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Nontraditional Lenders in the U.S. Farm Economy

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The views expressed are those of the authors and should not be attributed to the U.S. Department of Agriculture or Economic Research Service.

“With banks more tentative, machinery maker raises financing to growers, keeping them as customers but feeding menacing debt”

Wall Street Journal, July 18, 2017

Farms may increasingly turn to nontraditional lenders in the current downturn

- Operating margins are tightening
  - Increased demand for production credit by farms
  - Banks face higher repayment risk
- Farms may be seeking debt capital from new sources
  - "Traditional" lenders (Farm Credit (FCS), commercial banks) are subject to greater regulatory requirements stemming from the 1980s farm financial crisis and 2007 financial crisis
- Are "nontraditional" lenders "filling the gap"?
  - Examples: life insurance companies, investment funds, input suppliers, implement dealers, individual investors
- There is currently very little information on the volume and type of debt held by most nontraditional lenders, as well as the type of farms that these institutions serve
  - In addition to banks, FCS,FCA, data on loans from insurance companies, Farmer Mac and CCC is publicly available and used in the official farm sector balance sheet estimates and forecasts

Regulatory imbalance

- “The extent of regulation varies substantially among credit sources, ranging from comprehensive oversight of depository institutions (including agricultural banks) to specialized government-sponsored enterprises to the largely unregulated lending by agribusinesses and individuals. This regulatory mosaic can create periodic imbalances in competition in credit markets that raise concerns by the participants about leveling the regulatory playing field.” Peter Barry (1995)

Lender	Regulator
Farm Credit System	Farm Credit Administration
Credit Unions	National Credit Union Administration
Banks	Federal Deposit Insurance Corporation
	Federal Reserve
Trade Credit, Individuals	Varies greatly by institution

Research Questions

- What is the volume of debt held by different lender types and how has it evolved over time?
- What are the characteristics of farms that are served by nontraditional lenders?
- Are nontraditional lenders more likely to serve riskier farms?
  - Hypothesis 1: Farm that use nontraditional lenders are more likely to have repayment issues or a “riskier financial status”
  - Hypothesis 2: Farms that face financial constraints, credit rationing, etc. are more likely to use nontraditional lenders

Data

- USDA ARMS – Agricultural Resource Management Survey
  - Data from the "loan table"
  - Used for official balance sheet estimates for farm loan levels from lenders where data is not available (i.e. input suppliers)
- Only (national level) data available on:
  - Lending from most nontraditional lenders for "farm purposes"
  - Characteristics of farms using nontraditional lenders (or any lender)
- Caution is warranted in interpreting data as total amount of farm lending from different sources
  - Doesn't include farm loans to "non-operators"
  - Ahrendsen et al 2016 "ARMS Respondent Errors"
  - How loans get classified are based on respondent perception of lender, limit of 5 loans reported
  - Loan table doesn't include "repaid" loans – end of year balances only
  - May be most useful for
    - Comparing changes in different lenders over time
    - Linking loan and loan characteristics, including lender, to farm characteristics

Data: ARMS ‘Loan Table’ lender codes

Lender Codes (*Column 1*)

Lender	Code
FARM CREDIT SYSTEM	1
USDA Farm Service Agency (FSA)	2
Small Business Administration (SBA)	3
State & county government lending agencies	4
Savings and loan associations, residential mortgage lenders	5
Commercial banks	6
Life insurance companies	7
Implement dealers and financing corporations	8
Input suppliers	9
Co-ops and other merchants	10
Contractor	11
Individuals from whom any land in this operation was bought under a **mortgage or deed of trust**	12
Individuals from whom any land in this operation was bought under a **land purchase contract**	13

Lender Codes (*Column 1*) (continued)

Lender	Code
Any other individuals	14
Any other lenders	15
Credit cards	16
Farmer Mac	17
Credit Union	18
Other debts (*such as unpaid bills, etc.*)	19

Loan Type Codes (*Column 5*)

Type	Code
One year or less production or other loans	1
Non-real estate loan more than one year	2
Real estate loan more than one year for operator’s dwelling	3
Other real estate loans more than one year	4

Loan Purpose Codes (*Column 9*)

Purpose	Code
Purchased real estate (*land & its attachments*) ➢ farm and home improvements ➢ building construction ➢ construction of livestock and poultry facilities ➢ grove development and rehabilitation	1
Purchase feeder livestock	2
Purchase other livestock	3
Other current operating expenses ➢ current crop production ➢ care and feeding livestock including poultry ➢ labor, feed, seed, fertilizer, grove caretaking, repair and maintenance	4
Farm machinery and equipment	5
Debt consolidation	6
Other	7

Data: “Traditional Lenders”

Lender Codes (*Column 1*)	
Lender	**Code**
FARM CREDIT SYSTEM	1
USDA Farm Service Agency (FSA)	2
Small Business Administration (SBA)	3
State & county government lending agencies	4
Savings and loan associations, residential mortgage lenders	5
Commercial banks	6
Life insurance companies	7
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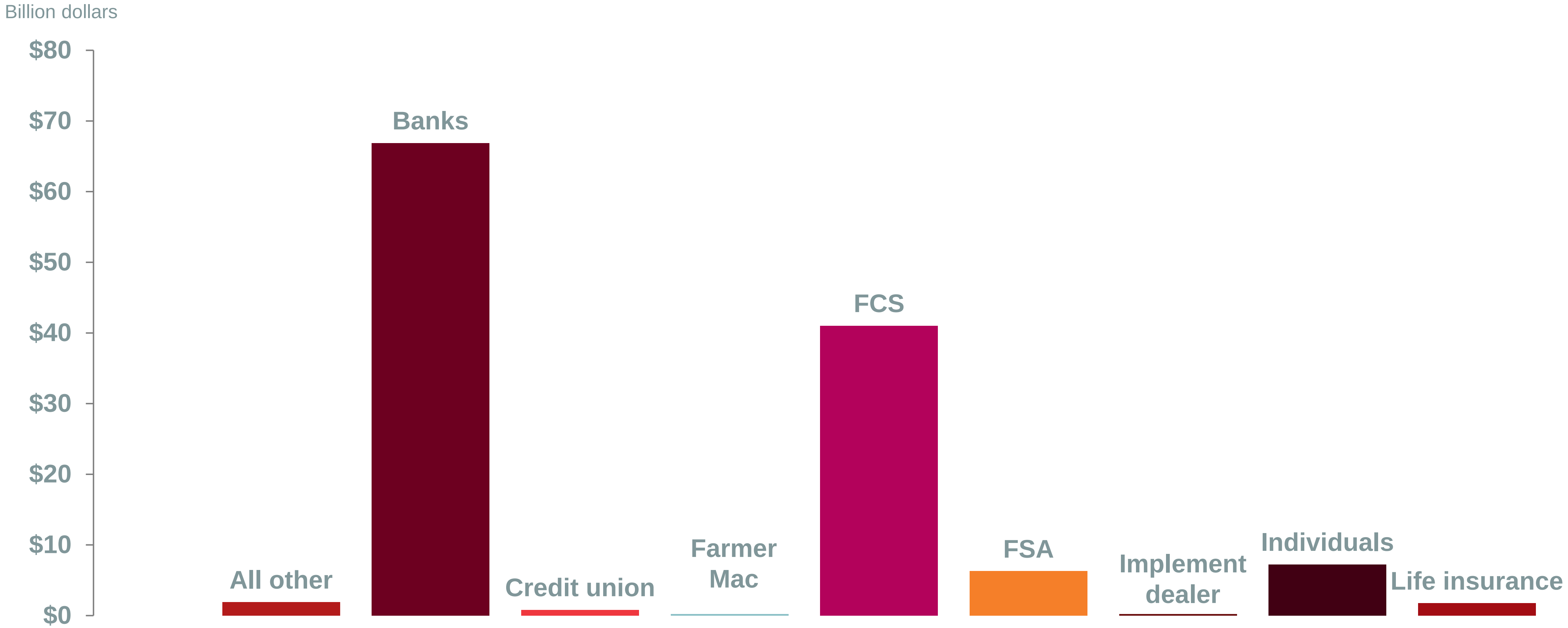
Debt consolidation	6
Other	7

Commercial banks and FCS dominate real estate lending

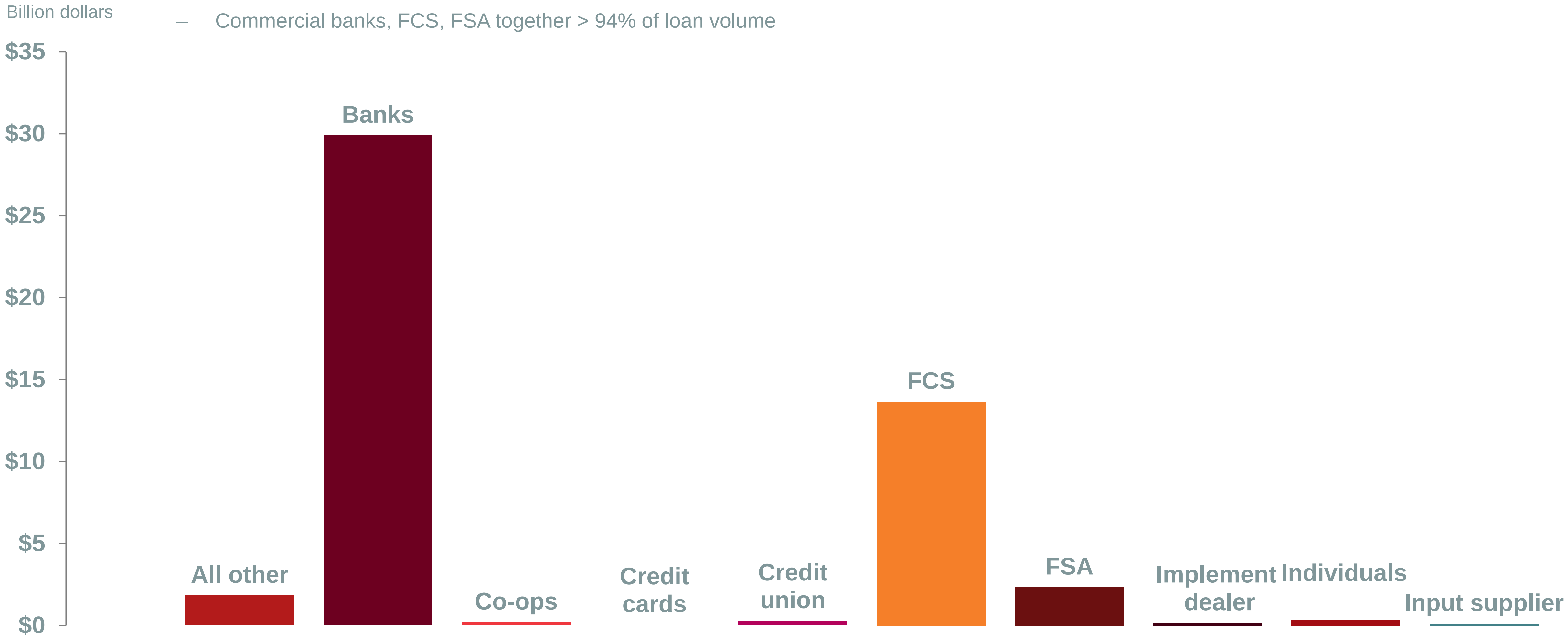
- 2015 – total real estate loan volume by lender
  - Commercial banks, FCS, FSA together about 90% of loan volume



Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2015

Commercial banks and FCS dominate short term lending

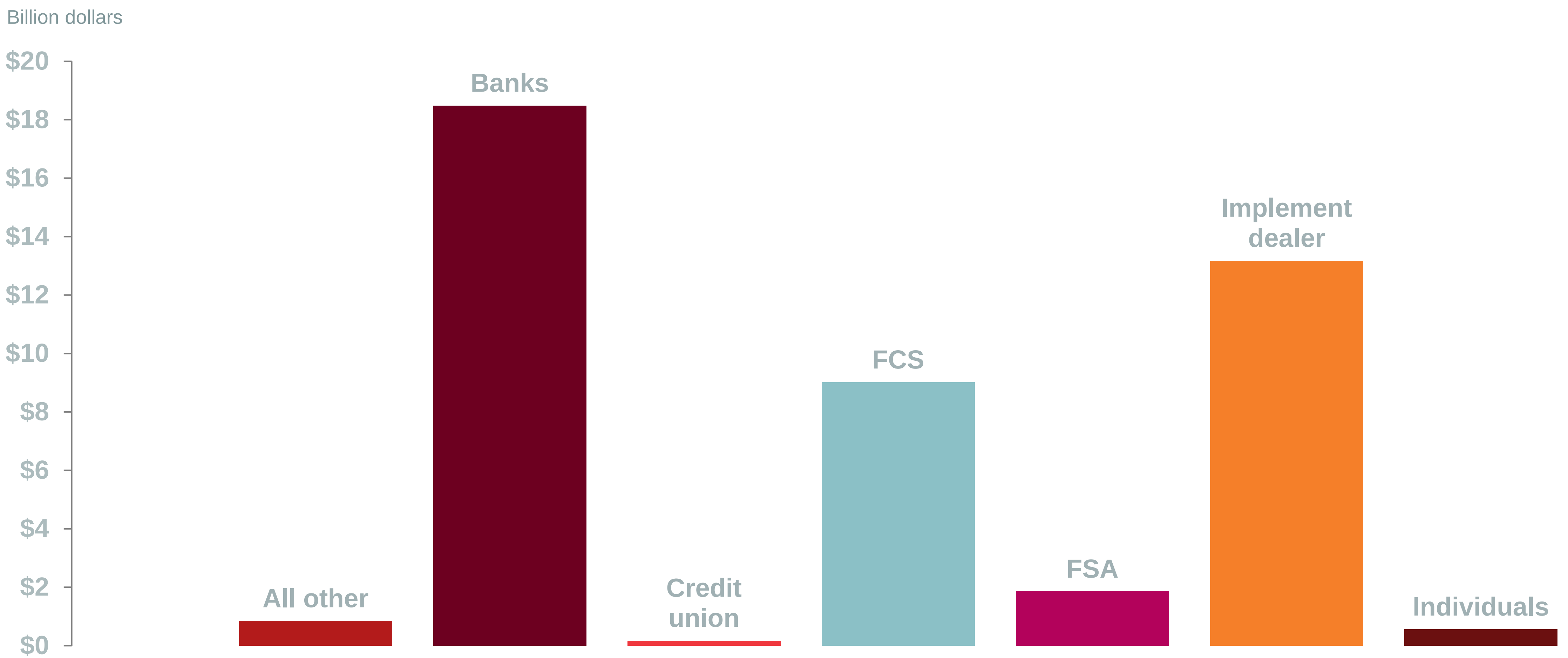
- 2015 – total short term nonreal estate loan volume by lender
  - Commercial banks, FCS, FSA together > 94% of loan volume



Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2015

Implement dealers play a major role in nonreal estate long term financing (equipment, machinery)

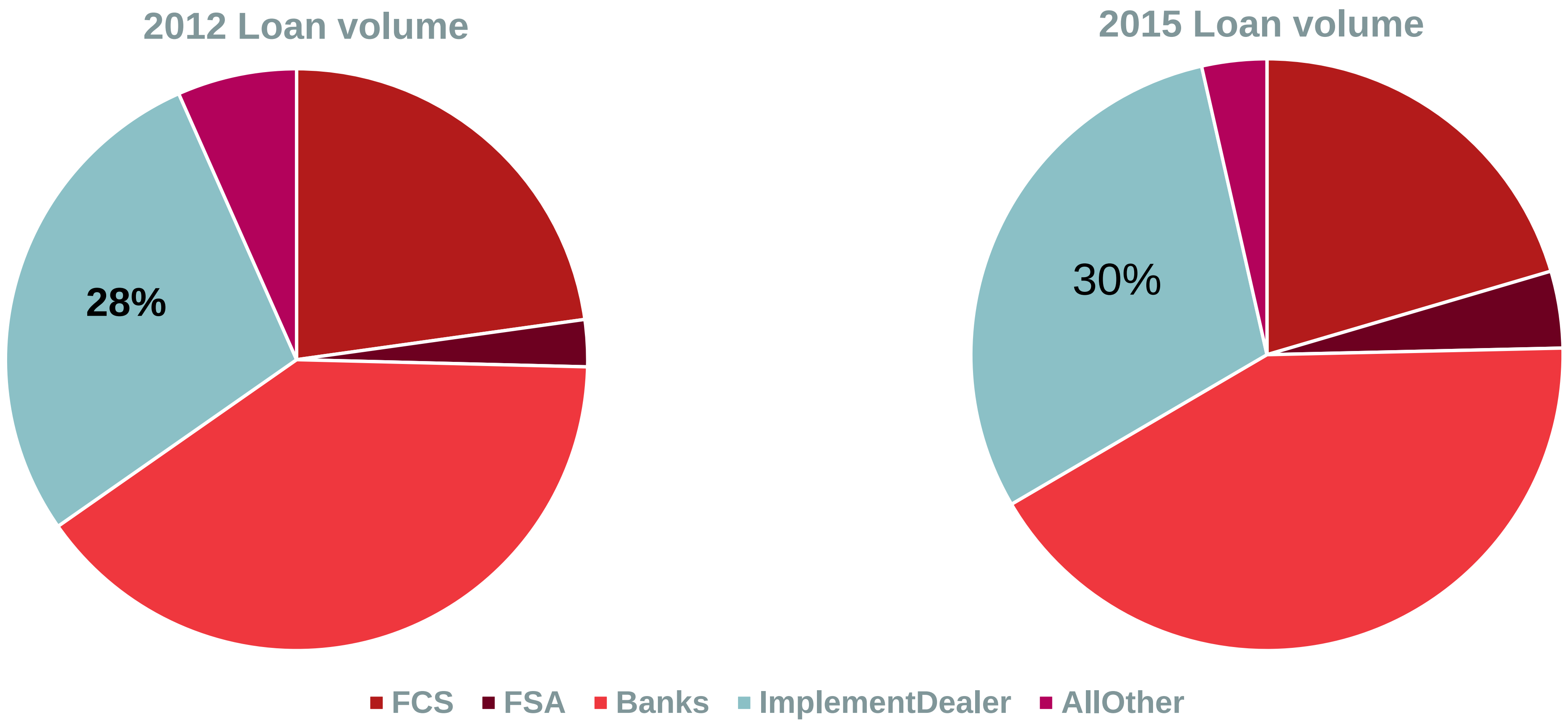
- 2015 – total long term nonreal estate loan volume by lender



Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2015

Implement dealers lending share increased slightly from 2012

- 2012 vs 2015 – total long term nonreal estate loan volume by lender

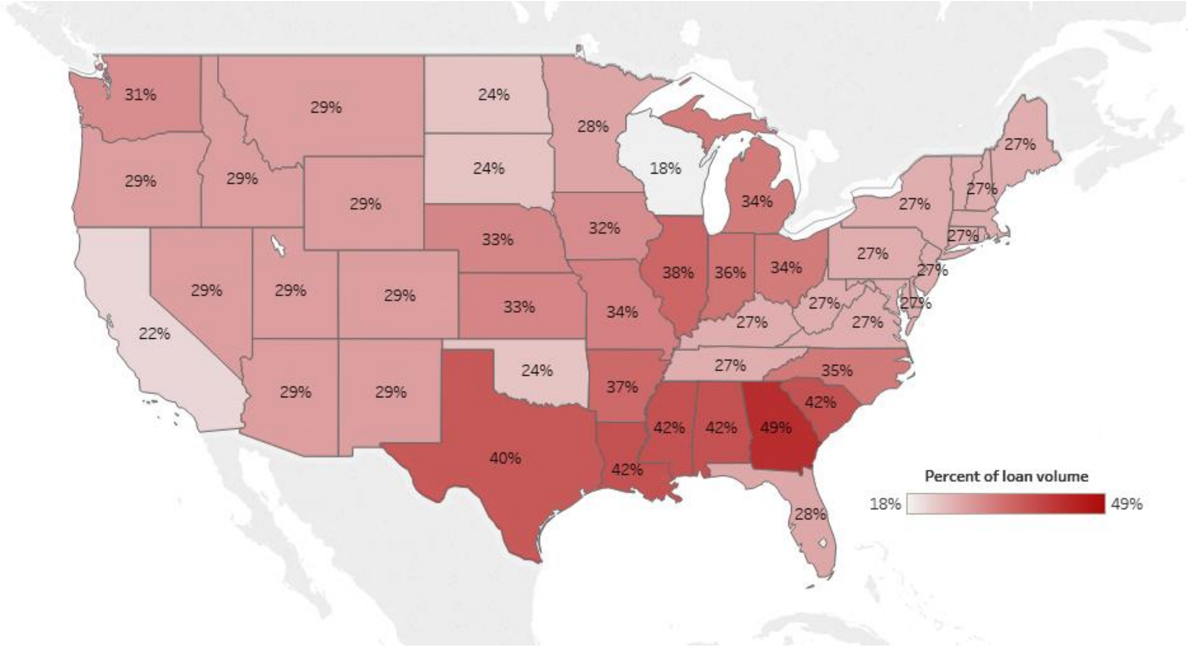


Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2012 and 2015

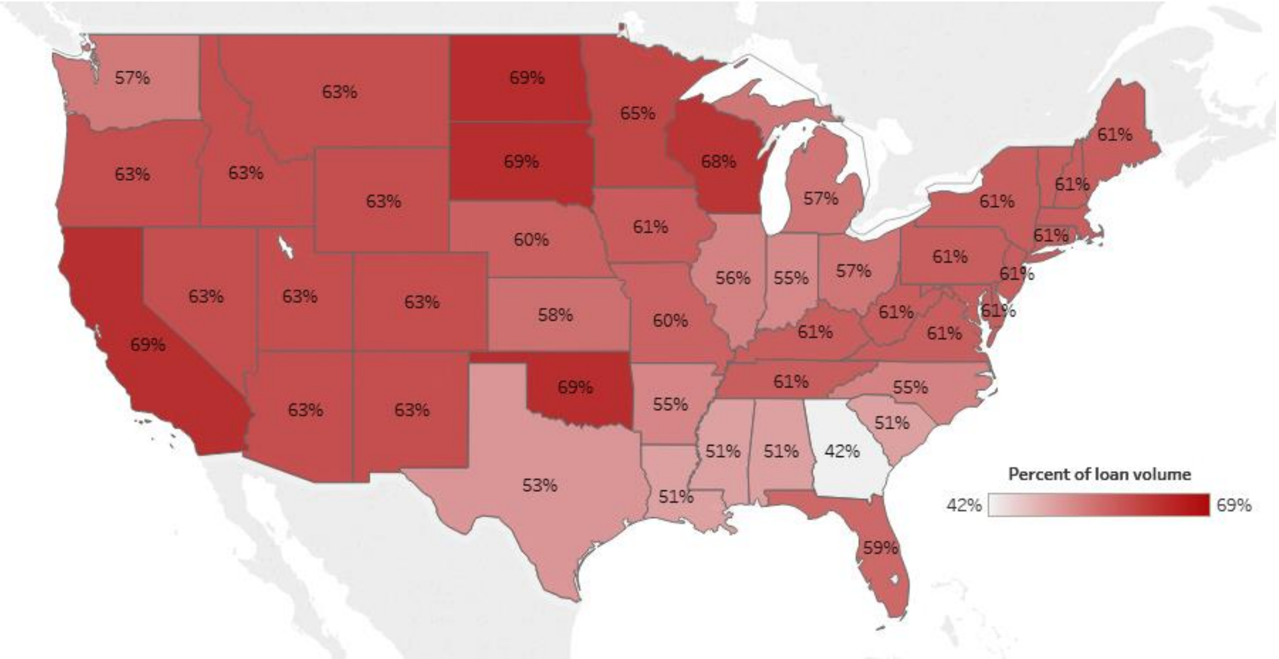
Farms in the southeast more reliant on implement dealers for machinery* loans

- Percent of long term nonreal estate loan volume by state, 2012-2015

Implement dealers



Traditional lenders

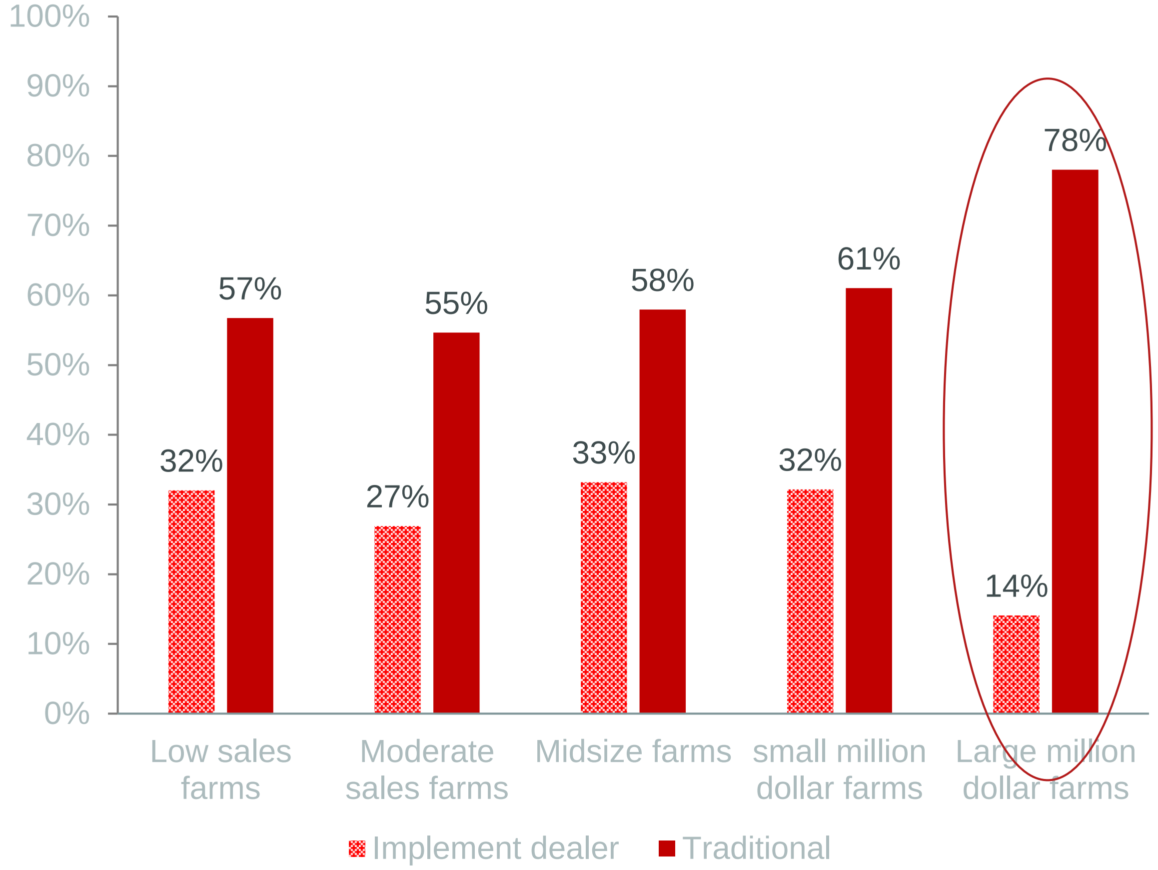


*long-term nonreal estate loans

Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2012-2015

The largest farms more likely to use traditional lenders for machinery* loans

Percent of long term nonreal estate loan volume by sales class, 2012-2015



Average long term nonreal estate loan volume and interest rates by sales class, 2012-2015

	Low sales	Moderate sales	Midsize	Small million dollar	Large million dollar
Implement dealer	$39,284	$95,154	$138,515	$206,850	$452,403
Traditional	$36,314	$94,073	$156,592	$300,739	$1,319,671
Implement dealer	4.25%	4.29%	3.96%	3.98%	3.88%
Traditional	4.72%	4.65	4.59%	4.37%	4.00%

*long-term nonreal estate loans

Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2012-2015

Markers of financial stress not clearly associated with implement dealer financing

Share of farms with long-term nonreal estate debt and experiencing potential financial stress, 2012-2015

	D/A > 50% Solvency ratio	Current ratio < 1 Liquidity ratio	Net cash income < 0 Profitability ratio	Debt coverage ratio < 1 Repayment capacity ratio
Implement dealer	**15%**	**48%**	41%	**44%**
Traditional	14%	44%	**42%**	**44%**

Source: ERS/NASS Agricultural Resource Management Survey (ARMS), 2012-2015

Empirical model

- What farm characteristics best predict using a nontraditional lender?
  - All farms
  - Farms with any debt
  - Farms with nonreal estate long-term debt
- Logit model, estimated using SAS
  - Dependent variable: 1=have a loan from a nontraditional lender
- Use explanatory variables typically used in literature to explain farm financial decisions
- 2012-2016
- Use ARMS/population weights

Explanatory variables

- Financial characteristics
  - DRCU
  - Current ratio
  - Debt to asset ratio
  - Total debt
- Sales class
  - >$5M
  - $1M-$5M
  - $350K-$1M
  - $150K-$350K
  - Off-farm income
- Operator characteristics
  - Age class
    - <34
    - 35-44
    - 45-54
    - 55-64
  - Education
    - 4-year college or more
    - <4 year college
    - High school graduate
- Land and tenure
  - Acres operated
  - Share acres owned
  - Share acres in cropland
- Production specializations
  - Cattle
  - Corn
  - Cotton
  - Dairy
  - Hog
  - Poultry
  - Specialty crops
  - Soybeans
  - Other crops, other livestock
- Controls
  - Year (2012-16)
  - ARMS states/region

Results: all farms

- Financial characteristics
  - ~~DRCU~~
  - Current ratio -
  - ~~Debt to asset ratio~~
  - ~~Total debt~~
- Sales class
  - >$5M +
  - $1M-$5M +
  - $350K-$1M +
  - $150K-$350K +
- Land and tenure
  - ~~Acres operated~~
  - Share acres owned -
  - Share acres in cropland +

- Operator characteristics
  - ~~Off-farm income~~
  - Age class
    - <34 +
    - 35-44 +
    - 45-54 +
    - 55-64 +
  - Education
    - 4-year college or more +
    - <4 year college +
    - High school graduate +

- Production specializations
  - Cattle -
  - Corn -
  - Cotton +
  - Dairy -
  - Hog -
  - Poultry -
  - Specialty crops -
  - Soybeans -
  - Other crops, other livestock -
- Controls
  - Year (2012-16)
  - ARMS states/region

106,965 observations; observations with p<0.05 or change odds ratio between .97 and 1.03 are crossed out

Results: farms with any debt

- Financial characteristics
  - ~~DRCU~~
  - ~~Current ratio~~
  - ~~Debt to asset ratio~~
  - ~~Total debt~~
- Sales class
  - >$5M +
  - $1M-$5M +
  - $350K-$1M +
  - $150K-$350K +
- Land and tenure
  - ~~Acres operated~~
  - Share acres owned -
  - ~~Share acres in cropland~~

- Operator characteristics
  - ~~Off-farm income~~
  - Age class
    - <34 -
    - 35-44 -
    - 45-54 -
    - 55-64 +
  - Education
    - 4-year college or more +
    - <4 year college +
    - High school graduate +

- Production specializations
  - Cattle -
  - Corn -
  - Cotton +
  - Dairy -
  - Hog -
  - Poultry -
  - Specialty crops -
  - ~~Soybeans~~
  - Other crops, other livestock -
- Controls
  - Year (2012-16)
  - ARMS states/region

52,684 observations; observations with p<0.05 or change odds ratio between .97 and 1.03 are crossed out

Results: farms w/long-term nonreal estate debt

- Financial characteristics
  - ~~DRCU~~
  - ~~Current ratio~~
  - ~~Debt to asset ratio~~
  - ~~Total debt~~
- Sales class
  - >$5M +
  - $1M-$5M +
  - $350K-$1M +
  - ~~$150K-$350K~~
- Land and tenure
  - ~~Acres operated~~
  - ~~Share acres owned~~
  - Share acres in cropland -

- Operator characteristics
  - ~~Off-farm income~~
  - Age class
    - <34 -
    - 35-44 -
    - 45-54 -
    - ~~55-64~~
  - Education
    - 4-year college or more +
    - <4 year college +
    - High school graduate +

- Production specializations
  - Cattle -
  - Corn -
  - Cotton +
  - Dairy -
  - Hog -
  - Poultry -
  - Specialty crops -
  - Soybeans -
  - Other crops, other livestock -
- Controls
  - Year (2012-16)
  - ARMS states/region

26,033 observations; observations with p<0.05 or change odds ratio between .97 and 1.03 are crossed out

Preliminary insight

- Implement dealers may provide up to 1/3 of all machinery and equipment loans (long-term nonreal estate debt)
  - Other nontraditional lenders make up a very small share of farm lending
    - May be interesting as “case studies”
- Various measures of financial status are **not** associated with farms being more likely to have a loan from a nontraditional lender (after other farm characteristics are taken into account)
- Having a loan from a nontraditional lender is correlated with older operators, more-educated operators, and larger sales classes (after other farm characteristics are taken into account)

Future research

- Further consideration of our definition of nontraditional lenders
  - Separate public and private lenders?
- Many believe that nontraditional lenders provide looser credit standards
- Are credit constrained famers more likely to use loans from nontraditional lenders?
- Lender choice and credit constraints are endogenously determined
- Pseudo-experimental design (propensity score matching, follow Ifft, Kuethe, and Morehart, 2016 and others)
  - Treatment: credit constrained farms (using 2014 ARMS question)
  - Outcome: amount of credit from nontraditional lenders

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