

UNIT-LINKED LIFE INSURANCE CONTRACTS WITH INVESTMENT GUARANTEES – A PROPOSAL FOR ROMANIAN LIFE INSURANCE MARKET

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Abstract: *The Global Financial and Economic Crisis has negatively influenced the international insurance markets, and implicitly the Romanian unit-linked life insurance market. As a consequence, unit-linked life insurance markets around the world are changing. Policyholders have become more aware of investment opportunities outside the insurance sector and they want to enjoy the benefits of investments in different financial instruments in conjunction with mortality protection, so insurers around the world have developed unit-linked products to meet this challenge. According to Romanian legislation which regulates the unit-linked life insurance market, unit-linked life insurance contracts pass most of the investment risk to the policyholder and involve no investment risk for the insurer. Due to the financial instability caused by the Global Crisis and the amplification of market competitiveness, insurers from international markets have started to incorporate guarantees in unit-linked products. Therefore the objective of this study is a proposal of a change in the design of these innovative products in order to respect the Solvency II regulation regarding the management of risk exposure and the policyholders' protection. The authors' purpose is to present a comparative analysis of the main financial instruments that may guarantee the unit-linked insurance contracts in order to create a balance between the insurers' interests and the policyholders' interests. This research proposes some legislative changes in the Romanian legislation regarding unit-linked life insurance market that may authorize the Romanian insurers to offer unit-linked contracts with and without investment guarantees.*

Keywords: *investment guarantees, regulatory changes, unit-linked products*

JEL Classification: G22, G14, C58, C87

INTRODUCTION

One of the most interesting life insurance products which have emerged in recent years has been the unit-linked contract (Boyle, 1977). The unit-linked insurance contracts are very popular in many insurance markets (United States, Canada, Asia, and Europe) since the middle of 1970s (Argesanu, 2004). Unit-linked contract is a life insurance policy with investment component. The returns obtained are linked to the performances of a financial asset (Gaillardetz, 2006).

The Global Financial Crisis has negatively influenced the international insurance markets, and implicitly the Romanian unit-linked life insurance market. As a consequence, unit-linked life insurance markets around the world are changing. Policyholders have become more aware of investment opportunities outside the insurance sector and they want to enjoy the benefits of investments in different financial instruments in conjunction with mortality protection, so insurers around the world have developed unit-linked products to meet this challenge (Hardy, 2003). Due to the financial instability caused by the Global Crisis and the amplification of market competitiveness, insurers from international markets have started to incorporate guarantees in unit-linked products.

Investment guarantees are very popular features in life insurance policies because in addition to paying a benefit payable on death or at maturity, these policies are tied to the return of an underlying asset or an actively managed portfolio. Thus, the policy also acts as an investment because the investor's capital is credited with a minimum return. In exchange for this protection, the policyholder pays a higher premium, reflecting the market risk assumed by the insurance company (Augustyniak and Boudreault, 2012). The payoff contains both financial and insurance risk elements, which have to be priced so that the resulting premium is fair to both the seller (insurer) and the buyer (policyholder) of the contract (Romanyuk, 2006). These products bear two different (independent) types of risk. First of all, we can look at the financial risk (related to the market). This risk was clearly stressed during the last few years, when the major stock market indices have dropped so much. On the other hand, the insurer deals with another type of risk - actuarial risk, related to the possibility of death for the insured (and hence the possibility of a claim) (Argesanu, 2004).

The objective of this study is a proposal of a change in the design of these innovative products in order to respect the Solvency II regulation regarding the management of risk exposure and the policyholders' protection. The authors' purpose is to present a comparative analysis of the main types investment guarantees commonly used in unit-linked insurance products. This research proposes some legislative changes in the Romanian legislation regarding unit-linked life insurance market that may authorize the Romanian insurers to offer unit-linked contracts with and without investment guarantees.

The structure of this paper is as follows: Section 2 discusses some previous research on the issue. Section 3 describes the main categories of investment guarantees commonly used in unit-linked insurance. Section 4 presents some legislative changes

regarding the unit-linked life insurance contracts with investment guarantees. Empirical results are presented in Section 5. Section 6 provides a summary of the main findings and some concluding remarks.

LITERATURE REVIEW

There is an extensive literature on the pricing, hedging and risk management of these contracts. See for example, Boyle and Schwartz (1977), Brennan and Schwartz (1979), Hardy (2003), Argesanu (2004), Gaillardetz (2006), Romanyuk (2006), Reichenstein (2009), Augustyniak and Boudreault (2012), etc. Boyle and Schwartz (1977), and Brennan and Schwartz (1979) were the first articles that elegantly described some of the option elements of life insurance products and demonstrated how the relatively young option pricing theory of Black and Scholes could be applied to value these contracts. Hardy (2003) discusses the modelling and risk management for equity-linked life insurance; the focus of his research is on stochastic modeling of embedded guarantees that depend on equity performance. Argesanu (2004) focuses on the risk analysis and hedging of variable annuities in incomplete markets. Romanyuk (2006) describes the problem of appropriate pricing of equity-linked life insurance contracts and hedging of the risks involved, and proposes the use of two types of imperfect hedging techniques: quantile and efficient hedging. Gaillardetz (2006) introduces a pricing method for equity-indexed annuities and values these products by pricing its death benefits and survival benefits separately.

TYPES OF INVESTMENT GUARANTEES

In this section the authors present the various types of investment guarantees commonly used in unit-linked insurance.

The unit-linked contracts offer some element of participation in an underlying index or fund or combination of funds, in conjunction with one or more guarantees. Without a guarantee, equity participation involves no risk to the insurer, which merely acts as a steward of the policyholders' funds. These fixed-sum risks generally fall into one of the following major categories:

- The guaranteed minimum maturity benefit (GMMB): guarantees the policyholder a specific monetary amount at the maturity of the contract. This guarantee provides downside protection for the policyholder's funds, with the upside being participation in the underlying stock index. The guarantee may be fixed or subject to regular or equity-dependent increases.
- The guaranteed minimum death benefit (GMDB): guarantees the policyholder a specific monetary sum upon death during the term of the contract. Again, the death benefit may simply be the original premium, or may increase at a fixed rate of interest.

With the guaranteed minimum accumulation benefit (GMAB), the policyholder has the option to renew the contract at the end of the original term, at a new guarantee level appropriate to the maturity value of the maturing contract.

The guaranteed minimum surrender benefit (GMSB) is a variation of the guaranteed minimum maturity benefit. Beyond some fixed date the cash value of the contract, payable on surrender, is guaranteed.

The guaranteed minimum income benefit (GMIB) ensures that the lump sum accumulated under a separate account contract may be converted to an annuity at a guaranteed rate (Hardy, 2003).

REGULATORY CHANGES

This research proposes some legislative changes in the Romanian legislation regarding unit-linked life insurance market that may authorize the Romanian insurers to offer unit-linked contracts with and without investment guarantees.

According to the Romanian legislation which regulates the unit-linked life insurance market, unit-linked life insurance contracts pass most of the investment risk to the policyholder and involve no investment risk for the insurer.

Efforts of regulatory adaption to market realities should be seen as part of an evolving process where the progress achieved to date is consolidated in the light of experience and makes easier the solution of new issues as they arise.

The design of unit-linked products should ensure that they must offer above-market risk-adjusted returns compared with those available on portfolios of bonds and index funds, deposits, currencies, etc. (Reichenstein, 2009). As the U.S. Securities and Exchange Commission (2008) stated some warnings regarding the equity-indexed annuities, also the Romanian legislation should provide similar recommendations: unit-linked products are complicated products that may contain several features that can affect policyholders' returns. Policyholders should fully understand how these types of financial products compute their index-linked interest rate before they buy them.

A key regulatory issue is whether unit-linked insurance products are suitable investments. The national requirements should include certain conditions that must be met before an investment can be considered suitable: insurers should inform the potential customers that investments in unit-linked products are suitable only for some investors and also they must ensure that the policyholders understand the nature of this products, as well as the potential risks and benefits associated with these innovative products. Insurers must train the financial consultants about the characteristics, risks, and benefits of each product before they are allowed to offer these products to policyholders. Because of the unique nature of these products, many investors (policyholders) may not understand the features of these products, and may not fully appreciate the associated risks of investing in them (Reichenstein, 2009).

Also the insurers granting guarantees of this type must estimate the cost and include this cost in the premium and they have to establish the proper reserves for these guarantees (Boyle, 1977). In general the policyholder's account will be credited with a rate of return of some fixed guaranteed rate (up to 3%) that is applied to 90 percent of the premium.

EMPIRICAL RESULTS

This section models returns on unit-linked life insurance contracts with investment guarantees. These unit-linked products with investment guarantees are based on a mutual fund that invests in bonds and stocks: a high-risk fund that invests 100% in stocks, a medium-risk fund that invests 25% in stocks and 75% in bonds and low-risk fund that invests 100% in bonds. The database of contracts came from 2008 to 2013. The table below summarizes the returns, risk and risk-adjusted performance on BET Index, NBR Treasury bills, Deposits and unit-linked products.

For 2008-2013, the high-risk unit-linked product produced a geometric average annual return of 19.18%. The standard deviation of annual returns was 27.29%. The Sharpe ratio was 0.487, where the Sharpe ratio for an asset is defined as average/standard deviation of excess return on that asset. By definition, the alpha and beta for the BET Index were 0 and 1, where alphas and betas come from regressions using unit-linked returns and BET Index returns.

Table 1 Comparison of market-based returns and unit-linked life insurance returns, period 2008-2013

Asset	Geometric average annual return	Standard deviation	Sharpe ratio	Alpha	Beta
Market based-returns					
BET Index	20.23%	28.53%	0.497	0	1
Deposit	6.49%	2.05%	-0.025	-	-
NBR Treasury bills	6.51%	0	0	-	-
Unit-linked returns					
High- risk fund 100% stocks	19.18%	27.29%	0.487	0.004	0.924
Medium-risk fund 25% stocks and 75% bonds	11.17%	8.57%	0.623	0.054	0.283
Low-risk fund 100% bonds	7.62%	2.12%	0.495	0.064	0.062

Source: National Bank of Romania, Bucharest Stock Exchange databases, authors' calculations

CONCLUSIONS

Due to the financial instability caused by the Global Crisis and the amplification of market competitiveness, insurers from international markets have started to incorporate guarantees in unit-linked products. A unit-linked life insurance policy with an asset value guarantee is an insurance policy whose benefit payable on death or at maturity consists of the greater of some guaranteed amount and the value of a reference portfolio which is defined by the deemed investment of a predetermined component of the policy premium in a portfolio of common stocks or mutual fund-the reference fund (Brennan and Schwartz, 1979).

The authors propose some legislative changes in the Romanian legislation regarding unit-linked life insurance market that may authorize the Romanian insurers to offer unit-linked contracts with and without investment guarantees.

According to the empirical results, unit-linked life insurance products outperform returns on similar risk portfolios of Treasury's and index funds. Based on alphas and Sharpe ratios; these contracts have produced competitive market-based returns.

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