

Beyond Embedded Value: Sufficient Statutory Reserves

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Overview

- **Embedded Value strengths**
- **New statutory requirements in México**
- **Sufficient Statutory Reserves Vision**
- **Communication Issues**

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Embedded Value: An Englishman in New York

- 90's milestone: embedded value is a de facto standard to determine the value "sunk" under statutory reserves
- Embedded Value central role in life industry merger and acquisition processes, gave it credibility and prestige
- Based on Embedded Value Models, a lot of applications can be built upon
- Embedded Value at risk is one of them

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Embedded Value at Risk (EVAR)

- Main purpose: To determine cash flow present value and its distribution as interest rate fluctuates
- Helps to construct investment strategies
- Ideas will be exported to proposals on sufficient statutory reserves

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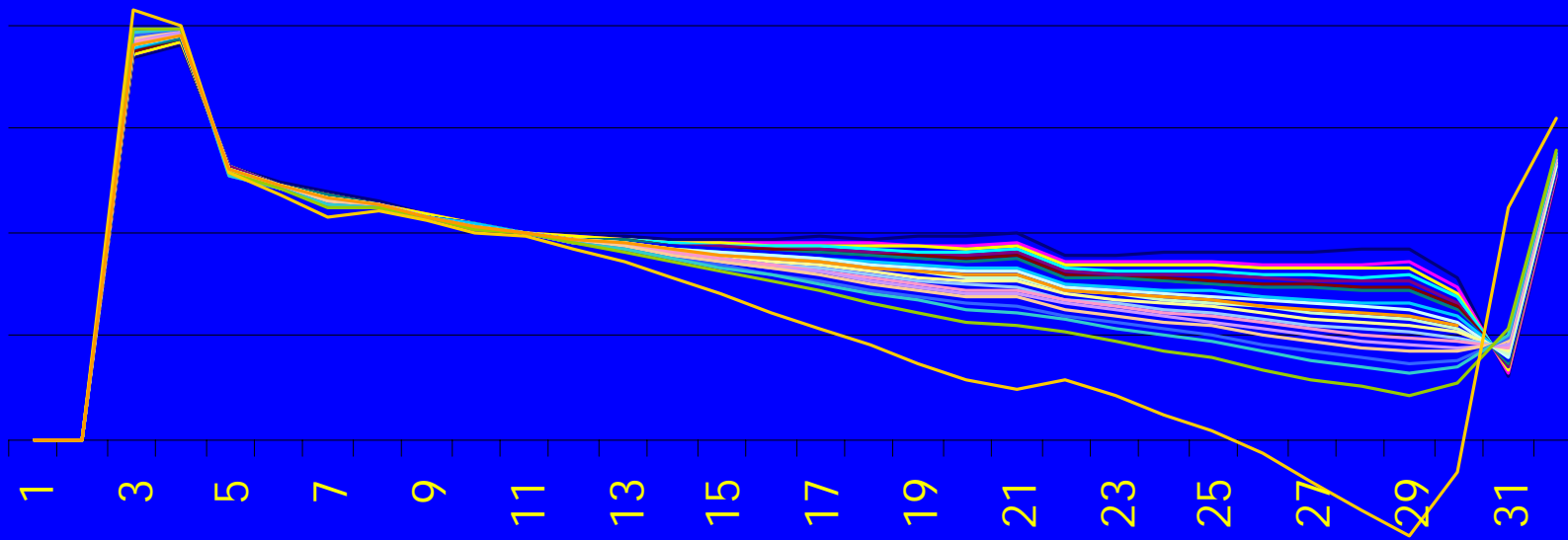
EVAR

How does it work?

- **Liabilities (death, withdrawals, lapses, etc.) And statutory (traditional) reserves are estimated**
- **Asset cash flows based on actual investment portfolio are estimated**
- **Interest rates scenarios are constructed using ARIMA and GARCH models**
- **Present value of cash flow is estimated, as well as, its distribution**

EVAR: See Me, Feel Me

Sobranate anual del negocio



EVAR: See Me, Feel Me

PRESENT VALUE OF FLOWS

Scenario	Re - Investment Rate	Difference vs Expected	Scenario	Re - Investment Rate	Difference vs Expected
25	3.54%	2.28%	275	5.73%	-0.07%
50	3.99%	1.80%	300	5.95%	-0.31%
75	4.16%	1.62%	325	6.19%	-0.56%
100	4.41%	1.35%	350	6.36%	-0.75%
125	4.58%	1.16%	375	6.57%	-0.98%
150	4.74%	0.99%	400	6.80%	-1.22%
175	4.88%	0.84%	425	7.19%	-1.63%
200	5.08%	0.63%	450	7.49%	-1.95%
225	5.28%	0.41%	475	8.18%	-2.69%
250	5.47%	0.21%	500	11.33%	-6.09%
Expected	5.67%	0.00%			
Worst 5th	8.18%	-2.69%			
Best 5th	3.54%	2.28%			

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Embedded Value: Is This As Good As It Gets?

- Embedded Value impact in the customers have been marginal
- Unfortunately, reserves remain at the same level in almost every country
- No cost advantage have been derived
- Fortunately, in México, this starts to change

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Sufficient Statutory Reserves

A new millenium milestone: Mexican insurance laws requires statutory reserves for long - term life insurance to be:

- **Sufficient to pay claims and administrative expenses associated**
- **Determined with methods based in generally accepted actuarial standards**
- **With a legal minimum determined by the insurance commission**
- **Minimum not fixed by law and, therefore, flexible**

That I call “SUFFICIENT STATUTORY RESERVES”

Imagine

Sufficient Statutory Reserves must be gross - premium based and analyze probabilistically every significant variable:

- **All liabilities (death, lapse, partial withdrawals, maturities)**
- **Discount Rates are a combination of Assets held yield and a risk - free rate**
- **Embedded options (loans, premium suspension)**
- **Cash Flow requirements**
- **Interest rate scenarios for free cash flow and Assets Valuation when liquidation is needed**

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Imagine

Sufficient Statutory Reserves must be gross - premium based and analyze probabilistically every significant variable:

- **Inflation not only general, but specifically to coverage costs (for instance, medical)**
- **Dividends**
- **Quality of information: Reliable, homogeneous sufficient.**
- **Documentation, and its suitability for auditing.**
- **The need to make valuation based on a going - on enterprise basis.**

Once I had myself a Million, now I only got a dime

Currency fluctuations and its impact on liabilities must be modeled

- In México, and in most Latin - American countries, dollar - and other currencies - denominated policies abound
- Currency stability improves persistency and reduce local currency cash flow to cover expenses
- Devaluation hurts persistency if sudden and high (<15%)
- Premium suspension and loans will also be affected

All this must be included in any
sufficient statutory reserves model

Enron

We must be careful with proposals, because (incredibly) the Enron affaire will affect them; Fortunes magazine says:

“... Enron's overly aggressive use of mark-to-market accounting ..., which entails pricing securities at their fair value and running gains or losses through the income statement. But in illiquid markets, like those for long-term energy contracts, there's no benchmark of fair value. So Enron often relied on internal models--which creates serious potential for abuse.

“...in 1998 the emerging issues task force, which is backed by the financial accounting standards board, said that energy-trading contracts should be booked on that basis--but the agency included few guidelines for valuing illiquid contracts.”

The Long and Winding Road (Ahead)

Statutory sufficient reserves are close to mark - to - market valuations of liabilities, linkage to Enron will be inevitable

- **Life insurance portfolios, formed by complex contracts, with earnings subject to random items already mentioned**
- **Life insurance portfolios are not traded in liquid markets, so companies lack of benchmarks or guidelines**

Authorities will be careful to authorize the use of sufficient statutory reserves methodologies, so we must be very well prepared to give deep explanations

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The Long and Winding Road (Ahead)

Sufficient Statutory Reserves standard of practice

- **Regulators would prefer more specifics**
- **Must have room for Actuarial Judgement**
- **Continuing Education and Certification Processes are critical**
- **Transparency and simplification are required**

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Conclusions

- **Embedded value brought great advantages**
- **Customers should share them**
- **Sufficient Statutory Reserves are here**
- **Actuaries are well prepared in terms of skills and tools**
- **Main issues: credibility and transparency on our work**
- **Actuarial associations will play a key role in the process**

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