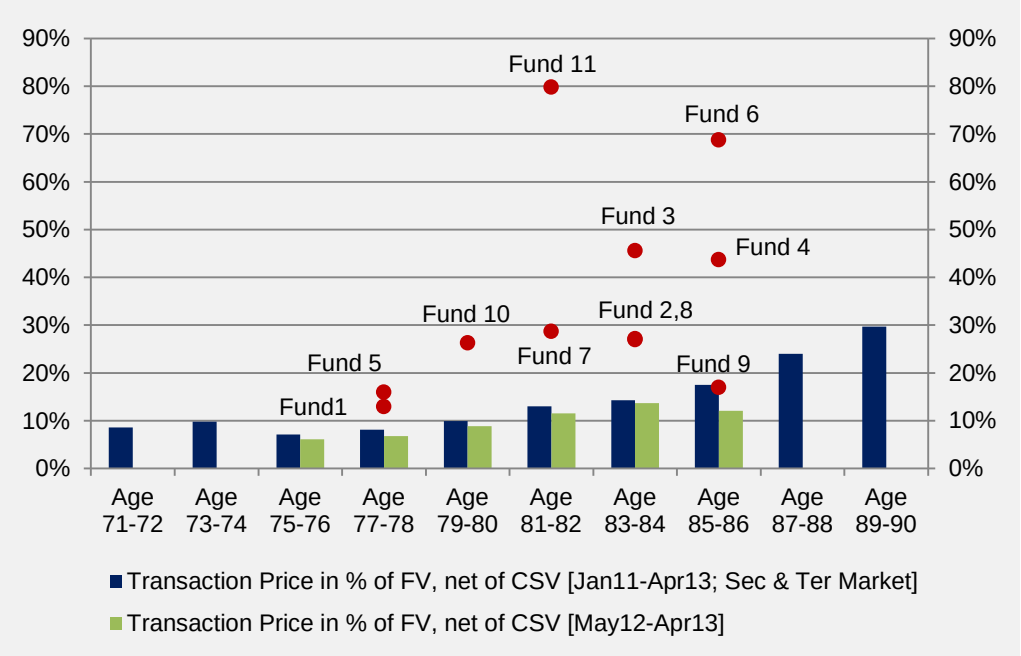
Fund Information	Minimum	Maximum
Inception Date	2003	2012
NAV (in Million US Dollars)	2.8	10,267.1
Book Value (in Million US Dollars)	1.9	932.6
Face Value (in Million US Dollars)	11.3	1355.0
Number of Policies	32	599
Average Age (Years)	77	86
Average LE (Months)	20	127

Tables 1 and 2 provide some additional information and descriptive statistics with regard to our sample. The oldest and the youngest fund were launched in 2003 and early 2012, respectively. Moreover, book (face) values range from USD 2 (11) to USD 933 (1,355) million, the average LEs vary between 20 and 127 months, and the average ages lie between 77 and 86 years. Eight of the funds apply the probabilistic valuation approach, one still employs the deterministic method (Fund 6), and two have not disclosed their type of model. In order to gather an understanding of the corresponding portfolio structures, we also collected information on the number of policies, the gender split, and the amount of cash held. The aggregate book value of the policies was either provided directly by the funds or estimated by subtracting the cash in a portfolio from the NAV. Finally, whenever available, the survey data was complemented with estimates of the IRRs that are applied by the funds.

3.3 Comparison of Fund Valuations with Market Values

In Figure 3 we have plotted the life settlement fund valuations (net of CSV) in percent of face values (vertical axis) against the average age of the insured lives in the respective portfolios along two-year age brackets (horizontal axis). Each fund is marked by a red dot. Fund 3, for instance, reports a portfolio valuation of 45%, implying a book value of 45 cents per US dollar of face value. Moreover, the graph shows the price levels (net of CSV) of recently closed transactions in the same age brackets. The blue bars represent secondary and tertiary market trades that occurred within the time period from January 2011 to April 2013, and the green bars are exclusively related to secondary market activity between May 2012 and April 2013.[14] In the two categories under 75 years, policies were on average transferred for 8.6 and 9.8 cents per US dollar of face value.[15] Beyond this tail segment, price levels constantly increase with the age bracket, reaching a maximum at around 30% of face value for policies with insured persons that are 89 or 90 years old.

Figure 3: Valuation Expressed in % of Face Amount (Net of CSV)



Since every life settlement is unique, the measurements shown in Figure 3 are of course approximations. Nevertheless, they suffice to reveal substantial differences in the reported valuations, which range from a mere 13% for Fund 1 up to almost 80% for Fund 11. Against the background of fairly similar average ages in these two portfolios (77−78 versus 81−82 years), this is a first puzzling observation. Furthermore, Figure 3 allows us to compare the portfolio values reported by the funds with the price levels that actually prevailed in the lat-

[14] With regard to the 12-month period, data for the tail segments (below 75 and above 86 years) was unavailable.

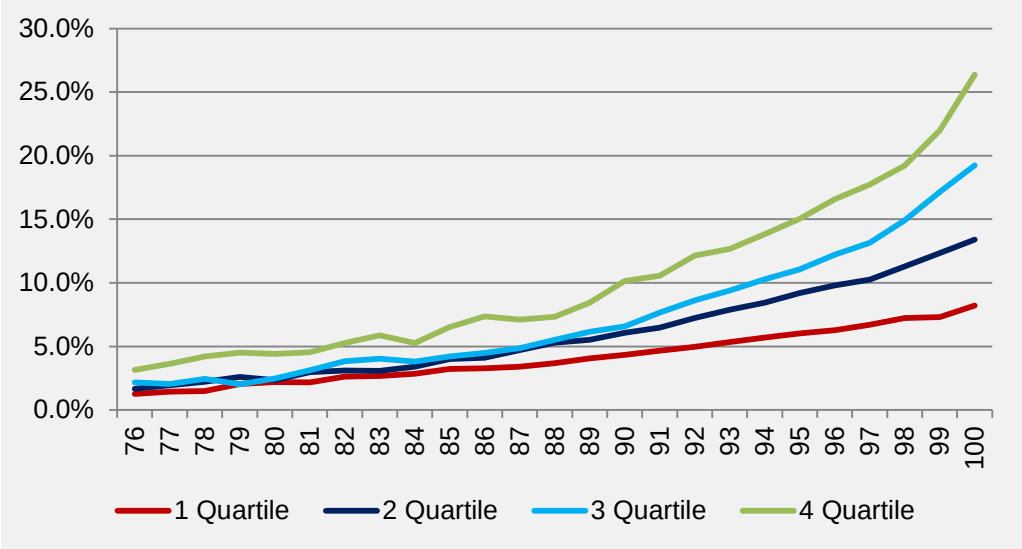
[15] The higher prices in age brackets 71−72 and 73−74 can be attributed to an on average more severe health impairment of the insured persons (AAP, 2013a).

est transactions. In this regard, Funds 1, 5, and 9 exhibit reasonable figures with regard to their age brackets. All other funds, however, seem to cling to valuations that are at least twice as high as one would expect based on the current market environment. While one might argue that the portfolio valuations of between 26% and 29% of face value reported by Funds 2, 7, 8, and 10 are still acceptable, those of Funds 3 and 4 (44% and 45%) as well as of Funds 6 and 11 (69% and 80%) undoubtedly indicate that something is not right.

3.4 Potential Reasons for the Value Deviations

First of all, the observed discrepancies between portfolio and market values could be caused by different pricing models. As mentioned in Section 2.4, the majority of market participants nowadays use the probabilistic approach, implying that it also governs our benchmark figures from the *AAP Life Settlement Market Review*. Thus, the fact that Fund 6 is known to still employ a deterministic valuation model may at least partly explain the deviation of its portfolio value from the current price levels of comparable transactions.

Figure 4: Valuation (in % of Face Amount) per Age Bracket for Different Premium Levels



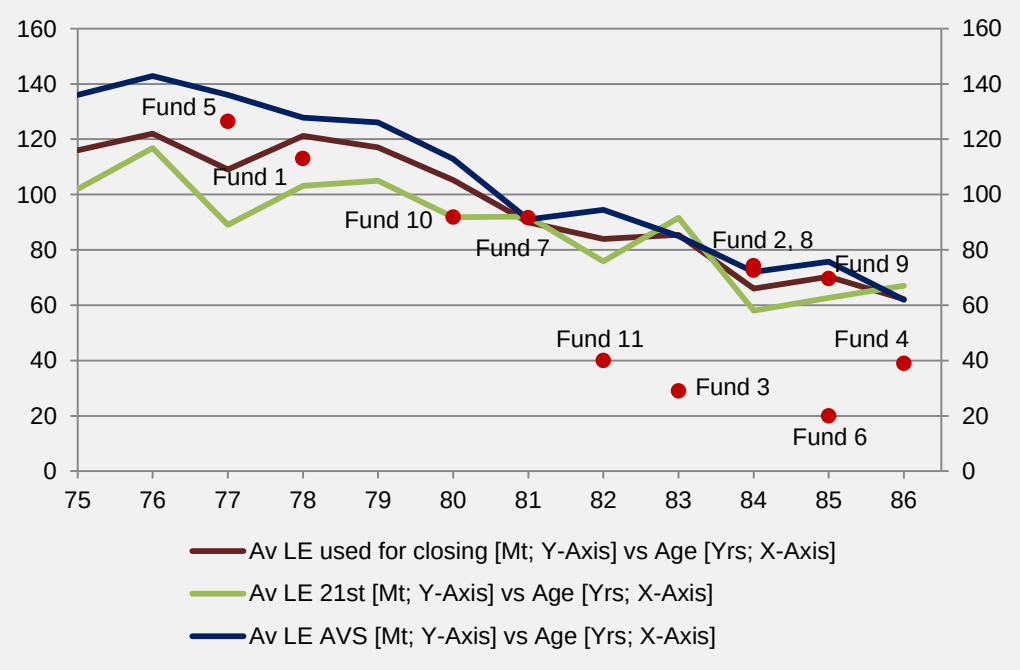
Source: AAP (2013d)

In addition, Equation (1) shows that lower premium payments are associated with higher policy values. One might therefore think that those funds with extraordinarily high portfolio values tend to invest in policies that exhibit below-average future premium streams. However, based on the probabilistic pricing model it can be shown that the impact of premiums on life settlement prices is comparatively small. This is confirmed by Figure 4, which shows valuations in percent of face amount for policyholder ages from 76 to 100 divided into quartiles according to the annual premium levels (AAP, 2013d). Here we see that the difference between the second quartile, which is a proxy for the average premium levels in the market,

and the highest and lowest quartiles never exceeds 20 percentage points. Therefore, premium streams alone are insufficient to explain the vast differences between portfolio and market values that have been observed.

Next we consider the impact of LE estimates. From Equation (1) we know that the value of a life settlement rises for shorter LEs (higher mortality rates). Thus, it could be argued that the portfolio values of certain funds exceed current market levels simply because they mainly hold policies of insured individuals with above-average health impairments. In Figure 7, we have depicted the funds' average LEs in months (vertical axis), staggered by the average age of the insureds in their portfolio (horizontal axis). Again each fund is represented by a red dot. Additionally, the corresponding levels of medical underwriting in the market are shown by the blue (average of the LEs from AVS), green (average of the LEs from 21st Services), and red lines (average of the LEs used to close transactions).[16]

Figure 7: Average LE of Products versus Actual Medical Underwriting



At first glance, we notice that the LE estimates of AVS are almost always higher than those of 21st Services. It is clear that both levels cannot be correct. In fact, the dispersion of individual LEs in the market around the mean for each age group is even wider (see Table 3). Due to this considerable variation, funds enjoy a large amount of discretion, even when relying on a market-driven LE input for their valuation models. Under certain circumstances, it could, for example, still be justifiable to price a policy of a person aged 81 with an LE of 64 months instead of employing the market average of 90 months.

[16] The fact that the red curve is located between the green and blue curves indicates that a majority of deals rely on an LE that blends the estimates of the two largest US medical underwriters.

Table 3: Average LE (in Months) Reported by the Funds versus Actual Medical Underwriting

Fund	1	2	3	4	5	6	7	8	9	10	11
Age Bracket	78	84	83	86	77	85	81	84	85	80	82
Av LE used by Fund	113	73	29	39	127	20	92	74	70	82	40
Av LE at Closing	121	66	85	62	109	70	90	66	70	105	84
Max. LE at Closing	163	98	121	99	139	92	126	98	92	129	130
Min. LE at Closing	106	42	50	35	80	48	64	42	48	68	47

Against this background, the LEs reported by Funds 1, 2, 5, 7, 8, 9, and 10 are more or less reconcilable with the latest transactional data. Nevertheless, Funds 3, 4, 6, and 11 exhibit average LEs that lie well below the current market levels in their respective age brackets. More specifically, in all four cases the differences to the average LEs used for the closing of recent deals equal at least 20 months. The intuitive meaning of these discrepancies can be illustrated with a simple example: the average LE at closing in the age group of 85-year-olds implies that 500 of 1000 individuals are expected to pass away within 70 months. In contrast, Fund 6 assumes that the same 500 individuals will have already died after a mere 20 months (see Table 3). Taking these considerations into account, it is likely that the extraordinarily high portfolio valuations of Funds 3, 4, 6, and 11 as documented in Figure 3 are attributable to the use of inadequately short LEs. In other words, the managers seem to have alarmingly overvalued their life settlement portfolios.

To further underline this argument, the accuracy of the LE information provided by Fund 6 is assessed based on the A/E ratio for the two years between February 2011 and February 2013. For this purpose, we proceed as follows: in a first step, the relevant amount of actual death benefits collected is determined by subtracting inflows that already occurred before February 2011 from the total amount of payments received up to February 2013. Apart from that, we calculate the expected death benefit payments for the period under consideration using a portfolio LE of 23 months and a total face value of USD 1,705 million as reported by Fund 6 in its February 2011 fact sheet.[17] If the fund's LE estimate had been correct, 50% of the policies would have matured and approximately USD 753 million in death benefits would have been paid out within less than two years. However, in fact only USD 270 million in death benefits was disbursed up to February 2013, implying a gap between expected and actual payments of around USD 480 million. This corresponds to an A/E ratio of only 36%, which again indicates a severe underestimation of the LE and a blunt exaggeration of the portfolio value.

[17] Based on such a short portfolio LE, one would expect that the health of a large number of individuals is severely impaired.

There are two main reasons why the portfolio LE and in turn the A/E ratio are so low. On the one hand, it is a well-known fact in the life settlement industry that medical underwriting was generally too aggressive in the past and had to be revised several times.[18] Consequently, if an asset manager did not adjust his LE estimates after such market-wide shifts, the average LE today will be too short. On the other hand, the health status of the insureds is often subject to unexpected changes over time, which can only be detected through regular reunderwriting. To save the associated costs and effort, some life settlement funds may decide to shorten LE figures based on their own judgment. Whether deliberate or not, in cases where these LE reductions are severe, the life settlement assets will appreciate much more strongly than actually justified.

Finally, the inflated portfolio values of Funds 2, 7, 8, and 10 cannot be explained by inappropriate LE estimates (see Figure 7). Therefore, they must be attributable to the last discretionary value driver included in Equation (1): the discount rate. To put it differently, the four above-mentioned life settlement funds do not seem to use market-consistent IRRs. Being linked to the LE (see Section 2.4), the discount rate can be considered as the actual transmission belt between current transactions and fair portfolio values. If it is not adjusted in line with changes in market prices, the book value of a fund's policy will simply mirror the conditions at the time of its purchase, which, however, may no longer be realizable. These considerations can be well illustrated for Fund 7. Despite a market-consistent average LE of 92 months (average age: 81 years), its relative valuation (28.7% of face value) equals roughly double the current market price level. This is because the manager values its portfolio with an IRR of 12%, while the average IRR associated with the LEs used to close recent transactions in the same age bracket (81 years) amounts to 22.6% (see Table 4).

Table 4: IRRs Based on LE Used for Closing

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

In summary, the observed exaggerations in the portfolio values of the majority of life settlement funds in our sample can be attributed to LE estimates and discount rates that are not in line with the observable price levels of current transactions. In contrast, Funds 1, 5, and 9 show reasonable valuations because they apply both market-consistent LE and IRR inputs.

[18] The first LE shift occurred in fall 2008. The last significant prolongation was announced by 21st Services in January 2013.

3.4 Limitations of the Analysis

Due to a number of limitations, it is important to consider our empirical results with caution. Although the employed market data represents a substantial and representative part of the life settlement industry, a certain number of transactions are not included. Furthermore, irrespective of the fact that it has been cross-checked with public sources wherever possible, the fund information used in our analysis is essentially self-reported. Another related drawback is the lack of data granularity, which obstructs a more detailed analysis at policy instead of portfolio level.

Apart from these data related issues, some of the observed transactions may be related to distressed situations. In general, life settlements are held to maturity. Consequently, funds that sell policies in the tertiary market are often experiencing liquidity issues. Under such circumstances, considerable discounts may arise and lead to lower reported market prices. According to Conning (2012), this was indeed an important characteristic of the tertiary market in recent years. Based on the data published by AAP, however, we do not find substantial differences between secondary and tertiary market transactions. Nevertheless, if a life settlement fund ramped up its portfolio during a calm period while the current market environment is dominated by distressed trades, a higher valuation may be somewhat more plausible.

A last aspect to be taken into account is the fact that, despite a comparable average age of the insureds, the mix of policies bought by a fund may differ from the one recently transferred in the life settlement market. If these deviations are substantial, there is a limited degree of comparability based on average figures. Similarly, fund managers may invest in synthetic instruments or derivatives from investment banks through which they can access the life settlement market without holding actual policies. In such cases, they might be willing to accept a surcharge on the current market prices, since their transaction and origination costs are considerably lower.

4. Implications and Suggestions for Improvement

4.1 Consequences of Mispriced Assets

Our empirical results indicate that a number of life settlement funds exploit the leeway inherent in the current accounting guidelines to overvalue their assets. This has several important implications for market participants. Firstly, investors must expect to be treated unequally. This is illustrated by the following example: someone redeeming shares in Fund 3 was eligible to receive 45 cents per US dollar of face amount in March 2013 (see Figure 3).

However, if the fund management had been forced to liquidate its portfolio immediately afterward, it would have had difficulty in recovering much more than 12 cents per US dollar of face value for the remaining investors. Secondly, fund managers and third parties who are remunerated based on the assets under management earn more than they should. Similarly, when life settlement portfolio valuations are decoupled from actual market prices, managers may artificially appreciate the assets and collect performance fees based on phantom gains. Thus, the prevailing fee structures in the life settlement industry provide a clear incentive to inflate portfolio values. Lastly, to avoid liquidity issues, funds with tremendously overvalued assets will be forced to halt redemptions if those exceed new subscriptions for a certain amount of time. The reason is that they cannot simply sell policies for the values reported in the financial statements.

4.2 Suggestions for Improvement

Based on the prevailing accounting guidelines for life settlements as well as our empirical findings, three major areas for improvement can be identified: (i) the classification of life settlement assets in the fair value hierarchy of IFRS 13, (ii) the disclosure of information used for portfolio valuation, and (iii) the development of incentive-compatible fee structures.

As discussed before, life settlements are currently classified as level 3 assets in the fair value hierarchy of IFRS 13. Valuations may therefore be conducted based on assumptions that rational market participants would use when pricing assets (Ernst & Young, 2012b). As shown in the previous section, however, this categorization opposes a uniform and transparent valuation approach, since it grants fund managers considerable discretion with regard to the choice of input factors. Therefore, we suggest reclassifying life settlements as level 2 assets in the fair value hierarchy. Although market prices for identical assets in terms of age, LE, death benefit, premiums, etc. cannot be observed, it is possible to link up policy valuations with comparable transactions analogously to the mortgage or real estate markets.[19] To avoid further conflicts of interest, however, one would need to ensure that the market-consistent inputs come from independent third-party data providers instead of life settlement firms or the funds' own records. Thereby, one could increase the comparability and transparency of valuations and reduce the dependence on subjective assumptions.

In addition, fund managers currently have an incentive to drastically shorten LEs over time in order to achieve a steep appreciation of the portfolio after the purchase. This issue could be mitigated through improved disclosure requirements for the life settlement industry. In particular, funds should be obliged to report LE figures, IRRs, actual death rates, and A/E ratios for their portfolios on a regular basis. The consequence would be a healthy degree of

[19] In fact, it is very common to value real estate assets based on transaction prices for comparable properties.

market discipline since, based on this information, investors, actuarial advisers, custodian banks, and auditors could easily verify the portfolio values reported by the funds. Moreover, if certain medical underwriters refuse the publication of their A/E figures, managers should be required to inform their investors about this fact. As a corollary, it would become much more difficult to employ inconsistently low LE estimates and discount rates, and products that rely on intransparent medical underwriting will be hard to sell.

Regarding the issue that today's fee structures incentivize asset managers to manipulate portfolio valuations, it would be reasonable to use realized earnings such as death benefit payments instead of fund volume or NAV as a basis for compensation. Additionally, the transparency with regard to fee schedules and actual earnings of the fund managers should be improved to overcome inappropriate incentives.

5. Summary and Conclusion

We analyzed the prevailing valuation practices in the life settlement industry based on a sample of 11 funds that cover a large portion of the current market. The most striking result is that a majority of asset managers seem to substantially overvalue their portfolios relative to the prices of comparable transactions that have recently been closed. Drawing on market-consistent estimates with regard to medical underwriting, it is possible to trace back the observed discrepancies to inadequately low model inputs for LEs and discount rates. The consequences are a dissimilar treatment of investor groups in open-end fund structures as well as an unduly high compensation for managers and third parties. To address this predicament, we suggest defining life settlements as level 2 assets in the fair value hierarchy of IFRS 13, improving transparency and disclosure requirements, and developing new incentive-compatible fee structures.

Market-consistent valuation by means of comparable transactions is already established for other illiquid and nonstandardised assets such as real estate. We believe our findings demonstrate that, due to the emergence of reliable data providers in recent years, it is now also feasible for life settlements. Against this background and taking into account that a number of fraud schemes have partly eroded investor trust in the industry, regulators, auditors, advisers, and, in particular, fund managers should consider a radical change in valuation practices. It is hard to imagine the long-term persistence and potential further growth of the life settlement asset class in the absence of honest attempts to estimate fair values of policies and portfolios.

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Appendix

General Information

- Fund volume in US Dollars
- Cash/liquidity in US Dollars
- Outstanding amount of a credit line in US Dollars
- Most recent offering memorandum
- Most recent annual report or interim report

Life Settlement Portfolio

- Sum face amount in US Dollars
- Cash surrender value expressed in percent of face value
- Book value of portfolio in US Dollars
- Number of policies/lives
- Average age in years
- Average current LE in months
- Gender split (male/female/joint)
- Used medical underwriting (21st Services, AVS, etc.; blended 21st/AVS, etc.)
- Description of the valuation method used - On what accounting standards (e.g. IFRS 13, FASB ASC 820-10, etc.) is the valuation based?

(Unless indicated otherwise, all information is as at the end of March 2013.)