



# **Food Price Volatility: Options to reduce price volatility**

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G20 facing food challenges  
Worldwide farmers speak up!  
June 16-17, 2011, Paris

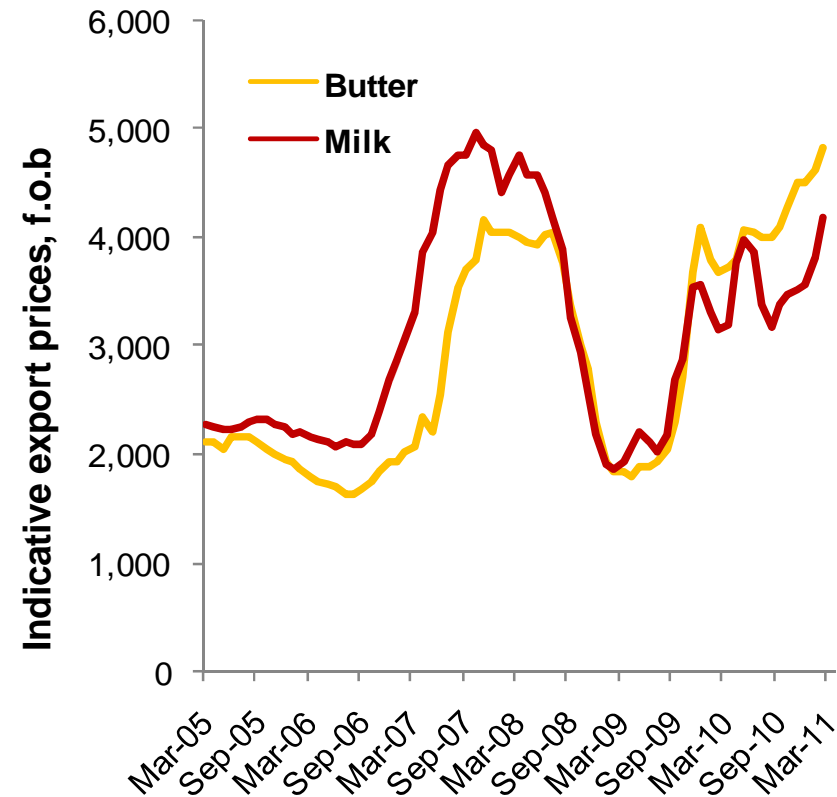
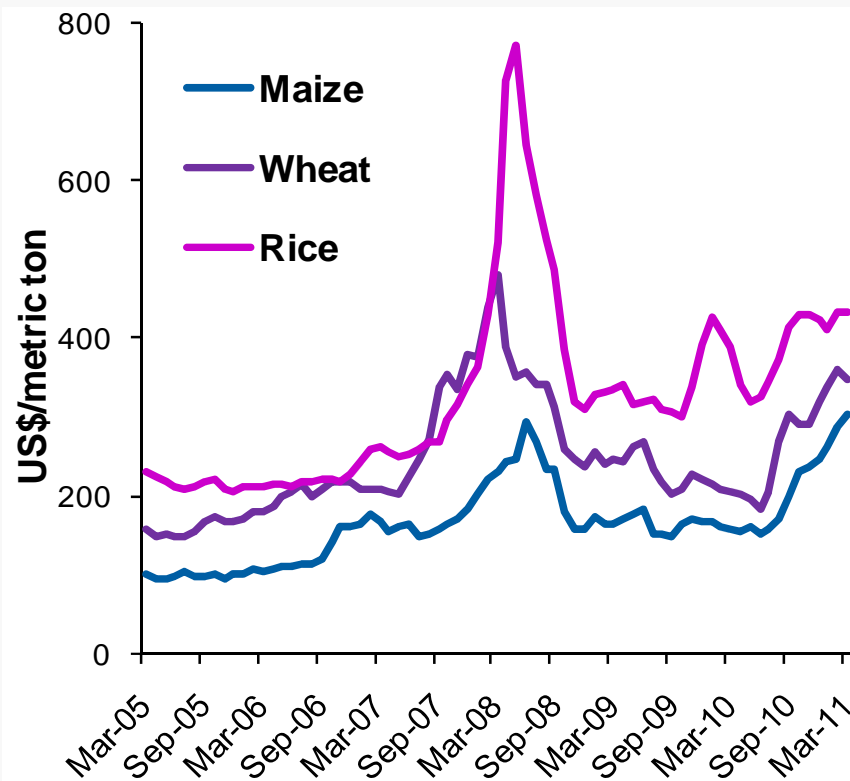
# This presentation

- **Introduction**
- Conceptual framework
- Proposed solutions
- 7 steps to prevent recurrent food crises

# We have FOUR crises

- **Slow motion food crisis:**
  - Still no clear progress.
- **Still persistent financial crisis:**
  - “This is not a recovery”, Paul Krugman, 8/28/2010  
NYT
- **Latent fuel crises:** rise and fall of price of oil (variability), impact of food for fuel.
- **Eminent climate change!** More pressure over price variability

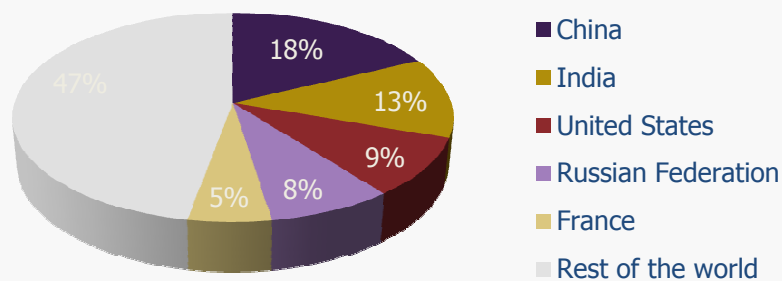
# Evolution of prices



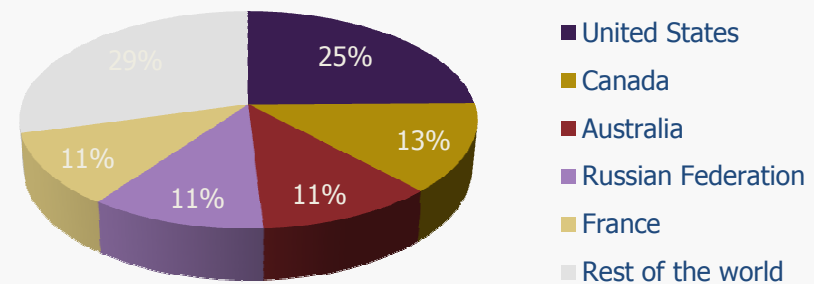
Source: FAO (Food and Agriculture Organization of the United Nations). 2011. International commodity prices database. Available at [www.fao.org/es/esc/prices/PricesServlet.jsp?lang=en](http://www.fao.org/es/esc/prices/PricesServlet.jsp?lang=en). Maize = US No.2, Yellow, U.S. Gulf; Wheat = US No.2, Hard Red Winter ord. prot, US f.o.b. Gulf; Rice = White Broken, Thai A1 Super, f.o.b Bangkok; Butter = Oceania, indicative export prices, f.o.b.; and Milk = Whole Milk Powder, Oceania, indicative export prices, f.o.b.

# High concentration of exports - Wheat

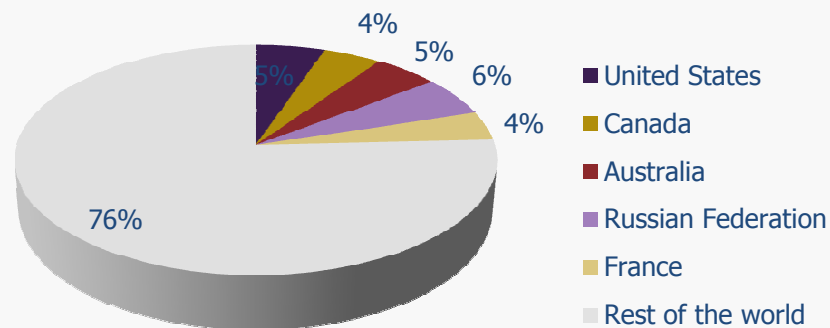
## World production



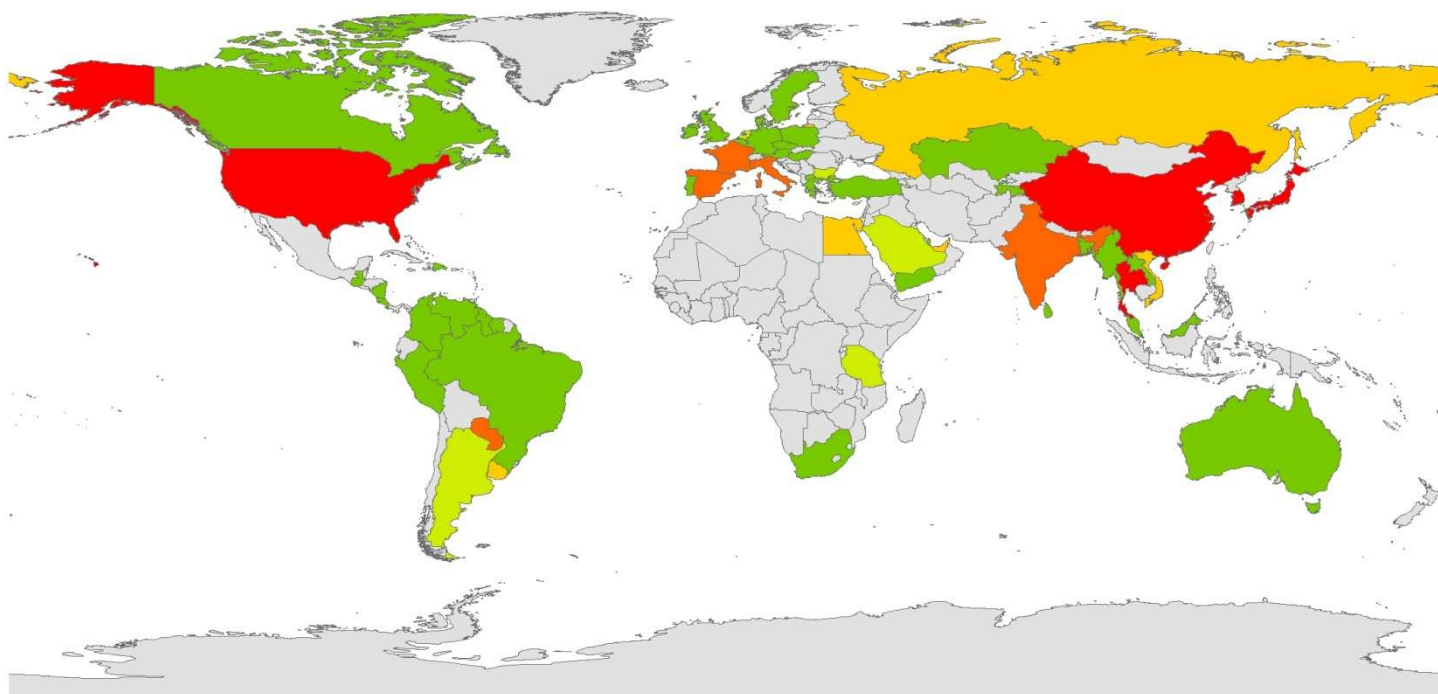
## World exports



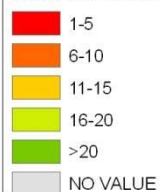
## World Imports



# High concentrations of exports - Rice



**Legend**  
**RICE EXPORT**  
**RANKING 2005**



year	2005		
TOP 5	COUNTRY	EXPORT (1000 TONS)	% TOTAL
1	United States of America	1985.54	68.74
2	Korea	300.00	10.39
3	Japan	198.40	6.87
4	Thailand	100.00	3.46
5	China	99.08	3.43

Source: FAO

# Excessive price volatility is bad for producers

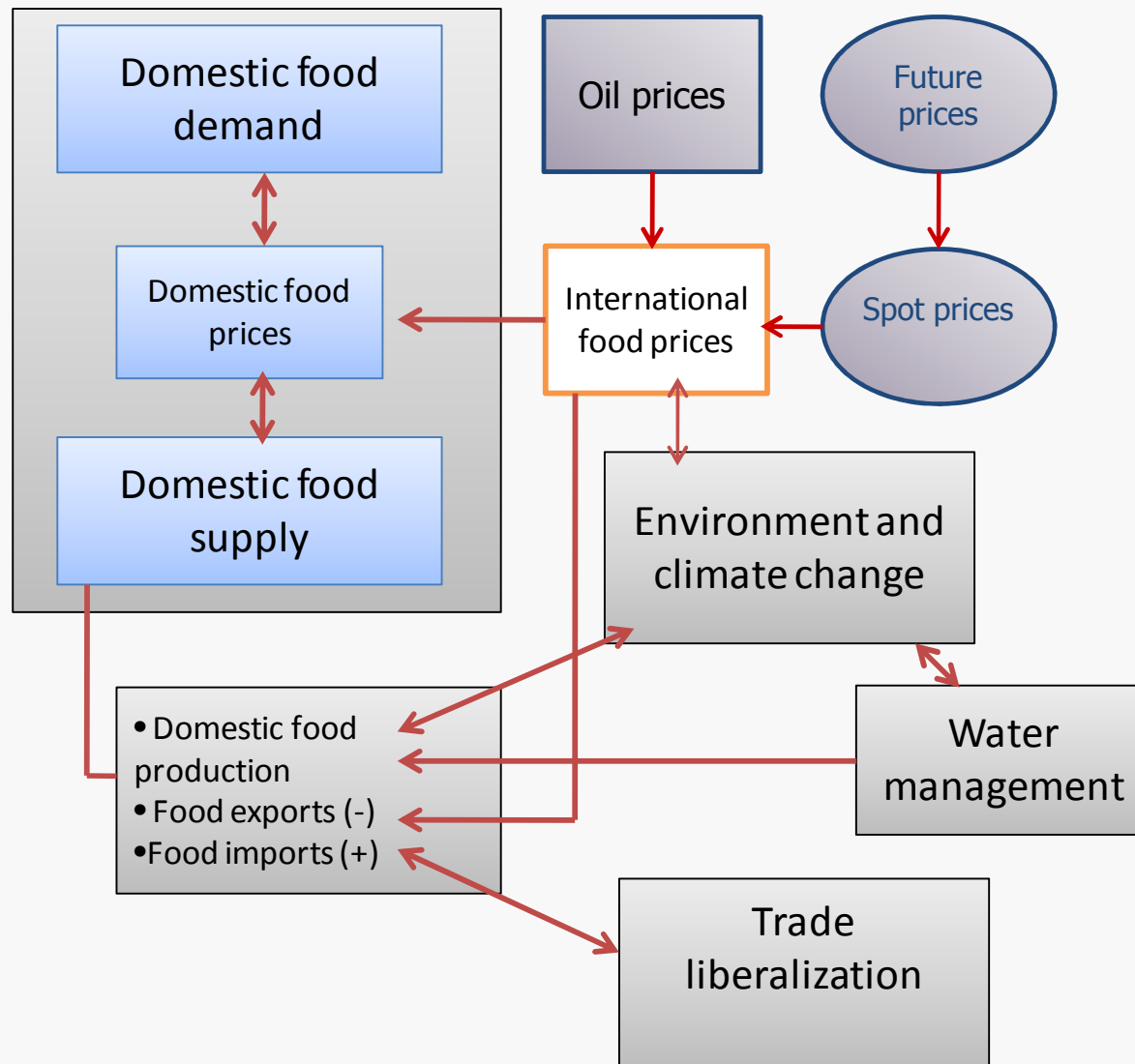
- High price volatility increase expected producer losses
- High price volatility increases misallocation of resources
- Increased price volatility through time generates the possibility of larger net returns in the short term

# This presentation

- Introduction
- **Conceptual framework**
- Problems identified in different analysis
- Proposed solutions



# Linking key medium and long term drivers



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# What are the proposed options

- (1) **ER** = Emergency Reserve, Von Braun & Torero (2009 a,b)
- (2) **ICGR**= Internationally coordinated grain reserves, Linn (2008)
- (3) **RR** = Regional Reserves as the one of ASEAN
- (4) **CR** = Country level reserves, this could imply significant relative costs at the country level, significant distortions and little effect on volatility given low effect over international markets.
- (5) **VR**= Virtual Reserves, Von Braun & Torero (2009)
- (6) **DFIF**=Diversion from industrial and animal feed uses, Wright 2009
- (7) **IS+IFA**= Better information on Storage and International Food Agency (Wright 2009) + better information on modeling extreme volatility (Martins-Filho, Torero, Yao (2010))
- (8) **IGCA**= International Grain Clearance Arrangement, Sarris (2009)
- (9) **FIFF**= Food Import Financing Facility, Sarris (2009).
- (10) **EWM**=Early Warning mechanism (Martins-Filho, Torero, Yao (2010)).
- (11) **TF**= Trade Facilitation - Wright (2009) and Lin (2008)

# Challenges of Physical reserves

- **Determination of optimum stock, which is politically loaded,**
  - Predicting supply and demand and where the potential shortfalls in the market may be can be extremely difficult
  - Reserves are dependent on transparent and accountable governance
- **Level of costs / losses**
  - Reserves cost money and stocks must be rotated regularly
  - The countries that most need reserves are generally those least able to afford the costs and oversight necessary for maintaining them
  - The private sector is better financed, better informed, and politically powerful, putting them in a much better position to compete
- **Uncertainties that strategic reserves can bring about in the market place.**
  - Reserves distort markets and mismanagement and corruption can exacerbate hunger rather than resolving problems

# **Proposals to reduce price volatility using future markets**

- **Regulation of futures market**
  - Problem 1: non binding regulation
  - Problem 2: Inter-linkages between exchanges
- **Virtual reserves**
  - Problem 1: Granger causality from futures to spot
  - Problem 2: Institutional design
  - Problem 3: Identifying unusually high returns in commodity price series

# Regulation of Future exchanges

Should we reform commodity exchanges by:

- limiting the volume of speculation relative to hedging through regulation;
- making delivery on contracts or portions of contracts compulsory; and/or
- imposing additional capital deposit requirements on futures transactions.

**Answer:** Requires several conditions to be effective

**Problem 1:** not binding regulation - we have seen triggers were not activated and also not clear incentives

**Problem 2:** Inter-linkages between exchanges  
(Hernandez, Ibarra and Trupkin, 2011)

# Safeguard mechanism – Virtual reserve

A safeguard mechanism to manage risk through the implementation of a **virtual reserve** backed up by a financial fund to calm markets under speculative situations

**Answer:** Requires several conditions to be effective

**Problem 1:** Links between futures and spot market  
(Hernandez & Torero, 2009)

**Problem 2:** Institutional design

**Problem 3:** An early Warning mechanism to define “volatility” and abnormalities in changes in returns (extreme values)  
-  $R_t = (\ln P_t - \ln P_{t-1})$  (Martins-Filho, Torero, Yao; 2010)

## Safeguard mechanism – Virtual reserve

The key advantages of the VR with respect to a physical reserve and regulation concepts are:

- it is just a signalling mechanism;
- it does not put more stress on the commodity market;
- it does not incur in the significant storage and opportunity cost of a physical reserve;
- it resolves the problem of the inter-linkage between the financial and the commodity market; and
- given that it is a signal, its effect over markets should be minimal.



## Early warning mechanism to define volatility and abnormalities in changes in price returns

- We have used the estimator described in Martins-Filho, Torero , & Yao ( 2010) to estimate conditional quantiles for log returns of future of hard wheat, soft wheat, corn and soybeans.
- For these empirical exercises we use the following model:

$$r_t = m_0 + m_1(r_{t-1}) + m_2(r_{t-2}) + (h_0 + h_1(r_{t-1}) + h_2(r_{t-2}))^{1/2} \varepsilon_t.$$

- We can simulate the 95% conditional quantile for the log return on the following day
- This can help identify return abnormalities and therefore used as a trigger mechanism or an early warning mechanism

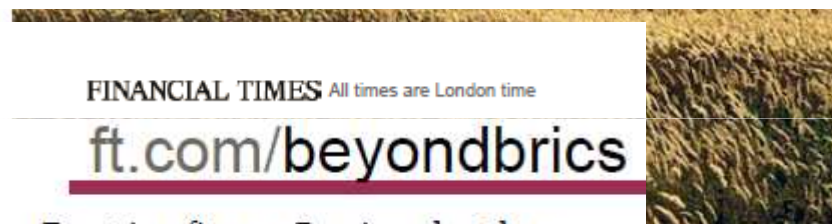
## Wheat Prices Soar After Russia Bans Exports

Steve Baragona | Washington06 August 2010



The Washington Post

Russia bans grain exports because of fire and drought, sending prices soaring



The New York Times • Reprints

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October 15

August 6, 2010

## No Wheat Shortage, but Prices May Rise

By GRAHAM BOWLEY and ANDREW MARTIN

hindustantimes

Ariana Eunjung Cha & Janine Zacharia  
Email Author  
Moscow, August 07, 2010

First Published: 00:11 IST (7/8/2010)  
Last Updated: 00:12 IST (7/8/2010)

Russia ban sends wheat prices soaring

New York Times

"No Wheat Shortage, but Prices May Rise"

Financial Times

Russia grain export ban sparks price fears

Published: August 5 2010 10:50

Voice of America

"Wheat Prices Soar after Russia Bans Exports"

WSJ

Wheat Prices Hit 12-Year Highs Following Russian Ban  
Aug 5, 2010

Economic Times (India)

"Russian Crisis Won't Impact Global Wheat Supplies, Prices"

The Diane Rehm Show (USA)

"World Wheat Supplies"

Radio France Internationale, English to Africa service

"Russia Wheat Ban Raises Food Security Fears"

Radio France Internationale, Latin America Service

Asia Sentinel

"Is Another Food Crisis Coming?"

BBC World News America

"From Farmers to Bakers: What the Wheat Shortfall Means"

Financial Times

Prospect of Russian grain imports lifts wheat

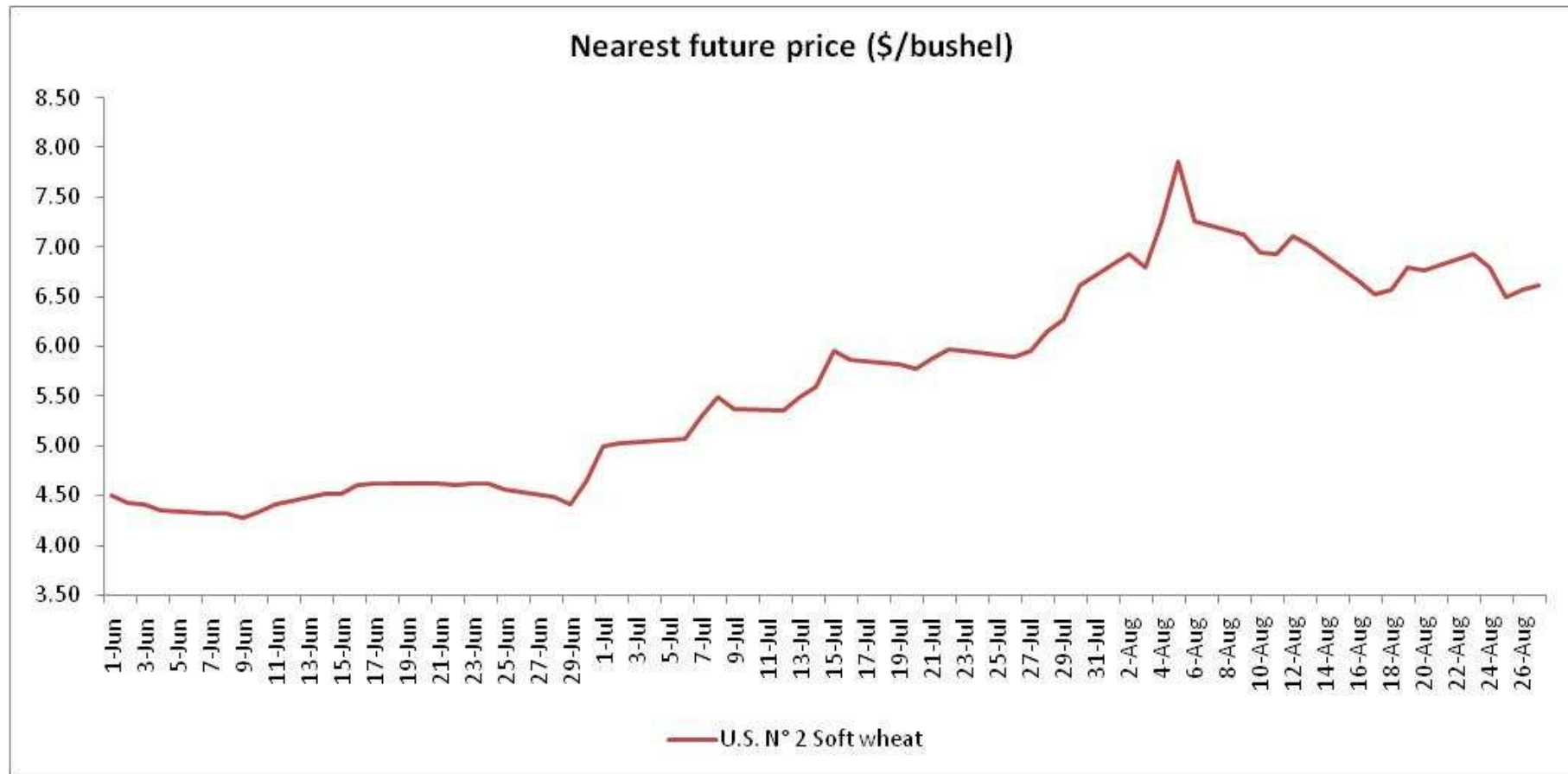
Published: August 19 20

Bloomberg

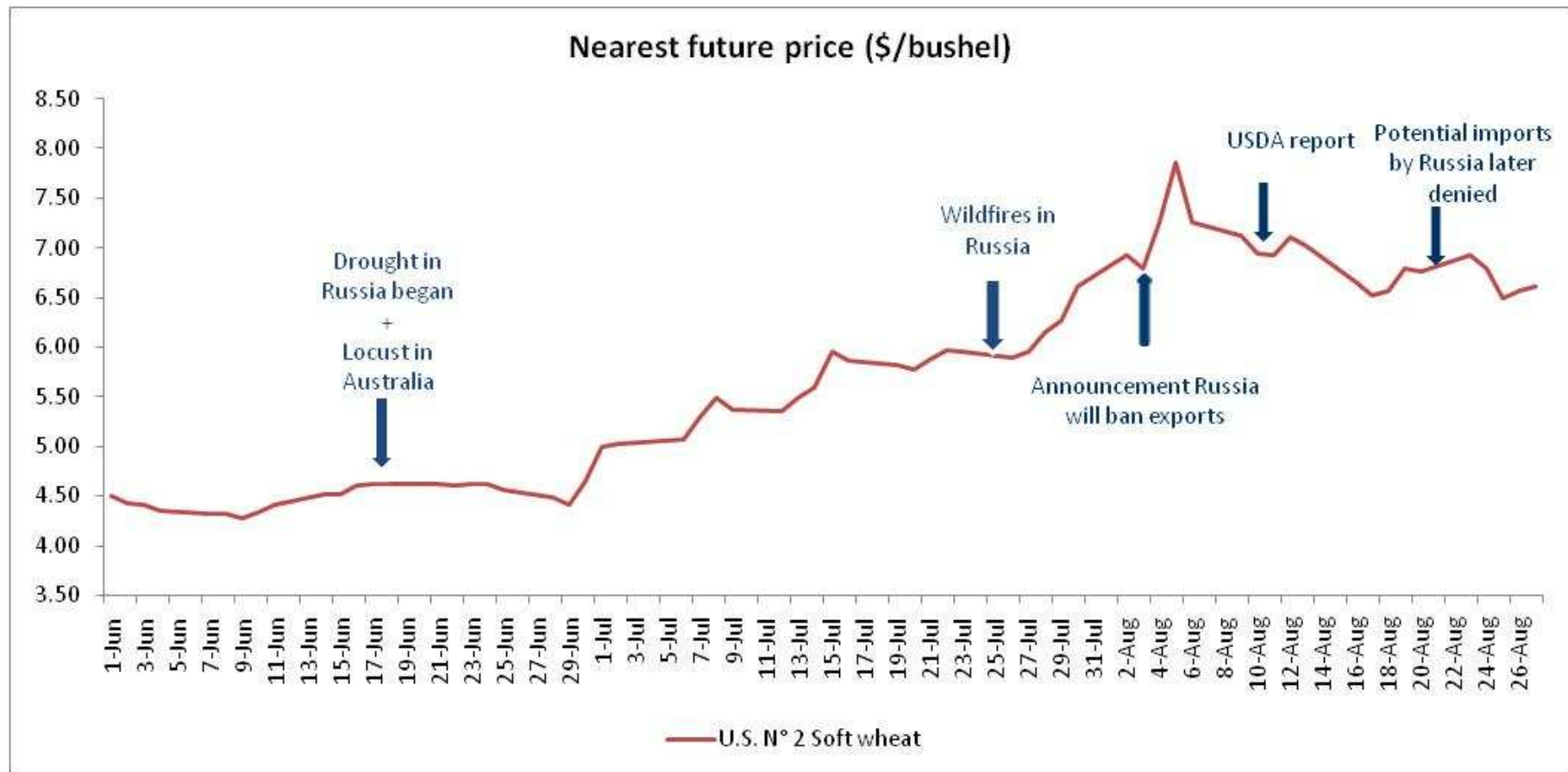
Wheat Prices Jump Most in Week as

Argentina, Russia Crops Hurt by Drought

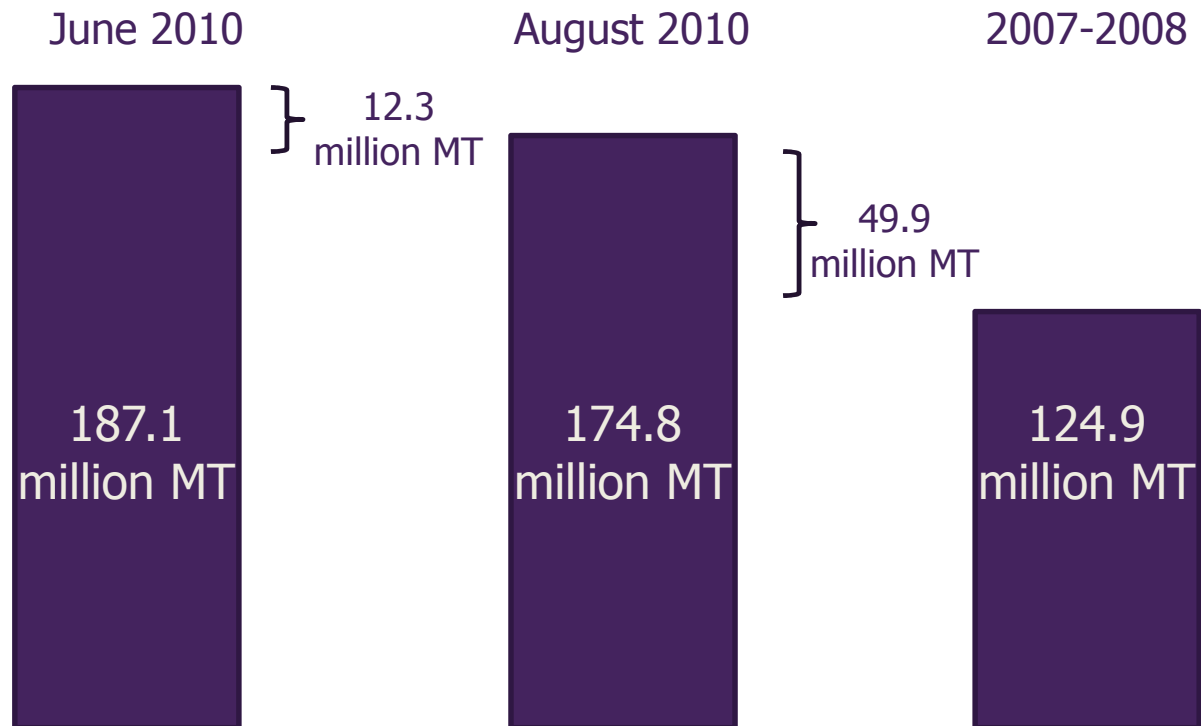
# CBOT wheat prices



# CBOT wheat prices

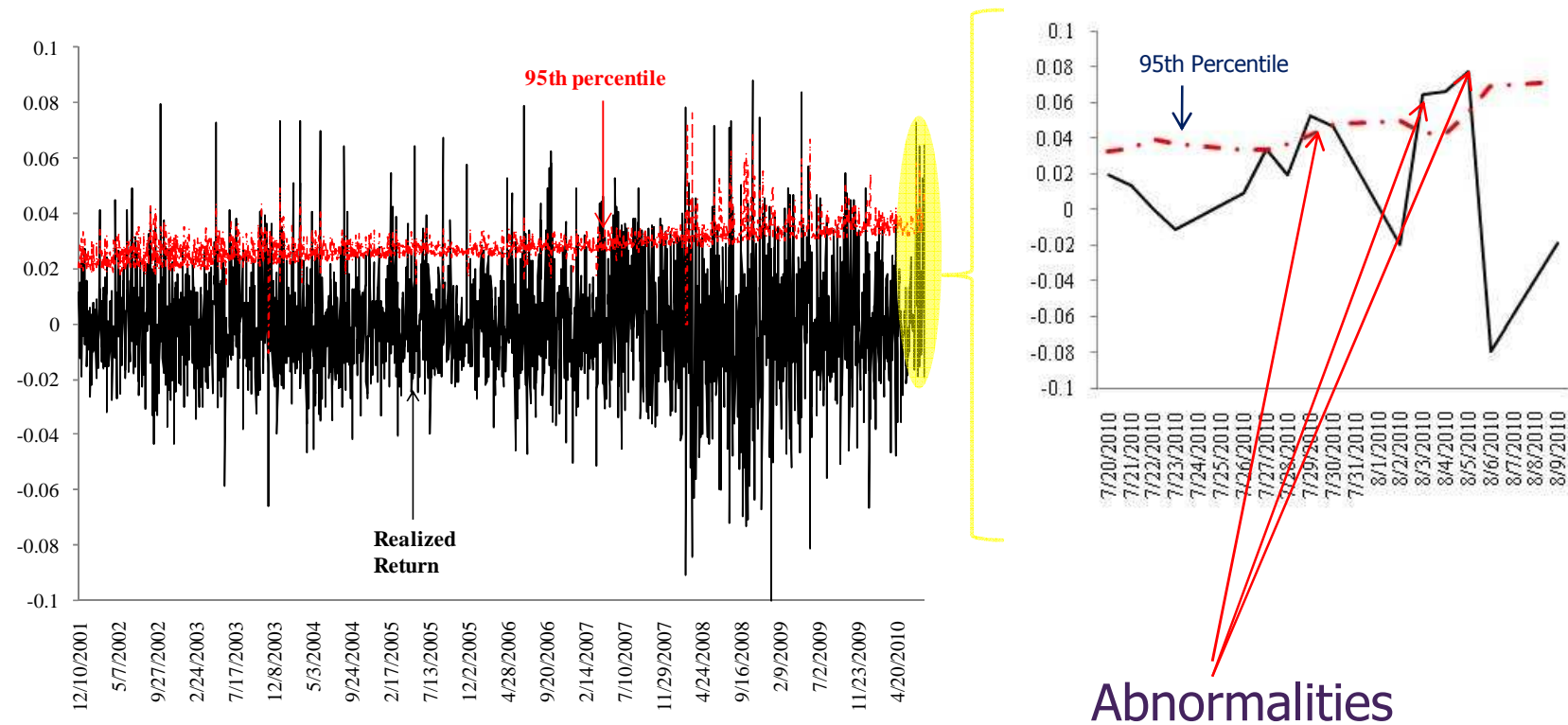


# Global stocks of wheat



Source: World Agricultural Outlook Board (August 12, 2010).

# CBOT wheat prices – IFPRI model to detect abnormal spikes



Source, Martins-Filho, Torero, Yao (2010)

# 7 STEPS to Prevent Recurring Food Crises






# 1

**Curtailing subsidies and reforming policies, particularly in the United States and Europe, to minimize biofuels' contribution to volatility in food markets.**

- Remove provisions of current national policies that subsidize (or mandate) biofuels production or consumption
- Alternatives of flexible mandates should be explored when global markets are under pressure and food supplies are endangered
- Trade restrictions on biofuels and their feedstocks should be eliminated to favor diversification of suppliers and limit the distortive effects of existing policies.





- 
- A photograph of a woman carrying a young child on her back. The woman is wearing a light-colored shirt and a patterned shawl with blue, white, and red stripes. The child is wearing a yellow shirt. The background is blurred, showing what appears to be a wooden structure.
- Social protection programs are also desirable
  - National governments should immediately expand safety net programs already in place.
  - South – South learning is essential
  - Combined social protection and agricultural support interventions can lead to greater impacts on food security than either intervention alone

**2** Creating or strengthening social protection for women, young children, and other especially vulnerable groups—something few countries have done during or since the 2007-08 crisis.

The background of the slide features a photograph of a coastal town with buildings and a harbor, partially obscured by a large, semi-transparent red number '3' on the right side. A red textured banner is positioned at the top left, containing the main title in white text.

## Improving the transparency, fairness, and openness of international trade to enhance the efficiency of global agricultural markets.

- National governments should eliminate existing export restrictions, such as export bans, and refrain from imposing new ones.
- Governments should also eliminate harmful import tariffs and nontariff trade barriers.
- A quick and favorable completion of the World Trade Organization (WTO) Doha Round would reduce maximum tariff levels and thereby also reduce the risk of governments implementing policies that would further destabilize world food markets.






# 4

## Setting up a global emergency grain reserve to handle food price crises.


- This "emergency reserve":
  - Is not a buffer stock,
  - It is not to stabilize prices
  - It is directly linked to **access of food** in extreme price abnormalities where markets don't work properly in the short term and countries in emergency situation can't have access to commodities.
- The concept requires:
  - A clear trigger mechanism
  - Cost effectiveness (supply should be re-paid at market price)
  - Targeting by linking to safety net programs

- 
- Improve enabling environment for farmers and other private sector actors
  - Improve food and agriculture innovation systems
  - Strengthen the CGIAR system
  - Input markets (fertilizer and extreme climate resistant seeds)
  - Bottlenecks in the value chain that could reduce time for response from producers
  - Reducing waste and increasing nutritious content across the value chain
  - Moving from emergency response to social protection and insurance

5

**Pursuing policies and investments to promote agricultural growth, in particular smallholder productivity, in the face of climate change.**






Investment by national governments in climate change adaptation and mitigation using the full potential that agriculture offers.

6





## 7 Establishing an international working group to monitor the world food situation and trigger action to prevent excessive price volatility.

- **A web-based information and knowledge clearinghouse**
  - A model to **forecast extreme value of price spikes**
  - Understanding **price transmission** and a **policy tool for measuring price transmission** from global to local prices
  - Understanding the effects of price changes
- **Policy Analysis-support tools**
  - Built capacities at the country level
  - Tracking food policies
- **Identifying best and bad practices for food security**

# **7 STEPS** to

## **Prevent Recurring Food Crises**

1. Effective policies and technology investments to minimize food–fuel competition.
2. Social protection, especially social safety nets, for the most vulnerable groups.
3. Transparent, fair, and open global trade.
4. A global emergency physical grain reserve.
5. Policies and investments to promote agricultural growth, in particular smallholder productivity, in the face of climate change.
6. Investments by national governments in climate change adaptation and mitigation using the full potential that agriculture offers.
7. An international working group to regularly monitor the world food situation and trigger action to prevent excessive price volatility.

**[www.foodsecurityportal.org](http://www.foodsecurityportal.org)**

**Thank you**