



What Have We Learned in the Last Two Years: We Have Learned Haven't We?

**Industrial-Academic Forum on Financial Engineering and
Insurance Mathematics**

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The Individual Finance and Insurance Decisions Centre

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Fields Institute

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Toronto, Canada

The World Before the “Great Recession”

The insurance industry and most financial services companies benefitted from:

- » Years of relative economic and financial stability
- » Stable growth in revenues and earnings
- » Growing nominal capital levels and perceived favorable capital ratios
- » Widespread access to both debt and equity capital markets almost independent of the company's financial condition
- » A belief that that excess capital levels were common occurrences and economically inefficient
- » Capital deemed excess was used for acquisitions and/or share repurchase

Conventional Wisdom: Good Times Would Continue

- » The Great Moderation had moderated the occurrence of economic cycles
- » Corporate earnings growth would continue
- » Stock prices would consistently rise over at least the medium to long term and were not prone to high levels of volatility
- » Real estate, especially residential, is a stable well performing asset class
- » Appropriately used, leverage can amplify expected returns while adding only modest incremental risk
- » Financial models quantified risk using increasingly complex quantitative models based upon approaches used in other sectors
- » Standard testing exhibited adequate reserves and capital levels when tested for expected market declines
- » Stress scenarios tested exhibited modest declines consistent with then observed recent levels of market volatility

The Common View of the Life Insurance Business Was

- » It is a boring, boring, boring business with nothing exciting happening
- » The industry would exhibit modest growth vs. other financial services sectors
- » Protection products were an unnecessary, old fashioned product since risk levels had markedly declined in the new environment
- » Asset accumulation products, especially equity oriented ones such as variable annuities (VA), were the hot products and the place to be
- » VAs, even while offering ever expanding guarantees, could be effectively managed with modest amounts of required capital and with mid-teens ROEs
- » Banks and investment banks benefitted from more sophisticated risk management personnel and systems leaving insurers to catch up
- » Insurers and insurance were overly conservative for the new environment

The Crisis Arose

- » An overly constrained economic system, like an earthquake fault, accumulates stresses that must eventually be released
 - Economic cycles can not be eliminated
- » The economic environment could no longer support existing financial and other market price levels (housing prices, equity prices, credit spreads, etc.)
- » Markets dramatically corrected
- » Related measures of market volatility and risk rose to almost inconceivable levels
- » Fear and uncertainty nearly overwhelmed the system
- » Trust evaporated from almost any counterparty that was not government backed
- » Sophisticated financial models did not function reliably when their underlying assumptions were no longer valid

The Reaction: Governments Doing Unimaginable Things

- » Massive incremental liquidity was injected to keep the system functioning
- » Government guarantees and/or capital were dispensed to stabilize institutions as well as the entire financial system
- » Stemming fear and uncertainty became a major government policy driver
- » Interest rates were lowered to record lows benefitting borrowers at the expense of savers
- » Trust evaporated from the system
- » Major financial institutions were seized or recapitalized as necessary
- » “Too big to fail” became a common term to describe large financial institutions

Insurance Industry Pressures Included

- » Substantial credit losses, especially from holdings of non-agency residential mortgage-backed securities (RMBS), financial institutions, securities holdings and hybrids
- » Investment income earned declined in response to declining market levels, interest rates and expanded liquidity pools
- » The carrying value of equity holdings (both public and private alternatives) declined reducing companies' capital levels
- » The recession depressed a wide range of insurance product related sales and earnings
- » Access to almost all forms of incremental external capital disappeared for a meaningful time period
- » Availability of adequate corporate liquidity became vital, especially at the holding or non-operating company level

What Were the Primary Causes of These Problems?

- » Modeling and Risk Management
- » Insurers Had Unrealistic Expectations of What is Possible
- » Unrealistic Stress Analyses
- » Multiple Realistic Alternatives Are Required For Stress Period Planning
- » You Can't Have It All – Strong Risk Management May Well Reduce Returns and Financial Flexibility Options
- » Inadequate Liquidity is Especially Dangerous
- » Both Short Term and Long Term Financial Strength Are Vital to Insure a Company's Long Term Survival
- » Compensation Matters a Lot
- » Capital Management Efficiency Is a Very Sharp Tool
- » Declining Equity Markets

Modeling and Risk Management

- » Heavy reliance upon complex models with limited real world testing
 - Equally true for both investments owned (RMBS based structured investment products) as well as insurance products issued (VA with extensive guarantees)
- » Modeling assumptions were based upon experience from a overly benign sample period
- » Tail risk was not adequately addressed – a 95% confidence interval might have been considered adequate stress testing – which means a 2.5% chance of failure
- » Inadequate understanding of consumer behavior changes in different environments
- » The effect of feedback loops in the economy and markets were not sufficiently recognized as part of the risk management process
 - Resulted in an accumulation of unexpected levels and diversity of risks

Modeling and Risk Management (continued)

- » Measurement, identification and management of risk can not be precise since we are dealing by definition with unknowns
 - Risk management systems supplied spurious levels of accuracy in their analyses, misleading users regarding the level of risk being assumed
- » The more sophisticated the risk management systems in place, seemingly the worse the company or industry did during the crisis (examples are commercial and investment banks, financial guarantors)
- » Additional difficulties exist in dealing with non-quantifiable risks such as changing regulatory requirements and financial reporting models
- » **However, through it all, the life insurance industry performed better than numerous other financial service industries that were more seriously effected**

Insurers Had Unrealistic Expectations of What is Possible

- » Market participants believed that they could earn favorable returns while remaining exposed to modest levels of business risk
 - This is not a realistic objective for either insurers or their clients
 - Increasing returns are normally related to increased levels of risk, both for clients and insurers
- » Markets are assumed to be rational, liquid and continuous
 - This presumption can leave companies exposed to substantial risk when and if these conditions no longer hold, especially related to VA product guarantees
 - The May 6 equity market “flash crash” is but the latest and most extreme example of markets behaving in unexpected ways
 - The need for hedges being sold into declining markets is a serious potential future risk, both to the companies that need these hedges as well as to the overall financial system

Unrealistic Stress Analyses

- » Have market movements and other assumptions been benchmarked over a sufficiently robust time frame?
 - Shorter time periods may be appropriately used for pricing purposes, but are inadequate for extreme event risk management analysis purposes
 - If assumptions consistent with older historic periods are different then those currently assumed, what are the potential consequences if historic measures return?
- » Might have the worst case scenario, as well as it's resulting consequences, been underestimated?
 - If so, what could the effect of this be on the organization? Painful but manageable or catastrophic are two very different things.
- » Unfavorable event correlations become extremely high during stress periods
 - In such cases diversification benefits are much less helpful then expected (these periods are consequently often referred to as the “perfect storm” but they seem to be quite common in fact)

Multiple Realistic Alternatives Are Required For Stress Period Planning

- » One or two realistic alternatives for use during stress periods is inadequate
- » Alternatives under consideration should not be exclusively based upon the same set of underlying and possibly incorrect economic and financial assumptions
 - “If we can’t issue long- term debt to refinance our maturing debt, we will issue commercial paper or borrow from the banks instead”
- » The greater the quantity and independence of the various alternatives, the better
 - You can’t have too many options during stress periods
- » Ideally these alternatives are solely under your organization’s control and should not be dependent upon the actions of third parties with their own objectives
 - Dependence upon the support of others can result in substantial successful execution risk
 - Independent alternatives are dividend cuts, suspension of stock repurchases, some asset reallocations, etc.

You Can't Have It All – Strong Risk Management May Well Reduce Returns and Financial Flexibility Options

- » Strong risk management will likely reduce company returns earned during favorable economic periods
 - More equity, less financial leverage, reduced investment risk all serve to reduce a company's profitability during favorable environments
- » Strong risk management will likely constrain the design and amount of product the company can market
 - More aggressive companies can capture increasing market share during favorable periods although they may pay a price for this during market downturns
- » Companies with strong risk management are often considered conservative laggards during favorable economic periods
 - Their benefit comes during economic downturns which are unpredictable in timing but always do eventually occur

Inadequate Liquidity is Especially Dangerous

- » The companies at greatest risk were those with attenuated liquidity positions
 - AIG Financial Products, as well as all of AIG, was brought to brink because they did not have adequate liquidity to meet their rapidly expanding obligations
- » Poor liquidity can be especially problematic at holding companies where access to liquidity becomes more readily constrained
 - Relatively short debt maturities (less than two years) can be dangerous at a holding company unless there is available ironclad resources available for the debt repayment
 - Insurance operating companies can have similar problems but they are considerably less likely due to their substantial liquid securities holdings
- » Investment illiquidity can be important, but is generally of less concern than potential liability driven liquidity demands
 - Maturing/surrendered GICs/FANIPS, securities lending, commercial paper, etc. can quickly result in a substantial strain on a company's liquidity profile

Both Short Term and Long Term Financial Strength Are Vital to Insure a Company's Long Term Survival

- » A company could be adequately financially positioned for the long run, but its short term financial position may still not let it reach the long run
- » Conversely a strong short term financial position can give a company sufficient headroom to possibly recover from a weak long run strategic position
- » Reported financial results (GAAP and statutory) may or may not fully and appropriately reflect the company's financial position, but they are vital and highly public measures of a company's fortunes
- » The public's perception of a company's degree of financial strength may be every bit as important as its actual financial strength

Compensation Matters a Lot

- » Compensation schemes often encourage growth and profitability at the expense of soundness and stability
- » The compensation scheme should be appropriately balance and neither overweight nor underweight risk management
- » Effective risk management has to have an important role in the compensation scheme
- » Compensation schemes, especially for the most senior managers, needs to reward long term performance, the longer the period better
- » The compensation scheme should encourage only the behavior that the company wants to see exhibited

Capital Management Efficiency Is a Very Sharp Tool

- » Many, if not, most companies view capital, especially equity, as a production input whose use should be minimized
 - Companies are always trying to optimize (limit) their required capital positions
 - Companies have managed their capital position through share repurchases, business acquisitions and shareholder dividends
- » Unnecessary capital is always a lot easier to eliminate than capital can be obtained when needed
 - Capital markets may not be available when most needed so make sure you have enough for any reasonably possible contingency
- » Companies that demutualized for improved capital access typically did not want to access equity capital unless it was necessary
- » Hybrids can be an especially risky form of capital since issuers view them as equity but investors think of them as debt, leaving lots of room for misunderstandings

Declining Equity Markets

- » Declining equity markets impacted companies in a number of different ways:
 - For directly owned investments, reduced asset carrying values, reported investment income, realized capital gains and resulting company capital position
 - For equity based products reduced AUM and related product fees and income
 - Write-offs of deferred acquisition costs not fully recoverable from related product revenues
 - For equity based products with guarantees increased required statutory reserves and capital requirements
- » Large VA writers were especially hard hit by declining equity markets
 - In addition to the above, the increased need for, difficulty of executing and increased cost of hedging further compounded their problems

Common Insurer Responses

- » Redesigning/repricing/eliminating products, especially those offering equity related guarantees
- » Improving liquidity: dividend cuts both to policyholders and shareholders, suspension of share repurchase programs, and FHLB advances
- » Cost cutting: staff, new initiatives, technology, marketing
- » Reduced sales and related expenses
- » Reducing investment risk: sales of equities, high yield debt, and real estate
- » Permitted statutory accounting practices and rule changes
- » TARP capital issuance
- » Public capital raises (debt and equity) when markets reopened

What Am I Worried About Today

- » Can VA risk be adequately managed through dynamic hedging programs?
 - Will market discontinuities instead lead to eventual high profile hedge program failures?
- » Some investment markets have been meaningfully recovered already: are the prices of these assets the next correction waiting to happen?
- » Extraordinary low levels of interest rates means a heightened level of substantial future interest rate increase risk
- » Flood of liquidity and government borrowing leading to substantial inflation in a few years
- » Will the economy recover to more normal employment levels over a reasonable time frame?

A. Fliegelman & Associates, LLC

A. Fliegelman & Associates is an independent consulting firm specializing in insurance related matters. The firm areas of focus include assisting clients insurance company clients and other interested parties in:

- *making the company's risk management process effective and comprehensive;*
- § *facilitating rating agency relationships to positively impact the agency's view of the issuer; and*
- § *optimizing investor relations financial materials so as to maximize their usefulness to the investment community.*

The firm's principal, Arthur Fliegelman, has had over a decade of experience at Moody's Investors Service as being the lead credit analyst for a portfolio of many of the largest life insurers in the industry as well as another decade as a research analyst at Salomon Brothers specializing on a wide range of insurance related issues. The firm can be reached at 732-651-6697 or fliegelman@usa.net.