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## **Abstract**

This paper will discuss the U.S. American secondary market for life insurances, also known as the market for life settlements. The structure of this paper will be as follows.

First, a very basic introduction to life settlements will be provided, explaining the fundamental structure of a life settlement process, the players involved, the life insurance types settled, and the terminology used. A short history lesson on the development of life settlements serves as a round-up.

The second part will build on these basics to describe the transaction processes and involved parties for actually setting up a life settlement. A number of diagrams will help to develop an overview over the basic flows of the value chain.

The third part will analyze life settlements as a financial asset. While the first two chapters are rather theoretical, this part will appear more mathematically. The valuation of a life insurance as well as the valuation of a life settlement will be explained in detail, followed by an insight on the pricing of life settlements. A view on the life settlements' uncorrelated nature to the capital markets and possible investment strategies close this chapter.

The fourth chapter will take a closer look at the plethora of risks involved for the buying-side in life settlement transactions, which mainly consists of brokers, providers, and investors. Whenever possible, solution proposals for these problems are given.

The fifth chapter will finally take a look at the development of the life settlements market and, by doing so, will find a few answers to the sudden halt of a market which once had shown exponential growth. Afterwards, the ethical issues surrounding life settlements will be discussed.

*The mandatory German abstract can be found at the end of this paper, in Appendix A.*

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# 1 Introduction: The Principles of Life Settlements

## 1.1 Overview

The first chapter will give a basic overview on the very principles of life settlements. First, the terminology will be clarified, ranging from a definition of the life settlement term to a simplified explanation of the transaction process and the parties involved. Furthermore, the types of life insurance policies which could be the asset's underlying will be described briefly, followed by a short history lesson on the development and evolution of the life settlements market.

## 1.2 Definition of the Term “Life Settlement”

Before any further discussion on life settlements can be started, a definition of the term has to be provided. Fortunately, most definitions are quite in unison. The following paragraphs show definitions which are very much to the point:

*“A life settlement is the purchase of a life insurance policy from the policyholder. In return for buying the policy the purchaser continues to pay the premiums on the policy, and collect the death benefit when the policy matures.”* (Rosenfeld, 2009, p. 4)

*“[A life settlement is] the selling of one's life insurance policy to a third party for a one time cash payment. The purchaser then becomes the beneficiary of the policy and begins paying the premiums. Typically the purchaser is an experienced institutional investor, and policies will have face amounts in excess of \$250,000.”* (Investopedia, 2011)

*“Life insurance settlements, or life settlements, are life insurance policies owned by investor beneficiaries on the lives of unrelated individuals. With life settlements, investors make substantial payments to the insured individuals upon purchasing such policies, pay any remaining premiums, and collect the death benefits upon the demise of the insured individuals.”* (Nurnberg & Lackey, 2010, p. 513)

So, judging from these quotes, the market for life settlements is a secondary market for life insurances. As such, it enables holders of life insurance policies to sell these contracts to unrelated third-party investors. In other words: Life insurance contracts become a financial asset class.

Furthermore, it can be concluded that at least three parties have to be involved in a life settlement transaction:

1. The original life insurance policyholder
2. The life insurance company
3. The purchaser, usually some kind of investor

Figure 1 shows a simplified illustration of the life settlement transaction process.

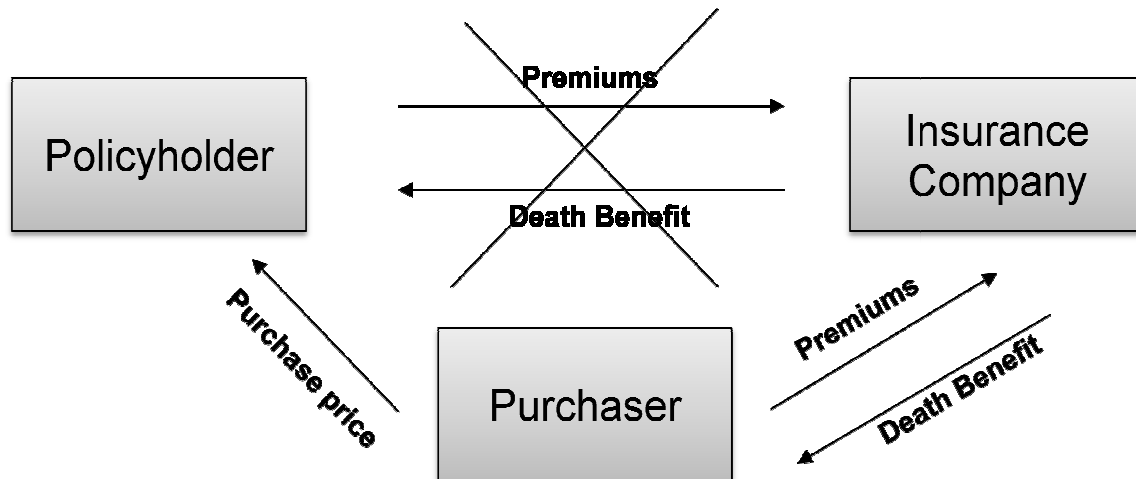


Figure 1. Self-provided diagram. Simplified Life Settlement Transaction Process

Initially, the policyholder pays regular premiums to an insurance company, which in return will pay a certain amount of money upon the policyholder's death ("death benefit"). For the purpose of a life settlement transaction, a purchaser assumes the obligations and benefits of the policyholder, the latter receiving a one-time payment ("purchase price") as a compensation. As a result, the life insurance policy still stays active, but once the policyholder dies, the purchaser – who continues to pay the premiums to the insurance company – will receive the death benefit upon maturity. The policy still matures with the death of the original policyholder, not with that of the new beneficiary. (Becker & Pihoda, 2010, p. 4)

In reality, the *policyholder* (i.e. the person paying the premiums) might differ from the person to receive the death benefit (the *beneficiary*) and the person whose life and death the policy is based on (i.e. the *insured*). (Chaplin, Aspinwall, & Venn, 2009, p. 7) In fact, this usually *is* the case, since the typical

purpose of a life insurance is to secure the needs of dependants. Still, for the purpose of illustrating the life settlement transaction process in a simplified way, aggregating these three parties as one “policyholder” is sufficient and avoids further confusion.

### **1.3 Types of Life Insurance Contracts for Life Settlement Transactions**

#### **1.3.1 Overview**

According to (Chaplin, Aspinwall, & Venn, 2009, pp. 9-12), four types of life insurance contracts may be featured in a life settlement transaction: *Universal life*, *variable universal*, *term insurance*, and *whole life* policies. The following subchapters will briefly explain these policy types and their underlying concepts.

#### **1.3.2 Universal Life**

Originally designed in the 1980's to be an alternative to investments in the financial markets, universal life insurance contracts combine a life insurance policy with a savings/cash account (Lewis, 2008). (Chaplin, Aspinwall, & Venn, 2009, pp. 9-10) claim that “universal life policies account for over 95% of the life insurance policies transacted in the life settlements markets and represent the majority of in-force life insurance policies in the United States”. Therefore, most life settlements are based on universal life policies.

For this type of insurance, the policyholder pays regular premiums to the insurance company, the premiums being accrued into a cash account. This savings account will generate interest over time, the interest rate (*or crediting rate*) being determined by the performance of the insurance company's financial assets. From this account, the insurer will debit administrative fees and the *cost of insurance* (COI) to compensate the *mortality risk* at stake. In exchange, the insurer pays a fixed or variable death benefit (depending on the contract) once the insured dies; the variable death benefit usually is a fixed amount plus the current value of the savings account. (Baldwin, 2001, pp. 53-78)

#### **1.3.3 Variable Universal Life**

Variable Universal Life (VUL) is quite similar to Universal Life policies, and therefore it also accumulates cash plus interest in a savings account. The main difference, however, is the way in which the cash account's money is being



invested. While for universal life policies these are mostly long-term, low-risk, fixed rate instruments, VUL promises higher returns but also higher risks due to investing the money into equities and other asset classes on the financial market. (Rybka, 1997, pp. 40-46)

#### **1.3.4 Term Life Insurance**

Term Life Insurance (or *Term Insurance*) policies have a fixed term and pay out a fixed amount of money to the beneficiary if the insured person dies within the agreed timeframe. No cash account is being maintained and once the term runs out, the policy ceases to exist. The policyholder simply pays premiums to the insurance company based on the insured's mortality risk. Such policies are usually signed as "key man" policies within a company (a company insuring against the risk of losing important key employees) or to support a mortgage loan, which a bank might otherwise be reluctant to grant. (Chaplin, Aspinwall, & Venn, 2009, p. 11)

#### **1.3.5 Whole Life Insurance**

Whole Life Insurance (or *Permanent Insurance*), unlike Term Life policies, offer insurance coverage for the whole lifetime of the insured person. The latter usually pays an annual premium which again is being saved in a cash account. This premium is held constant over the insured's lifetime, which usually results in an overpayment during younger years to compensate for the increasing mortality risk at later years. (New York State Insurance Department, 2011)

### **1.4 The Historical Development of the Life Settlements Market**

In the United States, the general concept of selling life insurance policies, and hence the foundation for the whole idea of a secondary market for life insurances, is based on a Supreme Court case in 1911, when "the policy owner's right to transfer legal ownership and beneficial interest to a third party at his or her own discretion" has been confirmed. (Chaplin, Aspinwall, & Venn, 2009, p. 13)

A real secondary market for life insurances, however, did not emerge before the AIDS crisis in the 1980s. HIV and AIDS victims were confronted with drastically shorter life expectations. The first medical forecasts estimated a lifespan of less than a year for 50% of the victims and less than three years for 85% of the

infected. In addition to the shorter life span, they also needed expensive treatment – while at the same time becoming social outcasts, who mostly were not able to work anymore. (Lazarus, 2011, p. 254) In life settlement terms this is called an *impaired life*, which will be explained later. For now, it is sufficient to know that a life insurance policy on an impaired life is considerably more valuable, as the time to maturity (i.e. to receive the death benefit) has decreased unexpectedly. As a result of this concurrence – the immediate need of AIDS victims for liquidity and the increased value of their life insurance policies – a new market was born: the market for *viatical settlements* also known as the *viaticals market* (Rosenfeld, 2009, p. 7).

In the market for viatical settlements, desperate AIDS patients sold their life insurance policies to unrelated third party investors. The only remaining option for policyholders to get rid of their life insurance contracts would have been to let the policy lapse and receive a cash surrender value (CSV) from the insurance company. This CSV, however, is almost always lower than the actual value of the contract, and depending on the contract, it might even be zero in some cases. This problem exists because insurance companies have to treat all the insured's of a certain policy equally and therefore may not consider the insured's health status for the calculation of the CSV. As a result, the carrier has to assume the loss of a valuable asset (i.e. a client who pays annual premiums for several years or even decades) and can only pay the initially agreed upon amount which every policyholder would get after a certain amount of time with a certain cash balance on the savings account. Hence, as long as an investor would pay more than the CSV, the AIDS victim would prefer to sell through the viaticals market instead of letting the life insurance policy lapse. (Chaplin, Aspinwall, & Venn, 2009, pp. 8-9)

In the mid 1990s, this market for viatical settlements crashed abruptly. Scientists discovered antiretroviral protease inhibitors for HIV/AIDS treatment, thus significantly increasing the life expectancy of the diseased policyholders (Dunlap, 1996). While this development was most fortunate from an ethical point of view, it caused much trouble for the investors. For them, the increased life-span translated into far more premium payments than originally calculated,

ultimately leading their whole investment into a loss. (Becker & Prihoda, 2010, p. 5)

While the viaticals market did crash, the secondary market for life insurances did not. Instead, investors shifted their focus from AIDS victims “to other groups of terminally ill policyholders and, ultimately, to elderly insureds” (Lazarus, 2011, p. 255). With AIDS victims only constituting for about 20% of the terminal ill people during that time, other terminal diseases such as cancer or Alzheimer were more common and hence the foundation for a potentially larger market (Dunlap, 1996). This market is nowadays known as the market for *life settlements*.

In 1996 the inception of the U.S. American life settlements market was facilitated by the *Health Insurance Portability and Accountability Act* (HIPAA). This act confirmed the policyholders’ right to sell their life insurance policies and/or its beneficial rights to a third party. While not explicitly forbidden before, it must be mentioned that in the United States life insurances are regulated at state level while the HIPAA constitutes national law. The single states still define what *insurable interest* is, but the nationwide permission to sell life insurance policies provided the necessary reassurance to investors to develop a real market for life settlements. (Becker & Prihoda, 2010, p. 5)

## 2 Transaction Processes and Involved Parties

### 2.1 Overview

The first chapter provided an overview on the very basics of life settlements. Now it is time to describe how actual life settlement transactions are done and which participants are involved. Chapter 1.2 and Figure 1 already introduced a few basic participants, namely the policyholder, a purchaser, and the insurance company. In reality, however, life settlement transactions and their participants are more complex.

### 2.2 Life Settlement Transaction Participants

(Chaplin, Aspinwall, & Venn, 2009, pp. 15-18) divide the participants in a life settlement transaction into direct and indirect participants.

#### 2.2.1 Direct Participants

Direct participants, according to (ibid.) “are directly involved with the movement of the policy and the transfer of title”. They are as follows:

- **Policyholder:**  
The original policyholder who sells his life insurance policy can be a natural or an unnatural person.
- **Agent:**  
Usually this is the life insurance agent who originally sold the policy to the policyholder. The agent’s role is to mediate between policyholder and broker.
- **Broker:**  
The life settlements broker has to represent the policyholder’s interests when dealing with a provider. One way of doing so is to submit the policy to as many providers as possible in order to achieve the best market price. In states which regulate life settlements, a broker is required.
- **Provider:**  
The life settlements broker is the “buyer” of the policy, even though he is rather an intermediary between seller and investor. Further roles depend on the state’s regulations and may range from retaining records, servicing the transaction after completion to the documentation of the transfer. Like the broker, a provider is required in regulated states.

(Rosenfeld, 2009, p. 14) regards the providers as the lynch pin of the life settlements industry, as they are the point where the worlds of finance and insurance flow together. (Seitel C. , 2007) describes providers as “portal to institutional investors and a gateway to settlement brokers” who play “a pivotal role in the secondary market supply chain”.

- **Investor:**

The investor, also called funder, is the ultimate owner of the life insurance policy after the life settlement transaction is finished. The investor receives the policy from the provider. Most investors are banks, hedge funds or SPVs, but might as well be natural persons.

- **Other direct participants:**

Without going too much into detail, the literature also knows further participants which, however, are not important for the general understanding and will be described when the need should arise. These are the escrow agent, the trustee, and the collateral manager.

### 2.2.2 Indirect Participants

Indirect participants, according to (Chaplin, Aspinwall, & Venn, 2009, p. 15), “provide services that are associated with the transaction”. They are as follows:

- **Insured:**

The insured is the natural person whose life the original life insurance policy is based on (and still will be after a life settlement deal). The insured’s consent is required to close the deal, but – unless he is also the policyholder – he is not the direct counter-party.

- **Insurance Company:**

Also referred to as *carrier*, the insurance company originally issued the life insurance policy, receives the premiums, and pays the death benefit upon maturity.

- **Medical Underwriter:**

The medical underwriter, usually a company such as 21<sup>st</sup> Services or AVS specialized on medical underwriting, provides a life expectancy report for the insured. Based on general mortality tables, the insured’s health status and other circumstances, the medical underwriter

calculates the expected life span of the insured, which will be an important part of price calculation (cf. 3.5).

### 2.3 Life Settlement Transaction Processes

There are several ways to describe the process of a life settlement transaction. The most extensive version is by (Chaplin, Aspinwall, & Venn, 2009, pp. 18-22) and has already been covered in great detail in (Becker & Prihoda, 2010). It illustrates a supply chain consisting of twenty-four steps, which only serves the purpose of proving that the whole process of setting up a life settlement is immensely tedious and usually takes three to four months to complete.

This paper will take a more illustrative approach to get the important steps and flows across. Inspired by (Chaplin, Aspinwall, & Venn, 2009, p. 19), Figure 2 shows a very basic flow from one policyholder through his agent to a few brokers. These brokers make the policy available to several providers, who will review and evaluate the policy and, if interested, buy and resell it to an investor.

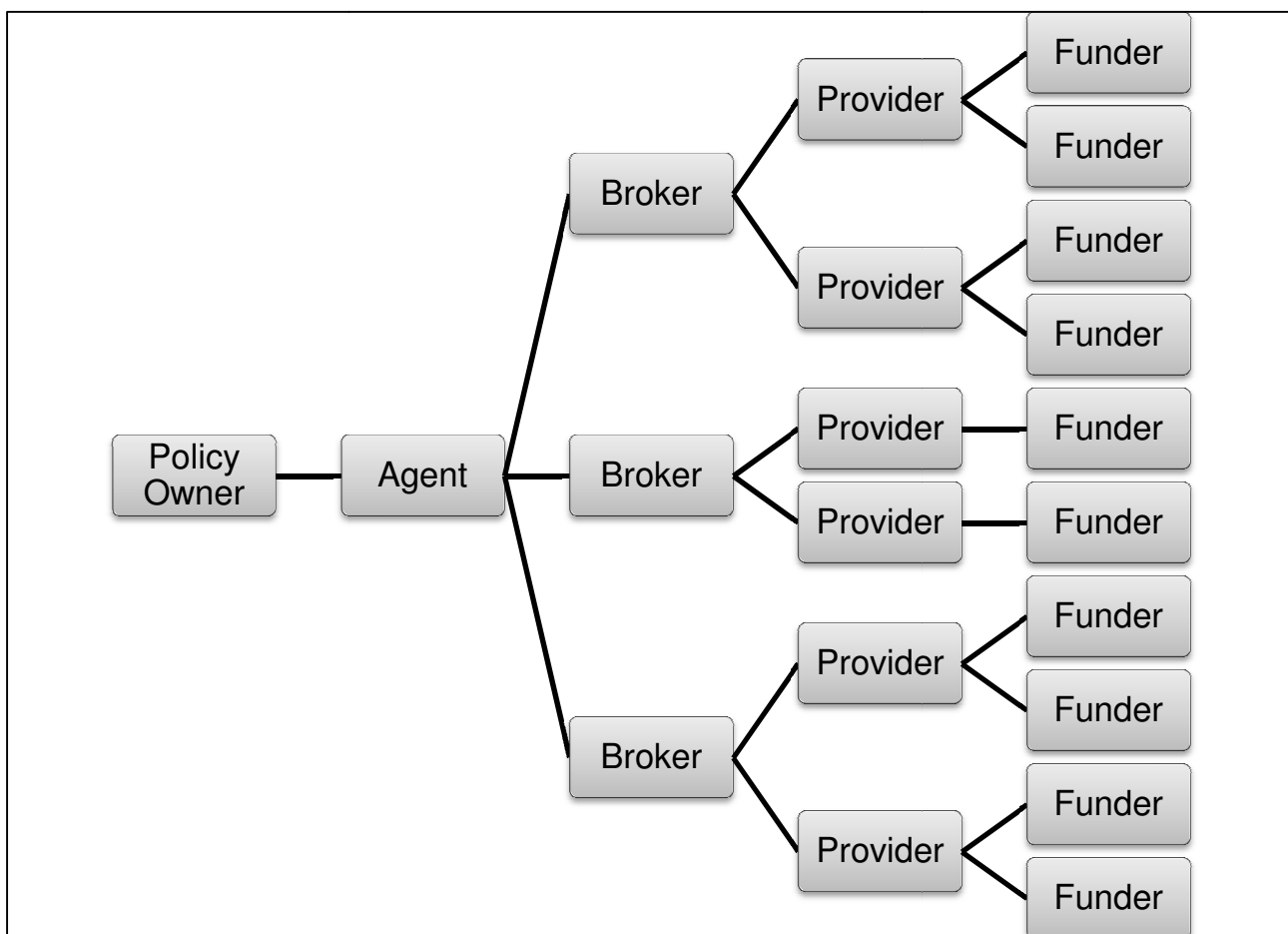


Figure 2. Self-provided adaption of (Chaplin et. al, 2009). Information flow in a typical life settlement transaction

An alternative way of illustrating the life settlement supply chain is displayed in Figure 3 (McNealy & Frith, 2006, p. 31).

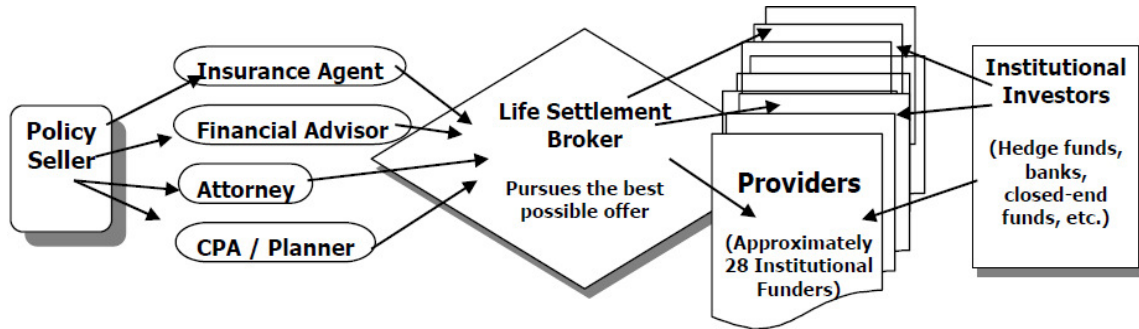


Figure 3. McNealy & Frith, 2006, p.31. Schematic of the Life Settlement Supply Chain

Still simplified, this value chain starts with a policyholder consulting their choice of advisor (e.g. an agent or attorney) to contact a broker. The rest remains as described above. A more complex diagram is provided in Figure 4.

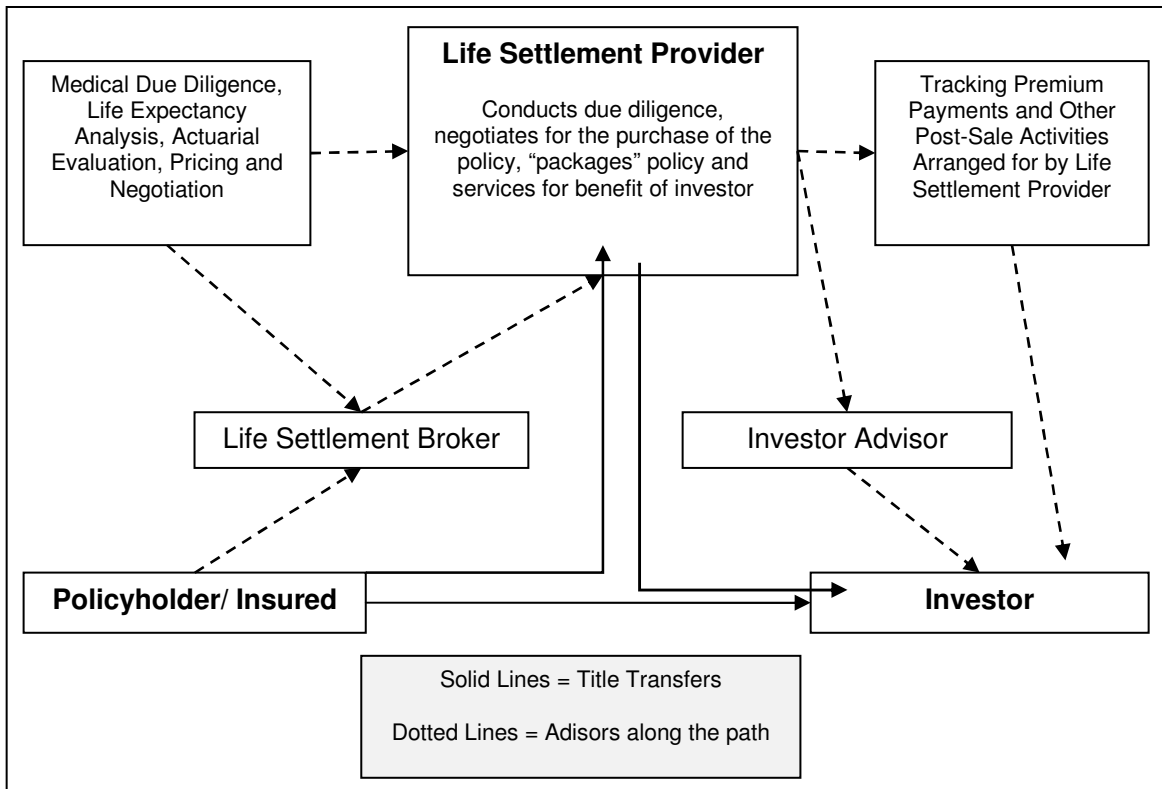


Figure 4. Self-provided adaption of Casey & Sherman (2007, p.56). Life Settlement Transaction "Players"

relationship of the major actors. An important added step to the previous two illustrations is the inclusion of one or more medical underwriters, whose tasks are described in 2.2.2 and 3.5. Medical due diligence is a keyword often found in life settlement-related literature, as a lack thereof is an issue often found in

real transactions and its consequences can be severe as far as the calculation of expected return goes.

In his article “*Lurking Pitfalls: Due Diligence in Life Settlement Transactions*”, (Freeman, 2007, pp. 83-86) suggests to take care of the following criteria to complete thorough due diligence on a life settlement transaction:

- **Verification:**

Every document on the policyholder should be examined for inconsistencies, as about 50% of the policies turn out to contain wrong information when checked with due diligence. This includes even the most basic information such as names or social security numbers.

- **Due Diligence also for Trust Documents:**

Transactions with trust-owned life insurance policies are not uncommon. Still, many brokers and providers are rumoured to never check the underlying trust documents. For example, trust documents require certain formal procedures, such as the signing by an appointed “successor trustee”. Other trusts only allow the sale of policies to entities with an insurable interest, or the deal has been sealed by a trustee lacking the proper authority.

- **Compliance with State Regulations:**

In the United States, life insurance is regulated at state level, essentially creating 51 different life settlement markets (cf. 4.4). Therefore, individual regulations, e.g. for pricing and disclosure, have to be taken into account carefully.

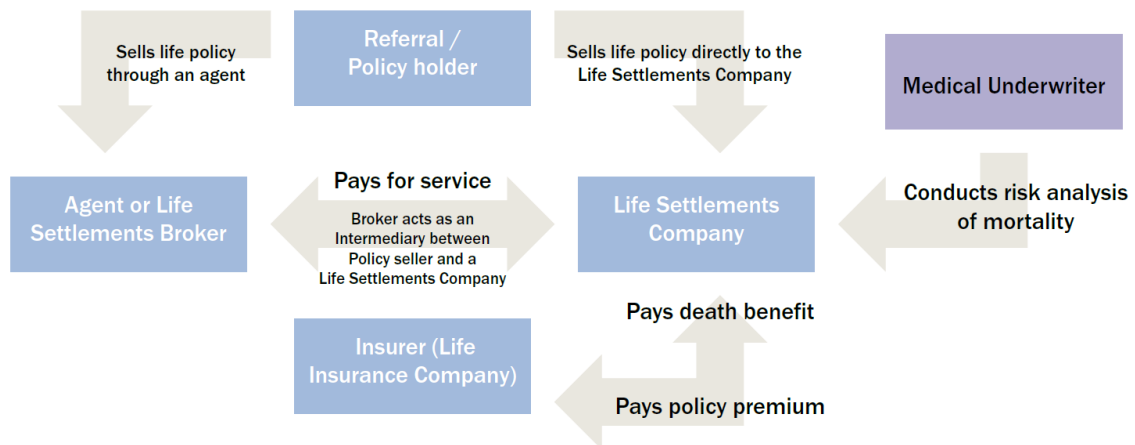
- **Background Checks:**

Basic background checks on the policyholders have to be run, especially as a lot of information is publicly available and cheap to come by. No judgement should be levied against the policyholder and in the case of bankruptcy, the policy should not be involved.

He concludes by pointing out that, even though the life settlements market is growing and maturing, insufficient due diligence still remains a weakness of the market (p.86).



A yet more comprehensive view of the life settlement transaction process is being provided by (Perdon, Tomkins, Allsop, & Williams, 2011, p. 4) of Arbuthnot Latham Private Bankers. This illustration is displayed in Figure 5.



**Figure 5. (Perdon, Tomkins, Allsop, & Williams, 2011, p. 4). Life Settlements Transaction Process**

This diagram actually shows all relevant players and transactions: The policyholder selling a life insurance policy either through an agent or directly to a broker, the broker acting as an intermediary to the life settlements company (i.e. the provider), the provider paying premiums to and receiving the death benefit from the insurance company, and a medical underwriter conducting a life expectancy report for the life settlements company (although in reality it often works for the broker, who then redirects that information to the provider). Optionally, the policyholder might directly offer his policy to a life settlements company.

### 3 Life Settlements as an Asset Class

#### 3.1 Overview

The first two chapters shaped a basic framework on the development, terminology and transaction procedures of life settlements. This chapter will now explain life settlements as an asset class and show their valuation in a more scientific way.

#### 3.2 The Valuation of the Underlying Life Insurance Policy

Before the valuation of life settlements can be discussed, the valuation of its underlying has to be explained first. In this case the underlying asset is the life insurance policy.

The courses at the chair for Financial Services of the University of Vienna have taught several criteria which influence the value of a life insurance policy in regard to the value of a life settlement. (Becker & Prihoda, 2010, p. 8) have summed up four major factors for determining said value: The policyholder's life expectancy, the expected premium payments, fees imposed by the insurance company, and the amount of death benefit paid upon maturity.

- **Life Expectancy of the Policyholder**

Obviously the expected lifespan of the insured is a key metric, as it directly determines the expected number of premium payments. Hence, a policy based on a potentially longer life is worth more to insurance companies and less to potential investors on the secondary market. The projected life expectancy is determined by standardized statistical and actuarial methods based on *mortality tables*. While actuaries are in no way fortune tellers, according to the law of large numbers, an insurance company with a high enough amount of policies will be able to foresee the average mortality risk of a certain insured quite accurately, since an increasing number of cases means that statistical and actual values should converge. In reality, however, investors still fight the problem of inaccurate predictions, which (Freeman, 2007, p. 83) sees as “the single most pervasive risk associated with a life settlement”.

- **Expected Premium Payments**

Directly derived from the policyholder's life expectancy is the expected number of premium payments to the carrier. Again, the more premium payments to expect, and the higher their monetary amount, the lower is the policy's attractiveness towards investors.

- **Fees**

Fees charged by the insurance company for administration and processing have to be considered as well, with a diminishing effect on the policy's value to investors.

- **Death Benefit**

Last but not least, the asset's value is co-determined by the death benefit, the carrier's payment to the policyholder upon maturity. It is the sole reason why investors are interested in buying life insurance policies, so the higher amounts directly translate into a higher value.

As a result, the policy's value to an investor can be summarized as the death benefit minus expected premium payments (number x amount) and fees. Figure 2 shows this calculation graphically.

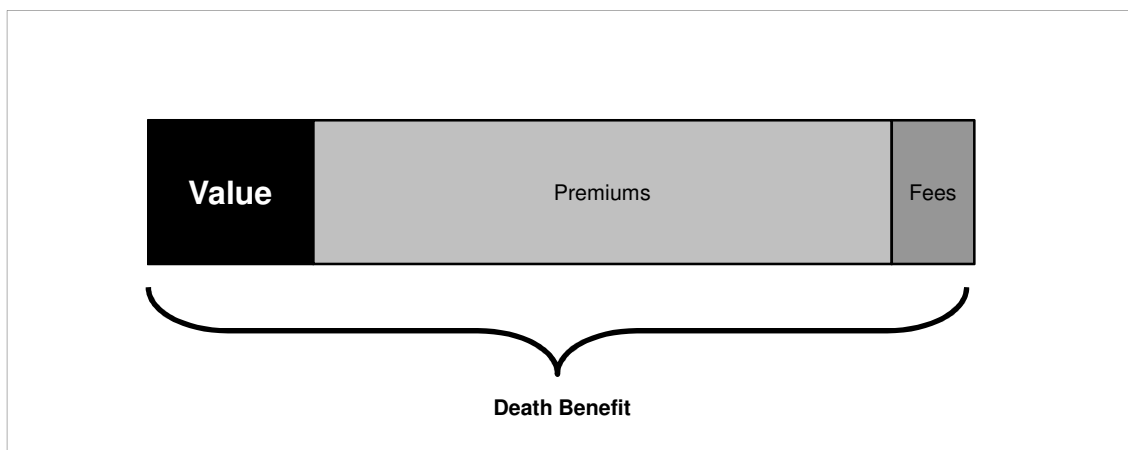


Figure 6. Self-provided diagram. Value of a Life Insurance Policy

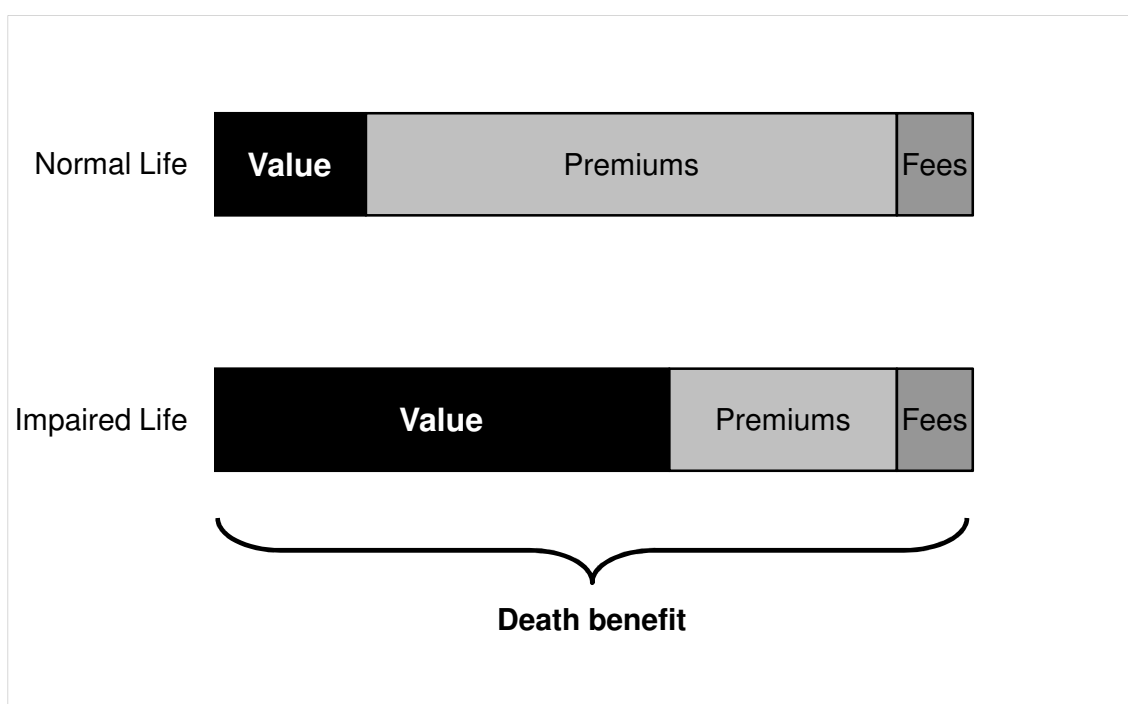
It should now be even clearer how each factor (premiums, fees, and death benefit) influences the policy's value.

### 3.3 The Difference between Normal and Impaired Lives

Chapter 1.4 already mentioned that investors prefer policies based on short life expectancies. In particular this lead to the inception of the market for viatical

settlements, betting on the lives of AIDS patients, and the market for life settlements, doing the same for the lives of terminal ill and elderly people.

The business term for these cases is “*impaired life*”. An impaired life is “a life that has, through the acquisition of medical conditions, a lower life expectancy compared to that of the population covered by the subject population” (Rosenfeld, 2009, p. 6). An important assumption for further discussion is that the “acquisition” of such a medical condition has occurred *after* the policy was signed and was not known to either policyholder or insurance company when the terms were agreed. Therefore, the illness has not been taken into consideration for the calculation of the premium payments and the death benefit, resulting in a sooner time to maturity than expected. Figure 3 illustrates how a shift from a normal life to an impaired life affects the value of the life insurance policy.



**Figure 7. Self-provided diagram. Difference between Normal and Impaired Lives**

Since the impairment has not been considered in its original calculation, the death benefit (as well as the fees) will remain unchanged. However, fewer premium payments have to be paid until maturity. Hence, the difference i.e. the value of the policy increases – sometimes drastically. Also, the decreased time to maturity increases the net present value of the death benefit (“One Euro today is worth more than one Euro tomorrow”).

### 3.4 The Valuation of a Life Settlement

Thus far, the valuation of the underlying – i.e. the life insurance policy – has been explained. Now the same will be done for the actual asset, the life settlement. (Rosenfeld, 2009, p. 23) defines it as “the payment of a fixed sum at an undetermined time in the future”. Figure 4 shows the cash flows of a single life settlement graphically.

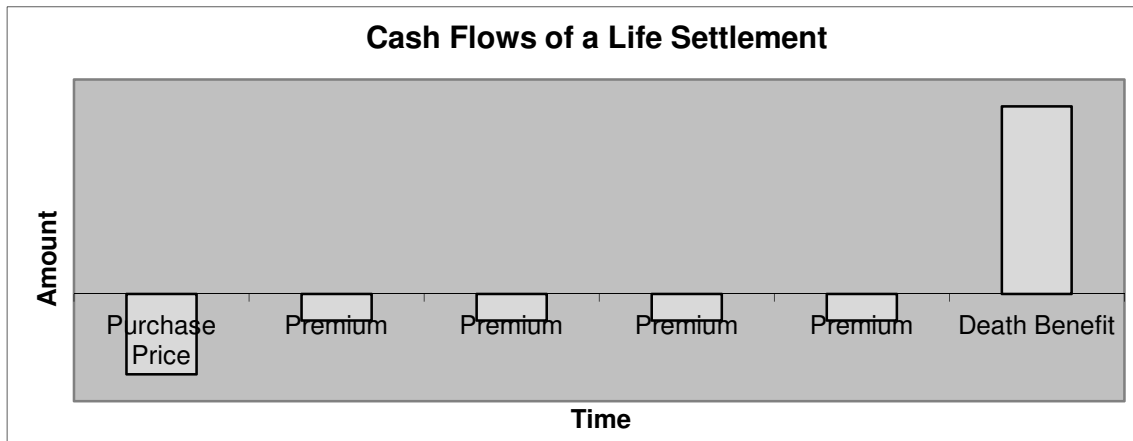


Figure 8. Self-provided diagram. Cash Flows of a Life Settlement

The investor initially pays a certain purchase price to the original policyholder (or in fact to an intermediary, i.e. to a provider). This is followed by an unknown number “n” of premium payments to the carrier and, eventually, a death benefit which is received once the original policyholder dies. Apparently, these cash flows show a certain similarity to those of bonds, as shown in Figure 5 for comparison with Figure 4.

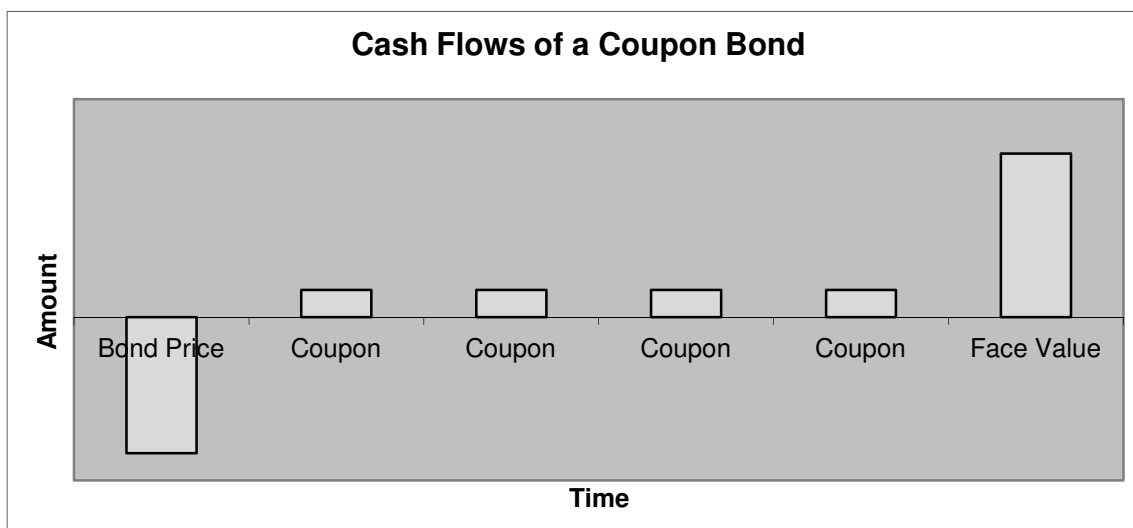


Figure 9. Self-provided diagram. Cash Flows of a Bond

And indeed, in the media life settlements are often dubbed as “death bonds” (Goldstein, 2007), mostly to express negative sentiments. From a financial point of view, life settlements can be described either as bonds or as derivatives, the underlying being the life expectancy of the original policyholder (Rosenfeld, 2009, p. 28).

Mathematically speaking, life settlements and bonds share initial expenditures and a certain pay-off upon maturity. However, instead of *receiving* regular coupon payments (in the case of bonds), an investor holding a life settlement has to *pay* regular premiums. Therefore, a life settlement could be described as a “negative-coupon bond” (Becker & Prihoda, 2010, p. 15). The second main difference is the time to maturity, which is known for a bond but unknown for a life settlement, the latter being based on mortality tables and expectations. This is where arguably the biggest risk for investors lies, as estimates have to be as exact as possible (Freeman, 2007, p. 83).

As a result, (Bakos & Parankirinathan, 2006, p. 47) conclude that “the value of a life insurance policy at any given time is simply the present value of future death benefits less than the present value of the future premiums as of that time”.

### **3.5 The Pricing of a Life Settlement**

#### **3.5.1 The Theory behind Life Settlement Pricing**

After clarifying the cash flows a life settlement’s value is composed of, this chapter will discuss the actual pricing of the asset.

Applying the concept of bidding and asking prices, for any trade to occur, a price must be found that is greater than the seller’s minimum asking price and smaller than the buyer’s maximum bidding price ( $P_a < P < P_b$ ). In a life settlement, the asking price is the minimum price at which the policyholder would be indifferent between selling the policy on the market and surrendering it to the carrier. Hence, for the policyholder to engage in a life settlement transaction, the minimum asking price has to be greater than the CSV. On the other hand, the maximum bidding price any investor would be willing to pay must be smaller than the death benefit. And since the investor will also have to pay the premiums (and fees), the maximum bidding price must be smaller than the difference of death benefit and expected premium payments.

Thus, the following inequality must hold true for any life settlement transaction to take place:

$$[\text{Cash Surrender Value}] < [\text{Purchase Price}] < [\text{Death Benefit} - \text{Premiums}]$$

Otherwise, at least one of the involved parties would not benefit from such a transaction. (Becker & Prihoda, 2010, p. 7)

Figure 6 tries to show this concept of asking and bidding prices graphically.

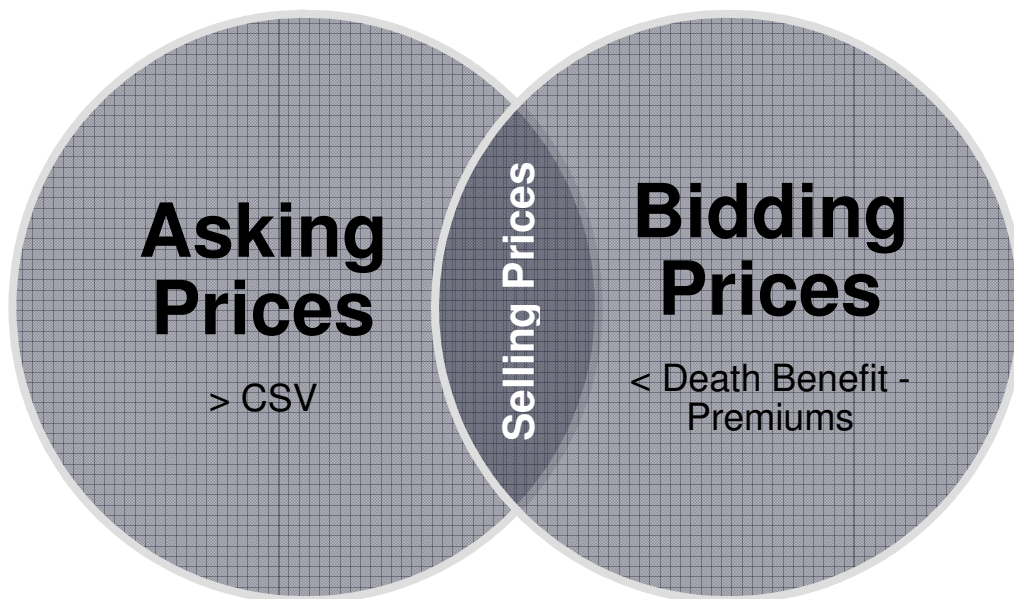


Figure 10. Self-provided illustration of the concept of asking and bidding prices

While this is the *theory* behind the pricing process, in reality three different pricing approaches do exist: the deterministic method, the probabilistic method, and stochastic simulation, although the latter is rarely being used and must rather be regarded as an option for the future (Zollars, Grossfeld, & Day, 2003, p. 35). Therefore, the industry currently knows two ways of pricing life settlements: *Deterministic Pricing*, where the price is a function of the life expectancy, and *Probabilistic Pricing*, with the price being a function “of the probability density function of death conditional on survival until the transaction time” (Erkmen, 2011, pp. 72-73). (Finsinger, 2011) points out that *Probabilistic Pricing* is preferable, as it constitutes “the new standard for the life settlement industry according to Milliman USA”, while the deterministic method is in fact an old and outdated approach.

However, regardless of the approach which is being used, the abovementioned concept of asking and bidding prices holds true. The price of a life settlement

contract to a provider will always be derived from the expected policy benefits minus the expected policy costs, using the investor's expected ROI to calculate the gross economic value of the life settlement contract. The difference rather lies in the way mortality/life expectancy and interest discounts are being applied on the cash flows (Zollars, Grossfeld, & Day, 2003, p. 35). 3.5.3 and 3.5.4 will discuss the difference between deterministic and probabilistic pricing.

### **3.5.2 The Importance of Medical Underwriting**

Obviously, calculating an accurate projection of the insured's life expectancy is of utmost importance, as the policy costs are directly dependent on it. For both methods, deterministic and probabilistic, the mortality rates for the life insurance policies are determined by a medical underwriting process. The underwriter considers all known risk factors of the insured (such as age, gender and health status) and calculates a multiplier called "underwriting multiple". This underwriting multiple is then applied to the standard mortality table in order to calculate a particular individual's life expectancy.

This process leaves the potential investor with the following decision variables (Schwartz & Wood, 2008):

- Age, gender, and smoking habits (e.g. 76-year-old male, non-smoker)
- The death benefit i.e. face amount (e.g. \$300,000)
- Annual fees and maintenance expenses (e.g. \$500 p.a.)
- Annual premium payments (e.g. \$12,000 p.a.)
- A life expectancy (e.g. 10 years) based on an underwriting multiple (e.g. 150%)

Obviously there is still a lot of margin for error, especially when it comes to life expectancy and mortality rates. However, this approach is not about exactly determining an individual's life-span (which is per se impossible) but about calculating an accurate expected value; both, the deterministic and the probabilistic approach rely on a well-diversified portfolio of life settlements and ultimately on the law of large numbers.

After determining the life insurance policy's values as described above, mortality and interest discounts are applied to calculate a price for the life settlement. This can be done in two ways: deterministic or probabilistic.



### 3.5.3 Deterministic Pricing

As mentioned in 3.5.1, Deterministic Pricing is an outdated approach (Finsinger, 2011), which has been the industry's standard during the era of viatical settlements (cf. 1.4) and the early years of life settlements when life expectancies were assumed to be shorter and easier to predict (Zollars, Grossfeld, & Day, 2003, p. 35).

This method simply assumes a certain *mean life expectancy* upon which the investor will receive the death benefit. The actual distribution of life expectancy is being ignored. Reinsurance arrangements (which usually guarantee a death benefit payment 0-2 years after mean life expectancy) can be used to hedge the longevity risk, otherwise a longer mean life expectancy might be assumed (p.35).

The price of the life settlement is the discounted value of the death benefit minus the discounted value of the premiums and fees which have to be paid. The discount rate is the provider's expected ROI (p.36):

$$\text{Price} = \frac{\text{Death Benefit}}{1 + E[ROI]} - \sum_{t=1}^T \frac{(\text{Premiums} + \text{Fees})_t}{(1 + E[ROI])^t}$$

Even though this model is no longer being used on the life settlements market, it does come with the advantages of being the simplest, easiest and most conservative approach. On the other hand, it heavily relies on the law of large numbers. Only if a sufficiently large enough number of homogeneous policies with identical mortality risk is held within a portfolio, the investor can assume that deaths do averagely occur around mean life expectancy. Since the distribution of life expectancy is not taken into consideration, the potential gains from early deaths to fund premiums for other ongoing policies in the portfolio are ignored. This results in potentially lower expected returns on the total portfolio (Ibid.).

### 3.5.4 Probabilistic Pricing

The probabilistic pricing method is the current standard for the life settlement industry. Unlike the deterministic method, it does *not* build on the assumption of all deaths within a portfolio occurring about the mean life expectancy. This

portfolio is rather considered as “a collection of identical insureds and policies”. Another major difference is that the cash flows (death benefit and premium payments) are not just simply discounted with the investor’s expected return on investment. Instead, mortality-adjusted net cash flows are created first, by applying mortality rates to all projected premiums, benefits, and expenses. These mortality-adjusted new cash flows are then discounted as seen in the deterministic pricing model. Therefore, for every cash flow period (e.g. year) the according mortality risk is included individually, leading to the inclusion of the distribution of life expectancy into the price calculation. The result is an *actuarial new present value*, which brings the probabilistic method in line with the methods used by life insurance carriers (Finsinger, 2011).

Putting the probabilistic pricing method into formulas would look as follows. To calculate the price, the investor’s expected/desired return on investment (e.g. 9.0%) is applied to discount all mortality-adjusted net cash flows. To calculate the latter, for every cash flow period (assuming years) an expected annual death benefit is calculated, based on the mortality tables and the underwriting multiple. The purchase price is then calculated as a *sum* of these cash flows:

Price =

$$\sum_{t=1}^T \frac{(\text{Rate of Mortality in Year } t \times \text{Total Death Benefit}) - (\text{Premiums} + \text{Fees})_t}{(1 + E[ROI])^t}$$

$$= \sum_{t=1}^T \frac{E[\text{Death Benefit}]_t - (\text{Premiums} + \text{Fees})_t}{(1 + E[ROI])^t}$$

Comparing this pricing formula to its counterpart in 3.5.3, it becomes apparent that the main *tangible* difference for the investor (by incorporating mortality-adjusted cash flows) is that every cash flow period includes an expected death benefit, which can be used to fund premium payments for other policies in the portfolio. Hence, the probabilistic method does indeed consider that deaths might occur before the mean life expectancy, which will potentially lead to a higher economic value than through deterministic calculations.

However, (Finsinger, 2011) and (Zollars, Grossfeld, & Day, 2003, pp. 36-37) observe that the probabilistic method is not void of disadvantages either. As with the deterministic method, it relies on the law of large numbers to achieve

the expected pattern of deaths. Moreover, its level of modeling complexity is higher (increasing the calculation efforts) and by including mortality rates more often, inaccurate mortality predictions during the underwriting process would have an even heavier impact on this method.

### **3.6 No Correlation to Financial Markets as Additional Non-Monetary Value**

Whether or not the *expected utility hypothesis* is being employed, life settlements certainly do offer additional benefits to investors, which cannot directly be measured in monetary values. The major advantage in this regard is the fact that life settlements are uncorrelated to other financial assets, since the underlying – human mortality – is indeed completely unrelated to the movements of the financial markets (Becker & Prihoda, 2010, p. 2). It is important to note, however, that this hypothesis can only hold true if the life settlements are held until maturity. If sold prematurely or repackaged into other financial instruments, they become part of the capital markets just like any other common financial asset (cf. 3.9: Investment Strategies). Thus we will now assume a “buy and hold” strategy for the rest of this chapter.

The claim that life settlements are uncorrelated to other financial assets because human mortality is not linked to the movements of the financial markets does sound reasonable. But (Rosenfeld, 2009, pp. 26-28) actually went as far as measuring this assumption empirically. For this purpose he compared life settlements with four other established asset classes, using publicly accessible indices as indicator. These were:

- The *S&P 500 Index* (SPX) for the stock markets
- The *US iShares Aggregate Bond Index* (AGG) for the bond markets
- The *US iShares Dow Jones Real Estate Fund Index* (IYR) for the real estate markets
- The *US iShares S&P GSCI Commodity Indexed Trust* (GSG) for commodities

For measuring the performance of life settlements, the Goldman Sachs QxX Index was employed, which existed during the observation period (12 months

from 2008 to 2009) but actually has been cancelled in December 2009 (Mercado, 2009).

(Rosenfeld, 2009) now created a correlation matrix, pitting these five asset classes against each other in terms of “returns on indices that correspond to various asset classes”. A replica of this matrix is shown in Table 1.

	Life Settlements	Stocks	Bonds	Real Estate	Commodities
Life Settlements	-	0.09	-0.35	-0.16	0.21
Stocks	0.09	-	-0.45	0.39	0.54
Bonds	-0.35	-0.45	-	0.44	-0.09
Real Estate	-0.16	0.39	0.44	-	0.44
Commodities	0.21	0.54	-0.09	0.44	-

Table 1. Self-provided replica of Rosenfeld's (2009, p.27) Correlation Matrix

Clearly, life settlements have proven to be unrelated or even negatively correlated to stocks, bonds, and real estate (quod erat demonstrandum).

Furthermore, (Rosenfeld, 2009) also compared the volatility of these five indices. The result of this research is listed in Table 2.

	Life Settlements	Stocks	Bonds	Real Estate	Commodities
Standard Deviation	0.00026	0.05939	0.02439	0.13063	0.12076

Table 2. Self-provided table based on Rosenfeld (2009, p.26)

Summarizing the results of both tables, he then concludes that “returns on a well-diversified portfolio of longevity-mortality assets, such as the QxX index, are uncorrelated with and exhibit significantly lower volatility than returns on equities, bonds, real estate, and commodities” (p.28).

(Stone, 2009, p. 107), among others, agrees that the performance of life settlements is not linked to that of the capital markets, the only link being the life insurance company's solvency. (Dorr, 2008, p. 62) points out that even though

life settlements are non-correlated assets, they still suffer from the market's illiquidity as borrowing money has become more difficult during the financial crisis.

### **3.7 Taxation Issues**

When it comes to taxation rules for life insurances policies and life settlements, the following applies in the United States.

For cash values received from an insurance carrier, only the excessive amount over the premiums and fees paid for the policy is taxable. The death benefit itself is completely tax-free. However, if the policy has been "subject of a transfer for value" (such as it is in the case of a life settlement transaction), the difference between death benefit and costs has to be taxed. Also, premiums paid until maturity may not be deducted from taxable income; the same applies for interest paid in connection with loans for life insurance policies. (Gelfond, 2009, p. 84)

Furthermore, all taxable amounts in conjunction with surrendering life insurance policies are subject to income tax (10-35%). However, for life settlement-related transactions the lower capital gains tax (5-15%) applies to the difference of selling price and the maximum of [CSV, Premiums paid]. For investors, this does not make a difference, since capital gains tax has to be paid for the profits on all financial instruments. But for policyholders this provides an additional reason for selling unwanted policies on the secondary market instead surrendering the policy back to the insurance company. (Becker & Prihoda, 2010, p. 11)

### **3.8 Investment Strategies**

(Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, pp. 70-71) observed three distinct investment strategies revolving around life settlement, which are being pursued by different players among the world's largest financial institutions. These strategies are "buy and hold", "leverage", and "buy, package, and resell". When praising a life settlement's added value of not being correlated to the financial markets (cf. 3.7), it is important to note that this only applies to the "buy and hold" strategy.

### 3.8.1 “Buy and Hold” Strategy

The simplest strategy is to acquire a life settlement or a portfolio of life settlements and hold it until maturity, upon which the death benefits are received. This is a strategy being followed by investors such as ILSP, HBC, Life Bond, Life Partners, and Life Plus (Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, p. 70). Again, whenever someone points out that life settlements are not related to other assets on the financial markets or the financial markets in person, they usually assume a “buy and hold” strategy.

### 3.8.2 “Leverage” Strategy

Generally, investment leverage means to borrow money in order to invest (Sengkee & Roberts, 2011). For life settlements this remains unchanged, although we now look at this strategy from the lender's perspective. The leverage provider (e.g. Commerce Bank, Dresdner Bank, or the Royal Bank of Scotland) lends money to the owner of a life settlement portfolio, the loan's interest rate being below the portfolio's projected rate of return. At the same time, the lender's risk is being minimized by having the portfolio of life insurance policies as collateral (Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, p. 71). Figure 7 illustrates this strategy in a simple way.

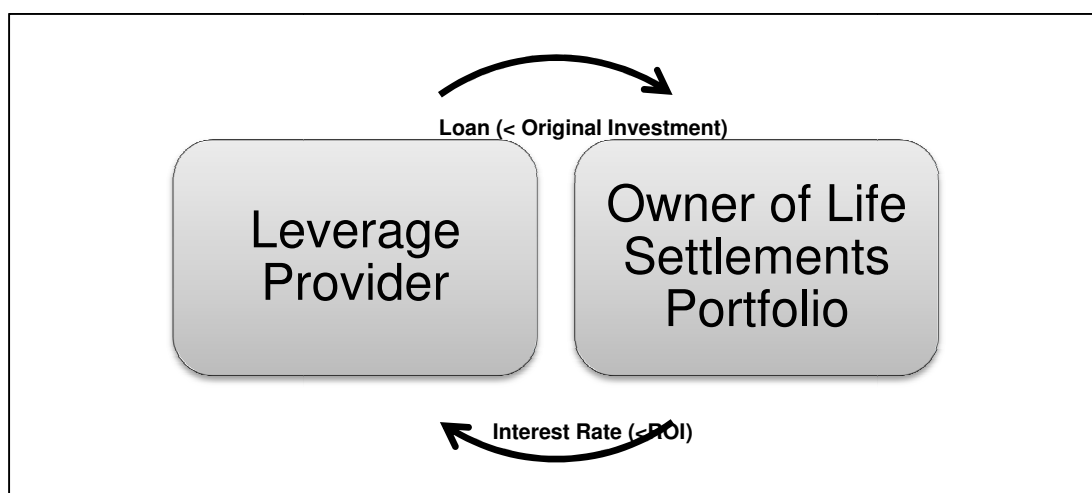


Figure 11. Self-provided illustration. The Leverage Strategy for Life Settlements

### 3.8.3 “Buy, Package, and Resell” Strategy

Also referred to as “intermediation strategy”, this strategy involves the purchase of various life settlements in order to repackage them into several other financial

instruments in order to offer them to their clients. This approach has been followed by some major players such as Deutsche Bank, Merrill Lynch, and Lehman Brothers. With the effects of the financial crisis by the end of 2008, however, most of these major investment banks stopped all of their financing projects, including life settlements. (Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, p. 71)

## 4 The Risks for Life Settlement Buyers

### 4.1 Overview

Chapter 3.7 has shown that life settlements offer certain benefits such as low volatility and low to negative correlation to other asset classes, which all add to the asset's value. However, in the same way there are also certain risks unique to life settlements, which have a decreasing effect on their value to investors.

(Perera & Reeves, 2006) have provided a comprehensive summary of risks for life settlement brokers, which are displayed in Figure 8.

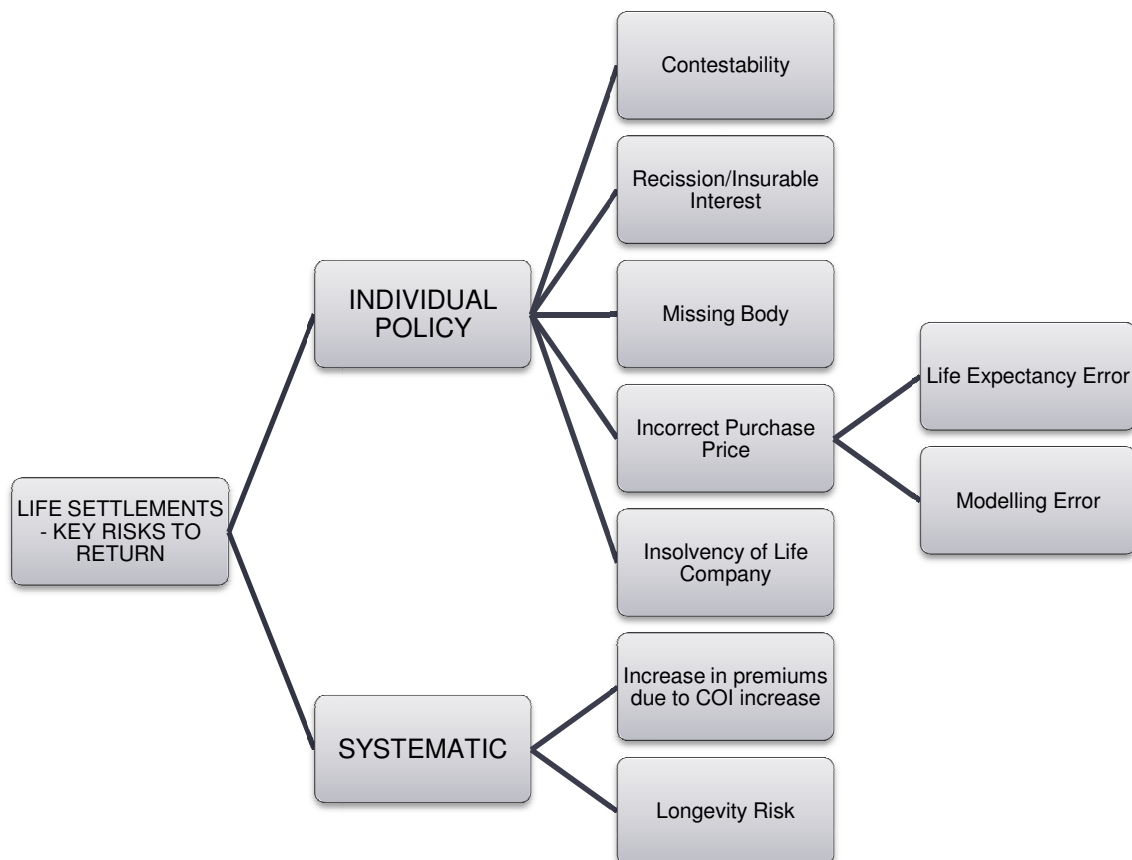


Figure 12. Self-provided adaption of (Perera & Reeves, 2006, p.56), General Summary of Risks for Life Settlement Brokers

These risks, which can be categorized into *systematic risks* and *risks related to individual policies*, will be discussed in the following subchapters.



## 4.2 Contestability Period

During the contestability period, the carrier has the right to deny the payment of the death benefit on the grounds of fraud, material misstatement, concealment, and other missing details at the time of the underwriting process. Even though contestation does not happen often, insurance companies tend to take a closer look at policies which have been traded as life settlements. The contestation applies only to the difference between death benefit and premiums paid. So even if a claim on the death benefit gets denied, the investor would at least receive back the premium payments. (Perera & Reeves, 2006, p. 57)

A special case of contestability would be suicide contestability, which denies payment of death benefits if the insured died through suicide. Therefore when buying policies which are still within contestability period, it would be advisable to consider suicide statistics for calculations. (Bakos & Parankirinathan, 2006, pp. 47-48)

The contestability period used to last for two years after signing the original life insurance policy, but has been extended to five years by the National Association of Insurance Commissioners (NAIC) in June 2007. The intention was to restrict the policy's value as a tradable asset during contestability period. (Rosenfeld, 2009, pp. 19-20)

To hedge the contestability risk, investors might seek out a *contestability-insuring company*, which covers the contestability risk. Also, it will review the underlying underwriting process and confirm or deny the legitimacy of the policy. (Perera & Reeves, 2006, p. 57)

## 4.3 Missing Body Risk

If the insured dies without physical proof of their death (i.e. the body is missing), insurance companies might delay their payment for up to seven years, or until proof of death has been delivered. This would not only decrease the net present value of the death benefit, but would also require the investor to keep paying annual premiums to the carrier. However, once the time of death has been confirmed, overpaid premiums will be reimbursed. Again, for larger portfolios, it is possible to insure against this risk. (Perera & Reeves, 2006, p. 57)

#### 4.4 Insurable Interest Risk

The concept of insurable interest is *the* very essential legal pillar of life insurance and arguably remains the most important legal issue for life settlement investors today (Chaplin, Aspinwall, & Venn, 2009, p. 24). The basic idea is as simple as it sounds: It defines which interests may be insured and which ones not.

In the case of life insurances, insurable interest exists if the policyholder is “interested in the continuing health and life of the insured person”, which is by default assumed for the policyholder’s own life, the policyholder’s spouses or dependants, and in special cases also between a company and its key employees (Becker & Prihoda, 2010, pp. 21-22). In addition, economic interests by creditors can be considered as insurable interest as well (Perera & Reeves, 2006, p. 58). The official explanation requires that “(1) there is a close blood or legal relationship that engenders love and affection, or (2) there is a reasonable expectation of pecuniary advantage through the continued life of the insured person and consequent loss by reason of his or her death” (Martin, 2011, pp. 177-180). The idea behind is that the policyholder must hold a certain “risk of loss” to prevent moral hazard in the form of mischief and crimes. Otherwise it could be profitable to insure the lives of strangers (without their consent) and have them killed in order to receive the death benefit (Rosenfeld, 2009, p. 8). The official court statement from 1911 reads as follows: “A Contract of insurance upon a life in which the insured has no interest is a pure wager that gives the insured a sinister counter interest in having the life come to an end” (Martin, 2011, p. 177).

As opposed to the contestability period of five (formerly two) years, insurable interest risk could occur at any time between signing the policy and its maturity. The consequences would be drastic, rendering the policy void by law or unenforceable against the insurance company. In either case, the investor would only receive the premiums already paid thus far. (Perera & Reeves, 2006, p. 58)

There is a main difference between US-American and British law in regard to insurable interest and life insurance policies. Both require insurable interest to close the contract, but the timing is different. British law requires the insurable

interest to remain intact throughout the whole lifetime of the insured. U.S. law, on the other hand, only requires it to exist at issuance (Chaplin, Aspinwall, & Venn, 2009, p. 22). This goes back to the same Supreme Court ruling from 1911 we have already encountered in chapter 1.4. From there on, life insurance policies in the United States were legally recognized as assets, a position later confirmed by the HIPAA in 1996 (cf. 1.4). As a result, there is no English life settlements market, whereas the secondary U.S. market for life insurances is regarded as the most important of its kind.

Defining insurable interest, however, is what really causes the problems in the U.S. market. The reason is that in the USA insurance is regulated at state level, the definition of insurable interest being based on the state in which the policy has been issued originally. As a result, life settlement investors are rather operating on 51 different markets instead of just one market. Another problem is that the original policyholder's motivation for issuing the policy, and hence their claim for insurable interest, might be lost over the years and impossible to reconstruct. (Chaplin, Aspinwall, & Venn, 2009, p. 24)

## **4.5 Incorrect Purchase Price**

### **4.5.1 Overview**

This section will discuss the risk of paying an incorrect purchase price, more specifically the risk of overpaying for a life insurance policy. This is a risk which can considerably decrease the return on a life settlement and usually is caused by two reasons: Either by mistakes during the underwriting process resulting in a wrongly assessed life expectancy, or by using a wrong pricing model (Perera & Reeves, 2006, p. 58). As mentioned in 3.6., to deal with these problems, (Schwartz & Wood, 2008, pp. 73-75) have come up with five suggestions: Stress tests, eligibility criteria, multiple underwriters, pricing criteria, and reinsurance. The following subchapters will discuss these methods for reducing the risk of paying an incorrect purchase price.

### **4.5.2 Stress Tests**

Using stress tests according to (Schwartz & Wood, 2008, pp. 73-74), stress is applied to the pricing table using different scenarios in order to address the risk of an understated life expectancy, i.e. the risk that the actual life span of the

policyholder will be longer than calculated by the underwriting process. The original purchase price remains unchanged for this test. The reasons for a miscalculation in life expectancy could be the underwriting multiple set too high (cf. 3.6) or mortality tables not being conservative enough in their assumptions. Obviously, this would directly translate into decreased returns on the investment.

When stressing the level of the pricing table (while keeping the original price), one scenario could be to decrease the underwriting multiple (e.g. from 150% to 120%). Based on this new multiplier, a new (higher) life expectancy and therefore a new (lower) projected return on investment would be derived. The tangible result of this stress test would be a table which lists the new expected returns as a function of additional life expectancy (in either months or years) to give an overview over the impact of increased life expectancy on expected returns. This table can now be used to determine the percentage of results that would be undesired returns, so the investor will now be better able to quantify this risk. Tab. 3 shows an example for such a table.

<b>Additional Life Expectancy</b>	<b>Expected Return</b>
0 months	8.00%
3 months	7.14%
6 months	6.30%
9 months	5.47%
12 months	4.66%

**Table 3. Schwartz & Wood (2008, p.74). Impact of Increased Life Expectancy on Expected Return**

This table clearly shows how deep the impact of too optimistic (or pessimistic, from the insured's point of view) life expectancy values can be on the expected returns. As a result, the industry already shifted from the old 2001 VBT to the new 2008 VBT mortality tables, which are more conservative as they assume longer life expectancies based on new medical and historical data.

(Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, p. 71) observed that this simple change of mortality tables reduced overall portfolio values by 15-20%. In November 2008, the two dominant Life Expectancy Providers 21<sup>st</sup> services and

AVS went even further and increased expected life spans up to 25%. In the author's opinion, this re-adjustment was only partly due to the new mortality tables, but rather "an excuse to re-adjust overly aggressive tables". As a result of this adjustment, Life Settlement portfolios dropped in value by as much as 50%. (Stone, 2009, p. 101) goes even farther as to call it "the most dramatic event that impacted the LS market as the financial markets entered the crisis stage", deeming it even more critical than the financial crisis itself.

#### **4.5.3 Eligibility Criteria**

Investors can use Eligibility Criteria to set quantitative and qualitative requirements for acquiring life settlements which are more complex than a simple risk-reward calculation. (Schwartz & Wood, 2008, p. 72) list the following examples of eligibility requirements for acquiring life settlements or pools/portfolios of LS:

- The insurance company's ability of paying claims (e.g. by credit rating)
- Minimum age of the insured
- Minimum life expectancy
- Maximum life expectancy
- Minimum death benefit amount
- Maximum death benefit amount
- Minimum number of life settlements to acquire
- Maximum number of life settlements to acquire
- Minimum data to be provided by the underwriter as output of the underwriting process
- Minimum number of underwriters until a consensus on life expectancy is found (cf. 4.5.4)
- Diversification requirements (diversify by type of impairment)

#### **4.5.4 Multiple Underwriters**

As a further way of decreasing the risk of wrong prices caused by inaccurate life expectancies, (Schwartz & Wood, 2008, pp. 74-75) propose to hire more than one underwriter to calculate the underwriter multiple ("four eyes see better than two"). Either the underwriters develop similar multiples, which serves as

assurance of their accuracy, or they come to different conclusions which offer potential for stress testing.

Obviously this solution does require a certain investment size to warrant the costs of employing additional underwriters.

#### **4.5.5 Pricing Criteria**

Moreover, (Schwartz & Wood, 2008, p. 75) suggest that “to mitigate risk, at a minimum, the investor may demand a higher rate of return or choose a higher margin of risk and rely more extensively on the results of the stress tests”.

#### **4.5.6 Reinsurance**

Life settlement reinsurance companies protect their clients (i.e. life settlement investors) from insured people living too long (Bernstein, 2010). As such, they further help to mitigate risk, but might also add substantial maintenance costs (Schwartz & Wood, 2008, p. 75).

### **4.6 Life Insurance Company Credit Risk**

According to (Seitel C. L., A Provider's Reflection from Inside the Life Settlement Industry: Understanding the Chaotic Environment, 2009, p. 72) a life insurance company's risk of insolvency is very low, since the life insurance industry follows self-regulatory guidelines. In fact, the insurance industry supposedly has the “most vigilant financial monitoring and rehabilitation procedures in finance today”. Actually, not a single case of an unpaid life insurance claim due to a carrier's insolvency has been recorded in U.S. history. Three reasons lead to this extent of safety:

1. Once an insurance company should be in financial distress, this fact is usually recognized early on, since insurance companies have to submit annual to quarterly financial reports to their state insurance departments. In addition, annual insolvency tests have to be passed for license renewal.
2. If this monitoring and early recognition should reveal financial problems, the responsible state will appoint a receiver from the insurance department to take over the insurance company. This receiver will discontinue new business activities and keeps the company running to

pay out insurance claims. Usually, most financial troubles can be solved with this kind of early intervention, as most financial troubles are caused by bad financial management rather than bad quality of held policies.

3. Finally, if the first two steps do not suffice, state guaranty funds act as ultimate fail safe. The state guaranty association, which all licensed insurance companies are forced to join, would pay all remaining claims left after the carrier's liquidation up to its limit of \$300,000 to \$500,000.

Still, some investors might be restricted to certain credit ratings. In this case, credit insurance coverage would be a way to hedge the risk of not receiving the death benefit due to a carrier's bankruptcy (Perera & Reeves, 2006, p. 58).

#### **4.7 Increase in Premiums due to Increase in the Cost of Insurance**

The cost of insurance (COI) reflects the carrier's mortality risk, which is covered by the annual premium payments (Chaplin, Aspinwall, & Venn, 2009, p. 10). Generally increasing life expectancies could lead to higher COI and higher premium payments, unless the policy is working on a guaranteed basis, which means that the premium amounts are fixed and will not be adjusted as the carrier's COI increases. However, this risk is considered to be "negligible or non-existent" by most investors (Perera & Reeves, 2006).

#### **4.8 Longevity Risk**

##### **4.8.1 Overview**

After several individual policy risks, the longevity risk represents a systematic risk. (Rosenfeld, 2009, p. 34) defines it as "the risk that the rate of maturity within a portfolio will be slower than that predicted by the underwriting and actuarial modeling".

As a systematic risk it is not a risk associated with single life insurance policies, but the risk of a complete life settlement portfolio extending its life expectancy (Perera & Reeves, 2006, p. 59). This makes sense as well-diversified life settlement portfolios should be assumed by default. Individual longevity risks should be diversified away according to the law of large numbers, and only a general shift should concern investors. However, if such a general shift should occur, the consequences for investors could be severe, as 4.5 has shown the

deeply negative impact of added life expectancy on expected returns, up to the point where it might have played a major part in the life settlement market's shock in late 2008. In 1.4 we have seen how medical advances have increased the life expectancy for the whole population of AIDS victims to bring down the market for viatical settlements in the 1990's.

And indeed, life expectancy in Europe and North America has increased by about one year per decade since the 1960's due to improving health conditions (Chen, Cox, & Yan, 2010, p. 20). In a way it is true that increasing longevity "is closer to a certainty than a risk" (Mott, 2007, p. 58). Moreover it is not a problem solely linked to the life settlements market, but an issue that is "putting more and more pressure on governments, pension funds, life insurance companies as well as individuals" (Blake, Brockett, Cox, & MacMinn, 2011, p. 1). (Chen, Cox, & Yan, 2010, p. 2) call it a "high-profile risk for pension funds, insurers and other companies".

As a result, hedging systematic longevity risk is much desired but not that easy to achieve. Unsurprisingly, solution proposals are anything but consistent.

#### **4.8.2 Longevity-Extension Insurance / Mortality Wraps**

(Mott, 2007, p. 58) proposes longevity-extension insurance also known as mortality wraps. Issuers of such insurances usually charge a fee of about 30% of the pool's market value. In exchange, the issuer agrees to buy all remaining policies on an agreed-upon future date – usually the portfolio's average life expectancy with a few years added as buffer – albeit for a purchase price which usually is below the policy's face value. Furthermore, a lot of these issuers have low or no credit ratings. The prices for this kind of coverage are high, since the issuers are exposed to adverse selection. Obviously, the life settlement investors will only try to insure policies which they believe to outlive the projected life expectancy, having a certain advantage when it comes to information about the insured's health.

#### **4.8.3 Vanilla Longevity/Survivor Swaps**

*Survivor swap* and *longevity swap* are two common terms which refer to the same thing. (Chen, Cox, & Yan, 2010) argue and demonstrate that longevity risk in life settlements could be hedged by using vanilla longevity swaps (VLS).



A swap generally is “an agreement by which two parties agree to exchange one or more future cash flows, at least one of which is random”, whereas for a longevity/survivor swap these random cash flows are dependent on mortality (Dowd, Blake, Cairns, & Dawson, 2006, Vol.73, p. 3). In a VLS, those two parties exchange a series of payments over an agreed-upon period of time (e.g. at  $t=1, 2, 3, \dots, T$ ) based on whether or not the life settlement pool’s survival rate is higher or lower than expected (p. 4). Payments by one side are fixed, whereas the other side’s payments are random amounts based on mortality rates (Westland, 2009, p. 17). In swap terminology this is described as “the fixed leg linked to the expected survival rate and the floating leg linked to the realized survival rate” (Chen, Cox, & Yan, 2010, p. 3).

This serves as a hedge for a life settlement portfolio’s longevity risk, as the following will be achieved:

- If life expectancy should increase, the LS investor loses money from his initial investment, but receives cash flows from the vanilla survivor swap
- If life expectancy should be lower than expected, the LS investor will gain higher returns on his life settlements, but loses money on the survivor swap
- If life expectancy should remain unchanged, returns should be as projected

In either case, with VSS the longevity risk is being hedged for any possible scenario.

## 5 The Life Settlements Market

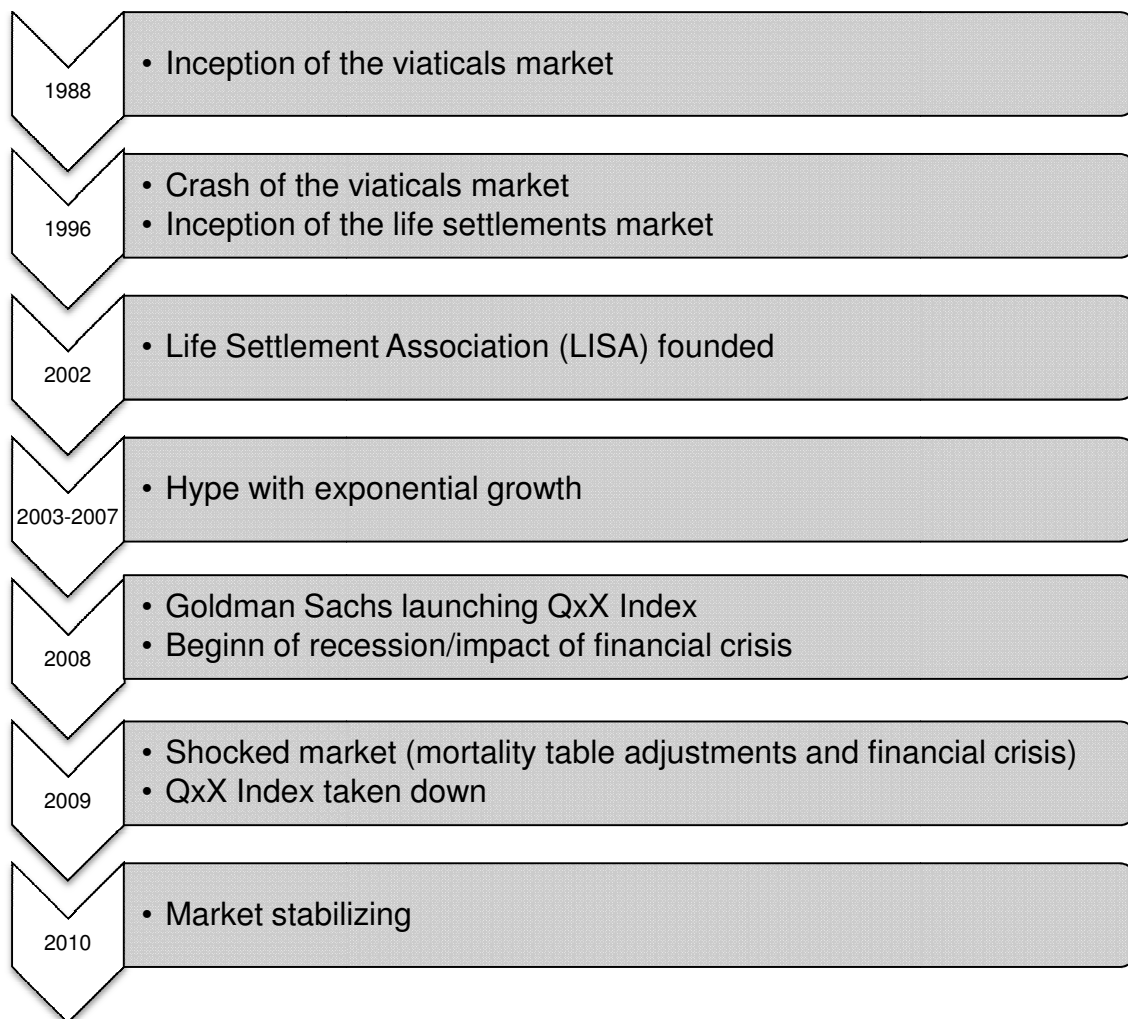
### 5.1 Overview

This chapter will cover the life settlements market from two viewing angles. First, a general overview over the market will be provided, with an emphasis on the more recent developments as 1.4 has already shown the historical development of the market. The second subchapter will then discuss the ethical issues which surround the life settlements market.

### 5.2 The Modern History of the Life Settlements Market

#### 5.2.1 Milestones in Life Settlement History

Figure 9 illustrates an overview of the milestones in life settlement history.



**Figure 13. Self-provided illustration of history milestones**

As described in 1.4, the market for viaticals started approximately in 1988, at the eve of the global AIDS epidemic (Lazarus, 2011, p. 261). Its successor, the

life settlements market took wings around 1996, when the viaticals market crashed due to the discovery of retroviral treatment and the HIPAA confirmed the policyholder's right to sell their policies on the secondary market (Becker & Prihoda, 2010, p. 5).

In 2002, the Life Settlement Association (LISA), self-proclaimed "voice of the industry" (Life Settlement Association, 2011) has been founded, including all kinds of participating groups (e.g. brokers, providers, and financing entities) with the aim of committing to a range of standards (Rosenfeld, 2009, p. 14). Coincidentally or not, this is when the hype for life settlements started, to last until the financial crisis in late 2007 (Seitel C. L., 2009, p. 70).

At the end of 2007/early 2008, Goldman Sachs launched the QxX Index, a monthly index suitable for trading life settlements based on a pool of more than 46,000 lives. The according database was provided by one of the two leading medical underwriters AVS (Blake, Brockett, Cox, & MacMinn, 2011, p. 2). However, at the end of 2009/early 2010 this index was taken down again, partly because of "the reputational issues associated with life settlements" (Blake, Brockett, Cox, & MacMinn, 2011, p. 5) but mainly because "it didn't sell" (Becker & Prihoda, 2010, p. 14).

In 2007, the life settlements market reached its climax as far as performance and volume were concerned, attracting global players such as Goldman Sachs, Bear Stearns, Credit Suisse, Merrill Lynch, AIG (Seitel C. L., 2009, p. 70). This high point was followed by the emerging financial crisis in the summer of 2007 and the follow-up recession which began in December 2007 (Stone, 2009, p. 101). As a result of this crisis, Conning & Co observed that the life settlement market was "hit hard" in 2008. This was caused not only by the financial crisis and its frozen credit markets, but also by the mortality table revision of two major medical underwriters (21<sup>st</sup> Services and AVS, cf. 4.5.2) and a strengthening U.S. Dollar which decreased returns and demand for non-U.S. investors (McGee, 2009).

Continuing this trend, the life settlement market bottomed out in 2009, according to Conning & Co with a 36% decrease in volume compared to 2008 mainly due to further decreased investor capital (Doss, 2010) and the

mentioned adjustments to mortality tables (Watson, 2010). Also, this turned the supply and demand situation of the market upside down, since a decrease in demand and the resulting increase in supply gave the advantage to buyers in terms of price determination (Conning, 2009a), leading to a “buyer’s market” (Conning, 2009b).

No exact numbers by Conning & Co are freely available for 2010, yet, but (Conning, 2010a) announced that the 2010 market has stabilized, with investors mainly focusing on Universal Life policies and capital slowly returning to the financial markets. (Siegert, 2010, p. 2) also suggests that the 2010 market volume operates roughly at the 2009 level.

Conning & Co has not yet released any reports for 2011, but past publishing dates indicate that a October/November release should be expected.

### 5.2.2 The Life Settlement Market Volumes from 1989 to 2010

Based on values mentioned in various sources, Figure 10 displays the total market volume for life settlements as a graph.

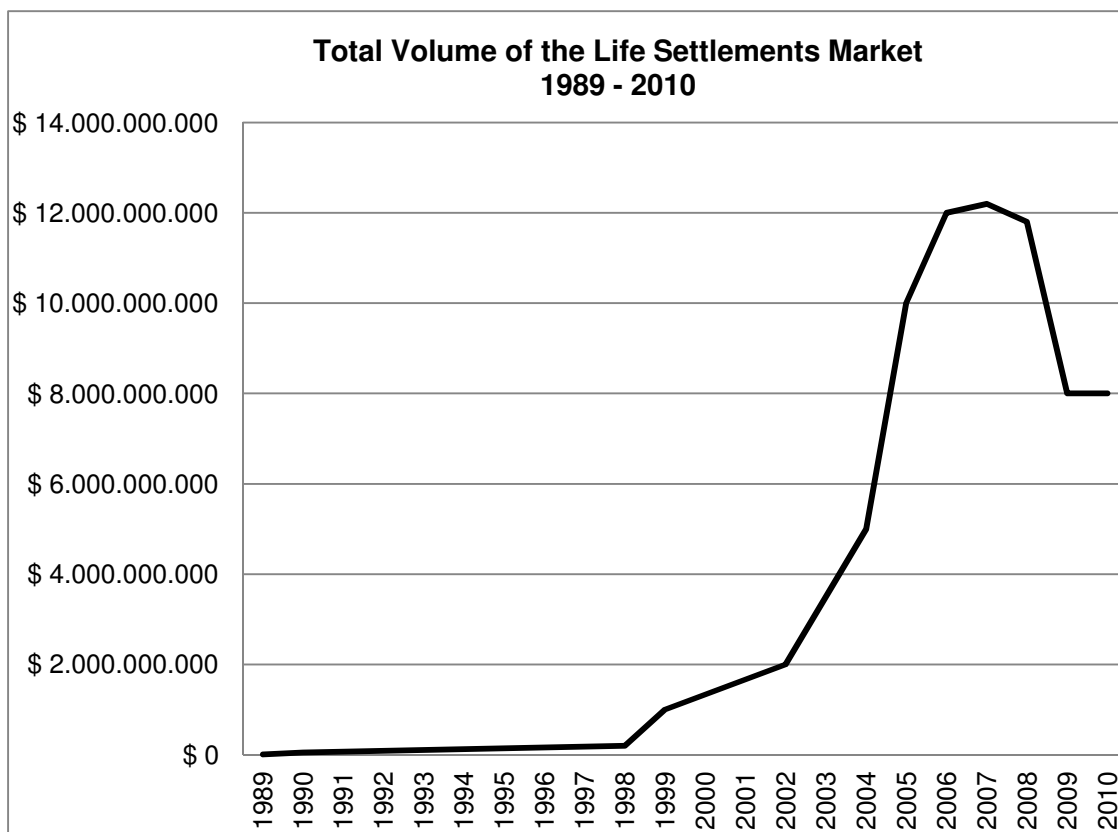


Figure 14. Self-provided illustration of market life settlement market volumes from 1989 to 2010 derived from various sources

Following the events listed in 5.2.1, the viaticals market started out with a meager \$5 million volume in 1989 (Martin, 2011, p. 186), skyrocketed tenfold to \$50 million in 1990 (Doherty & Singer, 2002, p. 3), and grew into a \$200 million life settlements market by 1998 (Martin, 2011, p. 186). However, the graph shows that this was still only a fraction of the growth to follow.

Afterwards, during the life settlements hype, the total market volume has risen, starting at \$2 billion in 2002 (Deloitte Consulting LLP and The University of Connecticut, 2005, p. 3) and growing exponentially to \$5 billion in 2004, \$10 billion in 2005, and more than \$12 billion in 2006 and 2007 (Seitel C. L., 2008, p. 55), with 2007 still showing growth “at a frenzied pace” (Ziser, 2008, p. 54).

This was followed by the slight \$11.8 billion decrease in 2008 (Stone, 2009, p. 101) and anti-climaxed with a 36% decrease to \$8 billion in 2009 (McGee, 2009). A level which supposedly was held in 2010 (Siegert, 2010, p. 2).

### **5.3 Ethical Issues Surrounding Life Settlements**

The fact that Life Settlements are financial instruments based on unrelated human lives obviously opens the doors for a plethora of discussions on the moral and ethical issues of the whole secondary market for life insurances. Negative headlines like the Bloomberg Businessweek article “Death Bonds – The most macabre investment scheme ever” (Goldstein, 2007) further weakened this asset classes’ ill reputation, whose nature is often described as “ghoulish” (Martin, 2011, p. 186). This chapter will describe the pros and cons of the life settlements market from different viewing angles.

#### **5.3.1 Arguments Pro Life Settlements**

Despite the bad publicity, the existence of a secondary market for life insurances does offer advantages to policyholders. It breaks the monopsony power of the insurance companies, who otherwise would be the only ones to buy back policies, hence enabling them to dictate the prices i.e. cash surrender values as they see fit (Becker & Prihoda, 2010, p. 5). As (Nurnberg & Lackey, 2010, p. 516) point out, “the secondary market for life insurance policies gives the policyholder the economic freedom to choose between a number of buyers and, in doing so, to receive a higher fair market price for his or her policy rather than just the CSV”, which is always lower than the actual market value for

reasons already stated in 1.4. The motivations for policyholders to lapse their policies are plentiful. (Doherty & Singer, 2002, pp. 24-25) list the following reasons for surrendering a life insurance contract:

- The policyholder may no longer be able to afford the premium payments
- The original beneficiary no longer needs the financial protection the original policy was intended for
- A “key man” insurance for a valuable employee might no longer be needed, because either the key man left the company or the company has gone bankrupt
- The policyholder might want to surrender just one of many life insurance policies
- The policyholder wants to replace the current individual policy with another type of policy
- The policyholder might need immediate liquidity to pay for medical treatment (as seen in the viaticals market)
- The policyholder might want to live out the rest of his life with a certain standard of living
- The policyholder wants to remove the policy from a trust or estate

(Rosenfeld, 2009, p. 11) found additional reasons why a policyholder might desire to get rid of their policy:

- The policyholder might have administrative reasons such as estate simplification, charity donations, or tax purposes (e.g. to place liquidized money into a charitable remainder trust)
- There might be an arbitrage opportunity between selling the current policy and buying a new one with the same cover for less

The main advantage of getting a higher price at the secondary market is especially true for policyholders with impaired life, as their policies become considerably more valuable, while the CSV still does not adjust for, and the difference between market value and CSV becomes even larger.

Moreover, (Nurnberg & Lackey, 2010, p. 521), (Doherty & Singer, 2002, p. 24) argue that the existence of a secondary market for life insurances increases

consumer welfare, and that it even “creates the opportunity for institutional investors to push the efficient frontier and construct better portfolios with lower risk and higher returns” when applying modern portfolio theory (Dorr, 2008). While the same calculations also admit that insurance companies had to increase their premiums if life settlements were to become common (because insurance companies actually assume that a certain percentage of their clients lapses their policies prematurely when calculating the lower premiums), (Nurnberg & Lackey, 2010, p. 521) claim that “the increased cost of life insurance will not be offset by the increased value of the policies purchased by most of the insureds”.

### **5.3.2 Arguments Contra Life Settlements**

Populist shouts about the morbidity of life settlements aside, there are indeed more substantial negative sides to life settlements from an ethical point of view.

For once, it cannot be assumed that all policyholders selling their policies act rationally. Similar to the irrational choice of using credit cards – where instant gratification is traded for future penalties – the option of selling a life insurance might lure some policyholders into irrational decisions. After all the policy remains “just a piece of paper” for many years, whereas the life settlement purchase price would grant the seller instant cash and gratification. (Nurnberg & Lackey, 2010, p. 523)

Furthermore, terminal ill patients – such as the AIDS victims during the viaticals era – sell their policies out of desperation, probably because they need the money for medical treatment. It can be argued whether such transactions are really voluntarily. Moreso since investors usually do not inform the policyholders about their range of financial alternatives; many carriers nowadays pay nearly the full death benefit for terminally ill policyholders and even if not, many policyholders would be better off by keeping the policy and borrowing from a bank against the insurance policy. (ibid.)

Even if in a life settlement transaction “there are no obvious victims, no obvious rights violations” (Nurnberg & Lackey, 2010, pp. 524-525), there are other, less tangible ethical issues to consider. Life settlements – especially if sold irrationally for instant gratification or due to a lack of information – do counter

the actual purpose of life insurance, namely to protect family and spouses from economic mischief. Also, the fact that after settling a life insurance the policyholder's life is worth more dead than alive to a complete stranger, cannot be to his advantage. Lastly, someone who once sold a life insurance policy might not be able to get another one ever again, as the insurable interest (which does not include the interest to sell the policy on a secondary market) can now be questioned by carriers. (Martin, 2011, pp. 197-198)

(Blake, Brockett, Cox, & MacMinn, 2011) observe that the ethical issues of life settlements do not differ from those of the *macro-longevity market* (e.g. pension plans and annuity books), but that the latter is much more capable of "promoting good basic research on the analysis of the stochastic mortality forecasting models it uses and putting these models into the public domain and has also been much more transparent with the data it uses".



## 6 Conclusion

This paper discusses the secondary market for life insurances, known as *life settlements* from different angles.

The first chapter introduces the core concepts and underlying principles of life settlements, basically defining it as the purchase of a life insurance policy from the policyholder. In exchange for doing so, the purchaser becomes the new beneficiary but also pays the premiums until maturity. Several insurance types are being explained as well, with Universal Life being the most commonly traded life insurance type on the secondary market. Finally, an overview of the historical development of the life settlements market is being provided; starting from the first related Supreme Court ruling in 1911, which legitimized the transfer of policy ownership, to the viatical settlements market set off by the AIDS crisis in the 1980's and 1990's, until the invention of retro-viral treatment and the HIPAA resulting in the inception of the life settlements market as it is known today.

The second chapter explains the basic transaction processes and their parties involved. Several direct and indirect participants such as policyholders, agents, brokers, providers, investors, insureds, insurance companies or medical underwriters get introduced, and their roles within the life settlement transaction process are put into perspective. A process which, simplified, uses brokers and providers as mediators between policy sellers and investors.

The third chapter finally discusses life settlements as an asset class. First off, the financial valuation of the underlying, i.e. the life insurance policy, is determined by these major factors: the policyholder's life expectancy, the expected number and amount of premium payments and fees until maturity, and the death benefit which is received upon maturity. Ultimately, the life insurance policy's worth for an investor can be illustrated as the difference between expected death benefit and expected premium payments and fees, making the policies based on so-called "impaired lives" more attractive on the life settlements market. Valuing the life settlement can be compared to a "negative-coupon bond", as the investor pays not only the buying price but also regular "coupons" (i.e. the premiums and fees) until finally receiving the face value.

The pricing of a life settlement is heavily dependent on accurate life expectancy predictions during the medical underwriting process, while two methods for price calculation do exist. Deterministic pricing simply assumes a mean life expectancy at which all policies in the portfolio should mature. Probabilistic pricing, on the other hand, considers the fact that some policies might mature before reaching mean life expectancy, generating positive cash flows sooner than expected, which can be used to fund premiums and fees of other policies in the portfolio.

Furthermore, the chapter takes a look at the life settlement market's uncorrelated nature when compared to other asset classes, taxation issues, and the three possible investment strategies: "Buy and Hold", "Buy, Package, and Resell", and "Leverage".

The fourth chapter provides an overview of the potential risks for life settlement investors of which there are plenty. An insured might die during the contestability period, enabling the carrier to deny the payment of the death benefit – the same would apply for a case of suicide contestability. If no body of the insured is found, payments could be delayed significantly, while inaccurate underwriting processes can have a huge negative impact on expected returns. The most significant risk for the US market is, however, the insurable interest risk, considering that in the United States, insurable interest is defined and regulated at state level, effectively creating 51 different markets.

The fifth and final chapter mainly recaps the modern history of the life settlements market. Most notably the market experienced exponential growth from 2003 to 2007 and came to a sudden halt in 2009. However, unlike commonly suspected, this was not only caused by the global financial crisis, but even more by revision of mortality tables, which delivered significantly increased life expectancies, thus decreasing expected returns heavily. Furthermore, life settlements have to fight off ethical issues and negative publicity, which mainly stems from their rather morbid nature, earning the asset class unpleasant names such as "death bonds".

## **Appendix**

### **A Verpflichtende deutsche Zusammenfassung der Arbeit gemäß**

#### **Vorschrift**

Die vorliegende Magisterarbeit behandelt das Thema „Life Settlements“, wobei es sich hierbei um den Sekundärmarkt für Lebensversicherungen handelt. Es wird – soweit nicht explizit anderweitiges erwähnt wurde – lediglich auf den U.S.-amerikanischen Markt und dessen Gegebenheiten eingegangen.

Zunächst einmal wird grundlegendes Wissen über Life Settlements vermittelt. Hierzu werden sowohl die involvierten Teilnehmergruppen als auch in vereinfachter Form der Transaktionsprozess beschrieben. Abgerundet wird dieser Überblick mit einer Liste der gehandelten Versicherungsarten sowie mit einem historischen Überblick zur Entwicklung des Marktes.

Das zweite Kapitel beschreibt anschließend den Life Settlement-Prozess, die Wertschöpfungskette und die Marktteilnehmer auf eine detailliertere Art und Weise, wobei besonderes Augenmerk auf eine anschauliche und übersichtliche Darstellung unter Zuhilfenahme von Diagrammen gelegt wird.

Kapitel 3 widmet sich nach den theoretischen ersten beiden Kapiteln der finanzmathematischen Seite. Hierbei werden Life Settlements nun als Finanzanlage betrachtet und dargestellt. Dies umfasst sowohl eine Analyse der Wertbestimmung von Lebensversicherungen und Life Settlements als auch ein Unterkapitel zur Preissetzung bei Life Settlements. In weiterer Folge wird zudem noch auf die Unkorreliertheit dieser Anlagenklasse mit den Finanzmärkten und mögliche Anlagestrategien eingegangen.

Kapitel 4 diskutiert die zahlreichen Risiken für Käufer von Life Settlements. Sofern möglich, werden auch Lösungsansätze zu deren Bewältigung geliefert.

Zu guter Letzt wird in Kapitel 5 auf die Entwicklung des Life Settlement-Marktes eingegangen, insbesondere auf die Entwicklung der letzten Jahre. Hierbei wird auch ein Erklärungsansatz gesucht, um die Stagnation einer Anlagenklasse zu erklären, die zwischen 2002 und 2007 exponentielles Wachstum verbuchen konnten. Außerdem wird auf die ethischen und moralischen Fragen

eingegangen, welche dem Thema Life Settlements (vor allem in den Medien auf negative Art und Weise) anheften.

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## Curriculum Vitae

### Persönliche Daten

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### Wissenschaftlicher Werdegang

- 2003: Beginn Bakkalaureatsstudium „Betriebswirtschaft“ an der Universität Wien
- 2009: Abschluss des Bakkalaureatsstudiums „Betriebswirtschaft“ mit der Vertiefung „Management“ an der Universität Wien und erhalt des akademischen Grades „Bakkalaureus der Sozial- und Wirtschaftswissenschaften“ (Bakk. rer. soc. oec.)
- 2009: Aufnahme des Masterstudiums „Betriebswirtschaft“ an der Universität Wien mit den Vertiefungen „Finanzdienstleistungen“ und „eBusiness“
- 2011: Voraussichtlicher Abschluss des Masterstudiums „Betriebswirtschaft“ an der Universität Wien  
Thema der Masterarbeit: „Life Settlements“

### Beruflicher Werdegang

- 2003 – 2009: Diverse Nebenjobs
- 2009: Business Support Assistant für ein Unternehmen im Bereich Klimatechnik
- 2010: Marketing Assistant für ein HR-Unternehmen
- 2011: Online Marketing & Content Manager für ein HR-Unternehmen