
Treasury Performance Measurement: Metrics and Benchmarks

March 17, 2003



Session Agenda

- Show the wide variety of possible metrics and benchmark standards to stimulate ideas
 - Introduce the concept of marking-to-future rather than marking-to-market
- Propose metrics for these key treasury processes:
 - Foreign exchange
 - Interest rate risk
 - Cash management

Physicists, Poets and Treasurers on Metrics

“If you don’t measure it, you cannot improve it.”

Lord Kelvin
1824-1907

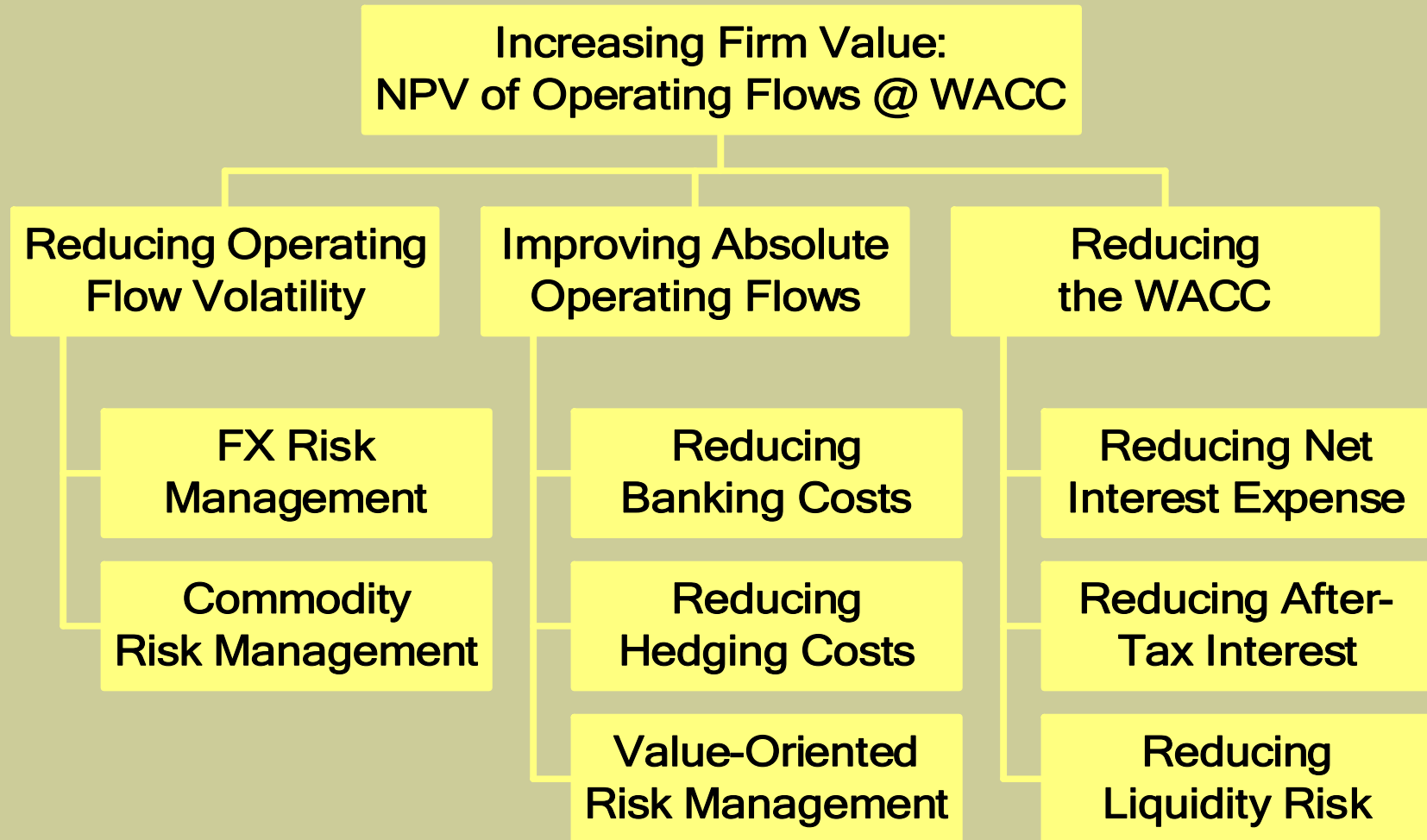
“Writing poems without a meter, is like playing tennis without a net.”

Robert Frost
1874-1963

“When I became Treasurer with no previous treasury experience, I was amazed to discover that the Treasury was a metrics-free zone.”

— Fortune 50 Treasurer
1999

How Treasury Adds Value



Three Major Problems

- The measurement of the Treasury valued added is very often not a GAAP measurement.
 - And the most popular GAAP metric is whether the hedges made money
 - Which is a loser's game for Treasury
- Many Treasuries have a fear of being measured because they feel too much is outside their control
 - Inaccurate internal positions and forecasts
 - Volatile financial markets
- Often understaffed and lacking sufficient systems, Treasury then rationalizes that they can't waste their time on metrics because there are too many holes in the dike that need attention

The Solution

- Until Treasury develops and publishes its own metrics against fair benchmarks, no one really knows what how well Treasury performs
 - Except when Treasury loses money on hedges
- Fairness requires
 - Determining what Treasury can legitimately be held accountable for
 - Market-based benchmarks rather than fixed benchmarks
 - Several performance measures
- Developing metrics with fair benchmarks is an effective way to clarify what are achievable treasury objectives

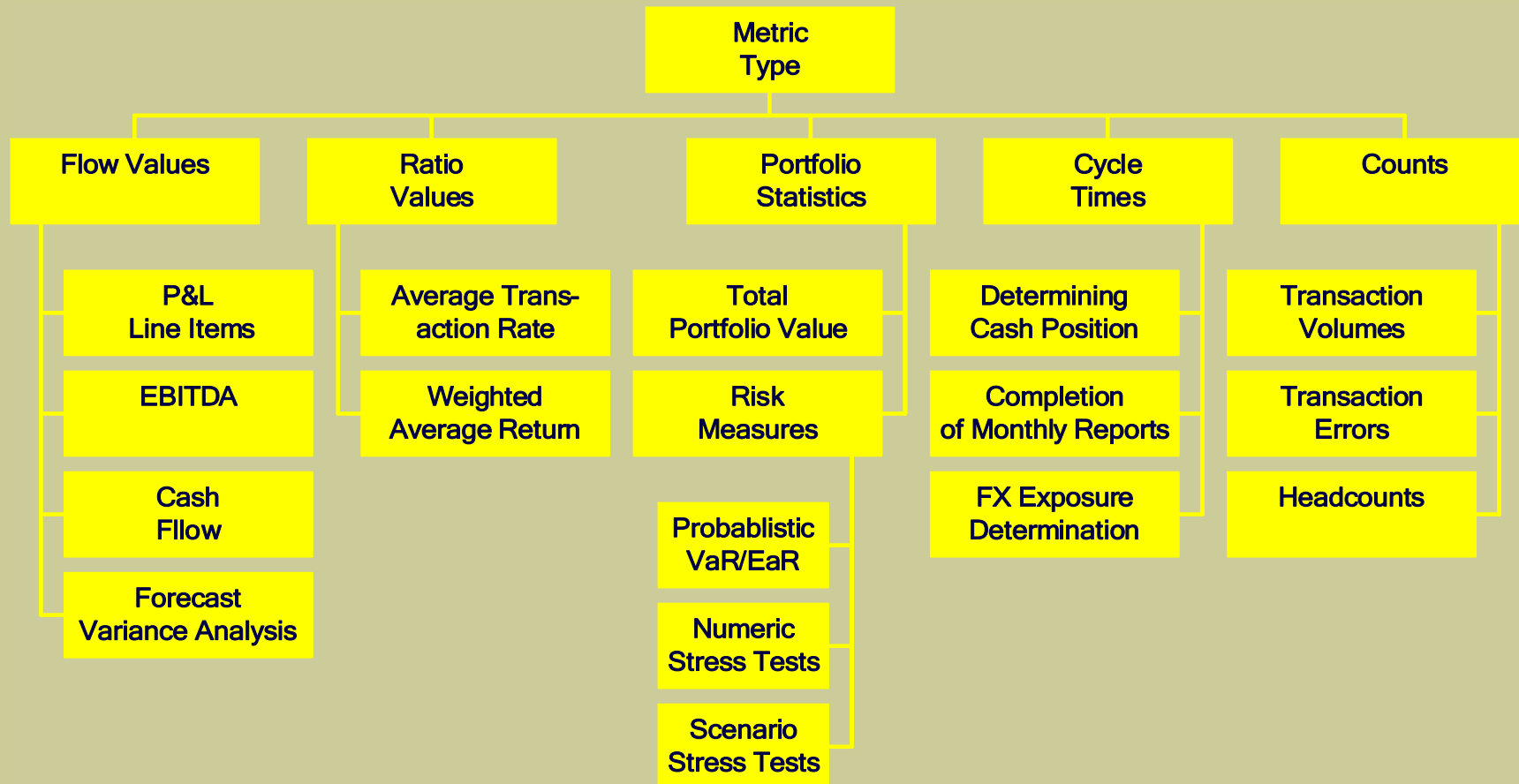
Performance Measurement

In three words, we want fair performance measures, which involve:

- A metric, a methodology for calculating a number summarizing some kind of treasury activity over a specific period
- A benchmark or standard so that we can evaluate whether actual performance per the metric is satisfactory

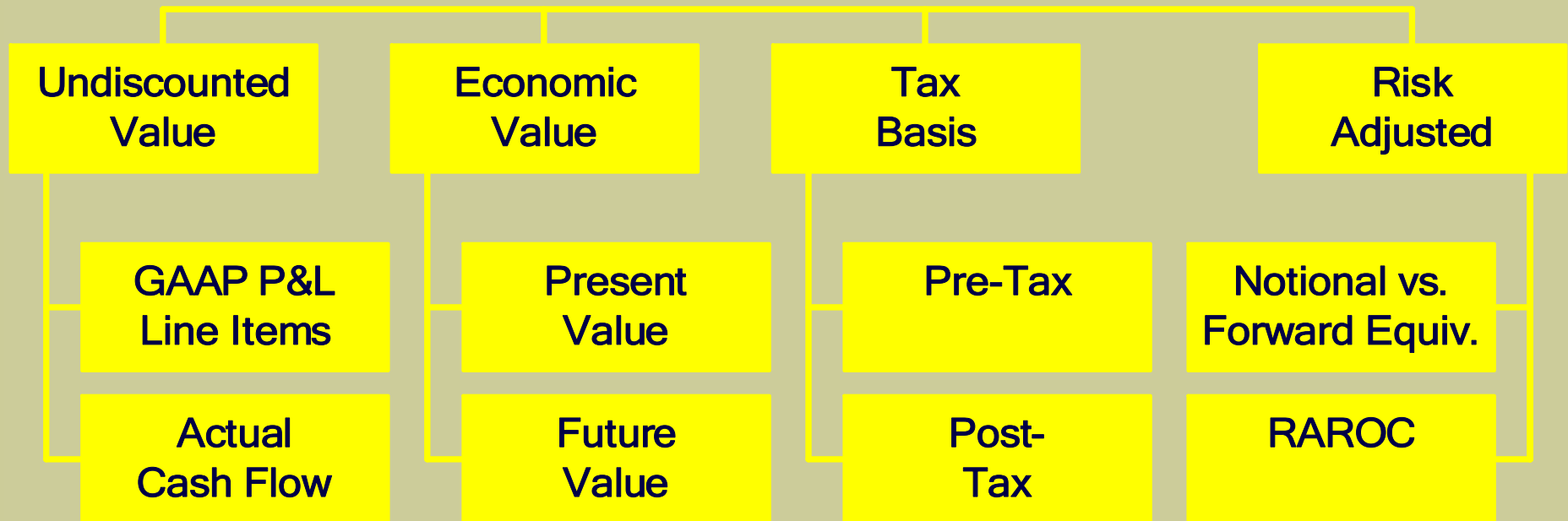
Metric Types

There are at least five different metric types:



Measurement Basis

In addition to standard statistics such as means, modes, high/low, and standard deviations, a given metric can be calculated in several different ways:



Marking-to-Future — 1

- Future value (marking-to-future or MTF) is often a more informative metric than present value (marking-to-market or MTM):
- MTM generally involves only the derivative position, closing out the position using current market forwards and discounting the future net
- Corporate hedging using FAS 133 deferral accounting is focused on managing future period results — the value of the AOCI reclass plus the hedged underlying
 - MTF measures the complete FAS 133 value of the future period — underlying plus hedges, assuming that everything is locked in with forwards
 - I.e., the same as closing out a position with no discounting, only the position is the entire forecast exposure plus existing hedges

Marking-to-Future — 2

Example: Hedging forecast 4Q03 revenue of EUR 100, and as of 1QE03 the market rate for the 4Q03 is, say 1.08, with

- EUR 40 of forwards at .95, MTM = loss of \$5.1
- EUR 25 in options at a strike of .95 and MTM = \$0.1, which originally cost \$0.5
- EUR 35 is unhedged
- The MTM is a \$4.6 loss vs. a MTF of \$103.3:

Hedged EUR 40 @ .95	\$38.0
Actual option premium*	(0.5)
Sell OTM option covering EUR 25*	0.1
Replace option with EUR 25 forward at @1.08	27.0
Lock-in unhedged EUR 35	\$37.8
Marking-to-Future	\$102.4

*Actual 4Q04 AOCI reclass for these transactions would be a \$0.4 loss

- At 4QE02, a similar calculation had a MTM loss of \$2.5MM and MTF value of \$99.3.

Marking-to-Future — 3

- What is more valuable for management to know
 - In 1Q03, that Treasury lost \$2.1 ($4.6 - 2.5$)= in hedging 4Q03 Euro revenue?
 - Or, by using options and not covering EUR 35, Treasury's management of the 4Q03 Euro Revenue increased by it \$3.9 ($103.2 - 99.3$)?
- Assuming that there is no risk of forecast error, Treasury could indeed lock-in 4Q03 revenue at 103.3 under FAS 133
 - It is as real as selling the derivative position for a \$4.6MM loss
- MTF is an effective way to evaluate the impact of the decision not to hedge a portion of the exposure and the decision to use options

Benchmarks – 1

A calculated metric by itself is relatively meaningless unless it is compared to a benchmark, i.e., a performance standard:



Benchmarks – 2

- Many metrics do not have absolute benchmarks
 - For example, how does one evaluate the metric of the company's total number of bank accounts?
- In these cases, the benchmark can be:
 - The prior period's result or the change or % change from the prior period
 - Multi-period trend analysis
 - % of total portfolio value (e.g., VaR/Portfolio Value)
- When using the prior period results, consider restating the prior period to be comparable to the current period
 - For example, restate last year's P&L using this year's FX rates and then do an MD&A
- Consider benchmarks developed from the financial reports of your industry, sales size, etc. peers

Fairness Adjustments – 1

To adjust for inherent operational volatility that is beyond Treasury's control:

- Separate investment and debt portfolios into at least two portfolios
 - A core portfolio vs. a "liquidity" portfolio
 - Use the same metrics but different benchmarks
- Use forecast variance analysis to isolate the cost of forecast error
- Use benchmark ranges for acceptable performance

Fairness Adjustments — 2

For metrics which have no intrinsic or easily determinable “best” benchmark

- Long-term trend analysis
 - Number of bank accounts over time
- Ratios against relevant corporate operating statistics
 - As some function of sales, total assets, etc.

Other Comments – 1

- Treasury operational processes, such as cash management or trading back trading operationals, have easy to calculate cost and transaction volume metrics
 - What they lack are industry standard benchmarks
 - TQM and Six Sigma techniques are useful
- Hedging processes metrics are hobbled by conflicts between “economic” vs. GAAP-based metrics
 - Total return of an investment portfolio vs. book returns
 - Some of these conflicts can be resolved by focusing on future value metrics rather than present value metrics

Other Comments — 2

- Historical trend data needs at least three data points
 - Two points do not make a trend
- Particularly in hedging processes, one should not only benchmark the actual hedging, but also should benchmark the actual hedging policy parameters
 - Use a model option hedge portfolio to evaluate whether a forwards only hedging policy is still appropriate
 - Evaluate the opportunity cost of not hedging the year after the end of the policy's hedge time horizon

Metrics for Managing FX Risk

The benchmarks for these kinds of metrics are generally per the FX hedging policy

- FX Exposure or position limits
- Minimum hedge ratios
- Min/max or range hedge ratios
- Limits for what is "at-Risk", either VaR or EaR
- Aggregating currencies provided correlation is acceptable
- Numeric or statistical stress testing
- Scenario stress testing

Metrics for FX Hedging Results

- Derivative mark-to-market
- Future value of existing hedges against
 - Hedged positions (i.e., not full expected position)
 - Full forecast position
- Average transaction rate
- FAS 133 ineffectiveness
- P&L FX related to balance sheet FX exposures
- Calculation of forward premium/discount
- Forecast to actual variance analysis of
 - Hedge gain/loss only
 - Hedge plus underlying gain/loss

Benchmarks for FX Hedging Results

- Common but unfair benchmarks are the budget rate and last year's rate
- A fair benchmark is the achievable rate based upon market rates when budget is finalized
- Daily average spot rate
- Daily intraday spot rate (for timers)
- Actual FX results (per metric) vs. the same metric for a model portfolio
 - 0% or 100% forward cover (superficially attractive but meaningless)
 - 50% forward cover or 50% option cover
 - Combinations of option and forward cover
 - Perfectly hedged based upon actuals

Metrics for FX Back Office Operations

Often, these kinds of back office metrics do not have a definitive, best practice benchmark

- Counterparty exposure or position limits
- Average transaction size
 - % of trades <\$500,000 equivalent
- Bank winning bid percentage
- Average pips between the high and low bids
- Bank settlement failures
- Company's settlement failures
- All-in cost of foreign currency payments by payment instrument

Metrics for Managing IR Risk

As in FX, the benchmarks for these risk kinds of metrics are often per the IR Risk Policy — or in the debt covenants:

- Earnings-at-risk (book return basis)
- Value-at-risk (total return basis)
- Floating rate and fixed rate debt as % of total debt
- Weighted average maturity
- Duration
- Convexity
- Company's spread above T's for specific maturities

Metrics & Benchmarks for IR Results

Metrics

- Actual weighted average interest rate
- Future value of interest expense assuming all floating rates fixed with FRA's

Benchmarks

- Investment or debt indices
 - CP benchmarks (GE Capital, Fed rate)
 - Treasury benchmarks by maturity, etc.
- Model portfolio benchmarks
 - 50% fixed/50% floating debt portfolio as "interest rate neutral"
 - Passive maturity approach in which, say, a three year time horizon investment portfolio is divided into three equal yearly buckets
- Spreads above T's/swaps for a given credit rating

Cash Management Metrics – 1

- Cycle time for finalizing cash position
- Cycle time for cash journal entries
- Number of wire transfer requests after 2 or 3 pm
- Number of “lost” wires
- Collections float (bank deposit to good value)
- Disbursements float
- Average end of day available balance
 - Even if swept
 - Weighted average based upon overdraft rates and sweep investment rates
- Actual daily/weekly net cash flow vs. forecast
 - On an absolute basis

Cash Management Metrics — 2

- Average number of bank accounts/unit as well as unit high and low
- Numbers of collections vs. disbursements vs. operating accounts
- Total cost of bank accounts
 - Out-of-pocket bank maintenance fees
 - Cost of transfers out to other accounts
 - Reconciliation costs
- Total banking collections costs (worldwide)
 - Soft dollar cost of availability
- Total banking disbursements costs
 - Soft dollar cost of backwards value plus float benefit
- Ratio/percentage of electronic vs. paper instruments for collections and disbursements

Cash Management Benchmarks

- Prior year results
- Multi-year trend analysis
- Total costs/headcount as a percentage of sales
- Phoenix-Hecht data
- Benchmarking group data

Concluding Comments

- The metrics discussed are largely financial
 - As a service department, Treasury should also be focused on internal customer satisfaction metrics
- In general, favor metrics that
 - Can be applied to different risk classes or different processes
 - Are simple and easy to understand
- However, metrics involving risk are inherently complicated, but often are worth the effort

Greenwich Treasury Advisors

Greenwich Treasury Advisors LLC is an independent corporate treasury consulting firm. Over the last eleven years, we have provided practical treasury and risk management advice in these areas to over 220 clients:

- Foreign exchange and interest rate risk management
- World-class international treasury practices
- Improving in-country and cross-border treasury operations
- Funding strategies
- Small and large group benchmarking

Recent Engagements – 1

- Evaluated treasury and working capital operations in 33 distinct European units of a decentralized \$1 billion specialty paper company, using GTA's web survey technology
 - Used the information to identify immediate, correctable weaknesses and justify a centralized treasury approach.
- Identified areas of best treasury practices for two \$30 billion East Coast manufacturers.
- Performed a private Enterprise Risk Management benchmarking study focusing on FX, IR, commodity, and equity risk for a \$15 billion mid-West consumer goods company

Recent Engagements — 2

- Conducted a review of their FX and interest rate risk management for one of Italy's largest industrial groups
- Implemented a FAS 133 FX hedging program, including designing an in-house FAS 133 forward contract accounting system for a \$300 million luxury goods company
- Advised on negotiation strategies for renewing their \$1 billion revolver for a \$6 billion West Coast high tech company
- Establishing a Latin American treasury for a \$30 billion domestic oil company

GTA Website

Visit www.greenwichtreasury.com

- Treasury articles
 - A Metric Approach to Risk Management
 - The Group of 31 Report: Core Principles for Managing Multinational FX Risk
 - Derivative Accounting & Hedging Under FAS 133
- Program Announcements
 - Teleclasses
 - Benchmarking studies
 - Seminars

Jeff Wallace

- Managing partner, founded Greenwich Treasury in 1992
- Author of *The G31 Report: Core Principles for Managing Multinational FX Risk*, (AFP, 1999, download at www.greenwichtreasury.com) and the FAS 133 chapter of *The Handbook of International Finance & Accounting* (John Wiley, 2003)
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