

Designing Futures Markets: Canadian Wheat & Barley

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Overview of talk

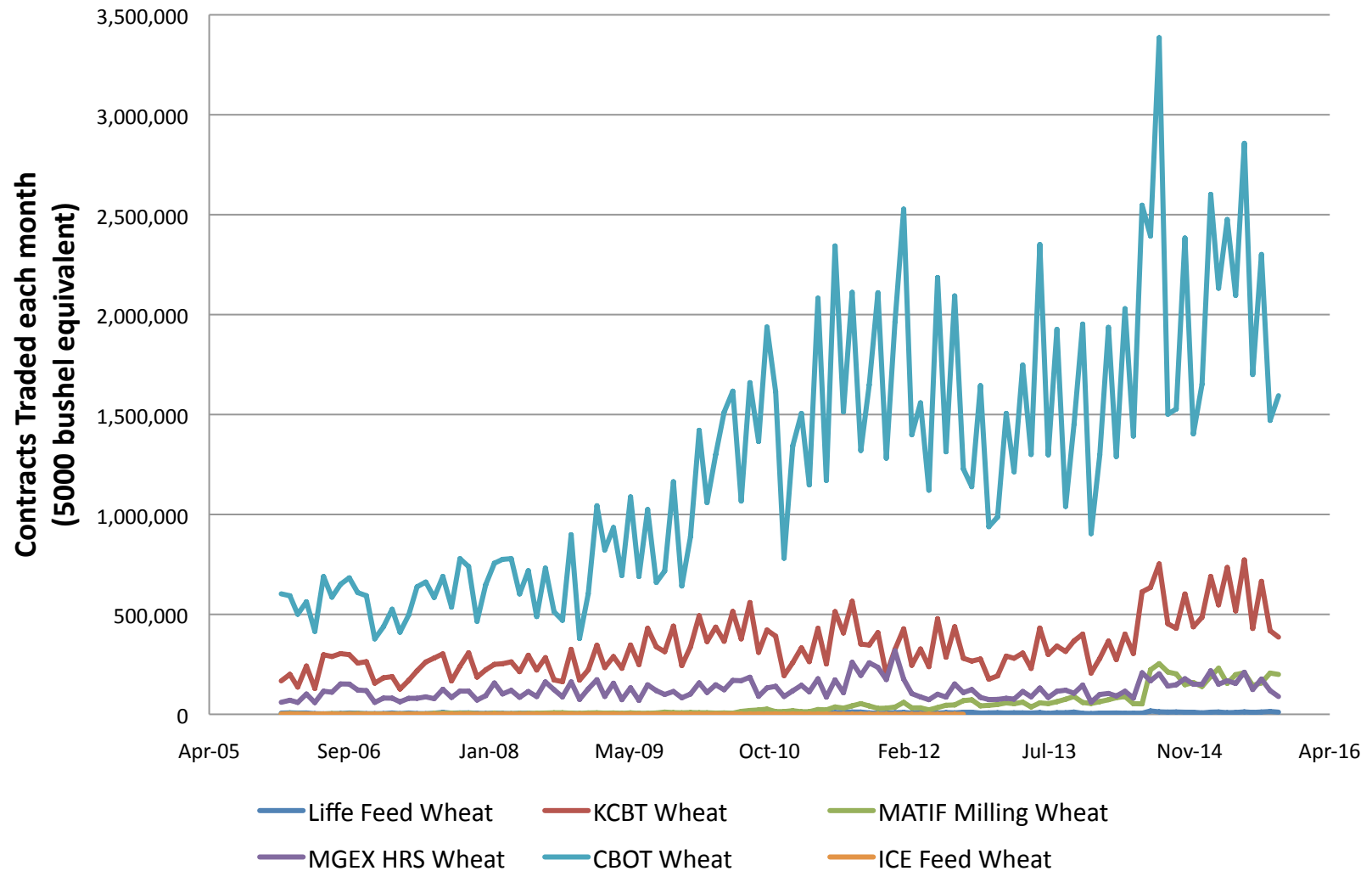
- Global wheat & barley futures trading (esp. U.S. markets)
 - Issues, developments, lessons
- Principles of futures contract design
- Issues & Opportunities for new Canadian grain futures

Winnipeg had a thriving wheat futures market until 1943!

	Annual Average, 1931-1943	
	Wheat Futures Volume (bil. bu)	Seat Price (in US\$)
Chicago Board of Trade	6.3	\$4,247
Winnipeg Grain Exchange	8.6	\$4,943

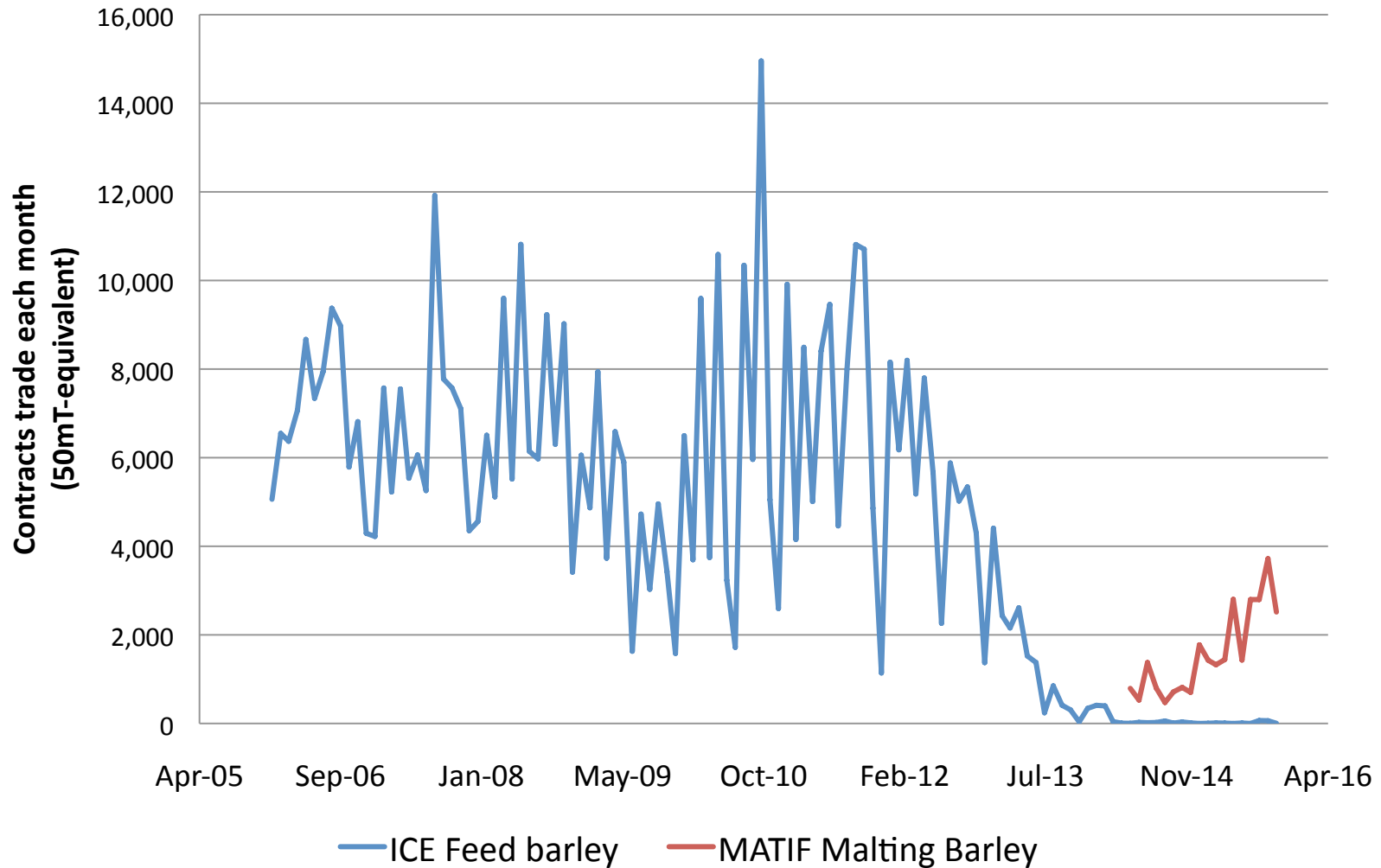
Source: CBOT Annual, ICE Futures Canada

CBOT: dominant wheat futures market globally



Source: Commodity Research Bureau and the Exchanges

Barley futures trading is limited in size & geographic scope



Durum futures

- Traded in Duluth until 1947
- MGEX tried to revive durum futures in mid 1970's & late 1990's, without success
 - Durum export market dominated by CWB
 - Int'l market shares: Canada 52%, U.S. 14%

Wheat Futures Contracts in U.S.

- Historically futures traded in Chicago, Kansas City, Minneapolis, St. Louis, Duluth, Toledo, Detroit, Buffalo, New York, & Baltimore
- Today, 3 exchanges trade 3 classes of wheat:
 - Soft Red Winter in [Chicago](#)
 - Hard Red Winter in [Kansas City](#)
 - Hard Red Spring in [Minneapolis](#)
- U.S. wheat prodn:
 - Soft Red Winter ([418 m. bu. or 18% prodn.](#))
 - Hard Red Winter ([991 m. bu. or 43% prodn.](#))
 - Hard Red Spring ([543 m. bu. or 24% prodn.](#))
 - White ([256 m. bu. or 11% prodn.](#))
 - Durum ([100 m. bu. or 4% prodn.](#))

Futures Market Liquidity: 2006-2010 Average

Futures Market	Ratio of Futures Volume to Domestic Production
CBOT Wheat	73:1
KCBT Wheat	25:1
MGEX Wheat	16:1
ICE Futures Canola	6:1

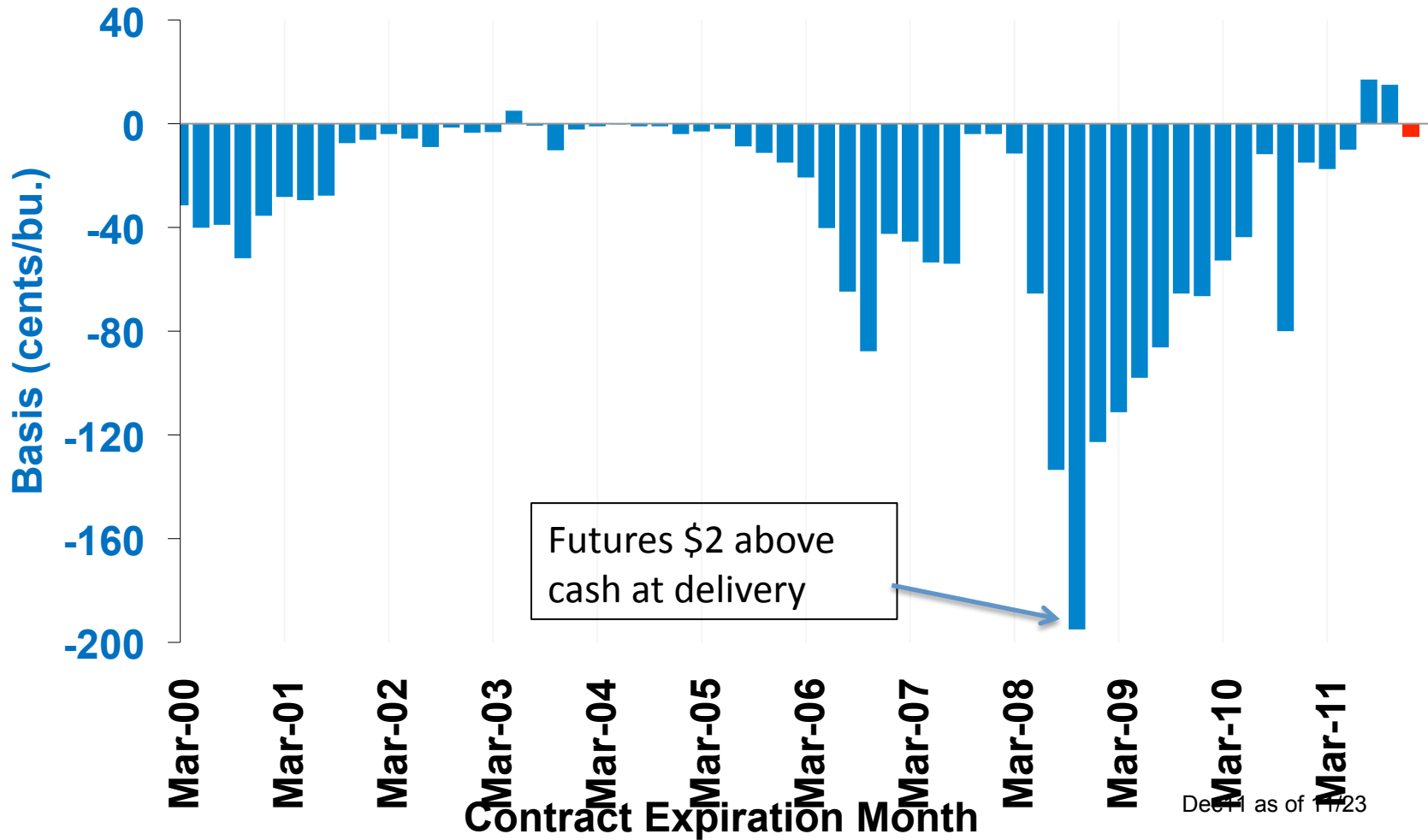
Note: CBOT ratio based on SRW & HRW production. KCBT ratio based on HRW production & MGEX ratio based on HRS production.

Source: Commodity Research Bureau, ICE Futures Canada, USDA-ERS, Canadian Grain Commission

Futures – Cash Convergence Issues

- Rise of new speculators
 - U.S. Senate Report ('09) concluded “long only” index traders (with 30-50% long positions in wheat) responsible for gap btwn. futures & cash wheat prices.
- Wheat convergence problems since '05 & CBOT delivery moved to shipping certs. in '08
- Shorts cannot force convergence & only firms “regular for delivery” can issue shipping certs.
- Longs held onto shipping certs.
 - VSR system: CBOT, KCBT seasonal storage rate

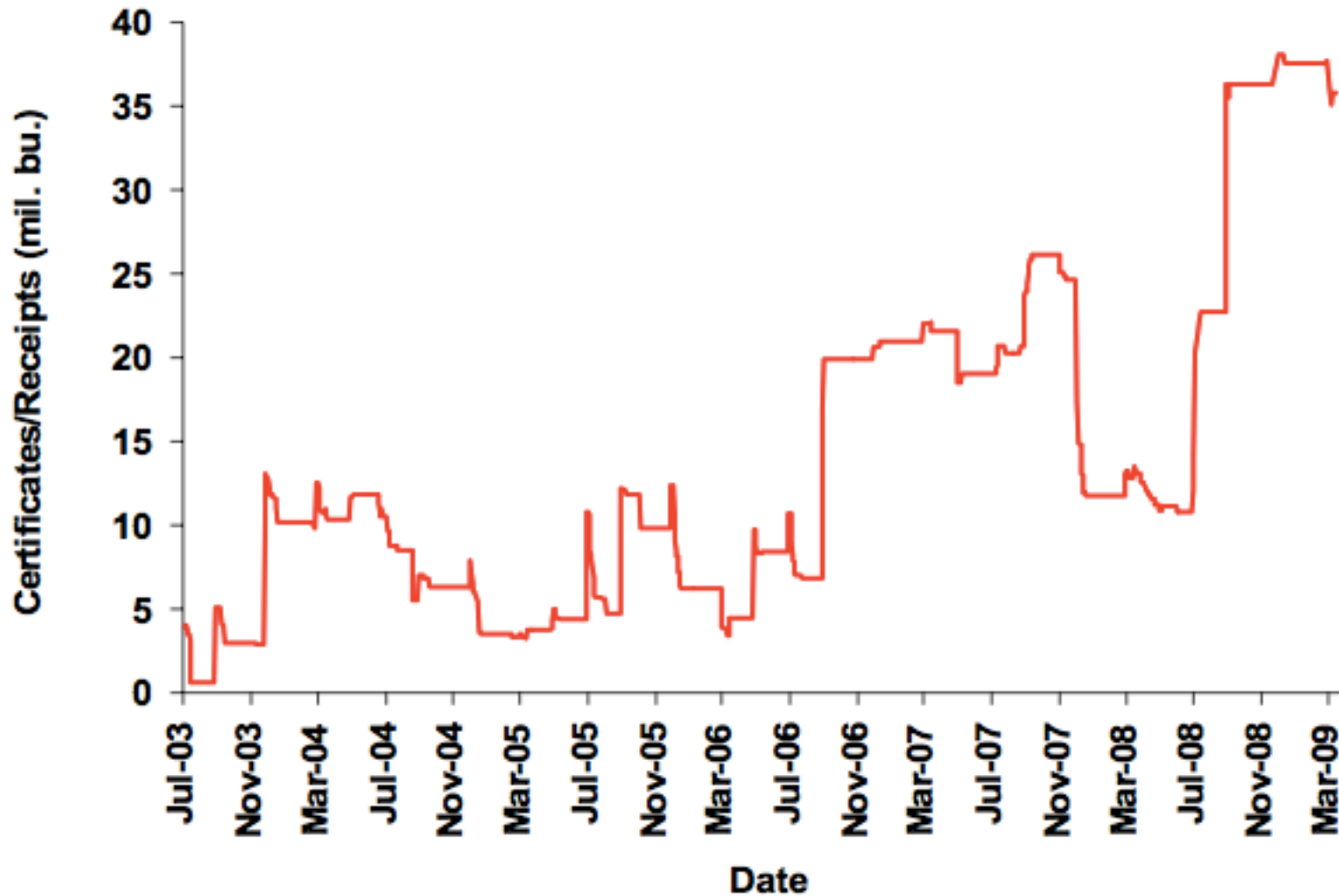
Basis (futures - cash) on the 1st Delivery Day in Toledo: CBOT Wheat



Lack of convergence arises when market exhibits large carry spreads & deliveries do not result in cash purchases.

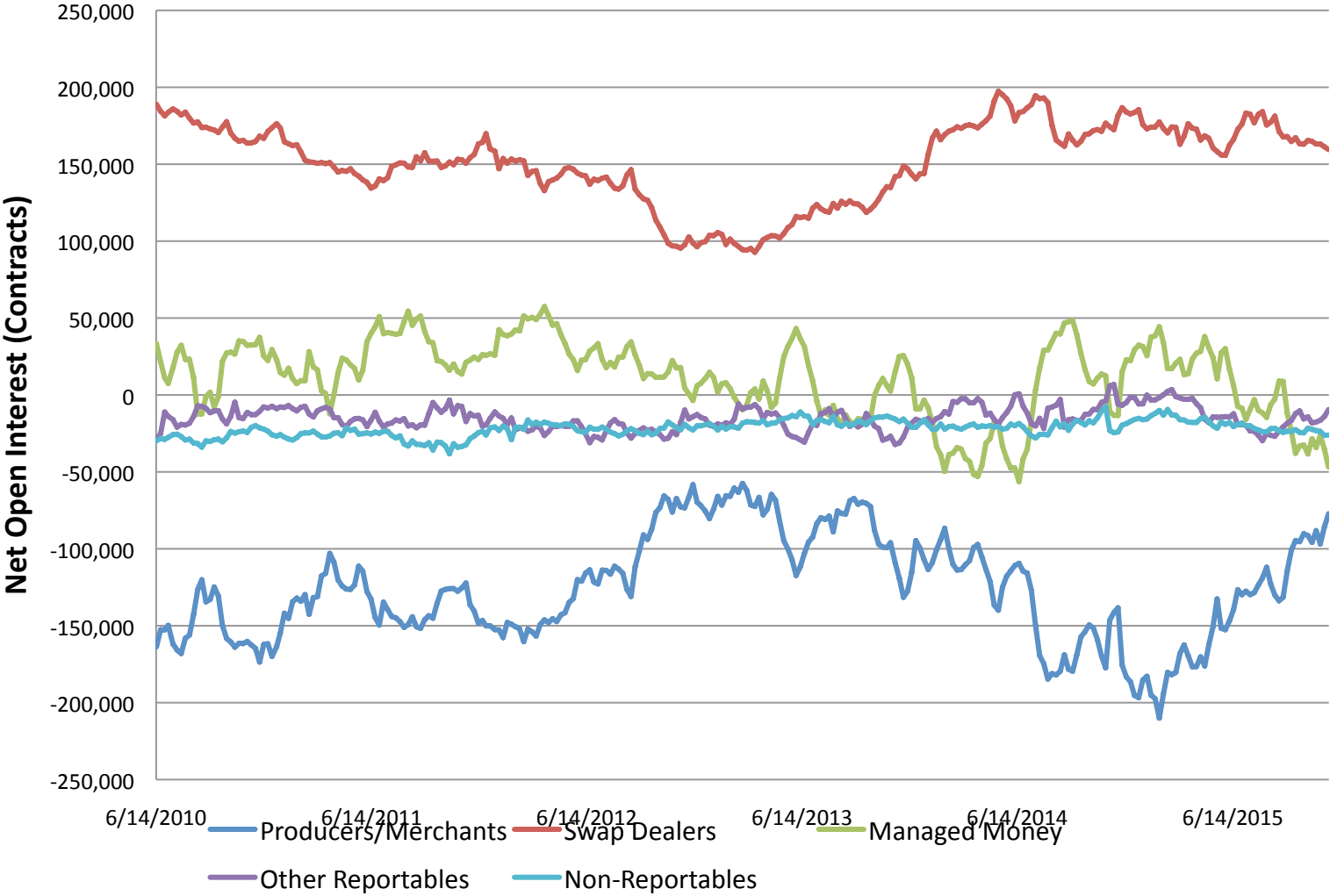
Daily Total Registered Shipping Certificates or Warehouse Receipts: CBOT Wheat

Large carry spreads encourage “longs” to hold onto delivery certs. rather than loading out; creates “abnormal” returns to holders of shipping certs.



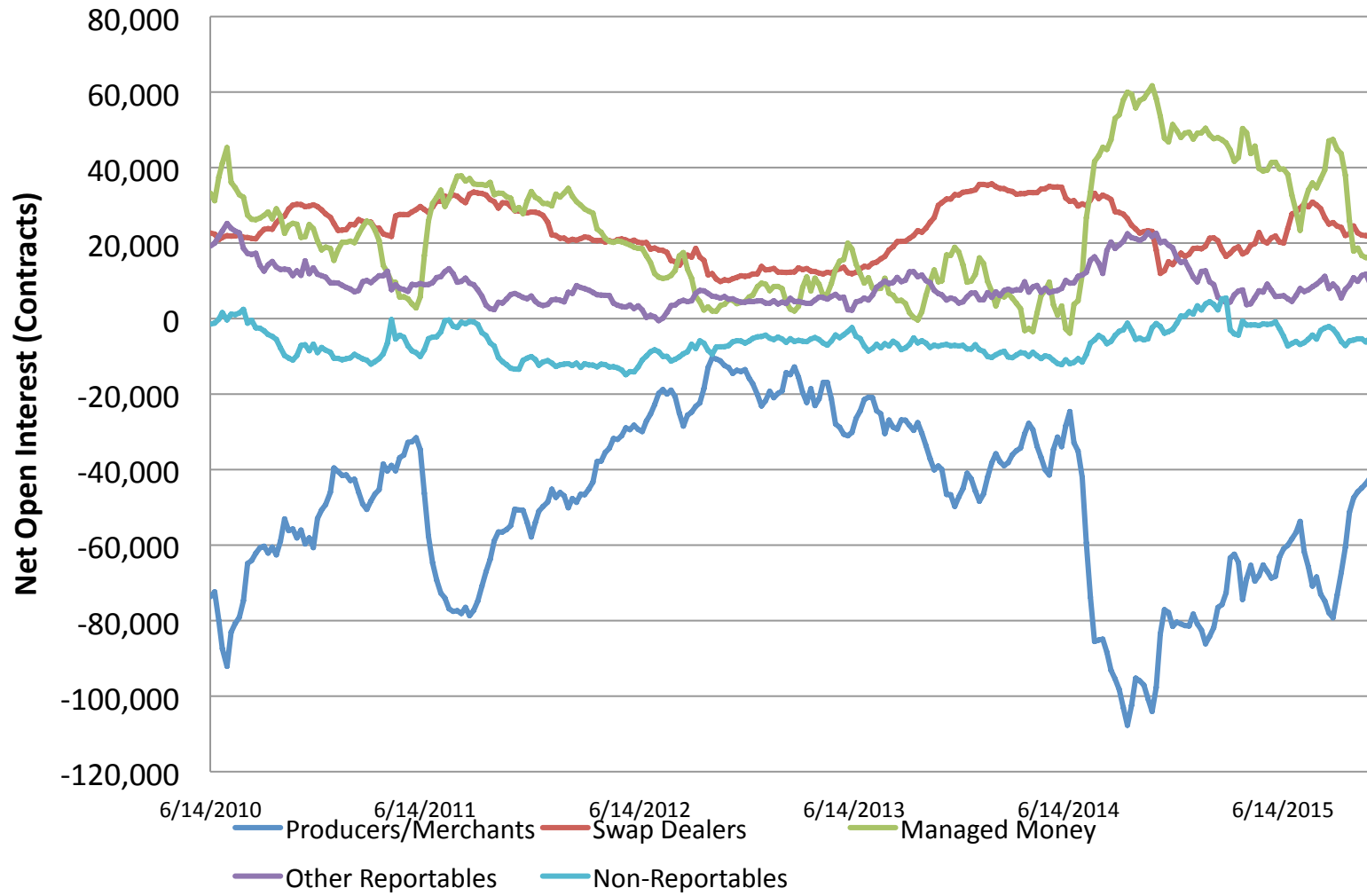
Source: Irwin et al., 2009.

Index funds ("Swap Dealers") have large presence on CBOT...



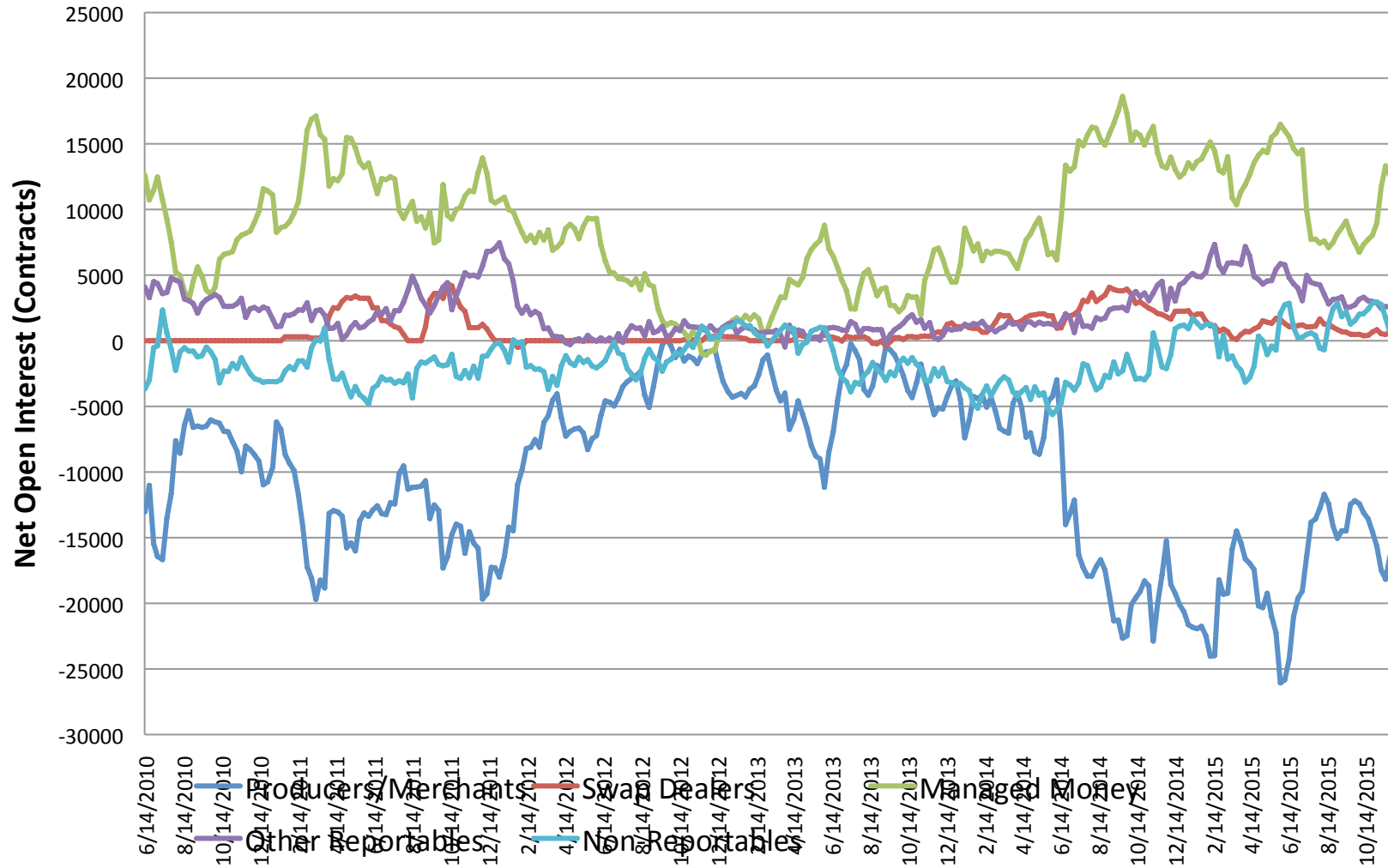
Source: Commodity Futures Trading Commission

Index funds (represented in “Swap Dealer category) have strong presence on KCBT...



Source: Commodity Futures Trading Commission

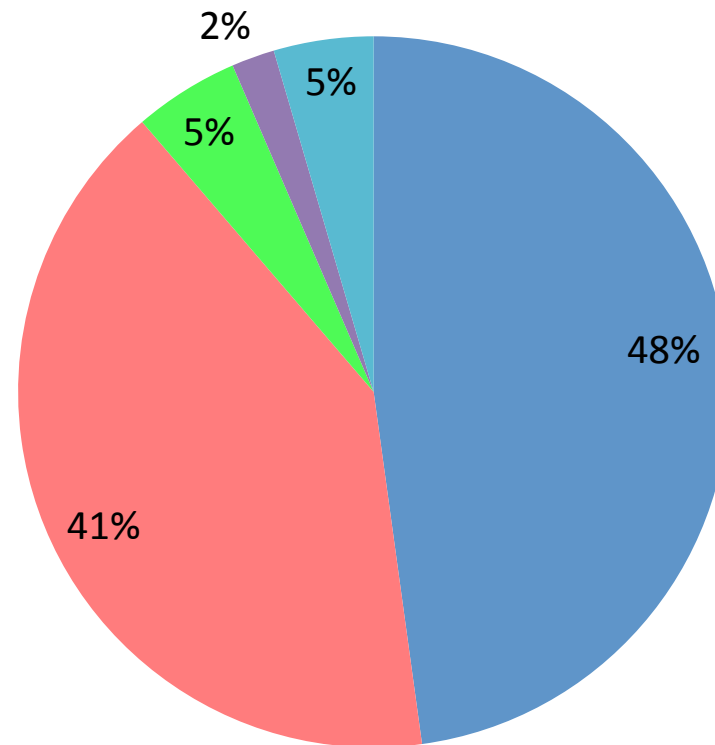
Index funds (represented in “Swap Dealer category) have negligible presence on MGEX.



Source: Commodity Futures Trading Commission

Flows of U.S. Wheat Exports (2002-2010)

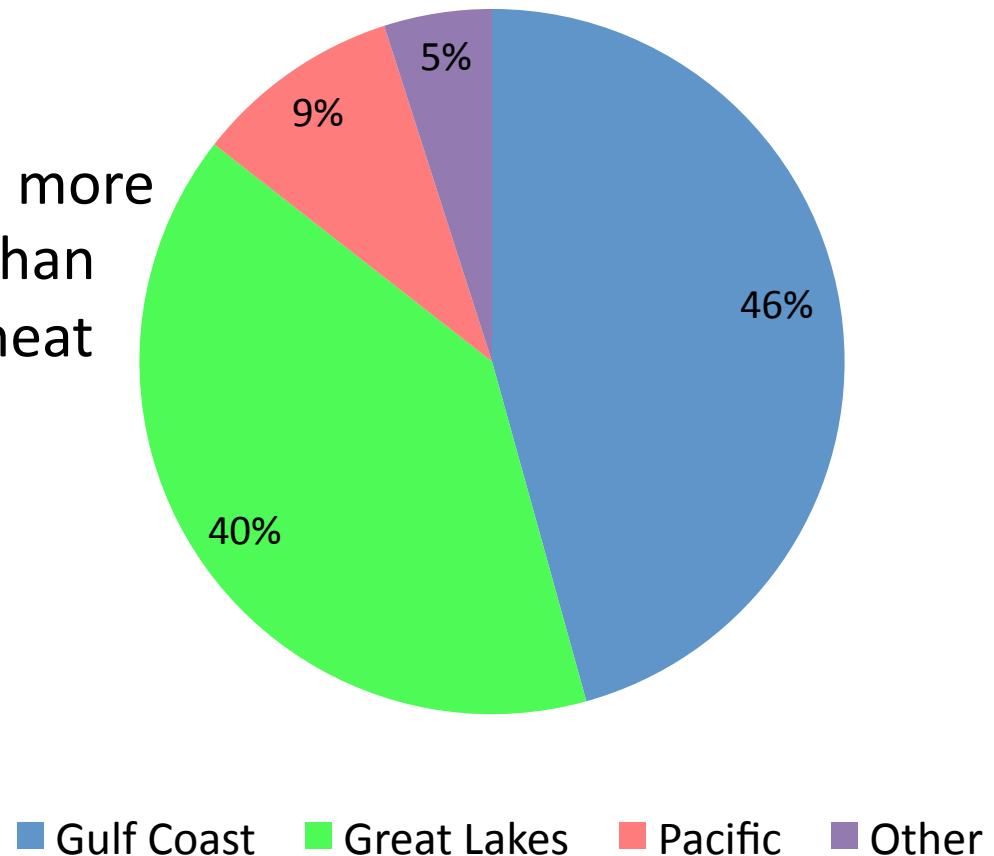
- US exports approx. 50% of production
- Most HRS & White Wheat destined for PNW. HRW & SRW mainly to Gulf.
- Approx. 57% of HRS exports flow to West Coast ports – mainly Portland.



■ Gulf Coast ■ Pacific ■ Great Lakes ■ Atlantic ■ Other

Flows of U.S. Durum Exports: 2002-2010

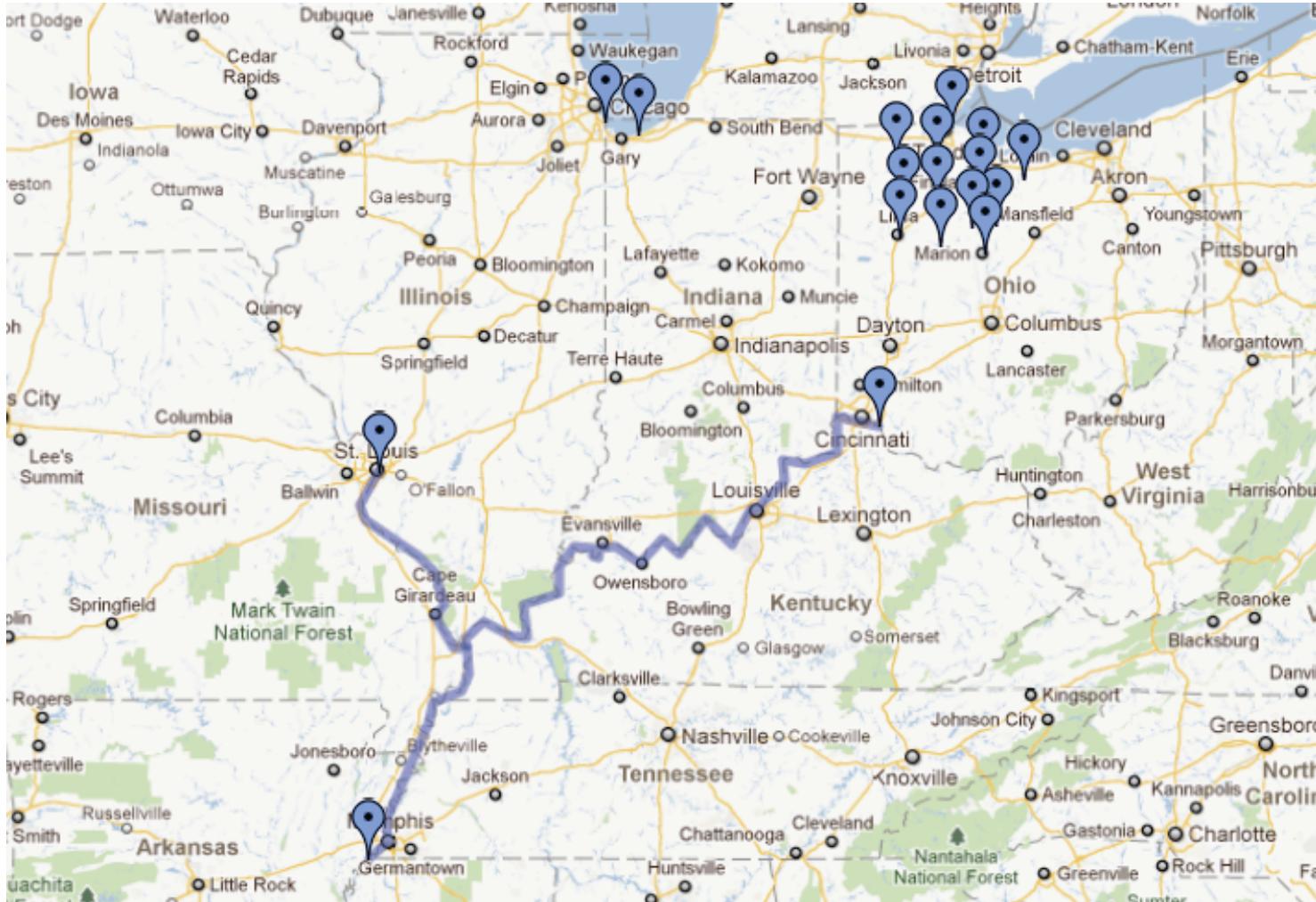
- U.S. exports 1/3 of production
- Europe & N. Africa are more important for durum than for other classes of wheat



Delivery specs U.S. Wheat Futures

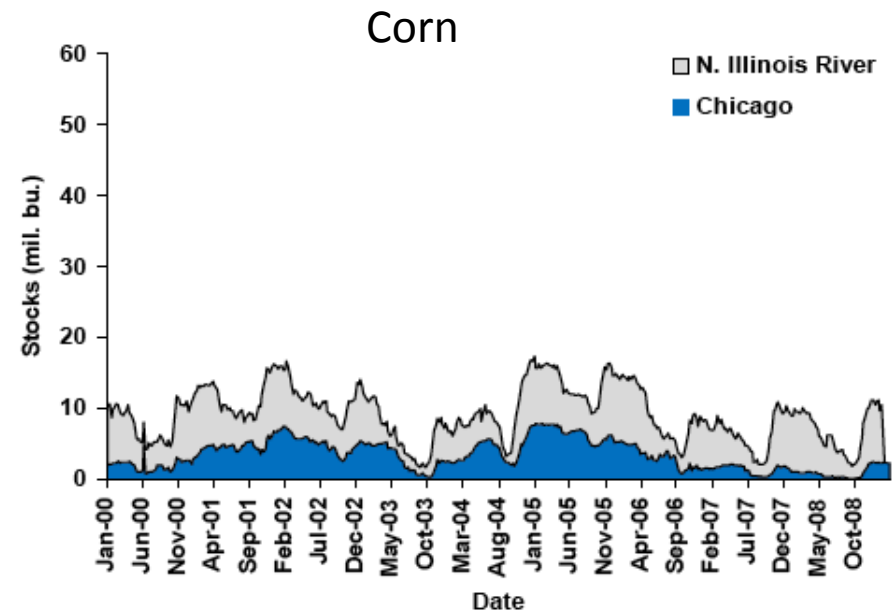
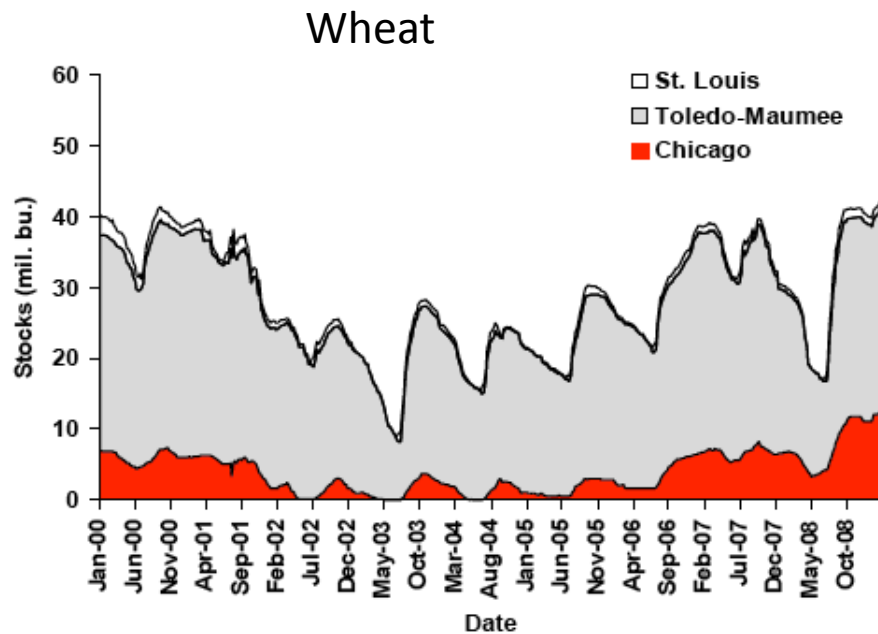
- Delivery points reflect outdated commercial commodity flows (esp. for CBOT)
 - **CBOT**: Chicago, Toledo, St. Louis, Ohio/Mississippi River points
 - **KCBT**: Kansas City + additional elevator points in Kansas
 - **MGEX**: Minneapolis, Red Wing, Duluth
- Relatively low commercial flow of wheat to draw upon during delivery
- Monthly turnover in CBOT delivery facilities is 10% for wheat v. 230% for corn (Irwin et al.)
- Yet delivery points unchanged due to vested interests

CBOT Delivery Points



Chicago, Toledo, 12 Northwest Ohio counties, Ohio River from Cincinnati to Mississippi, Mississippi River from St. Louis to Memphis

Weekly U.S. Stocks: Corn & Wheat

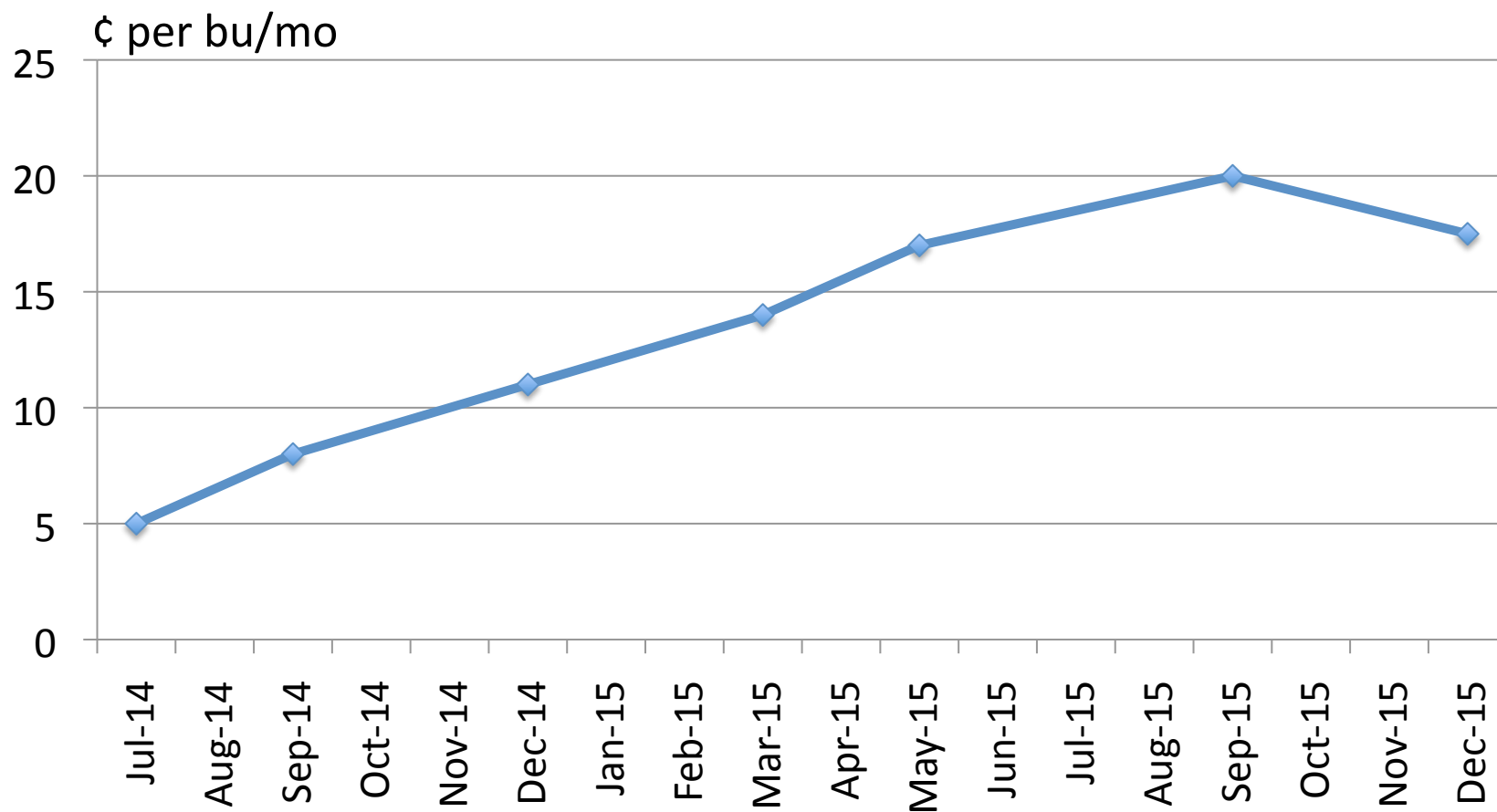


Weekly stocks at facilities “regular for delivery”

Delivery mechanisms

- Shipping certificates v. warehouse receipts
- Storage rates are being used to force convergence
 - CBOT: Variable rate, currently 20¢/bu/mth, will drop in mid-December as spreads are <50% below full carry
 - KCBT: Seasonal rate, 9¢/bu/mth during harvest (Jul-Nov), 6¢/bu/mth rest of year
 - MGEX: 5¢/bu/mth (not posted)
 - ICE: Proposed rate: C10¢/bu/mth

Variable Storage Rates: CBOT Wheat



Source: CBOT. VSR is maximum allowable storage charge for outstanding wheat shipping certificates.

Successful Futures Contract Design

- Balanced broad participation
 - Large production base is not enough (e.g. Brazil soybean futures)
- Hedging demand required
- Delivery points should be in major commercial flow
- Physical delivery works better than paper
 - Futures-cash may disconnect if traders have incentive to hold paper rather than physical commodity
 - ICE Sugar: delivery matches commercial movement
 - CME Lumber: delivery can originate from Canada or U.S.

Contract design: ICE Sugar No. 11

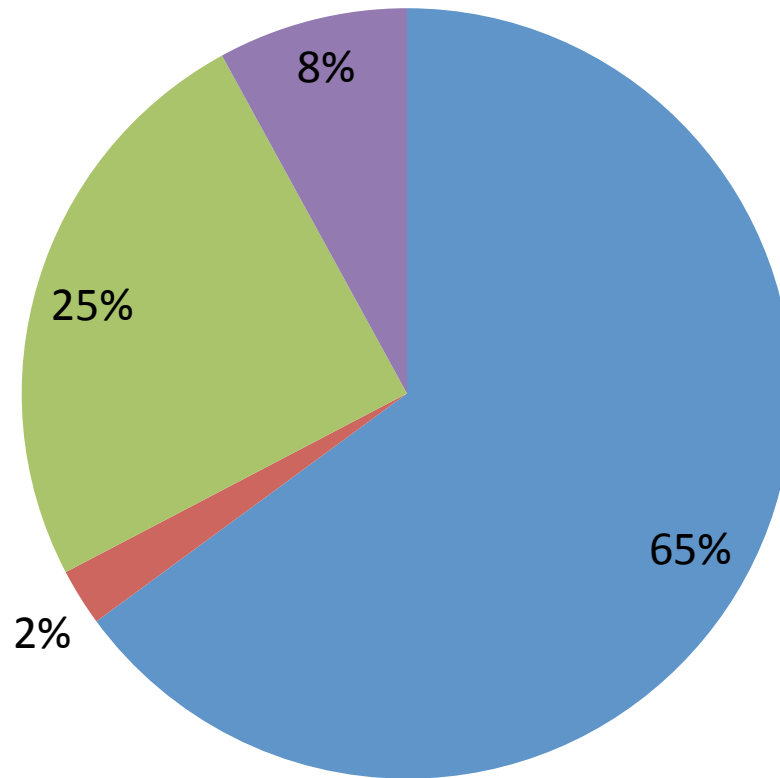
- Delivery is fob vessel in port. Deliverer (short) names the port on the last trading day of contract.
- Receiver (long) has 75 days to get his vessel to the port.
- Rules prescribe an exchange of information on the vessel as it nears the port, minimum load rate & berth access.
- Min. delivery is 80 contracts (4,000 mt)
- Matches the way commercial sugar moves.
- Gives “short” an outlet & “longs” truly take physical delivery.
- Cash-futures convergence occurs & Sugar #11 is the global price of sugar.

Hard Red Spring Wheat Supply & Disposition: Canada vs. US

	Average (2002-2010)	
	Canada	USA
Acres Planted	18.0 m.	13.4 m.
Production	14.3 mmt	12.8 mmt
% Exported	66%	57%
% Exports shipped via West Coast	64.5%	57.3%

Source: USDA World Ag. Outlook Board, USDA FGIS, AAFC, CGC

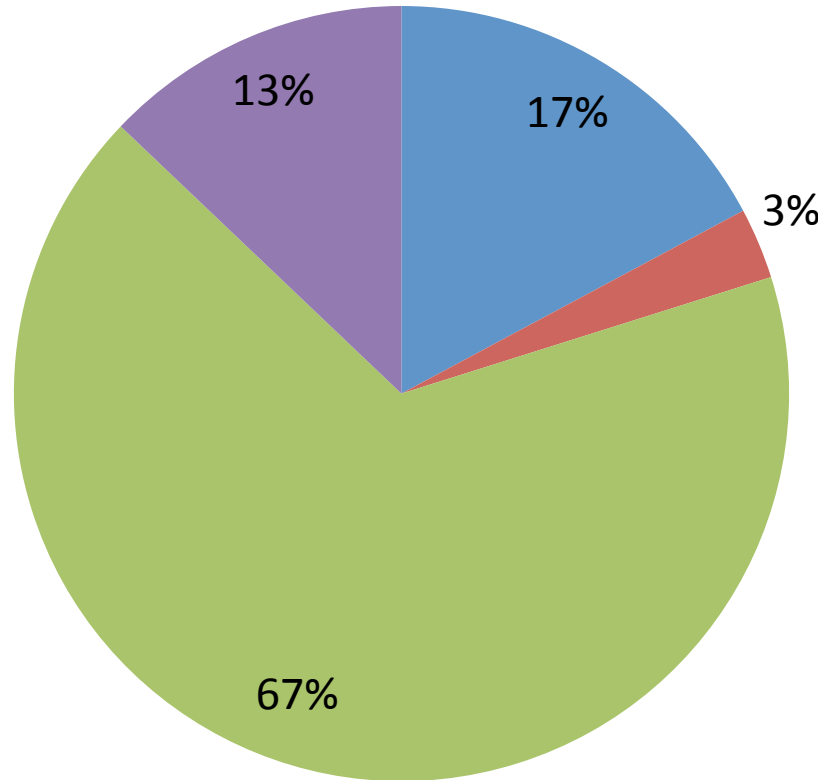
Canadian Wheat Exports By Port (Average 2002-2010)



■ Pacific ■ Churchill ■ Great Lakes/St. Lawrence ■ Prairies

Source: Canadian Grain Commission

Canadian Durum Exports By Port (Average 2002-2010)



■ Pacific ■ Churchill ■ Great Lakes/St. Lawrence ■ Prairies

Source: Canadian Grain Commission

Possible delivery points

Delivery @ Port (Vancouver, Pr. Rupert, St Lawrence)

- **Pros:**
 - Good price discovery as it matches commercial flows
 - Establish W. Coast basis
 - Will attract global interest
- **Cons:**
 - Potential rail congestion & at port; but reduced if FOB vessel delivery
- **Comment:**
 - Physical delivery such as FOB vessel can ensure convergence
 - US alt. delivery point (Portland) as a congestion safety valve
 - Getting storage rates (inland or port) right is important

Inland Delivery (similar to current ICE canola contract)

- **Pros:**
 - Proximity to deliverable supply (harvest or on-farm storage)
 - Ample storage capacity in regular elevators
 - Familiarity, due to canola
- **Cons:**
 - Represents diffused commercial flow
 - Vancouver basis unknown
- **Comment:**
 - Inland delivery introduced in 1990's for canola when rail car reg's caused lack of convergence

Conclusions

- U.S. wheat futures contracts have issues.
- U.S. issues provide lessons & an opening for successful Canadian futures market.
- Contract design should reflect (west coast) movement in the commercial channel in order to generate good price discovery & high volume futures trading.
- This is an opportunity for Canada to establish “the” world price of spring wheat.