Viatical Settlements of Life Insurance in the United States

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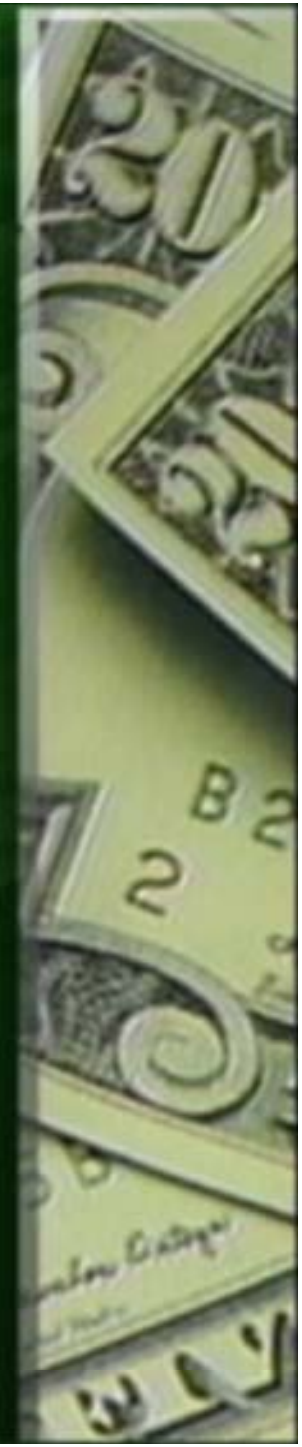
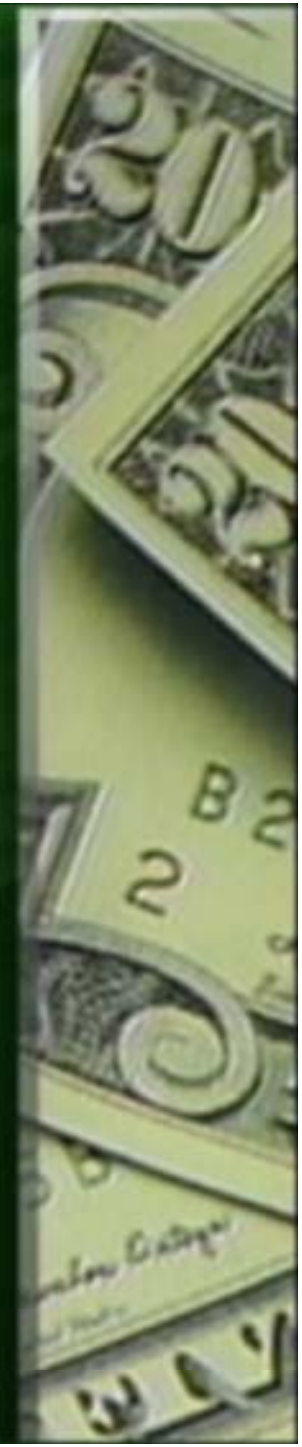


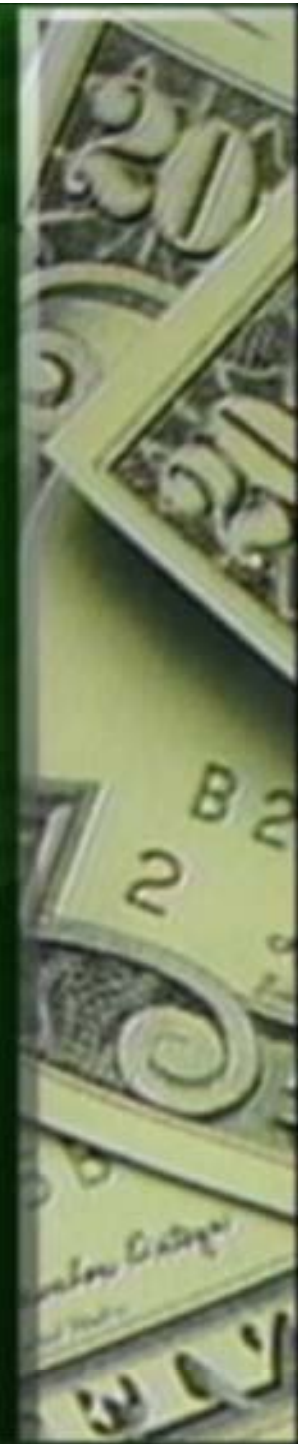
Viatical Settlement

- A viatical settlement is a transaction in which a terminally ill individual sells his or her life insurance policy to a third party (not to the issuing insurance company).
- This is a relatively new type of business in the United States.
- Initial demand for the transactions created by the need of terminally ill patients to fund final healthcare and living expenses.
- Subsequent development: life settlements.



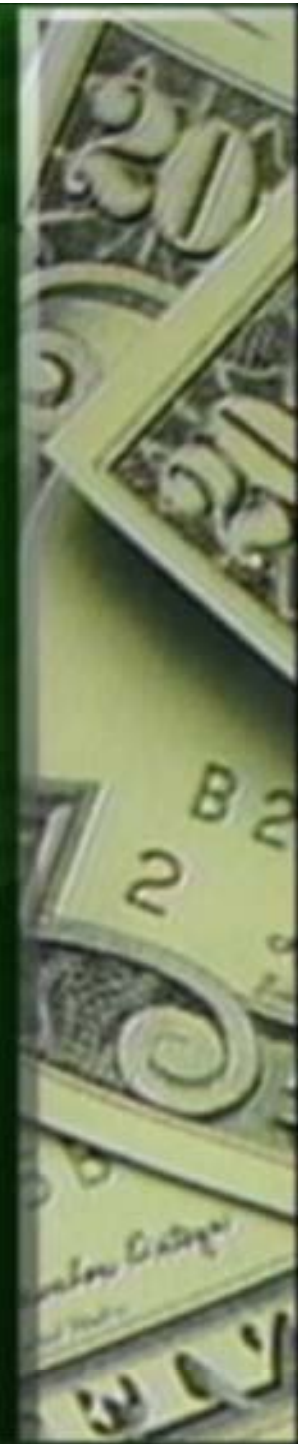
Who Buys Viatical Settlements?

- Theoretically, anyone. But this individual would have to have substantial wealth to pay the settlement amount and premiums until death of the original insured. And this individual investment could result ina a non-diversified portfolio.
- Makes more sense for groups of investors to buy these. But then … the group may have to become a registered (with SEC) investment company.



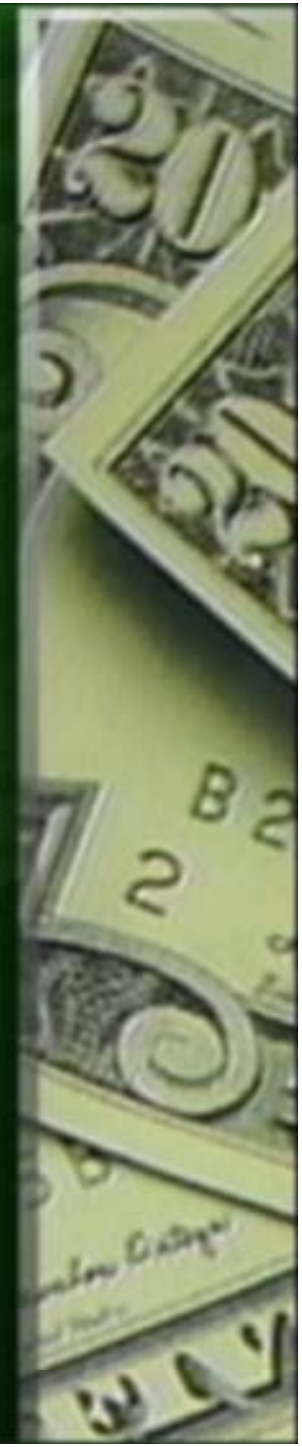
Natural Investors: Hedge Funds

- Only open to qualifies investors: banks, insurance companies, pension funds, investment funds, or individuals with more than $2 million liquid net worth.
- Do not need to be registered with the Securities Exchange Commission, and do not have to follow corresponding regulations.



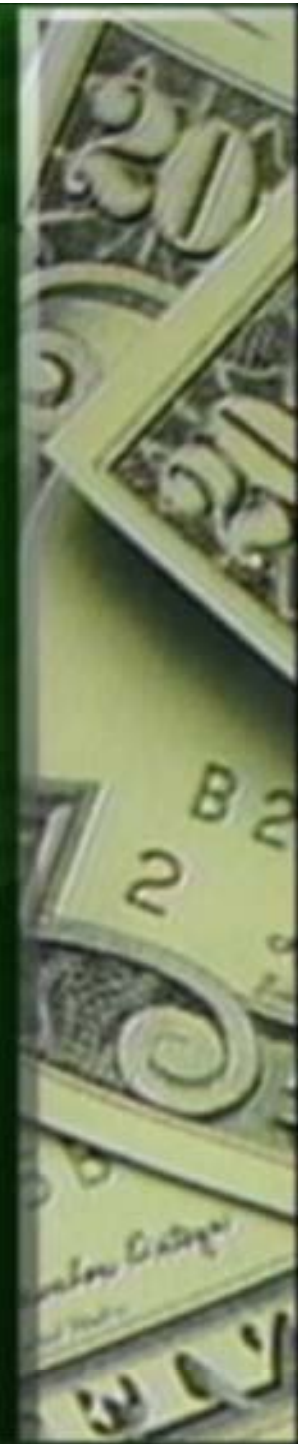
Competition for the buyers

- Cash surrender value of the policy.
- Accelerated death benefits.
- Reverse mortgages.



Consideration for the original policyholder

- Policy can be surrendered. Cash surrender value regulated by law: Standard Nonforfeiture Law (1980).
- At age 100, policy can be surrendered for a full face amount.
- Policy loan can be taken.
- Some life insurance companies have started offering accelerated death benefits.



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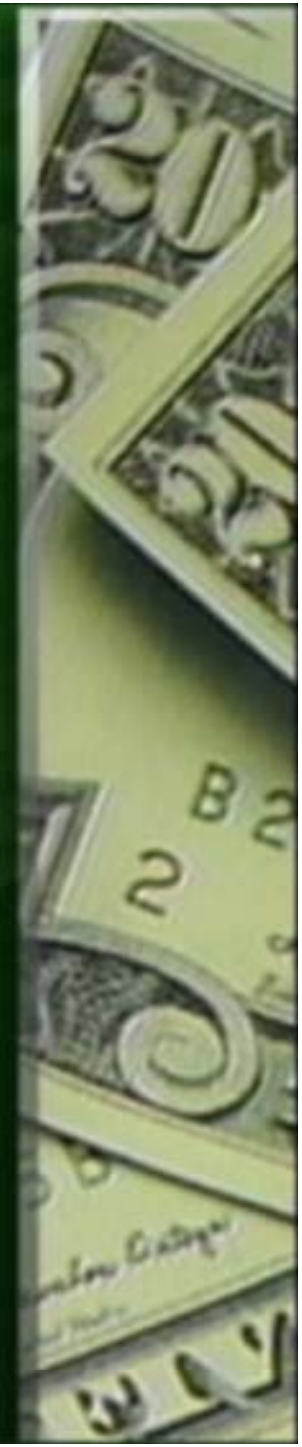
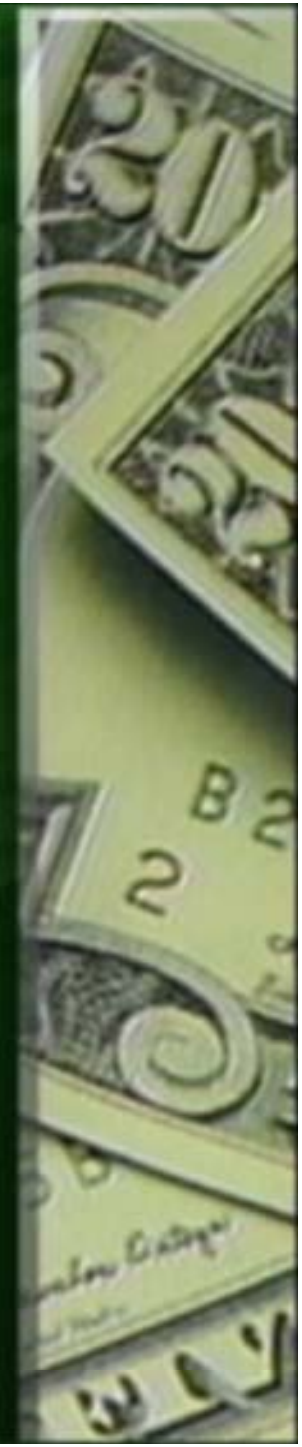


Viatical vs. life settlement

	Viaticals	Life Settlements
Policy Size	< $100,000 and usually between $25,000-$50,000	> $100,000 and usually over $250,000
Policyholder	AIDS patents in the 25-44 age band	Senior citizens over age 65
Life Expectancies	< 2 years and usually 12 months or less	> 2 years and as high as 12-15 years

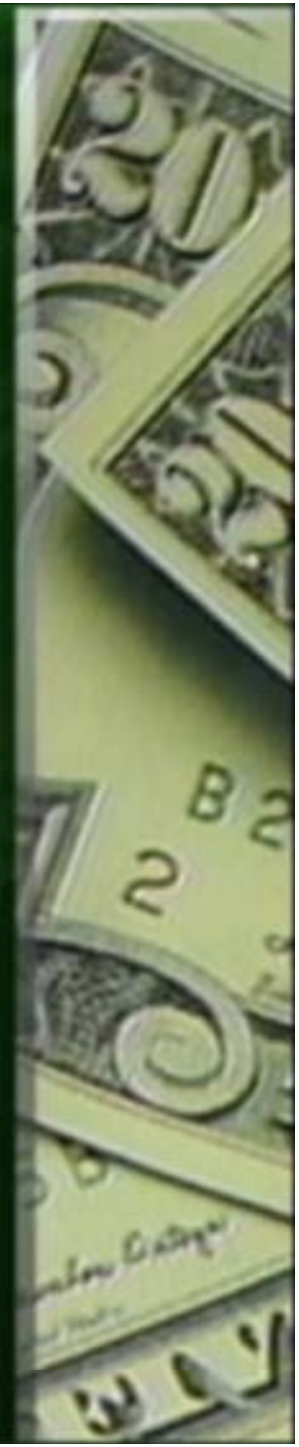
Consideration for the original policyholder

- Three values:
  - Cash surrender value (CSV).
  - Intrinsic economic value (IEV): value of the original death benefit paid at death.
  - Viatical/life settlement value (LSV): value when sold in the secondary market.



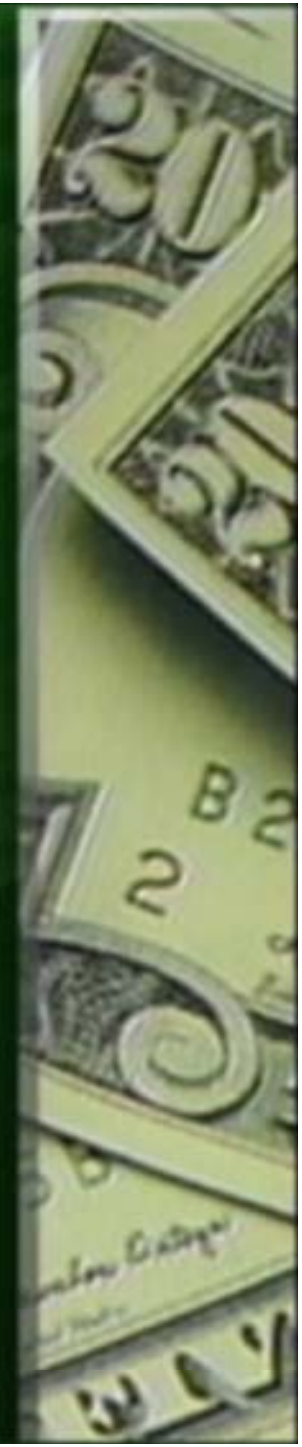
Consideration for the original policyholder

- CSV is highest at advanced age. Can also take a policy loan, but portfolio rate typically charged on the loan.
- IEV: Value of the original death benefit paid at death, minus premiums still to be paid, discounted at risk-free rates.
- LSV: Valued at the hurdle rate of the purchaser, at impaired mortality, but the purchaser assumes the obligation for premium payments.



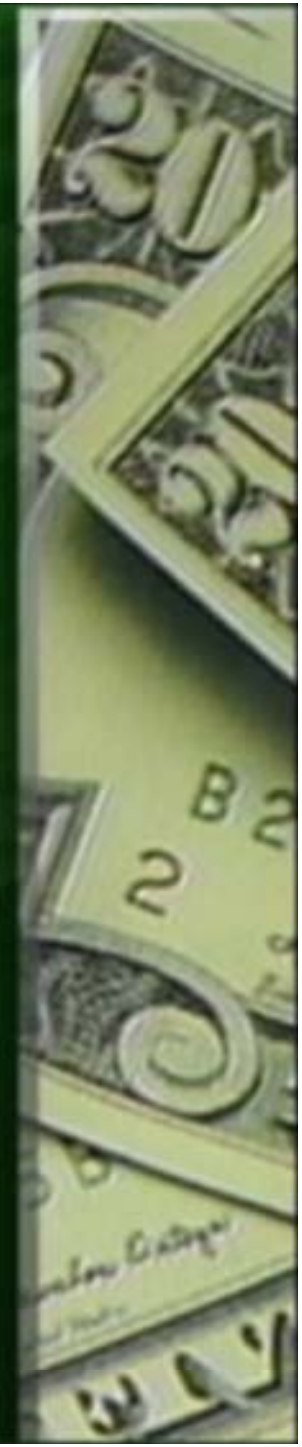
Comparison of values

- IEV nearly always be the highest. But if using the original mortality assumptions, may be lower than LSV if mortality significantly impaired.
- At advanced ages near 100, regulatory cash surrender value approaches the face amount and life settlement often becomes unfeasible.
- Attractiveness of the transaction is a function of three factors:
  - Level of mortality impairment.
  - Risk-free interest rates.
  - Risk-premium demanded by the hedge fund (which, in turn, depends on macroeconomic factors, e.g., stock market performance, as well as the level and appropriateness of regulatory scrutiny).



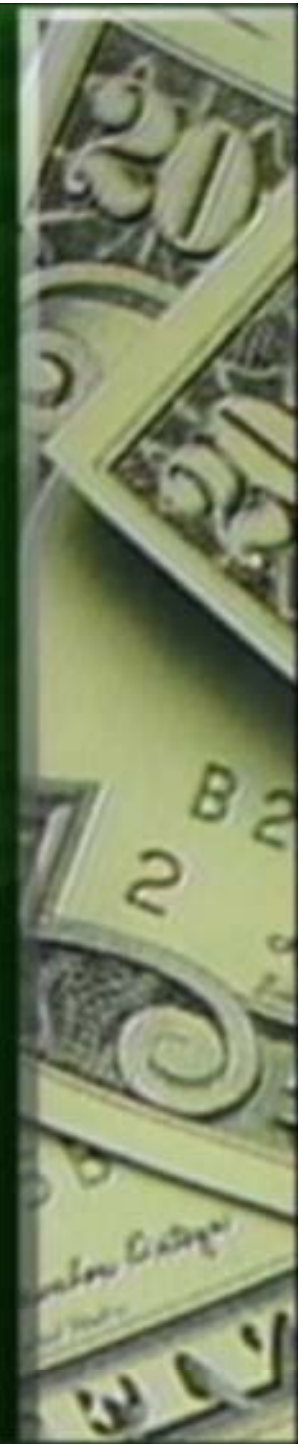
Hedge Funds

- To the extent that regulation imposes harassment burden, it raises the cost of capital.
- To the extent that regulation prevents fraud, it lowers the cost of capital.
- Low savings rate in the United States raises the cost of capital. This, combined with the size of the life insurance market, and, again, low savings rate (so that, for example, reverse mortgages are not a feasible product in the U.S.) makes the U.S. market a prime target for development of life settlements.
- Providers of capital for hedge funds may often be foreign investors from high savings rates economies.



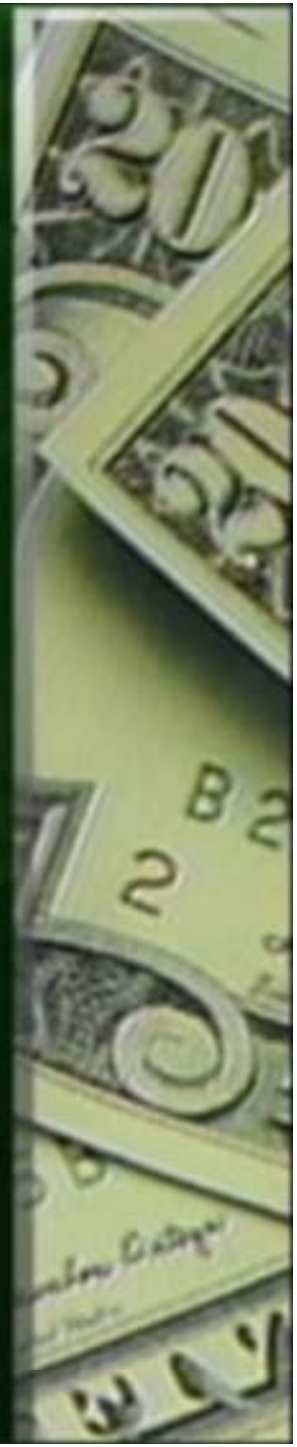
Pricing a Settlement by the Buyer

- Assume current risk-free yield curve.
- Establish the risk-premium desired by the buyer of the policy. This can be determined in relation to:
  - Returns available from other investments.
  - Possible additional risk-premium, as this is a new, risky market, with more of a regulatory and legal risk than just investment risk.
- Establish appropriate mortality distribution.
- Decide whether to price based on the expected value, or a percentile of the probability distribution of mortality.



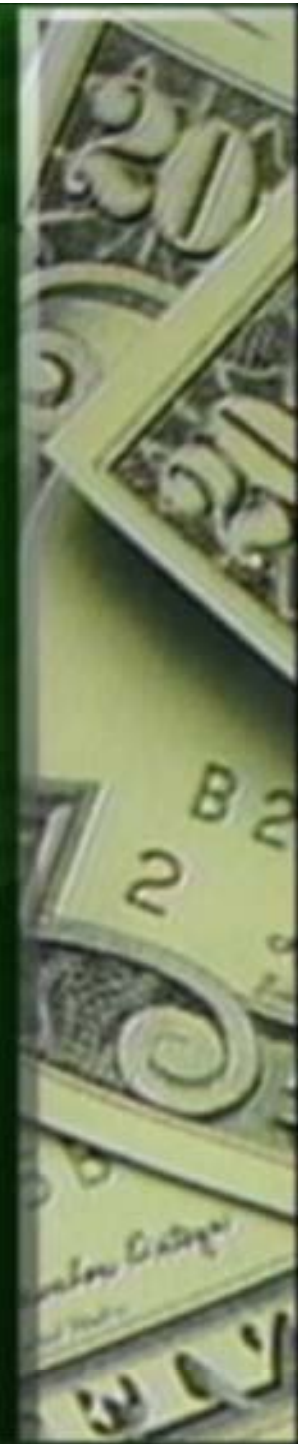
Which part is the hardest?

- Mortality!
- Life settlement companies use services of medical companies providing an estimate of mortality.
- Mortality estimate is given in a form of a mortality table, not just a life expectancy.
- The table is annual (industry standard for life insurance in the U.S.).
- Real problem: Two dominant companies provide estimates that are not consistent!



Controversial and Promising Market

- Life insurance industry very unhappy with viatical/life settlement market.
- Regulatory environment still uncertain. Remember: Potential 50 regulators, plus federal investment regulators.
- Potential for high returns for investors.
- Potential for substantial welfare gain: Great new value can be created if a seriously ill insured can extend lifespan thanks to new resources acquired.



Comparing Consistency of Mortality Tables

- *The χ^2 test of homogeneity.*

$$\sum_{i=1}^{R} \frac{(E_i - O_i)^2}{E_i} : \chi^2(R-1)$$

- *Kolmogorov-Smirnov test*

$$D_{mn} = \sup_{-\infty < x < +\infty} \left| F_m^{(1)}(x) - F_n^{(2)}(x) \right|$$

Glivenko-Cantelli Lemma $\Rightarrow \lim_{m,n \to \infty} D_{mn} = 0.$

Kolmogorov-Smirnov Statistic: $D_{mn} \sqrt{\frac{mn}{m+n}}.$