Private Investment, Farm Size and Competitiveness

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Oct 5th, 2011
Consensus Around a Development Agenda Based on Family Farms

- Family farms, including smallholders, remain the main organizational model in both poor and rich countries
  - Family farms widely accepted as being most efficient
  - Strong growth and employment linkages leading to greater equity and poverty reduction
  - Also Lipton (2009), Christiaensen & Demery, 2011)
Also Consensus: Agricultural Success Requires Market-Led Approaches

- Demise of parastatals
  - Role of agribusiness in input, output markets
- Liberalization of trade
- Encouragement of private investment
  - Huge investment gap
  - Strong private interest since commodity price trends reversed

Flow of FDI in Farm Production ($US M)

Source: WIR, 2009
Corporate Investment in Farming in High Income Countries is Negligible

300 Publicly Listed Companies in the Agricultural Value Chain

- Input supply
- Farming
- Processing
- Logistics
- Retail

<table>
<thead>
<tr>
<th>Activity</th>
<th>% Value added</th>
<th>% Market cap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input supply</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Farming</td>
<td>40</td>
<td>20</td>
</tr>
<tr>
<td>Processing</td>
<td>10</td>
<td>5</td>
</tr>
<tr>
<td>Logistics</td>
<td>15</td>
<td>7.5</td>
</tr>
<tr>
<td>Retail</td>
<td>35</td>
<td>17.5</td>
</tr>
</tbody>
</table>

0.2% Value added

Integrated companies not included
Rising Land Prices Make Investment in Land Attractive in Emerging Economies

**LAND RENTAL PRICES FOR 3 T/HA OILSEEDS, 2009**

**INDEX OF LAND PRICES (1980=100)**

**Rent ($/ha)**

- USA (Iowa)
- Argentina
- Brazil (MG)
- Ukraine
- Mozambique

**Non-market prices**

- Uruguay
- Iowa

Graph showing the index of land prices from 1980 to 2009.
Major Investments in Land-Abundant Countries

- Overall 200 M+ ha in last decade (Oxfam)
- Latin America as a global breadbasket
  - Emergence of very large farming companies mostly national (El Tejar, Los Grobos, Adecoagro, Cresud, SLC Agricola, Cosar, Maggi, Brasil Agro)
    - Argentina: Top 30 companies total 2.4 m ha (mostly home grown).
    - Brazil Cerrado: 20% of the farmland foreign owned
- RUK as emerging breadbasket
  - Emergence of “superfarms”. Ukraine: Top 40 companies manage 4.5 M ha; Russia: Top 30 companies 6.7 M ha (mostly home grown companies)
- SE Asia
  - Palm oil: 8 of world’s 25 largest agric prod. Companies
African ‘Land Grab’: Myths and Reality

- **Reality**
  - Lack of land markets and transparency in land transfers

- **Media reports > applications > approvals > actual investments**
  - Tanzania: 4.4 m ha requested, 1.5% approved
  - But significant in Ethiopia, Mozambique, Liberia, Sudan, Ghana (over 5 M ha total, 2004-09). Median size of 40 K ha.

- **Very heterogeneous by country**
  - Types of investors (Agbiz, quasi-state, ‘speculators’),
  - Types of commodities (biofuels, plantation crops, food,..)
  - Benefits quite variable
Why Large Scale?
World’s Largest Crop Farms are in Emerging Economies

- Large in land area, capital invested and sales (often ~ $US1 billion farm revenues)
  - Sime Darby (oil palm)—Malaysia, Indonesia and with 600 K ha + (220 k in Liberia)
  - Cosan (sugar-ethanol)—Brazil with 300k+ ha and 300k ha of contract growers (double with Shell)
  - Fibria (pulp)—Brazil, 500 k+ ha Eucalyptus
  - El Tejar (grains)—Argentina/Brazil/Ur/Par 1,000k+ ha
  - Ivolga (grains)—Russia+ 1,000 k+ ha
  - El Shaikh Mustafa El Amin Co (oilseeds)—Sudan 250 K ha

- Mostly home grown companies operating regionally
Evidence of Competitiveness

Comparative Production Costs, Soybean, 2007-08

Comparative Production Costs, Maize, 2007-09
Why? Evidence of Efficiency in Some Settings

- Sometimes economies of size
  - Plantation crops through processing
  - Opening new lands (need K, lack L)
  - Standards and certification—fixed costs
- Able to overcome diseconomies of size:
  - New technologies (ZT, ITs)
- Managing risks thru diversification
- Access to cheaper global finance, bargaining power in input and output markets
- Vertical integration to overcome poor logistics
Investments in Processing often Require Large Areas

- Pulp mill + 250 K ha raw materials
  - $US 2 B
- Sugarcane/ethanol mill + 20-70 K ha raw materials
  - $300 M to about $1 billion
- Oil palm mill plus 10 K ha raw materials
  - $40 M (10 K ha) and 7 yrs to +ve cash flow
Institutional Innovations Evolved for Managing Super Farms

- Specialized management companies combine production factors
  - Argentina—”Pools de Siembra”
    - Lease land and machinery
    - Assets—Professional management
  - State of art IT systems and satellite farming
Policies Often Favor Large Scale

- Tax incentives
- Subsidized interest rates (Brazil)
- Low or zero land prices that encourage risky investments and speculation
  - Mozambique $0.60/ha.
  - Forest extraction policies (Indonesia)
- Start up subsidies and grants—Industrial Policies
  - States picking winners
So What if it is Large Scale?
An Opportunity and a Risk

**A MAJOR OPPORTUNITY**
- Fills a huge investment gap
- Transfer of technology and know-how
- Export development
- New industries—biofuels
- Employment generation
- Opening of remote regions

**WITH SIGNIFICANT RISKS**
- Lack of land markets—rights of users
- Enclaves with few local benefits
- Negative environmental impacts (forests)
- Risks of highly unequal agrarian structure
  - Governance, services
Sudan as a Breadbasket?

- Semi-mechanized farming schemes 1970s+
  - Investors from Gulf and state credit
  - (Similar newer scheme in Ethiopia)
- Converted up to 11 M ha to large farms
  - Average over 1000 ha, some farms >200,000 ha
- Problems well documented
  - Trampled on rights of local pastoralists, land conflicts
  - Created few jobs
  - Soil degradation and destruction of natural environment
Sudan: Lack of Suitable Technology

Mechanized rainfed system, Sudan; Lose-lose investments

<table>
<thead>
<tr>
<th>Technology</th>
<th>Size (ha)</th>
<th>Yield (t/ha)</th>
<th>Cost ($/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Company</td>
<td>8000</td>
<td>0.5</td>
<td>277</td>
</tr>
<tr>
<td>Large farm</td>
<td>400</td>
<td>0.4</td>
<td>495</td>
</tr>
<tr>
<td>Smallholder</td>
<td>20</td>
<td>0.5</td>
<td>204</td>
</tr>
<tr>
<td>Zero tillage, fertilizer and others</td>
<td>Large farm</td>
<td>400</td>
<td>125</td>
</tr>
<tr>
<td></td>
<td>Smallholder</td>
<td>20</td>
<td>143</td>
</tr>
</tbody>
</table>

Source: Min of Agriculture, 2009
Many Investors Lack Expertise in Tropical Agriculture

**HISTORY OF FAILURE OF LARGE-SCALE FARMS IN AFRICA**

- **1940s**—British groundnut scheme in Tanzania
  - Overlooked smallholders
- **1970s**—Sudan mechanized schemes
- **1980s**—Saskatoon on the savannah—wheat in Africa
- **2000s**—EU Jatropha investors in Africa

**UPLAND RICE INVESTOR IN LIBERIA, 2009?**
Trampling on Local Land Rights: Zambia and Mozambique
Major Driver of Deforestation
(e.g., Oil palm and plantation forests in Indonesia)

Oil palm development
Indonesia now largest producer
3 M jobs generated; export revenues

New plantation development
Expected expansion: 7 - 9 M ha by 2020
Policy to develop outlying regions

Forest cover (Riau, Indonesia, 1982)

Forest cover loss (Riau, Indonesia, 1982-2007)

Source: WWF (2008)
# Risks Vary by Region

<table>
<thead>
<tr>
<th>State of markets</th>
<th>Example</th>
<th>Risks</th>
<th>Policy needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>A Land and other markets function well</td>
<td>Australia, Argentina, Sth Brazil</td>
<td>Few</td>
<td>Transparency--registry of foreign purchases</td>
</tr>
<tr>
<td>B Land and other markets still emerging</td>
<td>Ukraine, Russia Amazon</td>
<td>Significant</td>
<td>Strengthen property rights, contracts, information</td>
</tr>
<tr>
<td>C No formal land markets</td>
<td>sub-Saharan Africa</td>
<td>Major</td>
<td>Transparency, careful screening, formalize property rights</td>
</tr>
</tbody>
</table>
The Opportunity—Bringing Investors and Communities Together

Combining the Best of Both
Potentially Strong Complementarity of Assets

Smallholders/Communities with land rights:
- Land
- Labor
- Local knowledge

“Good” Companies:
- Capital and risk
- Access to markets and technology
- Specialized knowledge
Combining Assets
1. Contracting of Smallholders and Their Associations

(Settled areas, some horticulture, oilseeds, sugarcane)

Smallholder production
- Land
- Labor
- Local knowledge

Company
- Capital (working)
- Access to markets and technology
- Specialized knowledge
Combining Assets
2. Large-scale Production

(Low population density areas, grains)

Communities

- Land
- Labor
- Local knowledge

Company production

- Capital
- Access to markets and technology
- Specialized knowledge
Combining Assets
3. Partnerships with Large Scale

(Both large and small-scale: perennials and irrigated areas with high upfront investments)

Outgrowers/Communities
- Land
- Labor
- Local knowledge

Company
- Capital
- Access to markets and technology
- Specialized knowledge
Could Africa Reclaim Oil Palm?

**OPPORTUNITY**

- Boom commodity for food, uses and now biofuels
- Value of SE Asian exports of PO > All agric exports Africa
- Strong FDI from Asia with associated tech and capital
- Relatively labor intensive and year round income
- Nucleus-outgrower schemes already working in Africa

**RISE OF OIL PALM IN SE ASIA**

![Graph showing the expansion of oil palm in millions hectares from 1986 to 2001. The graph indicates a significant increase in 2001.](image)
## Employment Benefits vary Widely

<table>
<thead>
<tr>
<th>Commodity</th>
<th>Jobs/1000 ha</th>
<th>Invest $/ha</th>
<th>Invest $ per job</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jatropha, Tanzania</td>
<td>600</td>
<td>$600</td>
<td>$1,000</td>
</tr>
<tr>
<td>Oil palm, Indonesia</td>
<td>350</td>
<td>$4,000</td>
<td>$11,400</td>
</tr>
<tr>
<td>Sugar-ethanol manual-Braz</td>
<td>700</td>
<td>$14,000</td>
<td>$20,000</td>
</tr>
<tr>
<td>Sugar-ethanol mech--Braz</td>
<td>150</td>
<td>$14,400</td>
<td>$96,000</td>
</tr>
<tr>
<td>Plantation forestry-production + proc--Uruguay</td>
<td>20</td>
<td>$7,000</td>
<td>$360,000</td>
</tr>
<tr>
<td>Sorghum Sudan—semi-mechanized</td>
<td>53</td>
<td>$900</td>
<td>$17,000</td>
</tr>
<tr>
<td>Wheat-soybean irrig--Zambia</td>
<td>16</td>
<td>$6,000</td>
<td>$375,000</td>
</tr>
<tr>
<td>Soy—fully mechanized-Brz</td>
<td>18</td>
<td>$3,600</td>
<td>$200,000</td>
</tr>
<tr>
<td>Grains Ukraine fully mechanized</td>
<td>10</td>
<td>$450</td>
<td>$45,000</td>
</tr>
</tbody>
</table>
Major Equity Gains Even if Smallholders Less Productive

Ratio of smallholder incomes (includes returns to land) to only wage employment

- Grains Sudan
- Grains Cameroon
- Grains Zambia
- Grains Nigeria
- Rubber Malaysia
- Oil palm Cameroon
- Oil palm Indonesia indep
- Oil palm Indonesia
- Sugarcane Zambia
## Principles for Responsible Agribusiness Investment (Also Private Roundtables)

<table>
<thead>
<tr>
<th>Area of concern</th>
<th>Key Issues</th>
</tr>
</thead>
</table>
| **Property rights**          | • Long established occupancy rights are recognized  
                               • Relevant rights are publicly recorded  
                               • An accountable & representative structure for local decision-making is in place                                                  |
| **Voluntary transfers**      | • Expropriation not used to transfer land to private interests  
                               • Processes for transferring land involve informed consent by existing users  
                               • Proceeds from land transfers are fair and accrue to actual users                                                                     |
| **Transparency**             | • Relevant information (land prices, contracts) publicly available  
                               • Agreements are understood by the parties and can be enforced  
                               • Public sector responsibilities add value, are clearly assigned, performed effectively                                              |
| **Economic viability**       | • Effective mechanisms to check technical viability & economic feasibility in place  
                               • Investments are consistent with local strategies for development  
                               • Adherence to agreed terms is monitored and enforced                                                                              |
| **Environmental & social sustainability** | • Areas unsuitable for agricultural expansion are properly protected  
                               • Environmental policies are clearly defined and adhered to  
                               • Social safeguards are implemented                                                                                               |
Bottom Line

- Continuing strong private interest
  - Much of it focused on production
  - New business models and techs to manage very large farms
  - Lat America, RUK and SE Asia gain market share

- Major opportunity for agriculture for development
  - But requires governance, local rights, transparency, local community capacity...

- Role of the state
  - Level playing field, start up costs for smallholder
Competitiveness
Middle-income Countries have gained agric. export market share

Change in net exports, 1993-2008 ($US Billion)

- Brazil
- Argentina
- USA
- Netherlands
- Indonesia
- Thailand
- Malaysia
- Canada
- New Zealand
- Australia
- India
- Ukraine

0 5 10 15 20 25 30 35 40 45
Successful Cases Being Reviewed

- **Criteria**
  - Rapid expansion in export shares since 1990
  - Mostly ‘new’ industries
  - Available studies
  - Personal contacts and interviews

- **Uruguay**
  - Soybean, plantation forestry/pulp

- **Brazil**
  - Soybean (Cerrado)

- **Colombia**
  - Oil palm

- **Indonesia (and Malaysia)**
  - Oil palm and plantation forestry/pulp

- **Peru**
  - Asparagus

- **Ukraine**
  - Grains and oilseeds
Emerging Patterns

- **Common elements**
  - All tapping buoyant markets
  - All cases with comparative advantage
  - All good macroeconomics, but variable business climate

- **Mostly preselected industries**

- **Significant state support justified by:**
  - New industry
  - Cases with lumpy and/or long gestation investments
  - Need to coordinate along the value cha
Emerging Patterns

- Mostly successful in terms of economic benefits but:
  - Incentives that distorted relative factor prices had significant welfare costs
  - Successes often ‘blemished’ when subsidies and –ve externalities costed
  - State support directed at firms associated with rent seeking under poor governance
- Support to including smallholders has been effective
- Neighbor effects (FDI, technology, incentives) important