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Accounting For Risk

FAS 133 Revisited — Mastering the Standard

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Webinar Agenda

- Mastering the form and substance of FAS 133
- Quick review of the basics
- Mastering effectiveness testing
- Mastering P&L ineffectiveness
- Mastering CF forecast error risk
- Appendix items not discussed
- Managing your auditors

Mastering the Form

- FAS 133 is 100% form and 100% substance
- Under FAS 133, hedge accounting is privilege, not a right, and that right must be earned
  - Including paying for the related accounting costs
  - Inadequate documentation risks no hedge accounting and restatement
- Master the documentation and you master the form:
  - Determine what actions are needed to properly hedge your company's economics risks
  - Then find the hedgeable transactions that will give the best accounting results for the economic hedge actions

Mastering the Substance

- Developing financial engineering formulas for calculating the changes in the **"accounting"** fair value of the derivative of exposure
  - Justified, at least by analogy, to specific FAS 133 paragraphs or DIG issues
  - No formulas = No hedge accounting
- Master the substance by matching these ΔFV with the effectiveness test**s** that will (likely) give you
  - Highly effective hedges
  - **And** which have acceptable forecast error risk, P&L ineffectiveness and excluded amounts

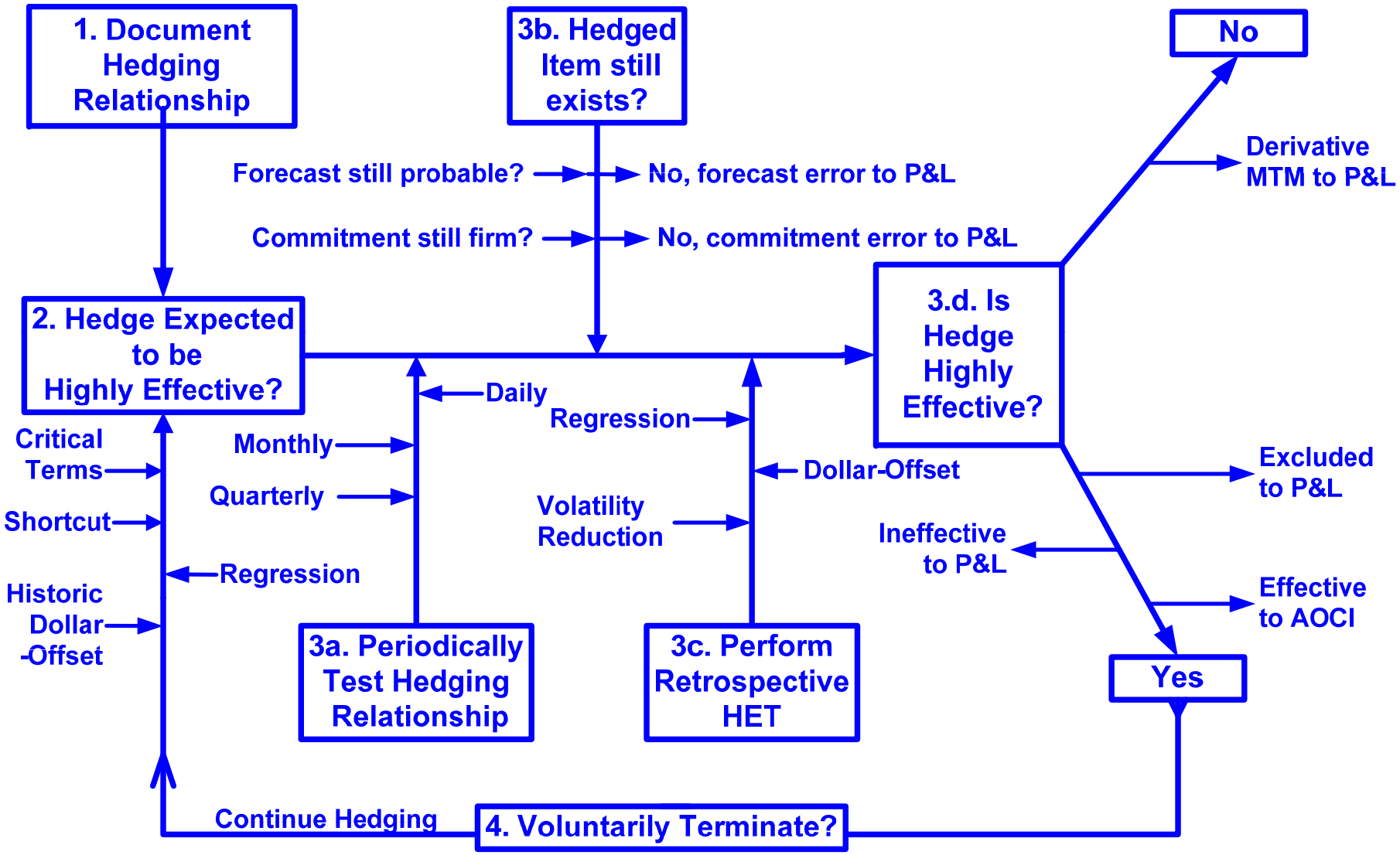
2006 SEC Annual Conference Comments

"We [the SEC] wind up agreeing with a registrant's accounting a much higher percentage of the time when it turns out that the registrant identified the issue, thought about the accounting, and documented its considerations at the time the transaction occurred."

- Scott Taub

Retiring SEC Deputy Chief Accountant

General CF Hedge Accounting Cycle



Documentation Requirements — 1

1. Risk management objective and strategy for the hedge transaction
2. Description of the hedged item(s)
   - % of an item
   - A portfolio of transactions sharing the same risk(s) (no netted portfolios)
     - Very stringent for FV hedges (same proportion, ¶20.a(1))
     - More relaxed for CF hedges (no ¶20.a(1) requirement)
   - CF items must directly impact P&L
     - Floating interest, anticipated FX transactions
   - FV items that do not directly impact P&L because they are not fair valued to the P&L
     - Debt or HTM/AFS securities

Documentation Requirements — 2

3. The risk(s) being hedged
   - Entire change in FMV [¶140-143] (commodity risk)
   - One or more of:
     - Interest rate (includes benchmark and liquidity) risk
     - FX risk
     - Issuer credit risk

4. The ΔFV calculation of the hedged risk(s)
   - Entire change in FMV [¶140-143]
   - Spot-to-spot [¶165-172]
   - Hypothetical derivative method (including G20)

Documentation Requirements — 3

5. Description of the hedged instrument(s)
   - Cannot use a leg of a derivative
   - % of a derivative
   - Multiple derivatives

6. The ΔFV calculation of the hedged instrument
   - FMV with no exclusions
   - Option FMV excluding time value [¶63.a]
   - Option FMV excluding volatility value [¶63.b]
   - Forward FMV excluding points [¶63.c]

Documentation Requirements — 4

7. The prospective HET methodology for the expectation that the hedge relationship **will be** highly effective
   - Critical terms are the same
   - Shortcut treatment
   - Historic dollar-offset simulation(s)
   - Regression analysis
8. The retrospective HET methodology for proving that the hedge **was** highly effective since the last effectiveness testing **or** cumulatively since hedge inception [E8]:
   - Dollar-offset
   - Regression analysis
   - Volatility reduction method

Documentation Requirements — 5

9. How frequently the retrospective HET will be applied
   - Daily
   - Weekly
   - Monthly
   - Quarterly (max)

10. Counterparty credit risk documented
   - Should be at least an A, AA preferred
   - Specify how often credit risk checked
   - Credit downgrades will cause problems

Fatal Documentation Mistakes — 1

- No linkage of the hedge relationship with the risk management strategy
- Inadequate definition of the hedged risk
  - Specific interest rate index
  - Overall price risk for commodity hedging
  - For FX hedges, no linkage to the unit whose functional currency has the FX risk
  - No documentation when forecast will happen
- Little or no justification of the forecast's proba-bleness

Fatal Documentation Mistakes — 2

- Inadequate documentation of hedge instrument
  - Actual instruments not fully identified
  - If a hedge of a written option, not explaining how written option rules are met
  - Not explaining how multi-legged option qualifies as a FAS 133 net purchased option
- Lack of consideration of counterparty credit risk
- Not documenting the pro/retrospective tests used
- Not documenting how ineffectiveness will be measured
- Not documenting how **all** of the specific requirements for critical terms or shortcut are satisfied

Calculating HET & P&L Ineffectiveness

- For all hedges, **if**
  - The critical terms are not the same **or**
  - IRS hedging not qualify for shortcut treatment **or**
  - Option hedging does not qualify under G20
- Then we must perform:
  - The prospective HET
  - The retrospective HET
  - Calculate any hedge ineffectiveness
- All involve comparing ΔFV Hedge Instrument to ΔFV Hedged Item as **defined in the documentation**

Shortcut Treatment for Swaps

- Applies only to CF or FV interest rate swap hedges of debt and investments
  - Does **not** apply to cross-currency interest rate swaps (see G23)
- Swap terms must match **perfectly** the terms of the hedged item
  - Including any call provisions
- If so, perfectly effective hedge
- Interest expense = interest net of swap interest

Critical Terms are the Same

G9 allows the assumption of 100% effectiveness if the derivative terms exactly match the exposure:

- Notional amounts equal
- Maturities are the same
- Derivative's underlying index matches how the changes in the fair value of the exposure are documented
- **Derivative's FMV at inception is zero**
- No changes in counterparty credit risk
- Critical terms must be checked at each HET date

G20 Option Critical Terms

G20 expands on G9 by allowing a net purchased option or a zero cost collar to be documented as 100% effective CF hedge **if**:

- Option derivative is a European purchased option
- Critical terms are the same
  - Notional amounts
  - Maturity dates
  - Option strike(s) = documented level(s)

2006 SEC Annual Conference Comments

Thomas Kevits, Professional Accounting Fellow:

- Shortcut method **cannot** be satisfied in spirit
  - All nine criteria must be met **exactly**
- Critical terms match is **not** appropriate when the settlement dates of the forecasted transaction differ from the hedge instrument
  - Ineffectiveness should be measured and recognized
  - **However**, if ineffectiveness is shown (tested) to be clearly *de minimis* (not **immaterial**) under a variety of realistic market scenarios, may be OK
- "Death penalty": Errors subsequently found in the assessment of hedge effectiveness must be calculated **from the inception of the hedge assuming no hedge accounting had occurred**

2007 SEC Comments on Critical Terms

In March, the SEC reconsidered:

- Offered a safe harbor for hedges involving:
  - FX or Commodity risk if exposure and derivative settlement dates were within 30 days
  - CF IRS hedges with different interest payment dates (but not different reset dates)
- **Recommended** that registrants claiming critical terms should validate their assertions that any ineffectiveness is *de minimis*
  - Supplementary tests, not new documentation

Keeping Critical Terms

Hedge **settlements** that occur on **known dates** rather than sales or purchases which can occur any time during a month or quarter:

- Interco royalties that are paid on fixed dates
- Interco trade sales and purchases paid at netting
- External trade payables that are always paid at month-end (a common European practice)
- When sale or purchase is recorded, dedesignate hedge to avoid H15 issue

Defining the ΔFV of the Hedged Item

In practice, it can be difficult to define the ΔFV of the Hedged Item and get satisfactory effectiveness tests. There are two solutions:

- Hypothetical derivative method
- Spot-to-spot method

The Hypothetical Derivative Method

Allows the ΔFV hedged item to be documented as the ΔFV of a derivative perfectly matching the hedged item:

- IRS for floating rate CF debt hedges (G7)
- CCIRS for foreign currency debt hedges (by analogy to G7)
- European options for option-hedged exposures (G20)
- Forwards for net investment (H8 and H9)

Hedging Spot Risk of the Exposure

In commodity hedging, the future price of the hedged item may not be easily determined in there is not an active market for it.

- Document hedging the exposure from changes in the movement of the spot-to-spot rate
  - Spot prices always exist!
  - Issue whether Δ spot is discounted or not
- Exclude time value of the hedging forward or option
- Also useful in FX hedging when there is forecast timing risk
- Dual-Spot paper at www.greenwichtreasury.com

Dollar-Offset Ratio Test

- Dollar-offset ratio =
  - – Δ FV of the hedging instrument (**after** any exclusions) divided by
  - – ΔFV of the hedged risk(s) **as specified** in the documentation
- If the ratio is between 80-125%, the hedge is highly effective
- Note that there's a risk that small changes in the underlying market rates can blow ratio
- Generally better to calculate on a cumulative basis since hedge inception rather than the current period

HET Statistical Methods

- As E7 states, "…the application [of statistical analysis] is complex [and] requires appropriate interpretation and understanding of statistical inferences."
- Regression **(correlation is not sufficient)** analysis is most common statistical method
  - Market practice is a minimum of 30 data points
  - $R^2 > .80$
  - $-0.8 <$ Regression slope (β or beta) < -1.25
- The SEC/auditors are requiring these additional tests to prove that the regression is statistically valid:
  - t-test for the slope
  - F-test for the residuals
  - Durbin-Watson for autocorrelation

Improving Regression Results

- Regress on:
  - Price levels, not price changes
  - On daily or weekly data points, not monthly
- Autocorrelation
  - Price levels or daily prices may increase autocorrelation, so be careful
  - Any ineffective hedge which uses regression will probably have some autocorrelation
- Adjust the size of the derivative hedge so that that the hedge ratio (= derivative notional ÷ exposure notional) matches the β

Other Statistical Methods

- The volatility reduction method takes a trader's approach to risk, looking at the reduction in volatility (aka standard deviation) of a hedged relationship from the unhedged exposures
  - See http://www.kalotay.com/site/res/index.php (at bottom of page)
- Correlation analysis should **not** be used
  - Correlation coefficient ("r") is not sufficient because there is no beta, t-test or F-test
  - Regression's R^2 = r x r, so one needs a r > .90 to equal an R^2 = .80

Counterparty Risk

- Evaluating counterparty risk is **not** an explicit documentation requirement
- Evaluating counterparty risk **is** an explicit part of the hedge effectiveness testing (G9)
  - If counterparty risk degrades, then critical terms are the same or shortcut would be no longer applicable
- Dealing with major banks is not the issue
- Problems can arise with counterparty risk of bifurcated derivatives in commercial contracts

Minimizing Termination Risk

For most common corporate hedging situations using simple derivatives and where there is little risk of failing any HET, use the dollar-offset:

- Much quicker and easier than statistical analysis
- Use it on a cumulative, not current period, basis

However, statistical analysis is generally better for port-folio hedging or where there is basis risk:

- A fixed rate LIBOR swap on CP
- EUR proxy hedging of SEK exposures
- Nearly all commodity hedging since they rarely have critical terms the same

Calculating P&L Ineffectiveness

- For FV hedges, P&L ineffectiveness = ΔFV Hedged Item - ΔFV Hedge Instrument for the current period
- For CF hedges, it is cumulative difference from hedge inception for the two ΔFV's using the "lesser of the two cumulatives" test (¶30.b)

Calculating P&L Ineffectiveness

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CF Lesser of Two Cumulatives Test

Overhedging the exposure hits P&L, underhedging does not, provided hedge is highly effective:

	Derivative		Exposure				
Qtr	Period Change	Cum Change	Period Change	Cum Change	Lesser Cum	OCI	P&L
1	100	100	(96)	**(96)**	96	96	100-96 =**4**
2	94	**194**	(101)	(197)	194	194-96 =98	194-194-4= (4)
3	(162)	**32**	160	(37)	32	32-194 =(162)	32-32 -0=**0**
4	(101)	(69)	103	**66**	(66)	-66-32 =(98)	-69-(-66) -0=**(3)**
5	30	(39)	(32)	**34**	(34)	-34-(-66) =32	-39-(-34) -(-3)=**(2)**

Minimizing P&L Ineffectiveness

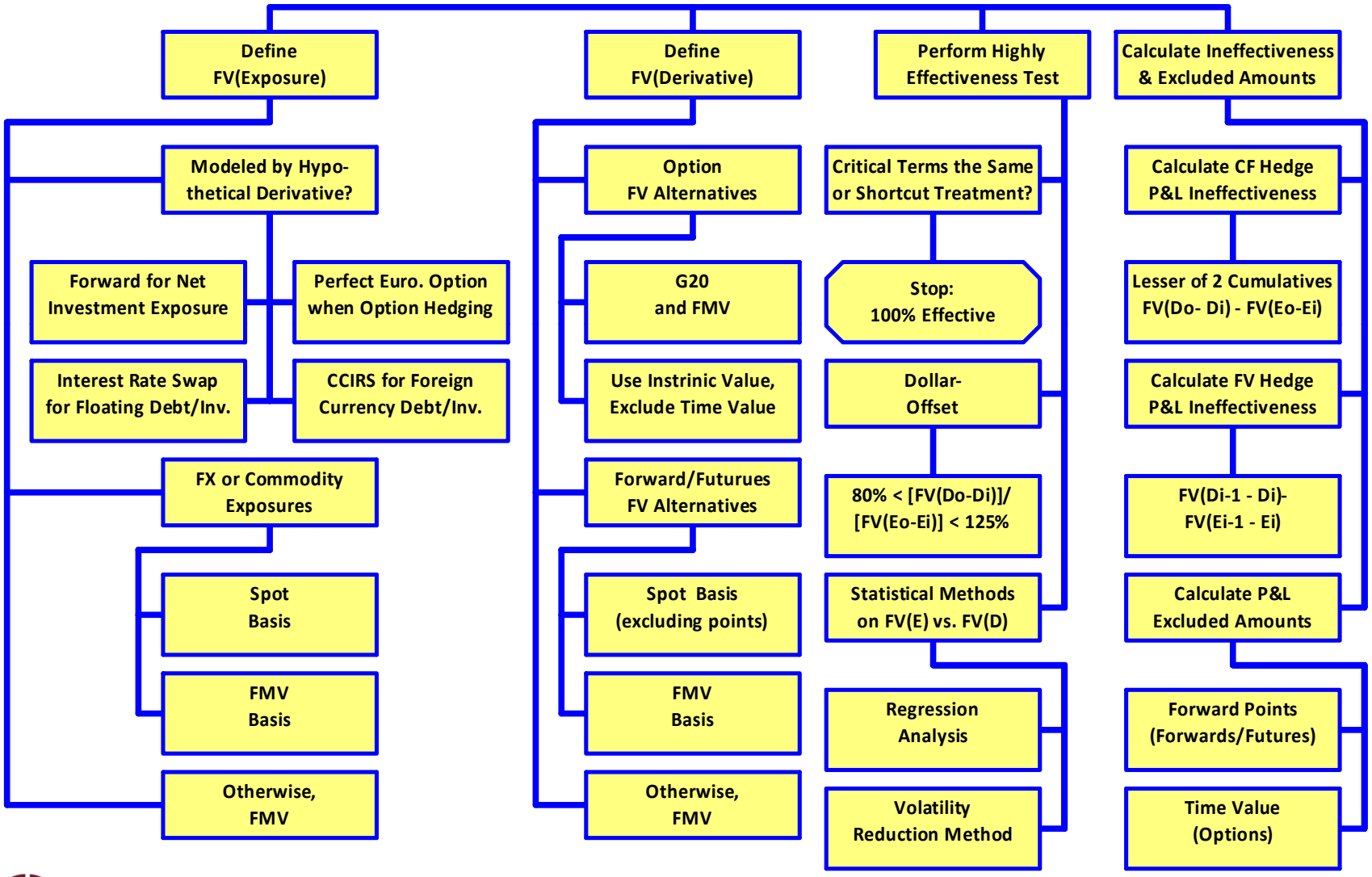
- The best way and most common way is to do "perfect hedges" where the critical terms are the same
- With imperfect hedges, write the hedge documentation so that ΔFV of the hedged item > ΔFV of the derivative. This will generally be the case if:
  - The hedged item notional > the hedge notional
  - The hedged item maturity > the hedge maturity
  - **Provided that the hedge is still highly effective**

Mastering CF Forecast Error Risk

Forecast error will lead to current recognition of deferred gain or loss, so:

- Actively monitor and improve forecast accuracy from units
- Treasuries should never hedge forecasts unless they have been signed off by someone else
- Loosely define the hedged item to allow for flexi-bility in substituting another item
- Aggregate exposures to reduce forecast error risk

FAS 133 Measurements Summary



Appendix Items

- Three basic hedge types chart
- Important option hedging DIG issues
- New derivative disclosure exposure draft **(ugly!)**
- New G19 on CF hedges of CP
- New H17 prohibiting hedging of forecast foreign currency debt
- FAS 159 Fair Value option
- FAS 157 on fair valuing techniques for financial instruments

Managing Your Auditors

- Due to SEC pressure, the auditors are raising the standards for acceptable FAS 133 hedge accounting
  - They are reneging on previously accepted documentation
  - This reneging is causing prior year restatements
- Review your o/s documentation, especially documentation
  - Unchanged from 2002 or earlier
  - Approved only by local auditors, not by the National office
  - Claiming critical terms or shortcut
- Always get the auditors to show their authoritative 133 or DIG references for their FAS 133 pronouncements
  - Show me the paragraph on which page of 875 pages!
  - After all, you want to make sure their current advice is defensible to the SEC since earlier advice was not correct

Upcoming Reval/GTA Event

FAS 133 Workshop **(with CPE Credits)**

If you still have issues with FAS 133, sign up for Reval "Basic FAS 133" workshop hosted by Reval and presented by Jeff Wallace.

The seminar will focus how FAS 133 is applied in practice to hedging corporate FX, interest rate and commodity risks. A focus will be the new disclosure requirements.

Who, When, and Where

- Who: Jeff Wallace and You
- When: June 13, 2007
- Where: Wall Street area - NYC

For more information,

Please contact info@reval.com

or call 212.901.9711

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About Greenwich Treasury — 2

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Jeff Wallace

- Founded Greenwich Treasury Advisors in 1992, and author of:
  - *The Group of 31 Report: Core Principles for Managing MNC FX Risk* (AFP, 1999)
  - *A Risk Metric Approach to Hedging* (GTA, 2002)
  - FAS 133 chapter of *The Handbook of International Finance & Accounting* (John Wiley, 2004)
- Formerly VP-International Treasury at American Express, AT at Seagram and at D&B; CPA at PW
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GTA Senior Directors

- Hugh Brocklesby
  - Former SVP & Treasurer of a commodities trading company and Lloyds banker
- George Caravanos
  - Former AT at Compaq
- James Hodge
  - Former AT at IBM and AT&T
  - UofC Ph.D. economist

Why Clients Choose Greenwich Treasury

- Corporate treasury expertise
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About Reval

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

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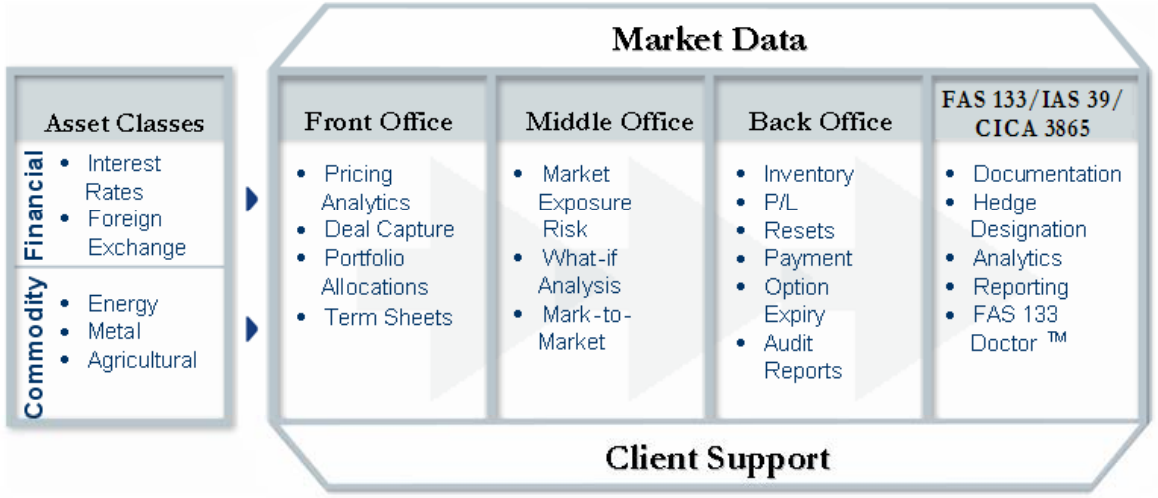

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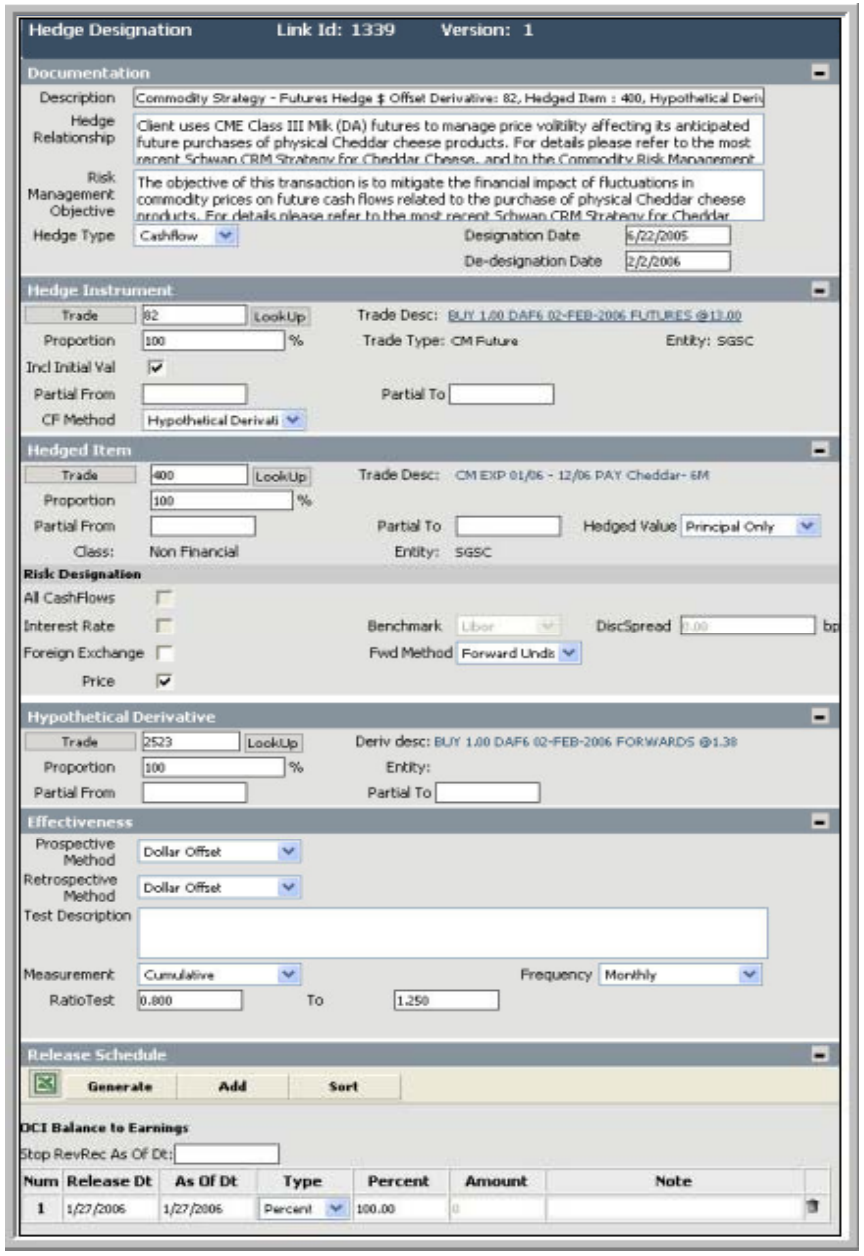

- From inception and on-going documentation to debits/credits
- Effectiveness testing
  - Auto-Regression Tool
- Diagnostics: FAS 133 Doctor™ and IAS 39 Doctor™
- Hedge management possible at:
  - Strategy Level
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Reval Contacts

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Thank you for your participation.