

Economic Value Added

June 7, 2010

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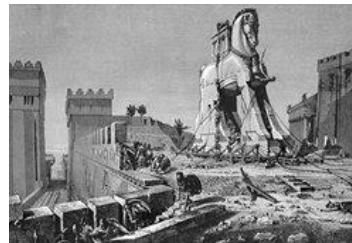
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“Accounting” Frameworks

	Focus	Trends	Challenges
Statutory	<ul style="list-style-type: none"> i Solvency i Liquidity i Conservatism 	<ul style="list-style-type: none"> i First principles i SMI 	<ul style="list-style-type: none"> i Often factor-based i Not market-consistent
GAAP	<ul style="list-style-type: none"> i Matching of profits and expenses i Entry/ exit value 	<ul style="list-style-type: none"> i Fair value i IFRS 	<ul style="list-style-type: none"> i “Inconsistent market consistency” i Zero sum economic value add
Economic	<ul style="list-style-type: none"> i Company's view i “Real world” * 	<ul style="list-style-type: none"> i Stochastic power i Capital-consistent 	<ul style="list-style-type: none"> i Lack of official reporting i Subjectivity

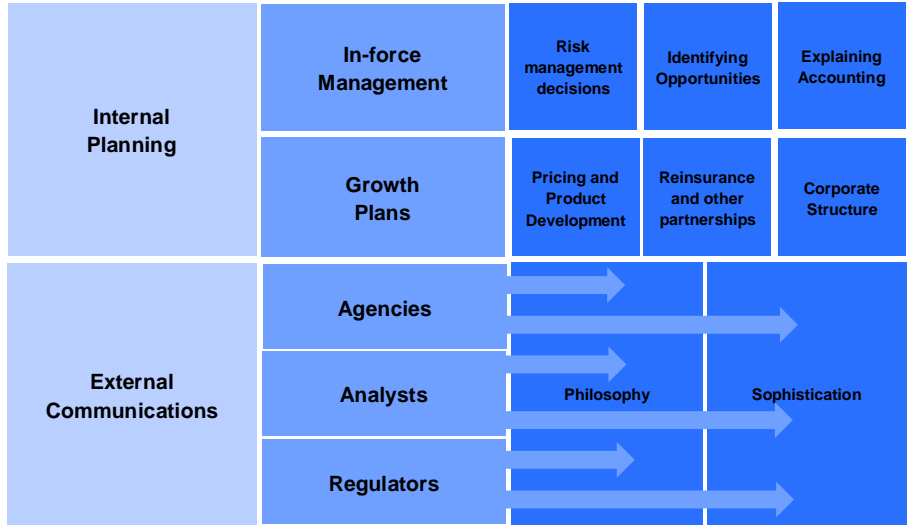
EVA: An Unofficial History, Part 1

Battle of Troy
Greece
12th Century B.C.

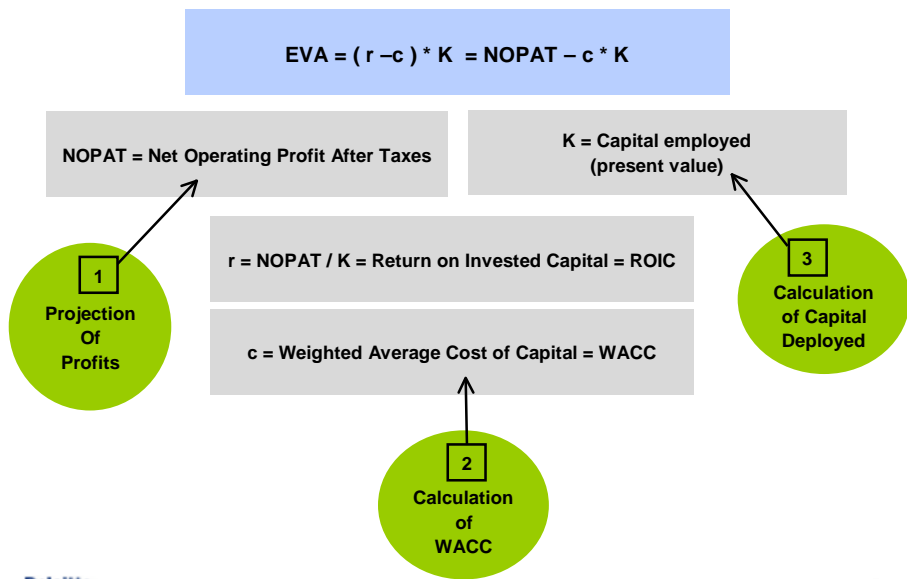


City of Troy
- Cost of Wood
- Effort to Create Horse
- Value of Time Lost (e.g., Making other large wooden animals)
= EVA

Use of Economic Value Added



Definition



Components

	Description	Issues	Trends
1 Projection Of Profits	<ul style="list-style-type: none"> ⌋ Expected cashflows ⌋ Distribution of market conditions ⌋ Distribution of insurance outcomes 	<ul style="list-style-type: none"> ⌋ View on market returns ⌋ Correlation estimates ⌋ Measurement of tail risk 	<ul style="list-style-type: none"> ⌋ Lower risk margins ⌋ Average of stochastic returns
2 Calculation of WACC	<ul style="list-style-type: none"> ⌋ Typically an ROE weighted with a cost of borrowing 	<ul style="list-style-type: none"> ⌋ ROE vs. stochastic assumptions above ⌋ Borrowing cost moves with rates 	<ul style="list-style-type: none"> ⌋ Lower hurdle rates ⌋ Further explanation to analysts
3 Calculation of Capital Deployed	<ul style="list-style-type: none"> ⌋ Capital invested now and in the future ⌋ Present value 	<ul style="list-style-type: none"> ⌋ Multiple capital requirements ⌋ Uncertain future capital requirements by scenario ⌋ Capital may be itself stochastic 	<ul style="list-style-type: none"> ⌋ Investment in technology (e.g., servers) ⌋ Comparison to risk mitigation solutions

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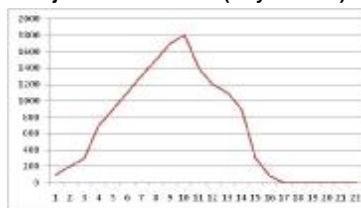
EVA: An Unofficial History, Part 2

The Mayan Calendar
Circa 500 AD



Myth:
The Mayan calendar predicts the world will end in 2012

Projected Human EVA (Mayan Units)



Reality:
The Mayans simply saw no EVA after 2012

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Example: Base VA



Base VA									
Deposit	100,000	AV Growth	% Alloc	Growth	Corp Financing				
M&E	1.40%	Equities	70%	9%	Borrow	20%	5%		
Commission	6%	Bonds	25%	5%	ROE	80%	15%		
Expenses:	0.45%	MM	5%	2%	WACC:	13.0%			
				Avg growth (net):	6%				
	PVA	ROA	IRR						NPV
	\$618,792	0.19%	20%						\$1,198
Year	BOY AV	Lapse	SC%	SC\$	M&E\$	Rev	Exps	P&L	
1	100,000	1.0%	7.0%	72	1,436	1,508	6,462	(4,954)	
2	105,188	2.0%	6.0%	129	1,503	1,632	483	1,149	
3	109,526	3.0%	5.0%	167	1,557	1,724	500	1,223	
4	112,881	5.0%	4.0%	227	1,588	1,815	510	1,304	
5	113,939	6.0%	3.0%	205	1,594	1,799	512	1,287	
6	113,797	10.0%	2.0%	223	1,558	1,781	501	1,280	
7	108,818	12.0%	1.0%	126	1,474	1,600	474	1,127	
8	101,745	25.0%	-	-	1,280	1,280	411	868	
9	81,078	20.0%	-	-	1,050	1,050	337	712	
10	68,916	15.0%	-	-	918	918	295	623	
11	62,240	15.0%	-	-	829	829	267	563	
12	56,210	15.0%	-	-	749	749	241	508	
13	50,765	15.0%	-	-	676	676	217	459	
14	45,847	15.0%	-	-	611	611	196	414	
15	41,406	15.0%	-	-	580	580	186	393	

Example: Base VA



- i As the Cost of Capital increases (due to a rise in ROE guidance and/or Debt costs), EVA will fall and vice versa
- i This will not impact IRR, but the Hurdle Rate should move

	Debt Cost	Equity Growth	ROE Guidance	EVA	IRR	ROA
i As the perceived growth of equities increases, all profit metrics increase	5%	9%	15%	1,198	20%	0.19%
	5%	9%	11%	2,059	20%	0.29%
	9%	9%	15%	1,017	20%	0.17%
	5%	13%	15%	2,011	23%	0.29%

EVA versus other profitability metrics

	Traditional Accounting Framework	Lifetime or Annual	In-force or New Business	
I R R	STAT	LIFETIME	NEW BIZ	<p>Trends</p> <p>“Cross-framework travel”</p> <p>What is the ROE on a new business cohort year by year?</p> <p>What is the lifetime Stat-based return on in-force from now going forward?</p> <p>à Using “economic view” to answer</p> <p>à Capital and earnings on a Stat and GAAP basis</p>
R O A	STAT, GAAP	LIFETIME	NEW BIZ, INFORCE	
R O E	GAAP	ANNUAL	INFORCE	
E V A	ECONOMIC*	LIFETIME	NEW BIZ, INFORCE	

*Includes Stat Capital and some GAAP-like exit price valuation

EVA versus other profitability metrics

Which product?

Product	IRR	ROA
A	18%	0.70%
B	28%	0.40%
C	22%	0.12%

EVA versus other profitability metrics

Which product?



Product	IRR	ROA	EVA (\$m)
A	18%	0.70%	6.4
B	28%	0.40%	3.2
C	22%	0.12%	9.2

EVA versus other profitability metrics

Which product?



Product	IRR	ROA	EVA (\$m)
A	18%	0.70%	6.4
B	28%	0.40%	3.2
C	22%	0.12%	9.2

Product	COC	PV (Capital) (\$m)	PV (Profits) (\$m)
A	12%	5.1	17.1
B	12%	2.5	14.5
C	12%	3.2	12.3

Ø PV of Profits may tell a “better story” for a given product than EVA due to a higher capital infusion (i.e., more sales)
 Ø This will allow achievement of plan results (as opposed to beating results)
 Ø While EVA can put other metrics in perspective, it is not the be-all / end-all

EVA versus other profitability metrics

Which product?

Product	IRR	ROA	EVA (\$m)
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Potential cycle



EVA versus other profitability metrics

What if all projects' capital investments were known and equal to each other?



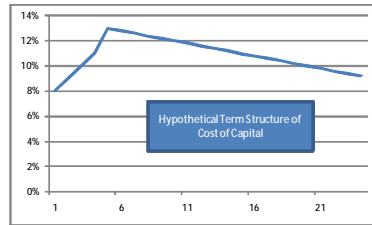
Is the higher IRR project the best EVA project?

EVA versus other profitability metrics

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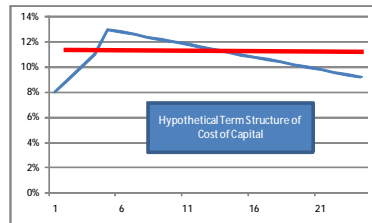


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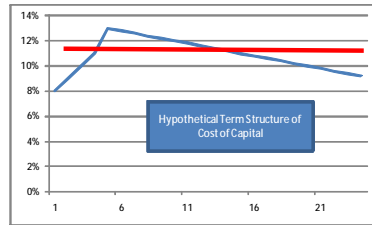
What if, additionally, the COC was static and flat?

EVA versus other profitability metrics

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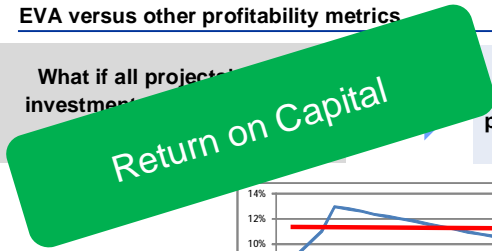


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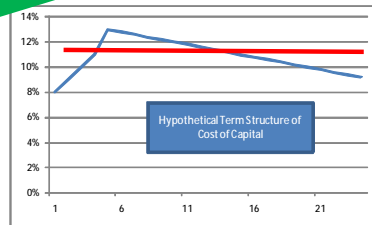
Project	Capital Required	One-time			IRR	EVA
		COC	Profit...	...at time		
I	100	12%	50	3	14.5%	6.8
II	100	12%	1200	20	13.7%	34.8

EVA versus other profitability metrics

What if all projects' capital investments were known and equal to each other?



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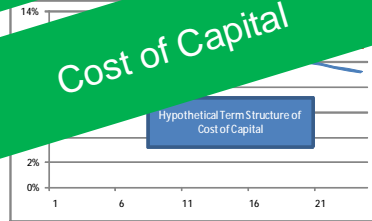


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Project	Capital Required	One-time			IRR	NPV
		COC	Profit...	...at time		
I	100	12%	50	3	14.5%	6.8
II	100	12%	1200	20	13.7%	34.8

EVA versus other profitability metrics

What if all projects had the same investment amount? Is the higher IRR project the best EVA project?



What if, additionally, the COC was static and flat?

Project	Capital Required	COC	One-time Profit...	...at time	IRR	NPV
I	100	12%	50	3	14.5%	6.8
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EVA versus other profitability metrics

What if all projects had the same investment? Is the higher IRR project the best EVA project?

Return on Capital

Cost of Capital

Amount of Capital

Duration of the Project

Project	Capital Required	COC	IRR	NPV
I	100	12%	14.5%	6.8
II	100	12%	13.7%	34.8

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EVA: An Unofficial History, Part 3

Columbus Discovers America
1492



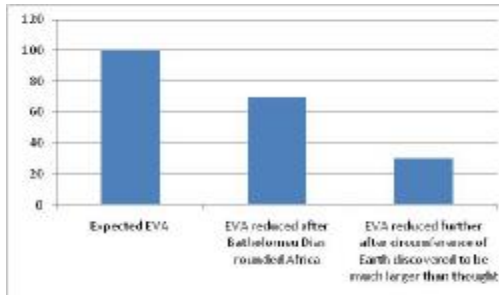
Benefit: Shorter trade route to Orient

1485 Proposal to King of Portugal

To Columbus	Economic treatment
3 sturdy ships	Capital investment
1 year's salary for full crew	Capital investment
Governorship of all islands discovered	Intangible asset
Grand Admiral of the Sea title to Columbus	Intangible asset
10% of revenue from new lands	Drawdown on future profits

1492 Deal With Spain

- Ø No % of future profits to Columbus
- Ø 50% financing from third parties
- Ø Spain financed through subsidiary accounts (not Corporate)



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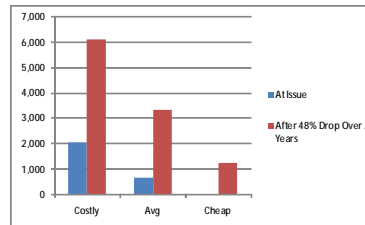
EVA vs. Fair Value

1	Fair value assumes no gain/ loss at issue		
2	Fair value removes the risk premium in projected stock growth		
3	Fair value removes the spreads on corporate bonds		
4	Fair value assumes currencies move with the markets' forward FX views, which are inverse to forward interest rates (e.g., if US forward rates are higher than Japanese forward rates then the markets "believe" the dollar will drop vs. the yen)		
5	Reconciliation of the two frameworks centers around understanding:		
	Risk aversion (non-uniform views)	Inefficient markets (non-uniform buyers)	Unique services (non-uniform sellers)

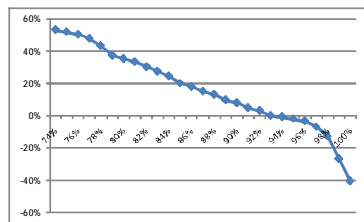
VA With GMAB

- i Consider a 10 year GMAB block
 - \$10b sold
 - Lapses assumed result in baseline 70% persistency at time 10 @ \$7b guarantee
 - Ignore taxes
- i Estimated PV of 2% fees, if hedged: \$1.7b (assume dividends close to this)

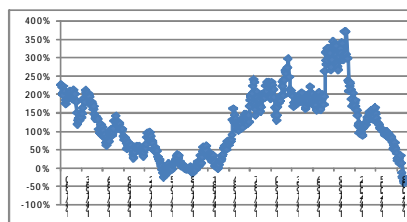
Approx. Cost (\$M) to Hedge \$7B of 10y AB
At Issue and After Crash Under Various Conditions



Percentiles of the Distribution of S&P 10 Year Cumulative Returns Ending 1960-2009

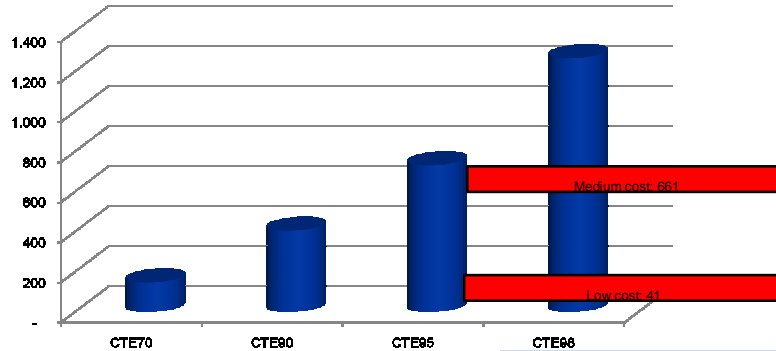


Cumulative Returns After 10 Years in S&P 500 Price-Only Ending In 1960-2009



VA with GMAB

- i Compare the claims neutralized by hedges to the cost of those hedges across various market conditions and CTE levels: \$7B of AB Exposure (after lapses) – Levels in \$M



	Market Condition:		
	Costly	Avg	Cheap
Divs	2%	2%	2%
10y Swap	4%	7%	10%
10y Vol	35%	25%	15%
ATM Cost (\$M), Time 0	2,078	661	41

10y AB - \$7B Notional at Issue			
\$M	PV Claims	Revenue	Net
CTE70	142	1,673	-
CTE90	400	1,673	-
CTE95	727	1,673	-
CTE98	1,261	1,673	-

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Figures are all estimates; CTE based on monthly S&P returns since 1950; taxes ignored

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Interesting EVA facts

1

If your business is returning profits in line with guidance provided, your EVA is zero.

2

If interest rates fall (and nothing else changes), EVA increases.

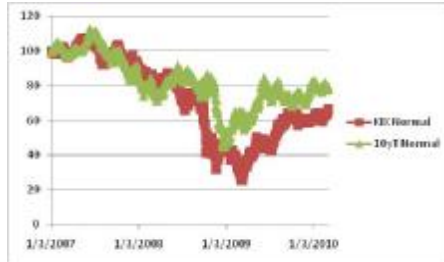
3

A true fair market value approach would result in no EVA recognized at issue, ever.

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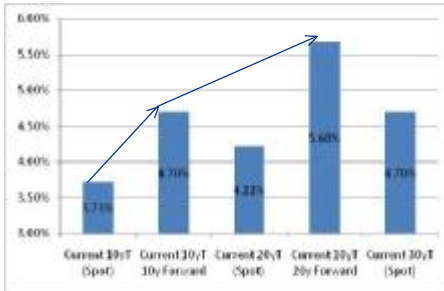
Does it make sense that EVA is so sensitive to rates?



Correlation of Daily Changes, Jan 2007 – March 2010 for KIX Index

To 10y Treasury

86.6%



- ; Mark to market of embedded derivatives
- ; Reinvestment
- ; Sales
- ; Offset: Bond prices (if AFS)

Hedging to forward rates is a potentially attractive strategy

Insurers' EVA

What's Different About Insurance Companies

- ; Long term liabilities
- ; Complex accounting
- ; Capital requirements
- ; Unobservable values
- ; Inefficient behavior
- ; Reinvestment dependence

Examples of EVA-driven Decisions or Comments

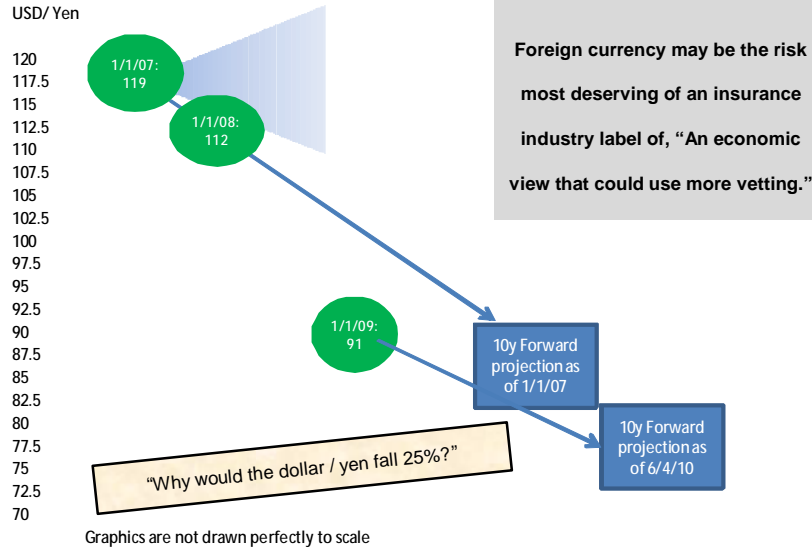
"The reserving is entirely uneconomic. We can just transfer the risk cheaply then."

"Why would the dollar / yen fall 25%?"

"The markets are not reflective of the long -term economics. They have overreacted and we are not going to have a knee -jerk response."

"Figuring out how much capital this could require is impossible."

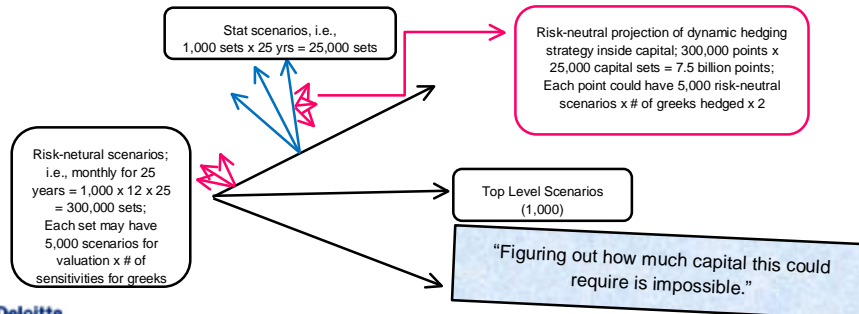
Foreign currency risk and the economic view



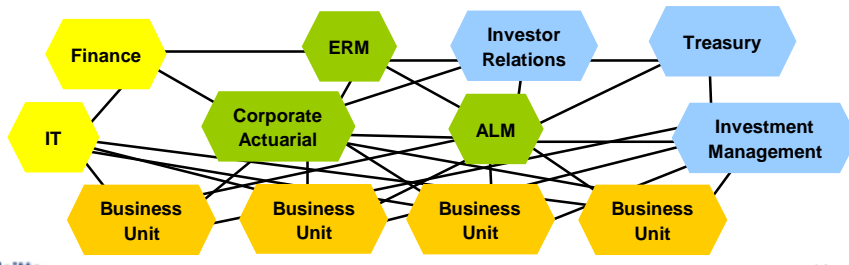
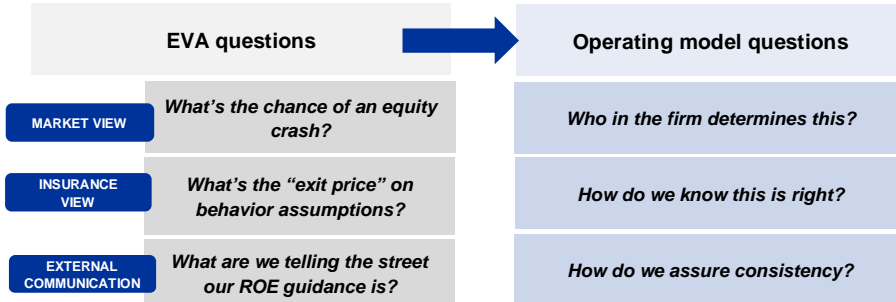
Capital Deployed and the Ever-Growing Stochastic Tree

3
Calculation of Capital Deployed

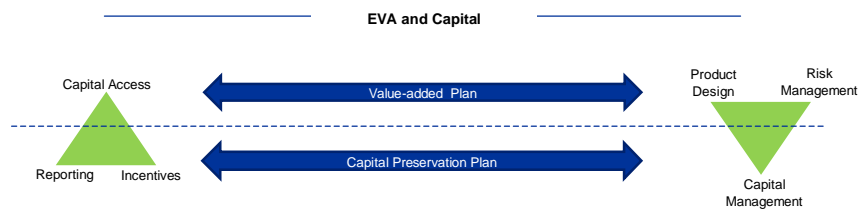
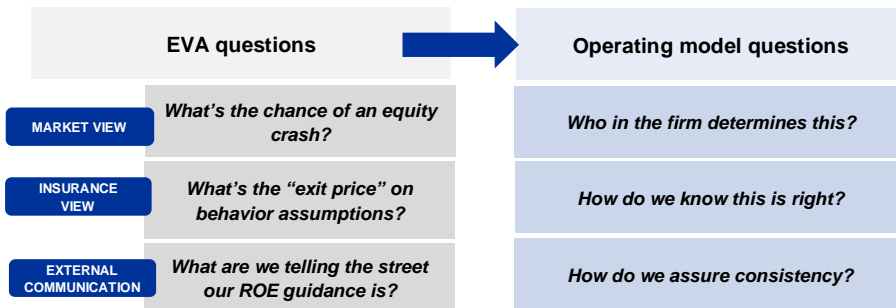
- i As many as 3 scenario sets involved in "most precise" pricing projections
 - Top level: Best guess at what the company feels represents probabilities in the future
 - Risk neutral: The fair market value scenario sets now and in the future consistent with then-current market conditions
 - Used to project dynamic hedging strategy
 - Capital and reserves: Statutory / agency-focused
 - Calculated at year-end points in each top-level scenario
 - Ultimate: Hedging embedded within the capital calculations
- i Hedging long-dated, illiquid liabilities has an unknown cost
- i Several approaches (i.e., replicating portfolios) are being developed to try to balance servers, computing time and accuracy
 - Key: Determining a risk tolerance and testing limited, "stochastic deterministic" scenarios that are tail but not in the "give up" region of the tail



EVA and the Operating Model, Governance and Policy



EVA and the Operating Model, Governance and Policy



EVA: An Unofficial History, Part 4

**Louisiana Purchase
1803**



Cost	Benefit	EVA Analysis
<p>11.2 million</p>	<ul style="list-style-type: none"> ; Arkansas ; Missouri ; Iowa ; Oklahoma ; Kansas ; Nebraska ; Minnesota ; New Mexico ; Montana ; Wyoming ; Colorado ; Louisiana ; North Dakota ; South Dakota 	<p>A lot</p> <p>- <u>A little</u></p> <p>Still pretty much a lot</p>

Parting thoughts

UL secondary guarantees	<i>Modeling long-dated rates</i>				
Corporate structure	<i>Choosing what meets management's philosophy best</i>				
Transparency of values	<i>The insurer as broker</i>				
Non-insurance EVA is not always easy either	<i>WSJ: Friday, June 4, 2010</i>				
	<i>Super-weed Killers</i>	<i>520-day Windowless Russian Mars Expedition Simulation</i>	<i>Kellogg's Rice Krispies Healthy Cereal Campaign</i>	<i>Werewolf Breeding for Media: Seasonal Hair Problems</i>	<i>Madoff Ponzi Scheme Victim Buy-Outs</i>



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