

Hedging MSR's at ABN AMRO

2003 MBA, National Secondary
Market Conference & Expo

Kent Westerbeck

April 7, 2003

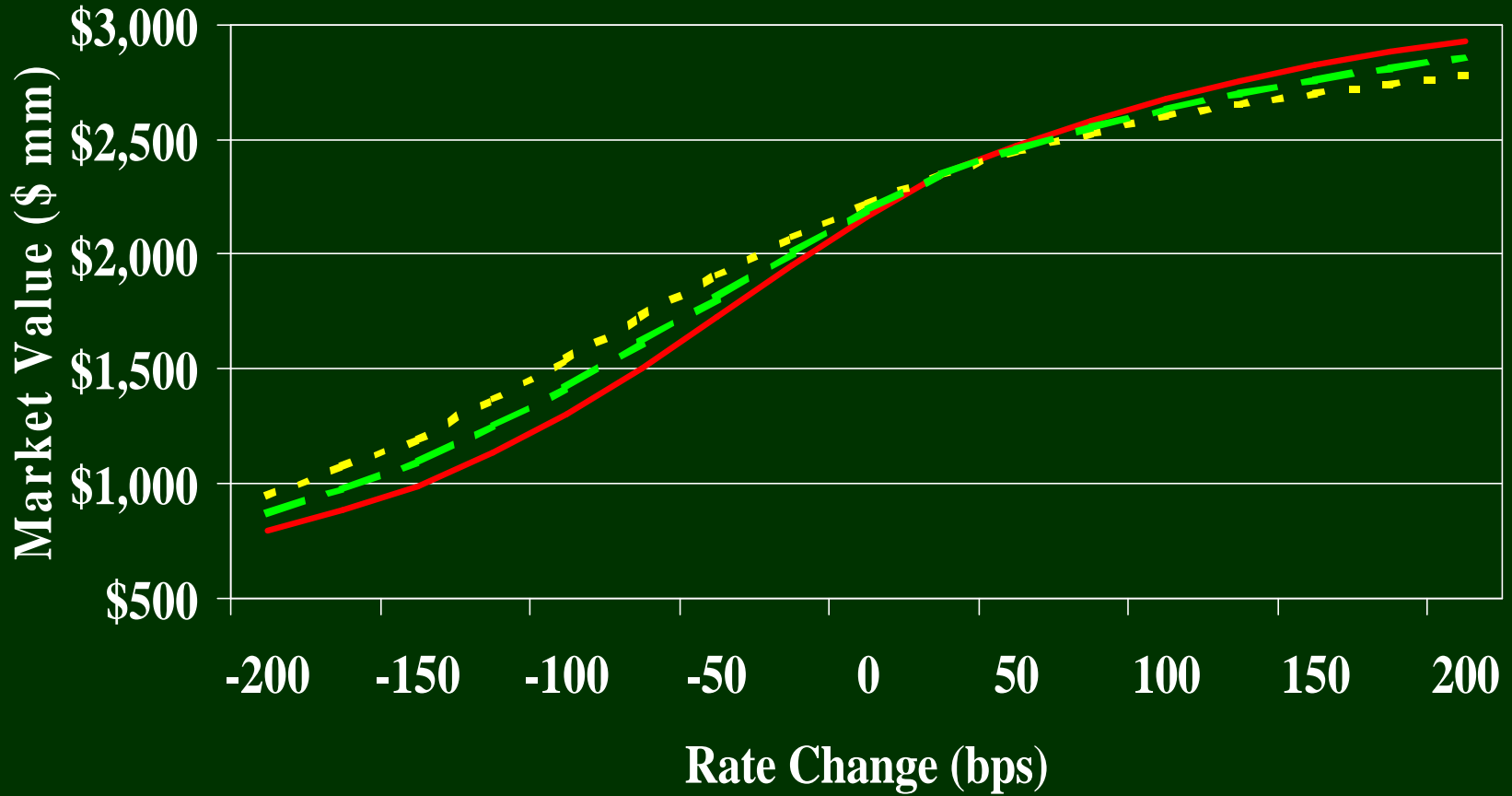
Outline

- Risk profile to hedge
- Risks to hedge
- Instruments used
- Our hedging strategy
- Expected hedging costs

Risk Profile to Hedge

- Constant Static Yield
- Constant OAS
- Variable OAS

Comparing Risk Profiles



— Static Yield - - - Constant OAS - - - Variable OAS

Risks to Hedge

- *Swap rate level*
- *Twist of swap curve*
- *Convexity*
- Mortgage vs swap basis
- Volatility

Instruments Used

- *Swaps (3-mo. or term LIBOR floating leg)*
- *Treasury futures*
- *Swaptions or options on futures*
- POs
- *Passthroughs*
- Agencies or Treasuries
- Structured derivatives

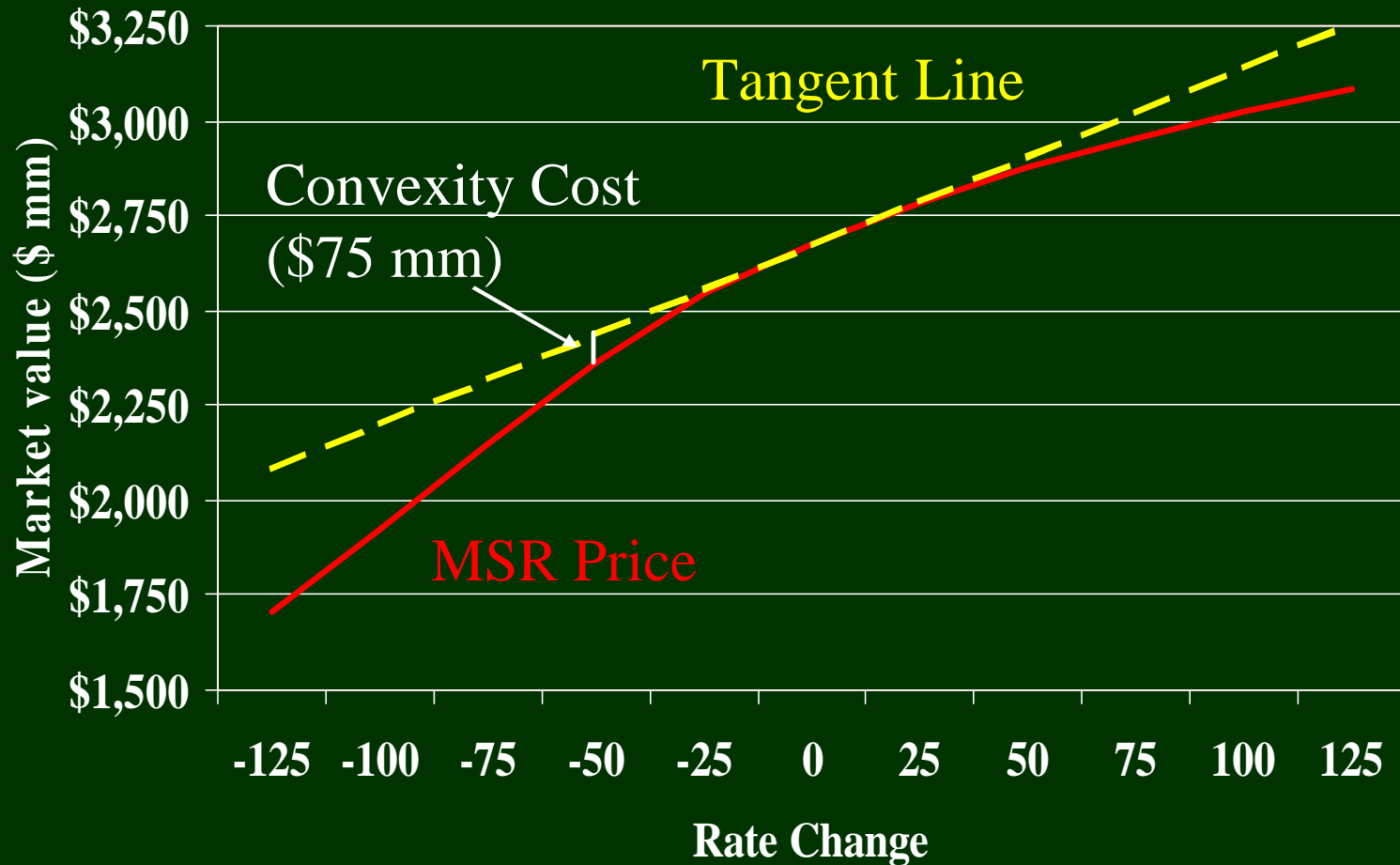
Our Hedging Strategy

- Dynamic delta hedge
- Buy back convexity when excessive or cheap
- Use positive convexity of Origination
- Use some of Origination's duration

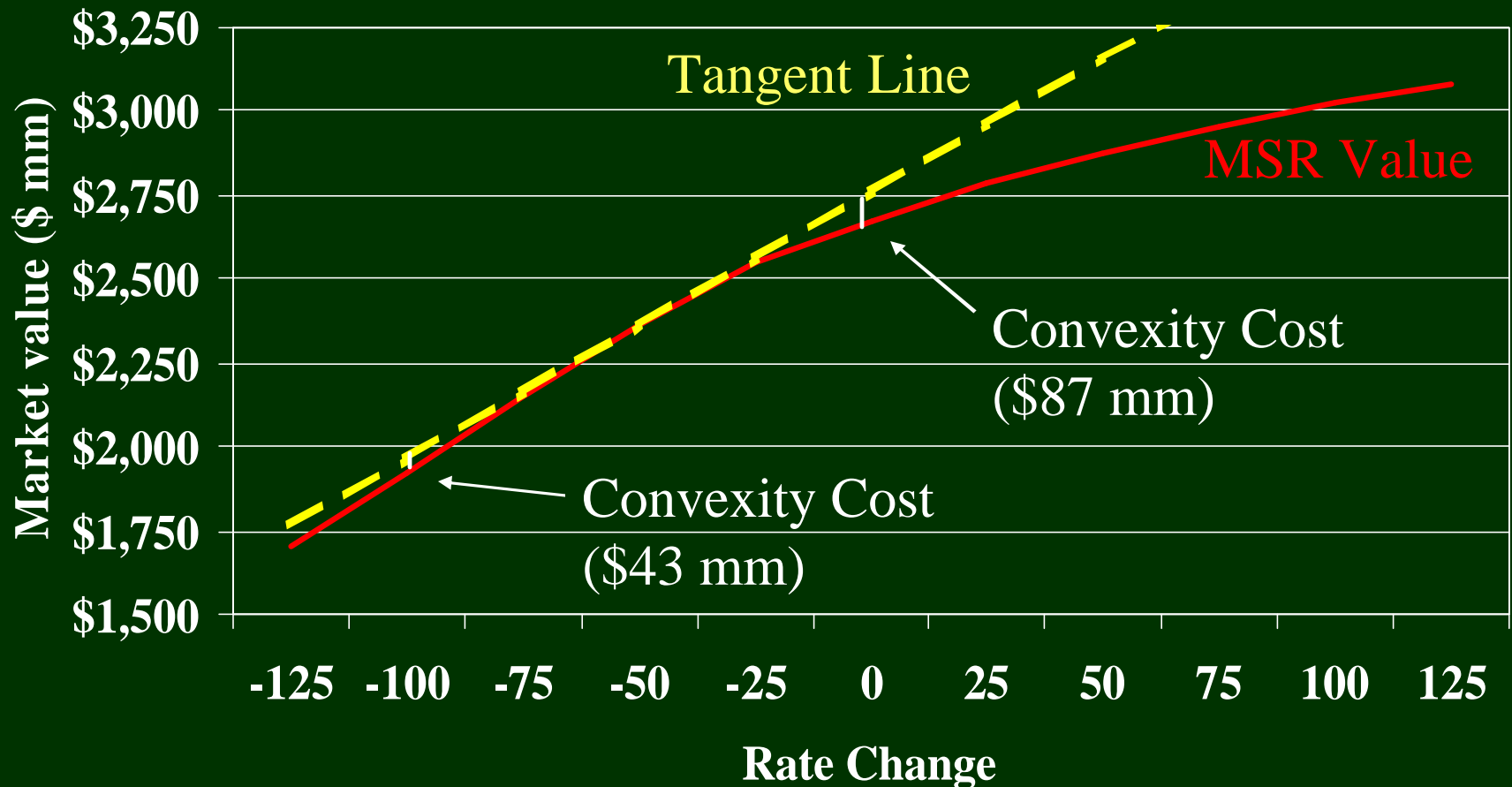
Dynamically Delta Hedge

- Graphical description
- Benefits
- Risks
- Expected costs

Dynamically Delta Hedge

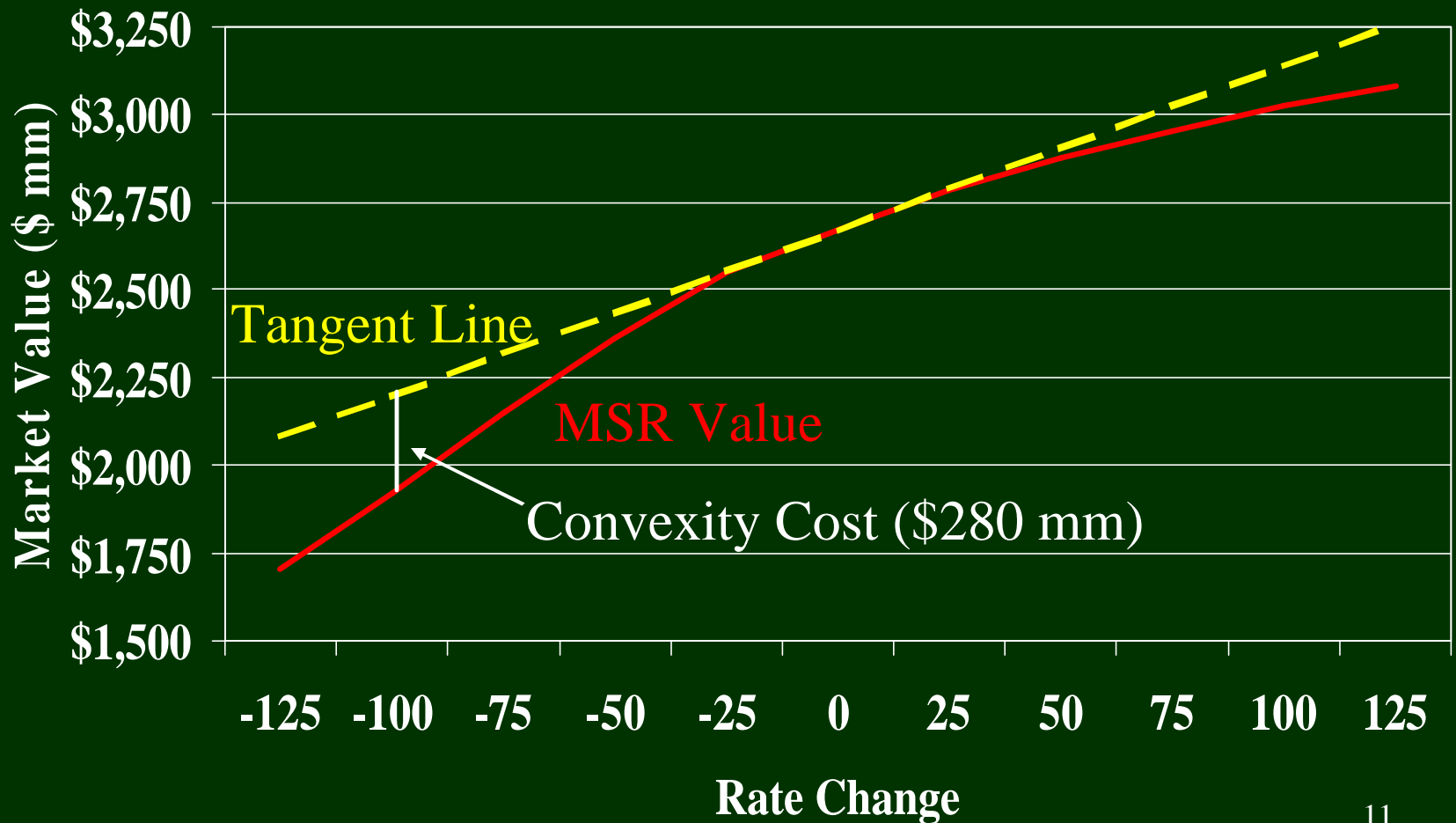


Rebalance Hedge When .50% Rate Decline Changes the Duration



Lost Value if Rates Trend Down 1%

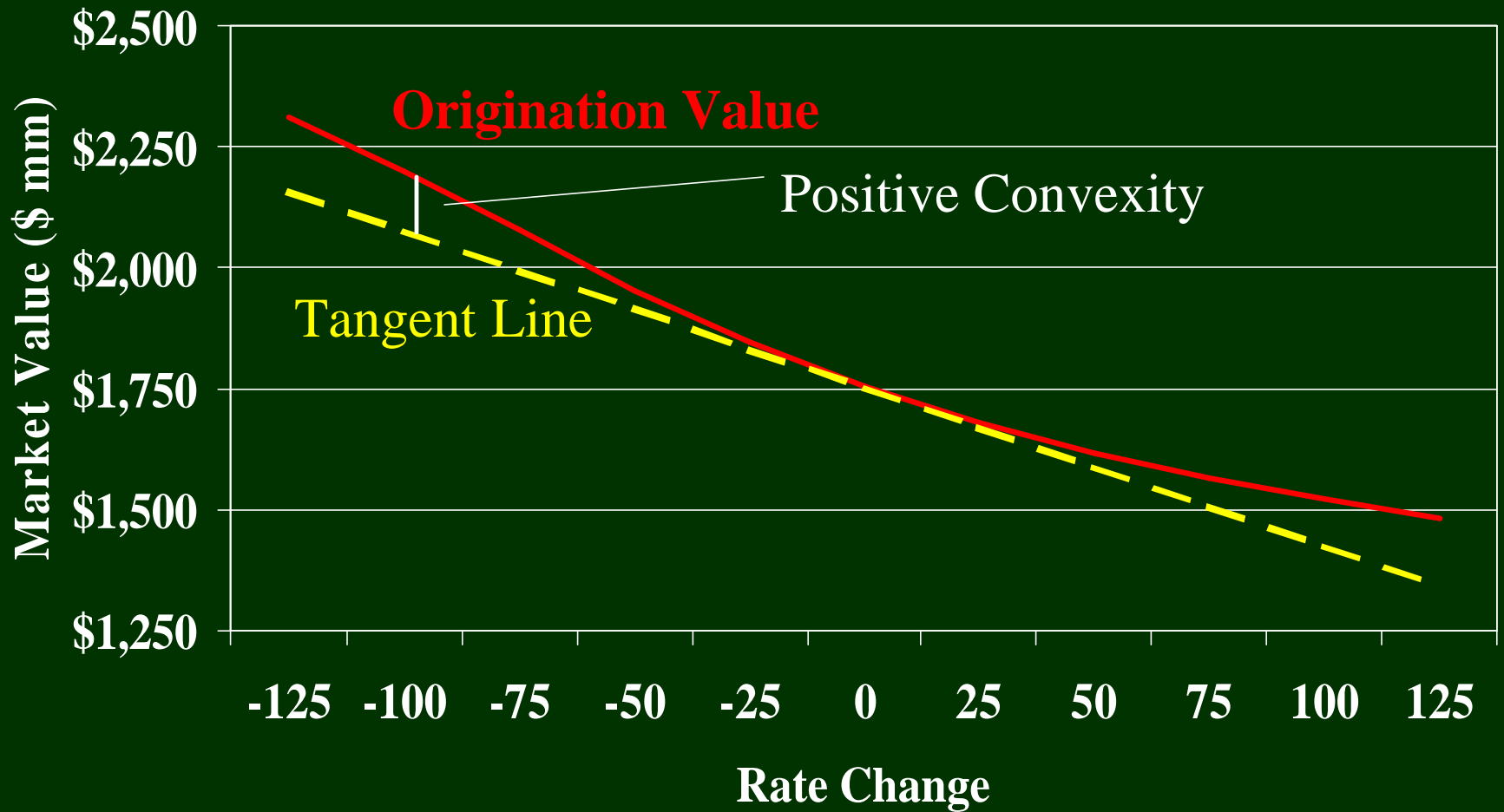
(Assume Hedges Not Re-Balanced)



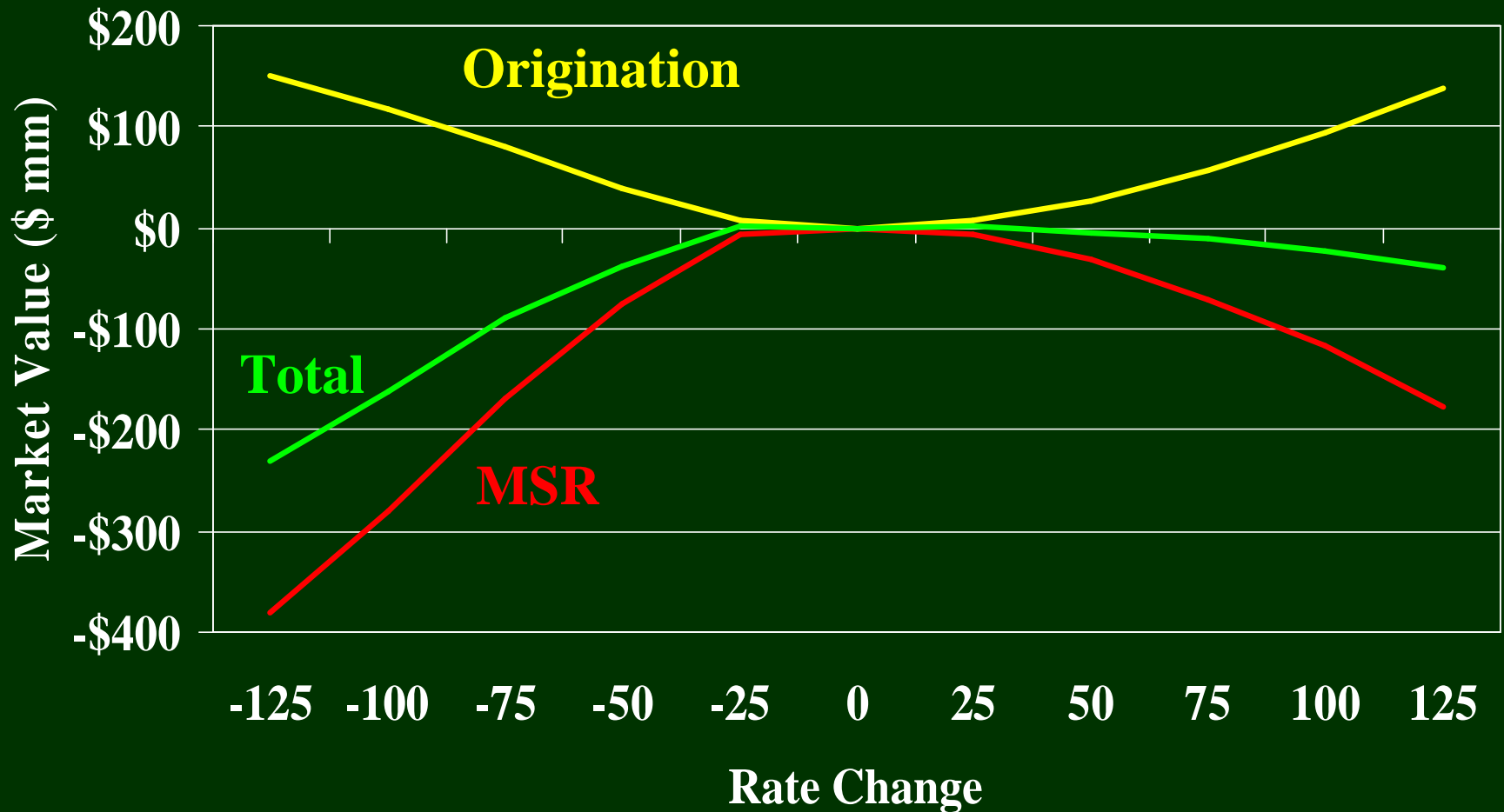
P&L Impact of Dynamic Delta Hedging

- If rates trend down 1.00%, total loss is:
 - \$118 mm, if rebalanced down .50%
(\$118 mm = \$75 mm + \$43 mm)
 - \$280 mm, if not rebalanced down .50%
- If rates fall .50% and then rise .50%, total loss is:
 - \$162 mm, if rebalanced down .50%
(\$162 mm = \$75 mm + \$87 mm)
 - \$0 mm if not rebalanced down .50%

Finding Convexity of Origination



Convexity of Origination & MSR



Our Hedging Strategy

- Dynamic delta hedge
- Buy back convexity when excessive or cheap
- Use positive convexity of Origination
- ***Use some of Origination's duration - Issues:***
 - *Timing of Income*
 - *Size of Cushion*

Dynamically Delta Hedge

- Graphical description
- Benefits
- Risks
- Expected costs

Expected Cost of Dynamic Delta Hedging Strategy

- Short term you earn carry revenue from receive-fixed swaps
- Steeper yield curve implies more carry revenue than normal

Expected Cost of Dynamic Delta Hedging Strategy (Cont.)

- Rebalancing hedges should create average option cost (Zero volatility OAS - OAS) -- about 8.50%
- Don't conclude expected Net Revenue = Static Yield - Option Cost
- Expected net revenue ~ OAS
- Note: Costs occur later
- Excessive revenues up from (oops!!!)

Summary

- Dynamically delta hedge with swaps
- Experimented with Securities as hedges
- Positive convexity of Origination is a partial convexity hedge
- Part of Origination duration used as hedge
- Buy back convexity if:
 - it is excessive
 - it is believed to be cheap
- Expected earnings ~ OAS