



**International Market Consistent Embedded Value
Webcast, with a special focus on:**


- **Internal Modeling for MCEV**
- **Effects of the Current Financial
Crisis on MCEV**

June 16, 2009

Global Session

James Creedon
Kamran Foroughi
Hubert B. Mueller, FSA, MAAA, CERA

Moderator:
Hubert B. Mueller, FSA, MAAA, CERA




IAA / SOA MCEV Webinar

MCEV Global Overview

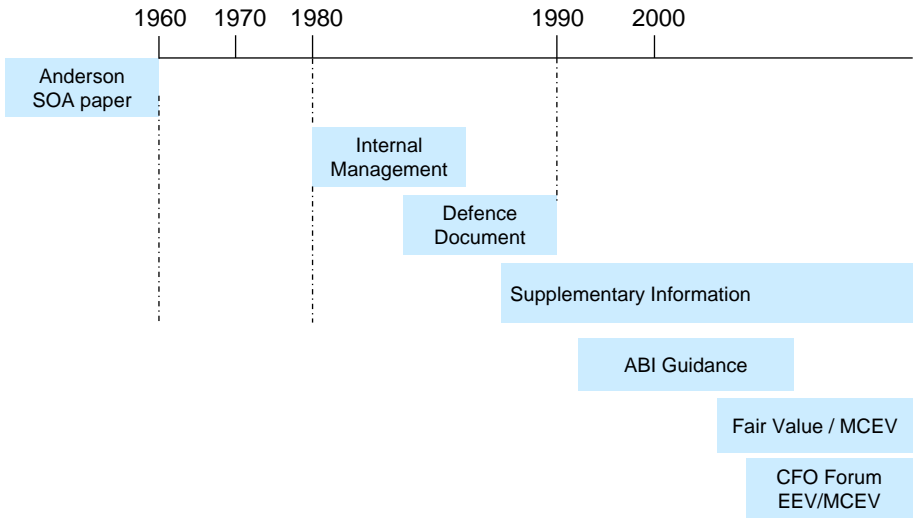
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June 16, 2009



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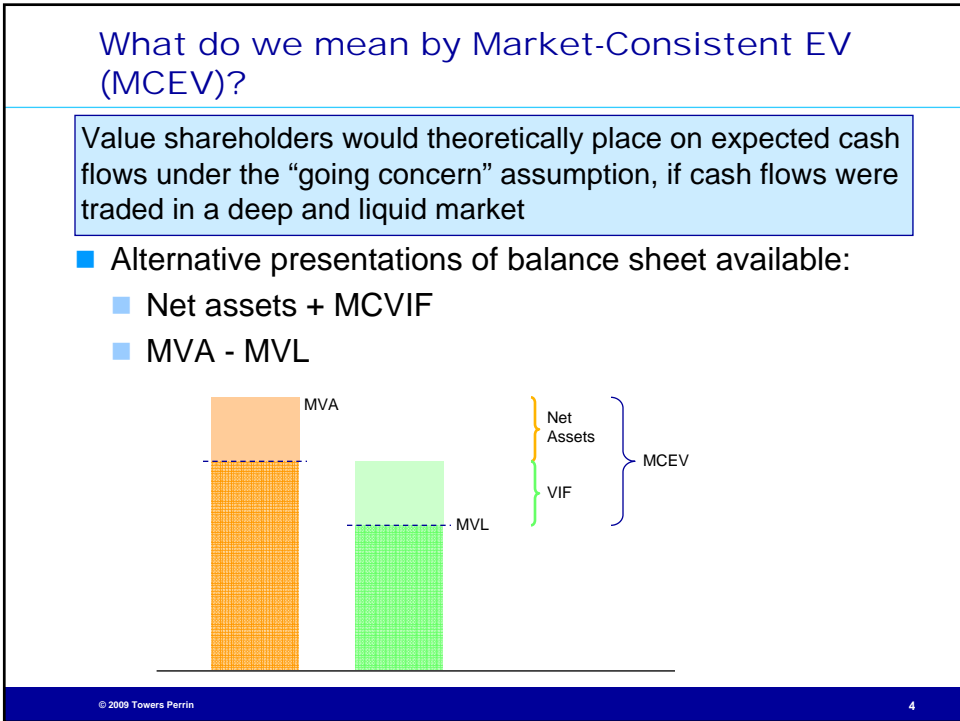
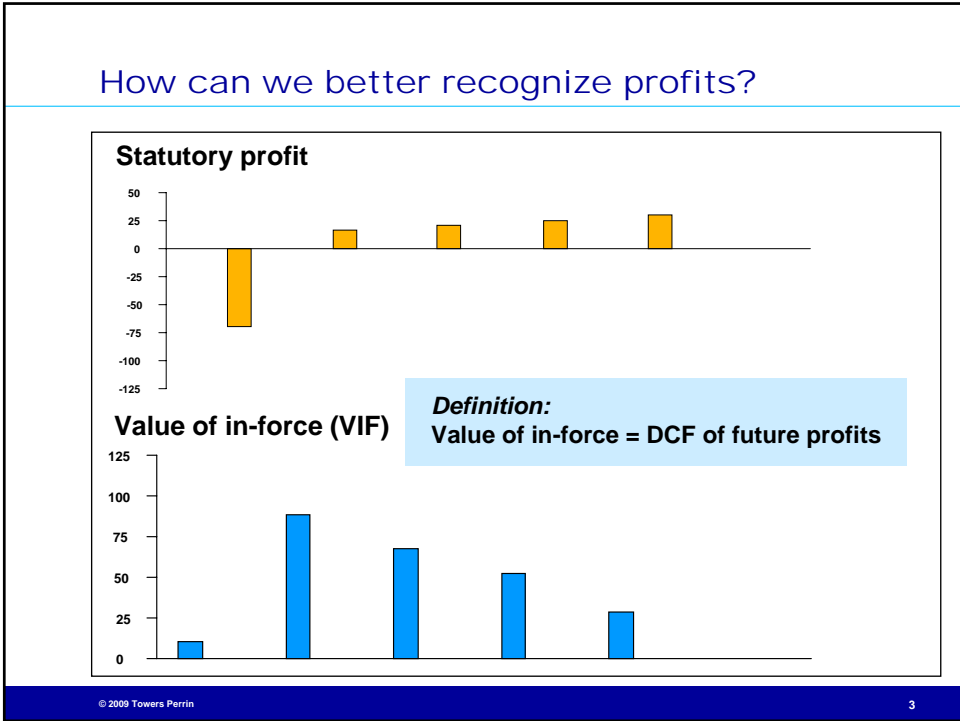
Background: Historical development of Embedded Value (EV)



Year	Event / Document
1960	Anderson SOA paper
1980	Internal Management
1985	Defence Document
1990	Supplementary Information
1995	ABI Guidance
2000	Fair Value / MCEV
2005	CFO Forum EEV/MCEV

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The original driving force for MCEV stemmed from the inadequacies of other systems

- Statutory accounting
 - Overly conservative, defers profit emergence
- Deferral and matching
 - Provides no insight into new business profitability
 - Mixes historic cost and market value (loss recognition)
 - Inadequate allowance for some risks
- IFRS
 - No modern liability standard
 - Currently a mixture of market value and local statutory
- Traditional EV
 - Arbitrary choice of discount rate
 - Does not reflect different risks inherent in different products

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MCEV provides part of an insurance company information pack

- Any system gives one component of the information needed to understand a company

Primary disclosures	Supplementary disclosures
<ul style="list-style-type: none"> ■ IFRS / GAAP <ul style="list-style-type: none"> ■ Income statement ■ Net assets ■ Risk disclosures ■ Regulatory returns <ul style="list-style-type: none"> ■ Capital adequacy ■ Resilience 	<ul style="list-style-type: none"> ■ MCEV <ul style="list-style-type: none"> ■ Components of value ■ New business value ■ Movement analysis ■ Sensitivities ■ Cash flow profiles <ul style="list-style-type: none"> ■ IRR ■ Payback period

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Market-Consistent Embedded Values were developed to help answer these EV questions

1. How should we set the Risk Discount Rate?
2. How should we allow for options and guarantees?
3. How should we allow for the 'cost of capital'?

The aim is to value projected cash flows in line with the prices of similar cash flows that are traded on the open market.

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Recap of the certainty equivalent approach

7% →

	Day 1	One year on
Assets	100	107
Liabilities	(80)	(84)
Capital	20	23

← 15%

5% →

	Day 1	One year on
Assets	100	105
Liabilities	(80)	(84)
Capital	20	21

← 5%

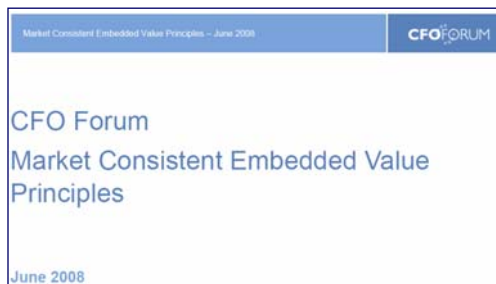
A mathematical trick to get the right answer

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We have new key questions under MCEV

1. How should we set the 'risk-free' or reference rate?
2. Should there be an additional allowance for illiquidity or own credit risk?
3. How do we calibrate the option pricing model?
4. How should we allow for 'non-hedgeable risks'?

Market Consistent Embedded Value (MCEV) Principles



- Published 4 June 2008
- 17 key Principles
- 145 areas of Guidance
- Commentary on Principles & Guidance (Basis for Conclusions)
- Available from www.cfoforum.nl

MCEV Principles are copyright CFO Forum 2008

The 17 MCEV Principles: main changes from EEV

ILLUSTRATIVE

1. What is MCEV	10. New business and renewals
2. Coverage	11. Non-economic assumptions
3. Allowance for risk	12. Economic assumptions
4. Free surplus	13. Market-consistent discounting
5. Required capital	14. Reference rates
6. Value of in-force	15. Stochastic models
7. Financial options and guarantees	16. Participating business
8. Frictional costs	17. Disclosure
9. Residual non-hedgeable risks	

Key

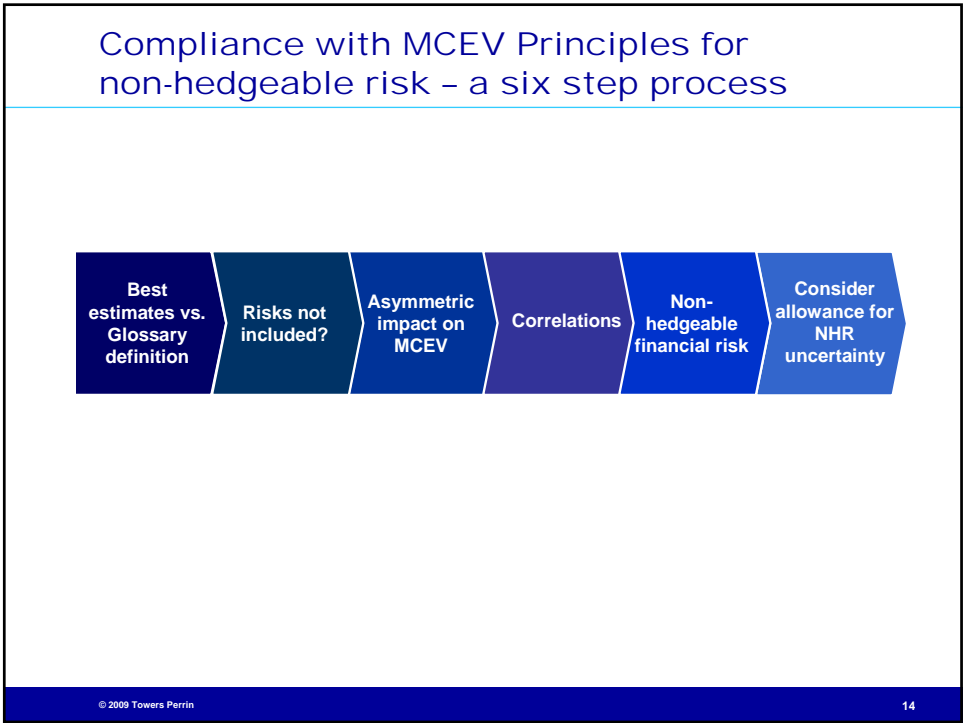
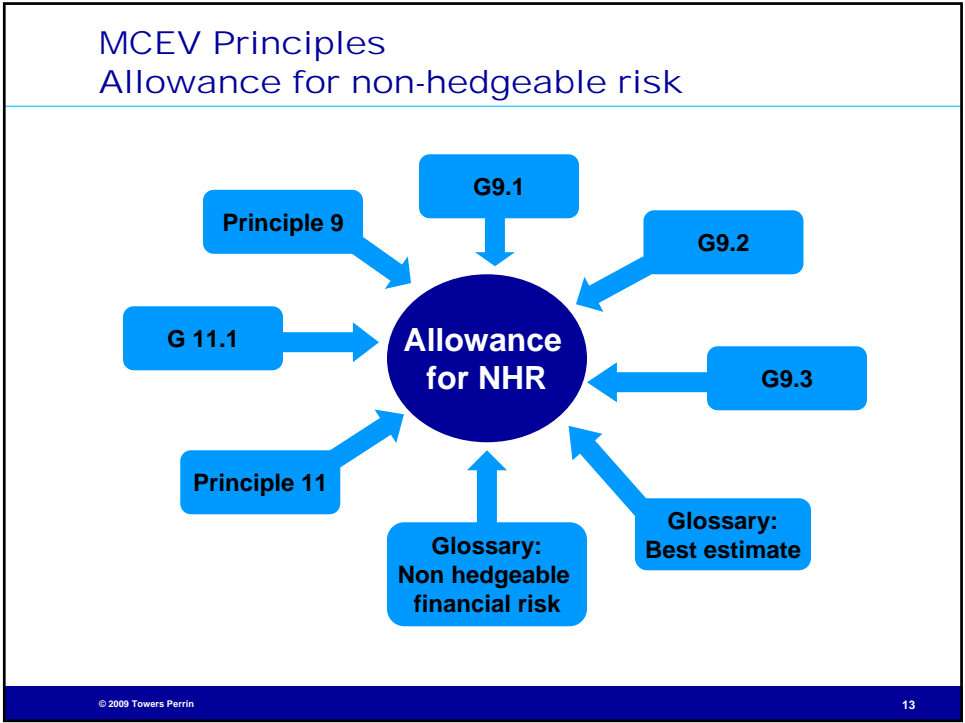
 Little change	 Some changes	 New / significant changes
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The MCEV Principles tackle the key MCEV questions using strong standards

1. How should we set the 'risk-free' or reference rate?
2. Should there be an additional allowance for illiquidity or own credit risk?
3. How do we calibrate the option pricing model?
4. How should we allow for 'non-hedgeable risks'?

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Principle 17 Disclosures – Appendix A MCEV analysis of earnings

	Earnings on MCEV analysis			
	Free Surplus	Required Capital	VIF	MCEV
Opening MCEV				
Opening adjustments				
Adjusted opening MCEV				
New business contribution				
Expected existing business contribution (<i>reference rate</i>)				
Expected existing business contribution (in excess of <i>reference rate</i>)				
Transfers from VIF and <i>required capital</i> to free surplus				
Experience variances				
Assumptions changes				
Other operating variance				
Operating MCEV earnings				
Economic variances				
Other non operating variance				
Total MCEV earnings				
Closing Adjustments				
Closing MCEV				

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Summary of CFO Forum MCEV Principles

Key areas of consistency:	Areas of potential divergence:
<ul style="list-style-type: none"> ■ Allowance for market risk ■ Allowance for NHR process ■ Analysis of movement ■ Prescribed sensitivities ■ Other EEV areas that have been tightened 	<ul style="list-style-type: none"> ■ Approach where no market ■ NHR methodology ■ AoM: expected return ■ Credit spread sensitivity ■ Other EEV areas continuing to allow discretion

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The CFO Forum announcement highlights issues companies were facing with MCEV adoption at YE 2008

Market Consistent Embedded Value (MCEV) Principles©

19 December 2008

In response to the current dislocated market conditions, the CFO Forum members are working collaboratively on the application of the Market Consistent Embedded Value (MCEV) Principles© to address the notion of market consistency in the current turmoil.

The CFO Forum remains committed to MCEV and the Principles published in June 2008. However, the MCEV Principles were designed during a period of relatively stable market conditions and their application could, in turbulent markets, lead to misleading results. The CFO Forum has therefore agreed to conduct a review of the impact of turbulent market conditions on the MCEV Principles, the result of which may lead to changes to the published MCEV Principles or the issuance of guidance.

The particular areas under review include implied volatilities, the cost of non-hedgeable risks, the use of swap rates as a proxy for risk-free rates and the effect of liquidity premia.

Source: www.cfoforum.nl/eev.html

Companies reporting EEV/MCEV at year end 2008 and prior years

SUMMARY OF APPROACH TO ALLOWING FOR RISK - EEV/MCEV PUBLICATIONS

	MCEV Principles	Reporting under the EEV Principles				
	Total	Total	Top-down	Indirect MCEV	Direct MCEV	Other
End 2008 reporting	6	30	21%	17%	60%	3%
End 2007 reporting	N/A	34	20%	18%	56%	6%
End 2006 reporting	N/A	35	26%	17%	46%	11%
End 2005 reporting	N/A	21	33%	24%	24%	19%
End 2004 reporting	N/A	5	80%	20%	0%	0%

Source: May 2009 Towers Perrin *Update '2008 EEV/MCEV: Coping With Extreme Financial Conditions'*

USES OF MCEV IN NORTH AMERICA

Uses of MCEV in North America

- Use of MCEV in Financial Reporting: MCEV publications by several multinationals at year-end 2008
 - Allianz
 - Aviva
 - AXA
 - Munich Re
 - Old Mutual
- Use of MCEV in pricing
- Use of MCEV in M&A valuations
- Calculation from Market Value Balance Sheet (MVBS) when calculating Economic Capital (EC)

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USES OF MCEV IN NORTH AMERICA

Use of MCEV in pricing

- MCEV increasingly being used to price secondary guarantees
 - Reflects market-consistent cost of hedging
 - Use of risk-neutral scenarios
 - Need to rethink dynamic behavior and management actions
- Examples:
 - Variable Annuities with GMDB/GLBs
 - UL with Secondary Guarantees (UL SG)
 - Fixed Indexed Annuities with GLBs
 - CD-type Fixed Annuities
 - Segregated Fund Products (CAN)

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USES OF MCEV IN NORTH AMERICA

Use of MCEV in M&A

- Increasingly being used for valuations of equity-based products and living benefit guarantees
 - Variable Annuities
 - UL SG
- Allows better reflection of impact of hedging
- Disconnect between buyers sellers has slowed down M&A activity of late
 - Buyers generally insist on use of market-consistent valuations
 - Most sellers still relying on real-world valuations
- Calibration of risk-neutral scenarios requires scrutiny
 - Replicating current market prices of assets
 - Volatility: scalar vs. surface
 - Consistency with real-world scenarios for s-o-s projections

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USES OF MCEV IN ASIA

Traditional embedded values are reported by a number of Asian headquartered insurers

Selected TEV publications

- China
 - China Life
 - China Pacific
 - Ping An
- Hong Kong
 - HSBC
- India
 - Max New York Life
- Japan
 - Sumitomo Life
 - Tokio Marine & Nichido
- Korea
 - Meritz Fire & Marine
 - Samsung Fire & Marine
- Singapore/Malaysia
 - Great Eastern
- Taiwan
 - Cathay Holdings
 - Shin Kong

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USES OF MCEV IN ASIA

MCEV is being used by Asian companies in a number of areas

- Financial reporting
 - European multi-nationals
 - T&D Holdings and Sony Life have disclosed MCEV results in Japan
- Product pricing
 - A number of companies are implementing market-consistent pricing
 - More robust for pricing guaranteed products which are still the main insurance products in most Asian markets
- Mergers and Acquisitions
 - Significant differences in valuations on a traditional and market-consistent basis for some businesses
- Risk management
 - Growing interest in measuring and using economic capital
- Internal group and regulatory reporting
 - Solvency II analysis
 - Local regulators following Solvency II developments

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USES OF MCEV IN ASIA

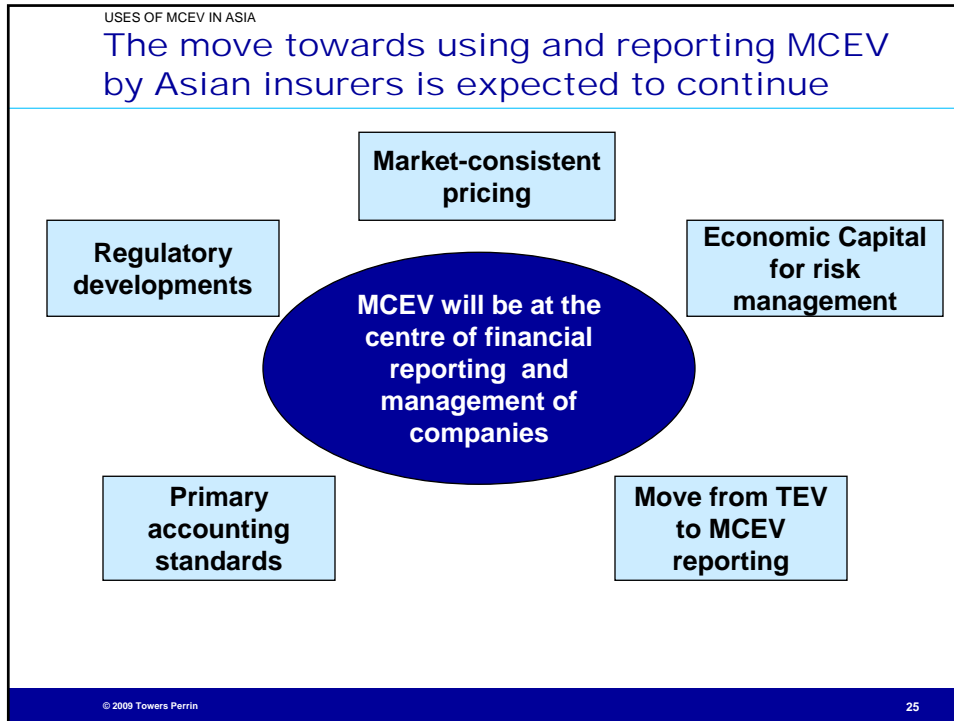
Setting the economic assumptions for MCEV

- The absence of observable market data can mean setting the economic assumptions in Asian markets can require additional judgement


Option data available in selected markets					
	Hong Kong	Korea	Taiwan	Singapore	Malaysia
Longest liquid swap	10yrs	20yrs	10yrs	15yrs	10yrs
Max swaption expiry/tenor	5 by 5	10 by 10	5 by 5	5 by 10	5 by 5

Source: Deutsche Bank

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Contact



James Creedon
Senior Consultant
Suite 2106-8, Central Plaza
18 Harbour Road
Wanchai
Hong Kong
Telephone: 852 2593 4519
James.Creedon@towersperrin.com
www.towersperrin.com/tillinghast

Kamran Foroughi
Senior Consultant
71 High Holborn
London, WC1V 6TP
United Kingdom
Telephone: 44 20 7170 2743
Kamran.Foroughi@towersperrin.com
www.towersperrin.com/tillinghast

Hubert Mueller
Principal and ERM Sales Leader
Towers Perrin
175 Powder Forest Drive
Weatogue, CT 06089-9658
Telephone: 1-860-843-7079
Hubert.Mueller@towersperrin.com
www.towersperrin.com/tillinghast

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