RISKS and REWARDS

The Newsletter of the Investment Section of the Society of Actuaries

NUMBER 39 MAY 2002

Opportunities at the FHLB Advance Window

by Anson J. (Jay) Glacy, Jr.

This article has been prepared from original sources and data believed to be reliable, but no representation is made as to its accuracy, timeliness or completeness. Please consult with your investment professionals, tax advisors or legal counsel before relying on this material.

Recent passage of the Gramm-Leach-Bliley Act increased the access that insurers have to low-cost loans (called "advances") offered by the individual banks of the Federal Home Loan Bank (FHLB) system. This article describes the general features of how advance programs work, their potential benefit to insurers and key issues that need to be considered.

About the Federal Home Loan Bank System

Congress established the Federal Home Loan Bank (FHLB) system in 1932 to enhance liquidity in the residential mortgage sector by providing a low-cost source of funds to its member institutions. As government-sponsored enterprises (GSE), the FHLB Banks are federal instrumentalities specifically authorized to carry out federal housing policy. The system comprises twelve

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Risk Management Best Practices

by David N. Ingram

Author's Note: This article was reprinted from the SOA Risk Management Best Practices Seminar on December 5-6, 2001.

Best practice principles are well-established for risk management in banks. In addition, in the UK and Canada, best risk management practices are evolving that apply equally to banks, insurance companies and other financial services enterprises. The US life insurance industry is just beginning to talk about risk management best practices. By going last in approaching this idea, the US gets to look at the paths that have been blazed by others before choosing its course.

Risk management in banking has evolved over the past 15 years. Early in that period bank regulators expressed the strong feeling that the ad hoc approach risk management practiced in the banking business was not adequate. The business of banking was becoming more and more complex due to the steady increase of the use of derivative instruments. In addition, banks were among the losers in the junk bond market. Banks were

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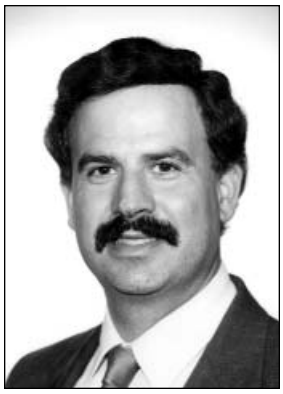
Editor's Column...
Looking Ahead...

by Victor Modugno

With this issue, we are turning over a new leaf at *Risks and Rewards*. When Tony Dardis resigned as editor last year to pursue a job assignment in South Africa, the Investment Section Council was faced with the task of finding a substitute for the irreplaceable Tony. While the remaining two editors were willing to pick up the slack, the Council felt it would be better to have three editors to produce three high-quality issues of *Risks and Rewards* each year. So it was decided to rotate in an associate editor for one issue each year. The role of associate Editor is not well defined. In my ten years as associate editor, I have never edited anything. The associate editors are really writers. If you write enough articles for *Risks and Rewards*, you'll be invited to become an associate editor. Under this new rotation program, the associate editors will be given the opportunity to edit an issue. For next year, Joe Koltisko, who is a member of the Council, will rotate in; and in 2004 Ed Martin will be an acting editor for one issue.



Victor Modugno

When we originally started this issue, the focus was to be on the Investment Actuary Symposium and the Risk Management Seminars that took place at the end of last year. This issue includes articles from these seminars. However, we expanded the focus to include all continuing educational opportunities sponsored by the Investment Section. See the Chairperson's Corner for dates and venues for seminars this year. This issue also includes the latest speaker information for Investment Section sessions at the spring Society of Actuaries meetings (descriptions of the sessions can be found on soa.org). For the annual meeting, session descriptions and speaker information are included for Investment Section sessions.

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This newsletter is free to Section members. A subscription is $15.00 for nonmembers.
Current-year issues are available from the Communications Department.
Back issues of Section newsletters have been placed in the Society library.
Photocopies of back issues may be requested for a nominal fee.

Chairperson's Corner
Continuing Education

by Max J. Rudolph

The theme for this issue is continuing education (CE). Before discussing the growth opportunities the Investment Section will be offering its membership this year, I want to share a recent experience. The Association for Investment Management and Research (AIMR) is seeking to add mandatory CE as a requirement to maintain a CFA charter. The time commitment in question is 20 hours per year, which is well under five minutes per day. I am surprised at how contentious this issue can be. I consider CE essential to personal growth and a requirement for anyone who claims to be a professional. To view CE requirements as a nuisance is a risk to one's own professional capabilities. It also allows the public to question the credibility of the organization's professional standards. The American Academy of Actuaries has developed CE requirements for use in certain situations, but the Society of Actuaries currently has none beyond what is required for compliance with Actuarial Standards of Practice. In the next few years I expect to see an effort to require a modest amount of SOA-sponsored CE, and I hope our members will view it as a small price to build and maintain the FSA brand.

I'm excited about the CE opportunities the Investment Section is involved with in 2002. The Investment Section is sponsoring numerous sessions of current interest at the spring and annual meetings, including a joint lunch in San Francisco with the Pension Section and a joint reception in Boston with the Financial Reporting Section. Thanks to Mark Bursinger and Joe Koltisko for coordinating these efforts. The section is also sponsoring four additional seminars this year. An ALM seminar will be co-sponsored with Wharton July 16-18 on their campus in Philadelphia. This year's faculty includes Craig Merrill, Jeremy Gold, Neil Doherty, Jean Lemaire, and Alexander Muerman. While this seminar is more expensive than most, the return ratio is high. The eager student will come away with ideas that will change their career path. I found this to be true when I attended in 1996, and the industry continues to implement ideas that were first exposed to me at that time. The Investment Actuary Symposium will return for the third year in Chicago on November 7-8. After last fall's successful single-track program, the 2002 program returns to a three-track schedule with an exhibit hall. Topic and speaker suggestions can be forwarded to the co-chairs, Frank Sabatini and me, at our yearbook addresses. Next year the IAS will be co-sponsored by the CIA and will be held in Toronto November 13-14, 2003. Dave Ingram and Larry Rubin will co-chair two risk management seminars, to be held in New York December 4-6. The beginning and advanced sessions will appeal to distinct audiences, but both are expected to be well attended with knowledgeable speakers.

> "I consider CE essential to personal growth and a requirement for anyone who claims to be a professional."

Max Rudolph

One of the best features of live conferences is the networking that is available. Nowhere else do you find as many experts in the same place. Who knows, you might even make a new friend!

The Investment Section Council is also looking into the possibility of alternative continuing education, possibly including webcasts or CD ROM's. Please let a council member know of topics that you think might work in this venue.

By the way, in case there was any doubt in your mind, I voted for the AIMR continuing education initiative.

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Opportunities at the FHLB...

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regional banks, each of which is a privately owned, federally chartered corporation with specialized lending powers. The charters of the banks also give them special benefits, like exemption from registering their securities with the Securities and Exchange Commission and exemption from state and federal taxation (apart from statutorily mandated REFCorp obligations). Most important the implicit credit guarantee of the federal government permits the banks to borrow at rates comparable to U.S. Treasury obligations and thereby make advances to their own borrowers at highly attractive rates.

Benefits of FHLB Advances

FHLB advances, in the forms of fixed- and adjustable-rate loans, can help qualifying members in a number of ways:

- As a ready source of liquidity;
- To lower overall cost of funds;
- To grow the balance sheet;
- To manage their interest-rate risk profile; and
- To enhance investment income.

For insurers, the liquidity benefits of FHLB advances can:

- Lessen dependence on existing liquidity facilities;
- Reduce cash balances and permit them to be more fully invested;
- Help insurers more confidently manage transient cash flow dislocations;
- Provide liquidity that enables investment in less liquid but higher yielding assets; and
- Permit extension on the yield curve with commensurate yield pick-up.

For annuity writers in particular, FHLB advances can be an attractive and capital-friendly source of funds.

Dimensions of the Program

While utilization levels vary widely among members, the average outstanding advance as of December 31, 2000 was about 7.5% of assets. System-wide, FHLB advances to members totaled $473 billion at December 31, 2001, having grown at a 24% annual rate since 1995. Collectively, FHLB banks comprise the third-largest U.S. financial institution, behind Fannie Mae and JPMorgan Chase.

> ‘the FHLB banks are Federal instrumentalities specifically authorized to carry out federal housing policy.’

As of December 31, 2001, 57 insurance companies had joined and 31 were active borrowers. These 31 borrowers accounted for $3.1 billion in outstanding advances.

Membership Requirements

Only duly regulated companies subject to U.S. law and regulations can become FHLB members. These include insurance companies, banks, thrifts and credit unions. Only an insurance entity that files a statutory statement with its governing state insurance regulator can make an application for membership. Application cannot be made at the holding-company level. While each bank manages its advance program differently, a candidate insurer generally must demonstrate a sound financial record in order to join its regional FHLB Bank. The candidate may need to exhibit favorable profitability trends and/or possess sufficient capital strength.

To access FHLB advances, a member must first purchase FHLB bank stock in the amount of 1% of its residential mortgage loans and then pledge high-quality mortgage or other real estate-related assets as collateral for the desired advance. While available collateral will dictate the limit on the borrowing capacity possible, the FHLB bank will ultimately determine the maximum term and amount of any advance it decides to extend to a particular member. Currently, borrowing members must hold FHLB stock of at least five percent of outstanding advances or 1% of its residential mortgage loans, although Gramm-Leach-Bliley-mandated recapitalization requirements among the banks may liberalize this requirement. For example, proposals under consideration may reduce the amount of FHLB stock required for membership from the 1% level to as little as 0.2%, depending upon the particular Bank.

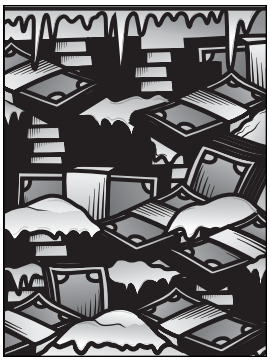
Most banks, upon request, will provide a helpful package containing forms for membership application and instructions for computing the required amount of FHLB capital stock that must be purchased and the borrowing limit. In addition, the package may include a draft Board of Directors resolution and other legal documents. A number of the banks have customized these forms for use by insurance companies. Typically, a two- to eight-week period transpires from date of bank membership application to ultimate disbursal of advance funds. Once funds have been advanced, the banks will require collateral and financial reporting on a regular basis.

Characteristics of FHLB Common Stock

Each FHLB bank issues its own shares of common stock. These are classified by the NAIC as unaffiliated common stock on Schedule D of the statutory statement. The shares are non-marketable and can only be redeemed at par by the bank. Each bank sets its own dividend scale. Dividend rates on FHLB stock historically have averaged between 5% and 8%,

depending on the particular bank. Currently, five banks pay stock dividends and the remaining seven banks pay cash dividends. For insurers, stock dividends are recorded as increases in ownership on the statutory statement.

Under Gramm-Leach-Bliley-mandated recapitalization requirements, banks are changing the structure of their common stock in order to establish a more permanent and modern capital structure. For some banks, common stock will be redeemable only upon giving five years notice to the bank. However, banks are expected to redeem stock that becomes "excess" as a result of a decrease in a member's total assets or as a result of normal repayment or prepayment of advances. As of this writing (April 1, 2002), only the Seattle Bank had had its recapitalization plan approved by the Federal Housing Finance Board.



Structure of Advances

Each bank offers and manages its own brand-name program of advance products. Banks customize advances to meet the specific financing needs of members using a variety of interest conventions and cash flow and amortization schedules. Some banks can also embed a variety of derivative-like features (like rate caps) into the advance structure. Floating-rate advance rates typically approximate LIBOR (the London Interbank Offered Rate, which is the rate most major international banks dealing in Eurodollar currency charge each other for large loans). Advances at other maturity points can be obtained, depending on the particular objectives of the member. Advances are usually prepayable, subject to a prepayment penalty that compensates the bank for economic and back-office costs involved.

Pricing of Advances

FHLB banks raise money by selling debt securities to institutional investors, like insurance companies. These bonds are rated Aaa/AAA by Moody's and Standard & Poor's, respectively. Their ratings enable the banks to issue debt at just slightly higher rates than Treasury bonds. The FHLB Office of Finance acts as the central debt issuance facility for all 12 banks. The banks then advance funds to member institutions at lower rates than available in the commercial market and at small spreads over comparable Treasury instruments. For example, on the afternoon of April 1, 2002 the Bank of Des Moines offered a LIBOR-based floating advance at 2.22%, 19 basis points above three-month LIBOR and 43 basis points above the comparable Treasury bill rate. At the five-year point on the curve, advances from the Des Moines Bank have been priced at an average 58 basis points above Treasuries over the past 10 years.

Banks also offer members a variety of discounts from "standard" rates. These range from lower rates on jumbo advances to preferential pricing to institutions that participate in local community investment programs. Some banks offer discounts for seemingly eccentric reasons, such as "mid-week specials."

RBC Treatment

Currently, FHLB common stock held by life and health insurers is treated like Class 1 Preferred Stock for RBC purposes. Insurers usually record the liability for an FHLB advance as borrowed money in the statutory statement. Alternatively, the advance can be considered to be a deposit structured in the form of a funding agreement and recorded in insurance liabilities.

Currently, borrowed money receives no RBC charge while a funding agreement would follow the treatment for deferred annuities and GICs.

Considerations for Insurers

Regulator Receptivity - Research indicates that most regulators are unfamiliar with the issues surrounding FHLB advances due to their recent advent. One key issue that has arisen relates to standing of the advance. Some banks' standard membership applications require that a full lien against pledged collateral be assigned to the bank. Some insurance regulators have found this to be unacceptable when funding agreements are employed as advance vehicles. These regulators have sought modification to legal documents stating that the bank has no legal rights as a policyholder.

Crowding Out - Insurance investment law varies by jurisdiction and between life and health and property and casualty companies. Insurers with substantial advance positions may find themselves growing out of their equity baskets. This may either restrict investing latitude for companies contemplating positions in other common stock or limit the amount of their desired FHLB advance position.

Custody - The 12 district banks have differing views on the custody of pledged collateral. They range from all collateral being pledged at the bank's custodian to a simple line entry on the member's books. These rules may vary depending upon the financial strength of the particular member.

Separate Accounts - Companies with substantial variable annuity and life business lines may find themselves in a disadvantageous FHLB advance position. For membership purposes, the typical one-percent-of-assets requirement including separate account assets may constitute an unacceptably large commitment to FHLB stock. At the same time, such companies might want these assets considered for determination of eligible collateral (irrespective of the custody issues that may be involved). FHLB banks and the governing Federal Housing Finance Board are currently addressing this issue.

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Risk Management Best...

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given the clear impression that they had the choice of either taking the first step in providing standards for risk management or waiting to see what the regulators proposed. The banks chose to act. A group of representatives of 30 of the largest banks formed the "Group of Thirty". The 1993 G30 report on risk management became the first set of standards for bank risk management practices.

G-30 Risk Management Report

1. Risk management policies set by Senior management
2. Mark to market
3. Market valuation methodology
4. Identify revenue sources
5. Measure market risk
6. Stress simulations
7. Cash flow forecasts
8. Users and dealers should all use the same risk management techniques
9. Measure credit exposure
10. Aggregate credit exposures
11. Standardized master agreements
12. Independent risk management function
13. Use of credit enhancements
14. Promote enforceability
15. Professional expertise
16. Adequate systems
17 Clearly delineated authority

The G30 report made 24 recommendations for banks that were a mixture of common sense and high-tech approaches to the risk management problems as they saw them at that time. They addressed the problems of market and credit risks faced by banks. Many of their recommendations related to derivatives. At the time they were working on these principles, derivative contracts were not even clearly legally enforceable!! There was a long way to travel from unenforceable contracts to a fully risk-managed industry. The recommendations made by that group have held up over time, and with the subsequent changes in the financial marketplace, are still considered the base for all further risk management systems in banking.

FRB Field Audit Manual for Bank Holding Companies

FRB Field Audit Manual for Bank Holding Companies

1. Board approval of RM policies
2. Senior Mgt responsible for risk mgt
3. Independent risk mgt function
4. Comprehensive & accurate risk measurement system
5. Risk limits
6. New product review
7. Stress testing
8. Portfolio based standards
9. Management evaluation & review of risk management
10. Comprehensive internal controls

The G30 principles were quickly incorporated into the regulatory procedures. The 1994 Federal Reserve Board audit manual for bank holding companies has over 100 pages of instructions relating to the review of risk management practices in various areas of bank holding company activities. The manual says that "the review of risk management and internal controls is an essential element of the inspection or examination of trading activities" and that "many of the managerial practices and examiner procedures contained in this guidance are fundamental and are generally accepted as sound banking practices for both trading and non-trading activities."

In 1995, the unthinkable happened in England. Barings Bank, one of the oldest and largest banks in the U.K., unexpectedly recognized losses in trading activities in a Far Eastern office that erased all of the capital of the bank and led to Barings closure. The story of how one rogue trader brought down the venerable Barings Bank is well known. In 1995, the Bank of England issued a report about the Baring' failure. That report included recommendations for forestalling future situations. While the G30 and FRB risk management principles focused on a numerical-based risk management system, the Bank of England report focus was on the personal aspect of risk management. risk management reports flowing from these principles were primarily a list of names and areas of responsibility. These recommendations began the evolution of risk management standards in UK financial services.

The largest banks all operate on an international scale and are regulated on an international basis. That regulation originates from the Bank of International Settlements (BIS) that is headquartered in Basel, Switzerland. BIS reports have been issued on international standards for credit risk management, interest rate risk management, derivatives disclosure, stress testing, and risk concentration. The interest rate risk management principles summarized above were issued in 1997. These principles may look very similar to

Bank of England Report on Barings Bank

1. Management has duty to understand all bank activities
2. Clear responsibility for each business activity
3. Clear segregation of duties
4. Relevant internal controls
5. Quick resolution of weakness

Basel Interest Rate Risk Management Principles

1. Board responsible for risk Management
2. Senior Management to create risk management structure
3. Senior management responsible for risk management effectiveness
4. Clearly defined policies & procedures
5. Identify all material risks
6. Apply risk management to new products & ventures
7. Set and enforce risk limits
8. Perform stress testing
9. Risk information systems
10. Internal control system

the FRM manual guidelines. Often the Basel committees are chaired by and/or have several members from the US Federal Reserve Bank.

Even with these well-articulated and universally accepted risk management principles, a major debacle developed in U.S. banks in 1998. The hedge fund Long Term Capital Management (LTCM) was failing and 25 of the world's largest banks were holding various forms of IOUs from the hedge fund. The problem was seen to be so large that the Federal Reserve thought that an unmanaged failure of LTCM could endanger the stability of markets. In the aftermath it was found that LTCM had worked around several of the basic risk management principles that banks had been following. The Counter Party Risk Management Policy Group produced a report analyzing the additions to risk management procedures that were needed to prevent a recurrence of an LTCM type problem. These additional principles focused primarily on the amount of exposure that LTCM had with each of the banks. In addition, the report recommends that exposures be calculated based on a liquidation (bankruptcy) type situation. Banks that were applying these ideas and focusing on their largest exposures and the ability of those counter parties to produce the cash to settle their positions while under duress may have been the ones who escaped large losses from the Enron bankruptcy.

In the UK, the Institute of Chartered Accountants formed a committee to articulate a systematic approach to the risk management problem. Their approach was not specific to banks or financial services but applies to all companies in all industries. The committee was chaired by Nigel Turnbull and came to be known as the Turnbull Report. Unique to this report is the idea that a risk management control system should have cost-benefit logic applied to it.

In Canada, the Office of the Superintendent of Financial Institutions regulates federal banks, insurance companies and pension plans. In 1998, OSFI issued a series of guidelines under the heading "Standards of Sound Business Practices." These guidelines were issued regarding credit risk, interest rate risk, foreign exchange risk, liquidity risk and liability risks. Earlier (1995) guidelines had dealt with derivatives best practices. Those standards generally follow along with the bank practices, but specifically add legal, operations and systems risk management to the list of worries. In addition, OSFI has documented underwriting and liability standards of practice.

CRMPG Report on LTCM

1. Counter party information sharing
2. Confidentiality of shared information
3. Monitoring leverage, market risk and liquidity levels of counter parties
4. Appropriate level of risk management expertise
5. Liquidation-based estimates of exposures
6. Stress testing
7. Collateral to/from counter parties
8. Valuation & exposure management
9. Senior management responsibility
10. Large exposure risk reporting
11. Regular analysis of risk concentration
12. Risk management model assumptions understood by senior mgt

Turnbull Report

1. Risk management is the collective responsibility of the whole board
2. Firms should have a sound system of internal controls in order to safeguard shareholders interests and company assets
3. Need for board to review controls at least annually
4. Risks should be regularly assessed
5. Assessment should include risk management, operation and compliance as well as financial controls
6. Board review should include:
   - Nature & extent of the risks of the company
   - Extent of acceptable risks (risk limits)
   - Likelihood of risks
   - Company ability to reduce incidence & impact of risks
   - Cost / benefit of controls
   - Effectiveness of control systems
   - Effectiveness of risk mgmt actions taken

In 1999, OSFI published their supervisory framework. This document explains the interrelationship of the regulatory review of risk management and control of a company with the general supervisory framework. The OSFI framework includes both strategic and operational risk along with the financial risks addressed by the other standards summarized above.

Currently, the UK Financial Services Authority (FSA) is developing a complete revision to their regulatory approach to banks, insurance companies, investment managers, and advisors that is based on category of risk rather than on industry. Their intention is to regulate each risk the same regardless what type of company has that risk. The FSA expects each insurance company to

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Risk Management Best...

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OSFI Standards of Sound Business Practices

General Risk Management Principles

1. Documented policies and procedures
2. Management involvement
3. Board involvement
4. Internal inspection
5. Legal issues
6. Operations and systems risk

Management of Market Risk

1. Exposure limits
2. Measurement of market risk
3. Defined uses of market instruments
4. Value at risk for unhedged positions
5. Simulations of historical events and future possible events
6. Frequent measurement

Management of Credit Risk

1. Exposure limits
2. Measurement of credit risk exposure
3. Netting
4. Settlement risk
5. Liquidity risk

establish a separate independent "risk assessment" group with underwriting, claims, actuarial, accounting and legal expertise to report directly to the board on insurance risks. In addition, to their modules on credit, liquidity, market and operational risk, the FSA has identified a "group risk."

Group risk is the risk to a firm arising from its membership in a group of companies. For insurers, this new approach will be a major change in emphasis on risk management. The *Integrated Prudential Sourcebook* containing all of these new risk-based guidelines is due to be published in December 2002. The FSA expects to begin to use the risk assessment approach to direct their audit activities by June 2002 and the entire approach will be effective by 2004.

Operational risk is the final frontier of bank risk management. The banking regulators have been working to impose a new system on banks that requires that they develop and install an operational risk management system comparable to the systems that have been developed for market and credit risks. Banks that do not comply with the new operational risk management requirements will have to continue to hold a large surcharge on their other risk capital for operational risk. Specifics of those operational risk management systems have not been spelled out and it is doubtless that standards emerge as the various banks and the companies serving bank risk management needs develop the systems.

For further information on these best practice reports:

1. Jurion, Philippe; Financial Risk Management Handbook, 2001-2002, Wiley Finance, 2001. Pages 637-648.

2. Crouhy, Michael; Galai, Mark; Mark, Robert; Risk Management, McGraw-Hill, 2001. Pages 1 - 91.

3. Group of 30 (1993), Derivatives: Practices and Principles. New York: Group of Thirty. On the Internet at *www.risk.ifci.ch* .

OSFI Underwriting & Liability Risk Management

OSFI Underwriting & Liability Risk Management Risk Selection

1. Identify risks
2. Product design
   - Limits to risks & options
   - Risk / Return characteristics
3. Underwriting Policies
4. Expectations of Claims
   - Size, Type
   - Frequency

Monitor & Control Risks Assumed

1. Risk Reporting
   - New risks assumed
   - Changes to existing risks
2. Approval Limits
3. Risk Limits
4. Control Process
   - Limits are followed

Claims Management

1. Approval process for claims
2. Claims reports

OSFI Supervisory Framework

Risk Management Control Functions

1. Operational Management
2. Financial Analysis
3. Compliance
4. Internal Audit
5. Risk Management
   - Identification of risks;
   - Measurement systems for risks;
   - Policies and procedures to manage risks;
   - Risk tolerance limits;
   - Monitoring of positions against risk tolerance limits;
   - Reporting of risk monitoring results to senior management & the Board;
6. Senior Management
   - Effective organizational and procedural controls
   - Ensure compliance with approved policies & procedures;
7. Board of Directors
   - Ensure management is qualified and competent;
   - Review and approve organizational and procedural controls;
   - Ensure principal risks are identified and appropriately managed;
   - Provide for an independent assessment of management controls.

4. Bank of England (1995) Report of the Board of Banking Supervision Inquiry into the Circumstances of the Collapse of Barings, London: HMSO Publications. On the Internet at *www.risk.ifci.ch* .

5. Counterparty Risk Management Policy Group (1999), Improving Counterparty Risk Management Practices, New York: CRMPG. On the Internet at *www.counterparty.org.*

6. Committee on Banking Supervision (1997), Principles for the Management of Interest Rate Risk, Basel: On the Internet at *www.bis.org.*

7. Board of Governors, Bank Holding Company Supervision Manual (1994), Washington: Federal Reserve Bank Board of Governors. On the Internet at: *www.federalreserve.gov/boarddocs/supmanual/.*

8. Internal Control Working Party (Nigel Turnbull, Chair), Internal Controls: Guidance for Directors on the Combined Code, London: Institute of Chartered Accountants. On the Internet at *www.icaew.co.uk.*

9. Office of Superintendent of Financial Institutions Canada, Standards of Sound Business and Financial Practices (1998), Ottawa: OSFI. On the internet at *www.osfi-bsif.gc.ca* .

10. Office of Superintendent of Financial Institutions Canada, Supervisory Framework 1999 and Beyond, (1999), Ottawa: OSFI. On the Internet at *www.osfi-bsif.gc.ca* .

11. Financial Services Authority, Integrated Prudential Sourcebook (2001), London: Financial Services Authority. On the Internet at *www.fsa.gov.uk.*

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FSA Draft Integrated Prudential Sourcebook

1. Written policies on market, credit, liquidity, operational and insurance risk identification, measurement and control.
2. Adequacy of premiums
3. Appropriate matching of assets and liabilities
4. Appropriate stress and scenario testing
5. Counterparty exposure limits for all transactions including reinsurance and credit enhancement
6. Assessment of risk management process by operationally independent, qualified person

Terminal Funding and Stable Value GICs

by Victor Modugno

Editor's Note: The following is a summary of Session 9PD at the Society of Actuaries annual meeting in New Orleans last October. The audiotape for this session was defective and no transcript was available for publication in The Record*. Terminal funding (purchase of annuities by pension plans, usually at plan termination) and stable value GICs (usually issued to 401(k) plans for accounts where principal and interest are guaranteed) became major product lines for several life insurers in the 1980s. Since that time there have been significant changes in these products, their markets, and the regulatory environment. The purpose of this session was to update the two award-winning papers that were published in the* Transactions of the Society of Actuaries *that provided complete descriptions of these products - the GIC, by John D. Stiefel III (1984, Vol. 36) and Terminal Funding by Victor Modugno (1986, Vol. 38). The Presenter for Terminal Funding was Robert M. Goldboom, FSA, CFA, Senior Vice President at AIG while the presenter for GICs was Paul J. Donahue, FSA, CFA, Product Initiatives Counsel at INVESCO Institutional. Paul also has a Ph.D. and a law degree from Yale University.*

Terminal Funding

There has been little change in pricing methodology since the mid-1980s, other than to update mortality. Tax, regulatory and accounting changes have significantly reduced the amount of business and number of life insurers participating in this market in the 1990s, although business appears to be increasing recently. Most of the consultants and brokers who were placing this business in the 1980s are still around. The original paper can be accessed on the Internet at *www.soa.org/library/tsa/1980-89/TSA86V389.pdf.*

As part of a project for finding an index to replace the 30-year Treasury in pension calculations, a survey of terminal funding pricing of 11 companies currently in this market was completed. This survey is available at *www.soa.org/sections/dbpp.pdf* (p. 4 *ff.*). Of the ten companies participating, most used a duration-based rate from their investment area. Two used spot rates, while one used the same rate for all cases. Gross rates were reduced for capital charges and overhead. Administrative expenses, primarily consisting of per life charges of $200 to $300 were similar for most companies. Premium tax and commissions were added if applicable. Mortality assumptions ranged from '83 Basic to '94 GAR to RP2000. Most projected mortality through the current date, which lessened the differences. A few companies used a different table for "blue collar" groups. Early retirement was priced using rates based upon expected group experience.

> 'The accounting changes that went in the late 1980s, combined with the stock market boom of the 1990s, led companies using pension funds to manage their reported quarterly earnings.'

There were several reasons for the decline in terminal funding annuity purchases from over $9 billion in the mid-1980s to under $2 billion by the mid-1990s. A 50% excise tax on asset reversions from pension plans in 1990 ended the practice of financing takeovers using pension surplus. Declining interest rates made annuity purchase rates less attractive. The failure of Executive Life in 1991 with billions in these annuities, led to DOL Interpretative Bulletin 95-1, requiring purchase of the safest annuity regardless of price, forcing many insurers out of the business. In 1994 the basis for minimum lump sums was changed from PBGC rates to 30-year Treasuries, which greatly reduced the cost of lump sums. Since early retirement benefits were not included in lump sums, plans with rich early retirement subsidies could save money by offering lump sums to non-retired participants in lieu of annuity certificates.

The accounting changes that went into effect in the late 1980s, combined with the stock market boom of the 1990s, led to companies using pension funds to manage their reported quarterly earnings. Several large companies were able to show increasing earnings, despite lack of revenue growth, by increasing pension income. While cash ruled during low stock market valuations of the 1980s, takeovers (and executive compensation) in the 1990s were driven by high stock valuations from discounting increasing future earnings with lower interest rates.

By the mid-1990s, the only plans terminating were doing so for business reasons. Only standard terminations (plans with sufficient assets or a sponsor who was not in distress) were purchasing annuities and then mainly for retired lives. The effect of IB 95-1 was to allow a small group of insurers with at least AA/Aa ratings to bid. Price could be a factor if some of the surplus was allocated to participants and the excise tax was reduced to 20% if at least 20% of surplus was used for a prorata benefit increase (or 25% went into a new plan). Many plans' sponsors with excess assets took this route to pick a lower-cost annuity provider. Some interpreted "safest" to mean a group of insurers in order to pick

a lower-cost provider. Participating separate account contracts, which were popular in the 1980s for asset reversions where the plan sponsor wanted to continue controlling investment strategy, have fallen out of use.

In 2001, several factors led to a substantial increase in these annuity purchases. An economic recession, while mild overall, was particularly severe in the manufacturing sector, where defined benefit plans are common, leading to more terminations for business reasons. The extremely high stock market prices had given more companies the funds to qualify for a standard termination. The recession also increased credit spreads, which was exasperated by a shortage of Treasury securities from federal budget Surpluses. The relatively low 30-year treasury rates had two effects. The cost of purchasing annuities decreased compared to lumps sums, so less of the terminating plans found it advantageous to amend the plan to provide lump sums. Another effect was an increase in the current liability, which forced many pension plans to increase funding and also to increase their PGBC premiums, thereby encouraging them to terminate.

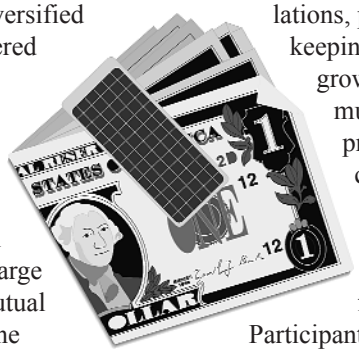
Looking to the future, there is over a trillion dollars in private sector defined benefit pension plan assets, which represents potential future terminal funding premium, for those with a long-term point of view.

Stable Value GICS

Paul opened this part of the session with some breaking accounting news from FASB—GICs would not be considered derivatives under FAS 133. Had plan sponsors needed to mark benefit-sensitive provisions to market, many plan sponsors would substitute money market funds for stable value, to the detriment of 401(k) plan participants and those who work in the stable value industry. For more of Paul's view on accounting, read his article in the July issue of *Risks and Rewards,* which can be found on the Internet at the following URL: *www.soa.org/library/sectionnews/investment/RRN0107.pdf* (p.18 *ff*.).

The URL for the GIC paper is: *www.soa.org/library/tsa/1980-89/TSA84V3619.pdf*. GIC sales increased rapidly in the 1980s after the issuance of regulations in 1981 for 401(k) plans, which allowed employees to contribute to defined contribution plans with pre-tax dollars. The early plans had limited options - typically a guaranteed account funded by life insurance company GICs and a stock fund (or in some cases employer stock for employer's matching contribution). Participants, with memories of the severe bear market of the 1970s, overwhelmingly chose the guaranteed account. The growth of these GIC funds started to attract competitors. In the late 1980s, banks entered this business with BIC contracts, which were similar to GICs. From there, banks introduced synthetic GIC contracts, where the investments and the payment of benefits at book value were separated. The early synthetics were non-par—the bank made up any differences between market and book values. Insurers introduced separate account GICs, patterned after par terminal funding contracts, allowing plans to participate in the investment experience and possibly control the investment manager.

GIC managers started to take an increasing share of this business. Like other fixed income managers, they were compensated by asset-based fees. They purchased and managed a diversified portfolio of GICs with staggered maturities and buffer funds. They did credit research and took fiduciary responsibility for selection of the GICs. They also introduced GIC pools that allowed small plans to be combined into a large diversified GIC portfolio. Mutual fund groups, which entered the 401(k) market to get assets for their funds, gave a boost to GIC pools as they sold full service 401(k) plans to smaller employers.



By 1990, the window GIC of Stiefel's paper that accepted contributions and made benefit payments at guaranteed rates had already been largely replaced by GIC funds. While principal was guaranteed in these funds, the crediting rate, which was based on the average rate in the portfolio, was not usually guaranteed in advance. The downgrades and failure of Executive Life, followed by Mutual Benefit and Confederation Life, all with substantial GIC liabilities, and the repeated downgrades of insurance companies by the rating agencies created a credit scare. Plan sponsors suddenly realized they had 100% of their assets concentrated in one industry. The word "guaranteed" was replaced with the words "stable value" in these funds.

Also by 1990, the synthetic GIC had evolved from non-par "buy and hold" to par managed fund contracts. Under these arrangements, gains or losses in investments were amortized into the crediting rate. Any capital gains or losses from book value withdrawals were passed on to the remaining participants. There were cash buffer funds and short maturity GICs to insulate the synthetic from any draws so there was almost no risk of the issuer losing money. The fee for these contracts gradually declined to below 5 basis points per year on some of the larger contracts. Also, institutional fixed income managers would now have the opportunity to manage stable value funds.

Regulations under 404c issued in 1992 allowed plans to avoid fiduciary responsibility for losses from employee choice of investment options if the employee was given enough choices. These regulations, plus improved record keeping technology and the growing dominance of mutual funds, led to a proliferation in investment choices. The bull market in stocks and declining yields in stable value made equity mutual funds popular.

Participants allocated less money to stable value funds. 401(k) plan growth also slowed as the market matured and

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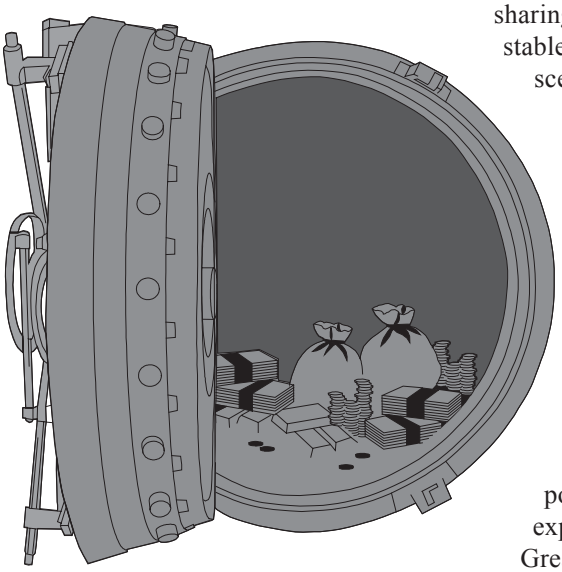

more government regulations made it less attractive to smaller firms.

Over the decade of the 1990s, stable value funds replaced maturing GICs with bank synthetics and bonds to diversify risks. Insurers became minor players in this market although a couple of insurers did leverage their expertise into synthetics. Insurers did find other applications for general account GICs, which are discussed in the *Record.* Capital market GICs (Chicago, 2000), Muni-GICs (San Diego 2000), and floating rate-funding agreements (New Orleans 2001).

Editors Note: The following was Paul Donahue's handout for this session

Modern Stable Value: Heir of the GIC[1]

Modern stable value, the "child"of SOP 94-4, is in a very real sense the "grandchild" of the GIC, for, as I argue below, SOP 94-4 itself is a product of the GIC. In this essay, I seek to concentrate on developments in stable value since the publication of *The Guaranteed Investment Contract.*[2] I begin with a brief review of the developments before Stiefel to provide context.

Soon after "thrift" or "savings" plans were introduced as a subset of profit sharing capital accumulation plans, stable value options appeared on the scene. The availability of an option with marked similarities to the passbook savings account lowered the information barrier to participation.[3]

Many employees considering participation in an employer capital accumulation plan had little or no prior experience with investment other than with passbook savings accounts. In the late 1960s and early 1970s, many potential participants had personal experience or knowledge of the Great Depression of the 1930s and of the market losses of the mid-sixties. Potential participants had good reason to set a high value on safety, and a stable value option ("SVO") is the rational choice for investors with a strong preference for safety.[4] For employers who wished to encourage participation in their thrift plans, offering an SVO was essential.

In 1970, capital accumulation plans were simple. The SVO was sometimes the plan's only option, or a plan might contain only stable value and employer stock. If there was an equity option, it was likely to be only a single broadly diversified fund. If the plan had more than a single option, it would frequently have severe restrictions on transfers from one option to another.

The world of stable value investments was a small one. Insurance companies offered pooled funds backed by their general accounts that aggregated all participant plans and years of experience, in a manner quite similar to bank passbook savings accounts. The plan sponsor's investment committee, possibly with assistance from the actuarial consulting firm, which valued its defined benefit plan, could evaluate the different insurance company offerings and choose a provider.

Aggregate products required a stable interest rate environment to remain competitive. As interest rates began to rise slowly through the early and mid-70s, aggregate pooled funds could not compete with funds that credited different rates of interest depending on the year in which a deposit was made. Insurance companies introduced plan-specific funds with both contract and experience accounts. Based on its estimate of old and new money rate and cash flows, the company would set a rate on each contract for a calendar year. The insurer would take differences between actual and estimated experience into account when setting the fund's crediting rate for the following year, with the goal of converging the contract and experience accounts.

Participating funds of this type were popular in the market only very briefly, because the very long underlying investments did not allow quick response of the fund's yield when interest rates shot up dramatically during the late 70s and early 80s. This led to products with guaranteed rates and maturities. The initial products of this type guaranteed rates for amounts deposited in a given calendar year for a specified number of years. The insurer's general account, using very long term investments, supported the guarantees provided in this product. This meant that there was a serious mismatch between the insurer's assets and the liabilities they supported. A typical insurance company general account asset might be a private placement with a term of from six to fifteen years, with a duration of seven years or more.

A product that guaranteed a deposit rate for five years following the rate of deposit had a duration of no more than five years. In many companies, this mismatch meant that corporate actuaries viewed the general account product as

excessively risky, and this view led to rationing of fully guaranteed product capacity.

These developments significantly broadened the array of choices plan sponsors faced. They could no longer simply select an insurer and thereafter ignore the SVO. At least annually, the plan sponsor's committee had to evaluate the available investment opportunities and decide what was best for the plan. Slowly growing awareness of the implications for plan sponsors of the fiduciary requirements of ERISA, which took effect in 1974, led plan sponsors to devote more attention to these investment decisions. Despite the additional complexity and heightened risk, plan sponsors retained fiduciary responsibility for their investment decisions on the SVO, and continued to rely for guidance on actuarial, or other, consultants.

In the late 70s a product appeared that is still a mainstay of stable value investment, the guaranteed investment contract ("GIC"). The GIC quickly became the dominant investment of SVOs. One can justly say that the GIC was a product that came to define its market.

Like some earlier "window contract" products, the typical GIC guaranteed for a specified number of years an interest rate for deposits received during a calendar year. Although GICs were backed by the assets of the insurer's general account, as were all other stable value products, their conceptual framework was radically different. Insurers matched particular GICs to particular investments. This reduced internal actuarial concerns about asset/liability mismatch. In an environment in which interest rates continued to rise, the GIC had a competitive advantage over aggregate products; GIC rates were competitive with new money rates, because the GIC return reflected that of an asset the insurer was committing to purchase at the same time as, and in reliance on, the plan's GIC deposit.

In the mid-1980s, the typical SVO sponsor, with the assistance of an actuarial consultant, and perhaps with the help of the employee benefits consultant who had guided plan design and implementation, solicited insurance company bids for window contract GICs of differing maturities. The typical fund might have contracts with terms of three, four or five years. A single contract received all calendar year cash flow, including earlier contract maturities. Withdrawals generally came prorata from all contracts. The five-year contract became the most common; they were well up the shoulder of the yield curve, but offered greater rate responsiveness than longer maturities.

During the '80s, many factors combined to heighten the complexity of the stable value market. The collapse of the post-World War II real estate boom threatened the solvency of some American insurers, raising concern about the credit-worthiness of GIC issuers. In an attempt to diversify their credit exposure, sophisticated plan sponsors began to multiply the number of GIC issuers and contracts. First using one contract for maturities and another for contributions, plan sponsors moved on to allocating the cash flow of each quarter to a different contract. Quarterly bidding became the norm. An added incentive to greater frequency of placement was the desire of plan Sponsors to obtain bids when insurers still had an ample supply of attractive investments. The traditional pattern of year-end bids posed the danger that the plan would not have acted by the time insurer capacity was exhausted, and rates achieved would suffer.

> 'In an increasingly competitive environment, in order to offer the most attractive rates possible, insurers and banks tightened the connection between available investments and their GIC or BIC quotations.'

Also during the late '80s, the availability to banks of higher-yielding investments, and the drying up of other low-cost funding, made it possible for banks to offer bank investment contracts ("BICs") that competed effectively with insurer GICs backed by private placements. In an increasingly competitive environment, in order to offer the most attractive rates possible, insurers and banks tightened the connection between available investments and their GIC or BIC quotations. Plan sponsors had less and less time to decide on insurers' offers, from weeks to days, and in some cases, to hours. The investment committee has less time in which to perform due diligence on the insurers whose bids the committee was considering. Consultants saw quotes expire that they believed were attractive and pressed for more investment authority. Investment committees began to see examples that alarmed them of how seriously the courts were taking the fiduciary responsibility provisions of ERISA.

These circumstances favored the emergence of stable value investment managers, who differed from the investment advisers that plan sponsors had been using by taking on the fiduciary obligations imposed by ERISA on plan investment. Initially, stable value investment mangers operated the funds they managed much as sophisticated plan sponsors before them had done. They used a variety of types of GICS and BICs chosen in an environment still dominated by GICs backed by general account private placement investments.

At the same time, there emerged in the defined benefit pension market participating group annuity contracts backed by the assets of separate accounts. The essence of these contracts was that the

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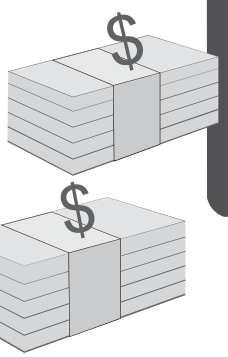
plan sponsor would contribute to the separate account amounts larger than those needed to purchase the annuities that the insurer would guarantee. In view of the overfunding, the insurance departments viewed the annuity guarantee as incidental, and therefore deemed it appropriate to continue to insulate the separate account from the claims of an insurer's general account creditors. Only the insurers liabilities to participants in the separate account were valid claims against the separate account in the event of insolvency. That meant that the plan could participate in any earnings in excess of the interest rate assumed in pricing the guaranteed annuities, which ultimately reduced the plan sponsor's funding costs.

The Unheralded Emergence of the New Stable Value Order: The Separate Account GIC

As sometimes happens, a development that was to transform the nature of the SVO was not fully evident initially. This development was a parallel development in the world of stable value to that on the defined benefit side, the "participating GIC." The principal impetus for the move was the desire to find a stable value investment vehicle that would accommodate asset-backed securities. The variation in the payment streams of asset-backed securities made them unsuitable as underlying assets for fixed-rate, fixed-term GICs. By surrendering a fixed rate, a participating GIC allowed plans to obtain a higher overall yield. The "guarantee" in a participating GIC was of a minimum rate, generally zero, that insurance regulators could regard as incidental in light of the expected yield on the underlying assets. Investment managers regarded the additional protection participating GICs provided the plan in case of insurer insolvency merely as an additional benefit.

The Synthetic GIC Saved Stable Value From Weakened Insurance Company Credit

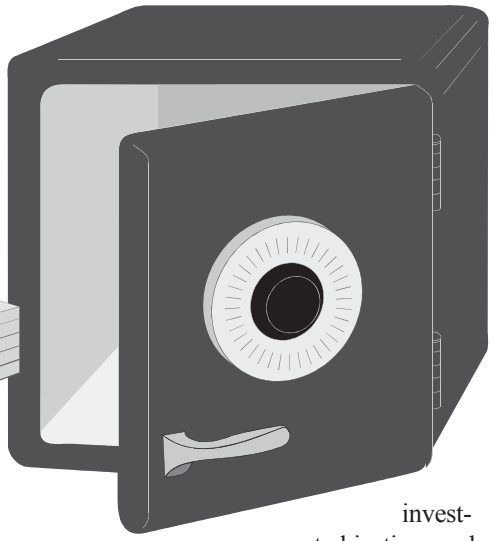
The collapse first of Executive Life and then of Mutual Benefit in 1991 abruptly altered the view that an enhanced credit position was merely an incidental benefit. Investment managers realized that if they wished to construct diversified high-quality portfolios, they had to separate the underlying assets from the book value guarantee for some portion of the portfolios. In order to diversify the credit exposure to the parties from whom they received book value guarantees, investment managers had to be willing to supplement insurers with banks. Thus was born the "synthetic GIC." The essential difference between the "participating separate account" GIC and the synthetic GIC was legal title to the assets. In the participating GIC, the insurance company held legal title, though the plan had first claim. In the synthetic GIC, the plan held legal title to the underlying assets.



The stable value market allocates synthetic GIC asset risk to the plans, to be managed by their investment managers. This is economically efficient, because investment managers would have to evaluate the underlying assets in any case to determine their suitability for the fund. An additional powerful reason for this allocation is that not allocating the principal risk to the wrap providers in the synthetic GIC market allowed these issuers to minimize reserves for their synthetic GICs. The need to carry substantial reserves would have caused wrap fees to increase substantially.

The Synthetic GIC Forced Stable Value Managers to Become Fixed Income Managers

Implicit in this development was a quantum increase in the complexity of stable value investment management. The investment manger had now to evaluate not only traditional GICs, but also the entire array of, at a minimum, fixed-income investments and the wrap contracts with which they could be matched to meet stable value



investment objectives and regulatory requirements. In a legal environment in which the fiduciary requirements of ERISA were being applied ever more stringently, plans sponsors had powerful arguments of economic efficiency and of personal prudence to seek to place the fiduciary responsibility for the SVO's investments with professional investment managers.

Stable Value Today—Accounting Foundations

By definition, the sum of participant balances in a defined contribution pension plan is total plan assets. Stable value exists as a defined contribution plan option only because accounting rules permit stable value contracts to be held by a defined contribution pension plan at amortized cost plus accrued interest ("book" value).

Before the promulgation of AICPA SOP 94-4 on September 23, 1994, the American Institute of Certified Public Accountants ("AICPA") Audit and Accounting Guide AUDITS OF EMPLOYEE BENEFIT PLANS ("the Guide") stated that: "contracts with insurance companies are to be included as plan assets in the manner required by [the Employee Retirement Income Security Act of 1974] ERISA annual reporting requirements and are to be reported in a manner consistent with the requirements of [Department of Labor] DOL Form 5500 or 5500-C/R."[6] The instructions to those forms permitted unallocated insurance contracts, whether or not they incorporated mortality or morbidity risk, to be reported at either fair value or at amounts determined by the insurance company ("contract value"). Contract value generally equaled principal plus accrued interest.[7]

Plans could report pure investment contracts with insurance companies at contract value. The Guide specifically excluded reporting investments in similar contracts issued by banks or other non-insurance financial institutions at contract value. This discrepancy led to a market advantage for insurance company investment contracts with no discernible economic justification.

Action by the Financial Accounting Standards Board

In Statement of Financial Accounting Standards No. 110, Reporting by Defined Benefit Pension Plans of Investment Contracts,[8] the Financial Accounting Standards Board (FASB) ended that anomaly for defined benefit pension plans. FASB Statement 110 amended FASB Statement No. 35, Accounting and Reporting by Defined Benefit Pension Plans, to permit defined benefit plans to report at contract value only contracts that incorporate mortality or morbidity risk.[9] FASB decided not to address valuation of assets of health and welfare or defined contribution pension plans, but instead referred them to the AICPA.

AICPA Applies the Principles of FASB Statement 110 to Defined Contribution Plans

AICPA SOP 94-4 amended the Guide in a way that abolished special treatment for insurance contracts but preserved the possibility of reporting contracts with specified features issued by any financial institution at contract value. Fundamentally, to qualify for reporting to participants their balances under a contract at contract value, the contract must assure that contract value "is the amount a participant would receive if he or she were to initiate transactions under the terms of an ongoing plan." The unfortunate label that the AICPA attached to this requirement is "benefit responsiveness."

> 'It leveled the playing field among financial institutions by allowing banks as well as insurance companies to offer contracts that would qualify for book value accounting.'

The Guide as amended by AICPA SOP 94-4 states that: "Defined contribution pension plans should report fully benefit-responsive investment contracts at contract value, which may or may not be equal to fair value."[13] To be considered fully benefit-responsive, "[i]nvestment contracts must transfer the risk of principal and accrued interest to a financially responsible third party (that is, they provide for all participant-initiated transactions permitted by an ongoing plan with no conditions, limits, or restrictions)."[14] I shall refer to such contracts as "PAIRTS," "principal and interest risk-transfers."

Qualifications of the Guarantee of Payment of Benefits at Contract Value

The foundational requirement for presenting a participant's account at principal plus accrued interest is just what a participant who values safety highly would want. The participant is assured that the balance available for any withdrawal, loan, or transfer that he or she initiates is the full amount of principal and accrued interest, "with no conditions, limits, or restrictions."

However, examples in the Appendix to AICPA SOP 94-4 have the practical effect of eliminating "no conditions, limits, or restrictions" on contract value payment as a requirement for contract value accounting. A fair description of SOP 94-4 is that it codified, both by intent and in practice, the main features of GICs then available in the marketplace as the minimum requirement for accounting for contracts at book value, including the common limitations on book value coverage. It leveled the playing field among financial institutions by allowing banks as well as insurance companies to offer contracts that would qualify for book value accounting.

Example 2: A Benefit Responsive Investment Contract

a. Liquidity at contract value is not guaranteed for benefits that are attributable to termination of the plan, a plan spin-off to a new employer plan, or amendments to plan provisions. The contract should be reported at contract value unless it is probable that the plan will be terminated, spun off or amended.

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b. Liquidity at contract value is not guaranteed for benefits that are attributable to the layoff of a large group of workers or an early retirement program. The contract should be reported at contract value unless it is probable that termination of the employment of a significant number of employees will occur.

Example 6: A Synthetic Investment Contract—"Repurchase" Type

Under this contract, the plan purchases a bond and places it in trust. The plan then contracts with a financially responsible third party to provide benefit responsiveness. Under the contract, should the bond need to be sold to meet a participant-initiated withdrawal benefit, loan, or transfer, the plan is obligated to sell the bond to the contract issuer, and the issuer is obligated to buy the bond. The transaction price is defined under the contract (for example, amortized cost). The issuer is not obligated, however, to purchase securities that are in default.

The contract, when together with the bond, should be reported at contract value . . . absent impairment of the value of the securities due to credit risk because return of principal and accrued interest has been guaranteed to participants.

These examples and the conclusions with respect to them weaken the foundational guarantee both theoretically and operationally. The valuation decision after the two variations of example 2 each has the form, "contract value, unless it is probable that . . . ." Probable is not defined, and, even if it were defined in terms of a threshold mathematical expectation, e.g., more likely than not, would likely be very subjective in application. What is a "significant" number of employees? Is there some absolute number, say 50, that is significant in its own right, regardless of the size of the enterprise, or is "significant" always relative? The conclusion to example 6 has the proviso "absent impairment." In short, it will often be difficult in borderline situations to know what the right thing to do is, even when the accountant or auditor has complete information.

AICPA SOP 94-4 amended the Guide, inter alia, to require reporting " . . . any limitations on related liquidity guarantees (for example, premature termination of the contract by the plan, plant closings, layoffs, plan termination, bankruptcy, mergers, and early retirement incentives)." [16] Further, the Guide now requires that: "If, however, plan management is aware that an event has occurred that may affect the value of the contract (for example, a decline in the creditworthiness of the contract issuer or third-party guarantor—if different from the contract issuer—or the possibility of premature termination of the contract for the plan), pursuant to FASB Statement No. 5, Accounting for Contingencies, disclosure of the event or reporting the investment at less than contract value may be appropriate."

> 'The role of synthetic GICs has grown steadily since their introduction in the early '90s.'

Even when changed circumstances make the right thing to do theoretically to report a contract at fair value instead of contract value, it is not likely to happen. Internal communications will not generally be adequate to make the employer's plan administrators aware of circumstances that would mandate reporting at contract value. Even if the administrators know the circumstances, they are not certain to be aware of the requirement to report at fair value. Finally, even if their knowledge is perfect, they may lack the will to incur the administrative costs and participant dissatisfaction reporting at fair value would entail.

Synthetic GICS now Predominate the Stable Value Market

The role of synthetic GICs has grown steadily since their introduction in the early '90s. In the five years that the Stable Value Investment Association has conducted its investment and policy survey, the percentage of stable value assets in synthetic GICs has risen from 32.4% to 50%. Among external managers of stable value funds, the percentage of synthetic GICs has risen from 42% to 65%.

We noted above the credit features that led stable value managers to include synthetic GICs in stable value portfolios. Greater freedom in shaping the investment characteristics of the portfolio has also been an important reason.

Because of their current, and growing, importance, the remainder of this paper will concentrate on current issues related to synthetic GICs.

Contract Duration

Termination at Will

In what is undoubtedly its most conspicuous deficiency, AICPA SOP 94-4 imposes no requirement of minimum contract duration on a contract transferring the risk of principal and accrued interest. A contract terminable at will by the third-party guarantor can still qualify for contract value accounting. However, a contract that the issuer can terminate at will after only a short time is practically worthless to the plan that owns it. Beginning in a stable environment, conditions cannot change rapidly enough to put an issuer at risk in such a contract. [19]

Other Contract Feature and Underwriting Practices
In his *GIC Reminisces,* prepared for distribution at the 2001 SOA Annual Meeting Panel Discussion *Terminal Funding and Stable Value GICs,* John Stiefel touches on a number of contract features and underwriting issues, some of which are now settled, others of which remain open. I discuss a few of them briefly, in "scatter shot" remarks.

1. Signed deposit agreements, once resented, then standard, are once again spotty. The fixed-income bond trading standard of an oral commitment followed by written confirmation has become usual for GICs as well.[20]

2. GIC proposals outstanding for days is a distant memory; a few hours has been the standard since Stiefel.

3. The attention to issuer credit gained by Executive Life, Mutual Benefit, and Confederation Life has not been lost; all stable value managers weigh carefully the minimum issuer credit rating they deem acceptable and monitor issuer credit on an ongoing basis.

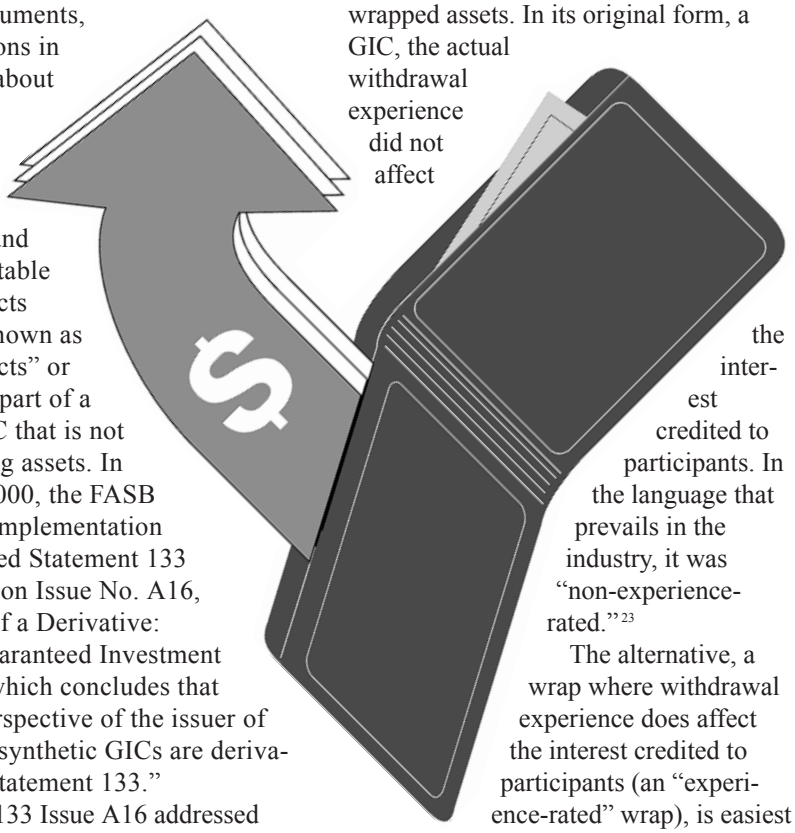
4. GIC contracts either provide for no "market value" out at all, or do so using a punitive formula. Existing GIC contracts foreclose plan arbitrage.

5. With respect to participant activity, nearly all stable value plans require a 90-day wash before a participant can transfer funds from an SVO to a competing short-term bond or money market fund.

Classification of the Wrap

As we have noted, the foundation for stable value as a defined contribution pension plan option is the ability to account for plan assets at amortized cost plus accrued interest, book value. That accounting treatment was ratified by SOP 94-4.

The issuance of FAS 133 in June, 1998, which required accounting for derivatives at fair value, and including gains and losses in earnings for derivatives not designated as hedging instruments, raised questions in some minds about the appropriate treatment of guarantees of principal and accrued for stable value, contracts commonly known as "wrap contracts" or "wraps," the part of a synthetic GIC that is not the underlying assets. In December, 2000, the FASB Derivatives Implementation Group released Statement 133 Implementation Issue No. A16, "Definition of a Derivative: Synthetic Guaranteed Investment Contracts," which concludes that "from the perspective of the issuer of the contract, synthetic GICs are derivatives under Statement 133."



Although 133 Issue A16 addressed synthetic GICs only "from the perspective of the issuer," some employee benefit plan auditors began using it to call into question the continued application of SOP 94-4 to particular SVOs. Although to date no auditor has gone so far as to disallow book value accounting for stable value, this is clearly a life and death issue for the stable value industry. The discussion below addresses this critical issue from three perspectives:

1. The wrap contract is not a derivative;

2. The wrap contract is an insurance contract; and

3. The market value of a participant account is book value, so that if a wrap is treated as a derivative, its value in the plan must be the balancing item between the value of the underlying assets and book value.

The Wrap Contract

A wrap assures that funds will always be available to pay plan benefits and make transfers at contract ("book") value, regardless of the market value of the wrapped assets. In its original form, a GIC, the actual withdrawal experience did not affect the interest credited to participants. In the language that prevails in the industry, it was "non-experience-rated."[23]

The alternative, a wrap where withdrawal experience does affect the interest credited to participants (an "experience-rated" wrap), is easiest to understand when the wrapped asset is a readily marketable bond. The crediting rate changes periodically according to a formula which amortizes differences between the contract value of the bond and its market value. The amortization period is typically the duration of the investment on the date the rate is reset. When a withdrawal is made, the participant receives contract value. The market value of the contract is reduced by the same amount as the contract value. This forces the ratio of contract value to market value farther from one. For example, if market value is $95 and contract value is $100, a $5 withdrawal will reduce the market to book ratio from 95% (95/100) to 94.7% (90/95). There is an additional shortfall between contract and market of 0.30%. If the current duration of the bond is 1.5 years at the reset date, the withdrawal will have caused the credited rate to drop by 0.20%, 0.30% divided by 1.5 years.

The essence of a "non-experience-rated" wrap is a transfer of funds between the issuer of the wrap and the

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stable value fund of an amount which will keep the market-to -contract ratio the same after a withdrawal as it was before the withdrawal. If market value is below contract value, the issuer pays the fund; if market is above contract value, the fund pays the issuers. In the example above, the issuer would have contributed $.25 to the contract's market value, so that the ratio of market value to contract value, $90.25/$95.00, would remain at 95%.

To use the language of financial options, a stable value participant has the right to "put" his/her account to the fund at contract value, regardless of the market value of the underlying assets. The wrap contract is the mechanism which, either by adjusting the interest rate credited to the remaining participants, or by making or receiving a payment from the wrap issuer, eliminates any book/market differential caused by a participant withdrawal. It is factually incorrect to describe the wrap contract itself as a "put." Except in a catastrophic environment, the put experience of the fund does not affect the financial experience of the issuer in experience-rated wrap contracts, since crediting rate adjustments make continuing participants the ultimate option counterparties of those who withdraw. In the example considered above of a non-experience-rated wrap, the issuer lost $.25.

Wraps are not Derivatives

SFAS 133 states that for a financial instrument to qualify as a derivative it must possess all three of the following characteristics:

1. A derivative must have at least one variable factor in the calculation that determines the required payment. This required variable is called an "under lying." A derivative must have either some measure of quantity, to which the underlying(s) is (are) applied in the calculation that determines the required payment, or a payment provision, or both. That measure of quantity is called a "notional amount."

An underlying is a specified financial variable, an interest rate, security price, or other variable. A payment provision specifies a fixed or determinable settlement to be made if the underlying performs in a specified manner.

> 'The maximum value of the wrap is the difference of two variables, book value and market value.'

An option to buy 100 shares of stock at $50 per share provides a classic example. The notional amount is 100 shares; the underlying is the price of one share. The value of the option is the price of a share minus $50, not less than zero, times 100. If the current price of the share is $60, the value of the option is ($60 - $50) * 100 = $1000

A wrap does not meet even this first test.

What is the Underlying?

First of all, there is no clear-cut underlying. The suggestion of 133 Issue A16 that the underlying could be the reset formula itself is problematic. A formula is in itself entirely static. If the reference to reset formula is shorthand for the crediting rate series generated by application of the formula, then we have a complex series, determined by market interest rates, the auto-correlated crediting rates, which move book value toward wherever market rates have taken market value, and participant cash flows, which exacerbate any existing differential between book and market. We have argued above that participant behavior is largely driven by participants' views of the safety of principal across the investment choices, including equities, the plan offers, not by differences across the yield curve. Is it useful to talk about a series where individual plan design is a major determinant as an "underlying," when that word usually refers to the price of a share or index, or to a market rate of interest?

The obvious candidate for an underlying is the market value of the wrapped portfolio. That at least is determined purely by market forces and is the underlying for accepted derivatives, e.g., portfolio insurance.

Choosing a "notional amount" is even more problematic. To define the book value as the "notional amount," as 133 Issue A16 appears to do, is to designate as a notional amount a quantity which impounds the underlying, whether it is defined as the market value of the portfolio, my preference, or as the crediting rate formula, as 133 Issue A16 prefers. That cannot be what SFAS 133 intends.

The maximum value of the wrap (the issuer's maximum liability) is the difference of two variables, book value and market value. This difference varies unpredictably day to day, whereas notional amounts are generally constant (e.g., 10 shares or $10,000,000), or are at least determinable with certainty in advance. Even accepting the difference between book and market as a notional amount, and knowing the behavior of the underlying, whatever it might be, one would not have determined the value of the wrap, but only its maximum value. The actual value at any moment of a wrap also depends on the probability of a withdrawal and the probability distribution of withdrawal amount. It further depends on the experience-rating provision of the wrap contract. Finally, if the wrap contract is experience-rated, the value also depends on the probability that

the contract will mature before any book to market shortfall has been amortized. This is the only time that an experience-rated wrap results in an issuer payout.

What is the payment provision?
For an experience-rated wrap, in the "normal course," there will never be a payment (other than the payment of the premium, which we discuss below as item 3). The crediting rate mechanism is designed to assure that there is no book/market discrepancy at contract maturity. Wrap contracts that simply expire at maturity even when market is less than book, with no issuer payment, are not uncommon. Other contracts provide for contract extensions as needed to assure eventual convergence. It strains language beyond natural bounds to call such terms "payment provisions," and, once again, cannot have been what FASB was trying to do in SFAS 133.

2. SFAS 133 states that a derivative requires no initial net investment or an initial net investment less than that required for other types of contracts expected to respond similarly to changes in market factors. The second factor is also problematic. A wrap contract requires the payment of a premium, so it has an initial investment.

A wrap is a unique, plan-specific instrument, the value of which does not depend solely on factors in the financial markets. It cannot therefore be said that the premium is "smaller than would be expected for other types of contracts that would be expected to have similar responses to market factors." Therefore, wrap contracts do not satisfy either of the two tests of the second requirement, and thus do not satisfy the definition of derivative.

3. SFAS 133 requires that a derivative's terms require or allow net settlement.

A derivative must be able to be readily settled net by a method outside the contract; or it provides for delivery of an asset that puts the recipient in a position similar to net settlement. No payment provisions of wrap contracts come close to satisfying this requirement. Most market wrap contracts permit termination by the buyer on notice and termination by the seller for certain enumerated reasons. When termination payments are required, they are universally a function of the premium rate. They do not take into account any changes in market factors or in the characteristics of the plan to which the wrap was issued. Indeed, as the discussion of wrap valuation above should have made clear, it would it be impossible to reach a consensus on a fair payment. Certainly, the contract does not provide for such a payment. Therefore, a wrap contract does not satisfy the third requirement of the definition of SFAS 133 and is therefore not a derivative.

> 'A key feature of insurance is that the owner of the contract does not control the right to payment.'

The clear import of SFAS 133 is that it was meant to refer only to instruments the value of which is determined solely by "market forces." Market forces are no doubt hard to define with specificity, but certainly cannot be meant to include the underwriting characteristics of a particular defined benefit plan. This is the fundamental incongruity that the argument of the 133 Issue A16 cannot overcome.

Wraps are Insurance Contracts

There is a term for financial contracts where not only market variables, but also characteristics of the individual entity purchasing the contract require underwriting, determine cost: insurance.

Relying both on my knowledge of wraps, and on my experience as a health benefits actuary, I believe that group long-term disability insurance provides the best analogy to stable value wraps. Non-experience rated wraps correspond to self-insurance with insured stop loss that kicks in at low levels of total claims. Experience rated wraps correspond to self-insurance with insured stop loss protection that kicks in only at very high multiples of expected claims.

Arguing by analogy, tax law permits the classification of reserves for noncancellable accident and health insurance as life company reserves if they are computed on the basis of health contingencies and are required by law.[24] Wrap contracts are "noncancellable" in that the issuer generally cannot "cancel" a wrap contract before its stated maturity except for cause. The causes are nearly all related to plan specifics. The variety of plan designs and differences in the economic "health" of plan sponsors require underwriting. The underwriting required makes a striking parallel to underwriting the long-term disability risk, incorporating many of the same elements.[25]

A key feature of insurance is that the owner of the contract does not control the right to payment. For example, health insurance policies, including group long-term disability policies, exclude coverage for self-inflicted injuries. Underwriting is intended to assure that the insurer understands the nature of the risk and charges a premium appropriate to it.

The SVO is the owner of the wrap contract, but is the one entity universally excluded in all wrap contracts from precipitating a payment on it! Even the most sweeping wrap contracts exclude coverage for plan termination and for plan changes which materially increase the issuer's risk of payment. The disconnect between the owner and the beneficiaries of the wrap contract severely weakens the characterization of a wrap as a derivative.

The analogy to a financial put is fundamentally flawed because it is the owner of a put who decides whether or not to exercise the put and who benefits from the decision to exercise a put that is in the money.

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For a covered participant, even one who, like a COBRA participant, is paying the full cost of group coverage, self-insurance is real insurance. It protects against the threat of financial ruin due to catastrophic health care expenditures by spreading the risk over a large number of participants.[26] When the group as a whole has experience bad enough otherwise to overwhelm the pool, the insured stop loss protection steps in.

Insurance provides a natural context which helps us gain insight into the nature of the wrap, unlike the unhelpful attempt to classify it as a derivative. Further, our analysis of the wrap contract suggests a useful generalization: contracts involving purchaser-specific risk are best understood as insurance, whatever their financial features. Contracts not involving purchaser-specific risk are better understood as general financial market instruments, a classification which includes derivatives.

To Experience Rate or Not?—Application of Insurance Principles to Stable Value Wraps

Insurers must recover expenses and profit for any risk they assume. That is a fundamental of insurance pricing. stable value participants have no reason to pay more for a non-experience-rated wrap unless it results in higher expected crediting rates. An experience-rated wrap is sufficient to assure stability of principal. A pronounced change in the crediting rate will threaten the participant's assessment of the option only when it lowers the rate so much that the rate fails to meet the participant's expectation of a minimum margin over money market yields. Even this would not be a loss especially difficult to bear, since principal is preserved. No SVO is a plan's sole offering. Should the yield fall too far, the participant can transfer his/her balance to a different option, which he/she now values more highly.[27]

What Crediting Rate Insurance Fits the Market Demand for Stable Value?

Ideal crediting rate insurance would protect Stable value's margin over money market returns at the cost of a modest sacrifice in the total expected excess return. If, for example, the long-term expected excess return, unwrapped, of an SVO was 1.5%, the conservative investors who choose stable value might rationally choose to sacrifice .10%, to assure that the differential was never less than 1%. An investor interested in assurance of principal and the largest possible excess return over money market funds, who did not have a view that interest rates would move up, would not pay a larger wrap premium to lessen the effects of the transactions of other participants on crediting rate volatility, entirely apart from the relationship of the crediting rate to a reference rate. Therefore, a manager cannot choose consistent with the manager's fiduciary duty to participants to pay more for "standard" non-experience rated wraps than for experience-rated wraps, unless the manager is acting on a view, that interest rates will move upward, not reflected in the price of the non-experience rated wrap.

> 'A pure non-experienced rated contract would increase expenses both for the insurer and for the manager, and both would want to recover those costs by increasing their charges to the plan.'

Any differential in cost that does not pay for an added guarantee must be fully recoverable in value, providing no additional contribution to insurer profit or expenses. The expected value of additional issuer transfers must equal the expected value of the increase in wrap charges.

The Realities of the Marketplace

A "pure" version of a non-experience-rated contract is rare indeed. Nearly all contracts, including GICs, require the plan to turn first to cash flows to finance withdrawals before access to the contract's funds is possible. In a rising rate environment, net withdrawals will keep the rate on the fund from rising as money-market rates rise. A "pure" non-experience rated contract would increase expenses both for the issuer and for the manager, and both would want to recover those costs by increasing their charges to the plan.

Even "non-experience rated" after cash flows is increasingly unavailable at all for synthetic wraps.[28] A manager with a strong preference for non-experience rating of withdrawals would give for that reason alone a higher ranking to GICs as investments, intensifying credit and non-diversification risk, because GICs provide non-experience rating of withdrawals. Based on quotation experience at the author's firm, those issuers that do offer non-experience rated wrap contracts charge an additional two to six basis points.

A manager who agrees with the analysis of wrap risk presented above cannot choose to pay that premium,[29] because the manager believes that whatever additional protection a non-experience rated wrap may provide is overpriced.[30]

My conclusion is this: the realities of market pricing drive the rational manager to buy experience rated wraps in the typical wrap purchase situation.

The Theoretically Ideal Wrap

The standard in analysis of benefit programs should be legitimate participant expectations.[31] What participants expect of an SVO is safety of principal and an excess return with respect to money-market funds, in the range of 1% to 2%. Simply put, the ideal wrap contract would ensure that the effects of withdrawals will never deprive participants of what they expect from the SVO.

A contract that ties the degree of experience-rating to the effect of withdrawals on the crediting rate meets that test. The crediting rate would be compared to money-market returns plus an increment ranging from 0% to 1%. The issuer would make any payment required to keep withdrawals from driving the crediting rate below the reference rate. All other withdrawals would be fully experience rated.

A hybrid contract of this type would be likely to lead issuers to require tighter investment guidelines, and permit them to require changes at a minimum in portfolio duration as the crediting rate approaches the reference rate.[32]

Such a contract would provide both participants and the issuer with superior protection against the risk that an anti-selection death spiral will lead to a catastrophic meltdown of the kind that issuers profess to believe would have occurred in the period studied above, the late ’70s and early ’80s. While changes in the interest rate environment could still lead to crediting rates below the reference rate, participant withdrawals would not exacerbate the situation. At any level of interest rates, even zero, there will be some non-zero level of at least relative equilibrium, where slow decay replaces the stampede to exit. The higher the crediting rate, the higher the level of relative equilibrium, and the lower the losses of the issuer, the larger the fee bases of both the manager and the issuer, and the faster the option will return to the reference rate and above.

A critical advantage of what I call a “crediting rate hybrid” is that it minimizes the importance of issuer/manager differences on the value of the catastrophic risk, because it substantially reduces the likelihood that the catastrophic risk will materialize.

An added advantage to the plan is that, precisely for this reason, and depending on the level of the increment used to set the reference rate, a crediting rate hybrid should be cheaper than existing experience-rated contracts. Existing experience-rated contracts would further depress rates already below money market rates, accelerating the stampede to the exits and locking in issuer losses. In the author’s view, the reference rate can be set at a level that will include sufficiently few losses in the way of noise that the gains in catastrophic protection will more than offset them.

However, the higher the reference rate, the more a manager can rationally choose to pay a wrap premium that actually reduces expected participant return. For example, if the reference rate is money market returns plus 1%, the manager has purchased a contract that substantially increases the likelihood that the option will always meet the participants’ return expectations. The contract thus has higher utility to participants than a fully experience-rated contract, and the manager can rationally choose to pay more for it. Such a contract thus offers an issuer an opportunity for a risk charge and risk profit that other contracts do not.

Crediting rate hybrids thus offer an opportunity to improve the value of an SVO to participants while reducing the friction that differences in pricing perspectives introduce in negotiations about wraps between managers and issuers.

Conclusion

In this essay, we briefly introduced the SVO and its evolution. We discussed the characteristics of the synthetic wrap contract, seeking additional understanding by examining the factors influencing pricing. We concluded that a wrap is not a derivative, but an insurance contract. We reviewed the basic principles of insurance pricing and applied those principles to wrap pricing. We concluded that the realities of the marketplace often lead the rational manager, faithful to his or her fiduciary responsibility to participants, to buy experience-rated wraps. We ended by describing a theoretical ideal wrap, the crediting rate hybrid. We concluded that the crediting rate hybrid offered a way out of the wrap pricing impasse that would enhance the value wrap contracts offer to participants in an SVO.

Footnotes

1) Excerpts from my articles *What AICPA SOP 94-4 Hath Wrought: The Demand Characteristics, Accounting Foundation and Management of Stable Value Funds,* 16:1 BENEFITS QUARTERLY 44 (First Quarter, 2000) [hereinafter “BQ”], and *The Stable Value Wrap: Insurance Contract or Derivative? Experience Rated or Not?* 37 RISKS AND REWARDS 18 (Investment Section of the Society of Actuaries, July, 2001)[hereinafter “SVW”] are the core of the theoretical discussion in this paper.

2) JOHN D. STIEFEL III, 36 TRANSACTIONS 527 (Society of Actuaries, 1984) [hereinafter “Stiefel”].

3) This is a reason to think that stable value might play a role abroad in the transition from saving to investment. See PAUL J. DONAHUE, *International Opportunities for Stable Value,* 20 INTERNATIONAL SECTION NEWS 1, p. 4 (International Section of the Society of Actuaries, October, 1999).

4) BQ 45-46.

5) This design made control of disintermediation critical, a problem plans and issuers handled in a variety of ways, all administratively onerous, which here we only mention in passing.

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6) AICPA SOP 94-4, p. 5.

7) A close paraphrase of AICPA SOP 94-4, p. 5.

8) Financial Accounting Standards Board of the Financial Accounting Foundation (August, 1992).

9) *Id.* at pp. 2-3.

10) *Id.* at p. 11.

11) AICPA SOP 94-4, page 12.

12) Ibid. No one who did not already know could guess the meaning of this phrase. Far more natural would have been "payment guarantee," or "benefit guarantee." A guarantee is, as we shall see below, an essential element of the requirement.

13) Section 3.17, ibid.

14) AICPA SOP 94-4, p. 15.

15) AICPA SOP 94-4, p. 24.

16) Guide paragraph 3.23(p). AICPA SOP 94-4, p. 14.

17) Guide paragraph 4.13. AICPA SOP 94-4, p. 15.

18) See above page 5.

19) In *A Tree-Top Look at Wrap Pricing,* Klaus Shigley, Vice President, John Hancock Mutual Life Insurance Company, prices the cost of an SVO put option. Mr. Shigley uses as a baseline assumption that all contracts are accessed *pro rata* for all required benefit payments. This produces a higher price for a put option than would an assumption that liquidity is managed in part by netting benefit payments' current cash inflows and that the plan maintains a buffer (though not necessarily, as Mr. Shigley rightly points out on page 2, a lower cost of liquidity). His analysis addresses successive three year periods, using different duration and withdrawal rate assumptions. The average annual cost for the four scenarios for the first three years is 4.5 basis points, and for the second three years 19.5 basis points, more than four times higher.

20) One of the universally recognized advantages of Web-based trading is the combination of the speed of oral transactions with instant written documentation.

21) The availability of a competing option is a plan design flaw. In particular, there is no place for a money market fund in a retirement program when stable value is available as an alternative.

22) Available online at www.rutgers.edu/Accounting/raw/fasb/derivatives/issuea16.html; cited below as "133 Issue A16."

23) There is unfortunately variation in nomenclature which causes confusion. For nearly all disaggregated wraps, the interest credited to participants varies with the value of the underlying investment. Such a wrap is generally called "participating," which means it participates in investment results. However, some use the word "participating" to refer to participation in the effects of withdrawals, what we have in this Article chosen to call "experience-rated," adopting the more prevalent convention.

24) IRC § 816(b).

25) E.g., the age and income of the participants, the financial health of the plan sponsor, the industry sector, indeed the health status of the employees, since both death and disability give rise to qualified withdrawals in defined contribution plans!

26) As an aside, it is the failure of advice providers to appreciate the value of the self-insurance that is the primary characteristic of the stable value wrap that leads to their failure to give due credit to the wrap's dampening of return volatility.

27) Looking at the problem of crediting-rate movement and insurable interest in this light shows that issuers have the clearest insurable interest, followed by stable value option investment managers. We shall return to this point below, when we argue for a wrap contract not currently available that would maximize utility for all parties economically affected by the contract.

28) For example, of the issuers from which PRIMCO Capital Management buys wraps, only one is willing to sell non-experienced-rated wraps.

29) *See* above page 16.

30) The manager might rationally believe that a non-experience rated wrap should be cheaper than an experience-rated wrap.

31) *See* BQ 48.

32) Existing synthetic contracts usually give issuers the right to require changes in the composition of the portfolio when a recalculated crediting rate would fall below some stated absolute level, usually 2%.

Advanced Risk Management Seminar

by David N. Ingram

When I got the call from John Riley of the SOA a month before the Power Week seminars were to take place I fully expected to be hearing that the risk management seminars would be either cancelled or postponed. In fact seven of the ten Power Week seminars were axed due to low pre-registrations, but the two risk management seminars were still held.

The beginning risk management seminar featured sessions on Identifying and quantifying risks, control processes, capital allocation and risk limits, correlation and hedging, operational risk management, credit risk management, managing risk adjusted return, incentive compensation, as well as, a lively case study. The faculty were Dave Ingram, Bill Schnaer and Greg Henke.

The advanced risk management seminar consisted of ten sessions on a variety of topics from ten different presenters.

The first session was on operational risk assessment presented by Ken Tannenbaum. Ken focused on the importance of enterprise wide risk assessment, especially including operational risks. Enterprise risk assessment is defined as the process that identifies, analyzes and prioritizes the risks from all sources that threaten key enterprise objectives or present opportunities to exploit for competitive advantage. Ken presented a case study where the enterprise risk assessment process was used as a primary tool in a corporate restructuring.

In the second session, Greg Henke presented an investment banking perspective on insurance company risk management. Greg showed how the risk management approach used in banking could be applied to foreign exchange risk, variable product equity risk and credit risk. A case study was used to show the optimization process for hedging a company FX risk where the result was not a simple proportionate hedge, but a carefully constructed set of positions to produce the desired risk profile. Measuring the risk profile and determining the optimal position involves stochastic simulation modeling and the development of an efficient frontier for the decision making process. For credit risk management, Greg detailed the thinking in building a diversified portfolio of credit exposures by showing the distribution of loss graph for different portfolio choices. Lastly, the risk management decisions were all brought together by a measurement of the economic capital requirement for the resulting business profile. This economic capital level was then compared to the RBC calculation. Places where the company risk capital was significantly different from the average risk profile assumed in the RBC model were identified, and strategies were developed for the company to make decisions about those differences.

The next session on risk management of guarantees on equity-oriented products by Hubert Mueller is possibly the hottest topic in life insurance risk management at this time. See the article on page 28.

George Christopher discussed how policyholder behavior can affect the risks associated with GMDB riders on a block of variable annuities. A simple stochastic model of one-year ratchet can be used to analyze the effects of policyholder behavior on the distribution of GMDB premiums, death benefits and net GMDB cash flow. Most, but not all, of the behaviors can be anticipated and mitigated through product design features. For example, some older designs decreased the death benefit dollar for dollar with partial withdrawals instead of prorata. After a market decline, an astute policyholder could take advantage of the dollar for dollar decrease by withdrawing a large percentage of the remaining account value. This action has the effect of converting a product designed as a variable annuity with a GMDB rider into an extremely low cost life insurance policy. This form of policyholder behavior risk has been eliminated from new policies. Other policyholder behavior risks are more difficult to avoid through product design. For example, consider the potential for investors to shift assets into less volatile, lower yielding funds after a market decline. This shift in asset allocation negatively affects the insurer in two ways. First, since premiums are collected as a percentage of account value, present value of future expected premiums is decreased by the shift to a lower yielding asset mix. Second, the account value will remain below the guaranteed death benefit for a longer period of time, generating larger claims.

Rick Jackson opened the next morning with a presentation of several credit risk management case studies from his work managing portfolios for several insurance companies. See article on this page.

The integration of risk management and product pricing was the topic of the next presentation. Ellen Eichenbaum Cooper provided an example using a deferred annuity product and an asset liability model. The model is used to develop strategies to manage profitability and surplus variability; quantify the value of policyholder options; understand the impact of management decisions with respect to product design, investing and crediting strategies; and provide insight into external variables to which the insurer must react. Risk management is brought into the picture for viewing duration, convexity, price behavior curves, risk profile curves and earnings at risk.

A company that takes their risk management into the new paradigm will be "Optimizing Shareholder Value," according to Frank Sabatini. In this new paradigm, the company will use risk management to capture opportunities, and optimize the risk vs. reward of their business while viewing the whole enterprise. This new paradigm uses the new metrics of statutory earnings at risk, present value of divisible earnings, GAAP earnings at risk, RAROC and RORAC.

Standard & Poor's looks at the risks of a company through their capital adequacy model. Rodney Clark presented an overview of S&P's model as well as the differences from the NAIC's RBC formula. In addition, Rodney gave a quick overview of their earning's adequacy model and liquidity profile process.

Many companies concentrate their risk management on earnings volatility. Dave Ingram presented a study of insurance company earnings volatility that showed the distribution of volatility of life insurance companies ROEss as well as their Sharpe Ratio. It became apparent that some companies were giving up return to moderate their volatility of returns.

Claude Accum presented the application of risk management to a multi-national multi-product, multi-risk analysis. With different definitions of GAAP in different countries, a multi-national company can focus their analysis on embedded value that is defined independent of the accounting system. In addition, there are a multitude of various operational risks that apply to a multi-national company. Different countries may need to be held to very different return on capital targets due to variations in local economic and interest rate volatility. In the end, for risk management to be effective throughout global operations it has to include both local and corporate redundancies.

The seminar was concluded by a discussion by Dave Ingram, Claude Accum and Frank Sabatini on risk management best practices. See article page 1 for a portion of that discussion.

Colorado Spring Meeting Investment Sessions

May 30 –31, 2002 • The Broadmoor • Colorado Springs, CO

*Editor's Note: The following are speakers for the Investment Section Sessions at the Society of Actuaries Spring 2002 Meeting in Colorado Springs. More information can be found at:*http://www.soa. org/conted/colorado_summary.pdf

Colorado Spring Meeting - Investment Sessions

Session:	6PD
Title:	Managing Equity Guarantees
Moderator:	Hubert B. Mueller - Tillinghast-Towers Perrin
Panel:	Thomas S.Y. Ho - Thomas Ho Company Inc. Gilbert Lacoste - Sun Life Financial Darin G. Zimmerman - Americo Life Inc.
Session:	7PD
Title:	The FHLB Advance window: A Compelling Opportunity
Moderator:	Anson J. (Jay) Glacy Jr. - General Re- New England Asset Mgmt.
Panel:	H. D. Barkett - Federal Home Loan Bank Anson J. (Jay) Glacy Jr. - General Re-New England Asset Mgmt. Thomas M. Grondin - AEGON Institutional Markets
Session:	19TS
Title:	S & P Financial Products Company
Moderator:	Craig Fowler - ING Institutional Markets
Instructors:	Ellen Woodruff Hall - ING Institutional Markets Robert N. Roseman - Standard and Poor's
Session:	35CS
Title:	Draft SOP On Nontraditional Products: GMDB Reserve Requirements and Implications
Moderator:	David C. Heavilin - Ernst & Young LLP
Panel:	David C. Scheinerman - PricewaterhouseCoopers LLP
Session:	36CS
Title:	Implications of International/ Fair Value Accounting Changes
Panel:	William C. Hines - Milliman USA Emma McWilliam - Ernst & Young
Session:	37L
Title:	Asset-Liability Aspects Of Cash-Balance Plans
Moderator:	Peter D. Tilley - Great-West Life & Annuity Ins
Lecturer:	Philip Dybvig - Washington University, St Louis
Session:	45PD
Title:	Dynamic Hedging - Fair Valuation For FAS 133
Moderator:	Martin J. Hall - Ernst & Young LLP
Panel:	Ejaz Haroon - Protective Life Ins Co
Session:	51TS
Title:	Using Risk Management To Optimize Value
Moderator:	Max J. Rudolph - Mutual of Omaha Insurance Co
Instructors:	Max J. Rudolph - Mutual of Omaha Insurance Co Francis P. Sabatini - Ernst & Young LLP
Session:	60PD
Title:	Dropping Like A Rock - Dealing With Falling Interest Rates & Equity Markets Outside the U.S. and Canada
Moderator:	Thomas A. Jaros - Principal Financial Group
Panel:	Daniel A. DeKeizer - Metropolitan Life Ins Co Shu-Yen Liu - Ernst & Young Jim Toole - Milliman USA
Session:	61PD
Title:	Risk-Based Capital Update
Moderator:	Alastair G. Longley-Cook - Tillinghast-Towers Perrin
Panel:	Larry Gorski - Illinois Dept. of Insurance Jim Reiskytl - Northwestern Mutual
Session:	64PD
Title:	Dynamic Hedging
Moderator:	Marshall C. Greenbaum - Constellation Financial Mgmt
Panel:	K. Ravindran - Annuity Systems Inc
Session:	67IF
Title:	Current Trends In ALM
Moderator:	David J. Weinsier - Tillinghast-Towers Perrin
Panel:	R. Ross Bowen - Conning Asset Management Henry M. McMillan - Pacific Life Insurance Co David J. Weinsier - Tillinghast-Towers Perrin
Session:	75PD
Title:	Phase 2 Of The C-3 Project Update
Moderator:	Alastair G. Longley-Cook - Tillinghast-Towers
Panel:	David K. Sandberg - Allianz Life Ins. Co. of North America Dan Patterson - Allianz Life Ins. Co. of North America

Session:	79TS
Title:	Asset Allocation For Life insurers
Moderator:	David J. Weinsier - Tillinghast-Towers Perrin
Instructors:	Frank J. Cataldo - Conning Asset Management Charles Frederick Hill - Tillinghast-Towers Perrin David Lang Ross - Maritime Life Assurance Co
Session:	91PD
Title:	CFA Actuaries
Moderator:	Anson J. (Jay) Glacy Jr. - General Re-New England Asset Mgmt.
Panel:	Thomas Hugh Dodd - Stratford Advisory Group Inc Anson J. (Jay) Glacy Jr. - General Re-New England Asset Mgmt. Joseph A. Sikora - Hannover Life Re Co of America
Session:	93TS
Title:	Hedge Fund Investing For Life Insurance Companies
Moderator:	Craig Fowler - ING Institutional Markets
Instructors:	Brian Fischer - ING Alternative Asset Management Craig Fowler - ING Institutional Markets Chris M. Rutten - MaxRe
Session:	98WS
Title:	Embedded Value (EV) Implementation Issues
Facilitators:	Mark A. Milton - Kansas City Life Ins Co Max J. Rudolph - Mutua of Omaha Insurance Co

San Francisco Spring Meeting Investment Sessions

June 24 - 26, 2002 • San Francisco Marriott • San Francisco, CA

Editor's Note: The following are speakers for the Investment Section Sessions at the Society of Actuaries Spring 2002 Meeting in San Francisco. More information can be found: http://www.soa.org/conted/sanfrancisco_summary.pdf

San Francisco Spring Meeting - Investment Sessions

Session:	6PD
Title:	Dropping Like A Rock- Dealing With Falling Interest Rates & Equity Markets Outside the U.S. And Canada
Panel:	Thomas E. Leonard - Milliman USA Leslie John Lohmann - Lohmann International Assoc
Session:	7PD
Title:	Pension Plan Terminations
Moderator:	Victor Modugno - Internetactuary.com
Panel:	Christopher R. Barr - Goldman, Sachs & Co David W. Greene - D. Greene & Co Thomas Veal - Deloitte & Touche LLP
Session:	43PD
Title:	CFA Actuaries
Moderator:	Anson J. Glacy Jr. - Genl Re-New England Asset Mgmt
Panel:	Anson J. Glacy Jr. - Genl Re-New England Asset Mgmt Barry S. McInerney - William M Mercer Ltd Mani Sabapathi - Prudential Investments
Session:	61PD
Title:	Downturn Consulting And Asset/ Liability Management For Pensions
Panel:	Christopher R. Barr - Goldman, Sachs & Co Eric Boyd Feinstein - Ascension Health
Session:	77L
Title:	Optimal Patterns Of Annuity Payments
Moderator:	Claire Bilodeau - Universite Laval
Lecturer:	Moshe Ayre Milevsky - Schulich School of Business
Session:	87SM
Title:	Investment And Pension Section Luncheon Relating Investment Experience To Benefit Changes In Defined Benefit Pension Plans
Moderator:	Peter D. Tilley - Great -West Life & Annuity Ins
Speaker:	Alan D. Biller - Alan D. Biller & Assoc Inc
Recorder:	Victor Modugno - Internetactuary.com

San Francisco Marriott

Investment Horizon: Its Definition Has To Be Flexible—And Possibly Shorter

by Nino J. Boezio

Investors and the investment industry have received frequent criticism related to the average holding period of securities and mutual funds. It has been noted that the turnover of many investment funds has been quite high in recent years relative to history, and very high in absolute terms. For example, John Bogle, founder and former chairman of the Vanguard Group, noted that the turnover on the average fund had increased from 15-20 percent per annum 50 years ago to about 90 percent today, and the annual turnover of the NASDAQ is around 275 percent (1). In addition he noted that fund investors held their funds about 12.5 years back then, now a little over two years (1). Even though the market decline since the summer of 2000 may have somewhat tempered the above statistics, it is likely only temporary. It was sometimes argued in the past that one's investment horizon should span one's working career, which could range from ages 25-65, or as long as 40 years, and decline in span as one approached retirement.

When viewed in isolation, it has sometimes been characterized that many investors and fund managers are more speculative these days, looking for the quick buck, and no longer thinking long-term. the dramatic increase in turnover has been cited as a danger sign for the long-term health of the stock market and the world economy. The booming and speculative stock market era of the 1920s is sometimes put forward as a negative example of a phenomenon similar to what we have seen recently. Even though there may be some truth in these claims, it is not the whole story.

Arguing about the appropriate number of years that one should include in an investment horizon can be tricky, and possibly foolish. We should note that there have been a number of fundamental changes in the marketplace that have in large part caused this high turnover and short-horizon mindset to have taken place:

- **Changes in global economics due to technology and innovation.** The ability of a company to dominate its industry is less assured than it ever was. Through faster innovation, better product design, and better management, another company can displace a leader more easily than it could decades ago. Products become obsolete in a shorter amount of time. Therefore, holding onto a stock in a portfolio too long, without understanding the changing economic dynamics underlying the business that the stock represents can be detrimental.

‘The booming and speculative stock market era of the 1920s is sometimes put forward as a negative example of a phenomenon similar to what we have seen recently.’

- **Access to corporate information.** Today's individual investors have easy access to all sorts of information through such tools as the Internet. Decades ago, such information was mainly under the domain (and protection) of Wall Street firms and their international counterparts. Even then, Wall Street firms may have had to wait weeks to receive certain reports. In turn, investors often had to wait even longer for information on which to base a new trade. Almost anyone can obtain much of the same information as professional firms do these days. Due to the quantity ("explosion") of information, only certain securities may be followed by Wall Street, so the smaller investor can research companies that would never reach the attention of the big investment houses.

- **Significantly lower commissions.** It is now much cheaper to trade stocks than it was only a decade ago. In the 1980s it could cost approximately on-three percent commission each way (often determined on share price and block size) to trade blue chips. By necessity, one would often need to stay in the security for several months just to break even. Today, commissions are very low, and depending on volatility one can cover these costs in a few minutes or hours. Hence, it is much easier to get-in and get-out with a profit than it once was. This, and the expansion of futures trading, have helped foster the day-trading industry.

- **Falling bid-ask spreads.** Globalization has helped foster more trading and hence more volume on local markets, which allows for more liquidity. With greater market liquidity and activity, spreads have narrowed, causing less slippage. It is therefore much easier for one to enter or exit a position at a desired price, and hence, preserve a profit.

- **Access to trading technology.** Investors can now place a trade with out the need for a visible middleman to take the order, and can even

approach the market floor more directly. The investor has access to quotes (even for futures) without the need to call a broker. In addition, the investor can access (and even develop) trading systems that are as good as, or even better, than what the broker may have. The entire trading process is easier and isno longer outside of the small investor's grasp. Ironically, individual investors can even exit positions ahead of their broker or fund manager through this technology, having smaller positions and through the use of competition.

- **The decline in interest rates and competing vehicles.**
  With the decline in the rate of return earned through vehicles such as bonds, more investors and portfolio managers have been drawn into the stock market than once was the case, simply in order to achieve the same returns they once enjoyed from fixed-income securities. In the 1980s, it was quite easy to achieve a rate of return over 10% in the bond market, especially if the bond was held to maturity. Real estate has also not been as exciting as it once was in past episodes of inflation. This asset class migration has not only resulted in more stock market activity, but in higher turnover, as fund managers continue to maintain their desire for high or double-digit returns which (on the surface at least) appeared easier to achieve in the equity market. This mindset for high or double-digit returns may still not have been broken.

- **Broker competition.**
  There is greater competition for order flow due to the decline in the items identified above. Hence there is more incentive to attract investors via inducements such as lower cost, better trading platforms, and online research. This in turn, perpetuates the cycle of declining commissions, better information access, better technology, innovation, access to quotes, etc.

Some of the negatives that have produced higher turnover include the following:

- **Stronger "irrational" emphasis or expectations on short-term results of fund managers and companies.**
  Despite the "academic" emphasis on firms to invest in research and development and for fund managers to have a longer-term view of company prospects and profitability, there is still undue pressure on short-term performance. Individual investors have had high expectations, and there are many professionally managed funds competing for the same clientele

- **Better investor education.**
  Investors and the public know and understand the stock market better than they used to. This does not mean that they are better investors, but rather, that they think they are better investors. This encourages more of the public to enter the stock market with less fear, and to take risks, gamble, and speculate. This also increases trading activity. They may be even more inclined to enter the market "leveraged," or in personal debt.

- **Exceptional equity returns during the past two decades.**
  This had produced a mentality that everyone can win via the stock market, and hence, equity investing and trading can always yield a profit given time and patience. This led to greater stock ownership by the public than at any other time in history. The market decline of the past two years has probably tempered that view, but then again, memories are short so a few years of good returns can once again make people forget the pain of any bad investment years.

Despite the negatives cited above, the overall evolution in the trading environment has produced a situation where investment horizons have had to be shortened. Corporate product cycles are quicker; market entry and exit is cheaper, easier, and simpler; corporate dominance is less secure; and the pace of technological advances allows for greater corporate evolution and change.

The notion of investment horizon should have never been viewed as a fixed period of time. In the 1800s, investing in the railroads may have been one of the best bets of the century. In the 1900s, the car industry may have had its dominance, but only for half of the century. Then came large mainframe computers that dominated for about one quarter of the century. Then came the personal computer market that dominated for much of the past 15 years. The cell phone market and related products may has dominated for the past seven years. Now we have innovations and new industries that may run their course in only a few years—until something new comes along. We must realize that to hold onto something for the long-term is only valid if we continue to revise and often slide down our definition of what long-term is, given the dynamics of the industries and the economics that we currently see. Otherwise a static investment portfolio will not remain static in terms of value, but may rise for only a short while, and then decline precipitously.

Reference: Bogle, John. Vanguard Founder. Interview. Streetside Chat *December 2, 2000.*

Nino J. Boezio, FSA, CFA, MAAA, is a consulting actuary at Matheis Associates in Toronto, ON. He is also co-editor of Risks and Rewards*. He can be reached at* nboezio@sympatico.ca.

Risk Management of Guarantees on Equity—Oriented Products

by Hubert B. Mueller

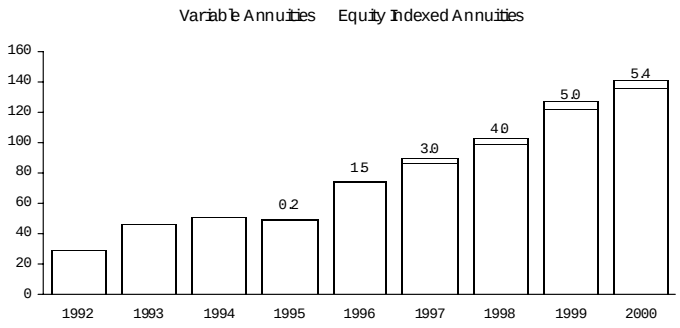
Hubert Mueller's presentation at the SOA's Risk Management Seminar on the risk management of guarantees on equity-oriented products was grouped into three parts:

- Market Background
- The Risk Management Process,
- A detailed explanation and case study on Dynamic Hedging

Market Background

Equity-oriented products exist in North America, Europe, Australia and South Africa, primarily in the form of variable and equity-indexed life and annuity products. During the 1990's, sales for equity-oriented products in the United States have quintupled from $29 billion in 1992 to over $140 billion in 2000, as illustrated in Exhibit 1.

Exhibit 1: Sales of Equity-Oriented Products in the U.S.



Source: Tillinghast - Towers Perrin

Guarantees offered include both death benefits and living benefits, which are offered in various forms:

DEATH BENEFITS

- Guaranteed minimum death benefit (GMDB)
- Enhanced earnings benefit (EEB)
- Spousal step-up death benefit (SSDB)

LIVING BENEFITS

- Guaranteed minimum accumulation benefit (GMAB)
- Guaranteed minimum income benefit (GMIB)
- Guaranteed payout annuity floor (GPAF)
- Guaranteed minimum withdrawal benefit (GMWB)
- Return of premiums (on EIAs)

Key risks resulting from the sale of equity-oriented products include economic risks (payouts under guarantees, revenue loss, capital volatility), accounting risks (earnings and reserve volatility), pricing and operational risks. In particular, the recent volatility in the capital markets has caused increasing pressure on earnings, and forces some companies to lower their growth forecasts for future mortality and expense (M&E) fees.

Many reinsurers have pulled out of the market, forcing direct writers to address risk management issues on their own, or with the help of outside consultants. At the same time, there is increased attention from state regulators and rating agencies on companies' risk management practices and capital markets exposure. Currently, a task force of the Academy of Actuaries is working on new RBC requirements for C-3 risk, which will cover both equity-oriented and interest sensitive life and annuity products. This regulation will be modeled along the lines of the capital requirements recently introduced by the Canadian regulatory authority (OSFI) in the Canadian market, and is expected to be effective in 2003.

Risk Management Process

To manage the risks from these guarantees, companies can employ one of the following strategies:

- Self-insurance (most common)
  - Without additional capital ("naked")
  - Holding additional capital
- Reinsurance
- Capital market solutions
- Static Hedging

- Dynamic Hedging
- Securitization
- Product design
- Consolidation of risks
- Buying/selling blocks of business

Most variable annuity (VA) writers are self-insuring the risks and/or reinsuring at least a portion of the risks. In addition, an increasing number of companies in the US and Canada are using static or dynamic hedging techniques. The goal is not necessarily to reduce or even eliminate risk. The goal is to maximize companies' financial objectives, subject to given risk tolerances and constraints

The risk management process can be broken down into five steps:

Step 1: Understanding the risk—Quantification of risk exposure

Step 2 Deciding whether the risk exposure is appropriate

Step 3: Analyzing risk management options

Step 4: Formulating and implementing risk management strategy

Step 5: Monitoring risk exposure and results of risk management strategy

A case study focused on steps 1 and 3. In particular, the use of risk profile curves allows a comparison of the exposure for the company under the various risk management options available. This allows companies' management to focus on the action steps needed to minimize the downside risk within the tolerance level, while maximizing overall profits achieved.

Dynamic Hedging

The last part of the presentation was focused on providing an overview and a case study on dynamic hedging.

Dynamic hedging is a risk management strategy used to mitigate the exposure resulting from having written or sold an option contract. Dynamic hedging involves periodic rebalancing of a hedge portfolio in order that the change in market value of the hedging instruments offsets the change in the value of the option. This is achieved by examining the sensitivity of the option and hedge instruments against changes in the underlying, volatility, and interest rates. The metrics used to measure these sensitivities are commonly referred to as the "Greeks."

- For example, a put option embedded in a liability portfolio can be hedged using a short position on stock index futures. The futures position would be rebalanced periodically in order to maintain a delta neutral position.
- Dynamic hedging relies on liquid and reasonably continuous markets.
- Dynamic hedging can provide a similar level of hedge effectiveness as a static hedge, but without the implied volatility premium included in buying OTC options.

Definitions of "the Greeks" (Delta (δ), Gamma (χ), Vega (ν), Theta (θ), Rho (ρ)) were provided. The level of dynamic hedging can be varied, e.g. Delta hedging, Delta & Gamma hedging, or Delta, Gamma & Vega hedging, etc. For practical and cost reasons, most companies concentrate on Delta and Gamma hedging. Closer to the expiry of the options, more focus is placed on hedging Gamma and Vega exposure.

Next, Hubert explained the dynamic hedging process and provided a case study on calculating Delta, Gamma and Vega. The presentation concluded with an analysis of the pitfalls in dynamic hedging and suggestions on how to avoid them.

Hubert B. Mueller, FSA, MAAA, is principal at Tillinghast-Towers Perrin in Weatogue, CT, and a member of the SOA International Section Council. He can be reached at muelleh@tillinghast.com.

Upcoming Investment Sessions at the Annual Meeting

by Joe Koltisko

This year's annual SOA meeting, to be held in Boston from October 27th through October 30th, offers some very timely and practical sessions on investment topics. We decided to save the super-quant material for other meetings. In Boston, our dynamic speakers will deliver a masterful and comprehensive set of presentations and workshops to show you what you need to know about current developments in investing.

Be sure to mingle with your colleagues at the Investment Section reception, which will be held Tuesday evening, October 29. Check the program for more details. We'll see you in Boston!

The Practicing Investment Actuary

Moderator: Ken Mungan
Mon. 10/28 10:30 am I05

Leading practitioners in investment-related roles share insights and techniques. Panelists discuss general investment-related issues facing the financial services industry and describe specific applications to actuarial functions including valuation, pricing, and risk management. Topics include asset allocation, product management, and risk oversight. Come learn about the strategies companies are using to measure and manage this risk, and the skills that actuaries in this field use every day.

Synthetic CDO's for Life Insurance Reinsurance Companies

Moderator: Craig Fowler
Mon 10/28 2:00 pm I02

Attendees learn about developments in the synthetic Collateralized Debt Obligation (CDO) market and how they may be used for taking credit risk for a life insurance company. Topics include:

- What a synthetic CDO is
- Pros and cons of CDO investing
- Ways to evaluate an investment in a synthetic CDO
- Comparison of investing in a cash instrument vs. a synthetic CDO
- How insurance and reinsurance companies are using this asset class

Equity Option Pricing

Instructor(s): Scott D. Houghton
Tues. 10/29 8:30 am I03

This session provides a basic foundation for attendees and is designed especially to appeal to senior actuaries. Topics include option structures, jargon, market practices, pricing tools, risks, and risk management techniques. Learn how equity options are priced and gain a better understanding of the embedded equity options in current savings products.

Setting Credit Risk Limits

Moderator: TBD
Tues. 10/29 8:30 am I07

This panel discussion focuses on how investment actuaries determine appropriate issuer and concentration limits in a below-investment-grade portfolio. Topics include:

- Data sources for estimating credit risk costs
- Role of issuer and concentration limits in risk management
- Diversification and contagion effects in high yield portfolios
- Statistical models of credit risk

Expected Investment Returns

Moderator: TBD
Tues. 10/29 10:30 am I09

This session provides an update on where we are in the economic cycle, as well as recent experience. Recent experience includes defaults, prepayments, spread gains/losses, and equities by major sector. Given the current economic environment, panelists discuss how actuaries from all areas of specialization might set expectations for long-term returns on various asset classes. Topics include:

- Low interest rate environment
- The recent recession
- Mean reversion in equity returns
- Demographic drivers of deflation and inflation
- Changing market risk premiums

Report From SOA Risk Management Task Force

Facilitator(s): David Ingram
Tues. 10/29 2:30 pm I08

The SOA Risk Management Task Force has been working for over a year to help advance the risk management educational opportunities for life actuaries. Sub-groups have been working on extreme value models, RBC covariance, enterprise risk management, economic risk capital calculation and allocation as well as other topics. This session gives attendees a chance to find out more about the task force's goals and progress. Also, look for buzz groups we will set up for members interested in each subgroup.

Risk Management Issues For Variable and Equity Indexed Annuities

Moderator: Charles Gilbert
Wed 10/30, 8:00 am I01/FR01

Attendees learn of the risks inherent in common variable and equity indexed annuity designs. The effect of changes in interest rates, market level, and implied and actual volatility on economic and accounting results are discussed. Through the use of illustrative examples, this session examines the use of realistic versus risk-neutral scenario sets for valuation, pricing, and risk management of these products. Hedging and reinsurance approaches and their impact are reviewed as well. Learn how different risk management strategies performed against recent market experience for a GMDB, and how to avoid some of the pitfalls of various risk management strategies.

Informed Choices for Retirement and College Savings Plan Asset Allocation

Moderator: Larry Rubin
Wed. 10/30 8:30 am I10

This session introduces asset allocation models for use by individual participants in both retirement savings plans and IRC section 529 college savings plans. The instructors cover the investment content of such models, as well as the client-server architecture that allows participants to use such models over the Internet. They contrast example model results for savers in both types of plans. Attendees learn how the leading investment advisors are helping ordinary savers meet their financial goals.

Communication by Actuaries and Investment Professionals—Breaking Through the Firewalls

Moderator: Max J. Rudolph
Wed. 10/30 10:00 am I04

Actuaries and investment professionals have developed their own terminology, often having distinct names for the same concept. The actuary working in this field must communicate, not only with investment professionals, but also with senior managers and board members with non-finance backgrounds. Panelists show and critique examples of communicating such information by utilizing statistics and graphs. Attendees will learn techniques for communicating and negotiating effectively with investment professionals. Improve your ability to present investment information to senior managers clearly.

Allan D. Biller To Speak At San Francisco Luncheon

Peter Tilley Chairperson Emeritus

Peter D. Tilley, Chairman *Emeritus* of the Investment Section and a member of the Society of Actuaries Board of Governors, will introduce Allan D. Biller at a joint Pension and Investment Luncheon at the San Francisco Meeting on June 25th. Alan is President of Alan D. Biller & Associates, which acts as a fiduciary investment advisor to clients with assets of over $36 billion. He also provides management consulting and acts as an expert witness. Alan has a BA with honors from Yale, a Masters from the University of London, an M. B. A. from Harvard (Baker Scholar) and a Ph. D. from Columbia (Faculty Fellow). He has written articles in *Pensions and Investments, The Economist, Employee Benefits Journal* (6 times), and *Pension Fund Investment Management* (2nd ed., 1997) among others. Allan's speech on relating investment experience to benefit changes in defined benefit pension plans will debunk common actuarial methods of valuing assets and liabilities in these plans.

Allan Biller

In another San Francisco session jointly sponsored with the Pension Section on Plan Terminations, speakers E. Thomas Veal, co-authored *Pension Plan Terminations,* with Edward R. Mackiewicz. David W. Greene, a terminal funding consultant and Chris Barr of Goldman will also be on this panel.

Valentina Isakina Appointed Finance Practice Area Staff Actuary

Valentina Isakina

Valentina Isakina is the newest member of the actuarial staff at the Society of Actuaries in Schaumburg, IL. She will serve as the Finance Practice Area Staff Actuary, supporting the efforts of members practicing in finance, investment, financial reporting, and other related areas and coordinating the volunteer activities with the strategic objectives put in place by the SOA Board of Governors.

Valentina joins the SOA from the New York office of Milliman USA, where most of her time was spent being involved in various aspects of demutualization projects for different clients. You can reach Valentina at *VIsakina@soa.org*

Rubin To Head Up Committee For New Risks and Rewards Prize

Larry H. Rubin will chair a prize committee for the best article published in *Risks and Rewards*. At the last Investment Section Council conference call, approval was given for a prize of $500, a "bull-bear" plaque and travel expenses to the annual meeting. The prize will be awarded biannually in years when the Redington prize is not awarded. The first award will be made this year at the annual meeting and will be chosen from articles published in *Risks and Rewards* from the last issue in 1999 to the first issue in 2002. In the future, the prize will be indexed to equal 25% of the Redington Prize and will be awarded in even numbered years for papers published in *Risks and Rewards* in the preceding two years. To qualify the paper must be original and must be submitted to *Risk and Rewards* prior to being submitted to another publication. Reports from meetings, book or journal reviews or summaries, and reprints will not be eligible. All papers, which in the opinion of the Committee meet the criteria, will be considered.

In establishing this prize, the Investment Section Council wanted to recognize the outstanding papers published in *Risks and Rewards*. The Redington prize focuses on theoretical, academic papers that typically are published in the *North American Actuarial Journal*. Many fine, practical papers published in *Risks and Rewards* have been nominated, but did not win. The winning paper for this new prize will be the one, which, in the opinion of the Committee, is most useful to the members of the Investment Section. The other members of the Committee are Richard Q. "Dick" Wendt and Nino J. Boezio, the editors of Risks and Rewards, Mark W. Bursinger, and Peter D. Tilley. There will be a procedure whereby Committee members will recluse themselves when voting on papers they submitted. Larry Rubin, a Managing Director at Bear Stearns, was elected to the Investment Section Council last October. He can be reached at *lrubin@bear.com*

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