

# Divergence in Farm Financial Performance

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# Outline of Presentation

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- Competitive Advantage
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  - Differences in Performance

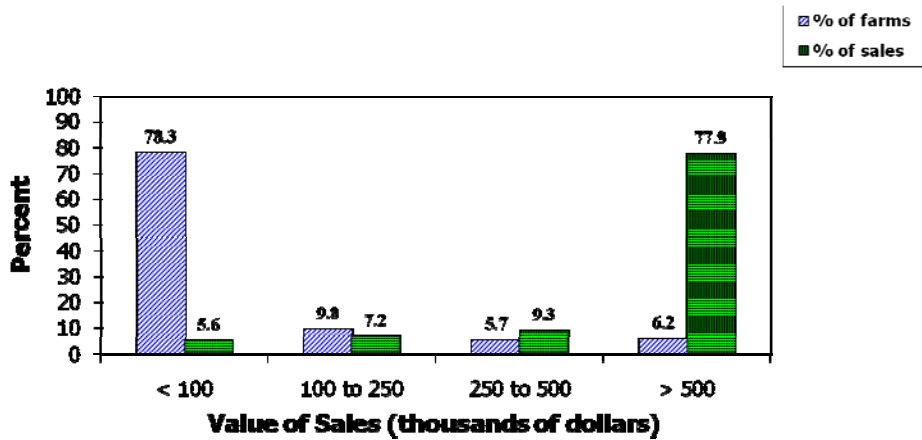
# Structure of Production Agriculture

- United States
  - Share of Farms and Production (2007)
    - The average farm has 418 acres, has a market value of agricultural products sold of \$134,807, and has an operator that is 57 years old.
    - Farms with sales above \$500,000 account for 5.3% of U.S. farms and 73.5% of sales.
    - In contrast, small family farms make up most of the U.S. farm count, produce a modest share of farm output, and receive substantial off-farm income.

# Demographics of Large Producers

Source: Purdue University, Large Producer Survey, 2008	Mid-Size	Other 85%	Largest 15%
Corn/Soybean	300-1,499	1,500-4,999	5,000 +
Wheat/Barley/Canola	700-3,499	3,500-6,999	7,000 +
Cotton	200-1,099	1,100-2,999	3,000 +
Dairy	40-199	200-1,099	1,100 +
Feeder/Stocker Cattle	250-1,249	1,250-6,999	7,000 +

## Structure of Production Agriculture 2007 Census of Agriculture (Kansas)



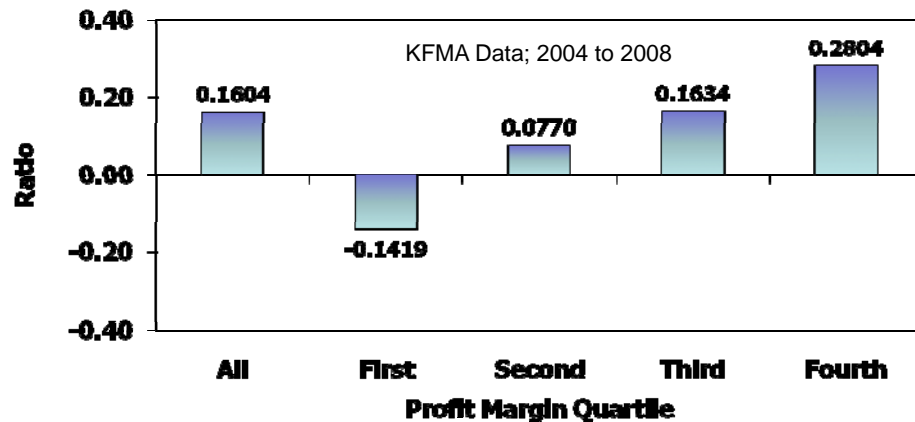
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## Variability in Farm Performance

- Variability in farm performance has been widely documented by agricultural economists.
- The following two graphs illustrate this variability.
  - Profit Margin Ratio
  - Expense Ratio

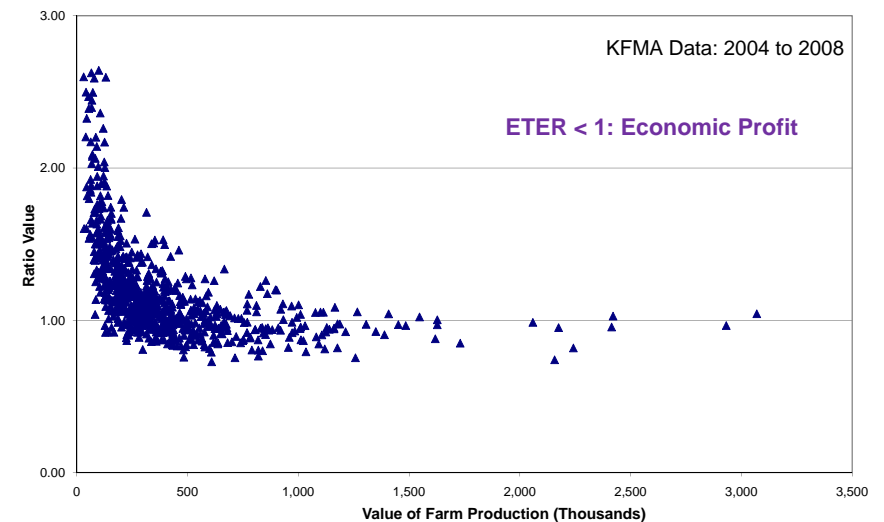
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## Profit Margin Ratio



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## Economic Total Expense Ratio



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# Competitive Advantage

		Relative Price Per-Unit		
		Lower	Average	Higher
Relative Cost Per-Unit	Lower	1 Indeterminate Position	2 <b>Competitive Advantage</b>	3 <b>Competitive Advantage</b>
	Average	4 <b>Competitive Disadvantage</b>	5 Parity Position	6 <b>Competitive Advantage</b>
	Higher	7 <b>Competitive Disadvantage</b>	8 <b>Competitive Disadvantage</b>	9 Indeterminate Position

Hunt, 2000

# Competitive Advantage 1988-2007 KFMA Data

Variable	Above Average (30% of farms)	Average (42% of farms)	Below Average (28% of farms)
Value of Farm Production	<b>332,709</b>	211,173	<b>109,601</b>
Operating Profit Margin Ratio	<b>0.212</b>	0.136	<b>-0.024</b>
Asset Turnover Ratio	<b>0.338</b>	0.263	<b>0.169</b>
Cost Efficiency	<b>0.696</b>	0.589	<b>0.453</b>

Source: Yeager and Langemeier (2009)

## Objective of Study

- The objective of this study was to examine the long-run structure of a group of farms.
- With a long-term analysis, questions related to convergence and divergence between groups of farms can be addressed.
- Whether the performance of groups of farms is converging or diverging has widely different implications on the future structure of agriculture.

## Methods

- To be included in this study, a farm had to have five years of continuous data during any continuous five-year period from 1973 to 2008.
- Moving five-year averages were calculated for each farm that met this qualification.
- Farms were sorted into quartiles using value of farm production.
- Growth rates were computed using averages of the key variables and the differences in key variables between top and bottom value of farm production quartiles.

## Key Variables

- Value of Farm Production
- Total Acres
  - Includes crop, pasture, and farmstead acres.
- Percent Livestock Income
  - Computed by dividing total livestock income by value of farm production.

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## Key Variables (continued)

- Economic Total Expense Ratio
  - $(\text{Total Farm Expense} + \text{Unpaid Labor} + \text{Opportunity Charge on Owner Equity}) / (\text{Value of Farm Production})$
  - **Benchmark: ETER < 1.00 (firm is earning an economic profit)**
- Profit Margin Ratio
  - $(\text{Net Farm Income} + \text{Interest} - \text{Unpaid Labor}) / (\text{Value of Farm Production})$
  - **Benchmark: PMR > 0.20**
- Asset Turnover Ratio
  - $(\text{Value of Farm Production}) / (\text{Average Total Assets})$
  - **Benchmark: ATR > 0.35**

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## Data

- Kansas Farm Management Association Farms
  - Five-year averages starting in 1973-1977 and ending in 2004-2008.
  - The number of farms in the sample ranged from 973 for the 1981-1985 period to 1,451 for the 1996-2000 period.

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## Data

	1973-1977	2004-2008
Value of Farm Production	\$85,116	\$356,410
Total Acres	1,369	1,909
% Livestock Income	0.458	0.285
Econ Total Expense Ratio	1.307	1.078
Profit Margin Ratio	0.234	0.155
Asset Turnover Ratio	0.210	0.310

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## Data 2004-2008

	Bottom Quartile	Top Quartile
Value of Farm Production	\$92,386	\$782,887
Total Acres	916	3,104
% Livestock Income	0.349	0.283
Econ Total Expense Ratio	1.672	0.970
Profit Margin Ratio	-0.174	0.218
Asset Turnover Ratio	0.149	0.380

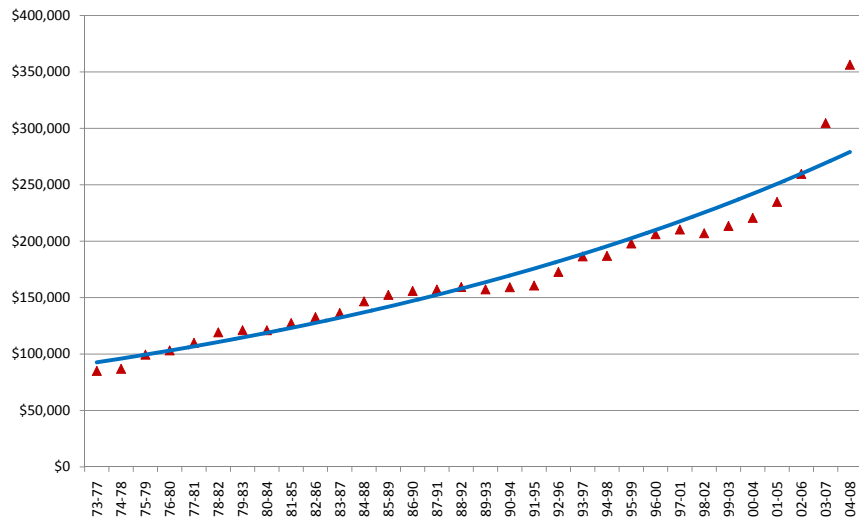
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## Growth Rates

	Full Sample	Quartile Differences
Value of Farm Production	0.0356	0.0452
Total Acres	0.0112	0.0210
% Livestock Income	-0.0185	-0.0025
Econ Total Expense Ratio	-0.0121	0.0171
Profit Margin Ratio	-0.0224	0.0267
Asset Turnover Ratio	0.0156	0.0413

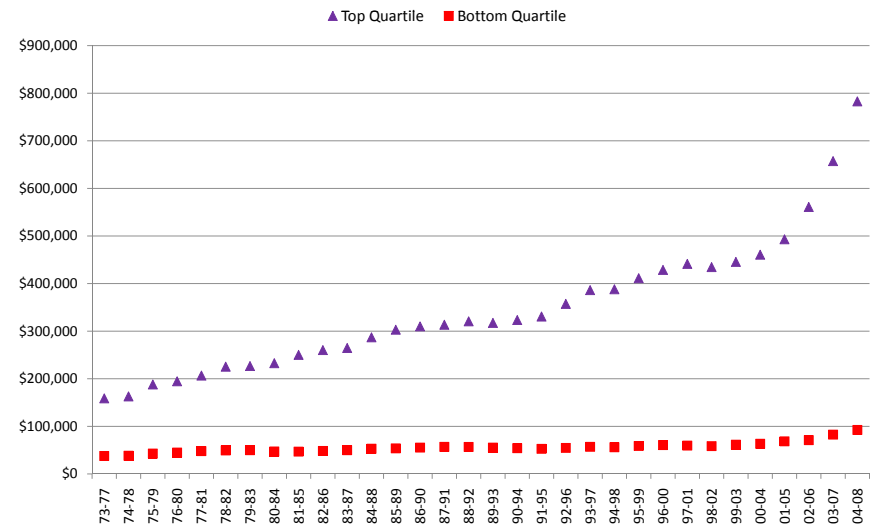
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### Trend in Value of Farm Production



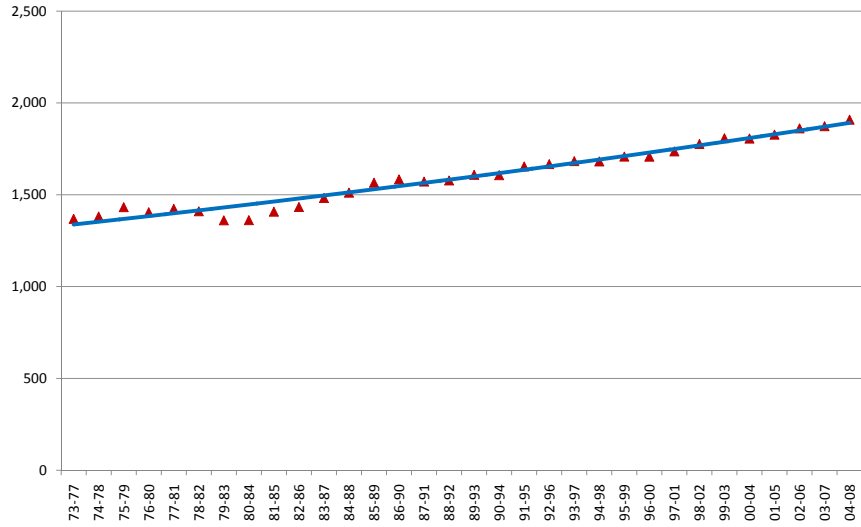
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### Value of Farm Production

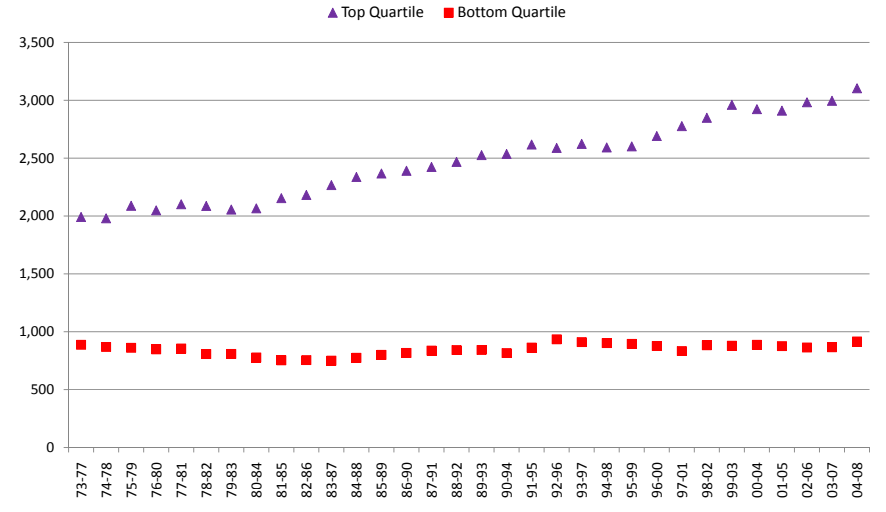


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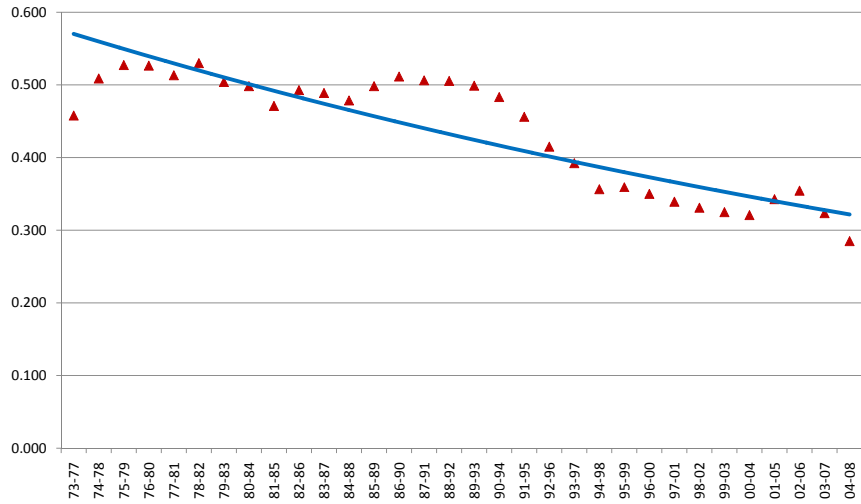
**Trend in Total Acres**



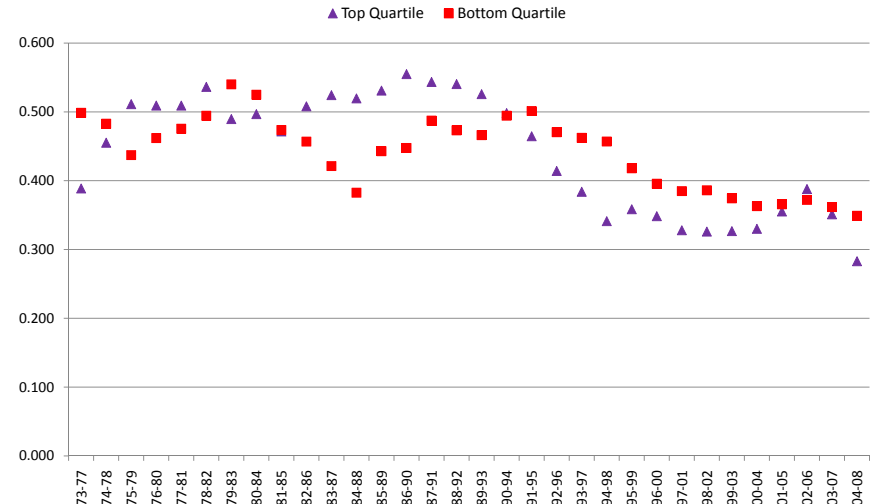
**Total Acres**



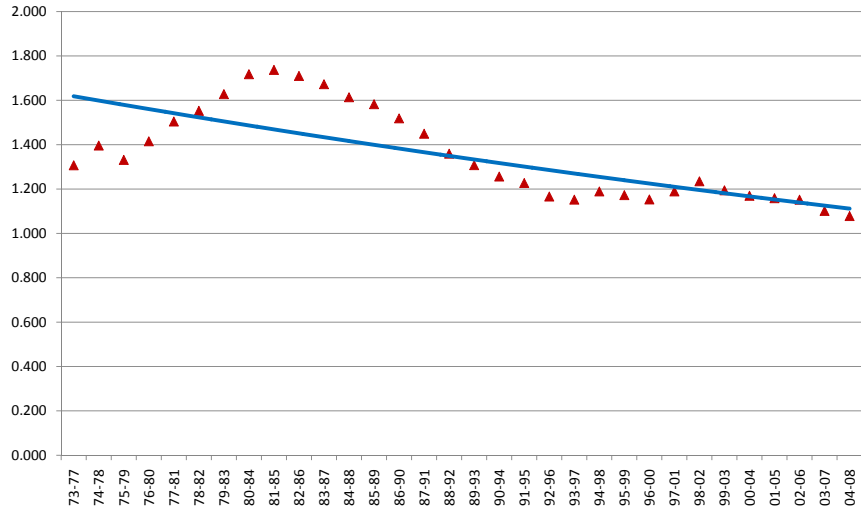
**Trend in Percent Livestock Income**



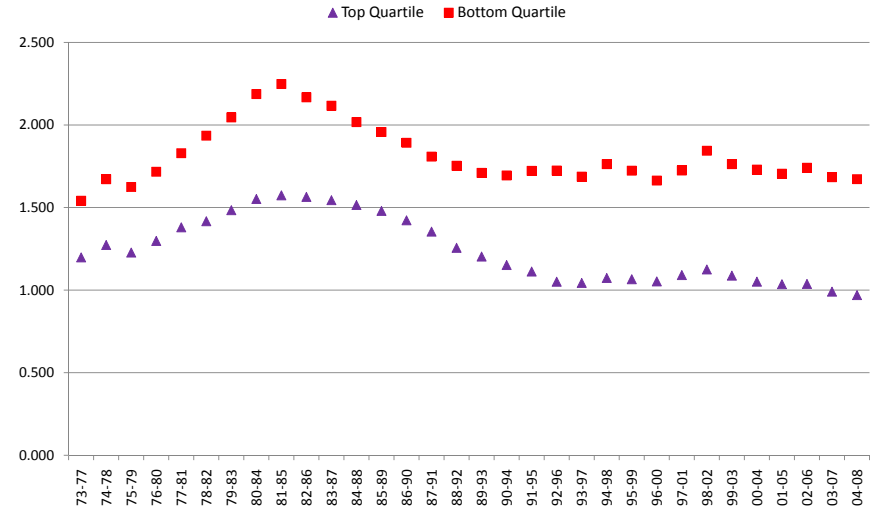
**Percent Livestock Income**



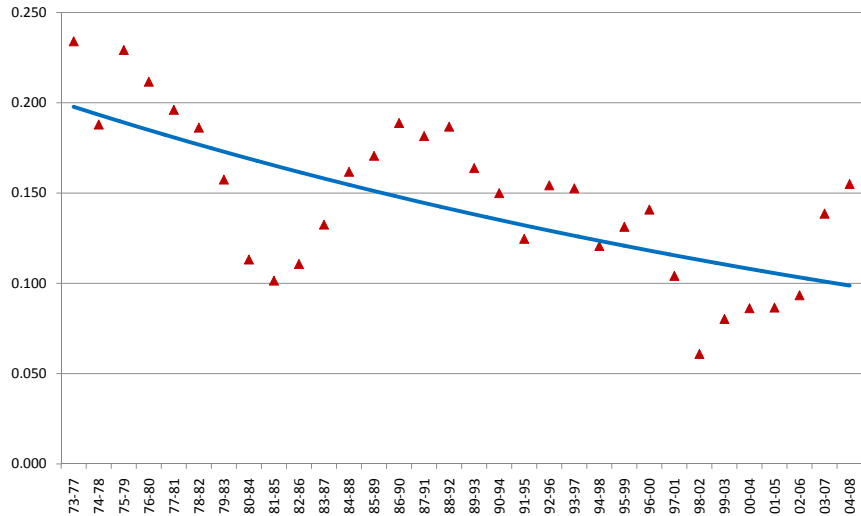
**Trend in Economic Total Expense Ratio**



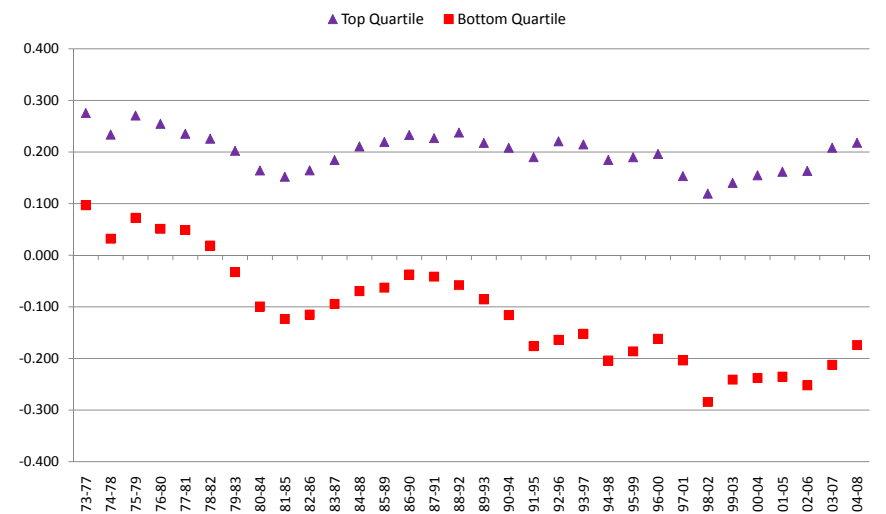
**Economic Total Expense Ratio**

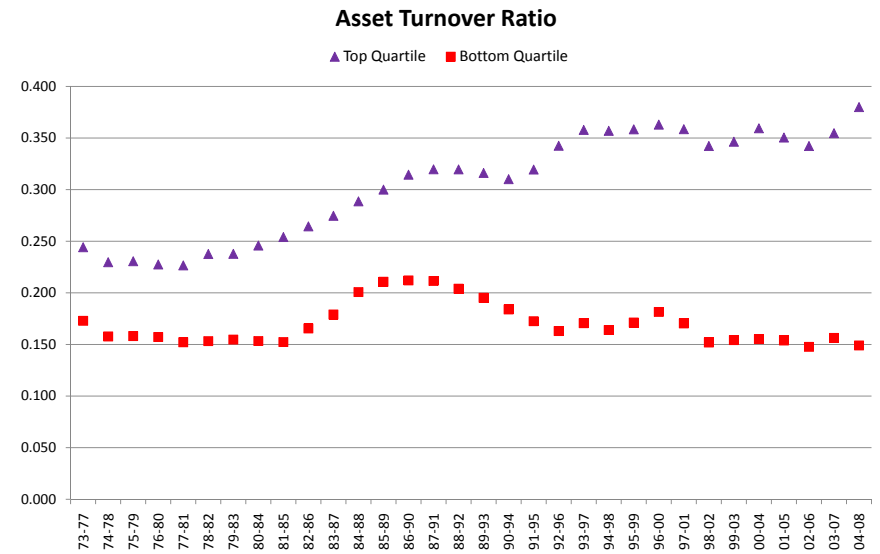
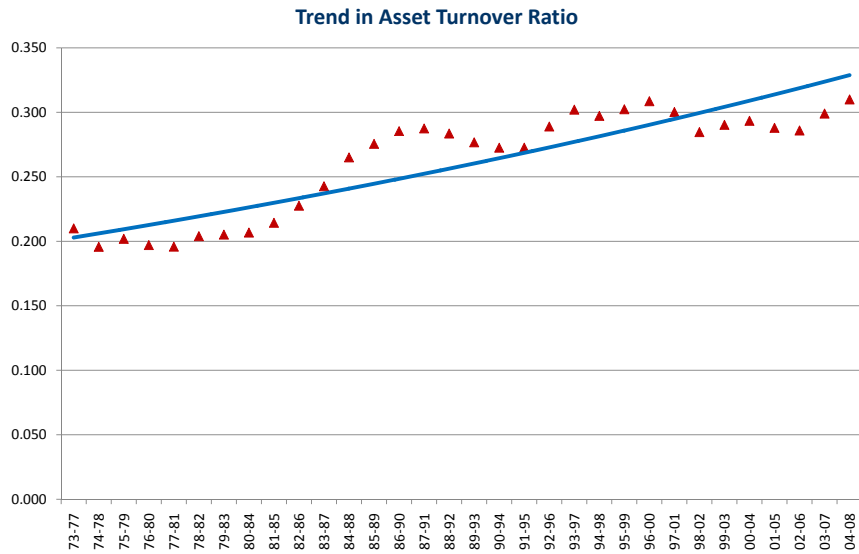


**Trend in Profit Margin Ratio**



**Profit Margin Ratio**





## Differences in Financial Performance Between Quartiles

	1973-1977	2004-2008
Profit Margin Ratio	0.179	0.392
Asset Turnover Ratio	0.071	0.231
Return on Assets	0.013	0.091

## Summary

- The primary objective of this study was to document the changing structure of Kansas farms over the 1973 to 2008 period.
- Results provided evidence of divergence in terms of farm size and financial performance between small and large farms.
- The larger farms appear to be growing rapidly and their relative financial performance is improving over time.

## Contact Information

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  - Ag Manager Contributor Site ([www.agmanager.info](http://www.agmanager.info))
    - KFMA Newsletter
    - Farm Finance Scorecard
  - KFMA Web Site ([www.agmanager.info/kfma](http://www.agmanager.info/kfma))

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## Farm Finance Scorecard

Profitability									
7. Net farm income	\$	_____							
8. Operating profit margin	%	_____							
9. Rate of return on farm assets	%	_____							
10. Rate of return on farm equity	%	_____							

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## Kansas Farm Management Association (KFMA)

- The KFMA program is one of the largest farm management programs in the country. Twenty-one KFMA economists, who are faculty members in the Department of Agricultural Economics, comprise the professional staff of the KFMA program.
- The KFMA economists work cooperatively with farm families to provide members with production and financial information that can be used when making farm business and family decisions.
- Web Site: [www.agmanager.info/kfma](http://www.agmanager.info/kfma)

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## Kansas Farm Management Association (KFMA)

- KFMA economists assist producers by providing the following information and services:
  - Sound farm accounting systems
  - On-farm visits
  - Accrual basis whole-farm and enterprise analysis
  - Financial benchmarks for comparing performance with similar farms
  - Year-end tax planning and management
  - Integrated tax planning, marketing, and asset investment strategies

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