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insight

Cultivating Confidence

THE EMERGING GLOBAL MARKET FOR VA-STYLE GUARANTEED BENEFITS PRODUCTS

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Letter from Milliman CEO Pat Grannan

I sit down to write this note fully aware that the financial world may perform two or three more somersaults in the time it takes to print this magazine. We've gone through a period of rapid and intense change in the past several weeks and the turbulence is likely to persist for a while. It can be difficult to find meaning when change is coming so fast and furiously, but there are already some lessons we can extract from the crisis.

First, financial instruments that make risk difficult or impossible to assess are inherently risky. The opaque securities used to repackage debt and distribute it around the world carried risks that even experts couldn't quantify. As those securities unravel, they stand in sharp contrast to transparent products such as options, which are performing essentially as expected. Transparent products are the basis for hedges protecting variable annuities with guarantees, making the variable annuity with a guarantee one of the safest bets for retirement savings in the current crisis (see our cover story).

Second, financial instruments that significantly reduce incentives for careful underwriting by those in a position to do the underwriting are dangerous. We're seeing this now with instruments that transferred mortgage risk. We've seen it before in the insurance industry, with certain types of reinsurance.

Third, even perfectly good underwriting of individual mortgages (or insurance policies) in a portfolio can lead to catastrophic risk accumulation if a single event can trigger losses across the portfolio. The current triggering event is, of course, the decline in home prices. The insurance industry and its regulators have learned similar lessons when hurricanes (and, in earlier times, citywide fires) struck an area where an insurer had a concentration of policies.

We will get past this crisis. It's not our first. The question is whether we will learn from it. A real assessment of risks, and avoidance of those that could not be assessed, could have prevented the crisis, and that is the way to avoid similar crises in the future. We're working with our clients to shine light on this path.

Pat Grannan

PATRICK GRANNAN

Milliman Chief Executive Officer

BY THE NUMBERS...

Turn Over a New, Paperless Leaf. The average American consumes 700 pounds of paper every year—a higher amount per capita than any other country. A report conducted by the Environmental Paper Network revealed the sobering statistic that, as of 2003, only 48.3% of office paper was recycled. Papers made with 100% recycled content use 44% less energy, produce 38% fewer greenhouse gas emissions, 41% fewer particulate emissions, 50% less wastewater, and 49% less solid waste than papers made with new wood, not to mention using 100% less wood. Find this depressing? Don't reach for a tissue… reach for a cloth handkerchief.[1]

Those Pearly Whites. The average American spends 38.5 days brushing over the course of a lifetime. According to a recent survey by the American Association of Periodontology, 50% of Americans say that a smile is the first facial feature they notice, and 32% of Americans cite bad breath as the least attractive trait of their coworkers. On average, people today have healthier teeth than they did 10 years ago. Still, children miss more than 51 million hours of school each year due to dental-related illness, and employed adults miss more than 164 million hours of work each year due to oral health problems or dental visits.[2]

Show Me What You're Made Of. Chemically, that is. The average 164-pound human is composed of approximately 107 pounds oxygen, 30 pounds carbon, 16.5 pounds hydrogen, 5 pounds nitrogen, 2.5 pounds calcium, 0.4 pounds sulfur, and smaller parts potassium, chlorine, sodium, magnesium, iron, fluoride, zinc, silicon, and numerous other elements.[3] All of these elements build up the bodies that we think of as composed of bigger things like organs, fat, and muscle. About 40% of a healthy adult is composed of muscle.[4] While the minimum healthy body-fat percentage is 5% for men and 12% for women, the average adult body-fat percentage hangs right around 15%–18% for men and 22%–25% for women. Predictably, athletes tend to be at the low end of the body-fat scale, with lean muscle mass making up more of their weight.

Feeling Low? With shores more than 1,300 feet below sea level and a depth of more than 2,300 feet below sea level, the Dead Sea is by far the lowest place on Earth. It stretches 34 miles in length and varies between two miles and 11 miles in width. The Dead Sea holds the world's saltiest water, with almost six times the salinity of the ocean. At 200 feet deep, the sea is saturated with 221 grams of salt per kilogram of water, and salt spills out onto the seabed. Nothing can live in such saltiness, and fish that experience the misfortune of wandering into the sea from freshwater rivers meet instant death. The sea reaches temperatures of 86 degrees in the winter and 104 degrees during the summer.[5] By contrast, the highest place on Earth, Mount Everest, peaks at 29,035 feet and is pushed a few millimeters higher each year by geological forces.[6] The temperature at the summit of Mt. Everest can reach as low as 100 degrees below zero Fahrenheit, or as high as 15 degrees below zero on a nice summer day.[7]

What Goes up Without Touching Down? This September marks the one-year anniversary of the longest nonstop avian flight ever measured. A shorebird called a bar-tailed godwit traveled for nine days from Alaska to New Zealand without resting for food or water—a journey of 7,145 miles. Biologists from a California-based nonprofit research group followed the bird's migration with satellite tags. The bird, called E7 by the researchers, flew an average of 34.8 miles per hour and burned off more than 50% of her body weight in fat stores that she had put on during the summer in Alaska. According to one of the scientists, an equivalent human feat would be a seven-day-long run at a speed of 43.5 miles per hour. Better get jogging.[8]

How Does Your Time Tick? According to a 2007 survey on American time use, employed Americans work an average of 7.6 hours on workdays. On a usual day, persons aged 15 to 19 spend 3.1 hours participating in educational activities such as class or studying, more than three times the educational time invested by people in any other age group. On days that they engage in household chores and activities, women spend 2.7 hours and men spend 2.2 hours. Adults older than 75 years of age devote the most time to personal interests and leisure time—7.8 hours—and those in both the 25-34 and 35-44 age brackets have the least personal time—4.2 hours.[9]

Got some facts or figures you'd like to share with us? Write us at insightmagazine@milliman.com.

The New In-crowds. Nearly one-quarter of all Americans now have profiles on social networking sites like Facebook and MySpace.[10] A recent study surveyed 1,600 corporate employees in the United States, United Kingdom, Germany, and Japan and revealed that 19% have perused social networking sites while on their company Web network, up from 15% in 2007. Aside from obvious productivity issues, employee visits to unsecured social networking sites using Web 2.0 technologies can pose security risks, as links and widgets capable of stealing personal information can be embedded in such sites.[11] About 22% of U.S. companies ban at-work use of social networking sites, primarily due to idleness concerns, but 8% report encouraging the use of such sites, as they can be valuable networking, marketing, and team-building tools.[12]

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2 "Fun Dental Facts," Feb. 6, 2008, www.dentalgentlecare.com/fun_dental_facts.htm.

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5 "The Dead Sea," *Extreme Science*, 2008, www.extremescience.com/DeadSea.htm.

6 "Mount Everest History," www.mnteverest.net/history.html.

7 "Mt. Everest Information," www.teameverest03.org/everest_info/index.html.

8 Dave Hansford, "Alaska Bird Makes Longest Nonstop Flight Ever Measured," *National Geographic News*, Sept. 14, 2007, http://news.nationalgeographic.com/news/2007/09/070913-longest-flight.html.

9 "Economic News Release: American Time Use Survey," Bureau of Labor Statistics, June 25, 2008, www.bls.gov/news.release/atus.nr0.htm.

10 Tom Webster, "Online Radio Reaches 33 Million Americans Per Week," Edison Media Research, www.edisonresearch.com/home/archives/2008/03/online_radio_re.php.

11 "Social Networking in the Workplace Could Put Corporate Networks in Danger," *Trend Micro News Releases,* July 27, 2008, http://trendmicro.mediaroom.com/index.php?s=43&item=652.

12 "Survey: 22% of Companies Ban Social Networking Sites," *Silicon Valley/San Jose Business Journal*, July 17, 2008.

CULTIVATING CONFIDENCE

THE EMERGING GLOBAL MARKET FOR VA-STYLE GUARANTEED BENEFITS PRODUCTS

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The success of retirement-savings products such as variable annuities (VAs) with guaranteed benefits in the United States and Japan – and the ability of these products to stand up to intense market volatility, as we saw in September and October of 2008 – has caught the attention of insurance companies and policyholders in the global market. VA guarantee products are now available in various countries across Europe and Asia, and similar products, in the form of retirement savings guarantees, are now being sold in Australia. Local market factors make it unlikely that the U.S. product mix will be exactly replicated the world over; instead, local breeds of products are emerging. The global markets look promising for guarantee products, but navigating these emerging markets requires a clear understanding of the particular factors at work in each country.

The Appeal of Guarantees

In the United States, VAs have been around since the 1980s. In its most basic form, a VA resembles a package of mutual funds that an investor or policyholder buys, but it offers tax advantages relative to mutual funds and can contain an insurance component in the form of a guarantee on underlying fund performance. As with other forms of annuities, policyholders have the right to annuitize their balance. Over the years, the guarantees offered on VA products evolved as the market environment changed and companies sought to meet customer needs.

During the long bull market of the 1990s, American insurance companies sold VA-style guarantee products in increasing, although still modest, volumes. Then the tech bubble burst in 2000–2001, and the market downturn intensified following 9/11. Many direct writers and reinsurers that had accumulated significant guarantee books in the 1990s found they had underestimated the amount of capital at risk because of the guarantees. The bear market, which lasted throughout 2002, revealed the true value of guarantee products both for consumers desiring protection against adverse market events and for providers, who learned new realities about pricing and risk management.

Companies now had to meet a growing demand for guaranteed investments while at the same time adjusting their risk-management and pricing strategies to better manage the risks exposed by volatile investment markets. More sophisticated pricing, valuation, and hedging techniques were developed as the market for guarantee products took off. From 2002–2007, total VA assets more than doubled to nearly $1.4 trillion (Figure 1).

For consumers, guarantees are attractive because they offer participation in equity or managed-fund growth in the underlying markets while providing protection against the risk of declining markets. With VA-style products, the guarantee is an option that carries a transparent and competitive price. In contrast to traditional payout annuities, these products offer policyholders the liquidity of their remaining account balance at any time.

Many customers who were burned by the bear market of 2000–2002 found guarantee products attractive, whether the product guaranteed protection of capital, minimum returns, the ability to lock in equity/fund performance, or lifetime income. And clearly, such guarantees are compelling once again, in the context of the subprime mortgage crisis and the ensuing financial fallout that has rocked financial markets the world over. Insurance companies have been honoring their VA guarantees in the face of sharp market downturns, providing confidence at a time when it has otherwise been sorely lacking.

Types of VA-style Guarantee Products

When applied to the retirement-plan sector, VA-style products offer a living benefit in the form of either a guaranteed minimum income or a guaranteed withdrawal amount. Three types of products are especially suitable for retirement plans: those with a guaranteed minimum withdrawal benefit (GMWB), a guaranteed lifetime withdrawal benefit (GLWB), or a guaranteed minimum income benefit (GMIB), each of which involves a managed payout program that ensures a minimum level of drawdown benefits for the policyholder.

One might think of GMWBs, GLWBs, and GMIBs as wealth-preservation or wealth-decumulation products, enabling the consumer to preserve wealth over the drawdown period in the event of longevity. They combine some of the advantages of traditional defined benefit (DB) and defined contribution (DC) retirement plans, allowing investors to control their assets and have access to them while also providing the security of a long-term minimum benefit floor. The success of VAs featuring such guarantees has stimulated the development of these products across a broader range of retirement plans, such as 401(k)s in the United States and superannuation funds in Australia.[1]

The guarantees can also be tailored to meet consumer needs in different market segments. For example, GMWBs can play a role in wealth *accumulation* during the period of the product life, typically the early years, during which accumulation may be their primary focus. As positive market returns produce growth in the underlying assets, the guarantee benefit balance ratchets up to match the growing account value, locking in market-based gains. However, there is a type of guarantee that is particularly designed as a wealth-accumulation product: the guaranteed minimum accumulation benefit (GMAB). In most markets, GMABs are attractive to younger investors who are at, or nearing, the height of their earning power and looking for a secure way to grow their wealth.[2]

The Alphabet Soup of VA Guarantees*

GMAB: GUARANTEED MINIMUM ACCUMULATION BENEFIT
A guarantee that the ultimate principal will not fall below a specified level regardless of the underlying performance of the variable annuity.

GMDB: GUARANTEED MINIMUM DEATH BENEFIT
A guarantee that pays the greater of the account value or the guarantee amount in the event of the policyholder's death.

GMIB: GUARANTEED MINIMUM INCOME BENEFIT
A guarantee that provides a minimum level of income for the remaining life of the policyholder, regardless of market performance.

GMWB: GUARANTEED MINIMUM WITHDRAWAL BENEFIT
A guarantee that the policyholder may withdraw a specified minimum amount each year until the guarantee balance is exhausted, regardless of market performance.

GLWB: GUARANTEED LIFETIME WITHDRAWAL BENEFIT
A guarantee that the policyholder may withdraw a specified minimum each year for life, regardless of market performance.

*In some countries, VA-style products are called *unit-linked* products. In Australia, the term "variable annuity" is rarely used; rather, the products that are the focus of this article are more commonly referred to as *retirement savings guarantees*.

FIGURE 1: GROWTH IN VARIABLE ANNUITIES, UNITED STATES, 2000–2007
(TOTAL END-OF-YEAR ASSETS, IN BILLIONS OF DOLLARS)

Source: Investment Company Institute, *2008 Investment Company Fact Book*, 48th ed. (2008), p.152

Finally, guaranteed minimum death benefit (GMDB) products are available in some markets to meet the needs of consumers in various segments, particularly those engaged in estate planning.

A Look at the Regional Markets

Partly as a result of the popularity of guarantees in the United States and Japan, together with a growing understanding of the products' value to consumers and an increasing acceptance of the effectiveness of risk-management strategies, companies active in the major European and other Asian markets began developing similar products for their policyholders.

The first market for VAs outside the United States was Japan, where the Netherlands-based company ING Life introduced variable annuities with a GMDB in 1999. Soon the Japanese company Mitsui began offering a GMAB. It didn't take long for other companies to join the competition, and today Japan is second only to the United States in VA sales.[3]

In 2005, Hartford launched its SafetyNet product, a GMWB, in the United Kingdom. Other companies followed suit, and markets for guarantee products opened across continental Europe, Canada, Hong Kong, South Korea, Taiwan, and Australia.

Market dynamics differ according to the local or regional investment culture, political-economic system, and population trends. In the United States, VAs tend to follow the same pattern as investments in general, with funds primarily invested in U.S. stocks, bonds, and mutual funds, and, as a recent trend, some diversification in the broader international markets. In Europe and Asia, guarantee products include a more global investment portfolio. There are some purely European funds, United Kingdom funds, and Japanese funds but, in a typical European VA for example, there is likely to be a more or less equal split between European investments and overseas investments. In general, countries with smaller national economies see a greater geographic diversification of investments, although one partial exception is Australia, where citizens who invest in the domestic market benefit from tax incentives.

Regional factors have implications for product design and risk management. Where population demographics are making it increasingly burdensome for the working-age population to support traditional retirement programs—e.g., in the United States and, even more so, in Japan and certain European countries—guarantees tailored for retirement plans are appealing as an income source for a future in which traditional pension benefits seem uncertain.[4] Where regulatory conditions are difficult, especially regarding the hedging practices necessary for financial risk management (FRM), providers are finding a way around the restrictions, usually by underwriting and hedging the products outside the market countries themselves or by reinsuring the products internationally.

JAPAN Today's second-largest variable-annuity market is dominated by single-premium products and a limited number of

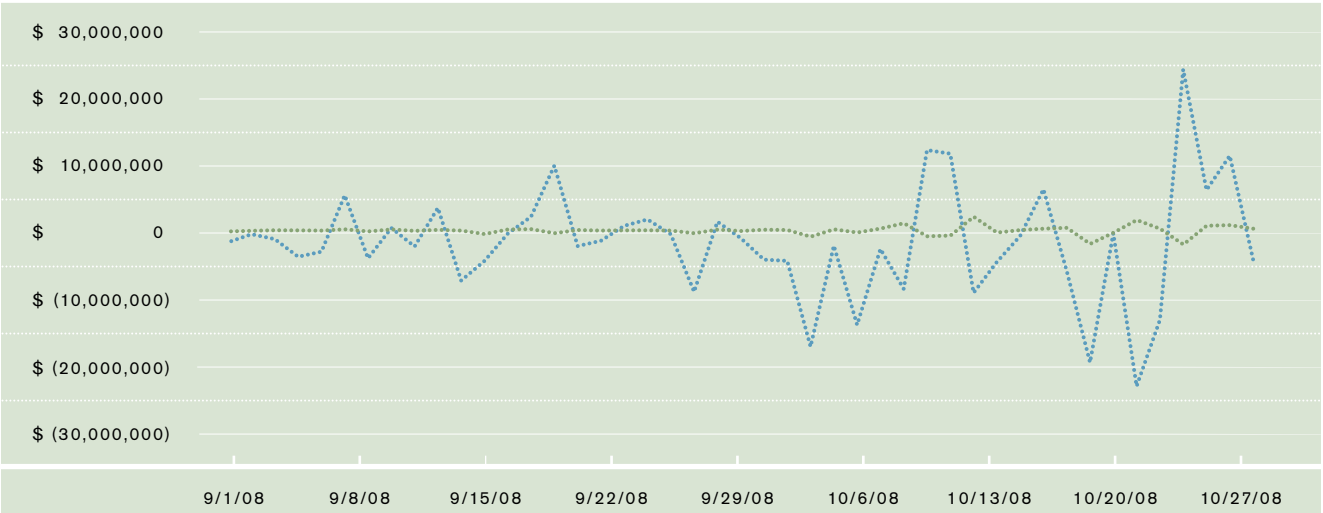
1 Dan Campbell and Ken Mungan, "Life After Work: The Future of Retirement Security," *Insight* magazine, Autumn 2006, www.milliman.com/perspective/articles/life-after-work-future-insight11-01-06.php.
2 It should be noted, however, that GMABs are sometimes also sold to older consumers, especially in Japan.
3 Rikiya Ino, "Variable Annuity Market in Japan: The Sun Also Rises," Aug. 1, 2006, available at www.milliman.com/perspective/articles/variable-annuity-market-japan-mgin08-01-06.php.
4 For a discussion of how demographics affect the pension systems of various countries, see Malcolm Gladwell, "The Risk Pool," in *The New Yorker*, Aug. 28, 2006, available online at www.newyorker.com/archive/2006/08/28/060828fa_fact.

FIGURE 2: FIRST VA-STYLE PRODUCT LAUNCHES IN COUNTRIES OTHER THAN THE UNITED STATES

Date	Sold in (Type)	Company	Date	Sold in (Type)	Company
April 1999	Japan (no guarantee)	ING	June 2007	Hungary (GMAB, GMDB)	ING
June 1999	Japan (GMDB)	ING	2007	Taiwan (GMDB, GMWB)	Cathay
2002	South Korea (GMAB, GMDB)	Kyobo	July 2007	Belgium (GMWB)	AXA
Feb. 2005	United Kingdom (GMWB)	Hartford	Nov. 2007	Australia (GMAB)	AXA
March 2006	Germany (GMIB)	AXA	Dec. 2007	Italy (GMAB)	Assicurazioni Generali
June 2006	Isle of Man (GMWB, GMDB)	AXA			
Dec. 2006	Canada (GMWB)	ManuLife	Jan. 2008	Poland (GMAB, GMDB)	ING
Feb. 2007	Hong Kong (GMWB)	ManuLife	Oct. 2008	Switzerland (GMWB)	Bâloise, Assicurazioni Generali
March 2007	Spain (GMAB, GMDB)	ING			
May 2007	France (GMWB)	AXA	Oct. 2008	Luxembourg (GMWB)	ERGO

Source: Milliman and Morgan Stanley Research

WEEKLY NET P&L – HEDGING VERSUS NO HEDGING



It appears hedging programs have worked as intended through the intensely volatile months of September and October 2008. Milliman recently completed a study of VA writers, focusing on the aggregate profits and losses (P&L) for participants during these two months. We found that hedging has been on average 93% effective in recouping the capital-market losses that hedging programs were designed to protect. Industrywide, we estimate hedging has saved the insurance industry around $40 billion over these two months. Without the payoffs from hedging programs, some major VA writers would have encountered solvency issues. This exhibit shows a comparison of a hedged P&L versus an unhedged P&L. We normalized our results to $1 billion of assets under management as of Sept. 1, 2008. This block of business has a mixture of GMDB, GMIB, GMAB, GMWB, and GLWB benefits. The P&L is very volatile without hedging.

available fund choices. Sales of VA products in Japan began slowly but took off after Hartford entered the market in 2000 on the basis of a product-distribution relationship with major stockbrokers. After several years of explosive growth, dominated by foreign competitors, domestic companies have become increasingly involved. For example, Sumitomo Life and Tokio Marine Nichido Financial Life are now the leading Japanese players.

Unlike in the United States, where policy choices include a large number of funds, Japanese policyholders have only a handful of funds from which to choose. The available choices tend to be picked from funds that follow well-known indices.

The most frequently sold guarantees to date have been GMABs, but market demographics are turning the tide more toward GMWBs and GLWBs, products that emphasize wealth

decumulation. People older than 60 represent a high proportion of Japan's population — and hold an even higher proportion of the country's assets — and because they have already accumulated great amounts of wealth, they are a prime target for products that feature guaranteed withdrawal levels rather than guaranteed further accumulation benefits.

The same factor underlies the single-premium nature of Japanese guarantee products. An older population tends to have more accumulated wealth and is less likely to invest in the types of regular-premium (e.g., monthly) investment plans that are appropriate to younger people in their wealth-accumulating years.

Notwithstanding the rapid growth of the Japanese VA market — from less than $5 billion in 2002 to its present $158 billion — there is much potential for further growth. The Japanese have a lot of money in bank accounts earning very low interest rates, and higher-earning alternatives are attractive investments. At the same time, the traditional conservatism of Japanese investors makes the guarantee features of VAs appealing. Investors have the assurance that their principal is secure plus the chance to earn a higher return. This presents a positive opportunity for expanding the guarantee business.

EUROPE Most of Europe (with the notable exception of Ireland[5]) shares the basic demographic condition of Japan, i.e., a burgeoning population near or into retirement and a declining proportion of younger adults. In the United Kingdom, for example, approximately one-third of the population, or 20 million people, is 50 or older, and that proportion is projected to increase.[6] The large pool of savings accumulated by this older population is available for investing in programs that will decumulate assets in a measured, responsible way. Perhaps this explains why the majority of VA guarantees sold to date in the United Kingdom are wealth-decumulation products, although asset-accumulation products are also available and gaining momentum.

The trend is similar in the countries of northern continental Europe where VAs have begun to take hold. The emphasis in these markets, as in the United Kingdom, is on retirement or wealth-decumulation products, primarily GMWBs and GMIBs.

One sees a different pattern in southern Europe, mainly Italy and Spain, where wealth-accumulation VAs tend to predominate, usually in the form of GMABs. The main reason for this regional difference, despite similar age demographics, is that the southern countries have enjoyed more generous social security systems, and people rely on the state for their retirement needs more than in northern Europe. Similarly, the pattern in east-central Europe resembles that of southern Europe, i.e., with wealth-accumulation products predominating.

Regulatory concerns throughout much of Europe have made it necessary for companies selling VAs to set up cross-border underwriting and hedging operations. Thus Hartford's SafetyNet, sold in the United Kingdom, is underwritten from Ireland and hedged in the United States; AXA's TwinStar, sold in Germany, is also underwritten from Ireland and hedged in the United States, France, and partly in Germany.[7] There has also been cross-border activity from Luxembourg into France, Germany, and Belgium.

The regulatory environment may soon change, however. The German government is currently considering new statutes that would facilitate the development of VAs wholly within Germany. The new regulations could be in place sometime during the first quarter of 2009. It seems logical that other European Union countries will follow suit.

One particular dynamic in the continental European market may affect VA product development in other markets. There appears to be a significant demand in several European countries for regular-premium savings products, in which people invest smaller amounts of money repeatedly over time rather than a large sum in a single premium (the norm in the United States and Japan). The target market for regular-premium products is generally people in their 30s and 40s who have less to invest but are accumulating wealth and beginning to plan for their retirement. Such products can be designed to address both the accumulation and decumulation phases of retirement planning — as, in fact, the AXA TwinStar product now being sold in Germany is designed to do.

EMERGING MARKETS IN ASIA The major emerging Asian markets for guarantee products are South Korea, Taiwan, and Hong Kong. Hong Kong, the smallest of these (population 7 million), has already seen a number of VA product launches. Although there is a substantial number of potential investors with assets sufficient to make a market, it remains to be seen how many additional companies will offer guarantee products in Hong Kong and what the size of the market will be.

Larger markets will be found in South Korea and Taiwan, where VA offerings are taking shape primarily around GMAB and GMWB products sold to a predominantly younger clientele — the "salaryman" demographic, mid-career individuals who are just beginning to save for their retirement. Accordingly, the average policy size is relatively small and premiums tend to be of the regular-payment type. The market total in Korea is currently in the $10 billion to $20 billion range, and the market in Taiwan is just getting started.

Given the size of the national economies, investment portfolios must be heavily weighted toward global securities if they are to be diversified. Indeed, there are Korean and Taiwanese funds that are wholly denominated in foreign currencies and some funds that are essentially U.S. products sold directly in these countries.

5 See Gladwell, "The Risk Pool," for a discussion of the bulge in Ireland's working-age population, largely attributable to the lowering of legal barriers to contraception and the consequent decline in birth rates.

6 U.K. Statistics Authority, *National Statistics Online*, www.statistics.gov.uk/CCI/nugget.asp?ID=6 and www.statistics.gov.uk/cci/nugget.asp?id=1263.

7 Farooq Hanif, Gary Finkelstein, Jon Hocking, and Joshua Corrigan, "Life Insurance: Global Variable Annuities," Morgan Stanley/Milliman research paper, Dec. 7, 2007, p. 14.

In regulatory terms, South Korea is proving to be relatively problem free because the government regulators are receptive to hedging and other FRM practices common in the United States. In contrast, Taiwanese regulators immediately took a more stringent approach. Taiwan's statutes are vague about hedging for liabilities, and the regulators initially insisted that new legislation was needed to permit hedging as it is done in the United States. Products sold in Taiwan to date have had to be reinsured abroad. Now, however, it appears likely that the regulators might allow hedging in the near future, a welcome change that would put Taiwan on a regulatory footing similar to South Korea.

AUSTRALIA Australia offers a strong potential market for guarantee products because of the country's existing DC retirement structure, known to Australians as the superannuation system. That system requires every working person to set aside a minimum of 9% of his or her income by payroll deduction and invest it in a DC account. That has created an enormous pool of accumulated assets for which fund managers and insurance companies are now competing.

Those assets are held in several categories of funds, including retail-type funds offered by insurance and financial services companies and not-for-profit funds, some of which are called "industry funds" and are offered to members employed in specific industry sectors (retail, aviation, health services, etc.). Over the next 15 years, as the Baby Boom generation leaves the workforce, as much as $1.2 trillion, or 39% of total superannuation funds, will transition into retirement drawdown, presenting a tremendous opportunity for wealth-management organizations that can service fundholders' needs.[8]

The Australian economy suffered less than others during the downturn of 2000–2002, so there was little concern about negative returns until more recently. The collapse of several high-profile Australian finance-related corporations, together with recent market events, has made the public aware of risk in the equity market. This realization comes as the Baby Boomers are moving from the accumulation mindset into the decumulation mindset—and starting to worry about outliving their savings. The traditional Australian risk-taking mentality is beginning to shift toward an approach that seeks capital preservation. With that shift comes a need for products that provide increased security.

There are, however, several hurdles to clear before guarantee products can occupy a big space in the Australian market:

- The distribution of guarantees provided by third parties through superannuation funds is likely to appear as a trend. The long-term nature of these guarantees will require a flexible and transparent operational structure to minimize counterparty risk and ensure that the fund protects its reputation and retains control over the product on behalf of its members.

Regular-premium VA Guarantees: The Risk-management Challenge

The DC guarantees under development in the United States but used globally are essentially single-premium GMWBs applicable to a person's total assets accumulated in a 401(k).* The promise of a regular-premium VA guarantee is that such a product can target younger investors who generally do not have, say, €100,000 to make a worthwhile single-premium investment but might easily afford €500 per month or €5,000 per year for the next 20 years.

However, developing a regular-premium VA guarantee poses challenges of risk management related to product distribution and pricing. Although a policyholder who is on board for 20 years is ultimately very valuable to an insurance company in terms of embedded-value accounting, agents and other distributors who make their living off commissions gain little up front from selling a €500-per-month policy unless they receive a disproportionately large initial commission for each sale. To recoup that initial investment, the issuing company must either (a) charge the policyholder up front, (b) impose relatively high fees at early durations, and/or (c) assess a heavy early surrender penalty. Creating a growth industry in regular-premium VAs requires resolving these distribution and pricing challenges.

Companies have taken steps toward creating regular-premium guarantee products in South Korea, Taiwan, Australia, and some European markets. If they are successful, versions of the model will almost undoubtedly spread to the rest of the global market.

*Campbell and Mungan, "Life After Work: The Future of Retirement Security," cited in fn. 1 supra; also Campbell and Mungan, "The Security of a Guarantee," *Benefits Quarterly*, Second Quarter 2007, pp. 37–41.

Market Volatility and Financial Risk Management

The prolonged downturn in financial markets that began in 2000 caught many by surprise, including companies that sold VA guarantees. New strategies for managing risk became essential for pricing guarantees appropriately, and sophisticated hedging techniques were developed, such as those supported by Milliman's MG-Hedge®, a proprietary platform for risk analysis and dynamic hedging of market exposure. The best of the new systems have the ability to perform calculations at the individual policy or loan level, generating daily data based on a client's actual portfolio, which can then be used to calculate the optimal course of action with precision, as well as to fulfill the numerous financial-reporting requirements that apply to the variable annuity business. The result is more realistic models of how market changes will affect risk profiles and actual trading activities.

- As the system is currently set up, accumulation and drawdown phases are separate, requiring product designs specific to each phase. An alternative may be to create an integrated guarantee, although technology and disclosure requirements may prove challenging.
- Fees for products in the retail market tend to be high, between 2% and 3% before adding guarantee costs. Fees charged by the not-for-profit funds, on the contrary, are generally below 1%. High fees mean higher end costs to consumers. This raises the question of whether retail providers can be competitive if they add new benefits at greater cost—or do they need to restructure to provide a better value proposition?
- Guarantee products are something new, and regulatory treatment is uncertain. When AXA launched the first guarantee product in Australia in November 2007, the guarantee was structured outside the life insurance business, shifting many of the responsibilities for oversight onto the shoulders of the fund trustees.[9]

These problems are not insoluble, and if providers can develop products that clear the regulatory hurdles and keep the fees manageable, there is a rich opportunity in Australia.

Global Roundup

The global market for guarantee products seems to hold much promise, but it also challenges companies to develop new approaches to their business if they are to succeed.

CHALLENGES The first challenge is to recognize that there is not one global market, but many national and regional markets, and to understand what works in each and what does not:

- What are the key population trends, and how do they affect market demand in terms of accumulation/decumulation products?
- What are the prevailing tendencies in the local investment culture, and what do they suggest about effective product design?
- How are customer expectations shaped by the existing framework of insurance products and pension benefits in the region? Can product design incorporate the elements of these existing products that customers find attractive while improving parts they don't?
- With respect to fee structures, which markets are particularly price sensitive (e.g., the United States, Australia, and the United Kingdom), which are not so price sensitive (e.g., Asia and southern Europe), and how does price sensitivity affect product design and distribution?
- How does a country's tax climate affect the value of guarantee products, and how can products be designed so as to maximize any available tax benefits?

Companies entering multiple markets are wise to think in terms of not only a single, homogeneous product. The business case for investing in FRM infrastructure is strongest when a company positions itself to meet customer needs across a variety of market segments. The valuable business proposition, then, rests in the ability to develop one FRM infrastructure that meets those different needs with different VA products.

The second challenge is to master the complexities of risk management in the global context. Hedging strategies must be global in scope, accounting for multiple currency exposures and risk factors peculiar to each individual country's market.

Managing large multinational funds means trading around the clock in the world's major financial exchanges, each with its own rules and standards. It requires clear and constant communication between a technical staff that is competent on the level of global strategies and FRM, and local staffs who understand the various economies and capital markets, know which banks to talk to about which instruments, and have cultural credibility among the people with whom they deal.

WHAT GOES AROUND... The globalization of the guarantee market will produce reciprocal influences in product development. Although different regional markets require their own solutions, lessons learned in one market can lead to new applications elsewhere. By spreading outward from the American market, guarantee products are finding new forms that can be imported into the United States. For example, if regular-premium guarantees succeed in Europe, Korea, Taiwan, and Australia, similar products may sprout in the United States, where they could be applied to the wealth-accumulation phase of individual retirement programs. And no doubt there is much for American fund managers to learn from their counterparts around the world about how to truly diversify their holdings globally. **M**

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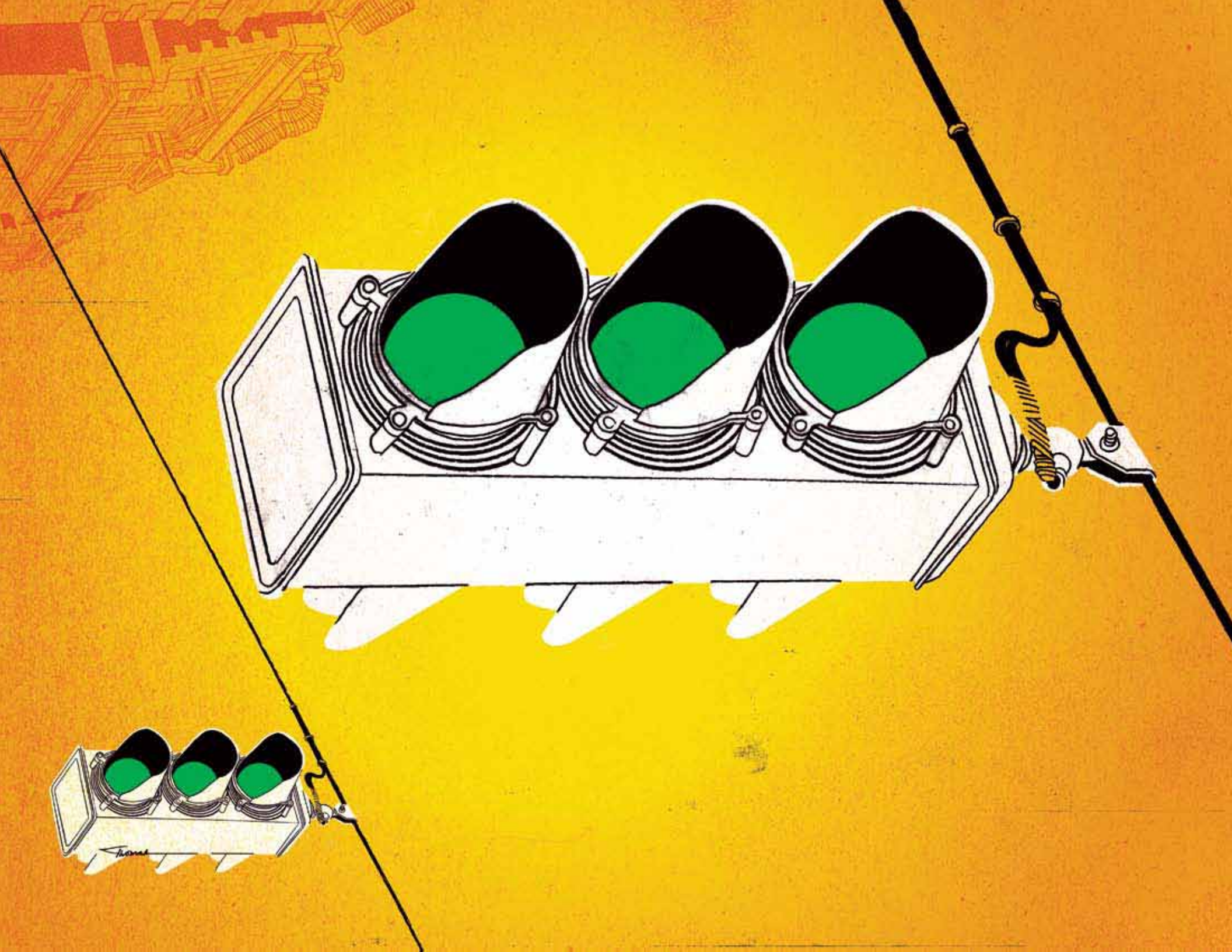
8 Wade Matterson, "Risk in Retirement: Impact of the Market Downturn and Implications for Retirees and Product Providers," Milliman research paper, July 2008. In addition to the two approaches mentioned, there is also a substantial self-managed sector of the retirement-funds market, which is more fragmented and therefore harder for companies offering guarantee products to penetrate.

9 AXA's North, a regular-premium GMAB, is available in both a superannuation version and an ordinary money version, indicating that the trend in Australia may be to offer guarantees into both retirement savings plans and regular retail investment products.



EXPRESS LANE TO LOWER-COST EMPLOYEE BENEFITS PLANS

BY KATHIE ELY, FSA, MAAA, AND ANDREA BURRELL

Captive insurance companies have long offered significant insurance cost savings for certain types of risk. But complicated Department of Labor (DOL) rules and a rigorous approval process have meant that, until recently, few companies have used captives to finance employee benefits plans such as disability coverage and life insurance. A series of green lights from the DOL, however, has established a regulatory "express lane" for employee benefits and captives.

Captives are insurance companies established by a parent company, or group of companies, that allow the parent to finance, manage, and insure/reinsure some or all of its own risk rather than limit itself to plans offered by third-party carriers. Traditionally, captives have made sense for risks like property damage, product liability, workers' compensation, and directors and officers coverage. With employee benefits plans, the Employee Retirement Income Security Act (ERISA) prohibits the sponsor (the employer) from having a financial stake in the plans, but exemptions exist if the proper protections and oversight are established.

In 2000, Columbia Energy (now NiSource) became the first employer to receive DOL approval to use its captive to reinsure a portion of its employee benefits plan. Archer Daniels Midland received approval two years later and, since then, an additional 12 employers have received exemptions from the DOL allowing them to reinsure employee benefits via captives. We are aware of several others who have recently filed or plan to file an application for exemption.

Why Use a Captive to Reinsure Employee Benefits Plans?

The main benefit of reinsuring an employee benefits plan with a captive closely resembles the advantages that make captives effective for other types of risk: reduced insurance expenses in the long run. In this economy, strategies to reduce employee benefits expenses are increasingly important. Employer resources for funding employee benefits are caught in a squeeze between stagnating revenues (and benefits budgets) and double-digit healthcare cost increases. Captives can help reduce expenses by providing more control over the risk profile, improved cash flow, more efficient use of capital, some limited tax benefits, and greater stability in the cost of insurance.

More control of risk is achieved by appropriately balancing the employer's unique risk profile between its captive and a third-party insurer. Broadly, life insurance and disability claims fall into three risk categories:

1. The first group includes a stable flow of claims that an employer can be reasonably certain of having to pay out each year. By buying a plan on the market, the employer is paying a premium to a third party when it could afford to budget for this expense itself at a lower cost.
2. The second group is a middle-ground, medium-risk group presenting a greater chance of claim variability, as well as an opportunity for the employer to take a risk on covering these claims at a potentially lower cost than the market premium.
3. The third group includes the most unpredictable claims risks.

Employers that buy employee benefits plans on the market may pay premiums that cover 100% of the risk presented by all three groups, when they could retain the risk for the first two at a lower cost. The approach for putting an employee benefits plan in a captive is to purchase a third-party insurance plan that will cover all three groups, and use the captive as a reinsurer to recapture and manage the risk of the first and second groups. By more effectively balancing premiums with claims, captives can lead to better cash-flow management in addition to better control of risk. Even if employers currently self-insure some or all of the first and second groups, thereby already enjoying the enhanced cash-flow and/or control of risk, transferring these risks into a captive may provide further benefits, such as more efficient use of capital.

Which Employers Should Reinsure Their Employee Benefits in a Captive?

For employers with an existing captive, adding an employee benefits plan allows capital in the captive to be used more efficiently by diversifying the risk portfolio. This reduces the marginal capital required to add the employee benefits plan to the captive.

Suppose an employer has a captive that covers workers' compensation and product liability and wants to add life insurance and disability from its employee benefits plan. The existing captive will already be capitalized at a level that meets regulatory requirements and covers claims, with a reasonable cushion. Employee benefits risks tend to be uncorrelated with other risks covered by captives, so the likelihood of facing simultaneous claims is small; a bad year with employee benefits claims is just as likely to be a good year with other risks. By diversifying the captive's risk portfolio and leveraging its existing capital, setting up the employee benefits plan may require relatively little additional capital, especially compared to launching a new captive from scratch.

Employers with existing captives are especially well positioned to fold their employee benefits plans into a captive, and for a variety of reasons, not the least of which is firm size. There can be large start-up costs associated with creating or modifying a captive, and companies with captives for any purpose tend to be large. Like any cost-saving investment, the bottom line is that the employee benefits plan must be large enough for the long-run savings to outweigh the start-up costs by a wide enough margin to offer a reasonable return on investment.

The savings available in employee benefits plans are usually not large enough to outweigh the cost of establishing a new captive from the ground up. Having an existing captive in place means the company has already done the work of obtaining a license, setting up the initial capital, hiring a captive manager, and obtaining insurance regulatory approval, all of which can require considerable lead time and up-front investment.

In addition to approval from insurance regulators, employers also require DOL approval before they can put employee benefits plans in a captive, although this process has been streamlined in recent years.

As standalone insurance companies, captives must satisfy insurance regulations that their premiums and capital are sufficient to cover the risks they bear. As subsidiaries that exclusively serve and are wholly owned by their parent company, however, captives must also satisfy ERISA regulations when it comes to employee benefits. ERISA's purpose is to protect employee benefits plans and their beneficiaries. The law has established safeguards to keep employers and plan administrators at arm's length and prevent employers from profiting from their employees or putting benefits at risk. Under ERISA, using a captive is considered a "prohibited transaction."

In the past eight years, however, firms have increasingly been allowed to negotiate prohibited transaction exemptions (PTEs) for captives. The exemption does not absolve employers and plans of their obligations under ERISA; rather, it requires them to set up their own safeguards and transparent processes to protect beneficiaries, while allowing them to benefit from a captive insurance structure rather than a third-party one.

Most employers buy employee benefits plans from large, well-established firms that the DOL can be confident will meet their obligations. But the DOL needs more assurances that smaller, special-purpose insurance vehicles like captives will protect beneficiaries. So in addition to the captive, employers must also have a third-party "fronting carrier" to provide a backstop for the captive's employee benefits risks. Because the fronting carrier is the primary insurer, it is obligated to cover claims even if the captive is unable to reimburse the insurer for the captive's portion of the claims.

How Do Employers Apply for Approval to Use a Captive for Employee Benefits?

Through the process of granting initial PTEs to Columbia Energy and Archer Daniels Midland, a set of rules was established as a precedent for later applicants. These rules include an option for an expedited approval process, or EXPRO, a route that most recent PTEs have taken. If there have been two or more PTEs within five years that your firm can demonstrate are substantially similar to your application, your firm can take

THE WORLD'S 25 LARGEST DOMICILES RANKED BY NUMBER OF LICENSED CAPTIVES*

International Domicile		Captives	U.S. Domicile		Captives
#1	BERMUDA	958	#3	VERMONT	567
#2	CAYMAN ISLANDS	765	#9	HAWAII	163
#4	BRITISH VIRGIN ISLANDS	409[1]	#10	SOUTH CAROLINA	158
#5	GUERNSEY	368	#13	NEVADA	115
#6	BARBADOS	256	#14	ARIZONA	108
#7	LUXEMBOURG	210	#15	UTAH	92
#8	TURKS & CAICOS ISLANDS	173[1]	#16	DISTRICT OF COLUMBIA	77
#11	ISLE OF MAN	155	#19	NEW YORK	44
#12	DUBLIN	131	#20	KENTUCKY	31
#17	SINGAPORE	62	#21	MONTANA	30
#18	SWITZERLAND	48			
#20	LABUAN	31			
#22	BAHAMAS	28[1]			
#23	BRITISH COLUMBIA	19			
#23	GIBRALTAR	19			

*As of 2007 1 = BI estimate
Source: *Business Insurance*, March 3, 2008

advantage of EXPRO and may receive an exemption from DOL within as few as 78 days.

In order to be approved, employers must hire an independent fiduciary to review the plan annually and verify that it continues to meet the PTE stipulations, that rates are set fairly, etc. The change must also enhance the benefits to the employees, rather than merely maintain them. Enhancement options include increasing the minimum benefit an employee could receive on disability, increasing the life insurance benefits, offering free will-preparation services, and other possibilities. Employers must be able to spend the time and effort to engage their employees in the transfer process and provide a disclosure notice with opportunities to send comments to the DOL.

Logistically, employers face a challenge in getting their risk-management and human-resources departments to speak the same language with respect to why and how such a change could work. While the human-resources function must protect the beneficiaries, the risk-management function is focused on making accurate forecasts and cost/benefit calculations. If an employer can get these two groups to work together, there is a potential for significant employee-benefits savings in the long run. M

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A SECOND STORM

CAT BONDS AND THE UNCERTAINTY OF POST-TRIGGER PRICING

BY DR. THOMAS GUIDON AND RICHARD SOULSBY, FCAS, MAAA

The market for insurance-linked securities (ILS) continues to grow, providing both insurers and investors with major new opportunities to share and profit from risk. ILS linked to natural catastrophes, often referred to as cat bonds, represent a large proportion of this market. Cat bonds typically provide attractive returns and are a growing component of the portfolios of many institutional investors. However, attractive returns come with risk. For these securities, the risk is the potential for investors to lose some or all of their money when a bond is "triggered" by a natural catastrophe.

While the likelihood of such an event is modeled and built into the initial rating and pricing of cat bonds, what will happen to the value of such bonds immediately after a trigger event is almost never considered. Post-trigger cat bond value is a complex phenomenon dependent on both aspects of the bond sponsor and external circumstances, such as post-catastrophe disruption and more general factors. Few cat bonds have been triggered in the decade since their arrival on the scene, but examining those that have been triggered exposes the potential for confusion about the true value of the bonds in the months and even years following an event. Selling too soon or too late can result in significant financial consequences. While modeling cat bond values requires a substantial effort, we expect that investors will increasingly demand such information from sponsors—particularly when the investors experience first-hand the consequences of cat bonds being triggered with no post-event price models upon which to rely.

Catastrophe-related ILS Today

Today's financial market enables types of risk-sharing undreamed of in the past. Of increasing importance to the insurance market today are ILS, which allow the securities markets to take on risk formerly accepted only by insurance and reinsurance companies. ILS are gaining widespread acceptance, resulting in growing numbers of offerings across a range of catastrophic risks. Securities investors as a whole have much more capital to contribute to risk dispersal than even the largest reinsurance companies, providing hope that adequate financial protection against natural catastrophes may be within reach.

However, the catastrophe-related ILS market is still young and the offerings are relatively untested. We have seen only a few of the kinds of events that trigger reduced interest payments or loss of principal; when such events have occurred, the results have been unsatisfactory for most of the parties involved. Why? Because such instruments are priced and rated using catastrophe

models that predict the likelihood and severity of catastrophe, yet provide little or no insight into the financial realities of ILS *after* a trigger event. There has been a failure to address the question of what ILS are worth after a trigger event due to the relative shortage of such events. This can result in confusion, unexpected losses, and even legal battles, as investors who feel they were not given the full complement of information about post-event ILS value might seek damages from issuers of ILS. As they realize that this is a problem best analyzed with actuarial models, issuers are turning to actuaries to help them — and their investors — understand the value of ILS post-trigger events.

A Quick Primer in ILS

Because they are complex financial instruments, and because technical terminology is not always used consistently, ILS may seem difficult to understand. However, the combinations of components of ILS are finite; looking at how they interconnect can illustrate the larger picture.

ILS represent insurance risk that has been "securitized" by pooling and repackaging it into bonds or similar instruments that can then be sold to investors. ILS represent an alternative to traditional catastrophe reinsurance in which risk is transferred to investors in the financial markets instead of to a reinsurance company. At least initially, natural-catastrophe-related ILS were primarily sponsored by reinsurance companies working with investment banks to structure the ILS offering. ILS are almost always provided through special-purpose vehicles — narrowly defined corporate entities, generally located offshore — in order to eliminate the risk of a sponsor's being bankrupted and hence lowering the product cost for the sponsor.

There are several different alternatives to standard reinsurance, and variations on the theme of ILS continue to proliferate:

CATASTROPHE (CAT) BONDS: Cat bonds transfer natural-catastrophe-related insurance risk — such as the losses attributed to a winter storm in Europe or a typhoon in Japan — to investors. There are also multiperil cat bond structures and even more complex variations. If a risk event occurs and causes cumulative claims above a specific amount, the investors "forgive" (forfeit) principal to pay the claims.

CATASTROPHE (CAT) SWAPS: Cat swaps are transactions that take place through an entity such as the Catastrophe Risk Exchange, Inc. (CATEX), which is licensed as a reinsurance company but acts as a neutral intermediary. Through this exchange, companies can buy and sell reinsurance and swap insurance in order to diversify their catastrophe risk.

INDUSTRY LOSS WARRANTIES: These are agreements in which an entity purchases a security that is triggered by the magnitude of loss to the entire insurance industry from a catastrophic event rather than the loss accruing to a single company.

SIDECARS: Sidecars are transactions in which investors take on the risk and reward on a defined sub-portfolio of an insurance or reinsurance company's business. The sponsor or ceding company typically requires that the investors put forth principal adequate to cover potential claims at a specified risk level. Sidecars are a way for insurance and reinsurance companies to instantly add capacity during a hard market because they are fully capitalized.

One of the most important issues in cat bonds and related instruments is the trigger event — the catastrophe of type and magnitude sufficient to require the forgiveness of investors' principal. Rating agencies typically rate cat bonds based on how likely investors are to lose some or all of their principal, which is entirely dependent on the trigger event. There are at least four major trigger types:

PARAMETRIC: The trigger is a parameter of the natural event — ground acceleration in an earthquake or wind speed in a hurricane, for example. This type of trigger is usually the easiest and fastest to calculate.

INDUSTRY-LOSS: This trigger occurs when the total insurance industry loss from an event exceeds a predetermined monetary threshold. The industry loss is determined by a third party unaffiliated with bond investors or sponsors. Industry-loss triggers are often used in combination with indemnity triggers (defined below).

MODELED-LOSS: Modeled-loss triggers are based on a catastrophe model of the issuer's exposure, which is used to calculate expected loss. When a large event occurs, the expected losses are calculated by running the model with parameters from the actual event (e.g., location, wind speed for hurricanes, ground acceleration for earthquakes). If the losses exceed a predetermined threshold, the bond is triggered.

INDEMNITY: This trigger is based on the issuing company's actual insurance claims stemming from an event that exceeds a defined cost threshold. An indemnity cat bond is triggered when the insurer's losses exceed that threshold, and it provides an additional coverage layer. Indemnity-triggered cat bonds bear close resemblance to traditional reinsurance contracts.

Alone or in combination, these four trigger types cover most of the securitized reinsurance alternatives on the market today.

The Lack of Post-trigger Price Models

Cat bond ratings are based either on the likelihood and extent of natural occurrences or on the probability of claims amounts. They tend to miss a major element of bond value because they almost never take into account what happens *after* a trigger event. In the case of parametric triggers, this is not as important, because the payout is not connected directly to the payment of claims. In fact, bonds with parametric triggers often pay a lower interest rate because most of the basis

risk remains with the sponsor; different parametric triggers carry more or less basis risk.

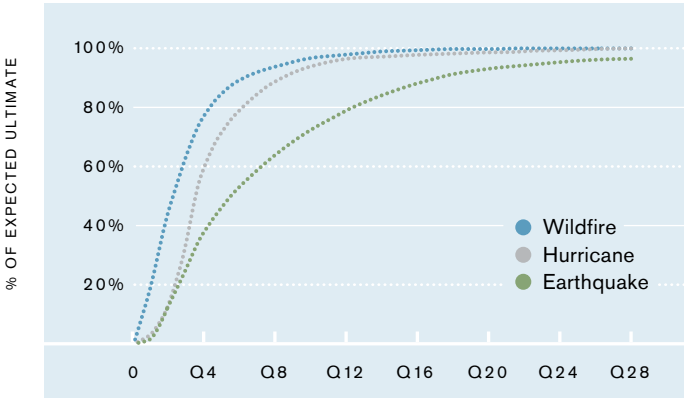
For indemnity triggers, what happens after a trigger event is much more complex. There is a great deal of uncertainty following an event with the magnitude of loss typically covered by cat bonds. Internal factors delaying the estimation of catastrophe losses include the inherent fallibility of models (e.g., the failure of cat models to predict the flooding of New Orleans after Hurricane Katrina) and the nature of claims-handling processes within a company. External factors include limited access to damaged areas, evacuation of policyholders, surging demand and associated cost increases for the resources necessary to rebuild, business interruption, and backups in the legal system, all of which can cause delays in the payment of claims. The modeled loss estimate typically comes first, usually in a matter of days, followed by the claims estimate within weeks, but the final actual losses (on which indemnity triggers rely) may not be known for years.

Because the amounts to be paid and the corresponding timing are not known beforehand, investors have little idea what the bonds are actually worth after a bond has been triggered. In some cases, the trigger itself may be called into question later and even litigated because of re-estimation of industry and company loss amounts. The time value of money—the interest that accrues as the claims payout moves along—must also be taken into account when valuing the investor loss and associated bond value. The danger for investors is that they might sell at a price unfavorable to them due to imperfect information, before the final claims are paid and tallied—and the claims process can take years. Consequently, market prices may have no relationship to an analytically determined price.

Why is this? Few cat bonds have actually been triggered—no surprise, as many cat bonds pertain to 100-year (remote) events. The shortage of events leaves us with a dearth of examples from which to draw. While it is not possible to determine payout patterns with certainty, they can be modeled using actuarial techniques. When constructing such a model, actuaries evaluate factors based on company history and company evaluations of limits exposed, loss amounts to be paid, and the timing of each. They define scenarios much as they would for a typical cat model, using history where possible and informed judgment to develop reasonable assumptions and associated margins of error where it is not. For each scenario, they then determine a payout pattern of insured losses.

Using data from the Reinsurance Association of America, we constructed illustrative payout curves for three different perils. As Figure 1 illustrates, the payout patterns vary somewhat based on the type of event, but they continue even beyond two years. At one year, only about 60% to 80% of the hurricane and wildfire claims are expected to be paid, and less than 50% of the earthquake claims. The closer the bond trigger threshold is to the ultimate loss, the higher the post-event value of an indemnity bond should be, because it takes substantially longer to pay out the claims. The uncertainty of the ultimate loss estimation also needs to be considered, as company track records of estimating ultimate loss costs vary widely. If the estimated ultimate loss decreases, the expected bond value will increase. Investors who sell cat bonds at steep discounts immediately after an event may be leaving money on the table.

FIGURE 1: ILLUSTRATIVE PAYOUT PATTERN BY PERIL



Conclusion

With the rapidly growing ILS market and with so many financial bets being placed against catastrophic events, there is little doubt that more bonds eventually will be triggered. Better understanding of post-trigger pricing dynamics can help investors determine what their ILS investments are worth and prepare risk-management procedures for triggered cat bonds. For sponsors, providing such information can boost investor confidence; this will become especially important as more bonds are triggered and investors begin to question the safety and value of ILS. Rating agencies can play a role by both encouraging greater transparency and more thoroughly assessing the risk of ILS offerings. Markets as a whole can benefit from improved information, which will enable more efficient use of capital.

We expect that as more cat bonds are triggered and more investors find themselves trying to unravel bond pricing in the wake of a catastrophe, post-trigger price analysis will become the norm. Today, there is a great opportunity for ILS stakeholders to lead the way. M

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THE COUNTERINTUITIVE INNER WORKINGS OF RETURN-OF-PREMIUM TERM INSURANCE

ROP-PORTUNITY

BY KEITH DALL, FSA, MAAA, CLU, CFC, AND DONNA MEGREGIAN, FSA, MAAA

"Money-back guarantee!" How many times have we seen this ubiquitous tagline flash across the television screen?

This same sales approach is becoming more common in the life insurance industry as popularity of return-of-premium (ROP) term has increased in the past few years. This concept has been around for a long time and was used in the past to sell disability income insurance. However, that was a niche product. ROP term, on the other hand, is a mainstream product that has now hit the broad insurance market.

Since the early years of ROP term, the money-back guarantee on an insurance product has always made for a great sales pitch, giving rise to such slogans as "No-cost (ROP) term," "Coverage when you need it, money back when you don't," and (our favorite) "Win-win-win." The last quotation refers to ROP term's multifaceted benefit structure that promises to deliver one of the following: 1) a benefit at death, 2) an option for permanent insurance in case of impaired health (called a conversion provision), or, preferably, 3) a return of your premium at the end of the level-term period. Healthy, unhealthy, or deceased, you can derive some benefit from the policy.

These sales pitches certainly hit home at the kitchen table. No one wants to have to pay for an event that is not expected to happen. And while the return-of-premium benefit does come at a higher price for the insured, the agent is motivated by the potential of higher commissions to convince potential buyers of the product's value.

* * *

COMPARISON TO REGULAR TERM The ROP-term premium is more than four times as high as a regular 15-year level-term product at typical ages for insurance buyers. The ROP-term premium on a 20-year plan is more than twice as high as on regular term, while the 30-year plan is about 50% to 60% higher. This is why the 30-year plan is the most popular plan for the ROP-term product. Return of premium on a 10-year plan generally is not offered, because the ROP-term premium is higher on a 10-year plan than on a 15-year plan.

While the premium is certainly higher for the ROP-term products, the guaranteed return on investment to the policy owner is generally at least 4% if the policy owner holds onto the policy until the end of the level-premium period. A few years ago, it was not uncommon to see after-tax policy owner returns of more than 10%, but the pricing assumptions have changed over the past few years, so the guaranteed returns have come down.

The policy owner return on investment is calculated by subtracting the base-term rates from the total premium and receiving the entire premium paid at the end of the level-premium period as the return on investment. This did allow some companies to advertise higher base-term rates with competitive ROP-term premiums and therefore allowed them to advertise higher policy owner return on investments.

* * *

PRICING CONCERNS As mentioned above, the pricing assumptions for the ROP term product have changed over the past few years. The most important pricing assumption for these plans is the lapse assumption. When these products first became popular, a few companies assumed the same lapse rate on the ROP-term product that they assumed on the base-term product. The ultimate lapse rate may have been around 5%. Now most companies are grading their 3% ultimate lapse rate down to 1% in the last few durations before the 100% return-of-premium payment. This assumption change profoundly affects profitability; several

MALE, AGE 35, BEST PREFERRED NONTOBACCO
SAMPLE ANNUAL PREMIUMS FOR $1,000,000 FACE AMOUNT

Level period	15	20	30
Base term	$ 430	$ 550	$ 900
ROP term	$ 2,350	$ 1,600	$ 1,440
Percent increase	447%	191%	60%

MALE, AGE 35, BEST PREFERRED NONTOBACCO
SAMPLE PREMIUMS FOR $1,000,000 FACE AMOUNT

Level period	15	20	30
Base term	$ 430	$ 550	$ 900
ROP term	$ 2,350	$ 1,600	$ 1,440
ROP minus base	$ 1,920	$ 1,050	$ 540
Full ROP benefit	$35,250	$32,000	$43,200
Nontax-adjusted IRR	1.50%	3.86%	5.75%
Assuming 28% tax bracket	2.09%	5.36%	7.98%

companies have had to increase their ROP-term premiums as they have decreased their ultimate lapse assumption.

Generally, from a profitability standpoint, term products are not affected by the net investment-earned rate assumption because the reserves are relatively low due to large amounts of reinsurance. The ROP-term product has much higher reserves directly related to the return-of-premium feature, which is often not reinsured, and therefore the net investment-earned rate has a material effect on the profitability of the company. Companies should create sensitivity tests on the net investment earned rate during the pricing process to understand the implications of the ultimate earned rate.

The reserve methodology has also varied by company over the past few years. A few companies have held reserves at the cash-value level (percentage of return of premium), while other companies have reserves assuming a death benefit during the level-premium period followed by an endowment benefit equal to the return of premium at the end of the level-premium period. Some of the companies holding the cash values have moved toward life insurance with endowment benefit method, which has caused them to increase their reserves.

* * *

REGULATORY AND TAX CONCERNS Many state regulators have concentrated on the cash values of these policies. Companies offering ROP-term policies must offer upon surrender a slowly increasing percentage of the premium throughout the level-premium period in order to meet both minimum nonforfeiture and the "smoothness test." These provisions do not seem like complex requirements, but the methodology involved is very time consuming when one considers all underwriting classes and all level-term periods. Several states require that insurers certify that all issue ages meet this requirement.

A new proposed regulation—Actuarial Guideline CCC (AG CCC)—will likely change the provisions of this methodology. Typically, the premiums following the level-term period have been used to reduce cash values during the level-premium period. AG CCC prevents this from happening by essentially basing the minimum interim cash values on the pure endowment in the form of the ROP amount at the end of the level-term period. This regulation could mean higher minimum ROP benefits during the level-premium period. Smoothness would still need to be proven along with this new minimum benefit pattern.

While the premium is certainly higher for the ROP-term products, the guaranteed return on investment to the policy owner is generally at least 4% if the policy owner holds onto the policy until the end of the level-premium period.

The ROP-term product also has tax implications. Of particular interest is compliance with the definition of life insurance (Section 7702). If a company returns all paid premiums and the policy has several riders, the premiums may exceed the guideline premiums and therefore be out of compliance with Section 7702. Thus it is common for ROP-term products to follow the cash-value accumulation test, which possibly forces the death benefit higher but keeps the policy in compliance.

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NOT YOUR FATHER'S ROP Just as the understanding of pricing assumptions, reserves, and regulatory and tax issues has evolved over the years, so, too, have product designs. Initially, the products paid a percentage of the cumulative premium to 100% of the premium at the end of the level premium when the policy owner surrendered the policy. The percentages were generally zero in the first five years and thereafter were just high enough to comply with the Standard Nonforfeiture Law.

More recent designs have allowed for a higher percentage of premiums returned by offering enhanced cash-value riders. These riders are more expensive but offer the benefit of higher cash values. Policy owners also no longer need to surrender their policies at the end of the level-premium period. They automatically receive the benefit at the end of the level-premium period. The policy will continue as long as they continue to pay premiums, similar to traditional non-ROP-term policies. A few policies allow the return of premium at the end of the term period to accumulate at a specified interest rate.

While there are several complications and unanswered questions for the ROP-term product, it remains popular in the marketplace. You can be sure that the lure of the money-back guarantee is here to stay. **M**

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THREE KEYS TO

GETTING HEALTHCARE REFORM RIGHT

BY CATHERINE MURPHY-BARRON, FSA, MAAA

Healthcare reform has become one of the most discussed domestic issues in recent years and with good reason—changes to our healthcare system are badly needed. But the very factor that most drives the need for reform is often the least discussed: Healthcare is expensive and it's not getting cheaper. While there are many key features of healthcare reform that must be considered and addressed, from insurance mandates to the impact on providers, the fact remains that financial considerations have often derailed prior reform efforts.

After Barack Obama and Congress take office early next year, some form of federal reform is likely. Three financial considerations deserve special consideration in conjunction with reform proposals:

- How many currently uninsured people will receive coverage?
- Will value-based innovations such as consumer-driven health, wellness, value-based insurance design, and other medical management concepts help reduce costs?
- How will new reform work alongside preexisting dynamics that may serve to drive up costs?

The most critical overarching question to ask in evaluating prospects for any healthcare reform plan is simply: *Does it include an achievable strategy to sustain its funding beyond the first few years?* Efforts within the United States and around the globe consistently show that the long-term view is the only hope for a prudent, equitable, and sustainable model of healthcare delivery. Reforms that have not addressed long-term financial viability have failed.

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THE UNINSURED: A VAST UNKNOWN Most estimates currently put the number of uninsured individuals in the United States at about 46 million. This number is difficult to verify. We don't know how many uninsured there are because, for the most part, they are not in the system and many may never have been. Also, the exact number is constantly changing, as individuals obtain or lose coverage through employer-based or other types of coverage.

Many of the problems encountered by healthcare reform efforts in Massachusetts and elsewhere stem from the so-called "woodwork effect." This phenomenon holds that there is an easy way to quantify the number of uninsured (or underinsured): Make healthcare available to a new population in a high-profile and relatively easy way. Only then will you discover how many individuals didn't have access to it in the first place, as the uninsured "come out of the woodwork" seeking the highly publicized care. While this makes intuitive sense, it does not bode well for those looking to estimate costs ahead of enacting reform.

At the local level, Massachusetts focused primarily (and necessarily) on the political task of marshalling the constituencies it needed to implement its reforms. The question of long-term sustainability was left for later consideration. When the legislation was written, the state estimated that there were 400,000 uninsured in Massachusetts. That number now appears closer to 650,000, more than 60% higher. Targeting users of the state's Uncompensated Care Pool for its initial enrollees in Commonwealth Care, the new subsidized program, the state estimated the number of new enrollees from this effort would amount to 145,000 in the first year. The actual enrollment came in at 175,000, more than 20% higher.[1]

Now, in the turmoil of budget shortfalls based on its low estimations, Massachusetts faces that all-too-familiar bugaboo of health insurance: costs running virtually out of control. The cost problem is twofold. First, any cost estimate requires an estimate of health-cost trend, a difficult task even if good data exists. Then comes the difficulty of accurately gauging the size of the uninsured population, a problem that suffers from a lack of reliable data. It follows that no healthcare reform effort should expect to have any good sense of real costs until its program has been around a few years. For this reason, reformers might do well to think in terms of decades, rather than a handful of years.

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MEDICAL MANAGEMENT INNOVATIONS: NO GUARANTEES YET Wellness. Disease management. Consumer-driven health plans. Value-based insurance design. There has been no lack of effort on the part of the healthcare and insurance industries in recent years to tackle the problem of spiraling costs, and the work to date holds much promise.

Yet every time we look at these innovations, we find ourselves unsure of the one thing we most want to know—their effect on cost. Most innovations show at least modest potential for cost savings but the long-term effect on costs is not yet clear.

Consider value-based insurance design. This concept intends to ensure that people with a likelihood of contracting chronic or severely debilitating conditions address them earlier and more effectively or avoid getting them altogether. It does so by providing cost incentives to health-plan members that support and reinforce specific evidence-based practices addressing those chronic conditions or their prevention.

1 "Health Connector Facts and Figures," June 2008, www.mahealthconnector.org/.

The cost offsets prescribed by value-based insurance design can create new costs as people who would not otherwise incur claims tap into the healthcare system. For some, catastrophic and expensive incidents, such as heart attacks, would be prevented or ameliorated. At the same time, costs would be created for people who might never have had a heart attack even if they hadn't received the drugs or treatments.

When it comes down to individual cases, we are left with a conundrum: Is the cost of treating catastrophic illnesses greater or less than the cost of preventing them? Similar uncertainties have been raised in studies of wellness, disease management, and consumer-driven health plans.[2]

This is not to say that a good case can't be made for any of these innovations in terms of contributing to better and longer lives. Certainly quality-of-life benefits deserve equal footing with cost savings. That's exactly what healthcare is about, after all. But when considering reform, it's important to remember that, lacking better data, we can't count on the promise of long-term cost offsets. They could exist, but we simply don't have the evidence yet. And that leaves us, again, with the need to formulate a realistic, long-term plan for reform that can be sustained in the event that wellness, value-based insurance design, and other much-heralded medical management approaches do not, in fact, decrease overall health costs.

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THE CAKE PROBLEM: TO HAVE OR TO EAT Finally, there's the delicate problem of wanting more than can be afforded. Healthcare reformers routinely promise benefits that their proposals can't necessarily deliver. It's altogether too common to see lip service paid to cost cutting, even as popular benefits that are sure to drive up costs are mandated. This is a problem of politics in practice, often driven by lobbyists or politicians with an eye toward the next election.

In healthcare, costs have numerous ways of sneaking into the picture. The market forces often depend on paradoxical incentives. For example, providers tend to be paid for treating the sick rather than the healthy, and the more they treat them—in terms of tests, procedures, and consultations—the more they are paid. They're not paid to *keep* patients healthy, but to *return* them to health. Potentially successful strategies for changing that paradigm have emerged, such as wellness programs with their focus on preventive approaches or capitation schemes that reward high levels of efficiency (which can be achieved, in part, by keeping people healthy). But, as noted above, the results are not yet in on many of these approaches.

A more difficult benefit design question arose this fall in the United Kingdom. The National Institute for Health and Clinical Excellence (NICE), which evaluates the value of healthcare, is capping most payment at £15,000 for treatments that will extend life for six months or less.[3] This limit affects cancer patients in particular because of the high cost of specialty drugs. As we go to press, it is unclear whether the NICE approach to end-of-life costs will stand up to the criticism. Regardless, the question of how much to pay at the end of a life is just as relevant in the United States and will become more pressing as costs increase and as more Baby Boomers become Medicare eligible.

Another problem is that technology in the healthcare industries tends to lag behind that in other industries. For various reasons, healthcare is not as highly automated or computer literate as it should be, and it seems to be falling further behind. In most businesses with a dependence on sophisticated technology, costs tend to start high and then fall dramatically. Such was the case with consumer electronics such as laptop computers, cell phones, and audio and video gear. But in healthcare, technology costs start high, stay high, and tend to grow over time.

Finally, any healthcare reform effort will need to address the question of whether to make coverage mandatory or optional. Mandatory coverage widens the pool of contributors and spreads overall risks. Optional coverage is frequently an attractive alternative for people who are currently healthy and don't see the need for the expense of coverage, thereby affecting the size of the uninsured pool (bringing us back to the earlier point about the uncertain size of this population). In a nutshell, this captures one of the toughest problems of healthcare reform—the difficulty of tackling the tradeoffs among overall costs, the size of the pool, and overall benefits.

In the end, preserving choice in a meaningful way could be the hardest part of healthcare reform. But it's important to look carefully at healthcare reform proposals and ask what assumptions have already been made that may compromise the ability to control costs, and the reform itself, over the long term. Because controlling costs is critical to successful delivery of healthcare, it's important to ask the hard questions: What needs to be done to level cost trends? How do we evaluate long-term prospects? How do we decide which costs to take on and which benefits to forego? What steps that we take today will still be working 20 years from now? M

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2 K. Fitch and B. Pyenson, "Taking Stock of Wellness," *Benefits Quarterly*, Second Quarter 2008.
3 Gardiner Harris, "British Balance Benefit vs. Cost of Latest Drugs," *New York Times*, Dec. 2, 2008.

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