

Analyzing Alternative Hedging Strategies

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The risk associated with holding a significant single stock position, and the need for diversification, is well researched (see Feld [1999], Stein et al. [2000], Loeper [2001], Picerno [2002], and Riepe [2002]), and the author has written previously regarding a comparison of alternative disposal techniques for low basis assets (see Welch [2002]).

For investors who remain bullish about the future performance of their stock holding, but who also recognize the need for increased diversification, *hedging* is a viable alternative. The primary hedging techniques involve the use of equity collars or variable prepaid forwards (VPFs). While there are (primarily documentation-oriented) differences between collars and VPFs, they both accomplish the same four primary goals:

- The investor is protected against price decline in the underlying stock (usually at or just below the current market price, less the financing cost associated with the deal);
- The investor retains some predefined amount of upside growth in the underlying stock (plus, typically, any dividends paid on that stock);
- The investor generates immediate liquidity for diversification or refinancing; and
- The investor achieves tax deferral (not tax elimination) on the sale of the underlying shares.

A recent IRS ruling (see IRS Revenue Ruling 2003-7) has determined that, properly structured and executed, VPFs do not constitute a “constructive sale” as defined in the tax code (see I.R.C. §1259), and these strategies remain a highly popular and widely used technique for the protection and diversification of concentrated single stock positions.

VPFs can be a particularly attractive strategy for investors who are looking to refinance margin debt because they fear a margin call (caused by a decline in the underlying stock price), and also for investors who are considered affiliates or insiders of the underlying company. A “No Action” letter issued in December 1999 by the SEC (at the request of Goldman Sachs) was interpreted by the marketplace as laying out a template for how affiliates and insiders can hedge their concentrated stock positions using VPFs. As interpreted by the market, hedging via a VPF results in a bifurcated treatment regarding the “sale date” for the stock:

- The date of sale for *regulatory* purposes (i.e., Section 16 insider trading rules, and also Rule 144 restricted stock volume and manner of sale limitations) is regarded to be the date the hedging transaction is executed. This makes it easier to manage the six-month “short swing profit disgorgement” risk associated with insider sales, and also the Rule 144 “dribble out” volume limitations;

- The date of sale for *tax* purposes is regarded to be the maturity date of the hedging transaction. The investor thus achieves the tax deferral that is one of the primary attractions of the hedging strategy in the first place.

In addition, insiders and affiliates increasingly use VPFs as part of Section 10b5-1 sales programs. These programs, properly established, allow affiliates to execute a predetermined hedging or liquidation strategy outside of company trading windows.

For all these reasons, as well as the high cash advance associated with VPFs in comparison to equity collars (assuming the proceeds are reinvested at least partially back into securities), VPFs are a strategic and popular hedging strategy for affiliates and non-affiliates alike.

The question, then, becomes how to determine which particular VPF strategy is best for a given investor situation. The remainder of this article will present an analytical framework for comparing alternative VPF hedging strategies, and will lay out a process for determining which strategy is best, given the investor's goals and objectives.

ESTABLISHING THE INITIAL HEDGING PARAMETERS

Regardless of structure, all VPFs contain the same four basic parameters:

EXHIBIT 1 Establishing Investor Priorities

1. What is the investor attempting to achieve with the hedging and liquidity strategy? Please circle the appropriate spots on the following scales:

<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Downside Protection</p>	<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Upside Growth Retention</p>
<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Upside Growth Retention</p>	<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Upfront Cash Advance</p>
<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Upfront Cash Advance</p>	<p style="margin: 0;">X X X X X X X</p> <p style="margin: 0;">Maximum Tax Deferral (Maturity)</p>

- a. How much growth per year (approx.) would investor like to retain in the underlying stock (e.g., 6%, 8%, 10%)?
 - b. How much total downside risk (approx.) is the investor willing to take (e.g., none, 10%, 20%, etc.)?
 - c. Is the investor seeking a cash advance >50% of the market value of the stock?
2. What is the general strategy for reinvestment of any cash proceeds?
- a. A securities-based portfolio?
 - b. Non-securities-based reinvestments (insurance, refinancing of existing debt, home construction, real estate, etc.)? Please describe.

- Floor price (which, along with the implied financing cost, determines the level of downside protection);
- Ceiling price (which determines the level of upside growth retention);
- Cash advance (which determines the cash available for refinancing or reinvestment); and
- Maturity (which determines the length of the tax deferral on the sale of stock).

VPFs are highly flexible, and can be structured in any number of combinations, depending on what the investor is trying to achieve. Put another way, if the investor can clarify his/her objectives with respect to any three of these four parameters, then the fourth can be solved for.

The typical investor, of course, wants everything—full downside protection, maximum upside growth retention, maximum cash advance, and maximum tax deferral. Unfortunately, there is a trade-off, and the investor must decide which of these parameters are most important. Maximizing the tax deferral for example, which can be accomplished by extending the maturity of the trade, typically can only be achieved at the expense of either reducing the amount of upside growth retained or the level of the cash advance. Conversely, shortening the maturity of the trade might help increase the cash advance, but also shortens the length of the tax deferral.

The questions in Exhibit 1 help to focus the investor on which of the objectives of hedging are most important, and this is the first step in determining the appropriate structure.

PRICING THE ALTERNATIVES

Once the primary objectives have been established, specific structures can be priced and analyzed. Consider the following hypothetical situation:

Ticker:	XYZ
Number of Shares:	1,000,000
Spot Price:	\$16.00 per share
Average Basis:	\$0.00 per share
Dividends:	\$0.05 per share per quarter (a 1.25% dividend yield)
Term:	3 years

In this situation, the investor wants to compare an alternative that maximizes the cash advance rate with one that maximizes the amount of upside growth retention. Accordingly, two structures were priced, in each case

solving for the cash advance rate: a “100%–125%” VPF and a “90%–150%” VPE. The numbers refer to the respective floor and ceiling prices for each structure, expressed as a percentage of the current market price of XYZ. The investor is by no means limited to these two strategies, but they are fairly typical; the investor can adjust these structures as necessary to fit more closely with his/her view about the future of the stock and the objectives of the overall diversification strategy.

Exhibit 2 summarizes the pricing and other assumptions associated with the analysis. Note that there is an assumption of no state taxes; this is a conservative assumption which should be changed for each individual investor. As a rule of thumb, the higher the level of state taxes, the better hedging will look in comparison to an outright sale of the stock.

Note also that this stock pays \$0.05 per quarter in dividends, or \$0.20 per share per annum. The strongest tax position for the investor is to retain all ordinary dividends paid on the underlying stock (rather than having the dividends flow through to the bank), and this is what is assumed in this analysis.

These structures were shown to several leading financial institutions, and the cash advance levels indicated were the highest for the given structures. In this case, the floor price, ceiling price, and term were all set in advance, and the banks were asked to solve only for the cash advance. This makes it possible to compare quotes across multiple firms, since there is only one “moving part.”

There are a few points regarding the pricing assumptions in Exhibit 2 that are worth highlighting.

1. The upside growth retained by the investor is determined by a simple IRR calculation using the spot price as the PV and the ceiling price as the FV. For example, on the 90-150 VPF:

PV	=	-100%
FV	=	150%
N	=	3 years
PMT	=	0
IRR	=	14.47% per annum
2. The cash flows in a VPF resemble those of a zero-coupon bond—the investor receives a cash advance when the trade is executed, and is asked for repayment at maturity. The “par value” of the advance rate is equal to the floor price value of the stock. For example, in the “90-150” VPE, the investor receives

EXHIBIT 2

Assumptions and Pricing Inputs

Comparison of All-In Performance for Alternative Hedging Strategies				
Ticker Symbol of Underlying Shares:		XYZ		
INPUTS				
Maturity:	3 years			
Number of Shares to Be Hedged:	1,000,000			
Spot Price:	\$16.00	Basis in the Stock:	\$0.00	(average)
Current Market Value of Stock:	\$16,000,000			
				Stock Growth Rate Retained by Investor (Per Annum)
VPF Structure	Percent	Price		
Floor Price: Wide Band	90%	\$14.40		
Ceiling Price: Wide Band	150%	\$24.00		14.47%
Floor Price: Narrow Band	100%	\$16.00		
Ceiling Price: Narrow Band	125%	\$20.00		7.72%
				Implied "Financing" Cost (per annum)
Cash Advance Against Wide Band VPF	74.00%	\$11,840,000		
Repayment Amount on Wide Band VPF*	90.00%	\$14,400,000		6.74%
Cash Advance Against the Narrow Band VPF	85.00%	\$13,600,000		
Repayment Amount on Narrow Band VPF*	100.00%	\$16,000,000		5.57%
After-Tax Proceeds of Sale of Stock	80.00%	\$12,800,000		N.A.
Dividends on Underlying Stock:	\$0.20	(per share, p.a.)		(Investor Retains Dividends)
Capital Gains Tax Rate:	20.00%	(State and Federal)		
Ordinary Tax Rate:	38.60%	(State and Federal)		

* Investor owes this amount back plus any increase in the underlying stock price above the ceiling price.

74.00% of the market value of the stock upfront and is asked to repay 90% of the initial market value at maturity. Running a simple IRR calculation generates the implied financing cost of the deal:

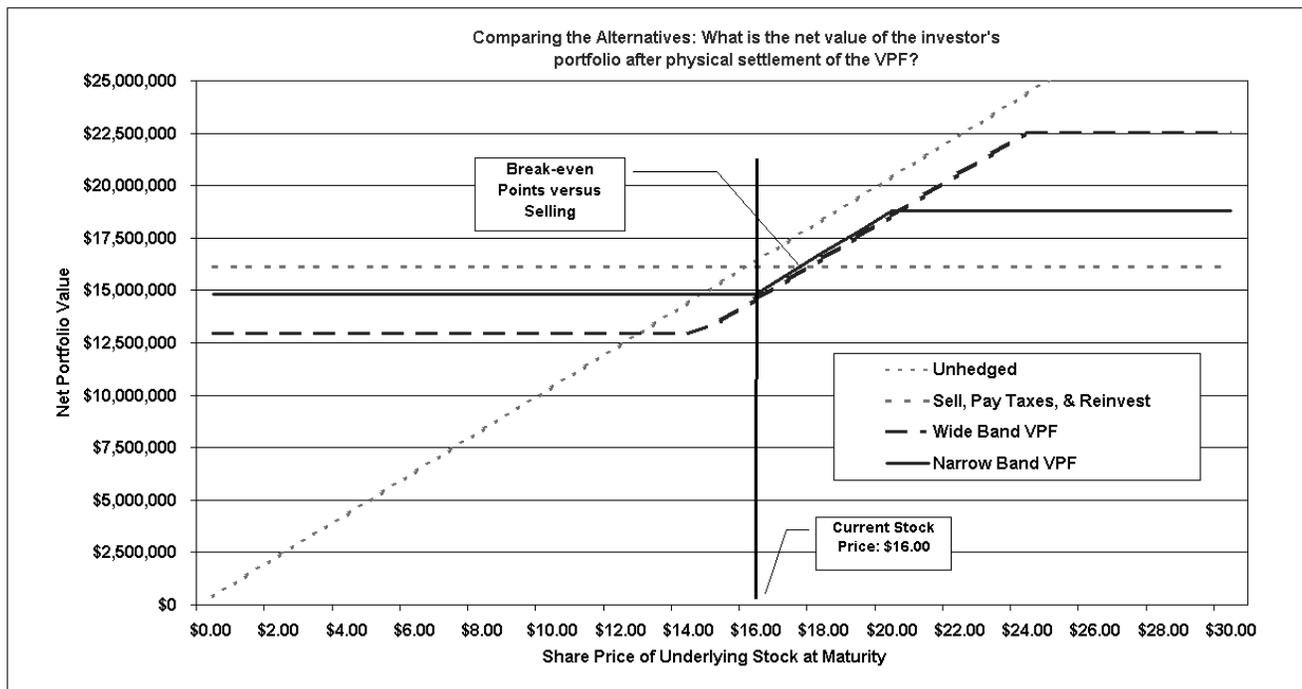
$$\begin{aligned}
 PV &= -74.00\% \\
 FV &= 90.00\% \\
 N &= 3 \text{ years} \\
 PMT &= 0 \\
 IRR &= 6.74\% \text{ per annum}
 \end{aligned}$$

- This implied financing cost is fixed on trade date, and the investor does not pay any ongoing carrying costs over the life of the deal. Because VPFs fall under the "straddle rules" of the tax code (see I.R.C. §1092 and I.R.C. §263(g)), and also because the financing cost is not documented to be "interest

expense," the implied financing cost is not currently deductible against other investment income. It is, rather, deducted from the realized sales price for tax purposes (i.e., it is capitalized).

- At the time this deal was priced, the three-year swap rate was approximately 2.5%-3.0%. Most competitively priced VPFs will use flat LIBOR to LIBOR + 0.50% (i.e., the swap rate, perhaps with a small spread) as the interest rate discount in determining the cash advance. Since the implied financing cost for the 90-150 VPF is determined to be ~6.74% per annum (well above the three-year swap rate), there must be something else factored into the advance rate (likewise with the 100-125 VPF, which also has an implied financing cost above the prevailing three-year swap rate).

EXHIBIT 3 Comparing the Results



Implied Financing Cost		Break-Even Analysis: Hedging vs. Selling*			
		Stock Price	Stock Growth (Absolute \$)	Stock Growth Rate (per annum)	
Implied Financing Cost: Wide Band VPF	6.74%	Wide Band VPF	\$17.58	\$1.58	3.19%
Implied Financing Cost: Narrow Band VPF	5.57%	Narrow Band VPF	\$17.31	\$1.31	2.66%
Assumed Reinvestment Return (Equities)	8.00%	* If stock price ends up higher than the break-even price, hedging adds value versus selling.			

The answer is the net hedging cost of the structure being priced. The cost of the 90% floor protection the investor is purchasing is greater than the value of the ceiling growth limitation sold back to the bank. The net difference is subtracted from the quoted cash advance rate. In essence, the investor is financing the purchase of additional upside potential on the stock in both the 90-150 and 100-125 VPF, at the expense of lower cash advances.

Put another way, if the VPF were structured so that the floor and ceiling prices represented the “zero-premium collar band”—where the floor and ceiling hedging costs were the same—then the implied financing cost of the transaction would be much closer to the prevailing swap rate for the maturity of the deal. The difference, of course, is that the investor will retain much less upside potential (or have to take on more downside risk) on the underlying stock.

The reverse is also true. The investor can structure the trade so that the net hedging cost of the VPF floor and ceiling range is positive to the investor (by structuring

a much narrower VPF band). This positive difference would be added to the advance rate quoted by the bank, and the implied financing cost of the VPF might appear to be much lower than the prevailing swap rate for the maturity of the deal. This highlights the importance of understanding in advance the primary objectives of the investor—maximum cash advance, maximum downside protection, or maximum upside growth potential.

COMPARING THE ALTERNATIVES

Once the structures have been priced, the next step is to compare them. But compare them to what? Since hedging represents the “middle path” between an outright sale and remaining long and unhedged, hedging should be compared to these two alternative strategies. The results of this comparison are shown graphically in Exhibit 3.

What the graph shows is the total portfolio value (including the value of any shares of XYZ retained by the investor), for different final values of XYZ, at the maturity

of the trade, net of taxes. If the investor sells XYZ (represented by the straight dotted line running across the graph), then taxes are paid when the stock is sold. If the investor hedges XYZ, then taxes are paid when the VPF is settled (it is assumed that the trade will be physically settled by delivering shares). If the investor remains unhedged, then the only taxes paid are on the dividends received on XYZ.

The graph illustrates very plainly two intuitive assumptions about hedging: 1) it works best if the investor is bullish on the future performance of XYZ, and 2) it represents the “middle path” between selling and staying long. As the graph shows, if the stock moves dramatically in either direction, hedging, with the benefit of hindsight, proves to not be the optimal strategy: 1) if the investor *knew* the stock would crash, then selling is the preferred strategy; 2) if the investor *knew* the stock would rise indefinitely, then staying long is the preferred strategy. The point, however, is that the investor does not know what will happen to the stock, which is what makes hedging attractive—it combines some, but not all of the benefits of selling (i.e., risk reduction and immediate liquidity) with some, but not all of the benefits of staying long (i.e., upside growth retention and tax deferral).

As before, there are several assumptions that need to be highlighted in reviewing the graph in Exhibit 3.

1. In the bottom left corner, note that there is an assumed rate of return on the reinvestment portfolio of 8%. This is a variable, and can be changed by the investor if a sensitivity analysis is desired.
2. It is assumed that the investor will reinvest into a similar portfolio (earning, in this example, 8% per annum), whether the underlying stock is sold or hedged.
3. All dividends paid on XYZ are retained by the investor, taxed at ordinary tax rates, and then reinvested back into the 8% portfolio.

Since the investor will incur a financing cost if hedging that is not incurred if the stock is sold, and since the assumption is that the proceeds of either a sale or hedge of the stock will be reinvested into the same portfolio, the next question becomes how much the stock needs to grow in the hedging strategy to compensate the investor for 1) incurring the financing cost associated with the hedge, and 2) making up the difference (if any) in investable proceeds if the cash advance on the VPF is lower than the after-tax proceeds of a sale.

This information is provided in the break-even analysis illustrated in the bottom of Exhibit 3. Graphically, it is simply the stock price of XYZ at which each hedging strategy intersects the “sell, pay taxes, and reinvest” line. The result is illustrated in both absolute dollar terms and as a per annum growth rate.

For example, the 90-150 VPF needs to grow to a dollar price of \$17.58 (an absolute growth of \$1.58 over the three-year life of the trade) to break even with an outright sale and reinvestment strategy. This translates into a compound annual growth rate on the stock of 3.19% per annum.

Likewise, the 100-125 VPF has a break-even stock price of \$17.31, which translates into a per annum growth rate requirement of 2.66% per annum.

If the stock grows by more than the break-even growth rate (which the investor should assume if he/she is bullish on the stock), then hedging adds value in comparison to an outright sale of the stock. If the stock does not grow, or falls in value, then selling would have added more value.

Exhibit 4 analyzes the break-even calculation in more detail, using the actual numbers involved in the 100-125 VPF. Note that the taxes due upon physical settlement of the VPF are less than the taxes due if the stock is sold outright. This is the result of the capitalized financing cost associated with the VPF—the investor is taxed on the 85.00% of initial market value that was received up front, not 100% of initial market value (which is what is taxed if the stock is sold).

SETTLEMENT OF THE VPF

In addition to understanding the economics of a hedging transaction, investors also need to understand how the trade will settle at maturity. If documented properly, the investor will have a choice of a cash or physical settlement of the deal.

For cash settlements:

- If the stock price at maturity is below the floor price value of the stock, the investor can settle the trade by delivering the current market value of the stock in cash. In this example, the floor price value of XYZ for the 90-150 VPF is \$14.40 per share. If the stock is trading at, for example, \$10 per share at maturity, the investor can settle the trade by delivering \$10 per share in cash to the bank (this is where the protection value of the floor comes into play).

EXHIBIT 4

Calculating the Break-Even Point on the 100-125 VPF

<i>Calculation of Sale vs. Hedge Break-Even Growth Rate</i>	
Number of Shares:	1,000,000
Current Market Price:	\$16.00
Current Market Value:	\$16,000,000
LT Capital Gains Tax Rate:	20.00%
Basis in Stock:	\$0
Assumed Rate of Return on Reinvestment Portfolio:	8.00%
Maturity (Years):	3

Comparison of Selling vs: Narrow Band VPF

Sale Analysis	
Taxes Due If Sold:	(\$3,200,000)
After-Tax Proceeds Available for Reinvestment:	\$12,800,000
FV of Reinvestment Portfolio:	\$16,124,314
Hedge Analysis	
Cash Advance on VPF (%):	85.00%
Cash Advance on VPF (\$):	\$13,600,000
Amount to Be Repaid on VPF (\$):	\$16,000,000
FV of VPF Reinvestment Portfolio*:	\$17,530,741
Minus Taxes Due When VPF Is Physically Settled:	(\$2,720,000)
Plus Difference Between Original MV of Stock & Amount to Be Repaid:	\$0
Net FV of Reinvestment Portfolio:	\$14,810,741
Net Difference Between Sale vs. Hedge Reinvestment Portfolios:	\$1,313,572
Growth Rate Required on Underlying Stock to Make Up the Difference in Reinvestment Portfolios:	2.66%
Break-Even Stock Price:	\$17.31

* Assumes after-tax reinvestment of any dividends on underlying stock

- If the stock is trading between the floor and ceiling values (between \$14.40 and \$24.00 per share for the 90–150 VPF), the investor owes the floor price value of the stock (\$14.40 per share) in cash.
- If the stock is trading above the ceiling price (\$24.00 per share for the 90–150 VPF), the investor owes \$14.40 per share plus the difference between the final market price and the ceiling price of the stock. For example, if the stock closes at \$30.00 per share at maturity, the investor can cash settle the trade by delivering \$14.40 + (\$30.00 – \$24.00) = \$20.40 per share in cash.

The tax consequences of a cash settlement can be complicated because VPFs fall under the straddle rules of the tax code, but, in summary, the transaction can be described as follows:

- The investor “sold” a contract on day one for a value equal to the cash advance value. In the example of the 90–150 VPF on XYZ, the client received a cash

advance of \$12,280,000 on a total of 1 million shares—which translates into a “contract sales price” of \$12.28 per share.

- The investor then “buys” the contract back (via a cash settlement). If the “repurchase price” of the contract is less than the “sales” price, the investor will realize an immediate short-term capital gain on the difference. If the repurchase price is greater than the sales price, the investor will realize a deferred long-term capital loss (i.e., the difference between the sales price and the repurchase price is capitalized into the basis of the underlying shares). This loss will be realized only when the investor finally sells the underlying shares. Note that this will occur even if the stock is trading below the floor price of the stock (\$14.40 per share)—the key to whether a cash settlement results in a short-term capital gain or long-term deferred loss is whether or not the stock is trading above the cash advance per share value.

EXHIBIT 5

Physical Settlement of the 90-150 VPF on XYZ

Physical Settlement of the Variable Pre-Paid Forward

Total Number of Shares Hedged:	1,000,000
Structure:	Wide Band VPF
Current Market Price:	\$16.00 per share
Notional Value of Trade:	\$16,000,000
Cash Advance:	\$12,280,000
Amount To Be Repaid:	\$14,400,000
Implied Financing Cost:	5.45% per annum
Protection Below:	\$14.40 per share
Participation Up To:	\$24.00 per share

If the Stock Price Equals:	You Deliver (# Shares)	% of Shares Owned	You Still Own (# Shares)	MV of Retained Shares	If the Stock Price Equals:	You Deliver (# Shares)	% of Shares Owned	You Still Own (# Shares)	MV of Retained Shares
\$10.00	1,000,000	100.00%	0	\$0	\$23.00	626,087	62.61%	373,913	\$8,600,000
\$10.50	1,000,000	100.00%	0	\$0	\$23.50	612,766	61.28%	387,234	\$9,100,000
\$11.00	1,000,000	100.00%	0	\$0	\$24.00	600,000	60.00%	400,000	\$9,600,000
\$11.50	1,000,000	100.00%	0	\$0	\$24.50	608,163	60.82%	391,837	\$9,600,000
\$12.00	1,000,000	100.00%	0	\$0	\$25.00	616,000	61.60%	384,000	\$9,600,000
\$12.50	1,000,000	100.00%	0	\$0	\$25.50	623,529	62.35%	376,471	\$9,600,000
\$13.00	1,000,000	100.00%	0	\$0	\$26.00	630,769	63.08%	369,231	\$9,600,000
\$13.50	1,000,000	100.00%	0	\$0	\$26.50	637,736	63.77%	362,264	\$9,600,000
\$14.00	1,000,000	100.00%	0	\$0	\$27.00	644,444	64.44%	355,556	\$9,600,000
\$14.40	1,000,000	100.00%	0	\$0	\$27.50	650,909	65.09%	349,091	\$9,600,000
\$15.00	960,000	96.00%	40,000	\$600,000	\$28.00	657,143	65.71%	342,857	\$9,600,000
\$15.50	929,032	92.90%	70,968	\$1,100,000	\$28.50	663,158	66.32%	336,842	\$9,600,000
\$16.00	900,000	90.00%	100,000	\$1,600,000	\$29.00	668,966	66.90%	331,034	\$9,600,000
\$16.50	872,727	87.27%	127,273	\$2,100,000	\$29.50	674,576	67.46%	325,424	\$9,600,000
\$17.00	847,059	84.71%	152,941	\$2,600,000	\$30.00	680,000	68.00%	320,000	\$9,600,000
\$17.50	822,857	82.29%	177,143	\$3,100,000	\$30.50	685,246	68.52%	314,754	\$9,600,000
\$18.00	800,000	80.00%	200,000	\$3,600,000	\$31.00	690,323	69.03%	309,677	\$9,600,000
\$18.50	778,378	77.84%	221,622	\$4,100,000	\$31.50	695,238	69.52%	304,762	\$9,600,000
\$19.00	757,895	75.79%	242,105	\$4,600,000	\$32.00	700,000	70.00%	300,000	\$9,600,000
\$19.50	738,462	73.85%	261,538	\$5,100,000	\$32.50	704,615	70.46%	295,385	\$9,600,000
\$20.00	720,000	72.00%	280,000	\$5,600,000	\$33.00	709,091	70.91%	290,909	\$9,600,000
\$20.50	702,439	70.24%	297,561	\$6,100,000	\$33.50	713,433	71.34%	286,567	\$9,600,000
\$21.00	685,714	68.57%	314,286	\$6,600,000	\$34.00	717,647	71.76%	282,353	\$9,600,000
\$21.50	669,767	66.98%	330,233	\$7,100,000	\$34.50	721,739	72.17%	278,261	\$9,600,000
\$22.00	654,545	65.45%	345,455	\$7,600,000	\$35.00	725,714	72.57%	274,286	\$9,600,000
\$22.50	640,000	64.00%	360,000	\$8,100,000					

Investor has the choice to cash settle the transaction at maturity and retain ownership of all shares.

In a cash settlement of the VPF contract, the investor retains ownership of the shares that were hedged, and has not sold them for tax purposes.

If the VPF is physically settled, the investor is required to deliver an appropriate number of shares to settle the VPF obligation:

- If the stock is trading below the floor price (\$14.40 in this example), the investor delivers 100% of the pledged shares to settle the VPF;
- If the stock is trading above the floor price but below the ceiling price (between \$14.40 and \$24.00 per share for the 90-150 VPF), then the investor owes a number of shares equal to $\$14.40/\text{Final Market Price} \times 1 \text{ million shares}$. For example, if XYZ is trading at \$20 per share at maturity, the investor

owes $(\$14.40/\$20.00) \times 1,000,000 = 720,000$ shares. Note that this implies that the number of shares the client will deliver is minimized if the stock trades at the ceiling price at maturity. In this example, if the stock is trading at \$24 per share at maturity, the investor owes $(\$14.40/\$24.00) \times 1,000,000 = 600,000$ shares.

- If the stock trades above the ceiling price, the investor owes a number of shares equal to the following: $\{[\$14.40 + (\text{Final Market Price} - \text{Ceiling Price})]/\text{Final Market Price}\} \times 1,000,000$ shares. For example, if XYZ is trading at \$30 per share at maturity on the 90-150 VPF, the investor owes $\{[\$14.40 + (\$30.00 - \$24.00)]/\$30\} \times 1,000,000 = 680,000$ shares.

The investor will never owe more than 100% of the shares at maturity—if the stock price is below the floor price, the investor owes 100% of the shares; if the stock price is between the floor and ceiling price, the investor owes somewhere between 100% and 60% of the shares; and once the stock price rises above the ceiling price, the investor begins to owe more than 60% of the shares back, a number which will asymptotically approach 100% but will never get there (since the investor always gets to retain the growth on the stock up to the ceiling price).

The number of shares owed by the investor for different final stock prices on a physical settlement of a VPF is illustrated for the 90-150 VPF in Exhibit 5. Note that, once the final stock price of XYZ crosses over the ceiling price, the number of shares the investor retains decreases, but the dollar value of those remaining shares stays constant.

Regardless of how many shares are delivered under a physical settlement, the tax consequence is the same—the investor owes long-term capital gains tax on the difference between the original basis in the shares (assumed to be \$0 in this example) and the amount of money that was received up front (\$12,280,000 in the 90-150 VPF). The only question is on how many shares this tax is applied—100% or some number less than 100%—and this, in turn, depends on the final stock price of XYZ.

[Due to the potential complexity of settlement of the trade, any investor considering a hedging transaction should retain professional tax and legal counsel to review all documentation and advise the investor as to the specific tax ramifications of the transaction.]

MAKING RECOMMENDATIONS

The two hedging alternatives (the 90-150 VPF and the 100-125 VPF) have now been analyzed for the investor with respect to advance rates, implied financing costs, amount of upside growth retained, shares deliverable, and final portfolio value for different final stock prices. Armed with this information, the investor can make an informed decision as to which strategy best meets his/her stated objectives. In summary, the analysis indicates the following:

1. If investor is bearish on the future performance of the stock, then selling or charitable planning are the preferred alternatives.
2. If the investor believes the stock will grow, then hedging is the preferred alternative.
3. Structuring the trade as a variable prepaid forward (VPF) allows the investor to maximize the up-front

cash advance, with no restrictions on how that money can be reinvested.

4. The 100-125 VPF represents, effectively, a tax-deferred sale of the stock, and is the preferred strategy if the investor is only mildly bullish on the stock. If the investor believes the stock can grow above ~\$20-\$21 by maturity, then the 90-150 VPF becomes the preferred strategy, as it allows the investor to retain more growth in the stock without a significant increase in the implied financing cost of the transaction.

As a final reminder, the investor is not limited to these two strategies—there is an almost infinite combination of floor prices, ceiling prices, advance rates, and maturities that can be priced and analyzed.

SUMMARY AND CONCLUSIONS

Ultimately, the investor will need to make his/her own determination with respect to which strategy best meets his/her objectives, and best fits his/her view regarding the future of the stock. This decision can be assisted, however, by providing relevant information in different ways. Once the investor has prioritized between 1) up-front advance amount, 2) downside protection level, 3) upside growth retained, and 4) tax deferral, different strategies can be structured and priced, and the analysis illustrated in this article can then be used to determine which strategy seems to most closely match the objectives and priorities. Some investors are able to analyze numbers and tables; others prefer graphs. Some investors focus on the “big picture”; others prefer to understand the minutiae.

The key is to present the information in different ways, to ensure that the investor understands the choices, sees clearly how one strategy compares to another, and is in a position to make an informed decision. Most importantly, this analysis will help the investor to make a decision to *do something*—far too often, investors “sit on the sideline” and watch their wealth disappear, because they don’t have the information to make a decision with which they are comfortable. Given the risks associated with holding concentrated stock positions, investors must be made aware that “doing nothing” is, in fact, the single most aggressive and risky strategy available. Hedging may or may not be the right choice for any individual investor, but it may be the appropriate strategy for investors who remain bullish on the future of their underlying stock, but recognize the need for protection and diversification.

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