



# Corporate Commodity Risk Management

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# Topics Covered

- Growing importance of commodity hedging
- Modern corporate risk management
- Hedging commodity risk vs. FX risk
- Common commodity hedging mistakes
- Understanding your net commodity risk
- Managing your net commodity risk
- Accounting for your net commodity hedging
- About Greenwich Treasury Advisors



# Growing Importance of Commodity Hedging

- Nearly all worldwide commodities are priced in USD
- The long-term trend for the USD is bearish
  - % of central bank reserves declining
  - American causes well-known to the world
  - Last 5 years of EUR/GBP/RMB/etc. appreciation
  - Other economies are getting better, really better
- Law of one price
  - If supply and demand does not change, a declining dollar means higher USD commodity prices
  - Oil prices in euro terms have been more stable



# Modern Corporate Management Philosophy

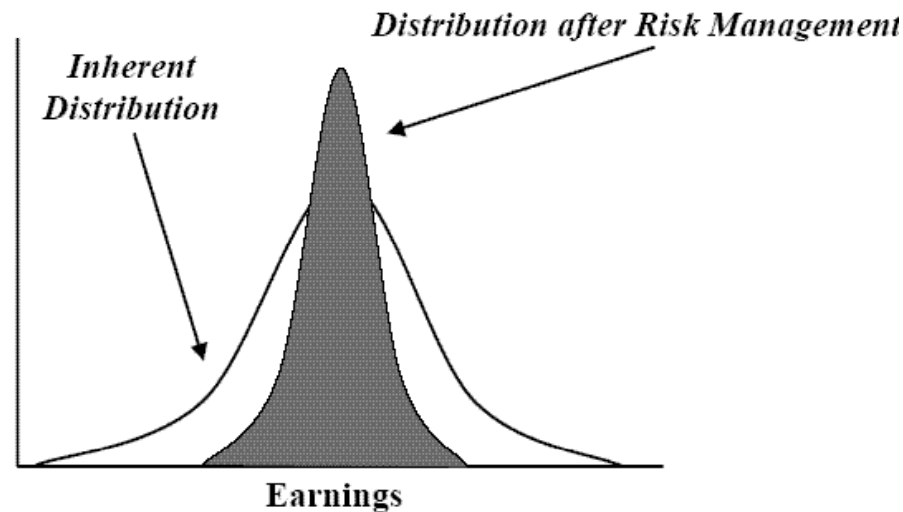
- A firm maximizes profit by taking risks only in areas in which it has unique expertise and experience; e.g.:
  - IBM: computer technology and related services
  - Microsoft: software technology
  - Wal-Mart: retail distribution
- A non-financial firm minimizes risks in areas in which it has no unique competitive advantage:
  - Foreign exchange risk
  - Interest rate risk
  - Commodity risk



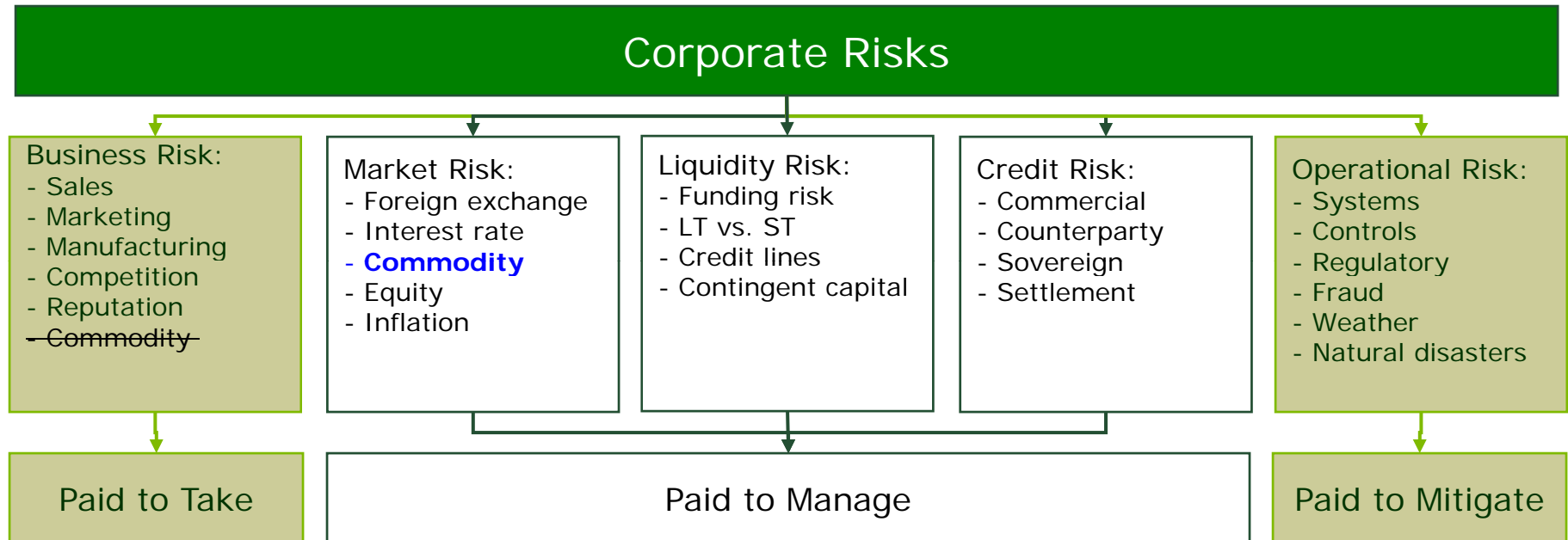
# Modern Corporate Risk Management — 1

Active risk management creates shareholder value through better stock price performance by:

- Stabilizing earnings and dividends
- Communicating clear expectations and risk profile to the stock market
- Lower discount rate and related WACC



# Modern Corporate Risk Management — 2



# Modern Corporate Risk Management — 3

Modern corporate risk management is:

- The effective hedging of *business-generated* financial exposures and (ancillary) commodity exposures
  - Measures of effectiveness include those outlined in FAS 133
  - Pragmatic, performance-based standards
  - Not hedging significant risks is speculative
- By definition, hedges must mitigate risk
  - “Hedges” that increase risk are speculative



# Modern Corporate Risk Management — 4

A modern risk management program is sustained over a period of time with these objectives:

- Raising the awareness level of key risks in the business (risk exposure reporting)
- Proactively mitigating significant risks so as not to exceed senior management's defined worst case (risk tolerance level)
- Incorporating risk management into capital allocation decisions (risk-adjusted returns)
- Strong controls and meaningful reporting to senior management (governance)



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# Commodity vs. FX Risk — 1

- Commodities are often more volatile than FX
  - More difficult to short (always can borrow currencies)
  - Supply can be volatile due to long lead times in mines coming on-stream or weather (draught, Katrina)
- Counterparty risk is larger
  - Nearly all commodities are traded on an exchange which manages this risk
  - FX is almost entirely an OTC market between banks



## Commodity vs. FX Risk — 2

- Nearly all commodity hedging has basis risk — difference between how the commodity is priced for purchase vs. priced for derivatives
  - Chicago manufacturer buys natural gas at Chicago Citygates prices vs. NYMEX/OTC derivatives based upon Henry Hub prices in Louisiana
  - Qualitative differences can be substantial
    - #2 lead derivatives vs. #3 lead purchasing
- For this reason, FAS 133 hedge accounting is substantially more complex for commodities than FX



## Commodity vs. FX Risk — 3

- Within a corporation, FX risk is often diffuse and at cross-purposes, while commodity risk is generally concentrated at manufacturing
  - A plant manager has a strong incentive to manage commodity risk because he is focused on managing costs
  - FX risk is often shared between the foreign unit GM who is measured in local currency terms vs HQ measured in USD
  - As a result, commodity risk management metrics are generally better than FX metrics



# Common Mistake #1: Purchasing Department

- Letting purchasing manage commodity risk
  - Rarely have financial risk management education
  - May not have controls experience
  - Often more focused on price rather than counterparty risk
- Recommendation
  - Treasury responsibility
  - Special commodity risk committee of manufacturing, purchasing, treasury, controllers and senior management



## Common Mistake #2: Sales Contracts

Allowing sales people to fix commodity prices in long-term contracts without a proper review at contract inception **and** during the contract life

- Does get business (and commissions) at the risk of underpricing
- Escalator clauses providing the appearance of relief, but perhaps not
  - And no calculation of the actual offset to the purchase price risk
- FAS 133 embedded derivative risk
- There is **no substitute** for not reviewing the sales contracts on a regular basis



# Common Mistake #3: No Options

Refusing to use options as hedges because they are “too expensive”:

- Typically, these are same people that think every-thing evens out over time
- In other words, the spot and forward markets are efficient, but the option markets are inherently inefficient and always overpriced
- Behavioral economics show that it is a hard-wired human instinct to avoid paying now to avoid a possible future loss



## Common Mistake #4: Fiscal Year Hedging

- Since plant managers are often measured on meeting fiscal year budgets, there is a tendency only to hedge for the fiscal budget year
  - Only until the next year's budget is close to being finalized is the next year's commodity exposures hedged
  - As if the risk does not exist until there is budget!
- Best practice is to have a rolling hedging program for a given hedging time horizon
  - Extend your hedging every month/quarter a further month/quarter out to the new end of the time horizon



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# Understanding Your Net Commodity Risk — 1

Nearly always, derivatives do not fully cover the full purchase risk, aka basis risk, and this basis risk needs to be understood:

1. Understand **exactly** how you purchase the commodity
  - At a particular day, such as month-end, spot price?
  - At an average price for the month?
  - Based upon what kind of index (e.g., Rocky Mountain FERC)
  - What kind of spread on this index - fixed \$ or % or some sort of sliding scale?
  - Is it a pure spot transaction or are purchases based upon a long-term take-or-pay contract at spot?
    - The latter contractual exposure is a FAS 133 a fair value, not cash flow, hedge
  - There is **no substitute** for not looking at all of the contracts



# Understanding Your Net Commodity Risk — 2

2. Understand the economics of the commodity
  - Is it dependent upon another commodity?
  - Is there a persistent pattern of backwardation or contango?
  - Subscribe to trade newsletters to understand the current supply and demand factors affecting price
3. Talk to your suppliers (or their suppliers) about possible OTC and exchange traded derivatives to hedge your risk
  - Suppliers are in general the most knowledgeable since hedging their commodity risk is a risk that they are paid to manage
  - Find out who the major market makers are
    - May be the producers rather than the banks or the exchanges



# Understanding Your Net Commodity Risk — 3

4. Talk to your suppliers about changing the purchase contract terms
  - The best hedging solution is to get a fixed rate contract from your supplier, but this is often not feasible
  - Second best is to price off of a tradable derivative index
  - Third best is to fix the spread above the purchase index
5. Having determined the best possible contract terms and that derivative hedging is your only alternative, decide whether to execute your derivatives on an exchange or with a bank on an OTC basis
  - Many companies prefer the convenience of using their bankers, but may well pay more than they need to for the convenience
  - The larger the program, the more the economics favor at least some exchange hedging



# Understanding Your Net Commodity Risk — 4

6. Analyze your basis risk:
  - Historic mean, high/low, median and standard deviation of the spread between your spot price and the derivative's index spot price
  - Also regress your commodity purchase spot against the derivative index spot and review R-squared, etc.
    - Will need to do this regression for your FAS 133 testing using the “dual-spot” effectiveness method discussed later
  - May also want to do both analyses for the derivative index spot and your purchase index spot before the supplier spread
    - E.g., Rocky Mountain FERC vs. NYMEX Henry Hub
    - You want to confirm that the indices are highly correlated



# Understanding Your Net Commodity Risk — 5

The above process assumes that you cannot shift the commodity risk to your buyers, which may or may not be the case and that needs to be factored in several ways:

- Can your sales contracts have commodity price triggers?
  - If so, then this offset reduces the size of your commodity risk exposures
- How well is the pricing of new bids reflecting current **and hedged** commodity prices?
  - Ignore this at your peril



# Managing Your Net Commodity Risk

- Do historic simulations of your actual purchases (**and any nettable sales**) against standard hedging strategies to determine the key hedging parameters:
  - Hedging time horizon
  - Hedging instruments - forwards vs. forwards and options
  - Hedge ratios
  - Hedging metrics
- Common (passive) hedging strategies are:
  - 0% vs. 50% vs. 100% hedged with forwards (50% best)
  - Using 25% options and 75% forwards for your hedge %
  - Layered hedging (e.g. 10% 6 quarters out, 85% 1 quarter out)



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# Accounting for Your Net Commodity Hedging — 1

Commodity hedging under FAS 133 is a complex subject that can only be dealt briefly here:

- Essentially, FAS 133 requires that you prove that change in the fair value of the derivative is 80-125% of the change in the fair value of the all-in price of the forecast commodity exposure
  - This is a rigorous performance standard
  - Requires accurate forecasts
- The problem is that you have imperfect hedges because of the basis risk between the derivative index and the purchase index
  - Imperfect hedges is an economic risk
  - Imperfect hedges have FAS 133 P&L ineffectiveness risk



## Accounting for Your Net Commodity Hedging — 2

- To prove that a hedge is effective, regression analysis is always a much better test than dollar offset
  - More complex to do, but having 30 data points to smooth out inherent commodity volatility is safer than the dollar offset's 2 data point test
- The problem is that it can be difficult to determine the change in the fair value of forecast commodity exposure if the purchase index is not tradable — i.e., there's no future market
  - What to do to satisfy FAS 133?



# Accounting for Your Net Commodity Hedging — 3

- Spot prices for your purchased commodity always exist
- It can often be better to document your hedges for FAS 133 purposes using the “dual-spot method”, documenting
  - Protecting against the risk of spot-to-spot changes in the forecast exposure, which is easily determined (not against changes in fair value at forward rates discounted)
  - Excluding the forward points in the derivative
    - Difference between spot and forward price
    - Forward points get amortized over the life of the contract
  - Regressing spot purchase prices against derivative index spot prices, which you have already determined are highly correlated



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# Jeff Wallace

- Founded GTA in 1992, and author of:
  - *The Group of 31 Report: Core Principles for Managing MNC FX Risk* (Association for Finance Professionals, 1999)
  - FAS 133 chapter of *The Handbook of International Finance & Accounting* (2004, John Wiley)
- Advised over 50 companies and six system vendors, Financial Sciences, FXpress, Principia Partners, Simcorp, SunGard and Wall Street Systems, on FAS 133 compliance
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# About Greenwich Treasury — 1

Since 1992, Greenwich Treasury Advisors has been delivering integrated treasury solutions for over 300 global businesses:

- Risk
  - FX/IR/commodity risk assessment and policies
  - FAS 133/Section 3865/IAS 39 hedging and documentation
  - Performance measurement
  - Best practices
- Cash
  - Global liquidity management
  - Cross-border cash consolidation
  - Bank reviews and RFP development



# About Greenwich Treasury — 2

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- For more info, visit [www.greenwichtreasury.com](http://www.greenwichtreasury.com)
  - Free articles on risk management, FAS 133, treasury systems and treasury maxims at </articles.cfm>



# Why Clients Choose Greenwich Treasury

- Corporate Treasury Expertise
  - Each consultant brings over 25 years of **corporate** treasury experience
- Proven methodologies
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- Collaborative approach
  - We work as part of your team
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  - Or we will return your fee

