15.997 Practice of Finance: Advanced Corporate Risk Management
Spring 2009

Measuring Risk – Dynamic Models

MIT Sloan School of Management
15. 997 Advanced Corporate Risk Management
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Overview

- Factor Risk Profile Through Time – the case of the Random Walk
  - Conditional Forecasts – how do we revise our forecast as time progresses and events unfold?
    - For the Random Walk, the entire forecast is revised, at all horizons.
  - Forecast Confidence Bounds – how does our uncertainty looking forward change with the forecast horizon?
    - For the Random Walk, uncertainty grows unboundedly with the horizon.
- An Alternative Factor Risk Profile Through Time – the case of the Mean Reverting Process
  - Conditional Forecasts – how do we revise our forecast as time progresses and events unfold?
    - For the Mean Reverting Process, the forecast is only adjusted at short horizons, not at long horizons.
  - Forecast Confidence Bounds – how does our uncertainty looking forward change with the forecast horizon?
    - For the Mean Reverting Process, uncertainty approaches a limit or a constant range with the horizon.

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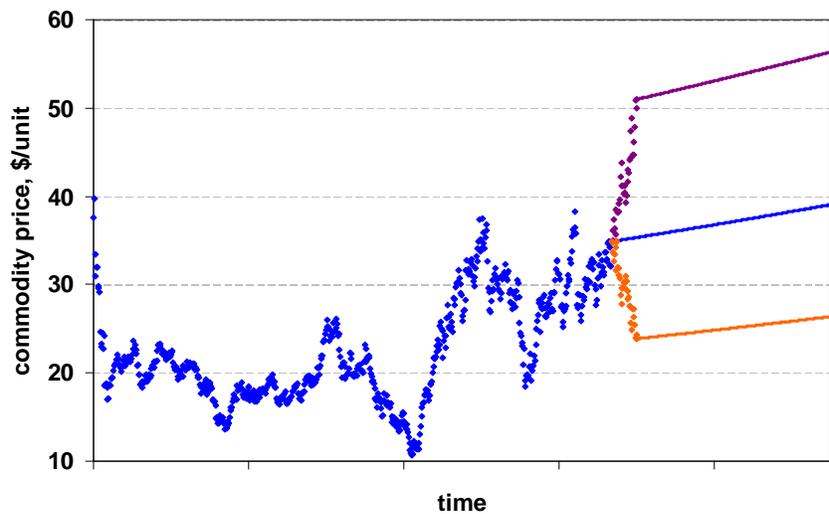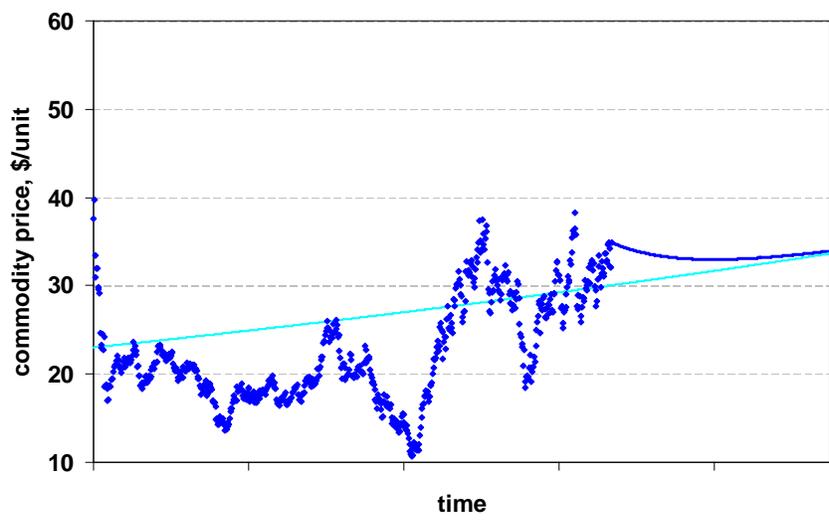## Initial Price Forecast for a Random Walk
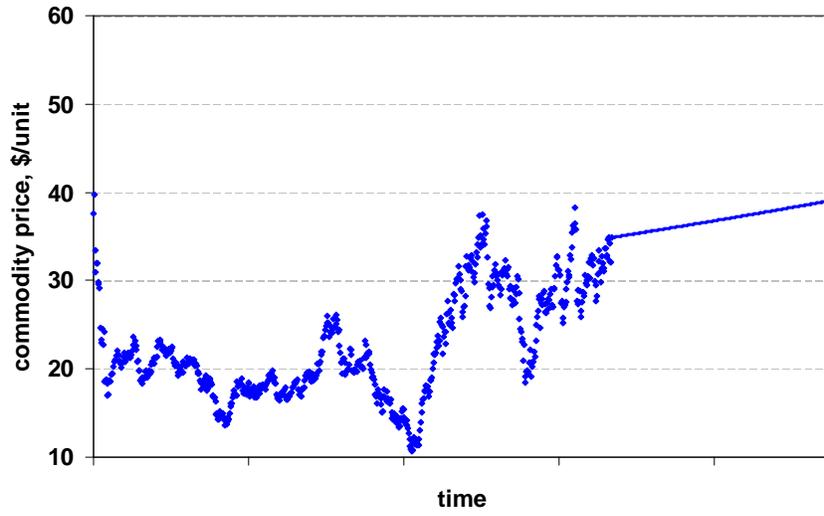
…and a Revised Forecast
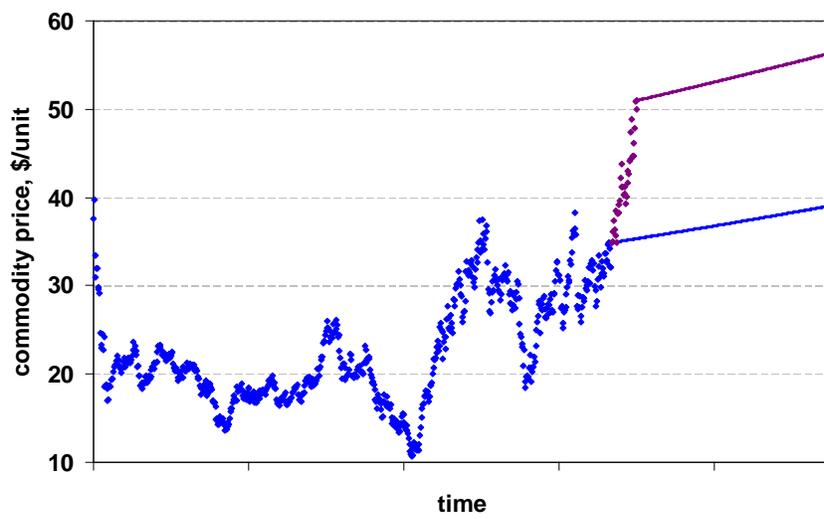
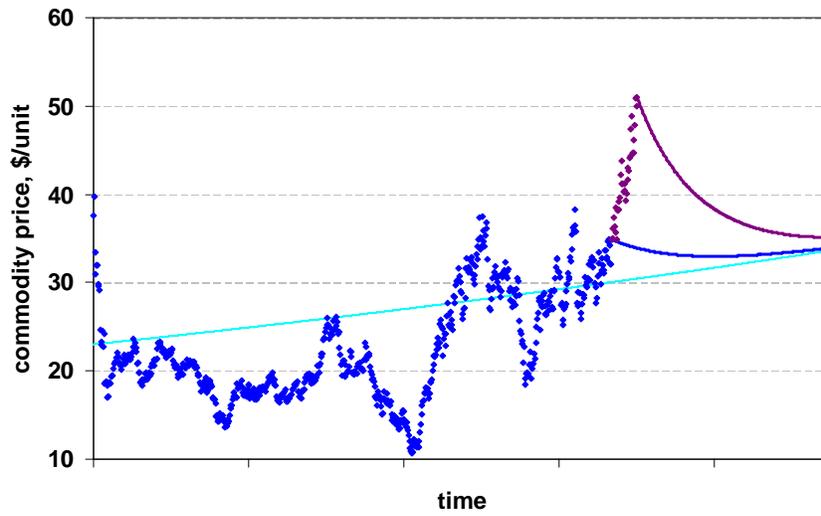## Random Walk Forecasts are Adjusted Equally Throughout All Time Horizons
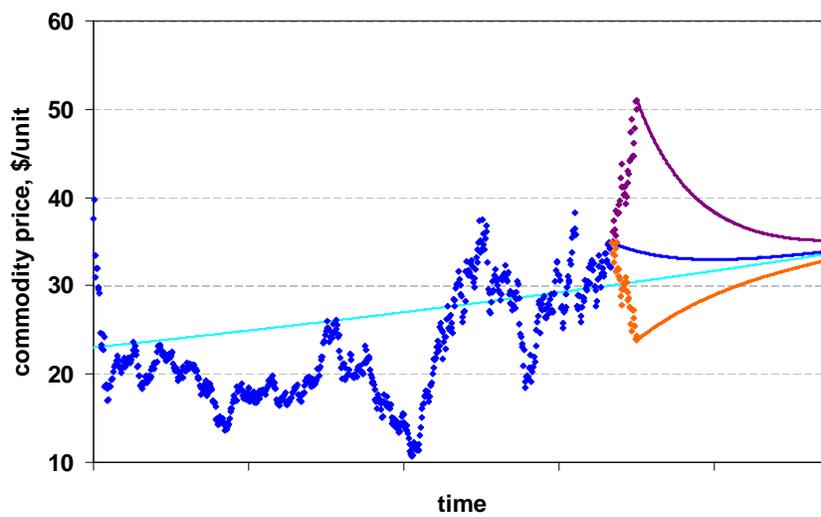

Initial Price Forecast for a Mean Reverting Process
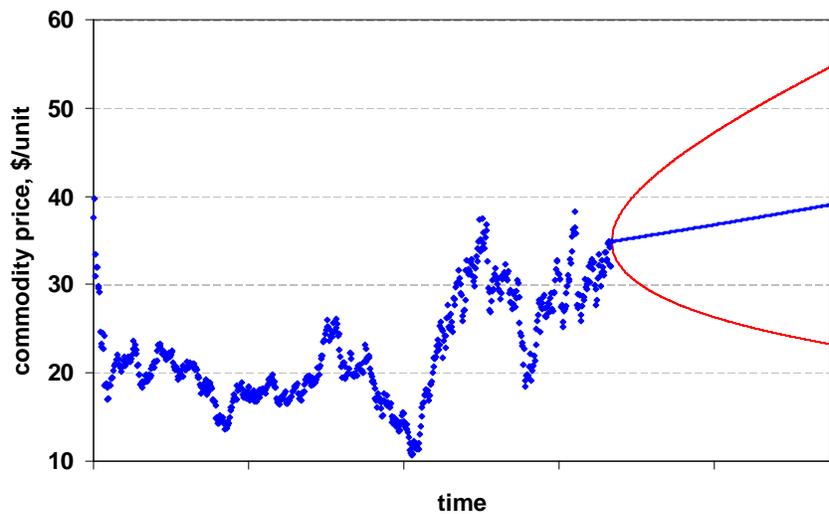
…and a Revised Forecast

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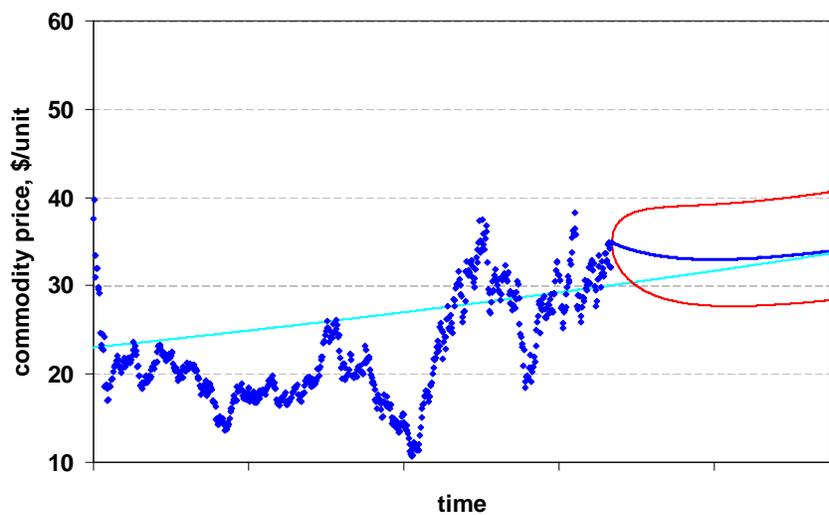## Mean Reverting Forecasts are Adjusted Only At Short Time Horizons

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Confidence Bounds for a Random Walk Grow Unboundedly With Time

Confidence Bounds for a Mean Reverting Process Approach A Fixed Size With Time