



**ALMA**

2008 15<sup>th</sup> Annual Conference

**'IAS Hedging Solutions'**



**Peter Reynolds**  
**Vice President EMEA**  
**Reval**

**January 25<sup>th</sup> 2008**



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# Today's Agenda

- Where we are today
- Main issues
- Mysteries of prospective assessment
- Retrospective testing
- What's new? IFRS7
- System considerations
- Case studies
- Reval / HedgeRx

# Where We Are Today

## **Hedge accounting**

- Hedge accounting to stay!
- Big 4 awareness of common issues
- More scrutiny!
  - Big 4
  - IASB
- Changes (September 2007 Exposure Draft)

## **Financial markets**

- Focus on risk
- Complex derivative instruments

## **Focus for 2008**

- IAS 39 'properly'
- New Standards – IFRS7 (Europe/Asia), FAS 157 (USA)

# Voting Question 1

Is hedge accounting still a big issues to yourself / your company?

- a) Yes
- b) No

# Voting Question 2

Do you think that your auditor:

- a) Has a very good understanding regarding hedge accounting and offers practical implementation advice
- b) Understands the theory but lacks advice on practical application
- c) Doesn't really understand the issues
- d) Oh! That's what they do!

# What Are The Main Issues?

## Derivative Valuations

- Independence: where are you getting your valuations from?
- Auditable data / market value
- Vanilla products v complex products
- Spreadsheet models

## Hedge accounting

- Correct methodologies (critical terms match not allowed!)
- Prospective testing: dollar offset v regression
- Market data

# Voting Question 3

Do you use regression analysis?

a) Yes

b) No, we are using dollar offset

# Voting Question 4

Why don't you use Regression?

- a) Not sure of the benefit
- b) Don't understand the statistical approach
- c) Too complicated in excel
- d) Don't have the market data

# Mysteries Of Prospective Assessment

## **Principle is clear & unusual**

- Demonstrate high probability of effectiveness going forward
- Usually accounting is retrospective

## **Subjectivity causes confusion**

**Whoever thought statistics would be so important!**

## **Guilty until proven effective**

- Burden of proof is on you

# Summary Of Techniques

## Shouldn't just do critical terms match

- Ok under FAS 133 where derivative will **always** be perfectly effective
- Under IAS 39 need to check terms have not changed

## Just use ratio test: here today effective tomorrow

- If ratio test passes today why not tomorrow
- Weak defense, risky outcome
- Small change effect

## Scenario stress test

- If hedge pair survives stress, good probability of effectiveness
- How much to shock?

## Statistical analysis: linear regression

- Historical simulation
- Random simulation
- Volatility reduction methodology

# Regression Analysis

## **A statistical technique used to:**

- analyse the relationship between two variables to assess whether and by how much a change in one variable relates to change in the other

## **Slope:**

- between  $-.8$  and  $-1.25$

## **F-stat:**

- 2 variables are independent with 95% Confidence
- Need to have enough data points
- Some say 20, 30, 60, monthly for term

## **T-stat:**

- probability that the slope is not zero with 95% confidence

# What Should You Regress

## **Should regress change in fair values**

- Back-dated transactions using actual historical market data
- Current transaction with randomly generated market data

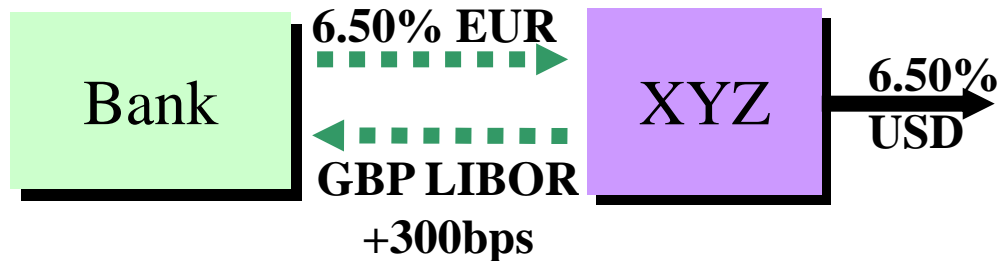
## **Some regress change in market data**

- i.e. EUR vs. GBP or CP vs LIBOR

**Anything your auditors let you regress!**

# XCCY Example

- USD 6.50% fixed rate debt maturing Jan 2009



- Swapped to 6M GBP LIBOR + 300bps
- Examine dollar offset vs. regression

# Dollar Offset Fails

	Hedge Instrument Entire FMV	Cumulative Change	Debt MTR	Cumulative Change	Ratio	Effective	Earnings
			\$(55,536,727)				
Jan-04	\$ (338,917)	\$ (338,917)	\$(55,197,810)	\$ 338,917	\$ 1	Yes	\$ -
Jan-04	\$ (688,238)	\$ (688,238)	\$(54,821,123)	\$ 715,605	\$ 1	Yes	\$ 27,367
Feb-04	\$ (1,549,823)	\$ (1,549,823)	\$(54,032,170)	\$ 1,504,558	\$ 1	Yes	\$ (72,632)
Mar-04	\$ (295,935)	\$ (295,935)	\$(55,117,925)	\$ 418,802	\$ 1	No	\$ 1,253,888
Apr-04	\$ (244,258)	\$ (244,258)	\$(55,204,618)	\$ 332,110	\$ 1	No	\$ 51,677
May-04	\$ (2,456,717)	\$ (2,456,717)	\$(53,199,390)	\$ 2,337,337	\$ 1	Yes	\$ (207,231)
Jun-04	\$ (2,020,480)	\$ (2,020,480)	\$(53,614,573)	\$ 1,922,155	\$ 1	Yes	\$ 21,055
Jul-04	\$ (1,840,453)	\$ (1,840,453)	\$(53,799,970)	\$ 1,736,758	\$ 1	Yes	\$ (5,370)
Aug-04	\$ (201,399)	\$ (201,399)	\$(55,264,180)	\$ 272,548	\$ 1	No	\$ 1,639,054
Sep-04	\$ (720,230)	\$ (720,230)	\$(54,872,865)	\$ 663,862	\$ 1	Yes	\$ (127,516)
Oct-04	\$ (1,343,390)	\$ (1,343,390)	\$(54,326,415)	\$ 1,210,313	\$ 1	Yes	\$ (76,709)
Nov-04	\$ (4,514,528)	\$ (4,514,528)	\$(51,504,876)	\$ 4,031,852	\$ 1	Yes	\$ (349,599)
Dec-04	\$ (4,552,031)	\$ (4,552,031)	\$(51,469,196)	\$ 4,067,532	\$ 1	Yes	\$ (1,823)
Jan-05	\$ (3,717,719)	\$ (3,717,719)	\$(52,202,527)	\$ 3,334,200	\$ 1	Yes	\$ 100,981
Feb-05	\$ (5,452,365)	\$ (5,452,365)	\$(50,612,101)	\$ 4,924,627	\$ 1	Yes	\$ (144,220)
Mar-05	\$ (4,916,653)	\$ (4,916,653)	\$(51,106,317)	\$ 4,430,411	\$ 1	Yes	\$ 41,496
Apr-05	\$ (4,928,904)	\$ (4,928,904)	\$(51,117,648)	\$ 4,419,080	\$ 1	Yes	\$ (23,582)
May-05	\$ (1,809,389)	\$ (1,809,389)	\$(53,944,270)	\$ 1,592,458	\$ 1	Yes	\$ 292,892
Total							\$ 2,419,727

# Regression Passes

	Hedge Instrument Entire FMV	Cumulative Change	Debt MTR	Cumulative Change	Ratio RSQ/Slope/f-Stat/t-Stat	Effective	Earnings
			\$(55,536,727)				
Jan-04	\$ (338,917)	\$ (338,917)	\$ (55,197,810)	\$ 338,917	1.000 /1.113 /48,863.127 /-221.050	Yes	\$ -
Jan-04	\$ (688,238)	\$ (688,238)	\$ (54,821,123)	\$ 715,605	1.000 /1.106 /77,051.138 /-277.581	Yes	\$ 27,367
Feb-04	\$ (1,549,823)	\$ (1,549,823)	\$ (54,032,170)	\$ 1,504,558	1.000 /1.104 /110,102.196 /-331.817	Yes	\$ (72,632)
Mar-04	\$ (295,935)	\$ (295,935)	\$ (55,117,925)	\$ 418,802	1.000 /1.099 /66,460.776 /-257.800	Yes	\$ 168,132
Apr-04	\$ (244,258)	\$ (244,258)	\$ (55,204,618)	\$ 332,110	1.000 /1.098 /61,834.185 /-248.665	Yes	\$ (35,015)
May-04	\$ (2,456,717)	\$ (2,456,717)	\$ (53,199,390)	\$ 2,337,337	1.000 /1.098 /84,020.282 /-289.863	Yes	\$ (207,231)
Jun-04	\$ (2,020,480)	\$ (2,020,480)	\$ (53,614,573)	\$ 1,922,155	1.000 /1.099 /45,130.059 /-212.438	Yes	\$ 21,055
Jul-04	\$ (1,840,453)	\$ (1,840,453)	\$ (53,799,970)	\$ 1,736,758	1.000 /1.101 /23,856.621 /-154.456	Yes	\$ (5,370)
Aug-04	\$ (201,399)	\$ (201,399)	\$ (55,264,180)	\$ 272,548	0.999 /1.095 /14,615.980 /-120.897	Yes	\$ 174,844
Sep-04	\$ (720,230)	\$ (720,230)	\$ (54,872,865)	\$ 663,862	0.998 /1.085 /4,460.903 /-66.790	Yes	\$ (127,516)
Oct-04	\$ (1,343,390)	\$ (1,343,390)	\$ (54,326,415)	\$ 1,210,313	0.997 /1.089 /3,277.496 /-57.249	Yes	\$ (76,709)
Nov-04	\$ (4,514,528)	\$ (4,514,528)	\$ (51,504,876)	\$ 4,031,852	0.998 /1.137 /3,953.708 /-62.879	Yes	\$ (349,599)
Dec-04	\$ (4,552,031)	\$ (4,552,031)	\$ (51,469,196)	\$ 4,067,532	0.999 /1.143 /6,155.222 /-78.455	Yes	\$ (1,823)
Jan-05	\$ (3,717,719)	\$ (3,717,719)	\$ (52,202,527)	\$ 3,334,200	0.999 /1.140 /6,977.827 /-83.533	Yes	\$ 100,981
Feb-05	\$ (5,452,365)	\$ (5,452,365)	\$ (50,612,101)	\$ 4,924,627	0.999 /1.135 /10,345.608 /-101.713	Yes	\$ (144,220)
Mar-05	\$ (4,916,653)	\$ (4,916,653)	\$ (51,106,317)	\$ 4,430,411	0.999 /1.130 /14,672.754 /-121.131	Yes	\$ 41,496
Apr-05	\$ (4,928,904)	\$ (4,928,904)	\$ (51,117,648)	\$ 4,419,080	1.000 /1.131 /18,210.825 /-134.947	Yes	\$ (23,582)
May-05	\$ (1,809,389)	\$ (1,809,389)	\$ (53,944,270)	\$ 1,592,458	1.000 /1.122 /24,008.617 /-154.947	Yes	\$ 292,892
Jun-05	\$ (957,106)	\$ (957,106)	\$ (54,771,024)	\$ 765,704	0.999 /1.115 /14,155.276 /-118.976	Yes	\$ 25,529
Jul-05	\$ (632,301)	\$ (632,301)	\$ (55,084,222)	\$ 452,505	1.000 /1.097 /19,627.630 /-140.099	Yes	\$ 11,607
<b>Total</b>							<b>\$ (179,796)</b>

# Retrospective Testing: Don't Look Back In Anger

Ratio test can be used

- Simple & unquestionable
- Risky for certain strategies
- Small change effect

Issues with statistical analysis

- Non-existent data points at the start

# Confusion With The 80/125 Rule

- Ratio test (dollar offset approach) is ratio of:  
$$\frac{\text{Change In Value Of Derivative}}{\text{Change In Value of Risk Of Hedged Item ("MTR")}}$$
- Between 80% and 125% passes ratio test
- Ratio test used to calculate measurement of *ineffectiveness*
- If prospective & retrospective assessments pass, ineffective component could be outside the 80/125% bands
  - i.e. regression > 0.80 and Slope = -1.0 but ratio test is 70%, achieve 70% offset
- Ratio test can also be used for retrospective assessment

# Voting Question 5

Do you experience P&L volatility due to small change effect?

- a. Yes, it's a problem
- b. Yes, but its small
- c. No
- d. Unsure

# What's New? IFRS 7

## Another standard!

- Not very prepared for or researched by companies!
- Not as easy as it looks / people think!
- Practical application
  - Comparative valuations
  - ‘Reasonableness’ test ( i.e. stress testing)

# But We Already Do That!

## Some companies will be doing some kind of sensitivity analysis

- As part of risk management policy
- Hedge accounting assessments

## Problem

- Sensitivity analysis will not be across all of the financial instruments
- I.e. derivatives that do not qualify for hedge accounting

## What does this mean?

- **Another** complex data gathering exercise!
- Including all the financial instruments across different departments and subsidiaries
- Enhance models to pick up any new market risk measurements

# Stressing Out Over Stress Testing

## IFRS 7 supplies no specific guidance

- Probably because it is supposed to be the same as what you are already doing for risk management reporting

## What is best practice?

<u>Shock Types</u>	<u>Example</u>	<u>Pros</u>	<u>Con</u>
<b>Additive Shock</b>	+/- 1% or +/-10% +/- \$0.01 or +/- \$1.00	Simple to communicate Clean	Subjective Shock may be too small to be meaningful, too large and meaningless
<b>Absolute or Multiplier</b>	*105%/95% Raise to 10% or \$10	Simple to communicate Clean	Subjective Shock may be too small to be meaningful, too large and meaningless
<b>Standard Deviation</b>	*105%/95% Raise to 10% or \$10	Incorporates a confidence level Objective	Data intensive Non uniform shock depending on historicals

- Although there are issues with stress testing, it is simple to understand the results and if the shock levels are high enough, the company captures those “fat tail” events that are supposed to never happen.

# Value at Risk (VaR)?

- **Stress testing doesn't show a confidence level around maximum exposure**
- **VaR**
  - A sophisticated approach
  - Calculates a number that describes the 'most' one could gain or lose
  - Approximately 95%
  - 5 times out of 100 losses might be greater than forecasted VaR Number
- **Parametric VaR**
  - Historical market data to calculate correlation and covariance matrices used to project valuation
- **Monte Carlo Simulation**
  - Randomly creates market moves to calculate hypothetical valuations

Pros	Cons
One Number To Describe Risk	Short Term Horizon
Statistically Advanced	Sophisticated To Run/Manage
95%+ Confidence Levels	CPU Intensive
Good For Assessing O/N Trading Risk	Parametric: Does Not Properly Assess Options

# Will Anyone Care?

## **Two companies in the same sector**

- Different sensitivities to market risk
- One has a more sophisticated risk management approach

## **IRFS will provide valuable information to investors**

- Can your core business be effected by a volatile move in market rates?
  - Banks
  - Insurance companies
  - Energy and commodities suppliers and buyers

## **Just another burden?**

- Despite the additional regulatory burden it will add value
- Forces a corporate to re examine risk reporting
  - Market and business risks

# Voting Question 6

Have you complied with IFRS 7?

- A) Yes, all done!
- B) NO, but will do this year
- C) Thanks for the heads up!

# System Considerations

## **Trade / exposure entry:**

- STP
- Designation
- Automation (TMS, ERP, RMS)

## **Valuations:**

- Reliable market data
- Derivative instrument coverage
- Auditable?

## **Accounting Standards:**

- IAS 39, FAS 133
  - Documentation? Effectiveness tests?
- IFRS 7 / FAS 157

## **Debits and credits:**

- STP
- Interface back to ERP/TMS/RMS

## **Security (and other IT considerations)**

# Voting Question 7

Do you have a system that effectively deals with hedge accounting?

- a) Yes
- b) No, we have manual work around for effectiveness testing
- c) No, everything is in excel

# Case Study 1

Morgan Stanley

## Morgan Staley Challenges:

- ‘Short cut’ to ‘long haul’
- Correct amortization
- Data security

## Reval Implementation

- Correct documentation
- Transition adjustments
- IP validation
- Stress testing

# Case Study 2



## **AIG Challenges:**

- \$500m restatement relating to FAS 133 compliance
- SEC: material weakness in cross currency interest rate portfolio
- Global hedge accounting, central control
- Short time frame for month end close

## **Reval Implementation**

- Capture cross currency interest rate portfolio
- Process around month end
- Portfolio hedge accounting
- Regression analysis

# About Reval

- ✓ Web-based derivative risk management solution delivered under the Software-as-a-Service (SaaS) model
- ✓ Founded in 1999
- ✓ Experienced Wall Street Professionals
- ✓ 80+ employees with offices in NYC, London, and India
- ✓ 175+ Clients using single version of HedgeRx®
- ✓ 96% client retention rate



CIO Supplier Award



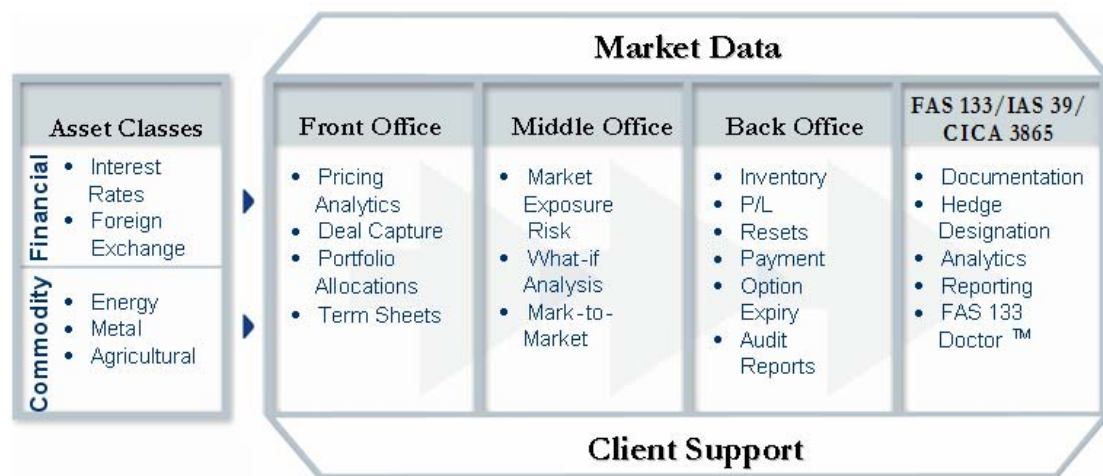
EuroFinance

Top 10 Tech



2007 Alexander Hamilton Award for Treasury Tool of the Year

# HedgeRx® - Reval's Flagship Product



- Fully-Integrated Asset Classes
  - Interest Rate
  - Foreign Exchange
  - Energy
  - Metals
  - Soft Commodities

- Exposures & Derivatives
- Front-Middle-Back
- Web-based Application
- 25 Universal Upgrades
- Easy Integration to TMS or ERP

# HedgeRx® - Reval's Flagship Product

Hedge Designation Link Id: 1339 Version: 1

**Documentation**

Description: Commodity Strategy - Futures Hedge & Offset Derivative: 82, Hedged Item: 400, Hypothetical Deriv

Hedge Relationship: Client uses CME Class III Milk (DA) futures to manage price volatility affecting its anticipated future purchases of physical Cheddar cheese products. For details please refer to the most recent Schwab CRM Strategy for Cheddar Cheese, and to the Commodity Risk Management

Risk Management Objective: The objective of this transaction is to mitigate the financial impact of fluctuations in commodity prices on future cash flows related to the purchase of physical Cheddar cheese products. For details please refer to the most recent Schwab CRM Strategy for Cheddar

Hedge Type: Cashflow Designation Date: 6/22/2005 De-designation Date: 2/2/2006

**Hedge Instrument**

Trade: 82 Trade Desc: BUY 1.00 DAF6 02-FEB-2006 FUTURES @13.00

Proportion: 100% Trade Type: CM Future Entity: SGSC

Incl Initial Val:  Partial From: Partial To:

CF Method: Hypothetical Derivat

**Hedged Item**

Trade: 400 Trade Desc: CM EXP 01/06 - 12/06 PAY Cheddar-6M

Proportion: 100% Partial From: Partial To: Hedged Value: Principal Only

Class: Non Financial Entity: SGSC

**Risk Designation**

All CashFlows:  Interest Rate:  Foreign Exchange:  Price:

Benchmark: Libor DiscSpread: 1.00 bp Fwd Method: Forward Unds

**Hypothetical Derivative**

Trade: 2523 Deriv desc: BUY 1.00 DAF6 02-FEB-2006 FORWARDS @1.38

Proportion: 100% Entity: Partial From: Partial To:

**Effectiveness**

Prospective Method: Dollar Offset Retrospective Method: Dollar Offset

Test Description:

Measurement: Cumulative Frequency: Monthly RatioTest: 0.800 To 1.250

**Release Schedule**

Generate Add Sort

**OCI Balance to Earnings**

Stop Rev/Rec As Of Dt:

Num	Release Dt	As Of Dt	Type	Percent	Amount	Note
1	1/27/2006	1/27/2006	Percent	100.00	0	

- From inception and on-going documentation to debits/credits
- Effectiveness testing
  - Auto-Regression Tool
- Diagnostics: IAS 39 / FAS 133 Doctor™
- Hedge management possible at:
  - Strategy Level
  - Trade Level
- Detailed and summary reporting
- 200+ Ready Reports
- **NEW IFRS 7 Module**

# Reval Contacts

For more information about this presentation please feel free to contact me:

[peter.reynolds@reval.com](mailto:peter.reynolds@reval.com)

For more information about Reval products and services, please contact:

[info@reval.com](mailto:info@reval.com) or 0208 834 3714

**Thank you for your participation!**