



*Life insurance due care requires an understanding of the factors that impact policy performance and drive product selection.*

*M Financial Group continues to lead the industry in life*

*insurance due care and client advocacy,*

*providing valuable insight and analysis*

*that delivers*

*significant value*

*to clients.*

## A Review of the Impact of Interim Yield Volatility on Variable Life Policy Performance

The impact of investment return volatility in a variable life product can be significant. Variable life products are unique financial instruments in which upside potential and downside risk are magnified relative to traditional equity investments due to the timing of premium payments and policy charges. Beyond the point of sale, ongoing inforce management can be effective in addressing variable volatility risk and help keep product performance on track to meet expectations.

The M Product Management Team will be developing a series of educational Due Care Bulletins regarding the management of variable volatility risk. The first bulletin in the series discusses the impact of interim yield volatility on variable life policy performance.

### Interim Yield Volatility

Most people are aware that future equity yields are not based on past performance and that equity yields are not constant over time. However, many are not aware of the impact of interim yield volatility on VUL performance. Additionally, because sales illustrations can only reflect a constant equity yield, they fail to demonstrate the true impact of market volatility. Interim yield volatility reflects that equity yields are not constant over time (see example below).

Example of Interim Yield Volatility						
Time	Example A (Level Yield)			Example B (Interim Volatility)		
	Unit Price	Interim Annual Yield	Cumulative Annual Yield	Unit Price	Interim Annual Yield	Cumulative Annual Yield
0	1.00			1.00		
1	1.10	10%	10%	0.90	-10%	-10%
2	1.21	10%	10%	1.21	34%	10%

Example A (Level Yield) provides a level 10% annual yield over a two-year period, which results in a cumulative two-year annual yield of 10%. Example B (Interim Volatility) also results in a cumulative two-year annual yield of 10%, but the results in each year are very different. In year one, the interim has a negative 10% yield, and in year two the yield is a positive 34%. Note that the beginning and ending unit prices are identical in both examples.

This bulletin will review the two main factors which cause variable life policy performance to be significantly impacted by interim yield volatility: policy transaction timing risk and the COI leverage effect.

### Impact of Interim Yield Volatility on Policy Performance Due to Policy Transaction Timing

One of the primary factors impacting policy performance is the timing of policy transactions (premium payments, policy charges, withdrawals and fund transfers) and the corresponding subaccount unit price at the time of the transaction. As premiums

are paid, subaccount units are purchased based on that day's unit price. When the unit price is down, more units are purchased. When policy charges are deducted, units are sold based on that day's unit price. When the unit price is high, fewer units are sold. Policy performance is enhanced with buy low, sell high scenarios.

Below are three illustrative examples where the 10-year compound annual yield is equal to 10%. In all three examples the unit price is equal at the beginning and at the end of 10-year period, but the unit prices are different at the end of each year within the 10-year period. In addition, all three examples have the same configuration of five annual premiums of \$1,000, a level death benefit of \$10,000 and the same policy loads.

Duration	Example #1 (Baseline) 10% Level Annual Yield <sup>1</sup>			Example #2 12% Interim Annual Yield <sup>2</sup>			Example #3 -5% Interim Annual Yield <sup>3</sup>		
	Unit Price	Annual Yield	Account Value	Unit Price	Annual Yield	Account Value	Unit Price	Annual Yield	Account Value
0	<b>100.00</b>			<b>100.00</b>			<b>100.00</b>		
1	110.00	10.0%	770	112.00	12.0%	784	95.00	-5.0%	665
5	161.05	10.0%	5,467	176.23	12.0%	5,784	77.38	-5.0%	3,537
10	<b>259.37</b>	<b>10.0%</b>	<b>8,468</b>	<b>259.37</b>	<b>-6.5%</b>	<b>8,215</b>	<b>259.37</b>	<b>311.5%</b>	<b>10,926</b>

*1 Example #1 has a +10% annual yield for all 10 years.*

*2 Example #2 has a +12% annual yield for the first 9 years and a 6.5% loss in the 10th year.*

*3 Example #3 has a -5% annual yield for the first 9 years and a 311.5% gain in the 10th year.*

Note that the higher unit prices for example #2 results in fewer units being purchased with the same dollar amount transferred to the fund as compared to example #1. The end of year 10 unit price is equal for both examples but example #2 has fewer units and ends up with a lower end of year 10 account value.

The situation is reversed when comparing example #3 to the Baseline example #1. Note that the interim (years one through nine) unit prices for example #3 are less than example #1, and therefore more units are purchased. In year 10, the unit price for example #3 rebounds with a 311.5% annual return in that year. Since the end of year 10 unit price

is equal for both examples and because example #3 has more units, example #3 ends up with a higher end of year 10 account value.

These examples show that poor investment yields during the premium paying years may actually help policy performance over the long term as more units of stock have been purchased (assuming that the stock price eventually rebounds).

A more detailed version of these examples (including premium payments, charges, and number of units purchased and/or sold) are shown in Appendix A of this Bulletin.

## Impact of Interim Yield Volatility on Policy Performance Due to COI Leverage

One of the policy charges deducted from the account value is the Cost of Insurance (COI) charge. The COI charge is equal to a COI rate times the net amount at risk (NAR). The COI rate increases with age to reflect the higher probability of death. The NAR is equal to the face amount of the policy less the account value.

COI charges provide leverage to policy performance due to the changing NAR.

- As an example, if investment earnings are down, then the account value is reduced. This drives a higher NAR and subsequently, a higher COI charge.
- There is also upside leverage: if investment earnings increase, the account value is higher. With a higher account value, the NAR is lower, resulting in a lower COI charge.

The leverage from COIs can be significant, particularly in death benefit oriented designs where minimal premium is paid to support the death benefit. In this scenario, the result is a minimal account value and a higher NAR.

The following examples illustrate the impact of COIs. The examples are identical to the interim yield examples noted above but COI charges are now included. More detailed versions of these examples are provided in Appendix B at the end of this Bulletin.

## COI Charges Included

Duration	Example #1 (Baseline) 10% Level Annual Yield			Example #2 12% Interim Annual Yield			Example #3 -5% Interim Annual Yield		
	Unit Price	Annual Yield	Account Value	Unit Price	Annual Yield	Account Value	Unit Price	Annual Yield	Account Value
	0	<b>100.00</b>			<b>100.00</b>			<b>100.00</b>	
1	110.00	10.0%	724	112.00	12.0%	738	95.00	-5.0%	618
5	161.05	10.0%	5,167	176.23	12.0%	5,479	77.38	-5.0%	3,273
10	<b>259.37</b>	<b>10.0%</b>	<b>5,948</b>	<b>259.37</b>	<b>-6.5%</b>	<b>6,190</b>	<b>259.37</b>	<b>311.5%</b>	<b>Lapse</b>

While the COI rates are identical for all three examples, the resulting COI charges are not equal due to the differing NAR patterns.

- If we compare example #2 to the Baseline (example #1), the higher investment yield for example #2 produces a lower NAR, and as a result, lower COI charges, which account for the higher year 10 ending account value for example #2.
- We have the opposite situation when comparing example #3 to the Baseline. The lower investment yield for example #3 produces a higher NAR, and as a result, higher COI charges, which contribute to the lapse of the policy in year 10.

## Impact on Policy Performance Assuming "Real World" Yields (Interim Volatility)

Interim investment yield volatility has an offsetting affect on variable life policy performance. Analysis shows that low investment yields during premium paying years help policy performance from a policy transaction timing

perspective (buying subaccount units when fund prices are low), but hurt policy performance from a COI leverage perspective (larger NAR resulting in larger COI charges); high investment yields during premium paying years hurt policy performance from a policy transaction timing perspective, but help policy performance from a COI leverage perspective. The cumulative impact on policy performance will vary based on:

- Funding level;
- Age;
- Underwriting class;
- Timing of transactions; and
- Unit price volatility.

A more realistic analysis of the impact of interim investment yield volatility on policy performance incorporates actual historical results of an equity index. The following analyses assume historical monthly S&P 500 price movements for two different time periods: 50 years (1956-2006) and 16 years (1990-2006). A comparison is made of policy performance between:

- A constant level monthly yield equal to the compound lifetime monthly yield of the S&P 500 index.
- The equivalent interim actual historical monthly yields of the S&P 500 index.

### Full Pay to Endow (Low Funding Configuration)

Time Period <sup>1</sup>	S&P 500 1956–2006	S&P 500 1990–2006
Level Lifetime Annual Yield <sup>2</sup>	10.7%	10.2%
Annual Premium Solved for Assuming Level Yield <sup>3</sup>	8,225	8,634
Annual Premium Solved for Assuming Actual Yields <sup>4</sup>	8,373	8,661
Percentage Premium Change	+1.8%	+0.3%
<b><u>Paying Level Yield Premium and Assuming Actual Yields</u></b>		
Lapse Age	100	n/a
Age 100 Account Value	0	1.7 Million

Both scenarios - level yield and actual yield - produce the same beginning and ending unit price.

<sup>1</sup> Refers to the historical time period of the S&P 500 index used for the illustrations. In December 2006 the investment yield assumption returns to the beginning of the time period (1956 or 1990), and starts again.

<sup>2</sup> Equivalent level annual yield of the S&P 500 over the historical time period used.

<sup>3</sup> Solved for premium to endow when assuming the historical level lifetime S&P 500 yield.

<sup>4</sup> Solved for premium to endow when assuming actual historical monthly S&P 500 yields (i.e. interim volatility).

Assumptions: Male, Nonsmoker, Issue Age 45, \$2 million Death Benefit

For the full pay to endow scenario, introducing historical S&P 500 interim volatility resulted in slightly worse policy performance. Paying annual premiums for life help to spread the market timing risk, an approach not unlike dollar cost averaging.

## For More Information

### 10 Pay to Endow (Medium Funding Configuration)

Time Period	S&P 500 1956–2006	S&P 500 1990–2006
Level Lifetime Annual Yield	10.7%	10.2%
Annual Premium Solved for Assuming Level Yield	12,809	13,761
Annual Premium Solved for Assuming Actual Yields	13,912	13,382
Percentage Premium Change	+8.6%	-2.8%
<u>Paying Level Yield Premium and Assuming Actual Yields</u>		
Lapse Age	89	n/a
Age 100 Account Value	0	3.5 Million

To learn more, please contact:

Mary Anne Ehlert, CFP®  
847-522-8080 ext. 245  
mehlert@  
ehlerfinancialgroup.com

William F. Hoffman, CFP®  
847-522-8080 ext. 225  
bhoffman@  
ehlerfinancialgroup.com

For the 10 pay to endow scenario, we see more significant differences in performance when introducing interim volatility as compared to the full pay results. The premium is concentrated over a shorter period, thereby concentrating the market timing risk. In this example we see that interim volatility can either improve or decrease policy performance, depending on the historical time period used.

### 7 Pay Non Mec\* Funding (High Funding Configuration)

Time Period	S&P 500 1956–2006	S&P 500 1990–2006
Level Lifetime Annual Yield	10.68%	10.17%
Age 100 Surrender Value IRR with Level Yield	10.08%	9.57%
Age 100 Surrender Value IRR with Actual Yields	10.11%	9.58%

For max funding, lifetime policy performance is virtually unchanged when introducing interim volatility. The leverage from COI charges is minimized in high funding configurations as the high cash values reduce the NAR and the corresponding COI charges.

## Conclusions of the Impact of Interim Yield Volatility on Variable Life Policy Performance:

- Introducing “real world” interim yield volatility can have a significant impact - both positive and negative - on policy performance.
- Interim volatility has an impact on policy performance due to market and policy transaction timing risk and the leverage of COI charges.
- High funding will reduce the COI leverage effect, as well as the resulting impact from interim volatility, while low funding and distributions will increase the COI leverage impact.
- More premium payments spread out over time will spread the investment timing risk, which will reduce the impact of interim volatility (similar to dollar cost averaging).
- Interim volatility has a greater impact on younger issue ages, as there are more years for market timing and COI leverage to take effect.
- Lower underwriting classes (smokers, table ratings) have higher associated COI charges, which will increase the COI leverage effect and the impact from interim yield volatility.

*Variable life insurance products are long-term investments and may not be suitable for all investors. An investment in variable life insurance is subject to fluctuating values of the underlying investment options and it entails risk, including the possible loss of principal.*

*Unit prices are hypothetical for illustration purposes only and may not be used to project or predict investment results.*

*Securities offered through M Holdings Securities, Inc., a registered Broker/Dealer and Member FINRA/SIPC. Ehlert Financial Group, Inc. is independently owned and operated and a Registered Investment Advisor. Investment Advisory Services offered through Ehlert Financial Group, Inc.*

\* Modified Endowment Contract (MEC)

A modified endowment contract (“MEC”) is created when the amount by which the contract death benefit exceeds the policy cash value, or “amount at risk” is less than the minimum allowed by the IRS. A MEC does not receive the same beneficial tax treatment as a life insurance contract. Also, if a life insurance contract becomes a MEC while in force, the policy holder may be subject to additional taxes and penalties.

Ehlert Financial Group, Inc.  
103 Schelter Road, Suite 102  
Lincolnshire, IL 60069  
847.522.8080  
www.ehlerfinancialgroup.com