Variable Annuity Pension Plans

an Emerging Retirement Plan Design

Variable annuity pension plans (VAPPs) are not new but may deserve a second look by plan sponsors seeking a more secure retirement plan for participants while mitigating some of the risk of traditional defined benefit plans.

by | **Mark Olleman and Kelly Coffing**

Senator Tom Harkin chaired the U.S. Senate Health, Education, Labor and Pensions Committee through two years of hearings on retirement security in America and came to the following conclusions in his 2012 report, "The Retirement Crisis and a Plan to Solve It":

> After a lifetime of hard work, people deserve the opportunity to live out their golden years with dignity and financial independence. But for most of the middle class, the dream of a secure retirement is slipping out of reach. We are facing a retirement crisis. Consider the following:
>
> - The retirement income deficit—i.e., the difference between what people have saved for retirement and what they should have at this point—is $6.6 trillion;
> - Only one in five people in the private sector workforce has a defined benefit pension plan; and
> - Half of Americans have less than $10,000 in savings.

Harkin says this is directly attributable to the loss of pensions and the resulting breakdown of the three-legged stool of retirement security—pensions, savings and Social Secu-

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FIGURE 1

VAPP Benefit Accrued Example: Assuming 60% Equity, 40% Long Bond Allocation

Year	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Investment Return (I)	19.3%	10.0%	5.3%	10.8%	4.3%	-18.7%	17.1%	14.0%	8.4%	13.9%
Hurdle Rate (H)	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Benefit Change*	14.7%	5.8%	1.3%	6.5%	0.3%	-21.8%	12.6%	9.6%	4.2%	9.5%

Year of Accrual	Benefit as of: 1/1/03	1/1/04	1/1/05	1/1/06	1/1/07	1/1/08	1/1/09	1/1/10	1/1/11	1/1/12	1/1/13
2002	$30.00	$34.41	$36.40	$36.86	$39.27	$39.38	$30.78	$34.66	$37.99	$39.60	$43.37
2003		30.00	31.73	32.13	34.23	34.33	26.84	30.22	33.13	34.53	37.82
2004			30.00	30.38	32.37	32.46	25.37	28.57	31.32	32.65	35.76
2005				30.00	31.96	32.05	25.05	28.21	30.92	32.23	35.30
2006					30.00	30.09	23.52	26.48	29.03	30.26	33.14
2007						30.00	23.45	26.40	28.94	30.16	33.03
2008							30.00	33.78	37.03	38.60	42.27
2009								30.00	32.88	34.27	37.53
2010									30.00	31.27	34.25
2011										30.00	32.86
2012											30.00
Total	$30.00	$64.41	$98.13	$129.37	$167.83	$198.31	$185.01	$238.32	$291.24	$333.57	$395.33

* Calculated as (1+I)/(1+H)-1. All benefits earned in prior years will be increased or decreased by this amount.

Source: Ibbotson SSBI 2013 Classic Yearbook.

rity. Defined contribution (DC) plans can be an effective way to help people save for retirement but do not substitute for pensions because they do not provide the protection of a secure stream of income for life nor do most people have the background, interest or time to effectively manage their retirement assets.

Harkin proposes four principles for reform:

- The retirement system should be universal and automatic.
- People should have the certainty of a reliable stream of lifelong income.
- Retirement should be a shared responsibility between individuals, employers and government.
- Retirement assets should be pooled and professionally managed.

This article discusses how one retirement plan design, the variable annuity pension plan (VAPP), responds to this call for action.

Why Look at Different Retirement Plan Designs?

Plan maturity has made required pension contributions much more volatile. Plan maturity occurs when assets grow large compared to contributions. This is typically when there are large retiree liabilities compared to active liabilities. When a pension plan is first established it has no assets. In the first year, investment return makes very little difference since there are almost no assets. Mature plans, though, may have contributions as small as 1% of assets, and a return 10% below the assumption may be worth ten years of contributions. As the number of retirees has increased, the liabilities for those retirees and the assets to support them have increased. This has caused the ratio of plans' assets to annual contributions to grow much larger than it was 20 or 30 years ago.

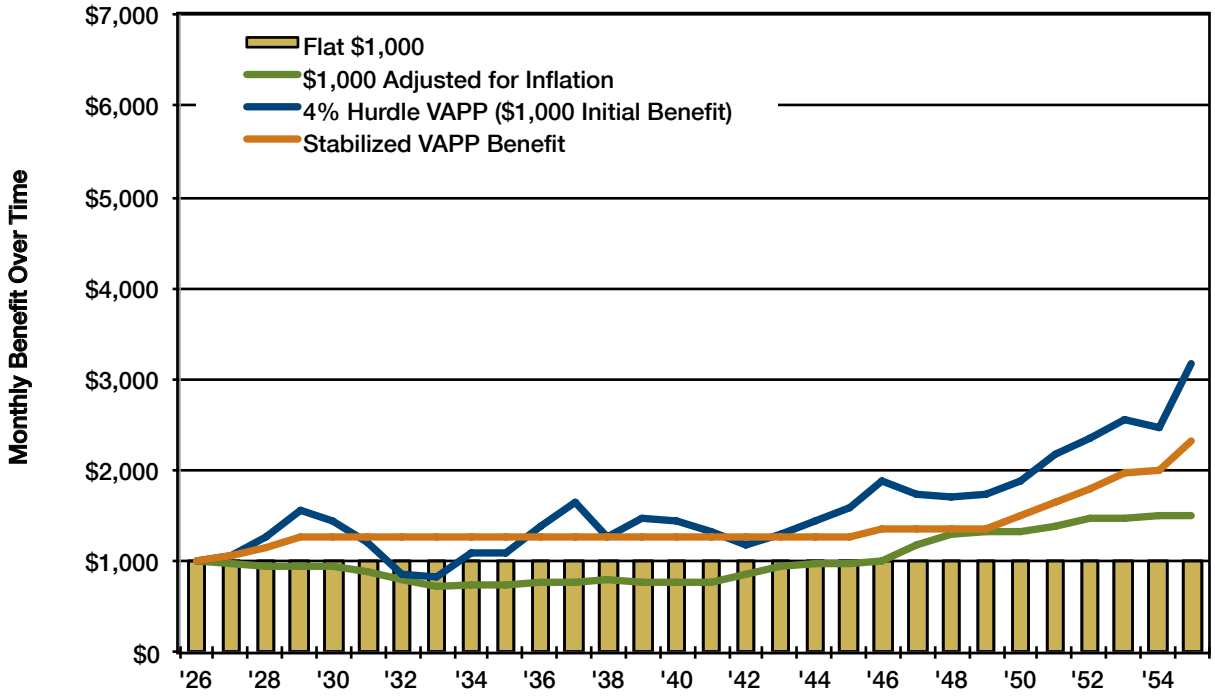
As plans have matured, asset losses have caused severe funding problems in some plans. Retirees continue to receive stable benefits. However, large contribution requirements cause employers to have difficulty competing, active participants to get smaller paychecks and young participants to get smaller retirement benefits. Some people are asking: "Is this working?" and "Can we find a plan design that provides lifelong income without this kind of contribution volatility?" VAPPs are one way to address this need and the "retirement crisis" identified by Harkin.

How Does a VAPP Work?

In general, a *VAPP* is a defined

FIGURE 2

Benefit Comparison: 1926-1955 Returns, Assuming 60% Equity, 40% Long Bond Allocation



benefit (DB) pension plan in which benefits change based on the return of the plan's assets. Although they have been around for a long time, VAPPs are not common. The plan establishes a conservative assumed investment return, or *hurdle rate*. If the plan's investment returns equal the hurdle rate, the plan functions exactly like a traditional DB plan. However, if the plan's investments earn more or less than the hurdle rate in a plan year, all benefits earned in prior years are adjusted up or down by the difference between the actual investment return and the hurdle rate. All participants are subject to these adjustments including retirees whose benefits may decrease in some years.

The VAPP design responds to Harkin's four principles as follows:

- Although not universal, the reallocation of risk allows more employers to maintain the "three-legged stool," which includes pensions.
- By changing the focus from a "guaranteed" dollar benefit to a "lifelong" benefit, more people are able to have the certainty of a reliable stream of lifelong income without the fear of outliving their assets.
- Retirement risk is shared more evenly among participants. Risk is shifted from employers and active participants to all participants including retirees.
- Because retirement assets are pooled and professionally managed, larger benefits can be provided per dollar contributed.

In addition, some level of inflation protection may be provided.

So how exactly does this work? Figure 1 provides an example. The participant is hired on January 1, 2002 and enrolled in a VAPP with a 4% hurdle rate. For simplicity, the illustration shows the participant earning $30 per month of benefit each year, but benefits could be based on a percent of contributions or a percent of each year's pay (a *career average formula*). The illustration uses actual historical returns based on a portfolio that is invested 60% in large company stocks (S&P 500) and 40% in long-term high-grade corporate bonds.

Figure 1 shows that at January 1, 2003 the participant has earned a benefit of $30 during 2002. The $30 earned in 2002 is adjusted at the end of 2003 for the trust's investment re-

takeaways >>

- There is a retirement crisis. Due to the loss of pension plans, the three-legged stool is threatened, and many people will not have adequate lifelong income.
- Retirement security is improved with lifelong income and pooled, professionally managed assets.
- VAPPs provide lifelong income, can provide inflation protection over time and minimize contribution volatility by allowing benefits to adjust both up and down while staying fully funded.
- Benefit stabilization features can make VAPPs more manageable for retirees.

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turn of 19.3% in 2003. The adjustment is 119.3%/104.0% = 114.7%, which increases the $30 to $34.41. Therefore, at January 1, 2004 the participant's total accrued benefit is $34.41 plus another $30 earned in 2003, for a total of $64.41.

After 11 years, at January 1, 2013 the benefit accrued in 2002 has grown to $43.37, the benefit accrued in 2003 has grown to $37.82 and the total of benefits accrued in all years has grown to $395.33. Although all benefits decreased by 21.8% after 2008, by January 1, 2013 the benefits earned in all years are larger than the original $30 accruals.

VAPPs can result in a rocky ride for retired participants. Imagine a participant who retired at January 1, 2008 with a benefit of $3,938 (100 times the value of the 2002 accrual at that point). The chart shows that the retiree's benefit would have decreased from $3,938 to $3,078 at January 1, 2009 and would not have gotten back above $3,938 until January 1, 2012, when it increased to $3,960. While participants bear the investment risk, they still have the certainty of a reliable source of lifelong income. While benefits go both up and down, participants do not have the DC concern of outliving their assets and they do not have to determine how to manage their assets effectively in old age. Because benefits adjust, contributions do not have to adjust, and the VAPP benefits are able to stay 100% funded.

Historical Scenarios

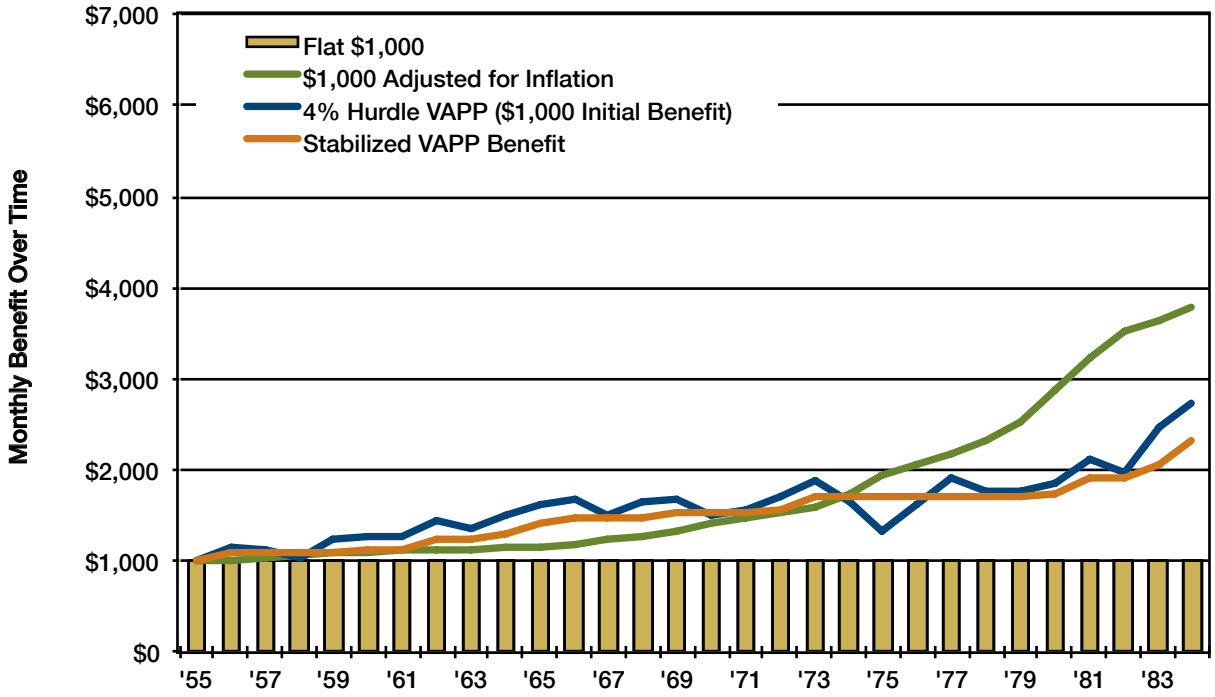
Figures 2 through 4 give a historical idea of how retirees' benefits would vary over time in VAPPs. The years from 1926 to 2013 are divided into three periods. Each period represents a retiree who lives 29 years beginning in 1926, 1955 and 1984, respectively. Four series are graphed in each figure. The tan bars show a flat $1,000 monthly benefit. The green line shows a $1,000 monthly benefit adjusted for inflation. This is the benefit that would have maintained the same purchasing power over time. The blue line shows a VAPP with a 4% hurdle rate invested 60% in large company stocks (S&P 500) and 40% in long-term high-grade corporate bonds. The orange line with stabilized benefits will be discussed later.

Historical Inflation Protection

Inflation impacts the value of benefits in retirement. In Figure 2, at the end of the 29 years from 1926 to 1955, the $1,000 adjusted for inflation has grown to $1,500 so the purchasing power of a flat $1,000 benefit (tan bars) is worth 67% of what it was in 1926. From 1926 to 1955 was a period of low overall and sometimes negative inflation. In Figures 3 and 4 after 29 years, the purchasing power of the flat $1,000 benefit is only 26% and 44% of what it was originally. This demonstrates that a benefit guaranteed to stay at the same dollar level is not guaranteed to be able to buy the same goods over time. As another example, at 2.4% inflation, which is the approximate average inflation from 2002 to 2012, a guaranteed fixed dollar benefit will be worth only 79% of its original value after ten years.

FIGURE 3

Benefit Comparison: 1955-1984 Returns, Assuming 60% Equity, 40% Long Bond Allocation



By comparison, in Figure 2 after 29 years, the 4% hurdle VAPP benefit has increased to $3,200—213% of the $1,000 adjusted for inflation, which has grown to $1,500. In Figures 3 and 4 after 29 years, the 4% hurdle VAPP benefit is worth 72% and 286% of the $1,000 adjusted for inflation, respectively. In the first and third 29-year periods (Figures 2 and 4), the 4% hurdle VAPP benefit has more than kept up with inflation. While the 4% hurdle VAPP benefit in Figure 3 (the second 29-year period) increases over the period, it does not keep pace with the high inflation of the 1970s.

Historical Volatility

The period from 2000 to 2013 provides one example of the trade-off between inflation protection and benefit volatility for a VAPP retiree. Figure 4 shows a participant retiring in 1984 with a 4% hurdle VAPP. The monthly benefit grows from $1,000 in 1984 to $5,200 in 2000, decreases to $4,200 in 2003, increases to $5,500 in 2008, decreases to $4,300 in 2009, and finally increases to its highest point of $6,100 in 2013.

The largest benefit decreases in Figures 2, 3 and 4 are reductions of one-half from 1929 to 1933, one-third from 1973 to 1975, one-fifth from 2000 to 2003 and again by one-fifth from 2008 to 2009. Although the general increases in VAPP benefits over time help retirees manage inflation, it can be difficult for retirees to manage the benefit volatility.

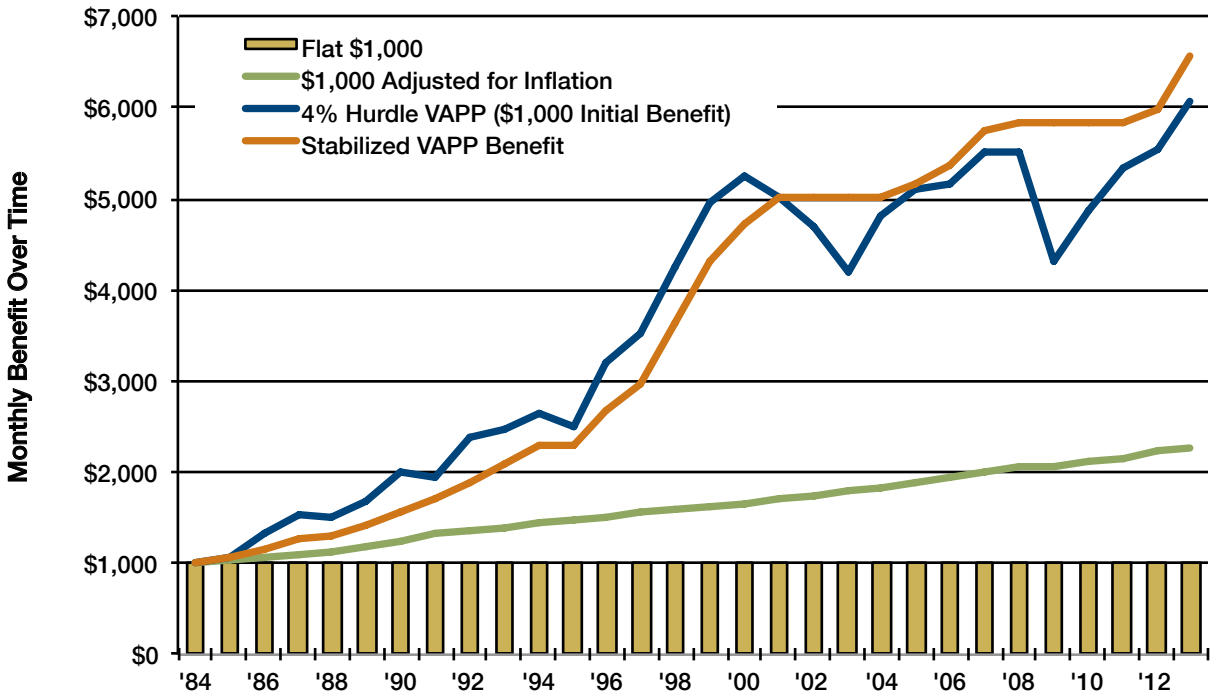
Benefit Stabilization

VAPP benefit volatility has caused people to look for ways to stabilize retiree benefits. Below are four proposed stabilization methods and their drawbacks. Some methods require a determination letter from the Internal Revenue Service indicating that a benefit plan meets the requirements for qualification.

1. **Conservative asset allocation.** This does not eliminate benefit dips but reduces their frequency and severity.
2. **Provide a minimum or floor benefit.** Small floor benefits may be too small to provide meaningful security, and concerns about retiree benefit volatility remain. With larger floor benefits, it is possible for the plan to experience funding issues if assets fall dramatically, leaving the floor benefit underfunded.

FIGURE 4

Benefit Comparison: 1984-2013 Returns, Assuming 60% Equity, 40% Long Bond Allocation



3. **Fix retiree benefits.** This allows benefit volatility for active participants but fixes the benefit at retirement and immunizes the liability (backing it by bonds). While this is very secure, it does not provide inflation protection in retirement; the lower expected returns on a bond portfolio provide lower expected benefits for the same contribution; and participants who retire right after a market downturn lock in those losses for life.
4. **Build a reserve to shore up benefits in down markets.** Reserves can be built by the following means:
   - Cap benefit increases; e.g., set a maximum benefit increase of 10% even if returns are more than 10% over the hurdle rate.
   - Set aside a portion of the return directly above the hurdle rate; e.g., if the hurdle rate is 4%, do not give benefit increases for the portion of returns between 4% and 5%.
   - Set benefits so they accrue at a rate less than the value of contributions.

   Reserves are then spent in a down market to shore up benefits and protect the high-water mark. Suppose a participant has a benefit of $1,000 and then the VAPP benefit declines to $900 in the next year. The reserve can be used to provide $100 per month for that year. The participant continues to receive $1,000, even though the underlying VAPP benefit is $900. If the $900 VAPP benefit increases above $1,000 before the reserve runs out, the participant never receives less than the $1,000 high-water mark. If the reserve is exhausted before the VAPP benefit increases above $1,000, the benefit payments decrease to the underlying VAPP benefit, but the plan stays fully funded. Reserves can possibly become larger than necessary to stabilize benefits. If this occurs, the underlying VAPP benefits of all participants can be increased to spend down the reserve to desired levels.

The orange "stabilized benefits" lines in Figures 2 through 4 show the result of a capped VAPP benefit with reserves spent to protect the high-water mark

on the previously described 4% hurdle VAPP benefit. Benefit increases are capped at 10%. The funded status of the plan is maintained between 100% and 125% and starts each period at 105%. If the funded status goes above 125% funded, all benefits are increased so the plan is 125% funded after the increase. The result is that the benefit payments sometimes increase less than the straight VAPP benefits (blue lines), but there are no benefit decreases in any of the three historical periods tested. However, if the funded status had dropped below 100%, no shoring up would be provided and the benefits would decrease until the underlying VAPP benefit increases.

Legacy Liability and Transition

Changing to a VAPP (or any other plan design, including DC) will not solve current funding problems. Current benefits are protected and cannot be reduced. If a plan moves to VAPP accruals, the risks associated with the current design are only eliminated one year at a time. It will take many years to move the entire plan to a VAPP design.

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Retirement Plan of the Future?

In a future retirement world, perhaps more retirees can be guaranteed a lifelong income without active participants shouldering the risk. Some potential for retiree benefit decreases may be traded for a sustainable retirement plan with a good chance to keep up with inflation over the long term. These designs may take several forms, some of which are yet to be imagined. VAPPs with benefit stabilization are likely to be among them.