



**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

America Session

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Moderator:

Hubert B. Mueller, FSA, MAAA, CERA



IAA / SOA MCEV Webinar

North America

Moderator: Hubert Mueller, Towers Perrin

Presenters: Doug Caldwell, ING

John Esch, Allianz Life

Hubert Mueller, Towers Perrin

June 16, 2009

Overview of Topics

- Recent Developments and Challenges
- Uses of MCEV in North America
- Implementing MCEV
 - MCEV in Financial Reporting
 - MCEV in Pricing
 - MCEV in Risk and Capital Management
 - Market Value Balance Sheet (MVBS)



Using MCEV: Recent Developments and Challenges

IAA / SOA Webinar

North America

Hubert Mueller

Principal, Towers Perrin

June 16, 2009

RECENT DEVELOPMENTS AND CHALLENGES

MCEV Principles were published in the wake of a dramatic financial turmoil



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

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RECENT DEVELOPMENTS AND CHALLENGES

The CFO Forum announcement from December 2008 highlights issues companies were facing with MCEV during market turmoil

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

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5

RECENT DEVELOPMENTS AND CHALLENGES

Recently, markets are displaying highly unusual characteristics, compared to historic norms

- Nil/negative LIBOR swap spreads (over government) at medium to long durations
- Corporate bonds, CDS protection and LIBOR swap yields suggest arbitrage opportunities exist, at least in credit markets
- Market changes frequently in excess of 2% of value
- Short term implied equity volatility increased to 75% or more
- Some implied swaption volatilities have doubled or more from end 2007
- The duration of OIS swap curves in UK£ and Euro extended significantly during 2008
- Different sources of data at times show very different results
 - e.g. Bloomberg corporates versus iBoxx corporates

**Does the concept of “willing buyer, willing seller” still hold?
Are market prices reliable?**

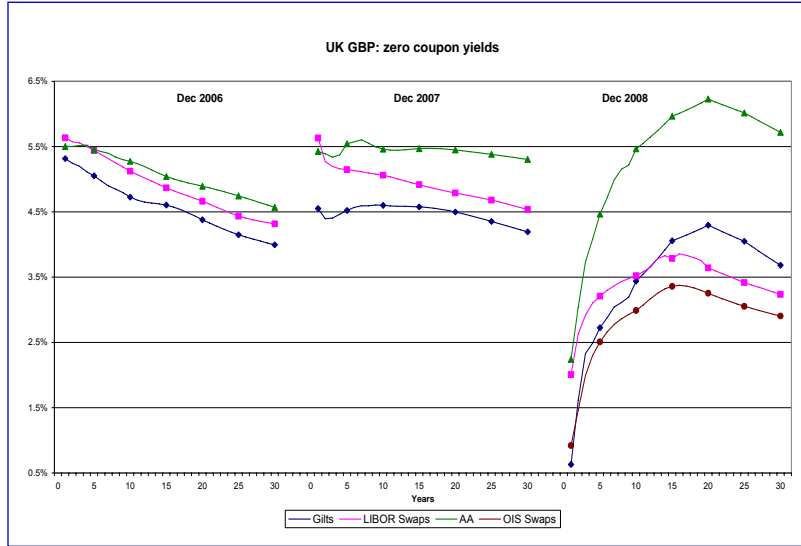
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6

RECENT DEVELOPMENTS AND CHALLENGES

Highly unusual characteristics (1) - Sample yields



Source: Bloomberg

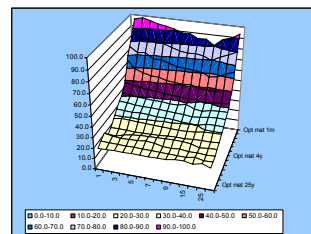
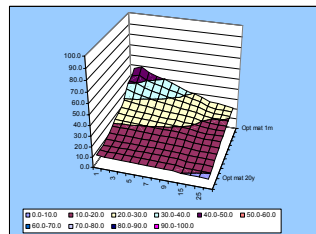
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RECENT DEVELOPMENTS AND CHALLENGES

Highly unusual characteristics (2) - Sample interest vols

EUR SWAPOPTION VOL SURFACES PER 30 JUNE 2008 AND 31 DECEMBER 2008



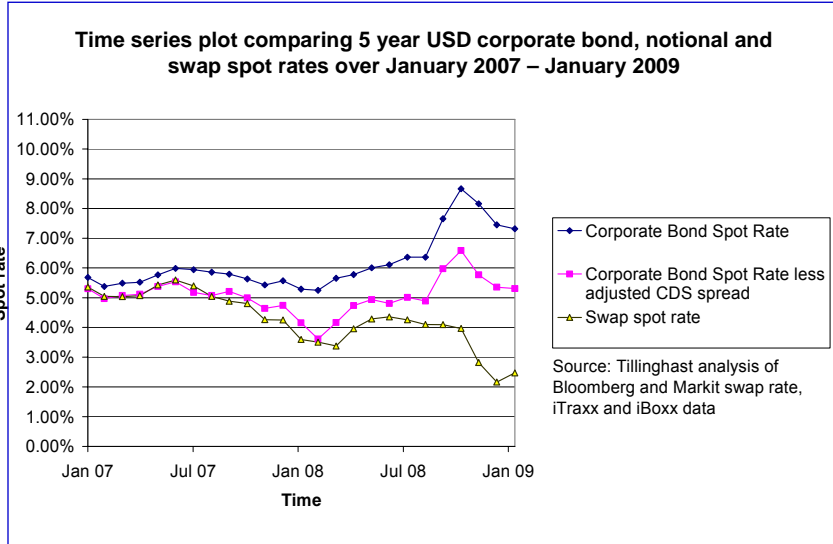
Similar observations for equity volatilities

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RECENT DEVELOPMENTS AND CHALLENGES

Highly unusual characteristics (3) – Sample corporates



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9

RECENT DEVELOPMENTS AND CHALLENGES

The issues discussed by the CFO Forum mask certain underlying, more fundamental questions

ISSUES DISCUSSED IN CFO FORUM

- Implied volatilities
- Cost of non-hedgeable risks
- Use of swap rates as risk-free rates
- Illiquidity premium

FUNDAMENTAL QUESTIONS

- Are markets deep and liquid? And if not, what to do?
- What viable and credible calibration instruments exist?
- Pick only one, or allow minimum cost flexibility over time?
- How to allow for or model the risk of a liquidity and capital crunch?
- Can hedgeable risks become non-hedgeable risks (at least temporarily) and what to do?

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RECENT DEVELOPMENTS AND CHALLENGES

CFO Forum "market-consistent" EEV / MCEV publications YE 2008

	DATE	BASIS OF PREPARATION
ZFS	5 Feb 2009	Market-consistent EEV
AXA	19 Feb 2009	Market-consistent EEV
CNP	25 Feb 2009	MCEV Principles
Allianz	27 Feb 2009	MCEV Principles
Scottish Widows	27 Feb 2009	Market-consistent EEV
Munich Re	3 Mar 2009	Market-consistent EEV
Old Mutual	4 March 2009	MCEV Principles
AVIVA	5 March 2009	MCEV Principles
Generali	20 March 2009	Market-consistent EEV

Four CFO Forum companies have now adopted the MCEV Principles

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RECENT DEVELOPMENTS AND CHALLENGES

End 2008 "market consistent" EEV / MCEV reporting – Comparison of reference rates

	REFERENCE RATES END 2008 EV
ZFS	Swaps, unadjusted
AXA	Swaps, increased by 50bps for European businesses, and 100bps for non-European businesses
CNP	Swaps, increased by 70bps for all lines
Allianz	Swaps, unadjusted
Scottish Widows	Gilts, increased by 154bps for annuity business
Munich Re	Swaps, unadjusted
Old Mutual	Swaps, increased by 300bps for US onshore business
AVIVA	Swaps, increased by 150bps for UK and NL immediate annuities, 300bps for US immediate annuities and 250bps for other US contracts
Generali	Government yields for Italy and Czech Republic (currently higher than swaps); Swaps increased by 50bps for most other European businesses; Swaps unadjusted for all other businesses

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RECENT DEVELOPMENTS AND CHALLENGES

End 2008 "market-consistent" EEV / MCEV reports – Comparison of volatility assumptions

	Interest vols	Equity vols
ZFS	Average during 2008	Average during 2008
AXA	Average during 2008	Average during 2008
CNP	Average during 2008	Average during 2008
Allianz	Market vols end Sept	Market vols end Sept
Scottish Widows	Not disclosed	Not disclosed
Munich Re	Market vols end Dec	Market vols end Dec
Old Mutual	Market vols end Dec	Market vols end Dec
AVIVA	Market vols end Aug	Market vols end Aug
Generali	Market vols end June	Market vols end June

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- 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
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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)

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


USES OF MCEV IN NORTH AMERICA

Outlook:
Despite some current issues, MCEV is here to stay

- 1 Four CFO Forum companies to date have adopted the MCEV Principles, with the rest expected to follow by year-end 2009
- 2 Market turmoil has identified weaknesses with current approaches
- 3 YE 2008 proliferation of various approaches has weakened credibility with analyst community
- 4 Opportunity for industry to work to build a more robust approach that can last through economic cycles
- 5 Increasing application of MCEV in pricing of secondary guarantees
- 6 Greater acceptance of MCEV for M&A valuations

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MCEV

Implementing MCEV for a Multinational

John Esch, Allianz Life Insurance Company
June 16, 2009



Topics covered

Purpose & History of EC and MCEV at Allianz

Implementation Process

2008 MCEV Results

Looking ahead



What were the Business Problems in 2000 that Allianz wanted to Solve?

1. Allianz Group: 200 Companies in 70 Countries
 - P&C, Life & a Bank
2. Which Companies Deserve More Capital and Which are Risking/Wasting Capital?
3. The Gap Between What is Really Happening vs. What is Being Reported


21



What's Missing In Accounting?

Tail risk “disappears” when not shown in accounting (Must Often be Probable)
Accounting lags (and may always lag) in being able to measure tail risk
Accounting Focus is on Past Results
Risk is About the Future
Accounting Focus is to “Follow the Money/Cash” via Debits & Credits


22



History of MCEV and Risk Capital at Allianz

MCEV	Risk Capital
<p>2000</p> <ul style="list-style-type: none"> EV guidelines developed at Group level Movement analysis <p>2001</p> <ul style="list-style-type: none"> Reviewed by external consultants – Group published results <p>2003</p> <ul style="list-style-type: none"> Cost of options and guarantees estimated but not published <p>2004</p> <ul style="list-style-type: none"> Move towards EEV principles Values of options and guarantees published <p>2005</p> <ul style="list-style-type: none"> Published and disclosed EEV results <p>2006</p> <ul style="list-style-type: none"> Published and disclosed Market Consistent Basis 	<p>2000</p> <ul style="list-style-type: none"> Developed Economic Risk Capital prototype at Group level <p>2001/2002</p> <ul style="list-style-type: none"> Roll out of models to Allianz companies <p>2004</p> <ul style="list-style-type: none"> Integration into value based management Published and disclosed EC results <p>2007</p> <ul style="list-style-type: none"> Migration to and alignment with market consistent embedded value <p>2008</p> <ul style="list-style-type: none"> Migration of model ownership to local companies <p>2009</p> <ul style="list-style-type: none"> Migration towards Solvency II

23



Allianz adopted Market Consistent Embedded Value (MCEV) including valuation of options and guarantees

Economic Balance Sheet		
How much value do we have?	Who gets this value?	
Assets at market value	<div style="border: 1px solid black; padding: 5px;"> Guaranteed payments & expected bonuses (incl. expense allowance) </div>	Policyholder & other stakeholders
	<div style="border: 1px solid black; padding: 2px;">O&G</div>	
	<div style="border: 1px solid black; padding: 2px;">CNFR</div>	
	<div style="border: 1px solid black; padding: 2px;">Taxes</div>	Tax authority
	<div style="background-color: #003366; color: white; padding: 2px;">EV</div>	Shareholder

Best estimate policyholder liability

- Projection of inforce cash flows of current portfolio till run-off
- Appropriate evaluation of risk through
 - Risk-neutral valuation
 - Explicit valuation of options & guarantees (O&G)
- Explicit charge for non-financial risk (CNFR)

Tax liabilities


Tax payments on projected profits

Shareholder value can be split in

- Value of inforce, i.e. future profit-margin
- Net asset value component

▶ MCEV represents consistent valuation for assets and liabilities

24

Allianz 

Topics covered

Purpose & History of EC and MCEV at Allianz
Implementation Process
2008 MCEV Results
Looking ahead

25

Allianz 

IT/Infrastructure

- Hardware/software
- Organizational structure
- Project management (governance) structure

26



Implementation Challenges

Required Stochastic Processing

- Most Lines already there

Requires Risk Neutral Scenario Set

- Modified Internal “Log-normal” Generator
- Hedging Group Generators
- Scenarios Provided by Parent – “Outside Vendor”

If Already using Stochastic Pricing, to be added –

- Fairly simple add on to existing modeling
- Use Statutory earnings
- No need to model hedging – frictional cost main consideration
- Capital cost is also frictional – tax and investment expense
- Result = average of PV of DE’s

27



Assumption and Methodology Implementation Considerations

Market Environment to Utilize

- Current, “Near-term” or “Long-term”
- Swap rates
- Market volatility
- Fund parameters
- Credit spreads

Dynamic Policyholder behavior

- Same as RW or Adjusted
- Parameters to use

Areas of Discussion

- Liquidity Premiums
- Mean Reversion
- Sub-optimal behaviors

28



Thoughts on Implementation

Get the right people on board in early on
Company needs to dedicate resources
Plan on spending time educating others
Have stable and efficient actuarial projection platform (This means solid use of disciplined process for managing internal models)
Internal model is the fundamental mechanism through which the ERM process can be managed to create value for the firm.
Done right, it sets transparency and accountability for the management of the company's risks.



Topics covered

Purpose & History of EC and MCEV at Allianz
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2008 Value of New Business

Development of Value of New Business (VNB) in Euros

	VNB	NBM	PV Prem
Adjusted 2008 Opening Value	98	1.4%	6,781
Change in Volume	-5	0.0%	-358
Change in business mix	-35	-0.5%	0
Change in assumptions	-422	-6.4%	172
Value of business as of 12/31/08	-364	-5.5%	6,595

Source: Allianz European Embedded Value Report

31




2008 Market Consistent Embedded Value

Analysis of Earnings of Embedded Value (MCEV) in Euros

	FS	RC	ViF	MCEV
Adjusted 2008 Opening Value	504	1,316	1,231	3,051
Value of New Business	-35	0	-329	-364
Expected contribution	209	5	243	457
Transfer from ViF/RC to FS	-327	225	102	0
Other Changes	-134	41	-481	-575
Economic variances	-1,189	844	-5,936	-6,087
Closing Adjustments	200	0	0	200
Closing MCEV at 12/31/08	-773	2,160	-4,705	-3,318

Source: Allianz European Embedded Value Report

32



Looking at Product Pricing

Annuities have primarily two risk categories:


- Insurance risks (mortality, persistency, utilization)
- Investment risks (hedging, credit spreads)

- Traditional profit measures of IRR and Profit Margin adequately measure expected insurance risk and sensitivities, but do not reflect extreme movements of investment risks
- Market Consistent Embedded Value (MCEV)
 - Measures the full extreme investment risk in products

Provides greater transparency and consistency in comparing companies

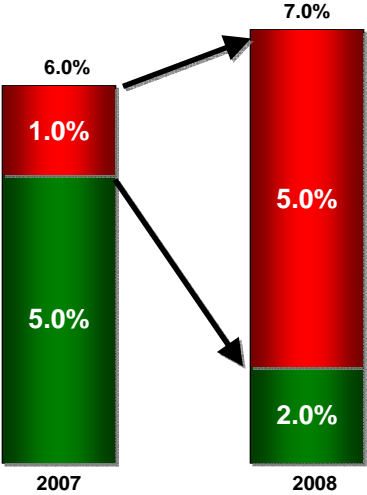
- MCEV sets out a level playing field

33



Bond Markets

Bonds are made of risk free component plus risk premium
 All assets (when adjusted for risk) = Risk Free




Year	Risk Free Component	Risk Premium	Total Yield
2007	1.0%	5.0%	6.0%
2008	2.0%	5.0%	7.0%

In 2nd half 2008 bond yields increased, but the risk free component fell

This means the riskiness of this asset increased **significantly**.

Yet some competitors reflected a full 1% rate increase.


34

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Topics covered

- History of EC and MCEV at Allianz
- Implementation
- 2008 MCEV Results
- Looking ahead**

37


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Looking ahead – MCEV Pricing

Why add this measure?

- Our Parent Reports on MCEV
 - Always will be the first Question – What is the MCEV?
- Complements a Real World Approach
 - Add on to Stochastic Real World Pricing
- Less Biased Approach to Valuing Guarantees

38

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Looking ahead – MCEV Reporting


Current state

- Quarterly EC and VNB reporting
- Annual full MCEV reporting

Future state

- Increase efficiency and governance in process
- More time for analysis of results, including what ifs
- Integrate with Solvency II
- Component of management/ measurement routinely completed
- Way of life, not just a requirement

39

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Concluding Thoughts

Using MCEV beyond reporting has its Challenges but ...

The Benefits make it worth it -

- Help us answer the question, How I am Making (and Risking) our shareholder Money?
- MCEV is a Valuable Complement to Real World Pricing Especially for Products with Complex Guarantees
- Allows for Greater consistency in Valuing Risk across Products

40



Market Consistent Risk Management at ING

Doug Caldwell
16 June 2008


BANKING – INVESTMENTS – LIFE INSURANCE – RETIREMENT SERVICES



ING use of Market Consistent Measurement

- ING **Risk and Capital management** is based on Market Consistent principles
- MC pricing** has become mandatory in 2009 for approval of all new products globally
- Management of **MV Balance Sheet** is increasingly important for managing shareholder value
- Public Disclosure of EV** will transition to Market Consistent basis

Market Consistent Embedded Value



42

Benefits of Market Consistent Management

- **Separate valuation of assets and liabilities**
 - Consistency with capital markets including option/guarantee costs
 - Reduces reliance on actuarial or management investment assumptions
 - Clearer picture of the impact from asset/liability management choices: allows separate analysis of investment decision versus whether or not to hedge market risk
- **Risk-based pricing**
 - Clear identification of market price of individual risks enables product pricing to reflect specific risks
 - Improved comparison across different products versus approaches which set top-down discount rates
- **Convergence of reporting measures creates efficiencies**
 - Fewer metrics to manage for reporting, risk, and strategy
 - Resource synergies



Managing value on a market consistent basis

The economics of creating shareholder value



Improve profitability

- Expense management
- Claims handling
- Improved (re-)pricing

Grow profitably

- Improve value of new business
- Retain customer base
- Investment performance

Reduce cost of capital

- Increase transparency towards the market
- Reduce volatility through improved risk management



MCEV enables these drivers to be measured consistently at both the product and individual risk level



MC valuation important for new product approval

- Improved valuation methodology for financial products
 - ING's insurance products are 80%+ financial risk
 - MC valuation directly assesses whether ING receives adequate value for risk in new products
 - MC valuation accurately values options and guarantees
- Traditional valuation metrics are not as reliable at product level
 - Inability to set correct capital and risk discount rates at product level leaves too much room for error
 - Internal Rate of Return (IRR) does provide a useful assessment of expected return on invested capital which is also helpful for management
- MC valuation improves transparency of new product value creation and provides more comparable basis for product/business strategy
- Beginning January 2009, MC VNB profitability targets have been made mandatory for all new insurance products globally.

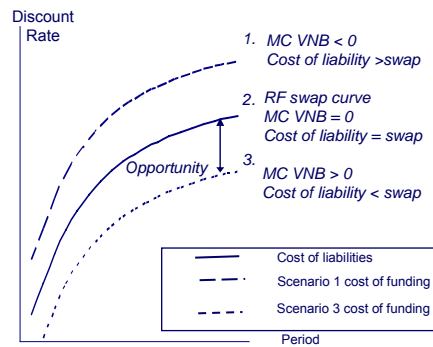


MC pricing: viewing liabilities in terms of funding cost

- MC VNB by itself is difficult to understand and communicate
- MC VNB can also be expressed as a percentage of PV Premium which is more helpful.
- MC VNB can also be expressed as a funding cost of issuing liabilities
- This funding cost can be coupled with the duration of the liability. Thus, the funding of the liability can be compared to other ING debt costs and also the potential illiquidity spreads of investments

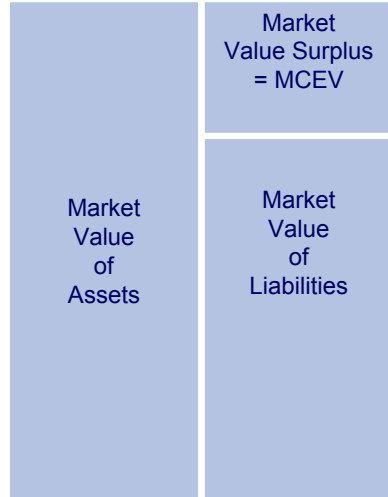
Illustration
Swap curve valuation of liabilities

- MC VNB value can be associated with the expected yield curve used to estimate the cost of raising liabilities in the capital markets



- Funding cost analysis most appropriate for single

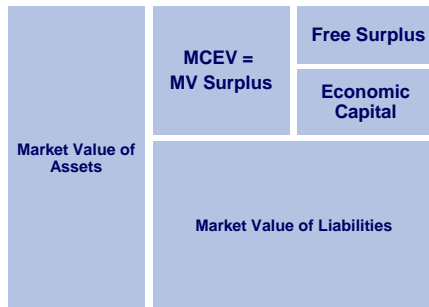
MCEV : a Balance Sheet approach



- MCEV is the difference between the market value of the assets and the market value of the liabilities
- MCEV is the largest component of the Available Financial Resources (AFR) which ING uses to manage capital and is published quarterly since year-end 2007
- The Market Value Balance Sheet is the way ING manages risk (EC) and capital (AFR) for insurance business
- The approach fits in with the CFO Forum's MCEV Principles as well as the principles underlying Solvency II and IFRS Phase II



Interaction with AFR, Economic Capital, and Risk Dashboard

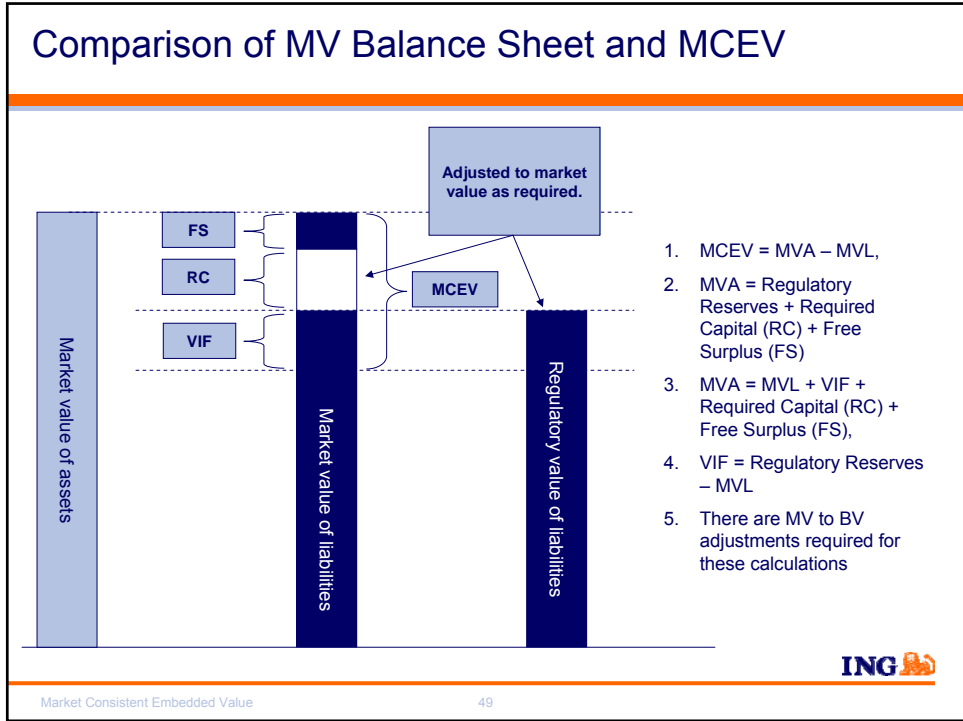


Economic Capital is defined as the amount of capital required to protect the market value of the liabilities within a 99.95% confidence interval based on shocks that could occur over a 1-year time horizon

Available Financial Resources (AFR) is equal to MCEV + (pre) tax adjustment + Tier-1 hybrid capital.

- Economic Capital represents the "worst case" loss of MCEV over a year period
- EC reporting already includes a calculation and movement analysis for EC and MV Balance Sheet
- Risk Dashboard reporting for Executive Board includes "Capital at Risk" based on a 1 in 10 annual loss scenario – used to set risk appetite
- Risk sensitivity reports are easily available to further understand exposure of MCEV to changes in financial markets
- When traditional EV reporting is discontinued, all value and risk reporting for insurance will be aligned





Side by Side Comparison of the MVBS approach and the CFO forum approach.

MCEV AoS - In Force business


Analysis of earnings	MVBS Presentation						CFO forum presentation			
	MVA	FCL	MVM	Gross MVS	DTL	Net MVS	Net VIF	FS	RC	MCEV
Opening MCEV	151,688	(96,050)	(961)	54,677	(1,284)	53,393	1,706	48,688	3,000	53,393
Opening adjustments	-	-	-	-	-	-	-	-	-	-
Adjusted opening MCEV	151,688	(96,050)	(961)	54,677	(1,284)	53,393	1,706	48,688	3,000	53,393
NB value	-	769	(192)	577	(250)	327	327	-	-	327
EB cont (ref)	17,933	(16,186)	38	1,785	(40)	1,745	112	1,532	101	1,745
EB cont (excess)	2,089	(1,333)	(13)	743	(19)	724	45	639	41	724
Cashflow transfers to free surplus	-	-	-	-	-	-	(611)	240	372	-
Experience variances	1,037	(997)	(10)	30	(1)	29	29	(31)	31	29
Assumption changes	-	161	2	163	(4)	159	159	-	-	159
Other operating variance	-	-	-	-	-	-	-	-	-	-
Operating MCEV earnings	21,059	(17,585)	(176)	3,298	(313)	2,985	61	2,380	545	2,985
Economic variances	5,257	(3,334)	(34)	1,889	(50)	1,840	81	1,654	105	1,840
Other non-operating variances	-	-	-	-	126	126	126	-	-	126
Total MCEV earnings	26,316	(20,919)	(210)	5,187	(238)	4,950	267	4,033	649	4,950
Closing adjustments	-	-	-	-	-	-	-	-	-	-
Estimated closing	178,003	(116,969)	(1,171)	59,864	(1,521)	58,343	1,973	52,721	3,649	58,343
Actual closing	178,003	(116,969)	(1,171)	59,864	(1,521)	58,343	1,989	52,713	3,649	58,351
Unexplained	-	-	-	-	-	-	16	(8)	-	8

ING

Market Consistent Embedded Value 50

Growing MCEV – liability management

Managing MCEV through improving liability margins



Increase client balances

- Growing client balances at lowest possible cost
- Improving new business values grows MCEV
- Pricing of new business is critical to balancing growth and margin


Managing Persistency

- Managing persistency adds value through reducing the market value of liabilities via increased future margins

Efficiency Gains

- Improving expense ratios and claims management adds value through reducing the market value of liabilities


Business unit management responsible for managing liabilities




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51

Growing MCEV – asset management

Asset management contributes to MCEV growth by generating superior returns



- Total market value asset return is an important focus of MCEV
- Asset managers should achieve excess return versus benchmarks as established in investment mandates
- Focus should be on achieving this excess return within risk business unit defined risk tolerance
- MCEV growth via generating “alpha”, or market outperformance



Market Consistent Embedded Value
52

Managing MC Balance Sheet – ALM decisions



- MCEV allows more transparency through separation of assets and liabilities
- Assuming liabilities are priced to generate MC value at product issue, then asset strategy can be more flexible
 - Asset decisions will focus on what level of earnings for what level of risk is desired
 - ALM strategy should focus on taking hedgeable risks so that it can be modified over time to reflect changing risk tolerance
- Key question for MCEV is how to manage a long term business with highly volatile metrics.



Key difficulties remain for MCEV

- Implied volatilities may not be observable for some maturities, leading to several key questions.
 - Can we develop a single approach for setting implied volatilities that works in a wide range of market conditions?
 - Can we develop a single methodology for extrapolating volatility curves/surfaces beyond observable points?
- Some hedgable risks may become non-hedgable in the short run.
- Sovereign debt ratings may come into question as swap rates have become lower than government rates in certain jurisdictions at some maturities.
- Accurate modeling of the cost of non hedgable non-market risks may prove to be difficult until several key modeling problems are resolved.
 - Business and operational risk models have not advanced as much as expected.
 - Setting the costs of risks is dependent on accurate measuring of the risks.
- Business risk approaches have not been standardized across the industry with a wide range of techniques being used.
- Operational risk models have not advanced as much as other risk models.



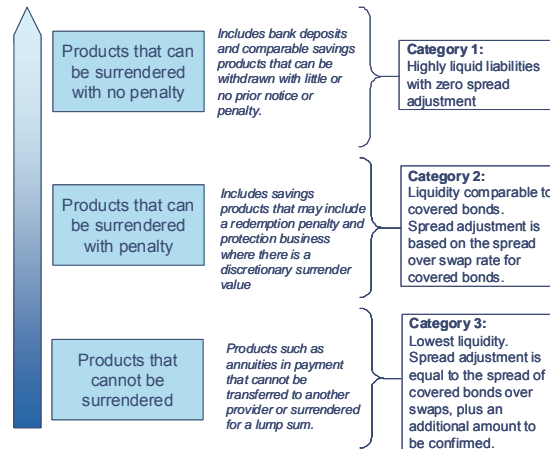
The Current Financial Crisis Has Given Rise to new evaluation of the reference/discount rate

- MCEV has been developed with the swap rate as the primary discount rate
- Historically high liquidity premia have led many to consider the appropriateness of applying an illiquidity spread to insurance liabilities.
 - Credit spreads have rapidly risen from a few basis points to several hundred basis points.
 - Criteria must be developed for calculating and applying appropriate illiquidity spreads.
- Opinions vary on the types of liabilities where illiquidity spreads should apply
- Can we develop a single method for setting the level of an illiquidity spread?
 - Illiquidity spreads can be estimated from bonds and credit default swaps.
 - Covered bond spreads can also be used.
- Others believe a credit spread should be applied for liabilities similar to FAS 157 and the initial IFRS Phase 2 discussion paper



Illiquidity Spreads are arguably applicable for some insurance liabilities

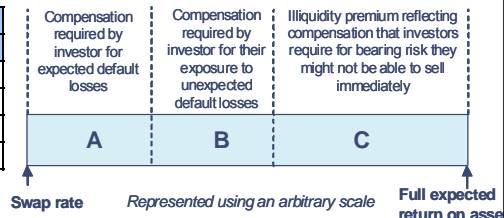
- There is value in long term insurance liabilities which are not easily surrendered
 - “Sticky” retail funding has become increasingly important
 - Allows investment in assets that have additional returns for illiquidity
 - The valuation of insurance liabilities could match not only the risk profile but also the liquidity profile
- ING has added an illiquidity premium to the swap based on the AAA European Covered Bond spread



Illiquidity Spreads - AAA Covered Bond Spreads

- Covered bonds are sold in Europe and provide the closest asset class to insurance liabilities in terms of credit risk and illiquidity
 - Collateralised bonds, with direct recourse to assets, if originator is insolvent
 - Compensation to investors is largely illiquidity (“C” below and not “A” and “B”)
- Spreads have historically been 5-20 bps above swap and have now increased to 117 bps at 30 November (see chart below)
- Important question: What part of the asset spreads should be for the risk of the shareholder and what can reasonably be passed to customers

AAA Covered Bonds			
Date	Spread (bps)	Date	Spread (bps)
30.11.08	117	31.12.07	26
30.09.08	66	30.09.07	19
30.06.08	36	30.06.07	3
31.03.08	48	30.04.07	4



Illiquidity Spreads may have limits which should be reviewed

- **Recurring premium:** long term, recurring premium products would include future premiums that cannot be invested today with an illiquidity spread – should the current illiquidity premium apply or a long term average?
- **Unit Linked/Variable products:** should these have an illiquidity premium or not? The following components should be reviewed
 - The underlying cash flows that are based on fund values
 - The asset to the insurance company from future fees
 - Guarantees are generally valued at swap in financial markets
- **Emerging markets:** Should an illiquidity premium be included when there are no replicating assets with illiquidity spreads as the markets are generally limited to government bonds?
- **Fully liquid liabilities:** If the product can be surrendered at any time without tax or surrender penalty, then this should presumably not be replicated with an illiquid asset (and thus no addition to the discount rate)

