# Hard Red Winter Wheat Futures Market

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# What is at the root of convergence?



Futures Market → Warehouse Receipt ✗→ Cash Market

Breakdown in Linkage
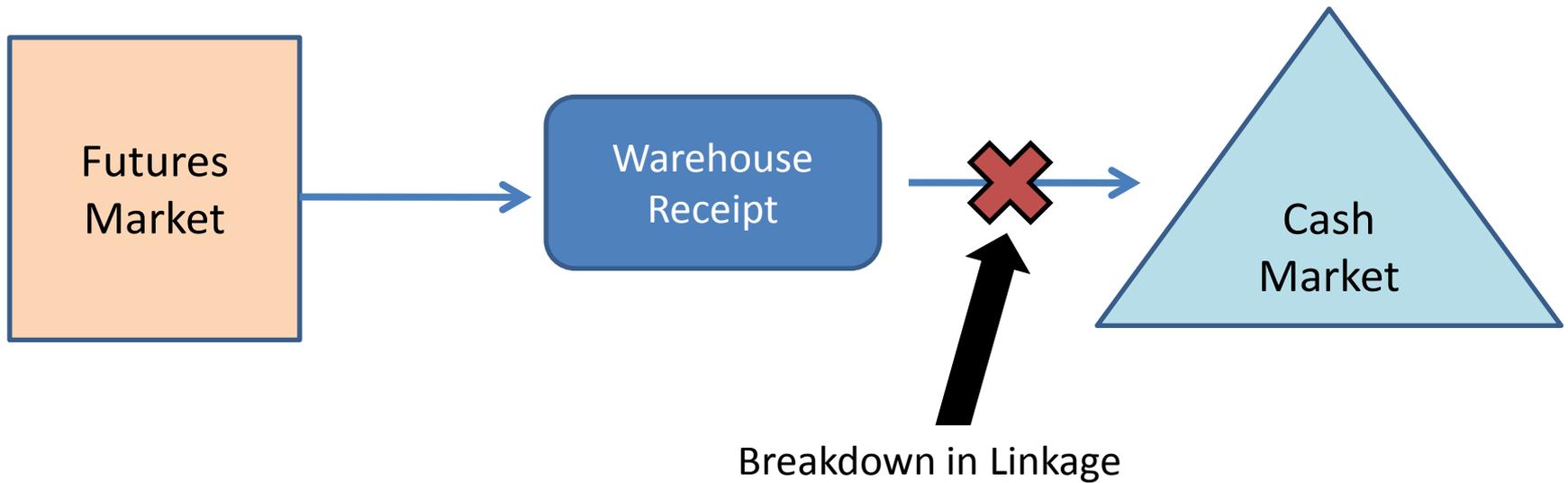
# Futures and Cash markets won't ever be exactly the same



Futures Market

Warehouse Receipt

Cash Market

Sellers   Buyers

Market Dynamics

Storage   Transportation

Frictions

Fundamentals
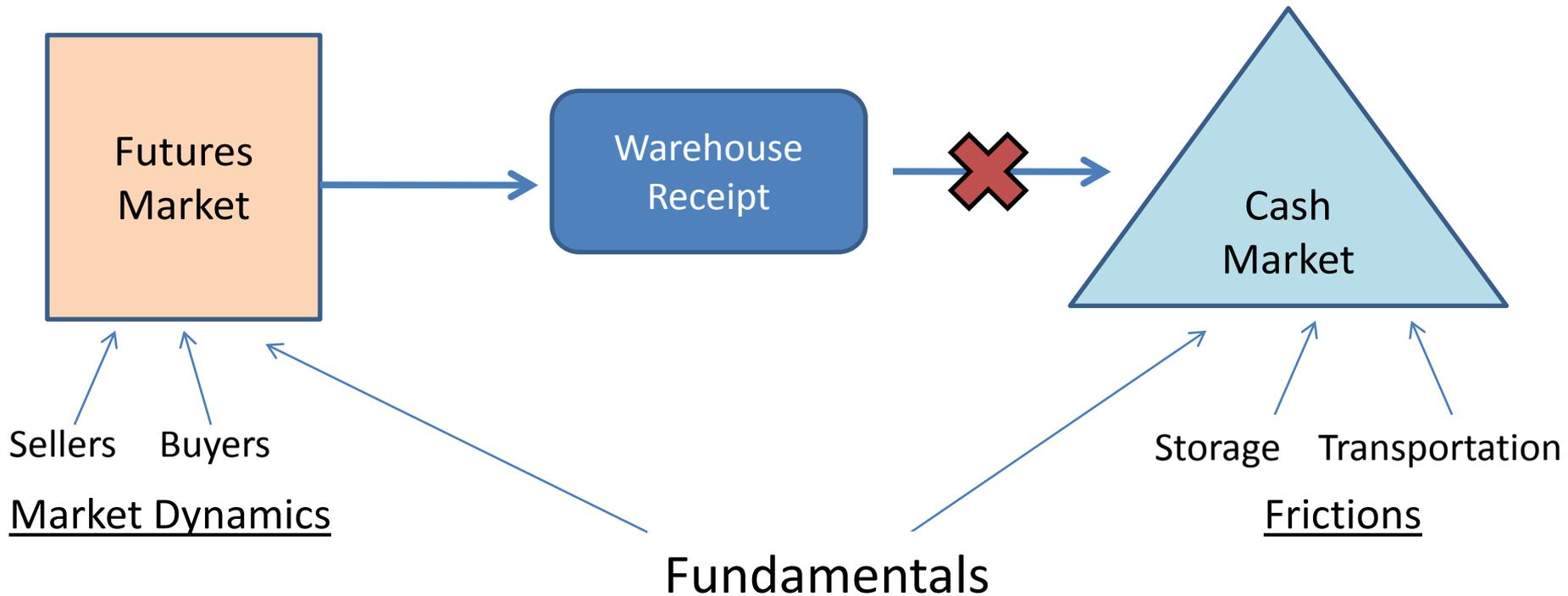
Warehouse Receipt

- At delivery of a futures contract the seller of the contract delivers to the buyer

  – Not by way of a truck or railcar filled with wheat

  – Warehouse Receipt that represents grain stored in a facility

    - Can be held indefinitely by the buyer
    - Storage cost of 4.5 cents/bu. is paid per month
    - Acts as the linkage mechanism between futures and cash market

# Why is this happening?

May Futures $+5.07

March Futures $-4.96

$0.11

$ / bushel

Cash Price $4.34

-4.5c/mo        -4.5c/mo

2/25/10        3/31/10        4/30/10        5/28/10        6/30/10
Exp March Futures

Buy Warehouse Receipt -$4.96
Sell May Futures Contract +$5.07
Pay Warehouse Storage Fees -$0.09

Profit $0.02

Annual Return of

$$\frac{0.02}{4.96} \cdot \frac{365}{60} \cdot 100 = 2.5\%$$

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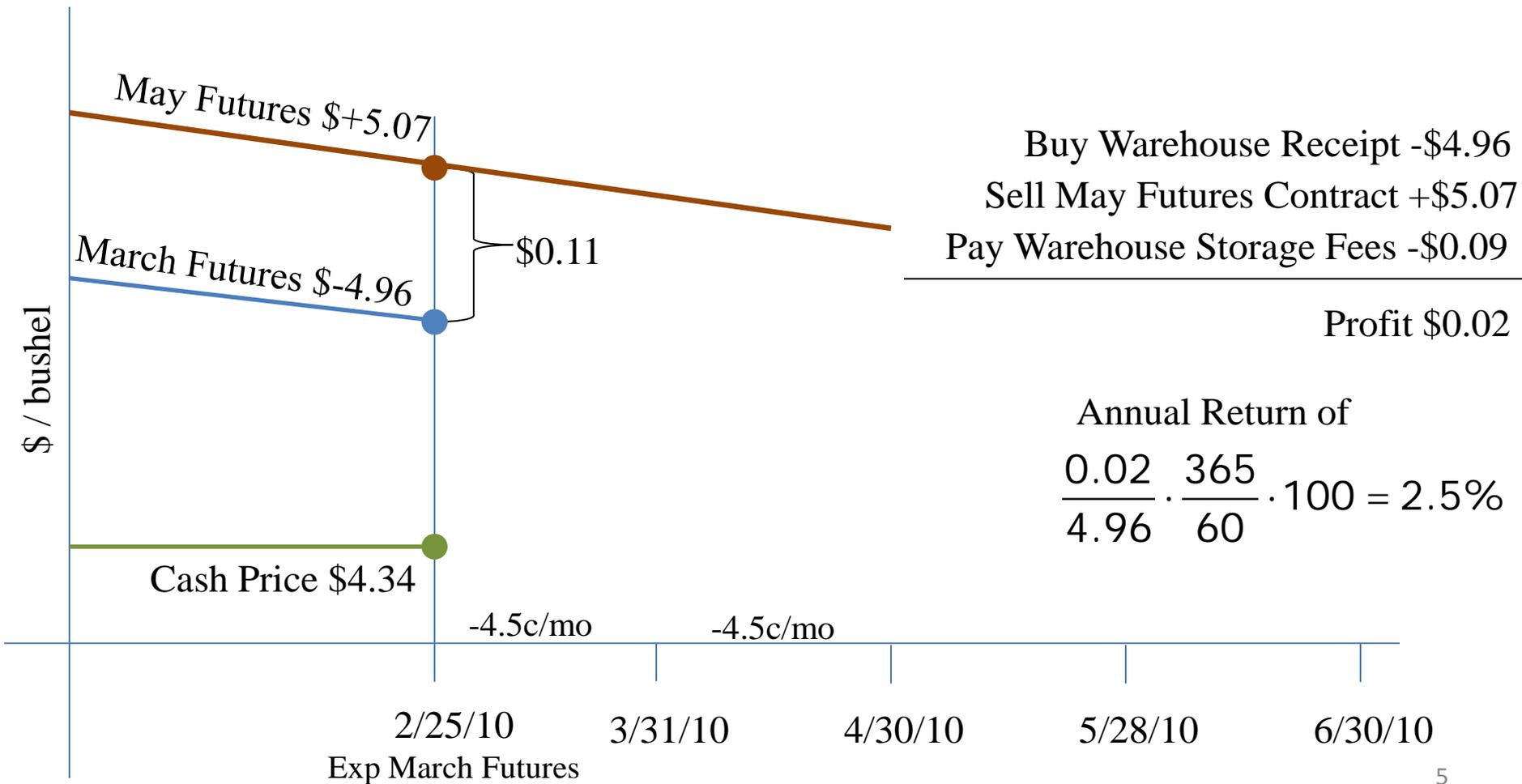
# Option to Repeat Strategy

*Example (3/31/10)*

Warehouse Receipt  -4.96
Close May Futures Position +0.46
Sell July Futures Contract +4.73
Pay Warehouse Storage Fees -$0.18
—————————————————————————

Profit $0.05

Annual Return of

$$\frac{0.05}{4.96} \cdot \frac{365}{120} \cdot 100 = 3\%$$

July Futures +4.73

May Futures +5.07

-4.61

$0.12

March Futures -4.96

$ / bushel

-4.5c/mo    -4.5c/mo    -4.5c/mo    -4.5c/mo

2/25/10        3/31/10        4/30/10        5/28/10        6/30/10
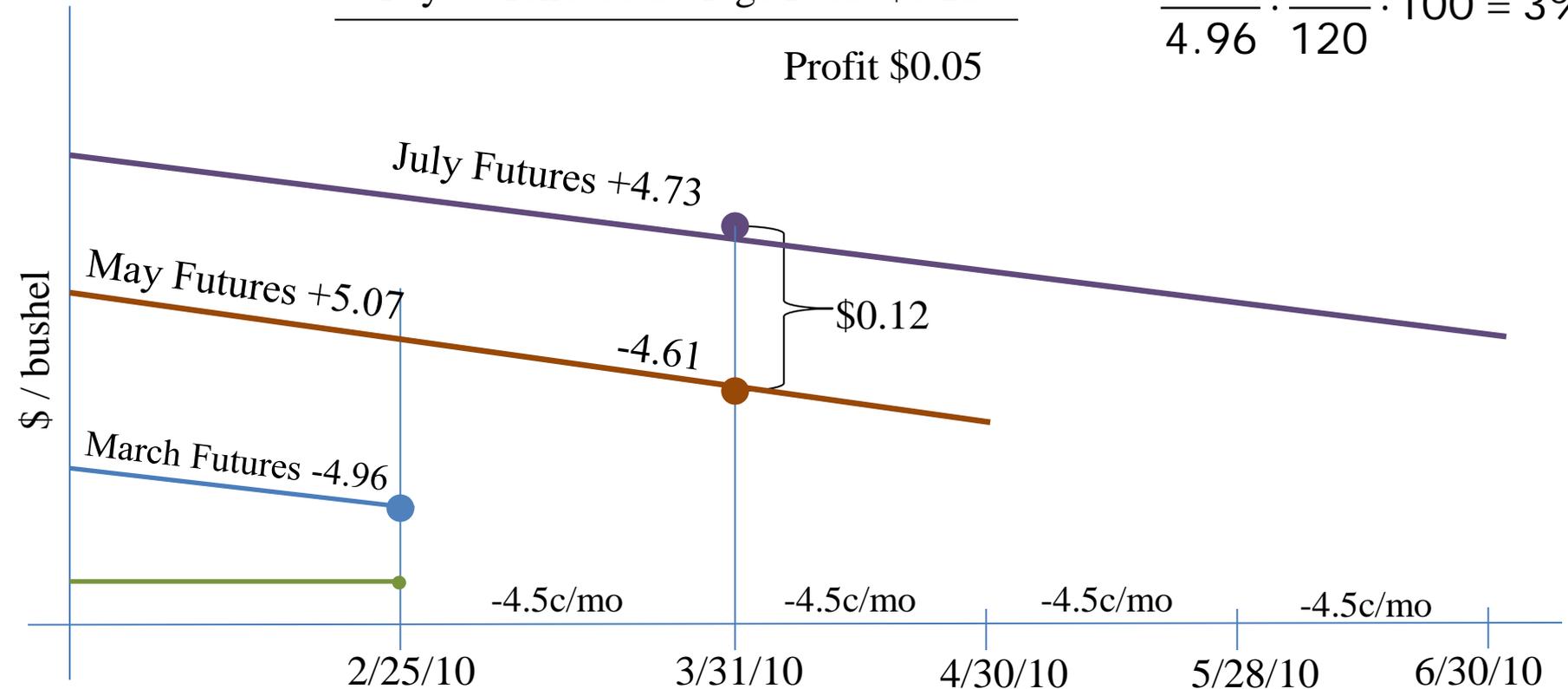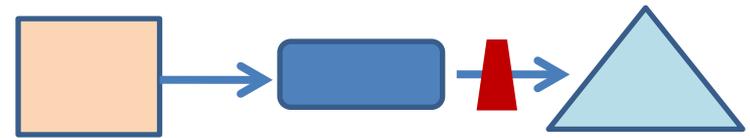
# Wedge between Cash and Futures

$ / bushel

March Futures $4.96

Cash Price $4.34
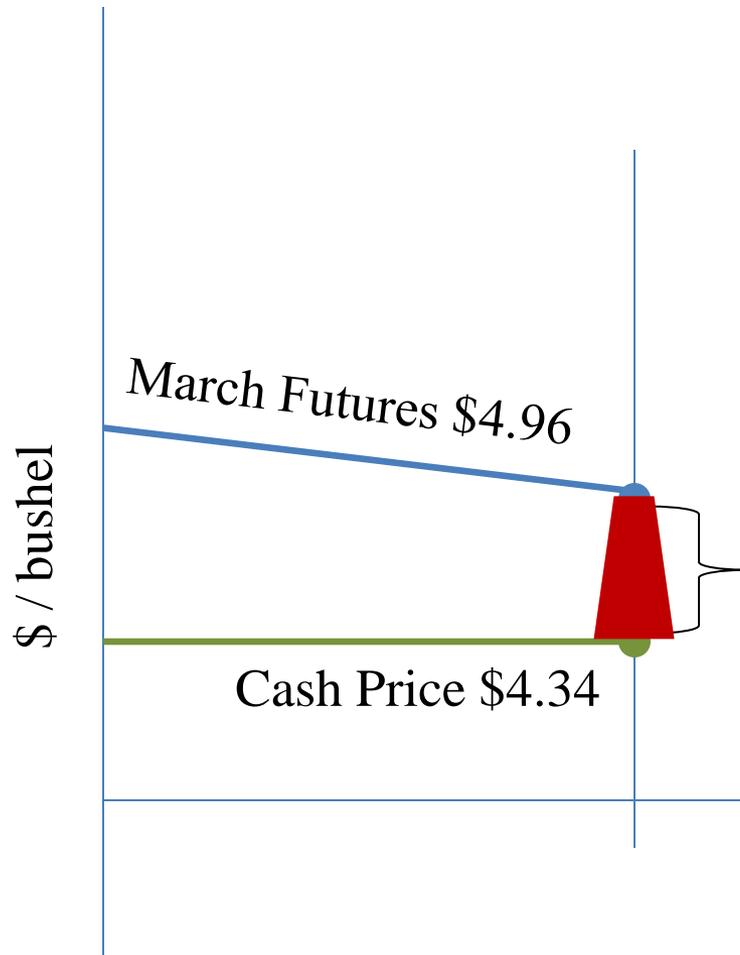
Optionality of the Warehouse Receipt creates a wedge between futures and cash markets.

# Can we see evidence of the wedge in the data?
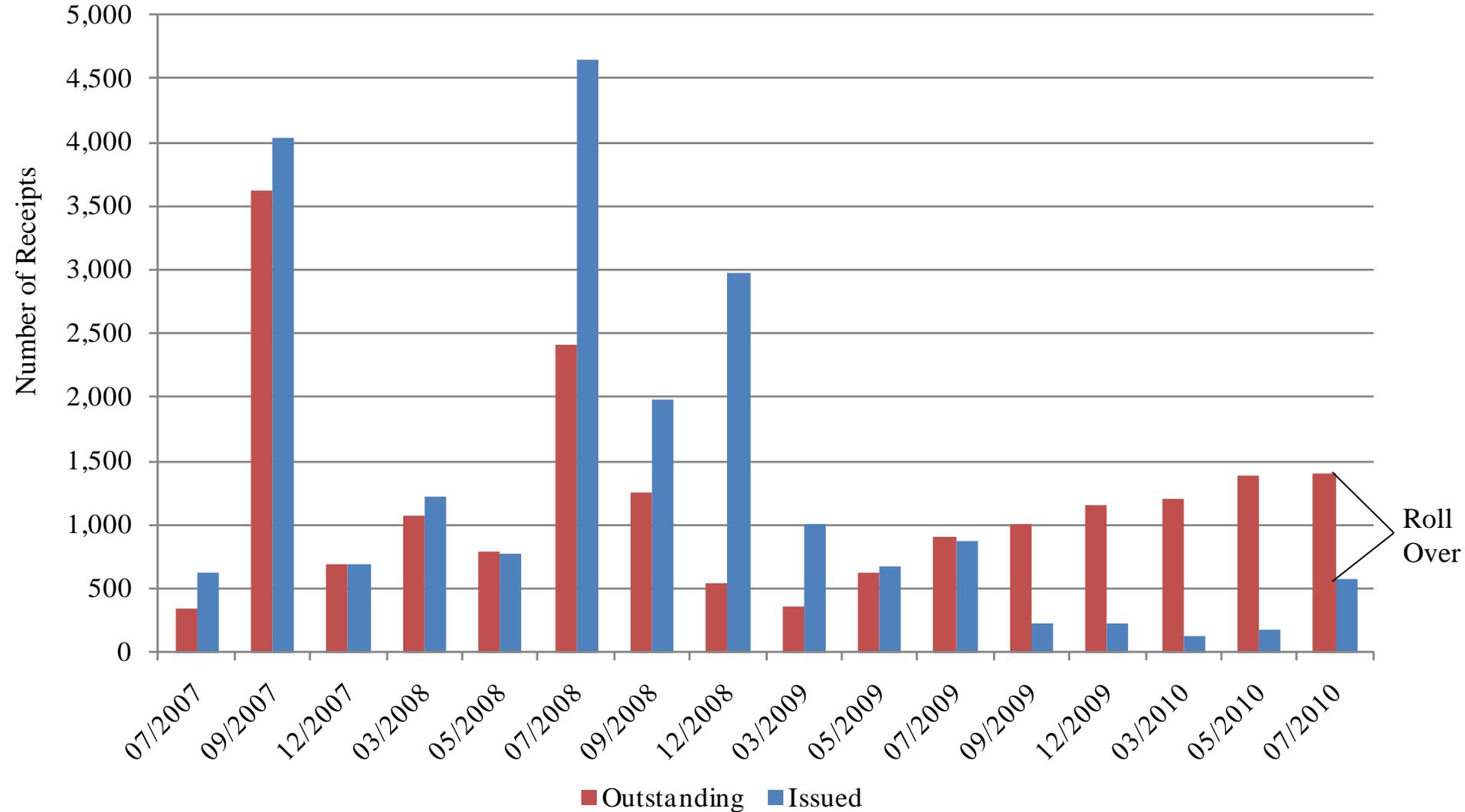


Note: Due to record keeping changes, data on outstanding receipts prior to 07/2009 may be incomplete

# How to Remove the Wedge?

- **Left alone** the market fundamentals will eventually change and the option to hold the receipt will lose value
  - Higher interest rates
  - Smaller spreads due to a tighter crop or additional near term demand
- **Make Strategy Less Profitable**
  - Higher Costs (e.g. seasonal storage rate, VSR)
  - Limiting terms of the warehouse receipt
    - Expiring
    - Devalue over time
    - Non-Transferable
  - Additional delivery options

# Questions?

# Supporting Slides

- Average Basis During Delivery Month
- Percent of Full Carry
- Commodity Index Trader Investment
- Protein of HRW Crop
- Registered Stocks
- Warehouse Receipts Issued
- Warehouse Receipt Turnover

# Average Basis During Delivery Month
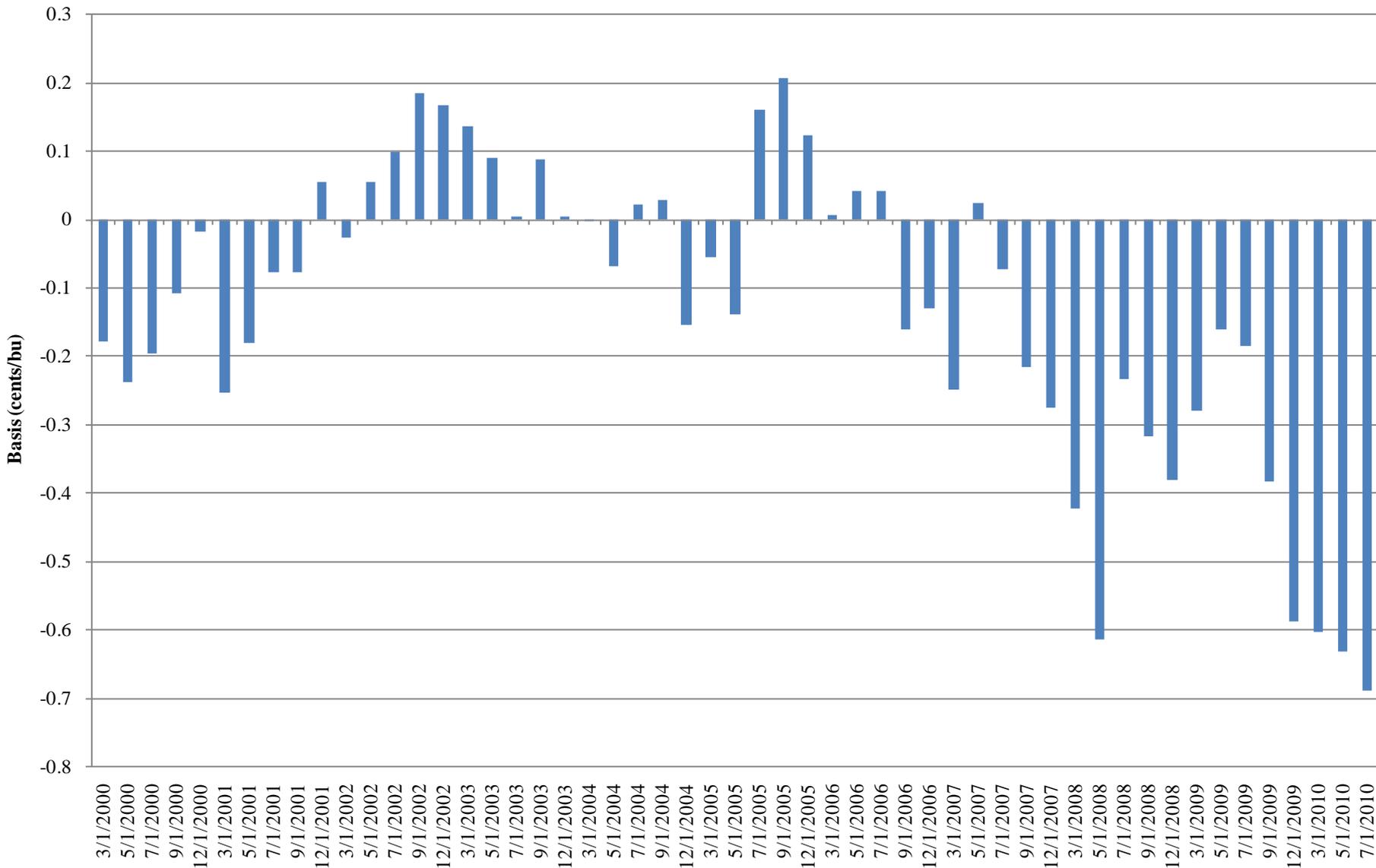
# Pct of Full Carry
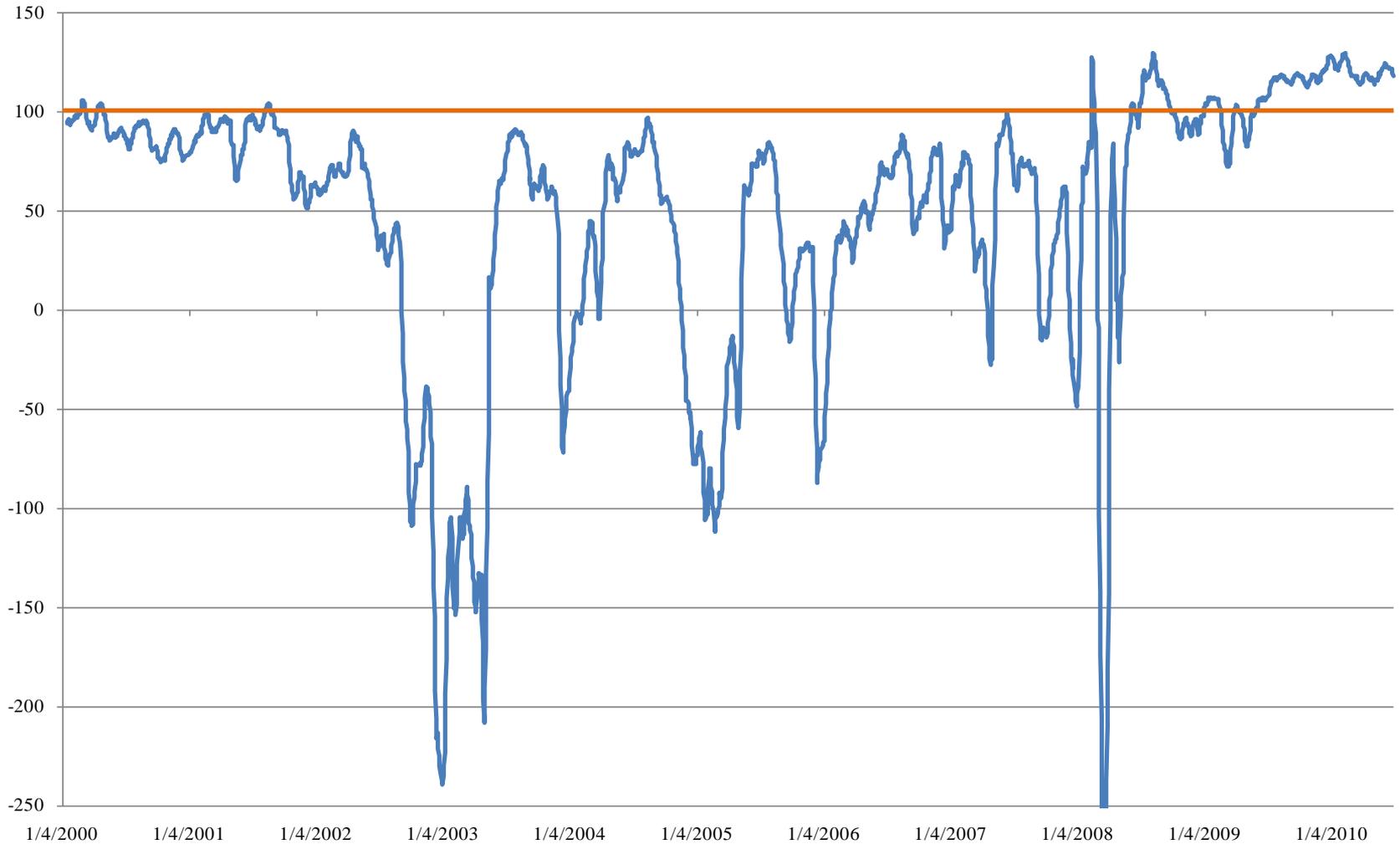
# Commodity Index Traders Pct of Dollar Activity in KC vs. CBOT

# HRW Protein of Crop

Source: US Wheat Associates
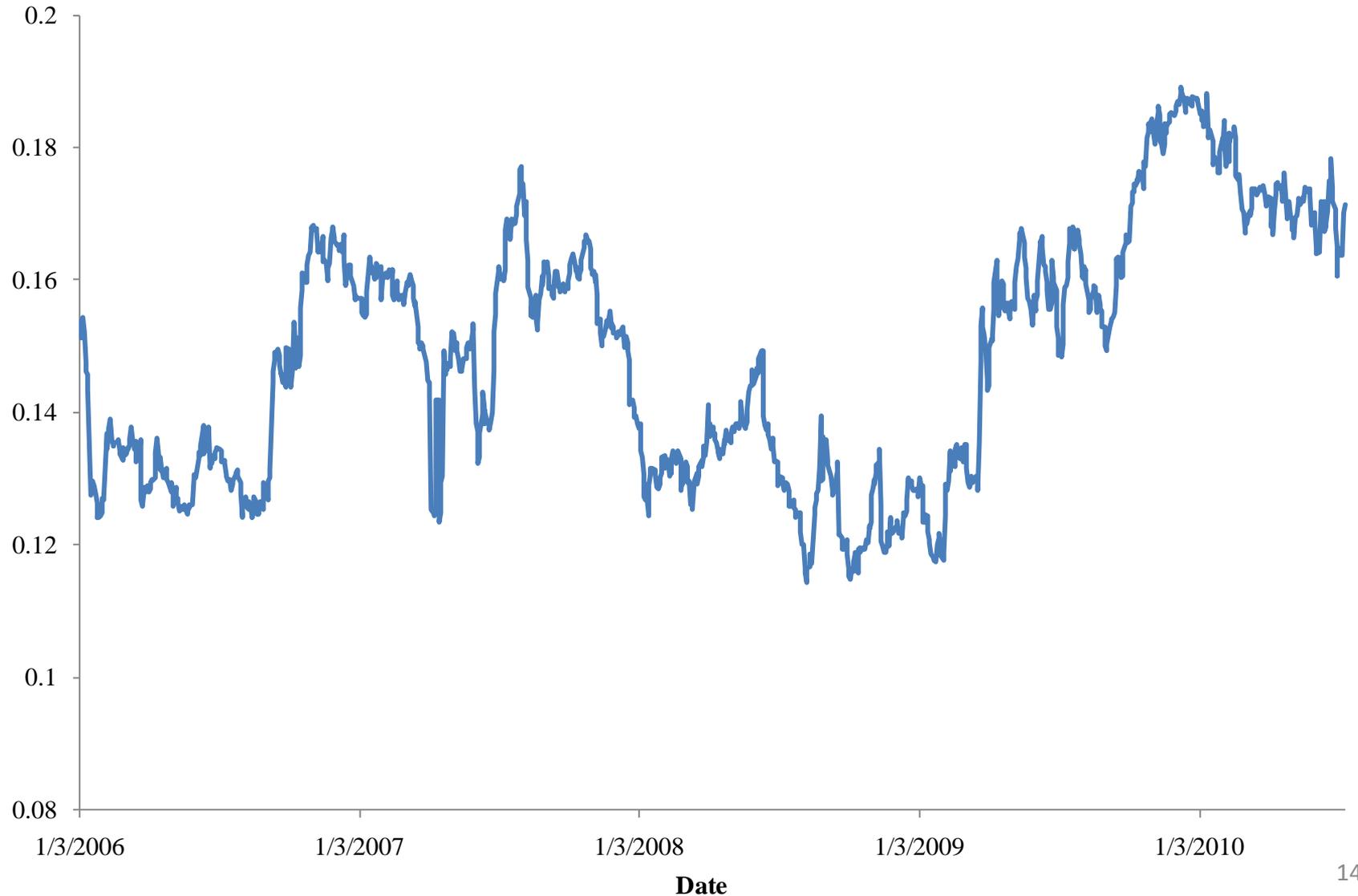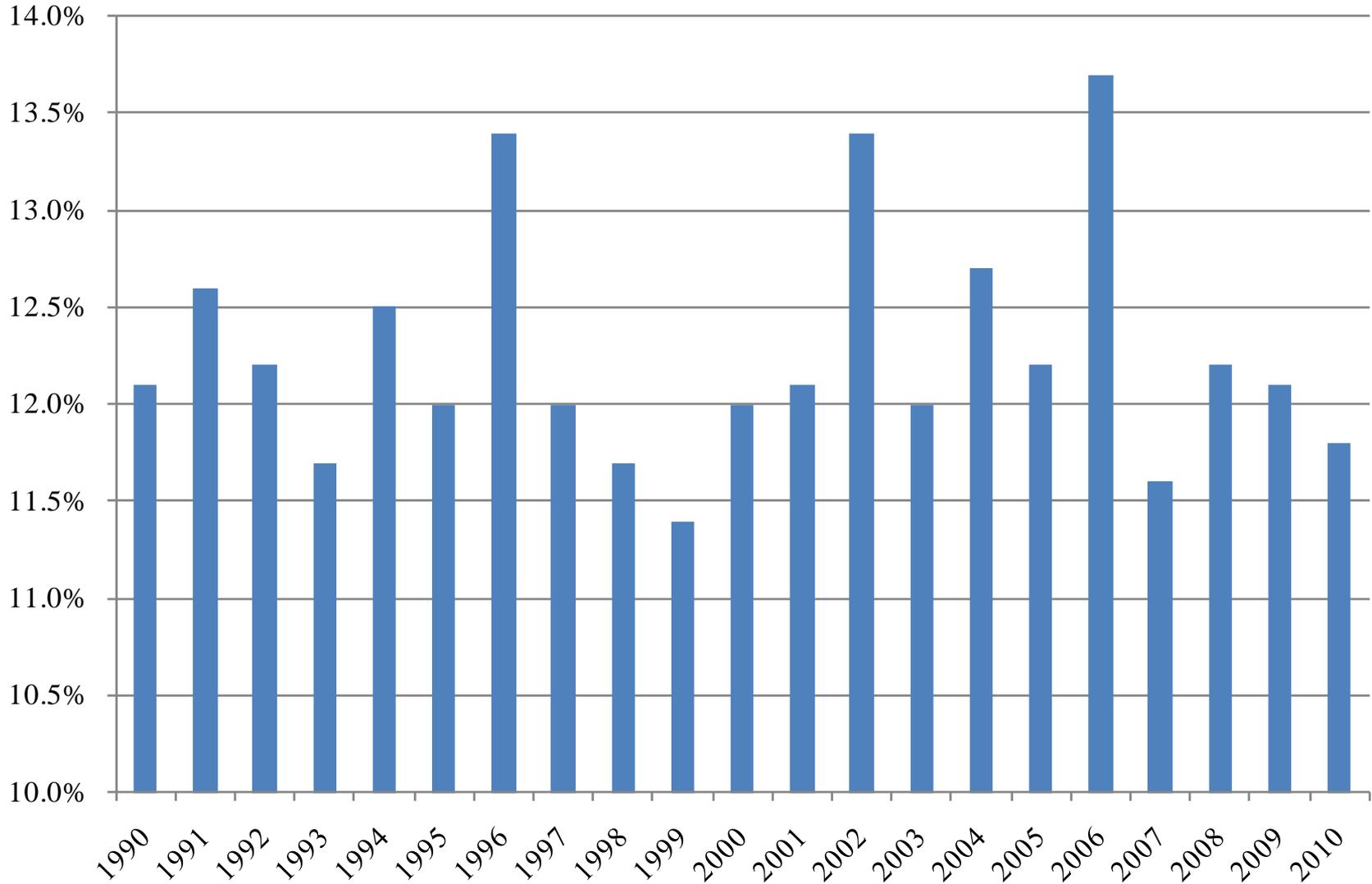
# Deliverable Registered Stocks



Source: KCBOT
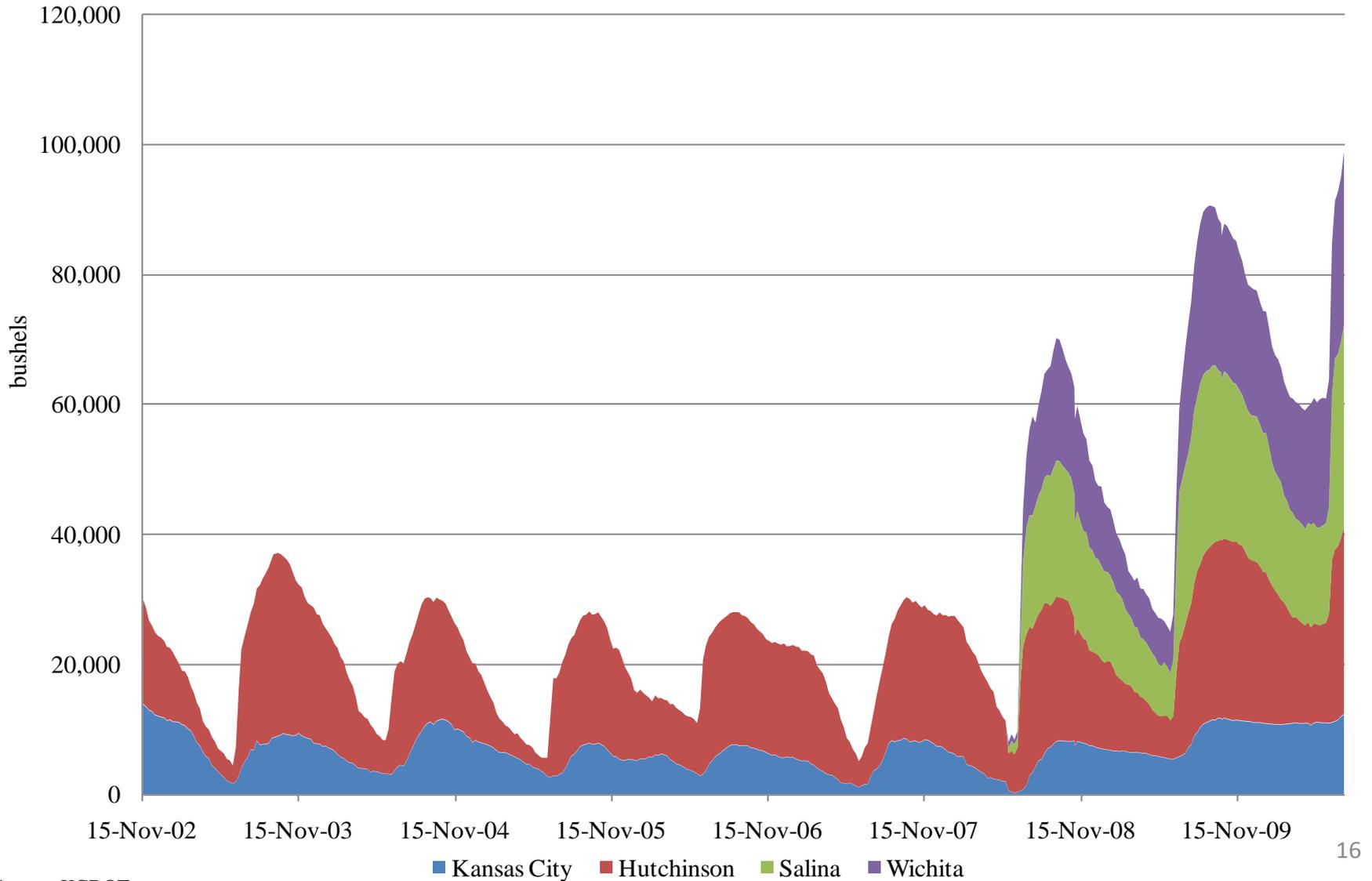
# Average Percent Capacity Outstanding in Warehouse Receipts
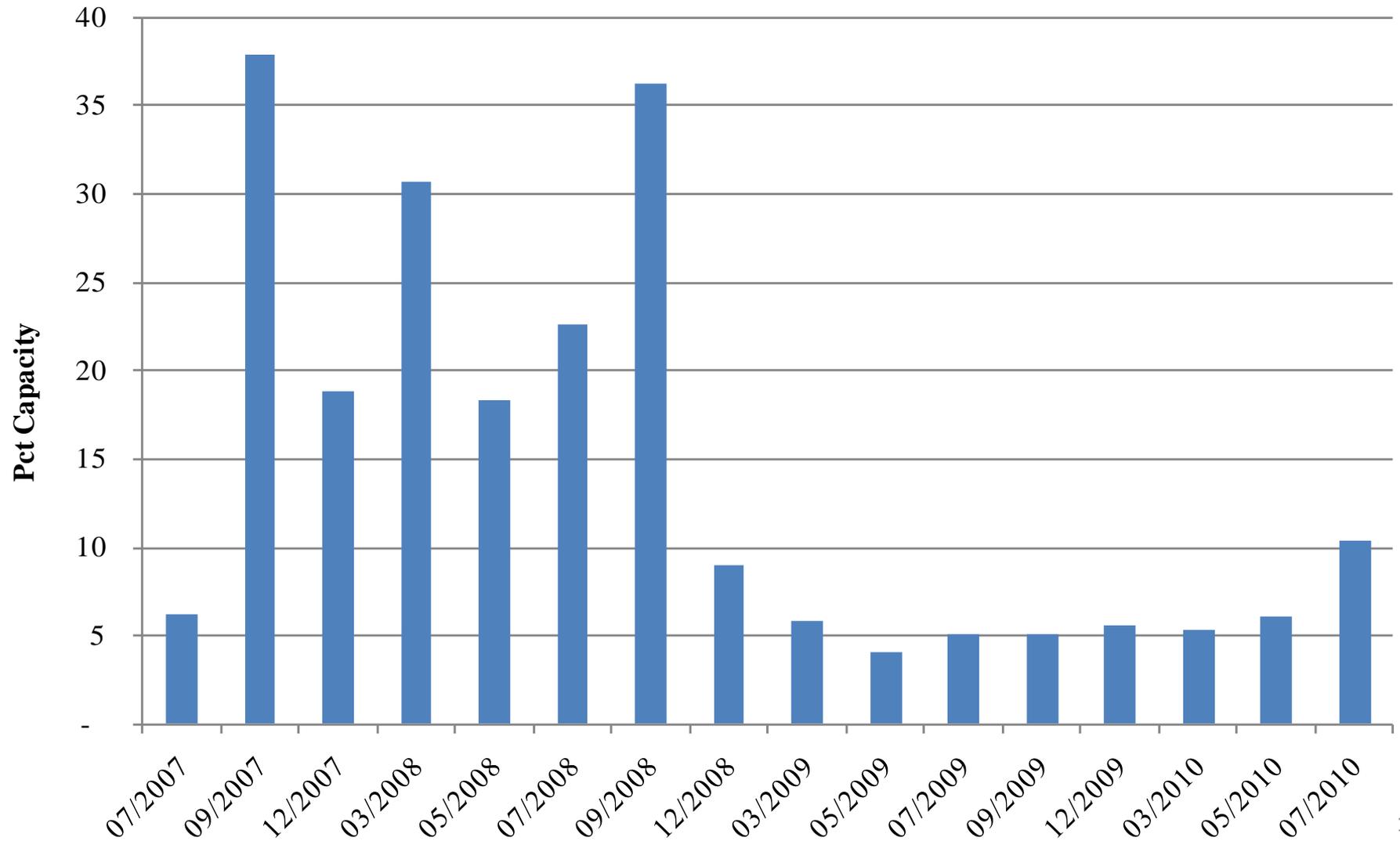
# Warehouse Receipts Turnover