Lecture III: Wealth, Boom/Bust Cycles and Contracts

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Three stylized facts about farmland values

- Farmland values appear to be appropriately priced in the long run.
- Farmland values are characterized by excessive volatility in the short run, raising the possibilities of rational bubbles.
- Changes in relative risk affect the valuation of agricultural real estate values over time.

Three stylized facts about the agricultural balance sheet

- External capital is raised largely through increases in debt.
- The Balance Sheet is dominated by farmland values.
- Most of the "returns" are unobserved returns from capital gains.

Balance Sheet Mechanics

	Debit	Credit
Cost of Goods Sold	XXX	
Cash		XXX
Interest Expense	XXX	
Cash		XXX
Cash	XXX	
Sales		XXX

Income T-Account

Debit		Credit	
		Sales	XXX
Cost of Goods Sold	XXX		
Interest Expense	XXX		
		Income	XXX

Owerner's Eequity T-Account

Debit		Credit	
		Initial Equity	XXX
		Income	XXX
Distribution (Consumption)	XXX		
		Ending Equity	XXX

Market Value versus GAAP Balance Sheets

- The forgoing discussion is based on GAAP (generally accepted accounting principles).
- Let us consider a slight reformulation based on market valued balance sheets

$$\Delta E = [R_0 + iA - KD] - C. \tag{1}$$

- We are considering a market valued balance sheet – valuing the assets at their current market values (mark to market).
- The largest consideration here is the change in farmland values

$$V_t = \sum_{j=t}^{\infty} \frac{E\left[CF_{t+j} \,|\Omega_t\right]}{(1+r)^j}$$
$$\Delta V_t = -\frac{CF_t}{(1+r)} + \frac{r}{1+r} V_t + \gamma_t \tag{2}$$

Market Value Balance Sheet

Assets		Liabliities	
Cash	XXX	Debt	XXX
Inventories	XXX	Equity	$E + R_0 + iA - KD - C$
Equipment	XXX		
Farmland	$A(1+i)$		
Total Assets	XXX	Total Equity	XXX

What does this mean for consumption?

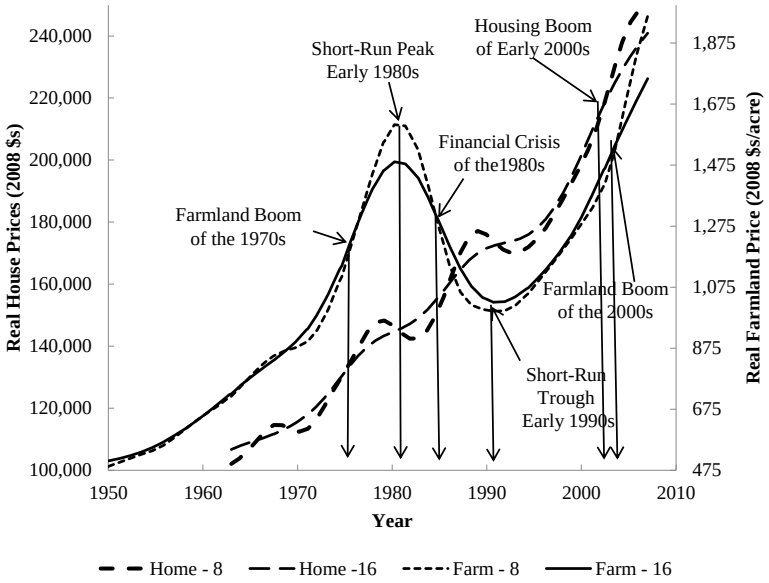
- Implicit in the change in equity equation is the assumption that consumption can be supported by either returns from operations or capital gains.
- However, capital gains only provide funds for consumption if the asset is liquidated.
- Consumption can only be supported in excess of current returns by additional borrowing

$$\tilde{D} = C + KD - R_o \tag{3}$$

Market Value Balance Sheet

Assets		Liabliities	
Cash	XXX	Debt	$D + \tilde{D}$
Inventories	XXX	Equity	$E + iA - \tilde{D}$
Equipment	XXX		
Farmland	$A(1+i)$		
Total Assets	XXX	Total Equity	XXX

Boom/Bust Cycles in Farmland



U.S. Ag Balance Sheet

Assets			Ownership		
Real Estate	2,577.3	83.5	Real Estate Debt	239.0	7.7
Livestock	112.8	3.7	Nonreal Estate Debt	150.0	4.9
Machinery	257.0	8.3			
Stored Crops	44.9	1.5	Equity	2698.2	87.4
Purchased Inputs	14.9	0.5			
Financial Assets	80.2	2.6			
Total Assets	3,087.1		Total Ownership	3,087.1	

What Contracts?

- Agricultural has historically been thought of as a rather "open market" scenario.
  - Stocker and feeder cattle are typically sold in "open call - English Auctions"
  - In western Oklahoma I took the wheat to a local elevator and sold it as it passed over the scale, or we shipped it to the port at Galveston.
- As agriculture has become more "industrial," these markets have given way to more formal marketing procedures.

Generalities of Contracts

- What is a contract? A contract is a formal agreement that contains terms for the transfer of goods or services.
- In general, we think of a contract as lasting for a "longer" period of time
  - When you buy a house you typically enter into a sales contract that specifies the purchase price of the house, where the money will be delivered, and typically some sort of escrow.
  - The escrow may include earnest money which will be forfeited if for some reason the sale does not occur.
  - We typically think of contracts in a *quid pro quo* - something of value for something of value.
  - The best contracts are self enforcing - contracts are typically written so that is in everybody's best interest to fulfill the terms of the contract.

Types of Agricultural Contracts

- Different types of agricultural contracts have different implications for the farm sector.
- Marketing Contracts - In a marketing contract the producer agrees to deliver a quantity of output to a buyer at a specific price. I may want to sign a contract to deliver 100,000 bu. of corn to local buyer for $ 3.50 /bu – typically there are also quality terms.
- We can think of this as a simple marketing alternative - it really does not change the nature of the farm firm.
- In some ways the use of Futures and Options is a marketing contract.

Types of Agricultural Contracts, Continued

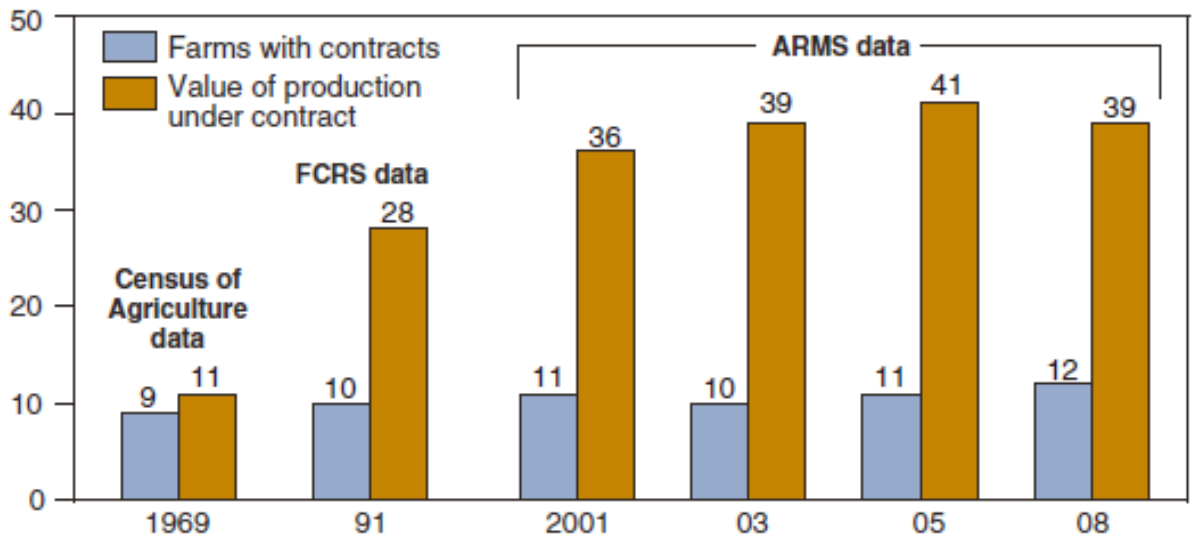
- "*Production contracts* specify services provided by a farmer for a contractor who owns the commodity while it is being produced. The contract covers (1) the services provided by the farmer, (2) the manner in which the farmer is to be compensated for the services, and (3) the specific contractor responsibilities for provision of inputs. For example, farmers provide labor, housing, and equipment under livestock and poultry production contracts, while contractors provide such other inputs as feed, veterinary and livestock transportation services, and young animals." (MacDonald and Korb. 2011. Agricultural Contracting Update: Contracts in 2008, Economic Information Bulletin Number 72).
- Production contracts may raise the question of vertical integration and/or the independence of the farm firm: Is the farmer simply hired labor?

Reasons for Contracting

- Reduce Price and Production risk
- Holdup, Risks to Capital Investment, and Market Access
  - "Contracts can also be used to provide assurance to farmers that specialized capital investments can be recouped, particularly in the case of investments associated with perishable products in markets with few buyers. For example, specialized broiler houses offer optimal growing conditions and are designed to facilitate feed delivery, regulate temperature through ventilation and cooling systems, and incorporate specific feed and water delivery systems. Similarly, sugar beet production requires highly specialized harvesting equipment and extensive prior investment in seed beds." (MacDonald and Korb, p. 3)
  - Quality Assurance

Agricultural Contracting, 1969-2008

Figure 1
Agricultural contracting, 1969-2008



Sources: USDA, Economic Research Service using U.S. Census Bureau, Census of Agriculture, 1969; USDA's Farm Costs and Returns Survey, 1991; and USDA's Agricultural Resource Management Survey, 2001-2008.