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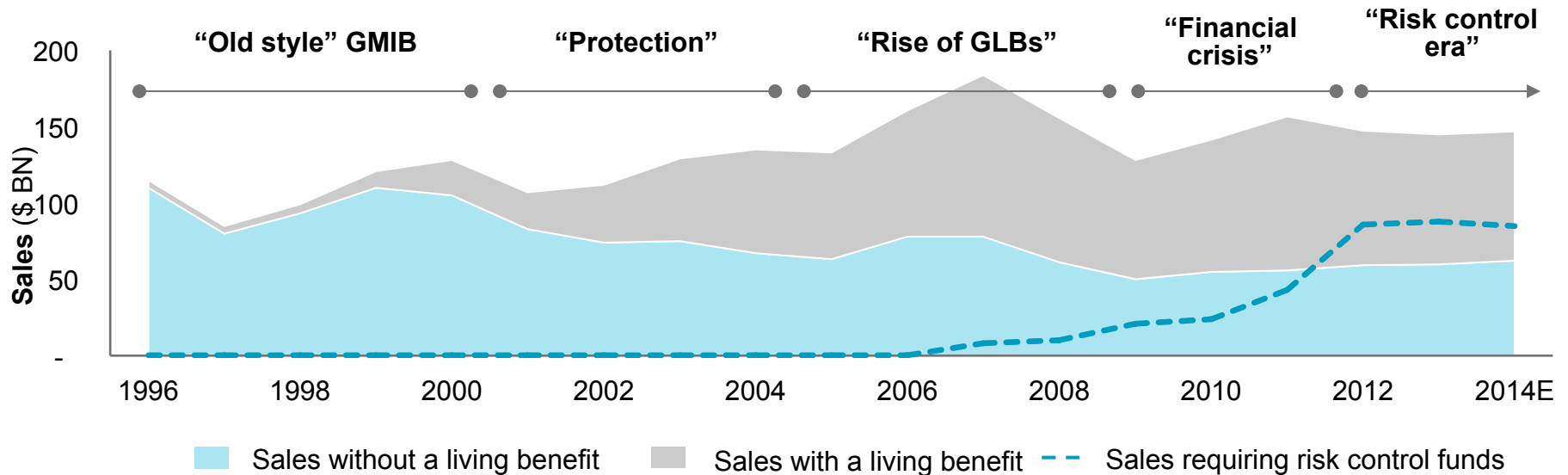
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# Agenda

1. Brief history of variable annuity product environment
2. Overview of recent Lifetime Withdrawal Benefit product economics
3. Two new benefit design levers
  - Risk control funds
  - Market-indexed benefits
4. Takeaways

# VA sales continue to be driven by living benefits, although companies have buoyed efforts to grow non-GLB sales

## US VA sales: 1996–2014E



	<b>“Old style” GMIB</b>	<b>Protection era</b>	<b>Rise of GLBs</b>	<b>Financial Crisis</b>	<b>Risk control era</b>
<b>Product</b>	<ul style="list-style-type: none"> <li>• Tax-driven product</li> <li>• Early death benefits (GMDB)</li> </ul>	<ul style="list-style-type: none"> <li>• Accumulation benefit (AB) gains following</li> <li>• ‘Old style’ GMIB sales increase</li> </ul>	<ul style="list-style-type: none"> <li>• Withdrawal benefit invented; IB enhanced</li> <li>• Living benefits core to sales; “feature war”</li> </ul>	<ul style="list-style-type: none"> <li>• Sales decline with “flight to safety”</li> <li>• Writers scale back benefits</li> </ul>	<ul style="list-style-type: none"> <li>• Growth restored by heightened client need and new VA advisors</li> </ul>
<b>Funds</b>	<ul style="list-style-type: none"> <li>• Fund offerings key</li> </ul>	<ul style="list-style-type: none"> <li>• Dotcom bust – fund story fades</li> </ul>	<ul style="list-style-type: none"> <li>• Limited investment restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• Shift to passive</li> <li>• More allocation restrictions</li> </ul>	<ul style="list-style-type: none"> <li>• Embrace of risk control funds</li> </ul>

Source: IRI, LIMRA Living Benefit Election Rate Survey, JPMorgan. Share of sales requiring managed volatility based on sales of product filings

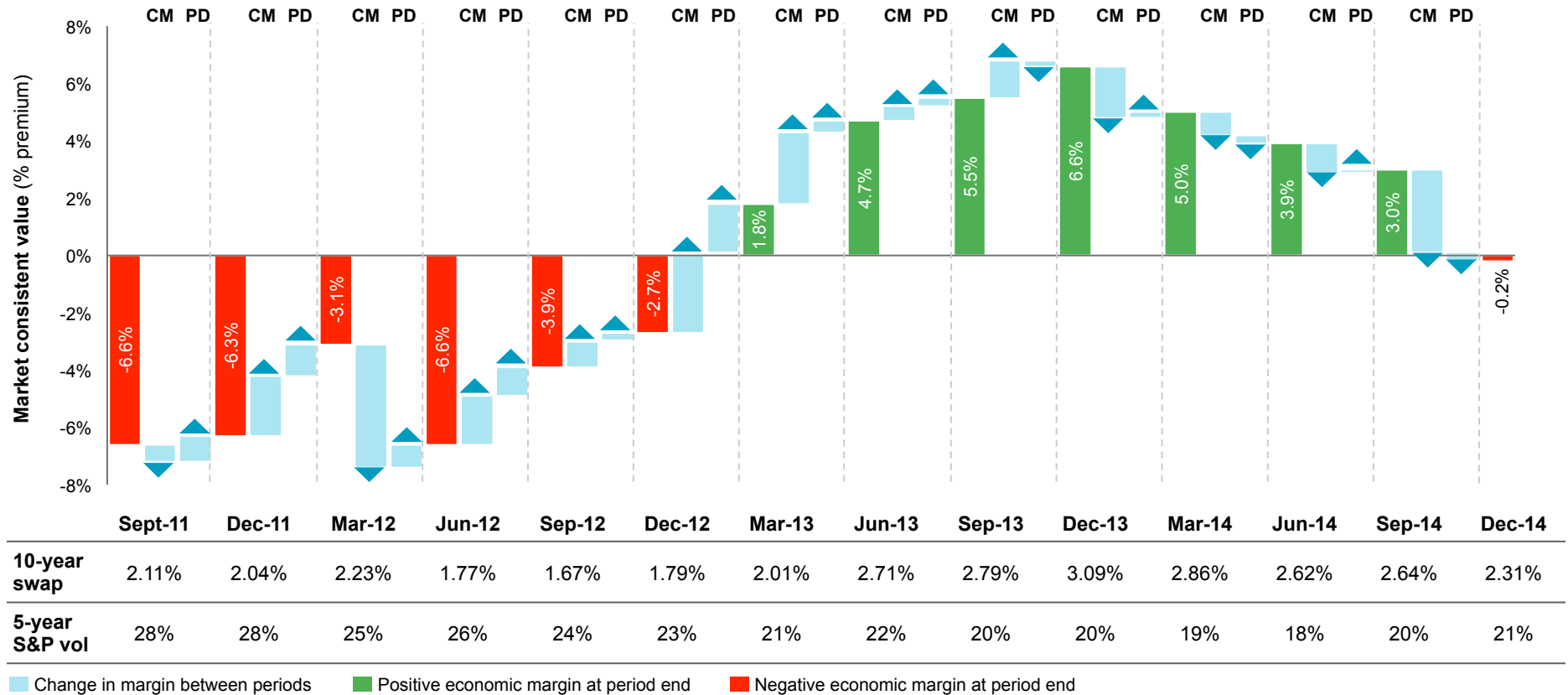
# VA GLWB economics have declined from highs in 2013 and 2014

## Product economics continue to be driven in large part by interest rates

### Oliver Wyman VA profitability index

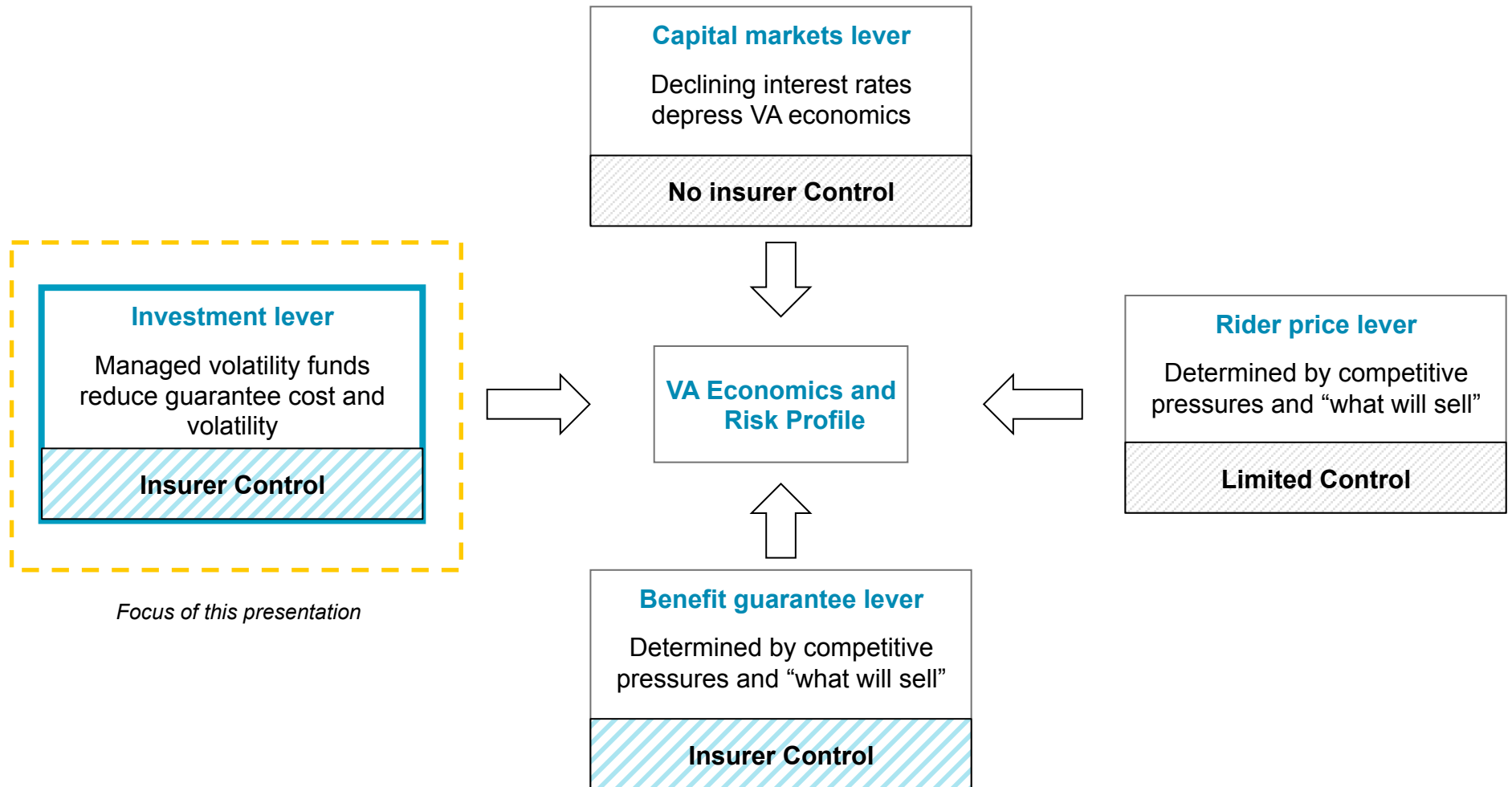
#### Lifetime WB products – Total contract

CM = Impact due to changes in capital markets  
 PD = Impact due to changes in product designs



Note: Analysis reflects a 50bps illiquidity premium for the discounting of the living benefit claim payouts. The impact of this premium is to raise MCVs by approximately 2%  
 Source: Oliver Wyman variable annuity service bureau

# Recently, insurers have been using two principal levers to govern the risk profile of their products



# Why use risk control funds?

	<b>Trend</b>	<b>Observations</b>
<b>1</b>	<b>Stabilize the P&amp;L and balance sheet</b>	<ul style="list-style-type: none"><li>• Reduces the scope of the dynamic hedge programs</li><li>• “Crisis protection”</li></ul>
<b>2</b>	<b>Lower hedge costs → greater benefits</b>	<ul style="list-style-type: none"><li>• Reductions in guarantee hedge costs relative to open architecture funds</li><li>• Savings on hedge cost can be reinvested to generate stronger benefits to clients</li></ul>
<b>3</b>	<b>Less risk-sensitive GLWB designs</b>	<ul style="list-style-type: none"><li>• Lower level of exposure of new product margins to market volatility levels</li></ul>

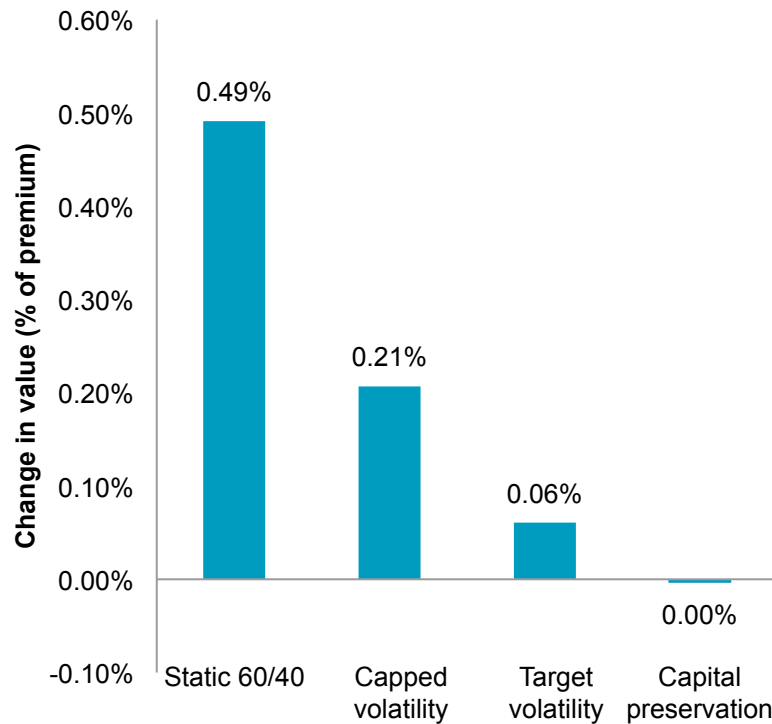
# Five conceptual strategies dominate the risk control funds in use today

		Performance objective of fund	Prevalence (\$ sales)
Contract-based	<b>CPPI</b>	Limit maximum downside loss based on individual contract account performance	~ 15%
	<b>Capped volatility</b>	Cap the expected volatility of fund returns at a defined level (e.g., 15%)	~ 10%
Market-based drivers using futures	<b>Target volatility</b>	Target a specific and constant level of volatility of fund returns (e.g., 11%)	~ 50%
	<b>Capital preservation</b>	Use fund returns to determine “hedge” changes in the cost of the company’s guaranteed benefits	~ 20%
	<b>Traditional</b>	Constant equity / bond allocations	~20%

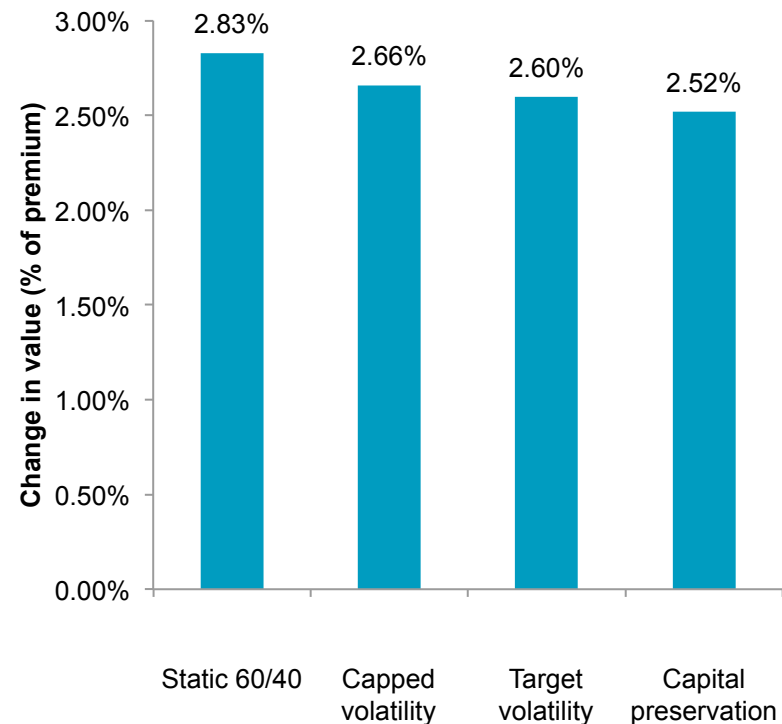
# These funds reduce volatility exposure meaningfully; impact on interest rate exposure is modest

## “Greeks” of the variable annuity guarantee liability over time

Vega (impact of a 1% reduction in long-term volatility)



Rho (impact of a +50bps parallel rate increase)

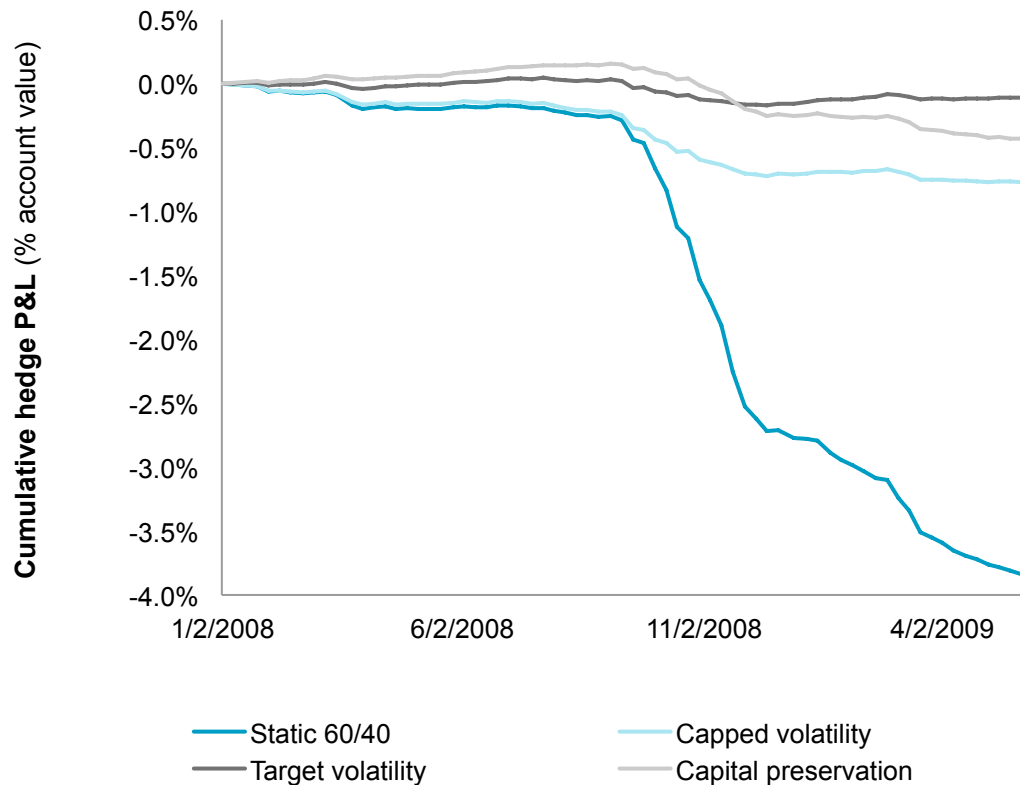


Source: Variable Annuity Service Bureau (funds applied to a standard industry Lifetime GMWB product in market as of 9/30/2012)



# Moreover, risk control funds have the potential to dramatically improve insurer dynamic hedge performance during times of market turmoil

## Simulated “two greek” dynamic hedge program performance Financial crisis of 2008 and 2009



## Observations

- Risk control strategies succeed in mitigating volatility-driven losses in the hedge programs (“gamma risk”)
- Degree of improvement varies based on the type of fund and design of the hedge program

# Challenges for risk control funds that need to be addressed

	<b>Challenge</b>	<b>Description</b>
1	<b>Performance benchmarking</b>	<ul style="list-style-type: none"><li>• Absence of robust performance benchmarks creates confusion around what constitutes “good” and “bad” performance</li><li>• Relevant for mutual fund boards, distributors and clients</li></ul>
2	<b>Transparency</b>	<ul style="list-style-type: none"><li>• Expectations for fund performance are not well communicated</li><li>• This includes both the risk control overlay and the underlying</li></ul>
3	<b>Articulation of the client value proposition</b>	<ul style="list-style-type: none"><li>• The benefits of risk control funds are not well understood – including stable investment risk profile and the stronger guarantees</li><li>• Extends to regulators and clients</li></ul>
4	<b>Pro-cyclicality of trading</b>	<ul style="list-style-type: none"><li>• Selling pressure in down markets may arouse concern of regulators</li></ul>

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