

A world map with a light orange background and a grid of latitude and longitude lines. The map is rendered in a darker orange color. A horizontal line is drawn across the map, passing through the equator. The continents are labeled with bold, italicized text: North America, Latin America, Europe, Africa, Asia, and Oceania.

North America

Europe

Asia

Africa

Latin America

Oceania

Price Volatility and Risk in World Markets: Who Bears the Brunt?

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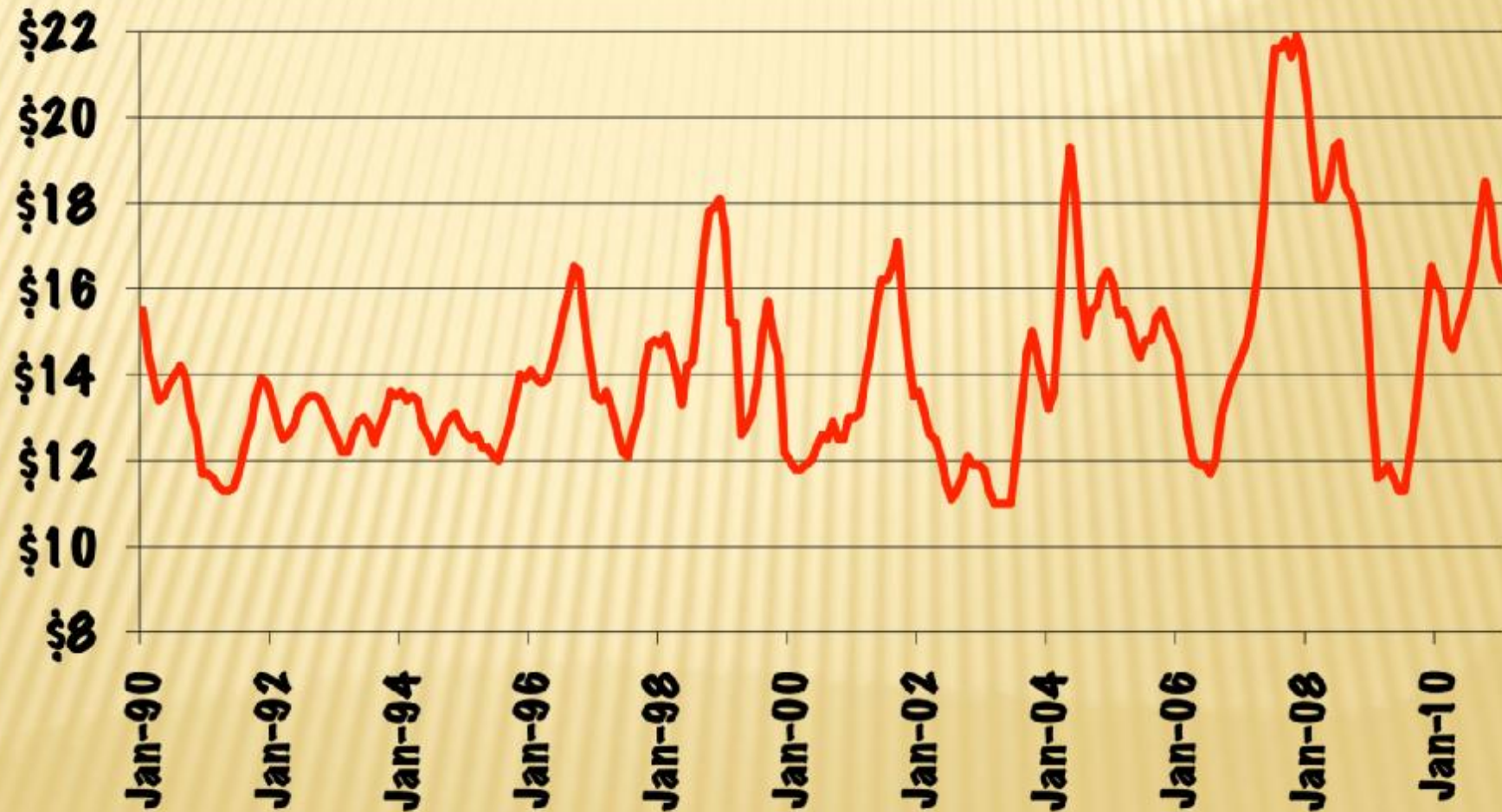
Associate Director

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What is the Biggest Risk Facing U.S.
Dairy Farmers Today?

Price Risk!

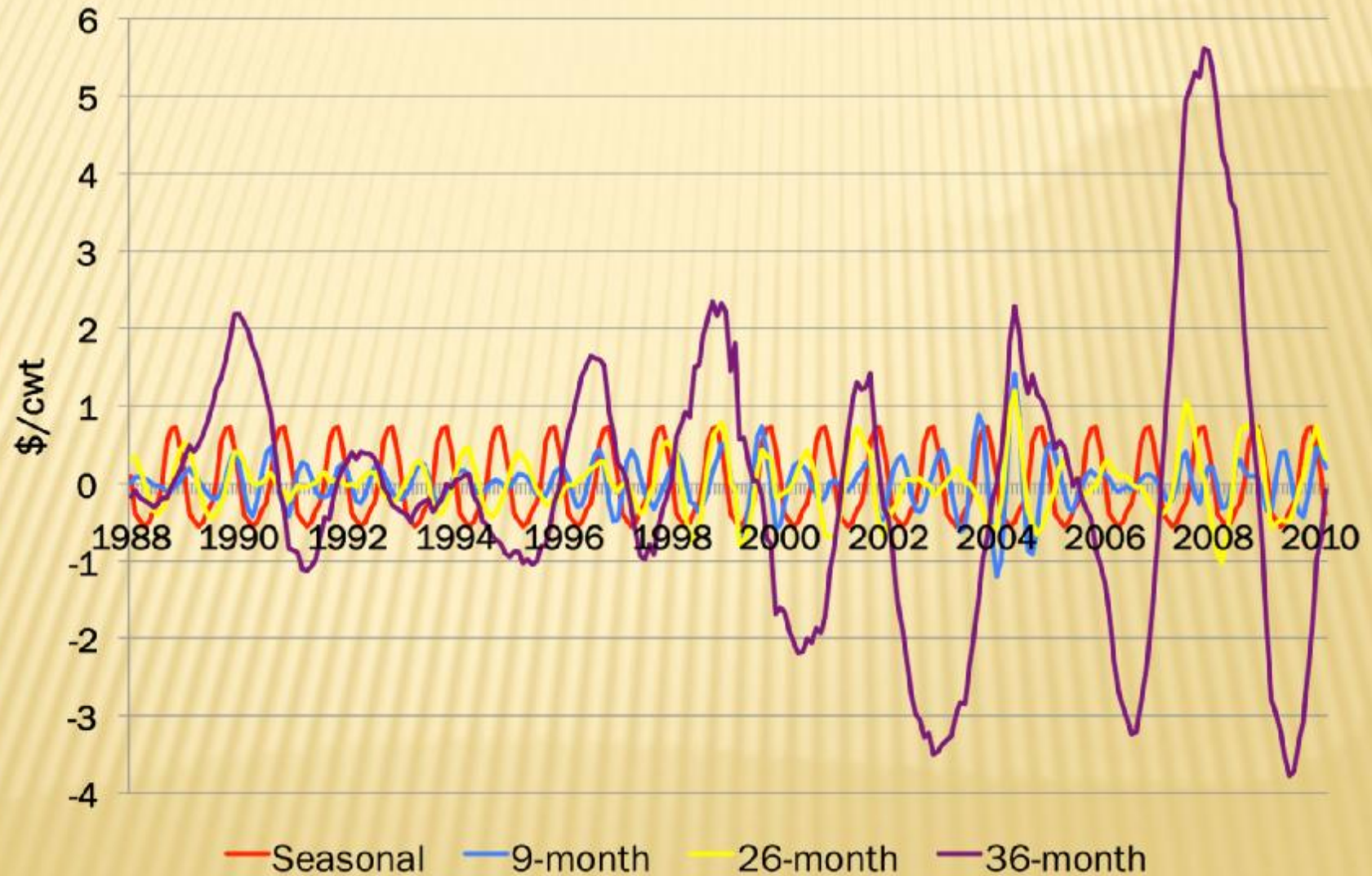
U.S. All Milk Price



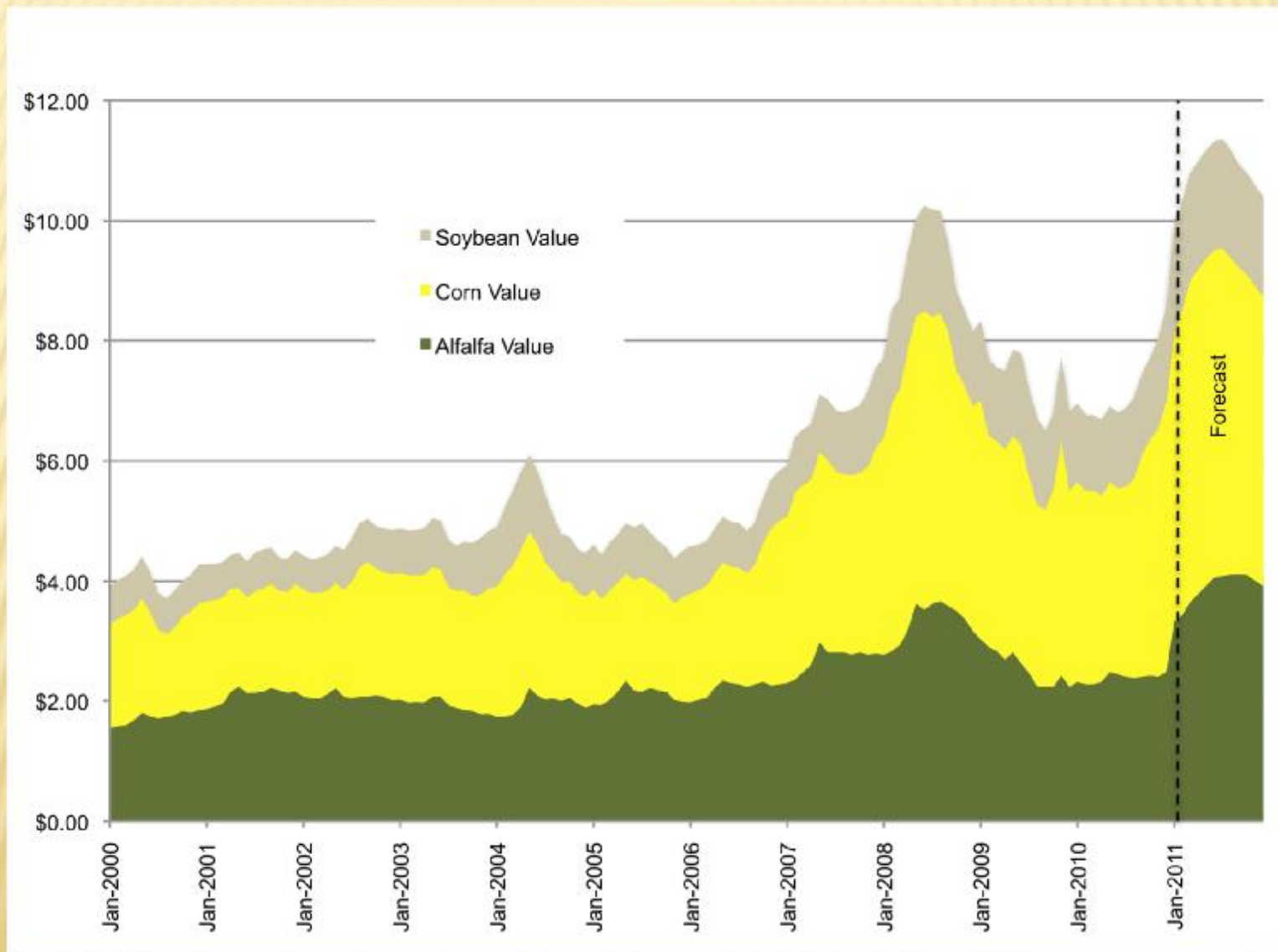
We Have Four Cycles

- ò **There appears to be a 9 month cycle**
- ò **There appears to be an annual cycle**
- ò **There appears to be a 26 month cycle**
- ò **There appears to be a 36 month cycle**

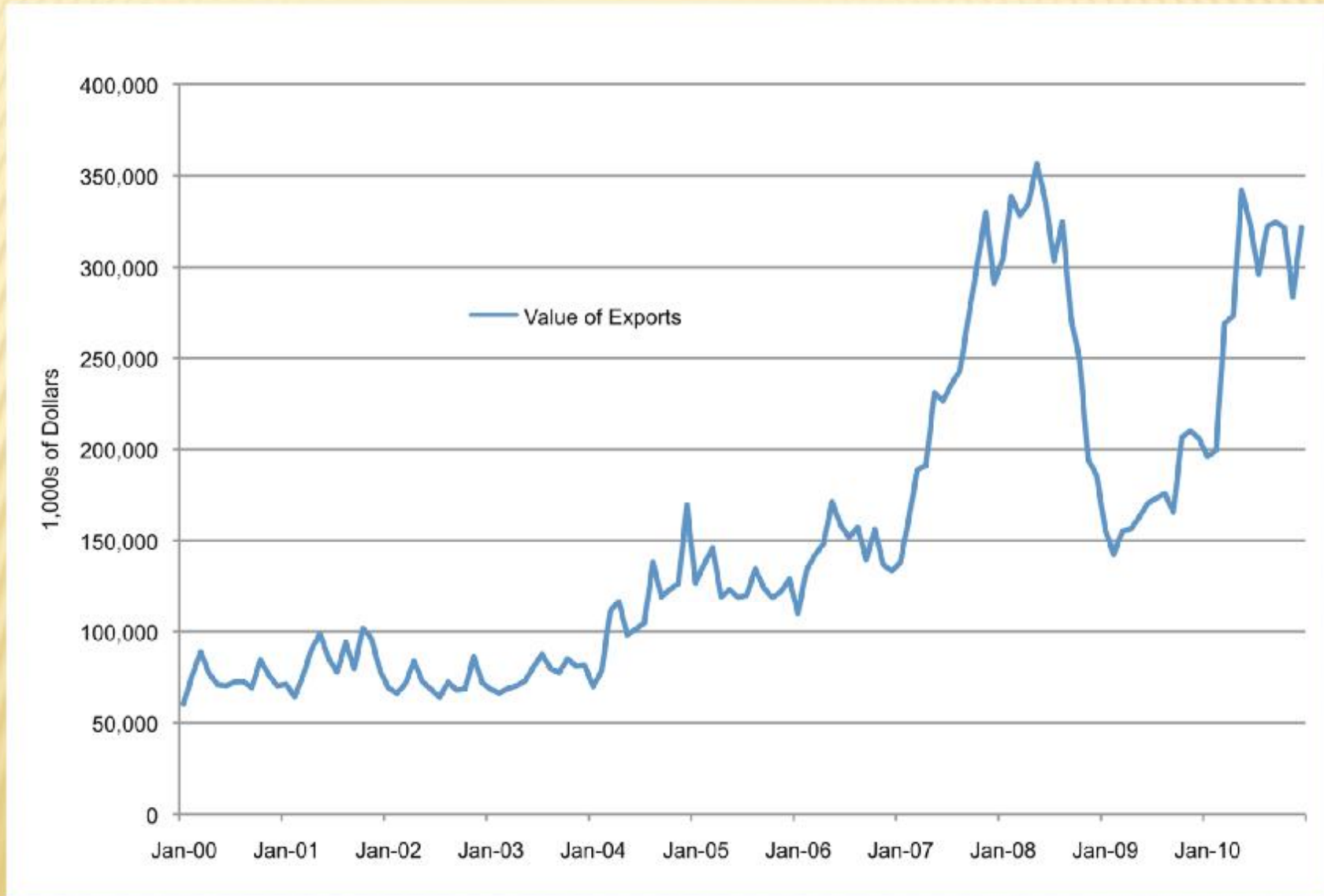
Spectral Decomposition



Supply Shock



Demand Shock



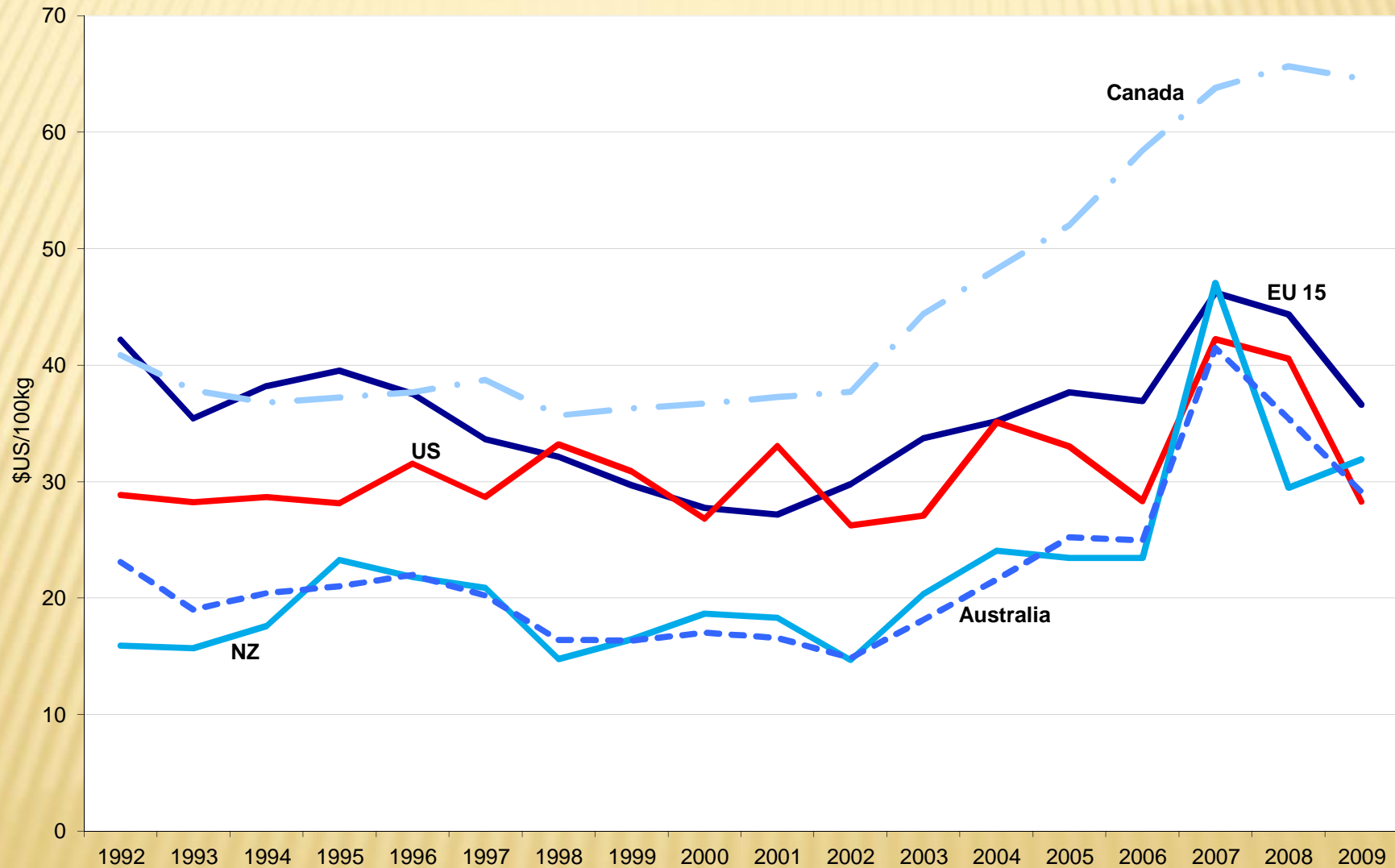
We Have Become a World Player

- ò **Will we face less volatility because the rest of the world is a bigger balancing tank?**
- ò **Will we face more volatility?**
- ò **Will we drag the rest of the world into our highly variable milk prices?**

Policy Changes Impact World Milk Prices

- ò **The European Union kept domestic prices high with export subsidies**
- ò **The EU can no longer afford those subsidies**
- ò **With less EU product on world markets, world prices have increased.**

International Farm Milk Prices (U.S.\$/100kg)

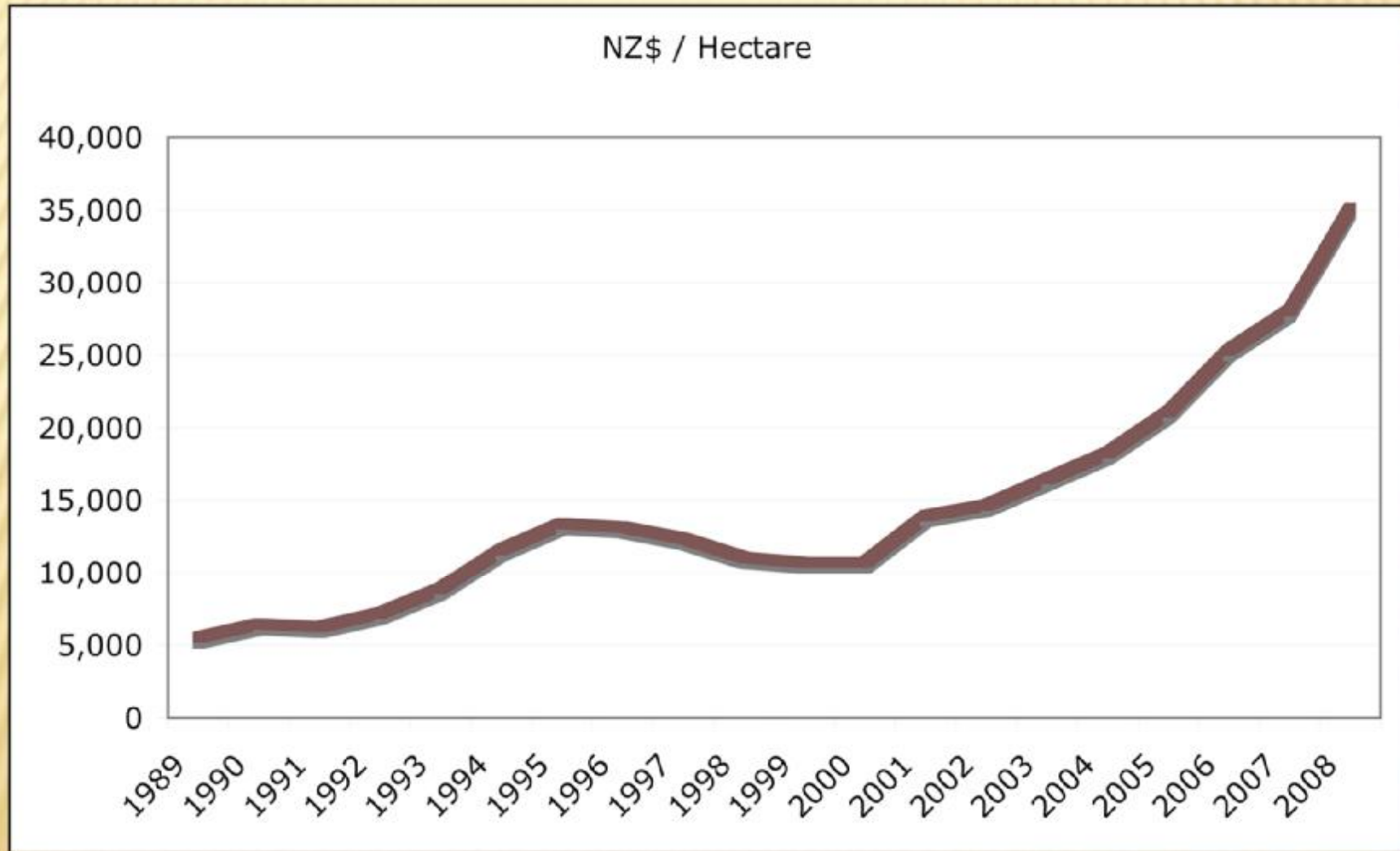


Source: Dairy

“Rents” Will Be Capitalized

- ò In countries like New Zealand, land is most binding constraint.**
- ò In Canada, quota is most binding constraint**
- ò In countries like the United States, cows have been a binding constraint.**

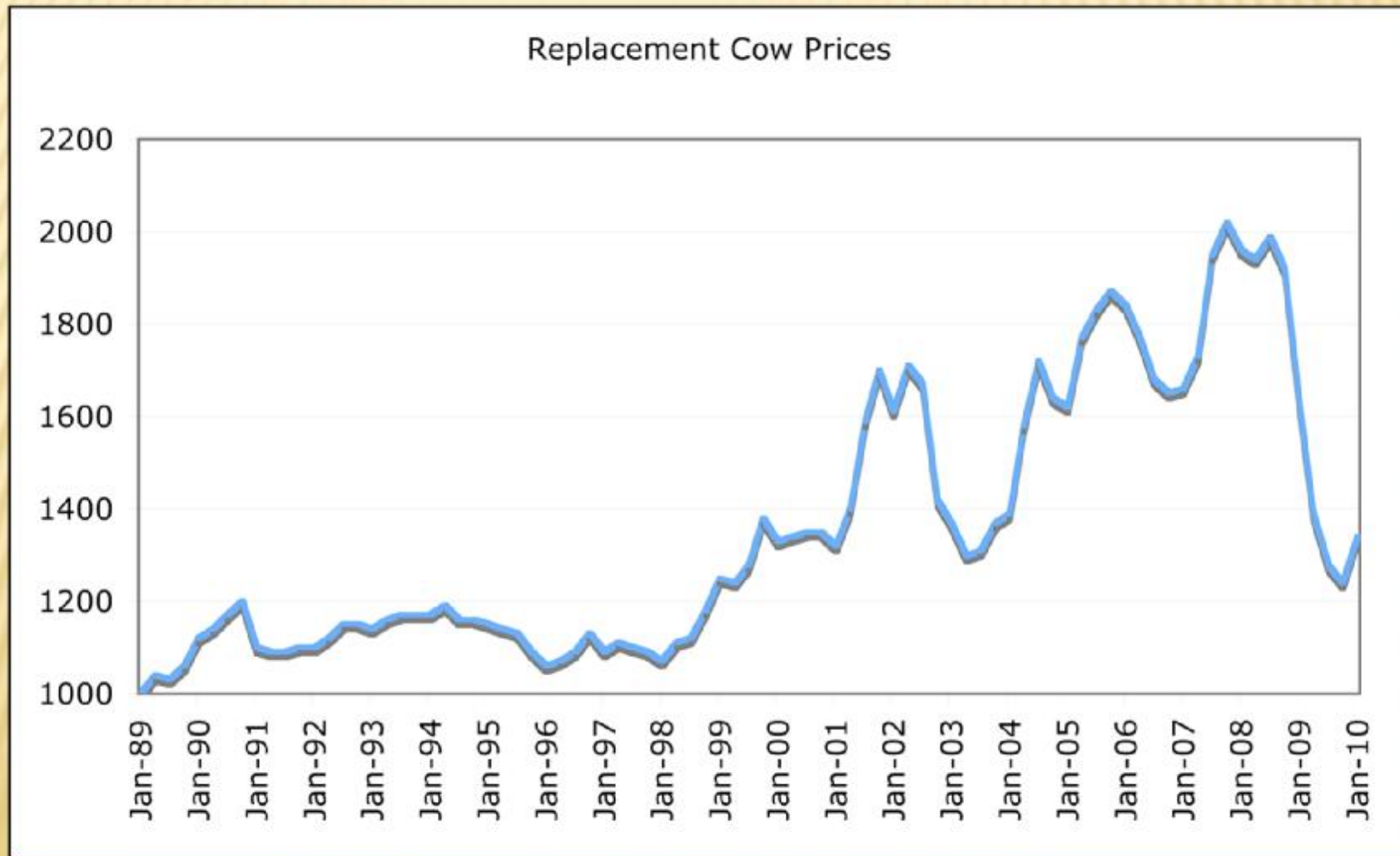
New Zealand Land Values



Canadian Quota Value

- ò Current Canadian Quota value is from \$25,000 to \$33,000 per kg butterfat**
- ò That is about \$25,000 to \$30,000 per cow**

U.S. Milk Cow Value



An Observation...

- ò **Since the world dairy traders are receiving about the same milk price, they all face a similar total cost of producing milk.**
- ò **However, the types of cost are very different**
 - É **Fixed cost—those expenses you are committed to in the short-run**
 - É **Variable cost—those expenses you can change quite quickly**

Consider an Electric Utility Company

- ò You have two plants with the same total cost to produce electricity
 - É A coal-fired plant with low fixed costs but high variable costs
 - É A nuclear plant with high fixed costs but low variable costs
- ò What is your strategy in operating these plants?

Decision Rules

- ò **In the short-run, fixed costs are “sunk costs”**
- ò **You operate the low variable cost nuclear plant flat out**
- ò **You balance demand with the coal plant**

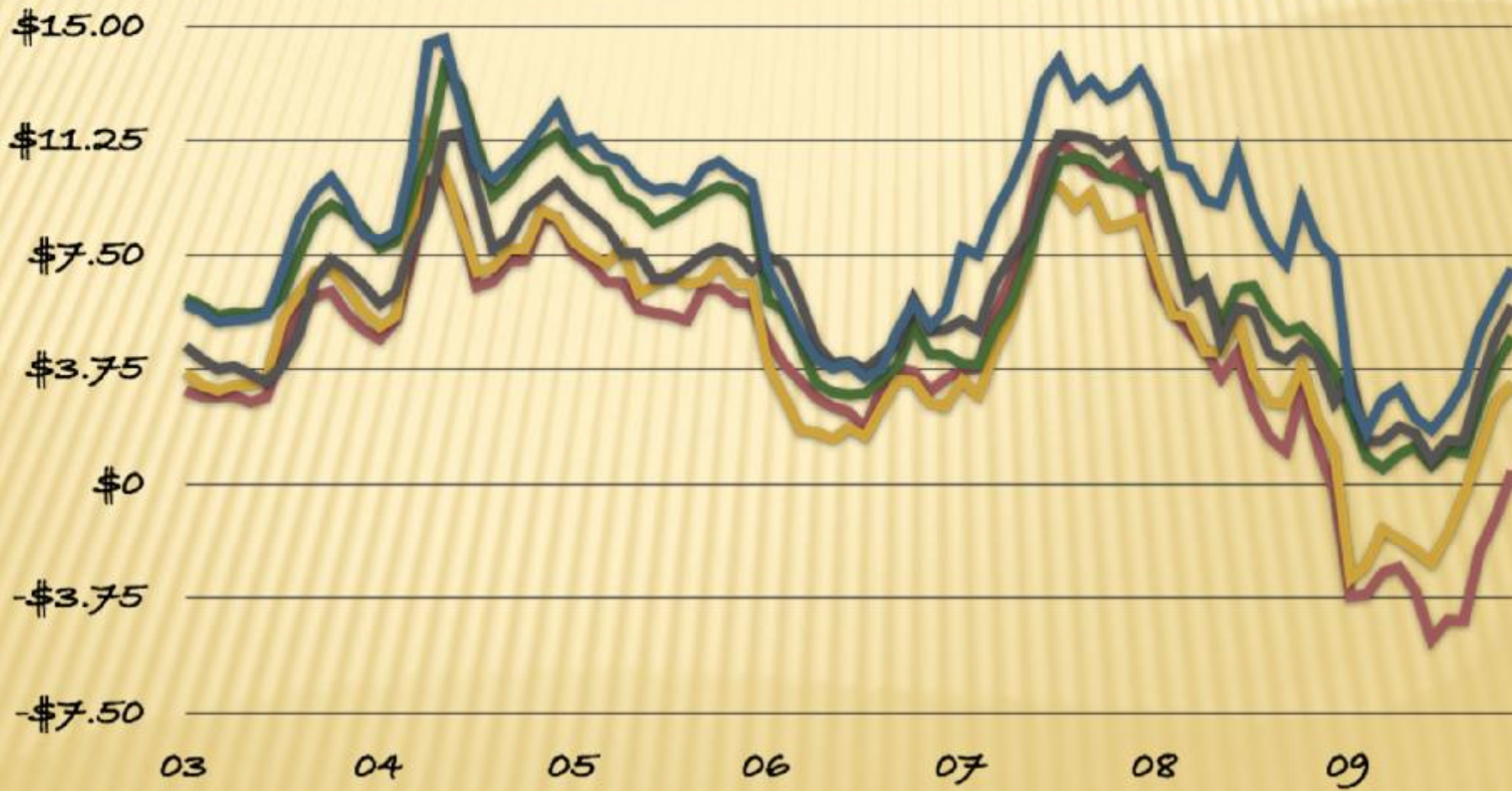
U.S. is a High Variable Cost Milk Producer

- ò **When price falls below variable costs, economics would say to turn off the plant.**
- ò **Not easy to do with dairy farm.**

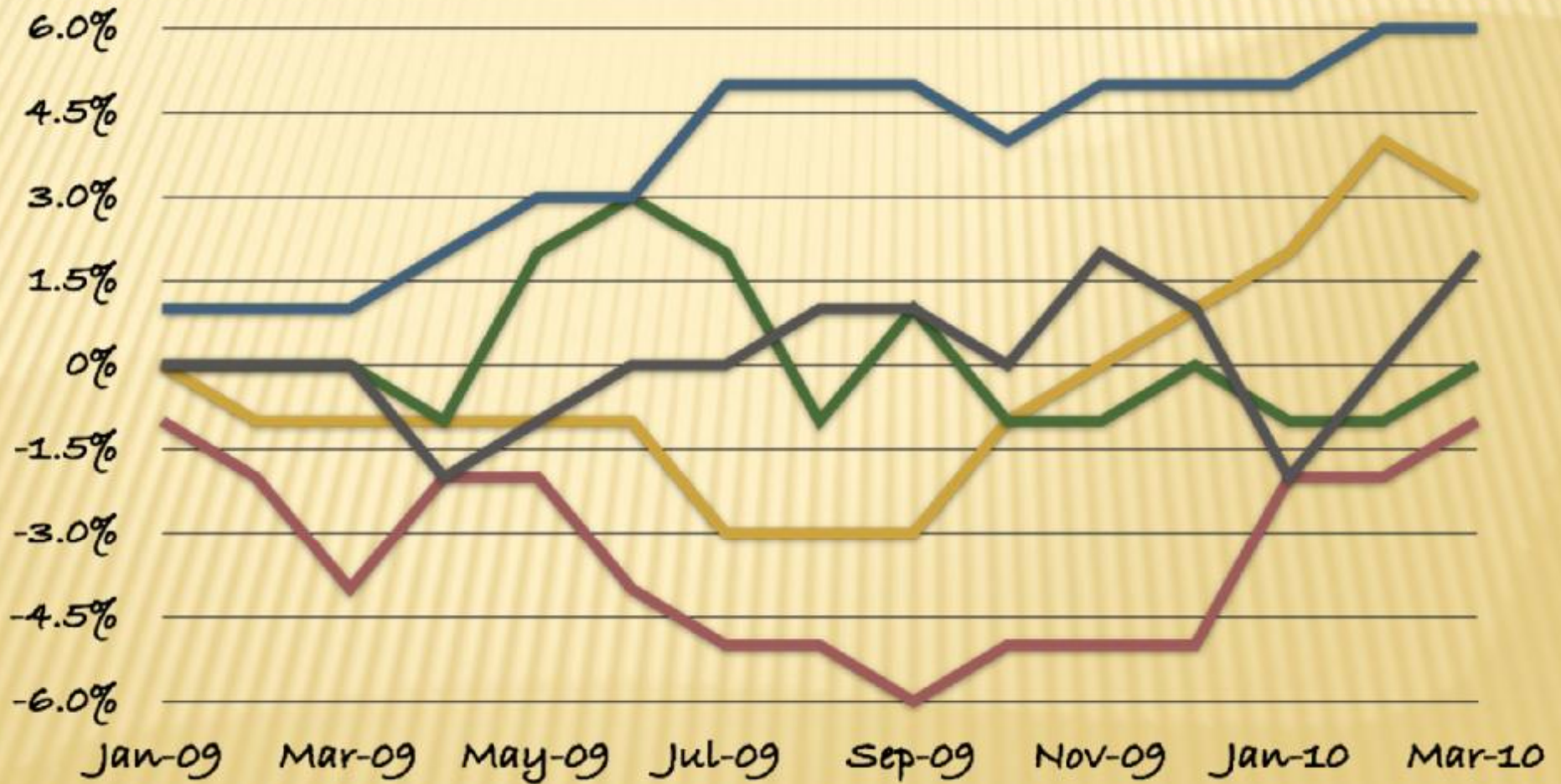
Some Decisions are Easy

- ò **US variable costs of production may average about \$10/cwt with fixed costs of \$5/cwt**
- ò **New Zealand variable costs of production may average about \$5/cwt with fixed costs of \$10/cwt**
- ò **New Zealand objective is easy: produce as much milk as you can per hectare.**

Net Income Over Feed Costs



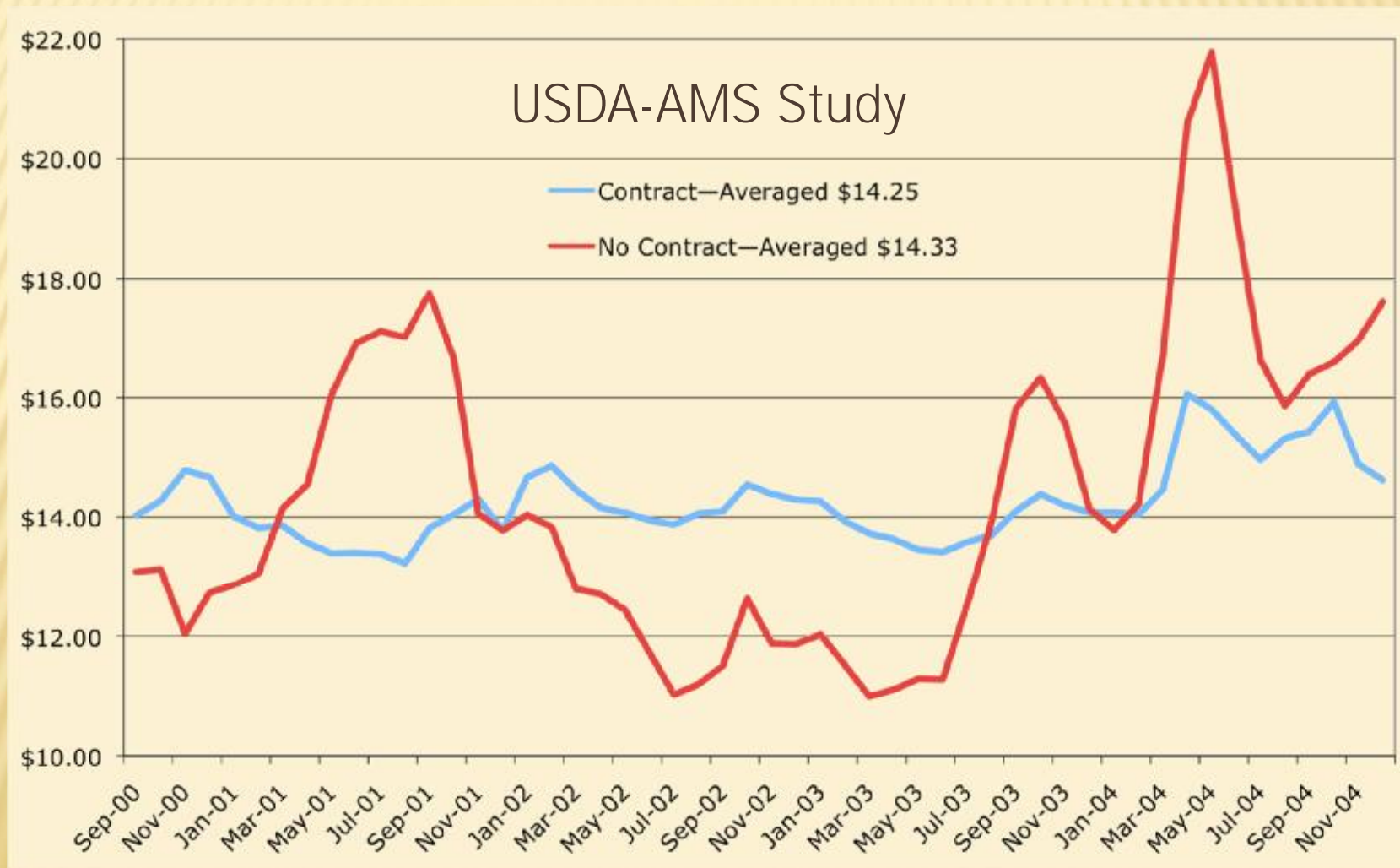
Percent Change in Milk Production



Observation...

- ò **Western U.S. producers are really balancing the milk supplies in response to our milk price volatility.**
- ò **Balancing is lots of fun on the up-side**
- ò **Balancing is no fun on the down-side**

Does Contracting Work?



Conclusions...

- ò **Some U.S. farms are seeking higher fixed but lower variable cost production strategies**
- ò **Some U.S. farms will need to be better prepared to turn off production in down phase**
- ò **Dairy farms need to use more risk management tools**
- ò **Is policy an option and would it be desirable?**