CORVELLE CONSULTING

Effective Controls for Energy Trading

ISACA Spring 2012 Conference
Calgary
May 2012

Corvelle Drives Concepts to Completion

Objectives

- Provide a quick overview of a business area
- Give you some ideas if you are asked to audit a marketing or trading group
- Different conditions

Surprise!

MAY 11, 2012, 8:58 PM **INVESTMENT BANKING**

The Bet That Blew Up for JPMorgan Chase

BY PETER EAVIS AND SUSANNE CRAIG

Brendan Mcdermid/Reuters

Traders work at the New York Stock Exchange post that deals in JP Morgan Chase stock.

When will Wall Street stop springing these types of nasty surprises?

Mark Perrin Biography

- 30 years of Information Technology, Engineering and Finance experience in upstream oil and gas
- Increases value clients receive from their investments in information technology
- Manages projects that arise from opportunities to leverage technology
- Risk Analyst and managed IT teams supporting marketing and risk management

Agenda

- Who is Corvelle?
- Why have controls for energy trading
- What's in scope
- What are the risks
- Controls to look for
- Different conditions

Corvelle Profile

- Consulting firm focused on the oil & gas industry
  - Experienced with oil & gas spanning more than 20 years
  - Implemented systems for field data capture, production accounting, financial accounting, marketing and risk management
  - Led development of EPAP for the ERCB
  - Leading EPAP implementation projects
- Management consulting, data management & IT
  - Project leadership
  - Process review & redesign
  - Data quality & integration
  - Facilitation

Why Have Controls?

- Management sets expectations
- Based on expected cash flow
- While participating in volatile markets

What's in scope for energy trading?

- Physical deals
- Commodity hedging
- Foreign exchange hedging
- Interest rate hedging

What are the risks?

- Portfolio goes out of bounds
- During normal operation
- During a system upgrade

Portfolio Boundaries

- Risk tolerance is set by management based on portfolio metrics
  - Mark to Market
  - Price scenarios
  - Value at Risk
  - Hedgeable volumes

What is rogue trading?

- Trades on the side
- Not capturing deals
- Trading beyond limits without reporting

Why might this be a problem?

Portfolio being monitored does not reflect the company's true exposure in the market

Deal capture systems reflect the actual portfolio

- All deals entered into deal capture system
- Interfaces between systems
- If the deal capture system isn't current, it doesn't reflect the true exposure

Errors in estimating underlying position

- Cash flow protection vs. speculation
- Foreign exchange exposure
- Hedging

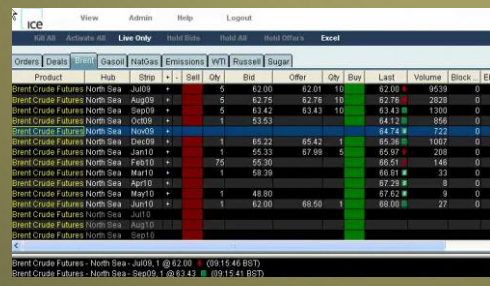
How would you audit to identify these errors?

Controls

- Business processes have various types controls
- System-based controls support the business process controls

Preventative Controls

- Data entry
- Interfaces
- Deal confirmation
- Commodity prices



What would we audit around commodity prices?

Detective Controls

- Interface error logs
- Periodic comparison of the data
- Logs of inappropriate access attempts
- Recorded conversations

Compensating Controls

- Oversight
- Reconciliation

Calculation of Metrics

Mark to Market

- What is Mark to Market reporting?
- Issue is the day over day change
- Caused by volatile instruments

What can you audit?

Walk through a sample calculation

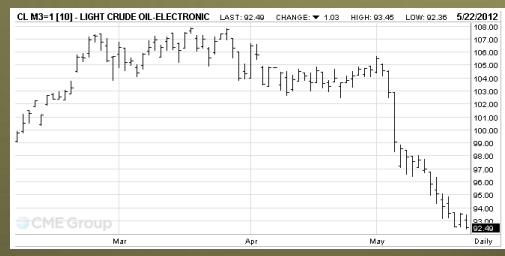
Instruments marked to the correct price curve

Price Scenarios

- A simple metric to look at impact of commodity prices on revenue
- Parameters set by management

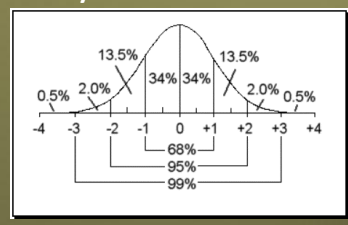
What can you audit?

The parameters in the model



Value at Risk

- VaR is an estimate of the probable worst case decline in portfolio value over a certain time horizon
- Affected by instrument volatility
- What can you audit?
  - Horizon
  - Confidence interval



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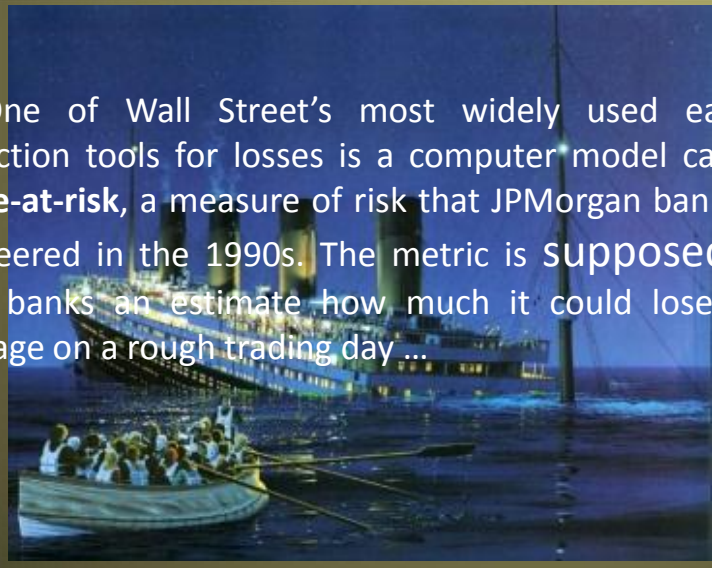
Metric failed

… One of Wall Street's most widely used early-detection tools for losses is a computer model called **value-at-risk**, a measure of risk that JPMorgan bankers pioneered in the 1990s. The metric is supposed to give banks an estimate how much it could lose on average on a rough trading day …



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Hedgeable Volumes

- Management sets volume to hedge
- Accuracy of volume forecast
- Accuracy of hedge portfolio

How can you audit?

Ask how they know their calculations are accurate

Various operating conditions

- Normal day-to-day operations
- When there is a cutover to a new system or system version

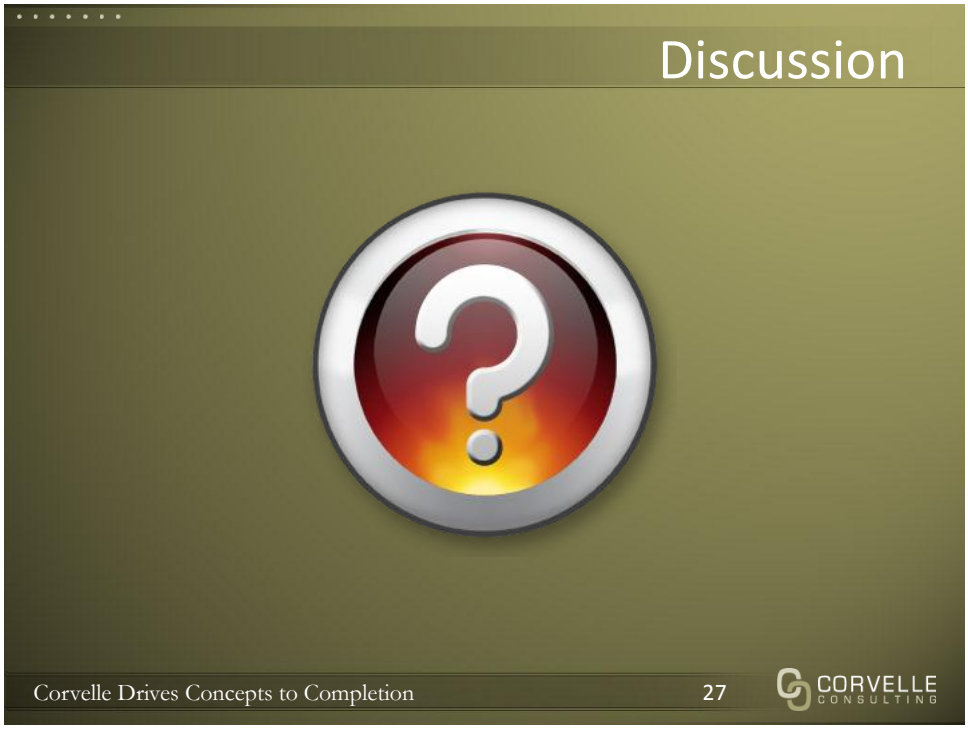
Change in Methodology

… On Thursday, Mr. Dimon explained how JPMorgan was tripped up with its value-at-risk measure. In the first quarter, he said, **the bank deployed a new model** that under-estimated losses on the hedges…

JPMorganChase

Summary

- Provided a quick overview of an area you may have little exposure to
- Gave you some ideas if you are asked to audit a marketing or trading group
- Under different conditions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