Global Economic Trends: Forage, Feeds and Milk

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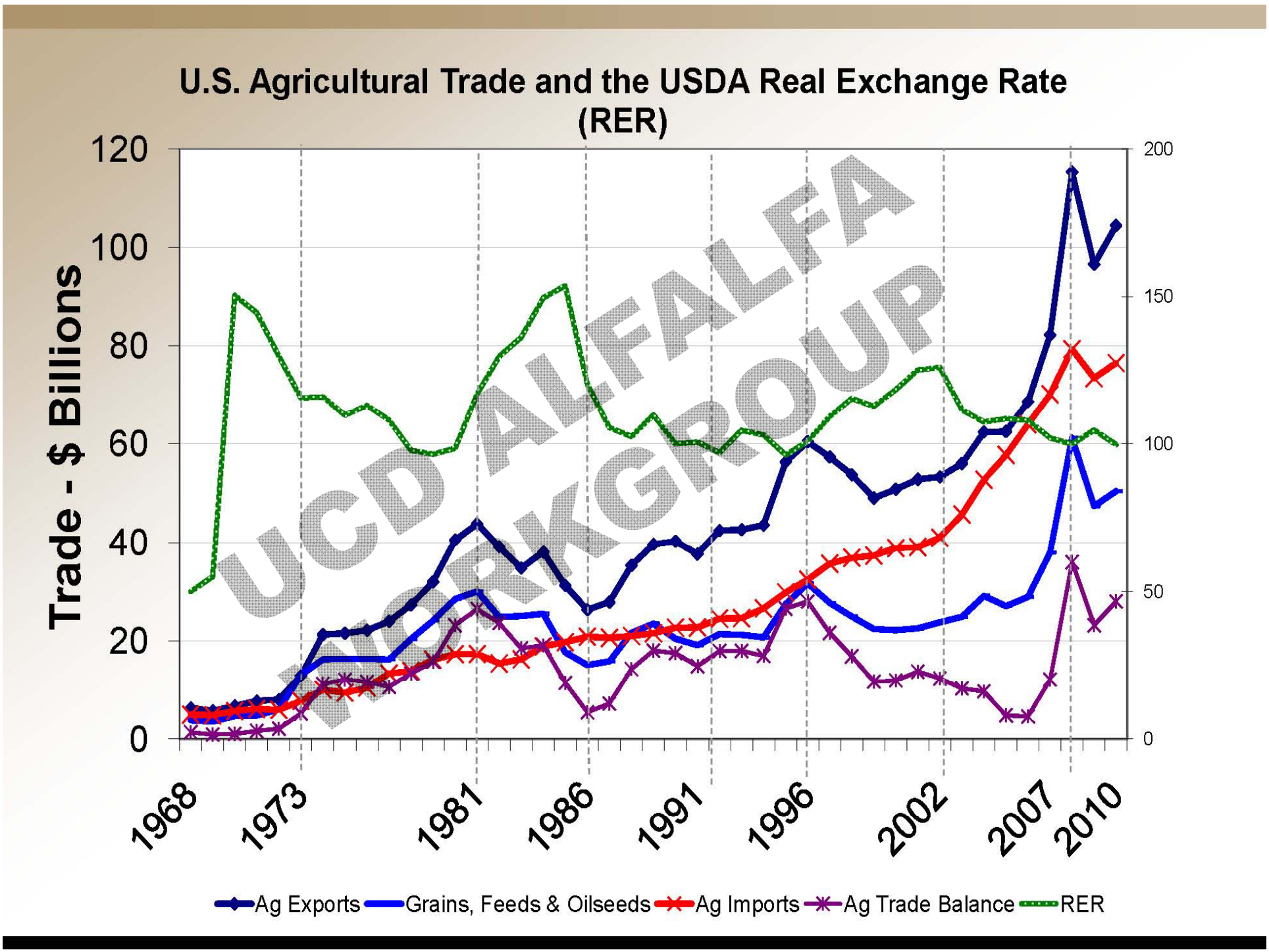
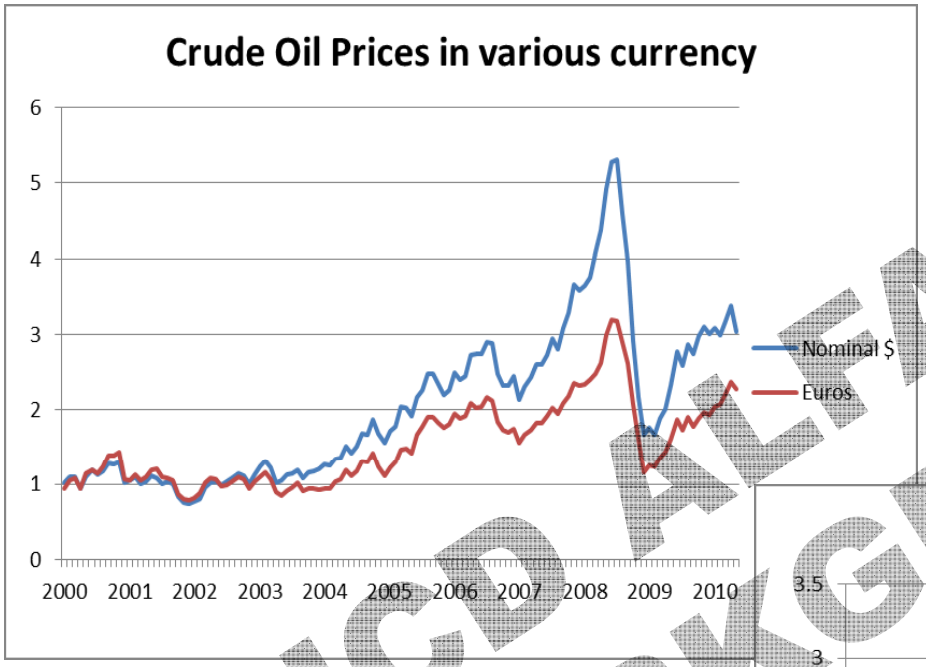
Increasing Volatility in Agricultural Markets (Prices)

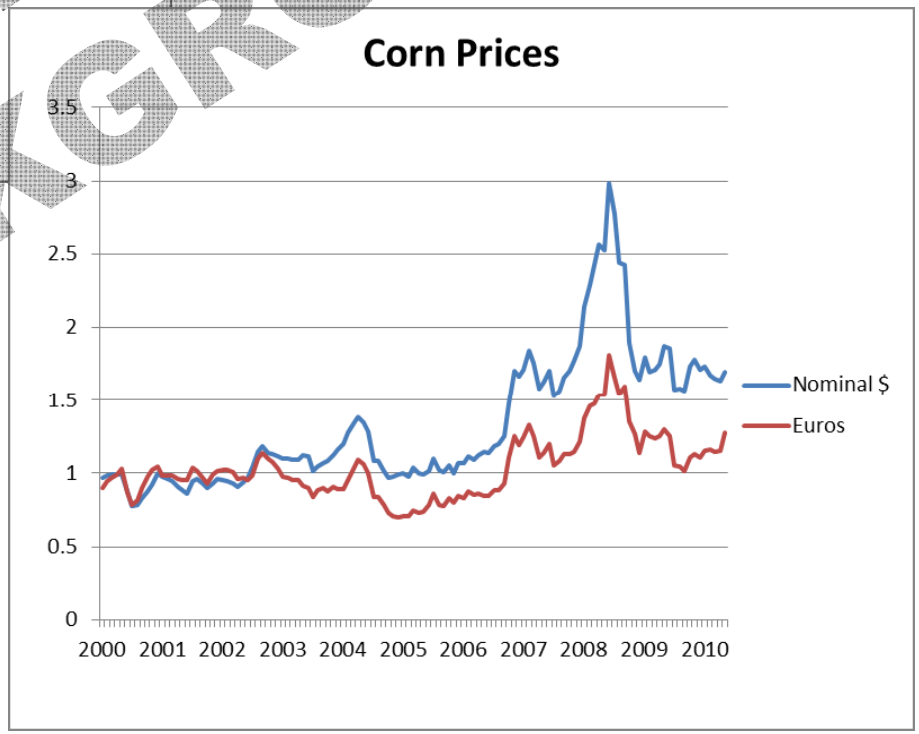
- Increasing globalization of our agricultural markets has been recognized for several years.
- But the impact of this globalization has only recently been linked to impacts on our domestic markets that we formerly have not recognized.
- As we have developed our export markets, and agricultural exports have become an increasingly important part of our economy, we have also experienced increasing volatility in our agricultural prices.

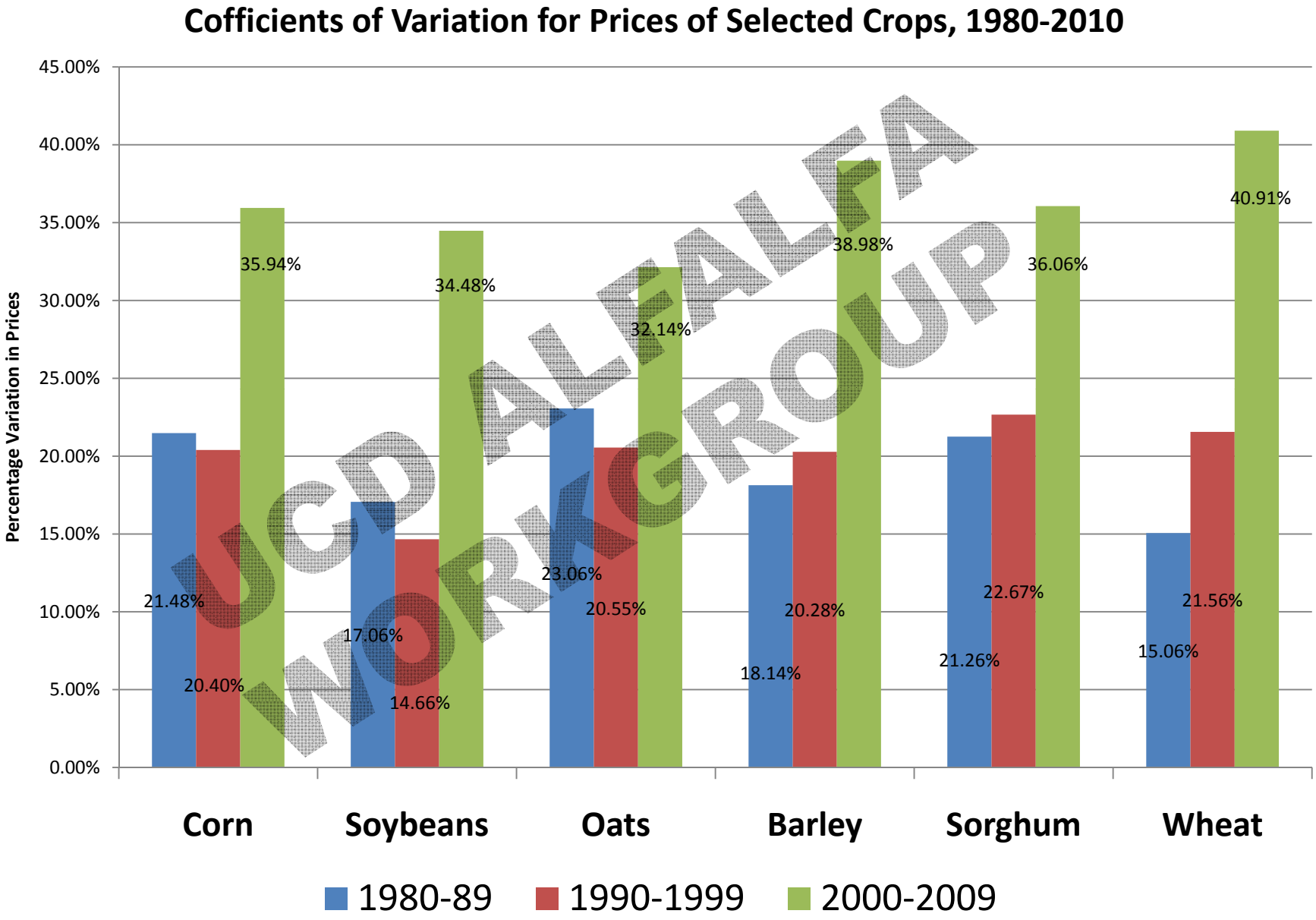
Exchange rates and agricultural trade

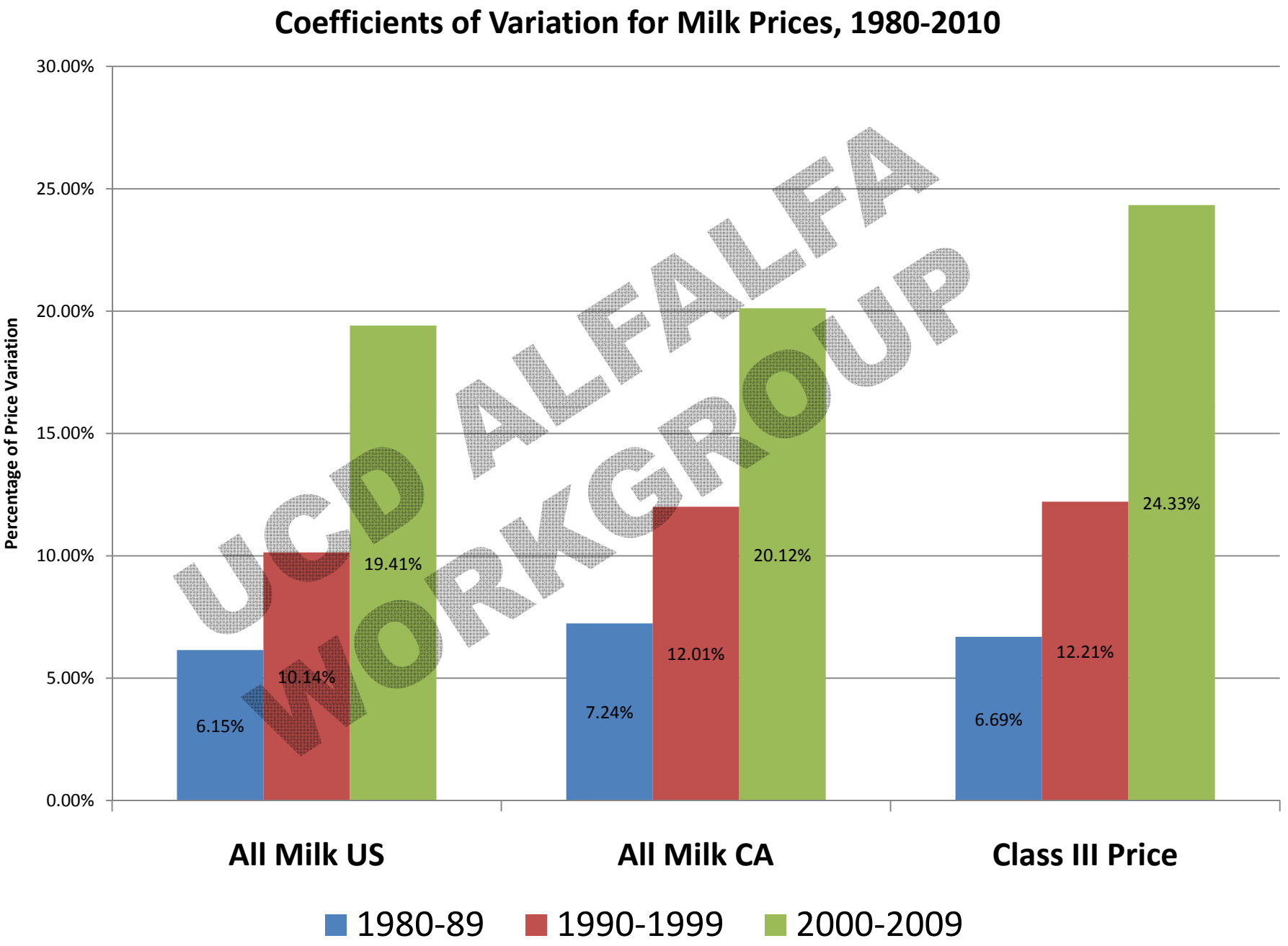
- A weak dollar has allowed us to increase our agricultural exports – much to the good of ALL agricultural industries.
- BUT, small changes in exchange rates has also created volatility in our domestic markets because small changes can have very large impacts on the supply of products to our domestic markets due to the increased importance (size) of the export market.

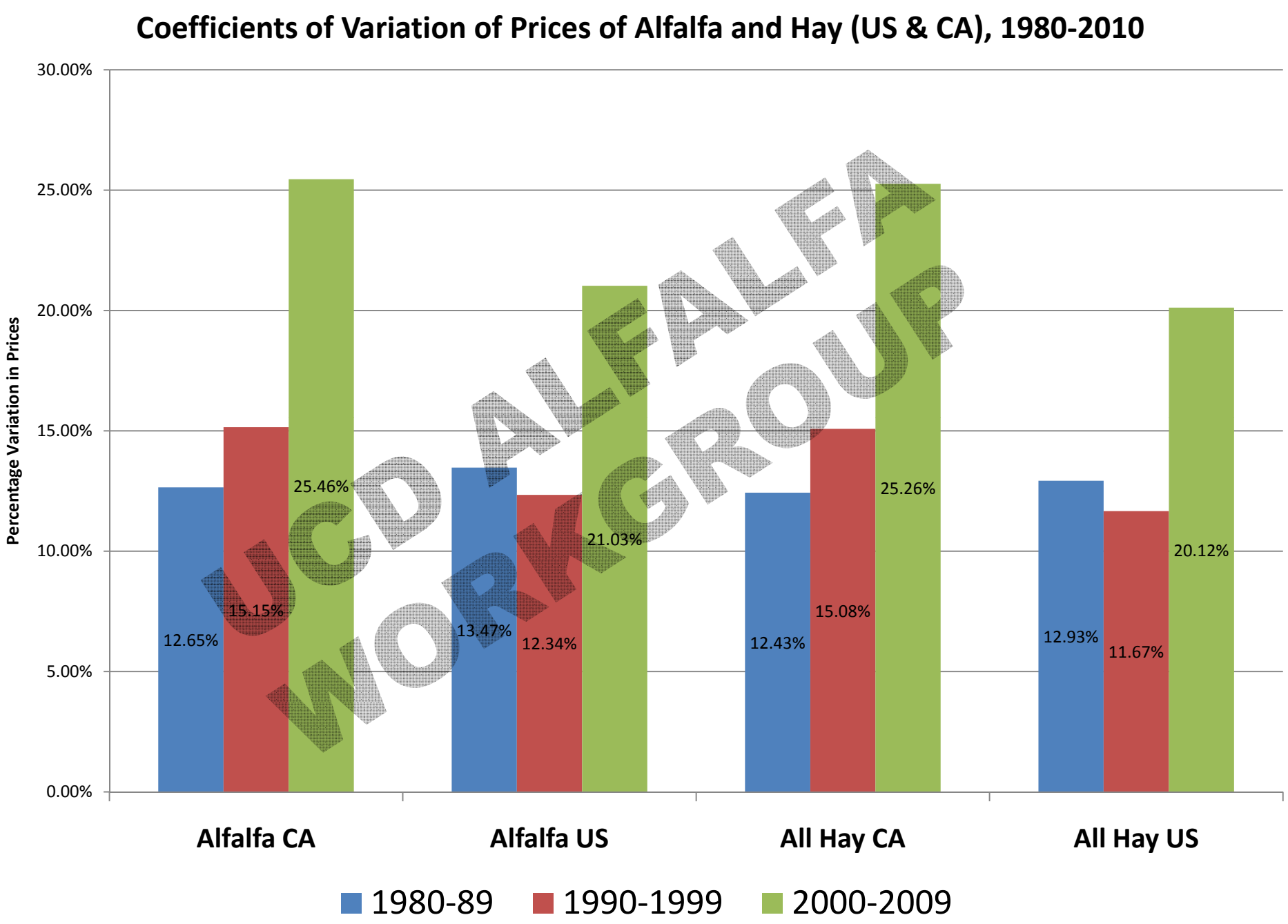

U.S. Agricultural Trade and the USDA Real Exchange Rate (RER)
Trade - $ Billions
120
100
80
60
40
20
0
200
150
100
50
0
1968
1973
1981
1986
1991
1996
2002
2007
2010
UCD ALFALFA WORKGROUP
Ag Exports
Grains, Feeds & Oilseeds
Ag Imports
Ag Trade Balance
RER






Cofficients of Variation for Prices of Selected Crops, 1980-2010
Percentage Variation in Prices
45.00%
40.00%
35.00%
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
21.48%
20.40%
35.94%
17.06%
14.66%
34.48%
23.06%
20.55%
32.14%
18.14%
20.28%
38.98%
21.26%
22.67%
36.06%
15.06%
21.56%
40.91%
Corn
Soybeans
Oats
Barley
Sorghum
Wheat
1980-89
1990-1999
2000-2009
UCD ALFALFA WORKGROUP


Coefficients of Variation for Milk Prices, 1980-2010
Percentage of Price Variation
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
6.15%
10.14%
19.41%
7.24%
12.01%
20.12%
6.69%
12.21%
24.33%
All Milk US
All Milk CA
Class III Price
1980-89
1990-1999
2000-2009
UCD ALFALFA WORKGROUP


Coefficients of Variation of Prices of Alfalfa and Hay (US & CA), 1980-2010
Percentage Variation in Prices
30.00%
25.00%
20.00%
15.00%
10.00%
5.00%
0.00%
12.65%
15.15%
25.46%
13.47%
12.34%
21.03%
12.43%
15.08%
25.26%
12.93%
11.67%
20.12%
Alfalfa CA
Alfalfa US
All Hay CA
All Hay US
1980-89
1990-1999
2000-2009
UCD ALFALFA WORKGROUP

Reasons for Volatility

- Inelastic Demand
- Volatile prices in other markets
- International markets
- Macroeconomic Policies
  - Exchange rates
  - The “race to the bottom”
  - $600 billion bond purchase by the Fed

Volatility in Alfalfa Markets

- Profitability of alternative crops
  - Cotton, tomatoes, trees and vines
- Size and well-being of dairy industry
- Water availability and water costs
- Variability of previous alfalfa prices
- Price expectations
- Milk prices
- Price of corn and soybeans

QUESTION

- What, if anything, can the individual alfalfa producer and alfalfa (and other) hay dealers do about price uncertainty resulting from global market trends, macroeconomic forces and increasingly volatile agricultural markets and exchange rate fluctuations???

Producer Ranking of Risks in Agriculture

	All Farms	Field Crops	Dairy
Decrease in crop yield/production	2.95	2.53	3.4
Price uncertainty	2.91	2.48	3.54
New technology	2.23	1.92	2.45
Lawsuits	2.26	2.07	2.36
Changes in consumer demand	2.47	2.13	2.76
Changes in laws/regulations	3.02	2.88	3.31
1=Not concerned…..5=Very concerned			
Source: Janet Perry, USDA-ERS, December 1997			

Producer Ranking of Risks in Agriculture

- In California, several studies have shown that risk associated with yield/production is somewhat reduced because of the availability and use of irrigation.
- Thus, the main concern in California tends to be PRICE RISK
- Although with water restrictions and water costs increasing, yield/production risk is also increasing in California

Risk Management Strategies

- Enterprise diversification
- Additional/Alternative enterprises
- Vertical integration
- Production & marketing contracts
- Hedging in futures and options contracts
- Insuring crop yields and crop revenues (but not alfalfa)
- Financial reserves, leveraging and liquidity
- Leasing inputs, custom work and off-farm employment/income

Risk Management Strategies

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Futures Contracts

- Futures contracts shift the risk from producers to speculators.
- Contract is an agreement to accept or deliver an asset at an agreed upon price.
- Contracts are standardized, so only price is negotiated
- Most contracts are offset by opposite trades before delivery time.
- Because futures and cash prices tend to move together, losses and gains in both markets tend to offset each other.

Futures Contracts

- Losses from one market are offset by gains on the other market.
- Thus, hedging helps protect an enterprise from changes in price levels.
- Protection offered is by no means complete. At best, hedging is only a means of reducing the size of the risk.
- Producers and others can hedge the following strategies:
  - Storage hedge
  - Production hedge
  - Hedging expected purchases

Futures contracts for Alfalfa??

1. Might it be possible to establish an alfalfa futures market??
2. Are there cross-hedging possibilities??

Can we establish a futures market for Alfalfa?

- Establishing the suitability of a commodity for futures contracts is difficult and complex task.
- Commodity characteristics (NYMEX):
  - Price uncertainty
  - Demand and supply uncertainty
  - Deliverability of commodity
  - Product homogeneity
  - Availability of price information
  - Trading Opportunity

Can we establish a futures market for Alfalfa?

- Market Characteristics:
  - Functioning spot market (for price reference)
  - Market structure (CR5 and CR10 and markets shares)
  - Hedging needs of potential participants

  - Possible options market?

Cross-Hedging Possibilities for Alfalfa

- Cross-hedging is hedging a cash commodity on a different futures market commodity.
- Cross-hedging is risky and there may be other alternative risk management strategies that are better than cross-hedges.
- Cross hedging works best when:
  - Price of the commodity being cross-hedged is closely related to the futures prices of the futures market commodity.
  - Sufficiently large quantities are being traded to meet cross-hedged futures contract size specifications.

Correlation Coefficients for Commodity Prices - Alfalfa and Hay vs. Grain and Dairy Products

	Alfalfa -CA	Alfalfa-US	All Hay-CA	All Hay-US
Alfalfa-CA	1.0000			
Alfalfa-US	0.8856	1.0000		
All Hay-CA	0.9800	0.8865	1.0000	
All Hay-US	0.8733	0.9944	0.8745	1.0000
Soybeans	0.5717	0.7193	0.5924	0.7325
Corn (grain)	0.6859	0.8521	0.7083	0.8632
Oats	0.8049	0.9065	0.8239	0.9095
Barley	0.7395	0.8273	0.7538	0.8360
Sorghum (NT)	0.6650	0.8135	0.6914	0.8319
All Wheat-US	0.7432	0.8295	0.7773	0.8363
16% Protein Dairy Ration (NT)	0.7498	0.9069	0.7698	0.9142
All Milk Price-CA	0.6615	0.5315	0.6497	0.5175
All Milk Price-US	0.6852	0.5602	0.6727	0.5456
Class III Milk (Cheese) Price	0.6770	0.5609	0.6650	0.5504

Cross-Hedging Issues

- Which futures contract? Corn? Soybeans? Oats? Wheat?
- What size of contract?
- What is the risk? Seasonality & location.

Conclusions

- Increasing globalization has lead to increasing volatility of agricultural markets and prices.
- Current conditions could be ripe for the establishment of a futures market for alfalfa.
- Cross-hedging of alfalfa on current futures markets may be possible – but needs to be checked out carefully