



## Balance sheet analysis and farming performance, England 2016/2017

This release presents the main results from an analysis of the profitability and resilience of farms in England using data from the Farm Business Survey. Six measures have been examined; liabilities, net worth, gearing ratios, liquidity, net interest payments as a proportion of Farm Business Income and Return on Capital Employed (ROCE). The key results are:

### Liabilities ([section 1](#))

- The average (mean) level of liabilities (debt) across all farms was £202,100 per farm, little changed from 2015/16. Thirteen per cent of farms had liabilities of at least £400,000; 28% had liabilities of less than £10,000.
- Specialist pig and poultry (£363,100), dairy (£360,100) and general cropping (£301,300) farms had the highest average liabilities. Grazing livestock, LFA and Lowland, had the lowest average liabilities of £83,400 and £88,200 respectively.
- Average liabilities increased with farm size (both per farm and per hectare) from £62,300 (£970 per ha) for spare and part-time farms to £675,700 (£1,960 per ha) for very large farms.
- By region, farms in the South East had the greatest average liabilities of £262,500; 44% of these farms had liabilities of at least £150,000, compared to less than a third in all other regions.

### Net worth ([section 2](#))

- The average net worth across all farms was £1.80 million; more than a third (40%) had a net worth of at least £1.5 million.
- Mixed, mainly owner occupied farms had the highest average net worth of £2.46 million, wholly tenanted farms had an average net worth of £0.27 million.
- Cereal and general cropping farms had the highest average net worth of £2.56 million and £2.97 million respectively, driven by the larger area and quality of land owned by these farms. Horticulture farms had the lowest average net worth of £0.79 million.
- Average net worth increased with farm size; from £1.14 million for spare and part-time farms to £3.85 million for very large farms. However, this is reversed on a per hectare basis from £17,700 per ha for spare & part-time to £11,100 per ha for very large farms.

### Gearing ratio ([section 3](#))

- The average gearing ratio across all farms was 10%, little changed from 2015/16.

- Just over half (51%) of farms had a gearing ratio of less than 5%, whilst 8% had a gearing ratio of at least 40%. This indicates that the vast majority of farms are in a favourable situation.
- Compared to other farm types, pig and poultry farms had the highest average gearing ratio (24%).
- The gearing ratio increased with farm size from 5% for spare and part-time to 15% for very large farms.
- Wholly tenanted farms had a higher average gearing ratio (29%), compared to other tenure types. Owner occupied farms had an average gearing ratio of 7%.

#### **Liquidity ([section 4](#))**

- The average liquidity ratio was 224%, there has been no overall upward or downward trend since 2009/10.
- The majority of farms had a strong liquidity ratio, with around two thirds having a ratio of at least 200%, indicating that the majority of farms are able to meet their current liabilities using their current assets. However, 18% of farms potentially face financial difficulties with a liquidity ratio of less than 100%.
- On average, grazing livestock farms had the highest liquidity ratio, 314% for those in lowland areas and 298% for those in the LFA; specialist dairy farms had the lowest average liquidity ratio of 152%.
- The liquidity ratio generally decreased as farm size increased from 280% for spare/part time farms to 196% for very large farms.
- Farms with a greater proportion of ownership tended to have a higher liquidity ratio; the average liquidity ratio for owner occupied farms was 252% compared to 190% for tenanted farms.
- Better performing farms (top 25%) tended to have a higher liquidity ratio (285%).

#### **Net Interest payments as a proportion of FBI ([section 5](#))**

- Net interest payments were 13% of Farm Business Income, a slight decrease from 2015/16, driven by an increase in average Farm Business Income.
- A third (34%) of farms paid no interest or were net recipients of interest; these farms were more likely to be small farms, high performing farms or horticulture farms. A further 13% had a negative Farm Business Income before interest payments and would not have been able to pay some or all of the interest on their debts, without further borrowing or drawing on their assets.
- This measure was greatest for dairy farms (17%), pigs and poultry and lowland grazing livestock farms (16%), and least for horticulture farms (5%).

#### **Return on Capital Employed ([section 6](#))**

- The median ROCE was 0.46% in 2016/17, a slight increase from 2015/16. There was a wide range of values across farms and more than half (56%) of farms had a negative return.
- Larger farms tended to have a greater ROCE than smaller farms, with a median of 0.9% for very large farms compared to -0.9% for spare and part-time farms.
- All farm tenure groups had a median ROCE which was either zero or negative. Wholly tenanted farms varied much more widely in their ROCE score than other tenancy options.
- Almost all high performing farms had a positive ROCE, compared to low performing farms of which all had a negative return.

## Detailed results

This release presents the main results from an analysis of the profitability and resilience of farms in England using data from the Farm Business Survey. This notice provides an analysis of six indicative measures:

Measure	Rationale
Liabilities	A measure of indebtedness
Net worth	A measure of wealth
Gearing	To explore investment habits and the potential risk associated with farming enterprises
Liquidity	To examine the short term financial viability of farms
Net interest payments as a proportion of Farm Business Income	To examine whether farms can afford to pay the interest on their debts
Return on Capital Employed (ROCE)	Provides an indication of productivity and efficiency

The data used for this release is only from those farms that had complete returns for their assets and liabilities. Annual weights were derived for this sub sample in line with the method described in the [survey methodology](#) section (e.g. to preserve the population totals for robust farm types and farm size groups).

Where data have been presented in real terms, a GDP deflator has been used.

The results are presented together with [confidence intervals](#). The results presented in this notice can be found at: <https://www.gov.uk/government/statistics/balance-sheet-analysis-and-farming-performance-england>

Figures in italics are based on fewer than fifteen observations and should therefore be treated with caution.

Regression models were fitted to the key results to help determine the main factors driving response in 2016/17. In each case five factors were considered - farm type, farm size, farm tenure, region, and farm economic performance, see [survey details](#).

# 1 Liabilities

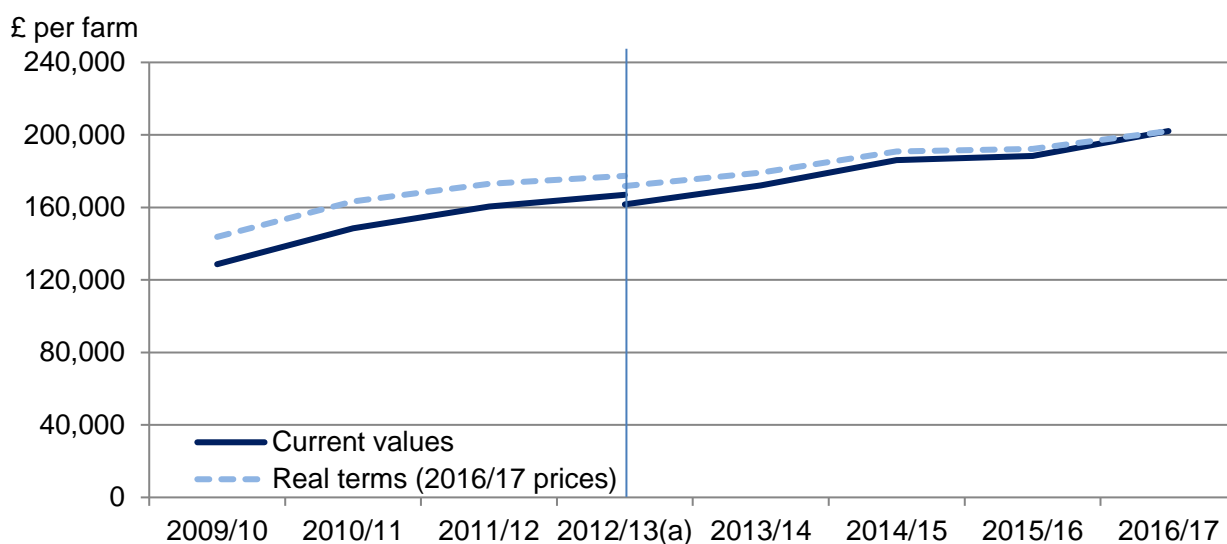
## Key findings for 2016/17:

- The average (mean) level of liabilities (debt) across all farms was £202,100 per farm, little changed from 2015/16.
- Thirteen per cent of farms had liabilities of at least £400,000; 28% had liabilities of less than £10,000.
- Specialist pig and poultry (£363,100), dairy (£360,100) and general cropping (£301,300) farms had the highest average liabilities. Grazing livestock, LFA and Lowland, had the lowest average liabilities of £83,400 and £88,200 respectively.
- Farms in the South East had the greatest average liabilities of £262,500; 44% of these farms had liabilities of at least £150,000, compared to less than a third in all other regions.

This section examines the indebtedness of farm businesses, as measured by their total liabilities. Liabilities are the total debt (short- and long-term) that the farm business holds, including mortgages, long term loans and monies owed for hire purchases, leasing and overdrafts. A farm with high levels of liabilities will require consistent income flows to ensure that interest payments can be met.

The average level of debt across all farms in 2016/17 was around £202,100, little changed from the previous year (Figure 1.1). The longer term increase has been driven largely by increases in long term loans such as bank or building society loans rather than overdrafts or other short term loans. The component parts of average liability per farm in 2016/17 are shown in Figure 1.2. Thirteen per cent of all farms had liabilities exceeding £400,000, with 28% owing less than £10,000, similar to 2015/16.

**Figure 1.1 Average liabilities per farm, in current values and real terms (2016/17 prices)<sup>(a)</sup>, England**

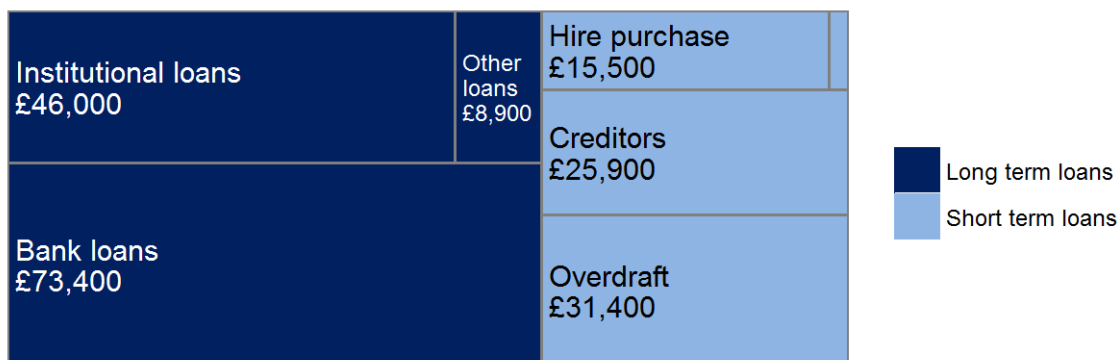


Farms with at least 25,000 euros of Standard Output.

(a) Deflated by GDP.

(b) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

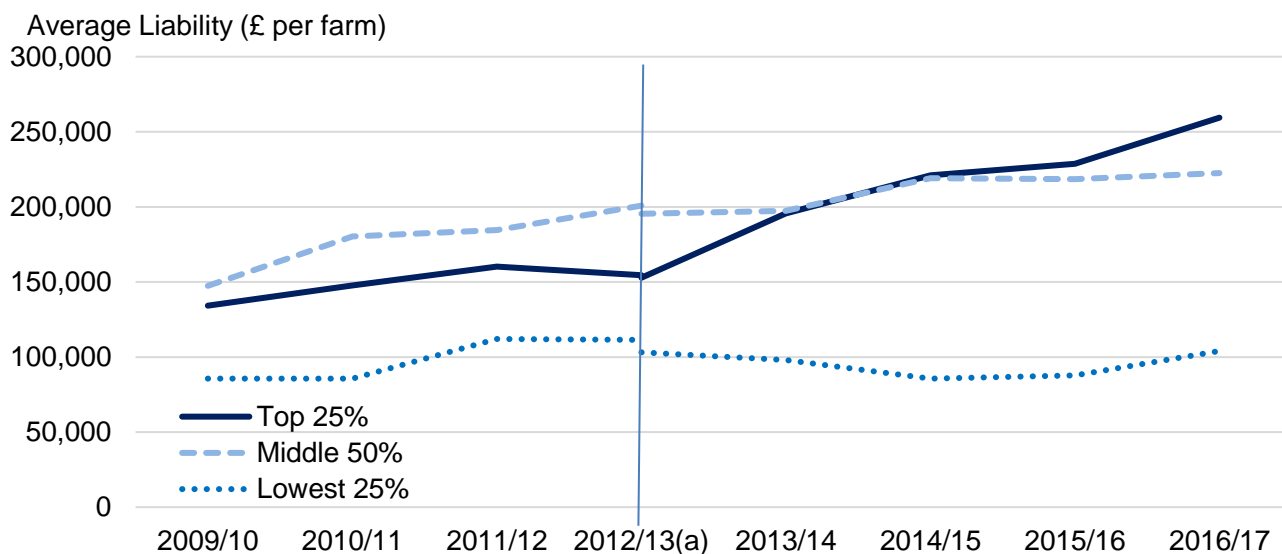
**Figure 1.2 The composition of liabilities for the average farm 2016/17 (£ per farm).**



The size of the box for each category is proportional to its contribution to the overall average liability per farm. The 'Other short term loans' category (top right) is too small to be captioned in the plot, its contribution is £1,000 per farm.

There has been a change in the trend of the average level of debt for farms in each economic performance band<sup>1</sup>. For those farms in the top performance group, the average level of debt has increased considerably since 2012/13. For the lowest performing farms, the average level of debt has changed little in recent years (Figure 1.3).

**Figure 1.3 Average liabilities per farm, by farm economic performance band.**



(a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

In 2016/17 farm type, size and region were found to be significantly related to the level of debt<sup>2</sup>.

Figure 1.4 shows the relationship between liabilities and farm type. The variation in average liability between farm types may be due to differences in the amount of capital investment required, or differences in farm profitability. The average level of debt was

<sup>1</sup> For a definition of farm economic performance see the section on [definitions](#).

<sup>2</sup> A generalised linear regression model was fitted to examine which factors (farm type, farm size, region, tenure and economic performance) were significant in 2016/17. Farm type, size and region were found to be significant predictors of farm liability,  $p < 0.001$ .

greatest for farms specialising in pigs and poultry (£363,100), dairy (£360,100) and general cropping (£301,300). Grazing livestock farms (LFA and Lowland) had the lowest average liabilities at £83,400 and £88,200 respectively. For each farm type, there was no significant change in average liability between 2015/16 to 2016/17.

**Figure 1.4 Average liabilities per farm type**

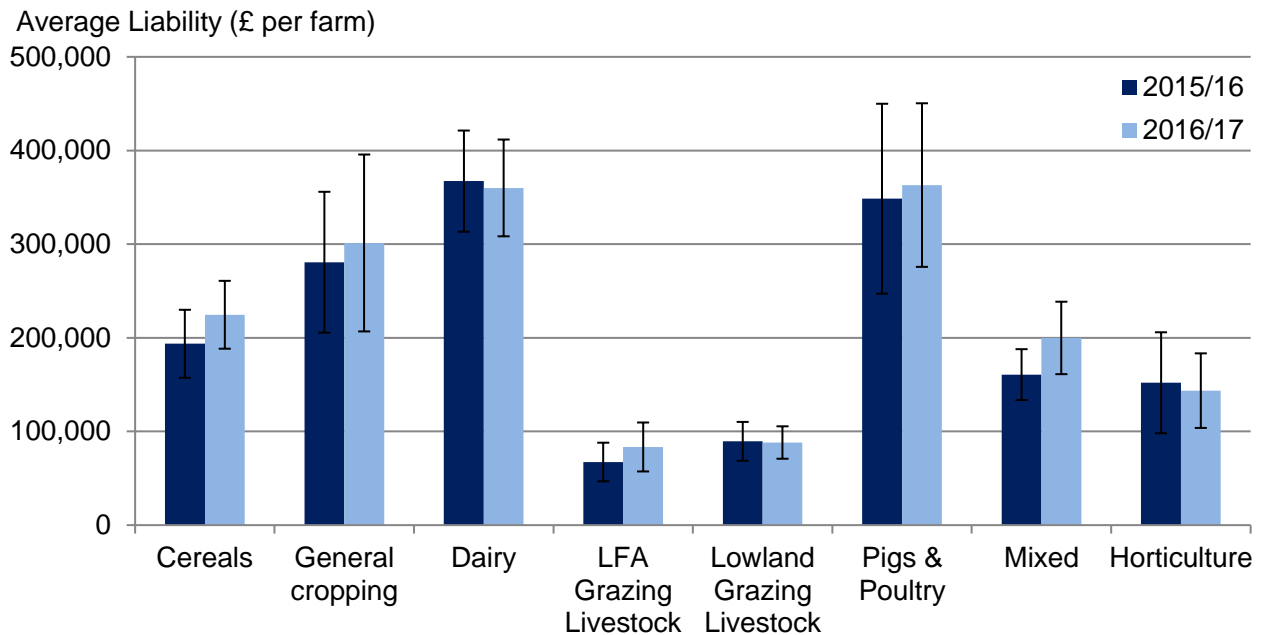
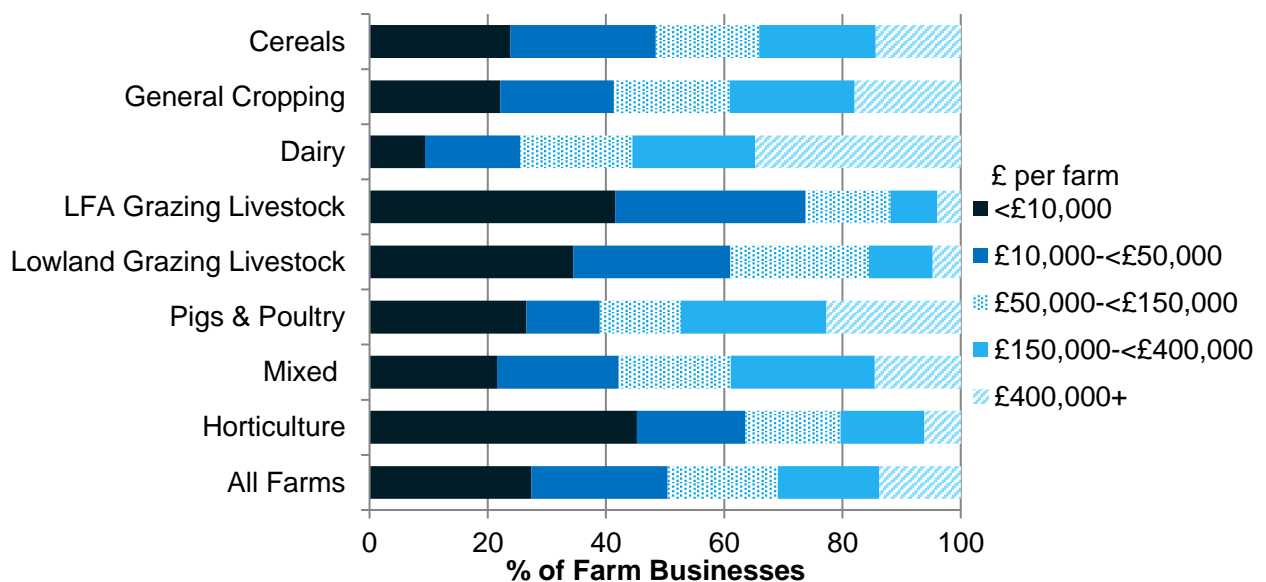


Figure 1.5 shows the distribution of liabilities for each farm type. Around half of dairy (56%) and pigs and poultry (47%) farms had liabilities of at least £150,000. More than 40% of LFA grazing livestock farms and horticulture farms had liabilities of less than £10,000.

**Figure 1.5 Distribution of liabilities (per farm) by farm type**

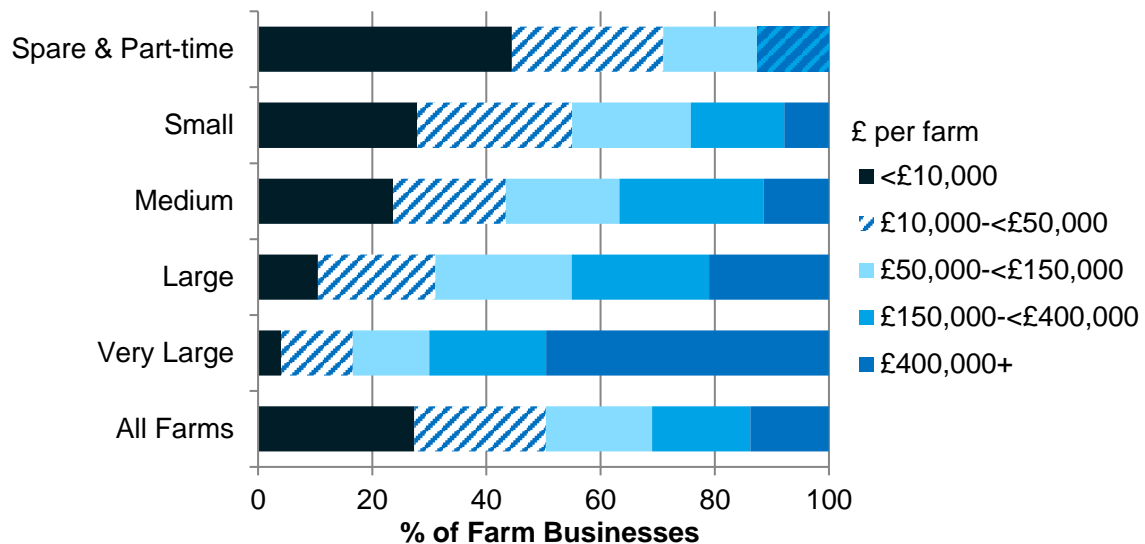


The level of debt tends to increase with farm size<sup>3</sup> (Figure 1.6), as might be expected, rising from an average of around £62,300 for spare and part-time farms, to £675,700 for

<sup>3</sup> Farm sizes are based on the estimated labour requirements for the business, rather than its land area. Please see the section on [definitions](#) for more information.

very large farms. This pattern does not change when the farms' area is taken into account, with very large farms still having the highest average liabilities per hectare<sup>4</sup> (£1960 per hectare) compared to spare and part-time farms (£970 per hectare). Across all farms the average debt per hectare was £1,430. Forty-four per cent of spare and part-time farms had liabilities under £10,000 compared to 4% of very large farms. Half (50%) of very large farms had at least £400,000 worth of debt (Figure 1.6).

**Figure 1.6 Distribution of liabilities (per farm) by farm size**



(a) Categories £150,000 - <£400,000 and £400,000+ were combined for Spare & Part-time farms due to insufficient observations.

The average level of debt varied by region across England, even after allowing for farm type and size. In general, farms in the north had lower debt levels than those in the south; farms within the South East of England had the highest average debt level of around £262,500, whilst farms in the North West had the lowest average level of debt (£154,000).

The gearing ratio<sup>5</sup> can provide a deeper understanding of indebtedness. For those farms with less than £10,000 worth of liabilities, almost all (97%) had a gearing ratio of less than 5%, which suggests that these farms are in a favourable situation. For further information on the gearing ratio please see Table 3.1 in [section 3](#).

<sup>4</sup> Per hectare of farmed area. Farmed area = Utilised Agricultural Area + net land hired in (i.e. land hired in minus land hired out)

<sup>5</sup> The gearing ratio gives a farm's liabilities as a proportion of its assets.



## 2 Net worth

### Key findings for 2016/17:

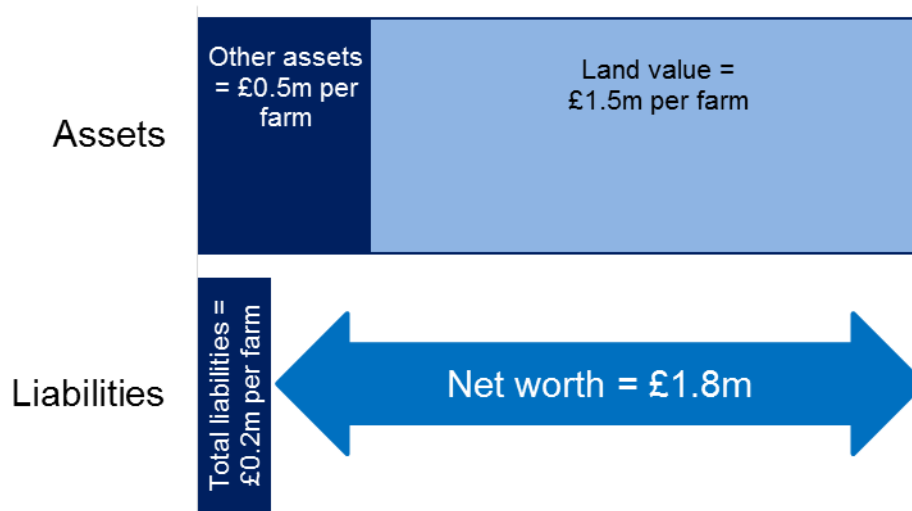
- The average net worth across all farms was £1.8 million; more than a third (40%) had a net worth of at least £1.5 million.
- Mixed, mainly owner occupied farms had the highest average net worth of £2.46 million, wholly tenanted farms had an average net worth of £0.27 million.
- Cereal and general cropping farms had the highest average net worth of £2.56 million and £2.97 million respectively, driven by the larger area and quality of land owned by these farms. Horticulture farms had the lowest average net worth of £0.79 million.
- Average net worth increased with farm size; from £1.14 million for spare and part-time farms to £3.85 million for very large farms. However, this is reversed on a per hectare basis from £17,700 per ha for spare & part-time to £11,100 per ha for very large farms.

This section examines the net worth of farm businesses in England. Net worth represents the wealth of a farm if all of their liabilities were called in. It is measured by subtracting the value of the total liabilities from total assets, including tenant type capital<sup>6</sup> and land. Those farms with a high net worth are more likely to be resilient to changes in their income in the short term as they can draw on their reserves to support the business if the financial position of the farm deteriorates.

The average net worth across all farms in England was £1.80 million in 2016/17 (Figure 2.1). There has been an increase in both real and current terms since 2009/10 (

Figure 2.2), driven mostly by an increase in the value of land and other assets. More than a third (40%) of farms had a net worth of at least £1.5 million in 2016/17.

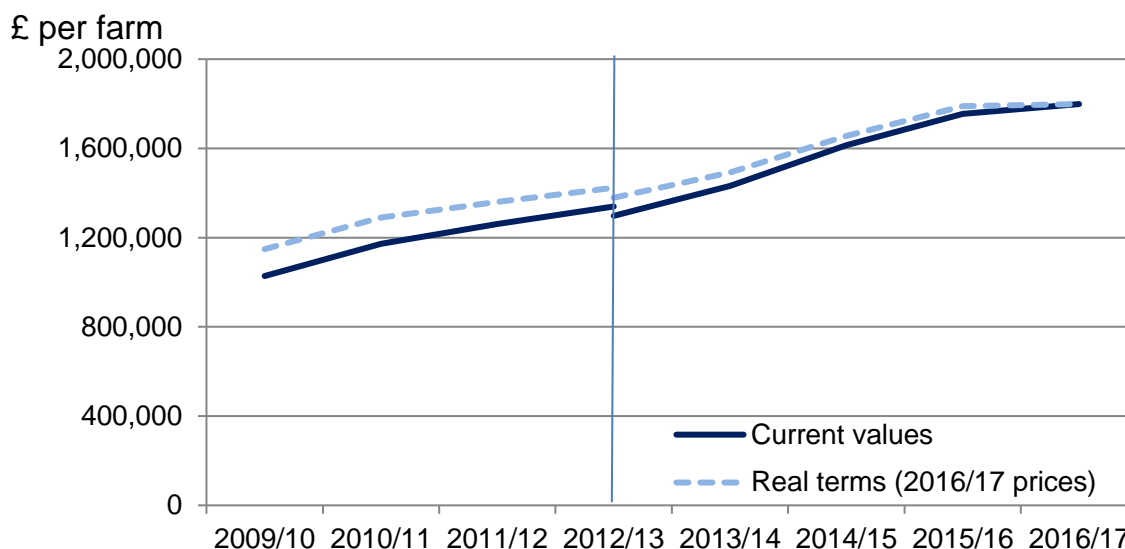
**Figure 2.1 Net worth calculation, 2016/17.**



<sup>6</sup> For a definition of tenant type capital see the section on [definitions](#)



**Figure 2.2 Average net worth per farm in current values and real terms (2016/17 prices)<sup>(a)</sup>, England**



Farms with at least 25,000 euros of Standard Output.

(a) Deflated by GDP.

(b) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

Those farms with a net worth of less than £500,000 were more likely to be spare & part-time rather than larger farms; to be pigs & poultry or horticulture farms than other farm types; to be in the North West of England than other regions, and/or tenanted farms than other tenancy options<sup>7</sup>. Those farms with a net worth of at least £1,000,000 were more likely to be large or very large farms, than smaller farms; to be in the south of England than other regions or to be cereal/general cropping farms than other farm types<sup>8</sup>.

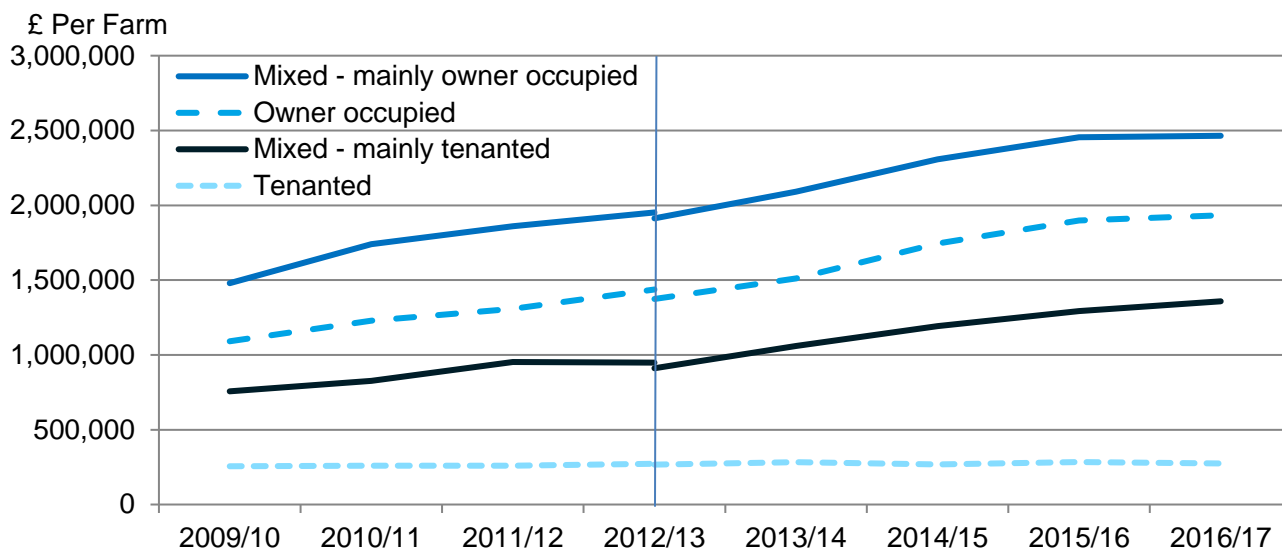
Those farms with greater land ownership tend to have a greater net worth, farms that are of mixed tenure but mainly owner occupied<sup>9</sup> had the greatest average net worth of £2.46 million, whilst wholly tenanted farms, had an average net worth of £0.27 million. With the exception of wholly tenanted farms, average net worth has grown for each tenure type since 2009/10 (Figure 2.3). This demonstrates the relative contribution of land value to net worth.

<sup>7</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were a significant predictor of having a net worth of less than £500,000. Farm type, size and tenure were found to be highly significant ( $p < 0.001$ ) and region was also significant ( $p = 0.012$ ).

<sup>8</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were a significant predictor of having a net worth of £1,000,000 or more. All factors were found to be highly significant ( $p \leq 0.01$ ).

<sup>9</sup> At least 50% (but not all) of their farm is owned.

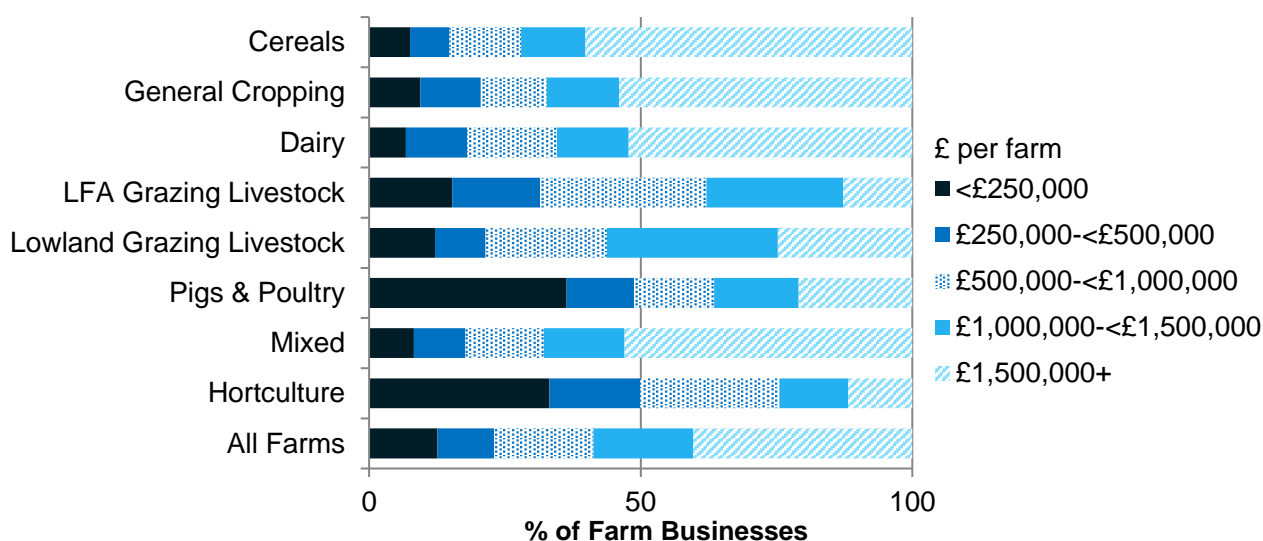
**Figure 2.3 Average net worth by farm tenure**



(a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability

As in 2015/16, cereal and general cropping farms had the highest average net worth, at £2.56 million and £2.97 million respectively, driven by the larger average area of land owned by these types of farms. Horticulture farms had the lowest average net worth, at £0.79 million. There are differences in the distribution of net worth between farm types (Figure 2.4); over half of cereal (60%) and general cropping (54%) farms had an average net worth of at least £1.5 million compared to 13% and 12% of LFA grazing livestock and horticulture farms respectively. On a per hectare basis<sup>10</sup>, horticulture and pig & poultry had greater average net worth compared to other farm types, at around £29,900 and £22,900 per hectare respectively. LFA grazing livestock farms (£5,800) had the lowest average net worth per hectare.

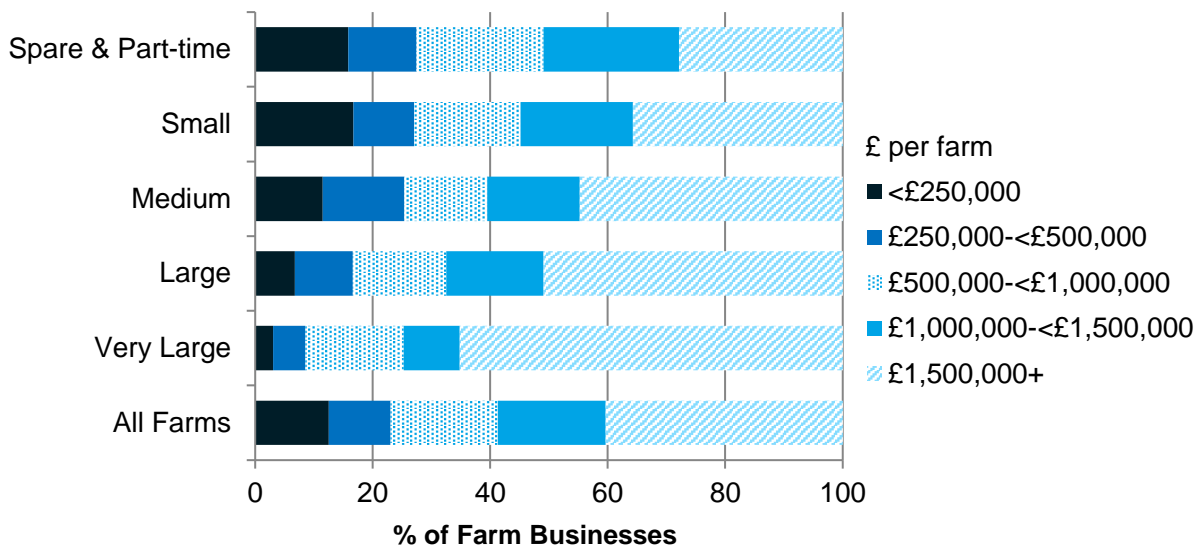
**Figure 2.4 Distribution of net worth by farm type.**



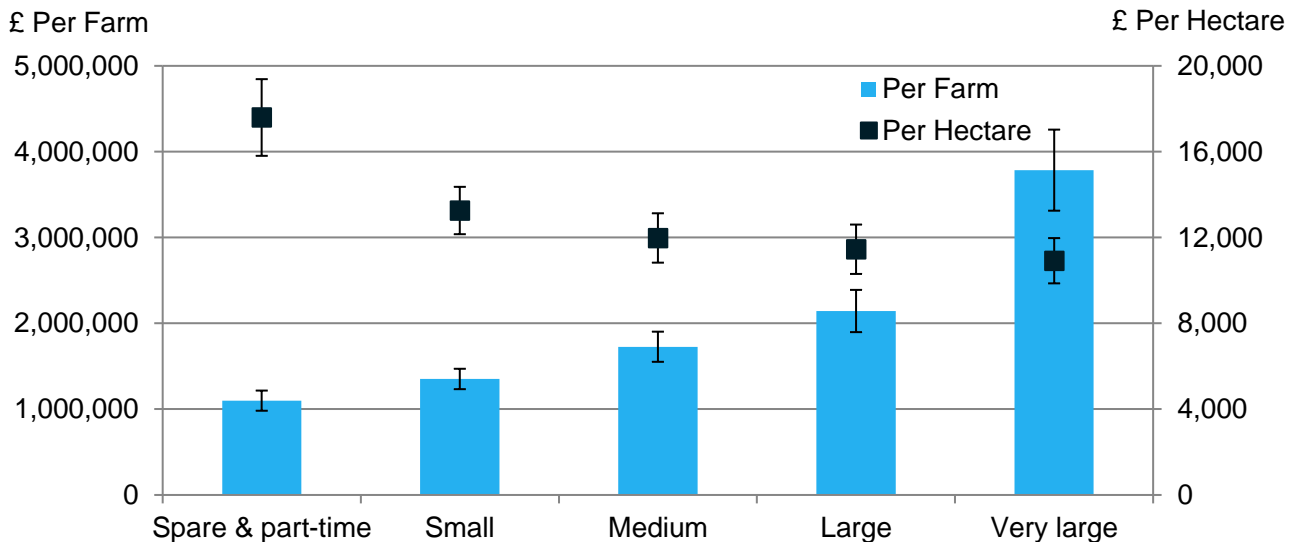
<sup>10</sup> Per hectare of farmed area. Farmed area = Utilised Agricultural Area + net land hired in (i.e. land hired in minus land hired out)

As with liabilities, the average net worth of farms increases with farm size<sup>11</sup>; from £1.14 million for spare and part-time farms, to £3.85 million for very large farms. The proportion of farms with a net worth of over £1.5 million increases with the size of the farm business, from 28% of spare and part-time farms to 65% of very large farms (Figure 2.5). However, on a per hectare<sup>9</sup> basis, net worth decreases as farm size increases, with spare and part-time farms having an average net worth of £17,700 per hectare compared to £11,100 for very large farms (Figure 2.6).

**Figure 2.5 Distribution of net worth by farm size**



**Figure 2.6 Total average net worth by farm size (per farm and per hectare of farmed area<sup>7</sup>)**



<sup>11</sup> Farm sizes are based on the estimated labour requirements for the business, rather than its land area. Please see the section on [definitions](#) for more information

Net worth varied between region. Farms in the East of England had the highest average net worth at £2.4 million in 2016/17. In contrast, those in the North West had, the lowest average net worth at £1.0 million. More than half of farms in the South East (56%) had a net worth of over £1.5 million, compared to less than a quarter (22%) of farms in the the North West.

The gearing ratio<sup>12</sup> compares what a business owes with its assets. The proportion of farms with a gearing ratio of 40% or more decreases as the level of net worth increases. Only 2% of farms with a net worth of £1,000,000 or more had a gearing ratio of at least 40%, 56% had a gearing ratio of less than 5%. Conversely, of those farms with a net worth of less than £250,000, a third had a gearing ratio of 40% or more, and 25% had a gearing ratio of less than 5%. This suggests that those farms with low net worth may be at greater financial risk than those with a high net worth. For further information on the gearing ratio please see [section 3](#).

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<sup>12</sup> The gearing ratio expresses a farm's liabilities as a proportion of its assets (see Section 3).

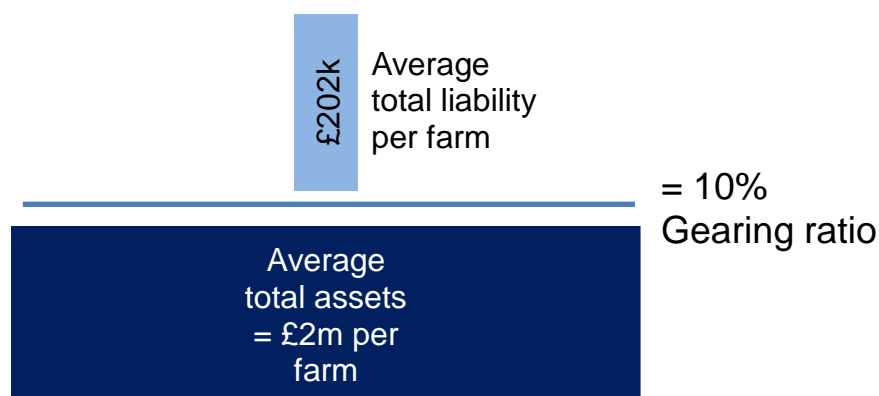
### 3 Gearing

#### Key findings for 2016/17:

- The average gearing ratio across all farms was 10%, little changed from 2015/16.
- Just over half (51%) of farms had a gearing ratio of less than 5%, whilst 8% had a gearing ratio of at least 40%. This indicates that the vast majority of farms are in a favourable situation.
- Compared to other farm types, pig and poultry farms had the highest average gearing ratio (24%).
- The gearing ratio increased with farm size from 5% for spare and part-time to 15% for very large farms.
- Wholly tenanted farms had a higher average gearing ratio (29%), compared to other tenure types. Owner occupied farms had an average gearing ratio of 7%.

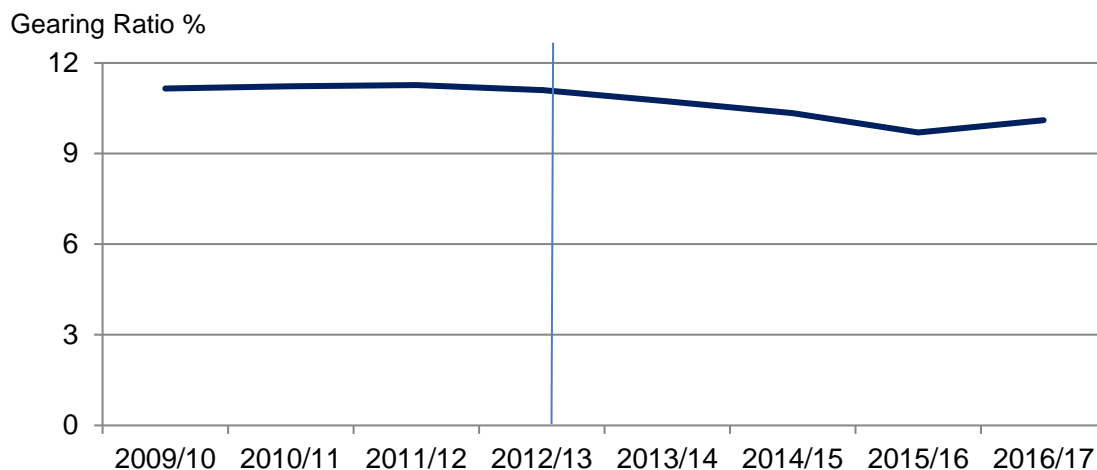
In order to get a deeper understanding of the indebtedness of a farm we can compare what the farm business owes (its liabilities) with the assets that the owners have tied up in the business. We use an accounting measure which expresses a farm's liabilities as a proportion of its assets, sometimes referred to as the gearing ratio. If a farm has assets equal to its liabilities, this will give a gearing ratio value of 100%, and if their assets are twice as large as its liabilities, the gearing ratio will be 50%. This provides a measure of the **long term financial viability** of a farm. A lower ratio is generally seen as more acceptable because this suggests that the farm business is more likely to be able to meet its investment needs from earnings. A higher ratio may be seen as a greater risk as interest costs will be higher and the farm will have lower funds to borrow against. However, being highly geared does not necessarily imply an unsuccessful business. Investment can increase profitability, so increasing the gearing ratio can lead to better performance.

Figure 3.1 Gearing ratio calculation, 2016/17.



The average gearing ratio across all farms was 10% in 2016/17, little changed from the previous year (Figure 3.2). In general, since 2009/10, there has been a gradual decline in the average gearing ratio across all farms. Just over half (51%) of farms in England had a gearing ratio of less than 5%, whilst 8% had a gearing ratio of at least 40%. This indicates that the vast majority of farms are in a favourable situation.

**Figure 3.2 Average gearing ratio per farm, England**



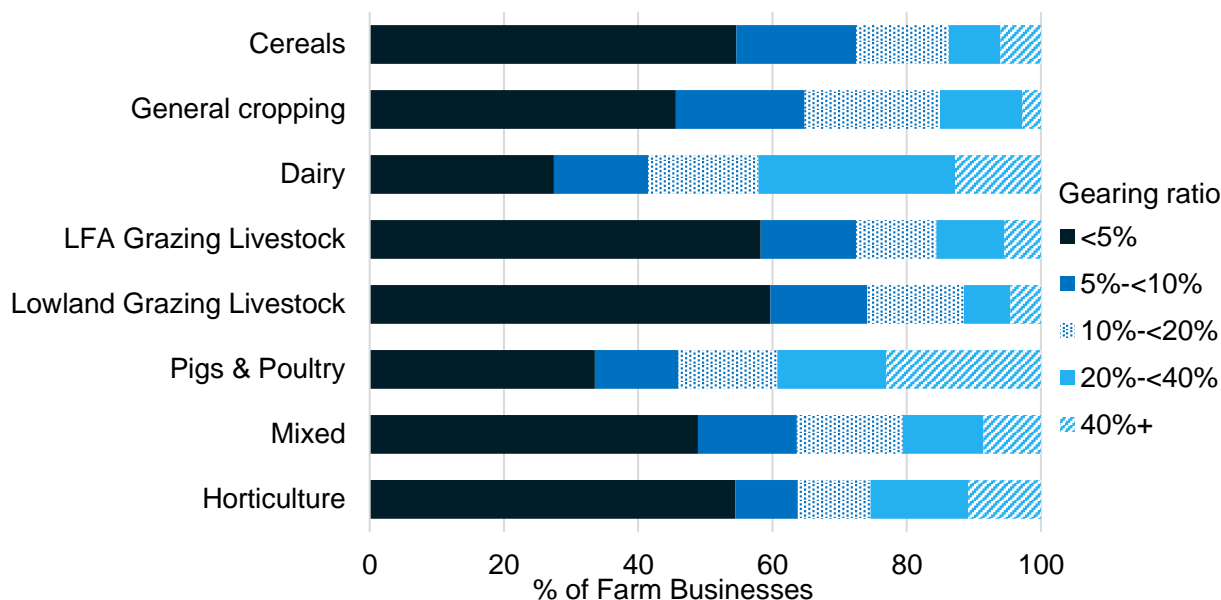
Farms with at least 25,000 euros of Standard Output

(a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

Farm type, size, tenure, economic performance and region were found to be significantly related to<sup>13</sup> the gearing ratio.

Pigs and poultry farms continued to have the highest average gearing ratio (24%) in 2016/17, with nearly a quarter (23%) having a gearing ratio that exceeded 40% (Figure 3.3). Cereals, grazing livestock (LFA and lowland), general cropping and mixed farms all had low average gearing ratios, each at below 10%.

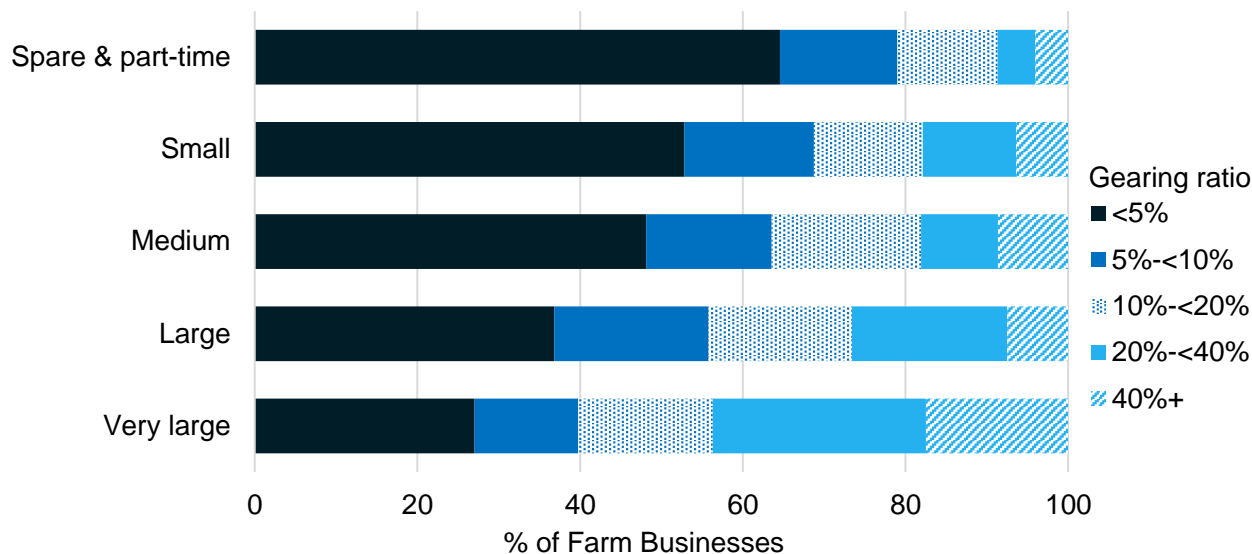
**Figure 3.3 Distribution of Gearing Ratio by farm type**



<sup>13</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were significant. Farm type, size, tenure were found to be highly significant ( $p \leq 0.001$ ) and economic performance and region was significant ( $p = 0.002$  and  $p = 0.019$  respectively)

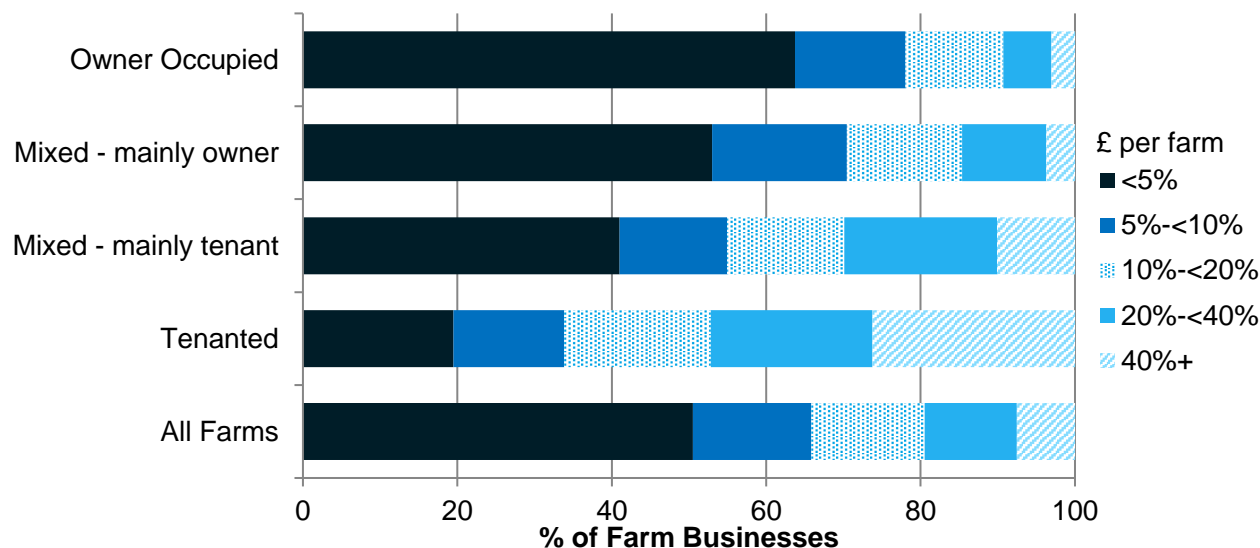
The average gearing ratio increased with farm size, from 5% for spare and part-time farms to 15% for very large farms (Figure 3.4).

**Figure 3.4 Distribution of Gearing Ratio by farm size**



The gearing ratio tends to reduce with the level of land ownership. Tenanted farms had an average gearing ratio of 29% whilst owner occupied farms had an average gearing ratio of 7%. Just 3% of owner occupied farms had a gearing ratio of 40% or more, compared to around a quarter (26%) of tenanted farms (Figure 3.5). These findings highlight the importance of the value of land in contributing to owner occupied and mixed tenure farms' asset base.

**Figure 3.5 Distribution of Gearing Ratio by farm tenure**



Those farms with lower liabilities also tended to have a lower gearing ratio (Table 3.1). Almost all (97%) of those farms with less than £10,000 liabilities, had a gearing ratio of less than 5% which indicates that these farms are in a favourable situation as they have a very small amount of liabilities compared to assets. However, of those farms with at least £400,000 of liabilities, a quarter (26%) had a gearing ratio of over 40%. Whilst investment



can increase profitability, a high gearing ratio does not necessarily make the farm a less viable business.

**Table 3.1 Proportion of farms by Gearing ratio and liabilities**

Gearing Ratio	Liabilities				
	<£10,000	£10,000- <£50,000	£50,000- <£150,000	£150,000- <£400,000	£400,000+
<5%	97	73	30	7	3
5%-<10%	3*	13	32	28	7
10%-<20%		9	16	35	24
20%-<40%	0	5*	12	19	41
40%+	0		9	11	26
All farms	100	100	100	100	100

\*Some data have been grouped due to insufficient observations.

Those farms with higher net worth also tended to have a lower gearing ratio (Table 3.2). Of those farms with a net worth of under £250,000, a third (33%) had a gearing ratio of over 40%, compared to 2% of farms with a net worth of over £1 million. Similarly, a quarter of farms with a net worth of under £250,000 had a gearing ratio of under 5%, compared to over half (56%) of farms with a net worth of at least £1 million.

**Table 3.2 Proportion of farms by Gearing ratio and net worth**

Gearing Ratio	Net Worth			
	<£250,000	£250,000- <500,000	£500,000- <£1,000,000	£1,000,000+
<5%	25	46	53	56
5%-<10%	9	14	16	17
10%-<20%	16	13	13	16
20%-<40%	17	16	12	10
40%+	33	12	7	2
All farms	100	100	100	100

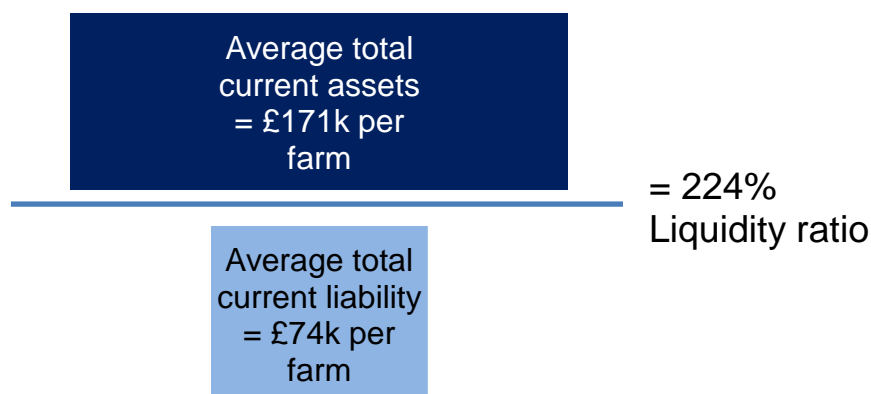
## 4 Liquidity

### Key findings for 2016/17:

- The average liquidity ratio was 224%, there has been no overall upward or downward trend since 2009/10.
- The majority of farms had a strong liquidity ratio, with around two thirds having a ratio of at least 200%, indicating that the majority of farms are able to meet their current liabilities using their current assets. However, 18% of farms potentially face financial difficulties with a liquidity ratio of less than 100%.
- On average, grazing livestock farms had the highest liquidity ratio, 314% for those in lowland areas and 298% for those in the LFA; specialist dairy farms had the lowest average liquidity ratio of 152%.
- The liquidity ratio generally decreased as farm size increased from 280% for the smallest farms to 196% for very large farms.
- Farms with a greater proportion of land ownership tend to have higher liquidity ratios; the average liquidity ratio for owner occupied farms was 252% compared to 190% for tenanted farms.
- Farms with high economic performance (i.e. top 25%) tended to have a higher liquidity ratio (285%) than lower performing farms.

'Liquidity' is a measure of the **short term financial viability** of farms. A large proportion of the assets of a farm, such as land or machinery, will typically have a monetary value that is difficult or costly to realise in the short term. The liquidity ratio<sup>14</sup> provides an indication of the ability of a farm to finance its immediate financial demands from its current assets, such as cash, savings or stock (Figure 4.1). If the liquidity ratio is equal to or above 100%, then a farm is able to meet its current liabilities using current assets. If the ratio is less than 100%, then a farm is unable to meet its immediate financial demands using current assets.

**Figure 4.1 Liquidity calculation, 2016/17.**

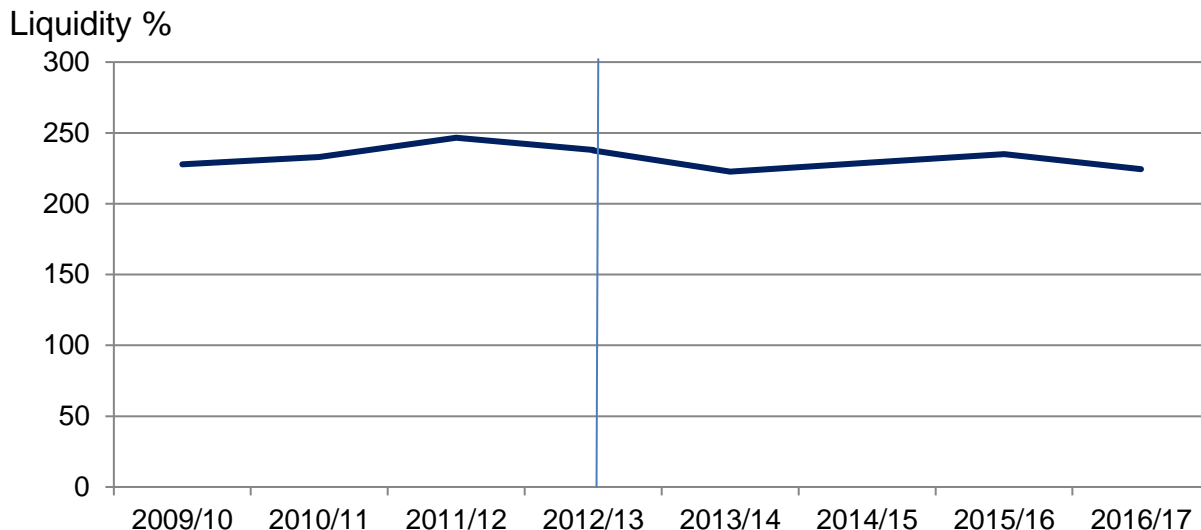


The average liquidity ratio in 2016/17 was 224%. Since 2009 there has been some fluctuation, but no overall upward or downward trend (Figure 4.2). The majority of farms continue to have a strong liquidity ratio; around two thirds (66%) had a ratio of at least

<sup>14</sup> Liquidity ratio is current assets divided by current liabilities.

200%. Less than one in five farms (18%) had a liquidity ratio below 100% and could potentially face financial difficulties. This latter group were more likely<sup>15</sup> to be dairy or pigs & poultry farms than other farm types, more likely to rent at least some of their farm or to be in the bottom 25% in terms of economic performance.

**Figure 4.2 Average liquidity per farm, England**



Farms with at least 25,000 euros of Standard Output

- (a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.
- (b) A small number of farms (46) with no recorded current liabilities have been excluded from this analysis.

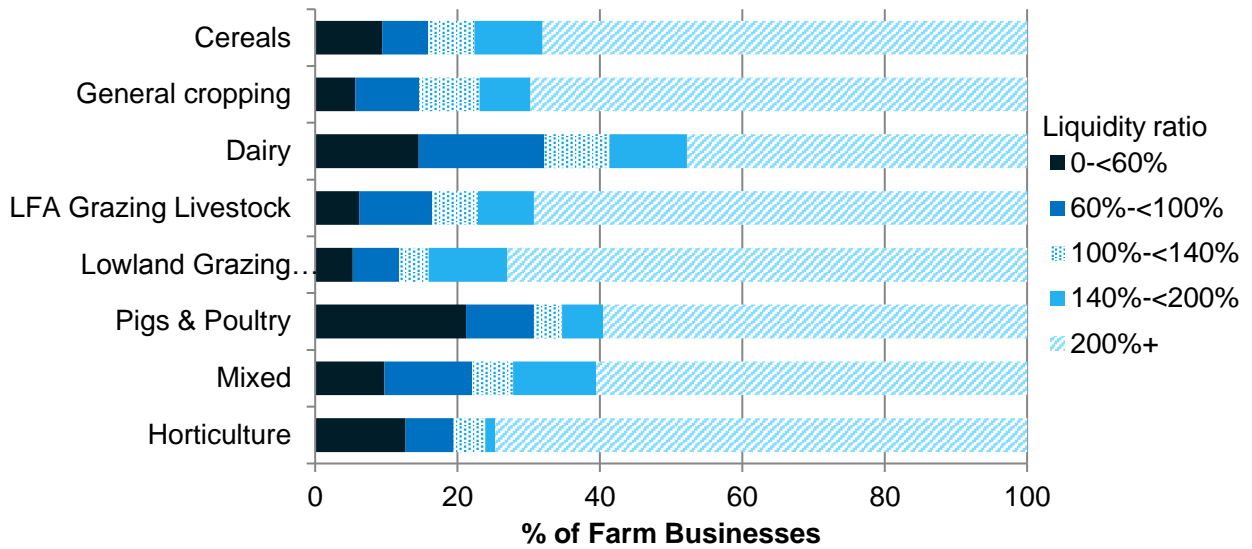
Farm type, size, economic performance and tenure were found to be significantly related to the liquidity ratio<sup>16</sup>.

Grazing livestock farms, lowland and LFA, had the highest average liquidity ratios at 314% and 298% respectively. Dairy farms had the lowest average liquidity ratio (152%), similar to the previous year, a third (32%) of dairy farms had a liquidity ratio of less than 100% (Figure 4.3).

<sup>15</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were a significant predictor of having a liquidity ratio of less than 100%. Farm type and economic performance band were found to be highly significant ( $p < 0.001$ ) and farm tenancy was also significant ( $p = 0.021$ ).

<sup>16</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were significant. Farm type, size and economic performance were found to be highly significant ( $p < 0.001$ ), and farm tenure was also found to be significant ( $p = 0.001$ ).

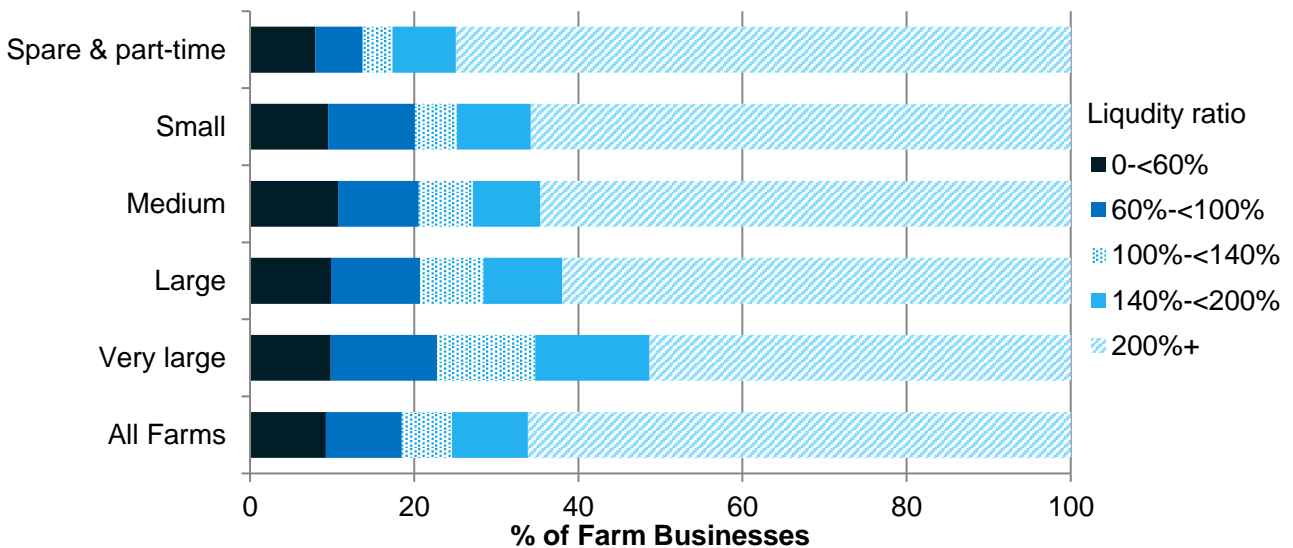
**Figure 4.3 Distribution of liquidity ratio by farm type**



(a) A small number of farms (46) with no recorded current liabilities have been excluded from this analysis.

The liquidity ratio generally tends to decrease as farm size increases, from 280% for spare/part time farms to 196% for very large farms. Around 23% of very large farms had a liquidity ratio of less than 100%, compared to 14% of spare and part-time farms, or 20% of small farms (Figure 4.4). Overall, two thirds of farms had a liquidity ratio at least 200%, suggesting that they could easily cover their immediate financial demands with their current assets.

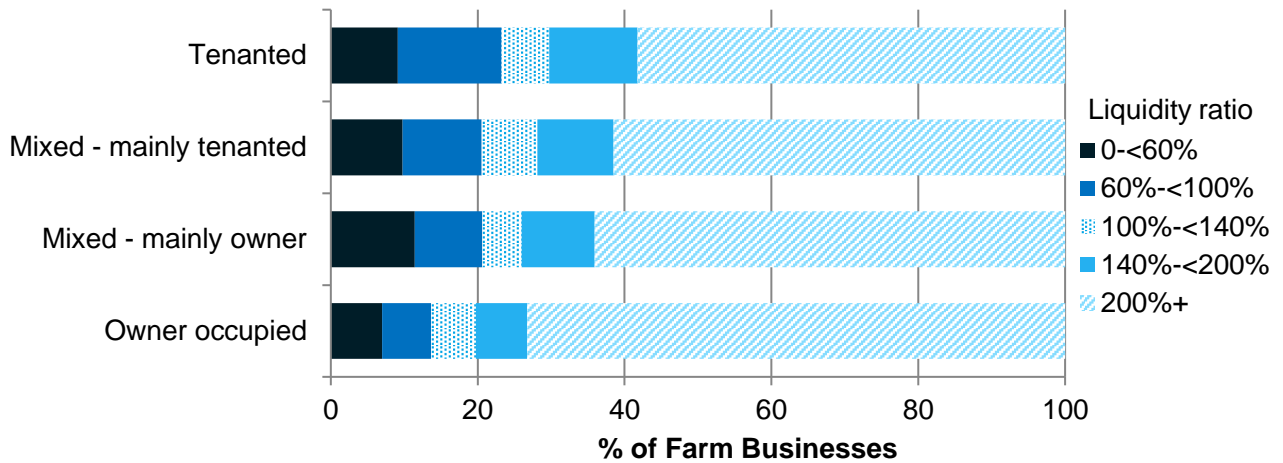
**Figure 4.4 Distribution of liquidity ratio by farm size**



(a) A small number of farms (46) with no recorded current liabilities have been excluded from this analysis.

Farms with a greater level of ownership tended to have a higher liquidity ratio; the average liquidity ratio for owner occupied farms was 252% compared to 190% for tenanted farms. However, the proportion of farms with a liquidity ratio of under 100% was broadly similar at around 20% (Figure 4.5) for those farms renting at least some land; for owner occupiers the proportion was lower (14%).

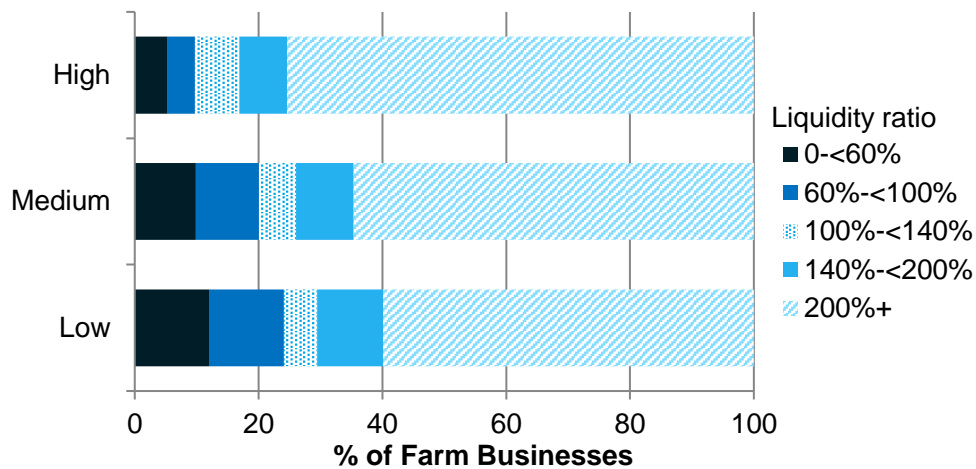
**Figure 4.5 Distribution of liquidity ratio by farm tenure**



(a) A small number of farms (46) with no recorded current liabilities have been excluded from this analysis.

Those farms in the high economic performance band<sup>17</sup> (top 25% of farms) had a higher average liquidity ratio (285%) compared to those in the low economic performance band (168%). Three quarters of farms in the high economic performance band had a liquidity ratio of 200% or more (Figure 4.6).

**Figure 4.6 Distribution of liquidity ratio by economic performance band**



(a) A small number of farms (46) with no recorded current liabilities have been excluded from this analysis.

<sup>17</sup> For a definition of farm economic performance see the section on [definitions](#).

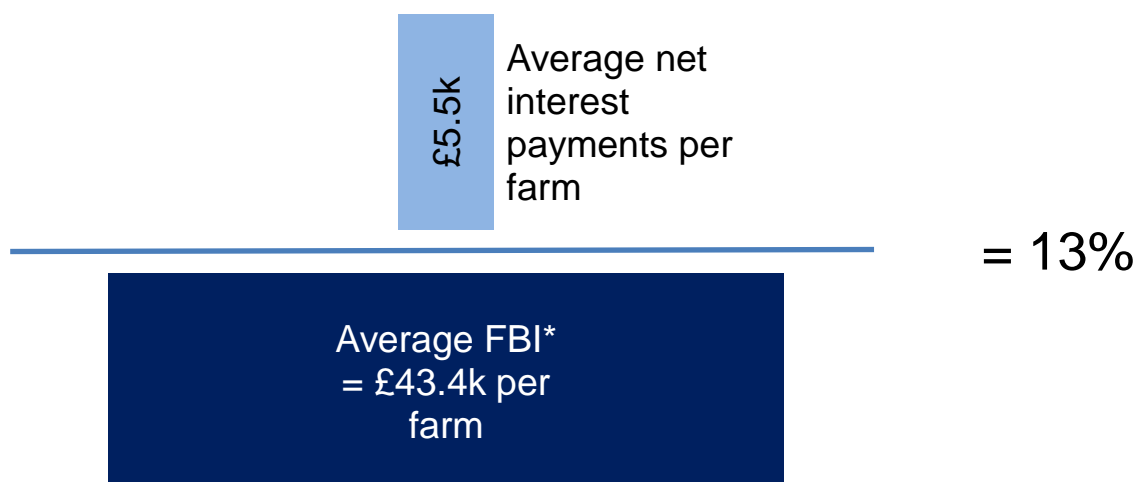
## 5 Net Interest payments as a proportion of Farm Business Income (FBI)<sup>18</sup>

### Key findings for 2016/17:

- Net interest payments were 13% of Farm Business Income, a slight decrease from 2015/16, driven by an increase in average Farm Business Income.
- A third (34%) of farms paid no interest or were net recipients of interest; these farms were more likely to be small farms, high performing farms or horticulture farms. A further 13% had a negative Farm Business Income before interest payments and would not have been able to pay some or all of the interest on their debts, without further borrowing or drawing on their assets.
- This measure was greatest for dairy farms (17%), pigs and poultry and lowland grazing livestock farms (16%), and least for horticulture farms (5%).

This section examines net interest payments as a proportion of Farm Business Income (Figure 5.1). This measure provides an indication of whether farms can afford to pay the interest on their debts.

**Figure 5.1 Net interest payments as a proportion of FBI calculation, 2016/17.**

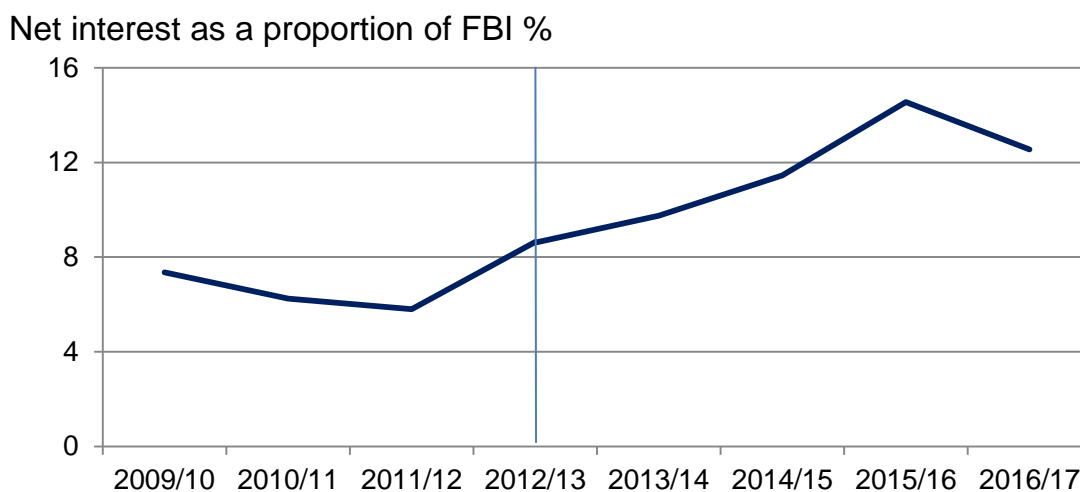


\* For this measure FBI is calculated before deducting net interest payment.

Net interest payments were, on average, 13% of Farm Business Income (FBI) in 2016/17. This measure steadily increased from 2011/12 to 2015/16 as net interest payments increased whilst FBI fell (Figure 5.2). In 2016/17 whilst net interest payments increased slightly, there was also an increase in average FBI causing an overall reduction in the measure.

<sup>18</sup> Because Farm Business Income (FBI) includes net interest payments as a cost, for this measure we have used FBI before deducting net interest.

**Figure 5.2 Average net interest payments as a proportion of FBI**



Farms with at least 25,000 euros of Standard Output.

(a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

In 2016/17 this measure was greatest for dairy farms (17%), pigs and poultry and lowland grazing livestock farms (16%), and least for horticulture farms (5%). This measure tends to be greater for very large farms (15%) than smaller farms (10-12%).

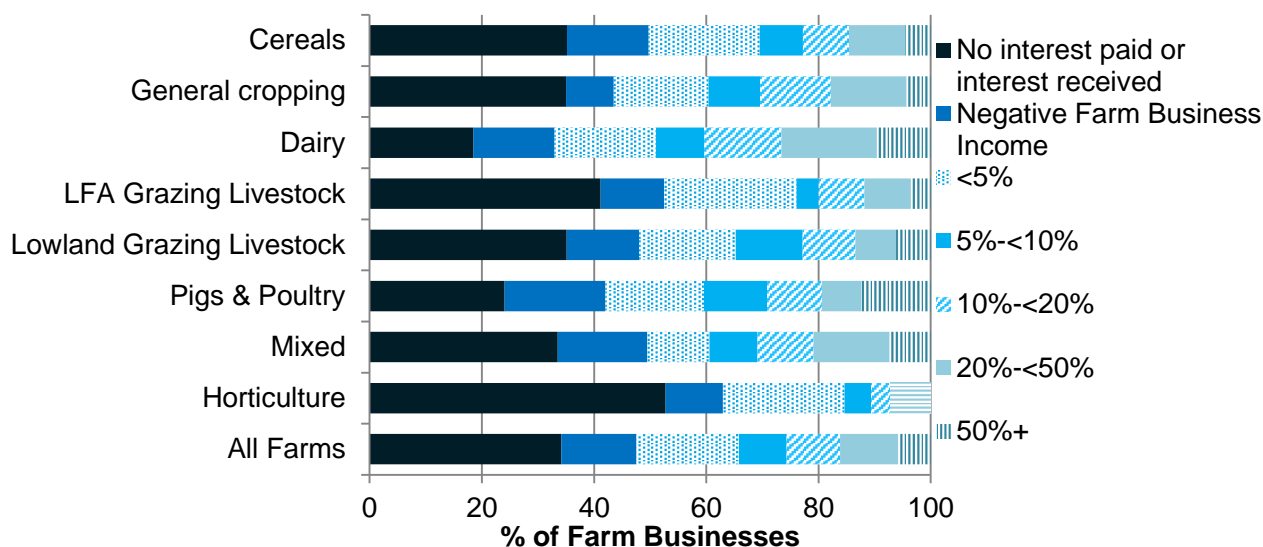
For those farm businesses which had a positive income and made net interest payments, farm type, size, region and economic performance were found to be significantly related to the size of the measure<sup>19</sup>. Those farms with lower net interest payments as a proportion of FBI tended to be cereal or general cropping farms, very large farms or in the south of England.

A quarter (27%) of dairy farms paid net interest equivalent to 20% or more of their Farm Business Income, compared to just 7% of horticulture farms. A quarter (28%) of very large farms paid net interest equivalent to 20% or more of their Farm Business Income, compared to just 10% of spare and part-time farms.

<sup>19</sup> A generalised linear regression model was fitted to examine which factors (farm type, farm size, region, tenure and economic performance) were significant, using only those data from farms which had a positive income and made net interest payments. Farm type, size and economic performance were found to be highly significant ( $p < 0.001$ ), with region also being significant ( $p = 0.025$ ).

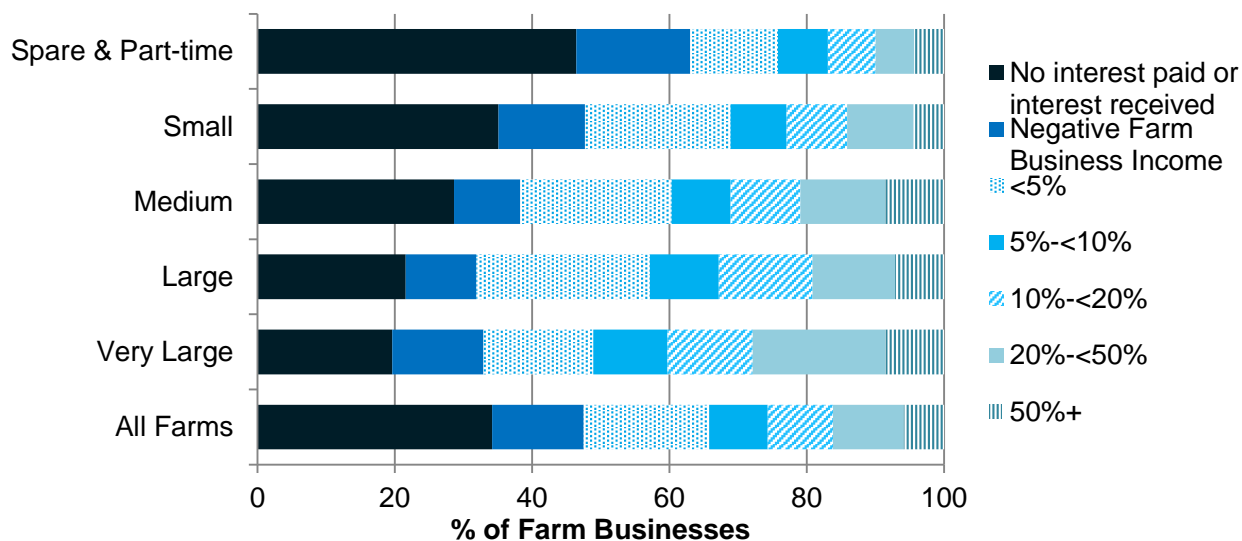


**Figure 5.3 Distribution of net interest payments as a proportion of Farm Business Income by farm type**



- (a) The negative Farm Business Income (FBI) group includes farms for which FBI was negative before paying interest payments but excludes farms paying no interest or net recipients of interest.
- (b) Categories 20%-<50% and 50%+ were combined for Horticulture farms due to insufficient observations.

**Figure 5.4 Distribution of net interest payments as a proportion of Farm Business Income by farm size**



- (a) The negative Farm Business Income (FBI) group includes farms for which FBI was negative before paying interest payments but excludes farms paying no interest or net recipients of interest.

A third (34%) of farm businesses paid no interest (i.e. had no loans) or the interest received (i.e. on savings or investments) was greater than the interest paid on loans. These farms were more likely to be smaller farms, high performing farms and/or horticulture farms<sup>20</sup>. For instance, over half of horticulture farms were in this group,

<sup>20</sup> A generalised linear regression model was fitted to examine which factors (farm type, size, region, tenure and economic performance) were a significant predictor of no interest paid or interest received. Farm type and size were found to be highly significant ( $p < 0.001$ ) and farm economic performance was also significant ( $p = 0.019$ ).

compared to just 19% of dairy farms (Figure 5.3) and nearly half (46%) of spare and part-time farms (Figure 5.4) compared to 20% of very large farms.

Thirteen per cent of farms already had a negative FBI (before interest payments) and would have been unable to pay some or all of the interest on their debts without further borrowing or drawing on their assets. A further 3% of farms had a positive FBI, but their net interest payments were greater than their available income, these farms would have needed to draw on available assets to meet their interest payments.

For more information on Farm Business Income please see [Farm Accounts in England](#).

## 6 Return on Capital Employed

### Key Findings for 2016/17:

- The median ROCE was 0.46% in 2016/17, a slight increase from 2015/16. There was a wide range of values across farms and more than half (56%) of farms had a negative return.
- Larger farms tended to have a greater ROCE than smaller farms, with a median of 0.9% for very large farms compared to -0.9% for spare and part-time farms.
- All farm tenure groups had a median ROCE which was either zero or negative. Wholly tenanted farms varied much more widely in their ROCE score than other tenancy options.
- Almost all high performing farms had a positive ROCE, compared to low performing farms of which all had a negative return.

Return on capital employed (ROCE) is a measure of the return that a business makes from its available capital. ROCE provides a more holistic view than profit margins, focusing on efficient use of capital and low costs, allowing an equal comparison across farms of differing sizes. A positive ROCE value indicates that a farm is achieving an economic return on the capital used, while a negative ROCE value<sup>21</sup> indicates that a farm is not achieving an economic return on the capital employed. ROCE is calculated using the following equation:

$$\text{ROCE} = \frac{\text{Earnings before Interest and Tax}}{\text{Capital Employed}}$$

**Earnings before Interest and Tax** has been calculated using Defra's main income measure, Farm Business Income (FBI), minus the imputed cost of all unpaid labour. **Capital employed** is the available amount that each farm could use to earn profit in the upcoming financial year. It has been calculated by subtracting current<sup>22</sup> (i.e. short term) liabilities from total assets.

Given the distribution of the ROCE measure, the average is most appropriately described using the median (shown below) rather than the mean. Both measures are presented in the accompanying workbook of results.

Given the importance of land as an asset base for farming, an additional measure of ROCE has been investigated which excludes the value of land from assets. These results can be also found in the accompanying workbook of results.

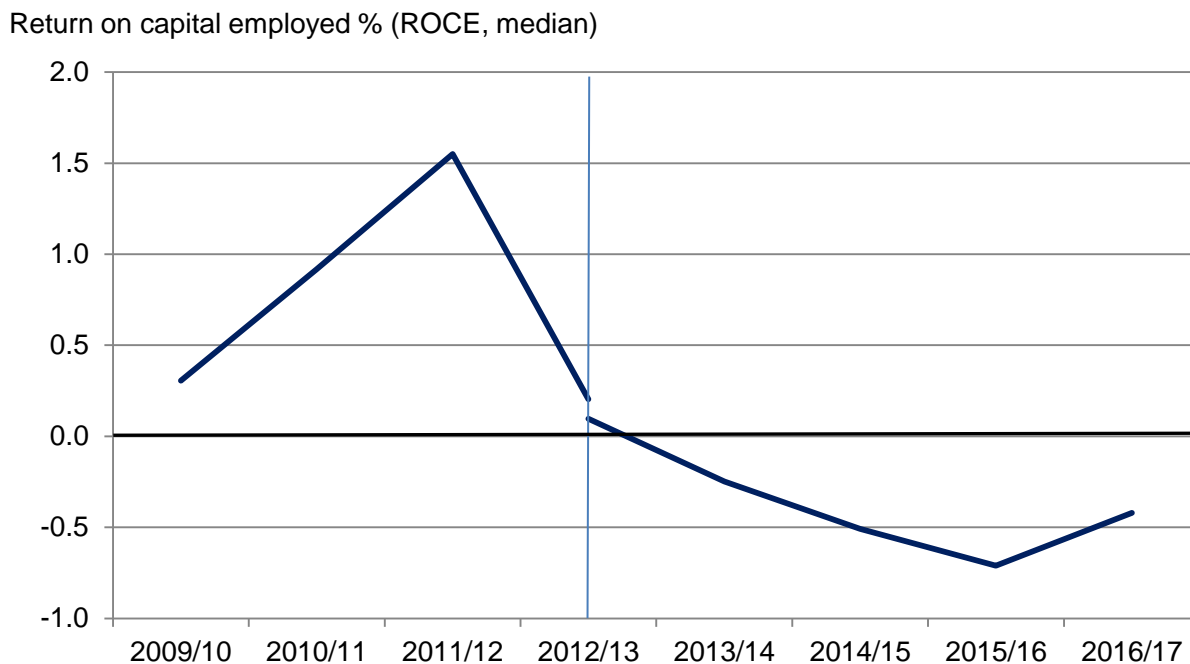
The median ROCE for all farm businesses declined between 2011/12 and 2015/16, but rose slightly in 2016/17 to -0.4% (Figure 6.1). More than half (56%) of farms had a negative return, indicating that more than half of farm businesses are not achieving an economic return on the capital employed. Around 4% of farms had a ROCE of over 10%.

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<sup>21</sup> Note that the incidence of negative ROCE is higher than the incidence of negative FBI. This is because the value of unpaid labour has been deducted from FBI.

<sup>22</sup> Short term liabilities are deducted in order to measure the capital assets that would remain after short term commitments have been met. Overdrafts are treated as a long term liability and therefore not deducted.

**Figure 6.1 Return on capital employed (ROCE, median values) per farm.**



Farms with at least 25,000 euros of Standard Output.

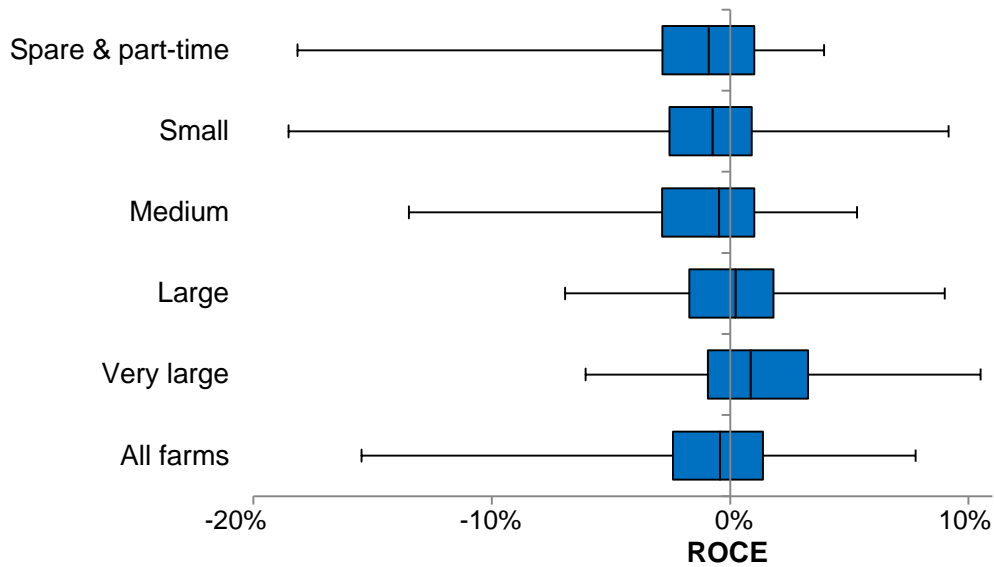
(a) Standard output coefficients were updated in 2012/13 from a 5 year average centred on 2007 to a 5 year average centred on 2010. Results for 2012/13 have been calculated using both for comparability.

Farm size, tenancy and economic performance were all found to be significantly related<sup>23</sup> to ROCE.

Larger farms tended to have a greater ROCE than smaller farms, with a median of 0.9% for very large farms compared to -0.9% for spare and part-time farms (Figure 6.2). Figure 6.3 shows the distribution of ROCE by farm size. The proportion of farms with a negative ROCE decreased as farm size increased. Five percent of very large farms had a return of 10% or more, compared to less than 2% of spare and part-time farms.

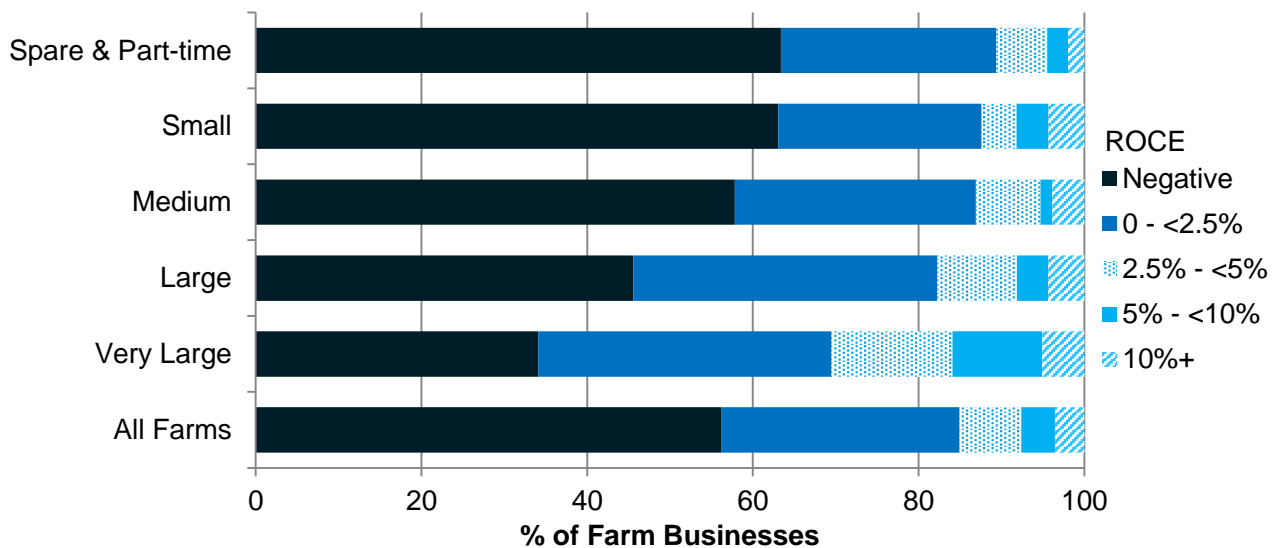
<sup>23</sup> A generalised linear regression model was fitted to examine which factors from farm type, size, region, tenure and economic performance were significant. Farm size, tenancy and economic performance were highly significant ( $p < 0.001$ ).

**Figure 6.2 Box plots showing spread of ROCE by farm size.**



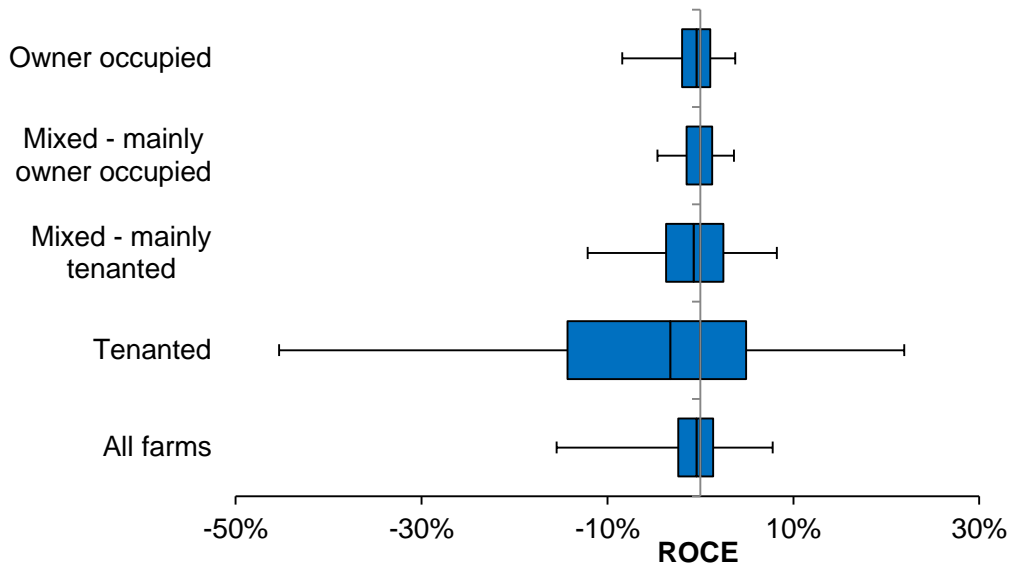
(a) Within each blue box, the vertical line represents the median ROCE, with the box itself showing the spread between the first and third quartiles. Thus 50% of farms lie within the range shown by the blue box. The horizontal lines to each side indicate the spread between the lowest 5% of farms and the top 5% of farms. Thus 90% of farms lie within the range indicated by the lines.

**Figure 6.3 Distribution of ROCE by farm size.**



All farm tenure groups had a median return ROCE which was either zero (Mixed – mainly owner occupied) or negative in 2016/17. Wholly tenanted farms varied much more widely in their ROCE score than other tenancy options, with 90% of farms having a ROCE of between -45% and 22%, compared to between -8% and 4% for wholly owner occupied farms (Figure 6.4). Those farms with high ROCE scores tended to be wholly tenanted, 25% of wholly tenanted farms had an ROCE score of 5% or more, compared to just 14% of mixed – mainly tenanted farms, 2% of mixed mainly owner occupied farms and 4% of wholly owner occupied farms. Note that the measure does not include imputed rent for owner occupied farms.

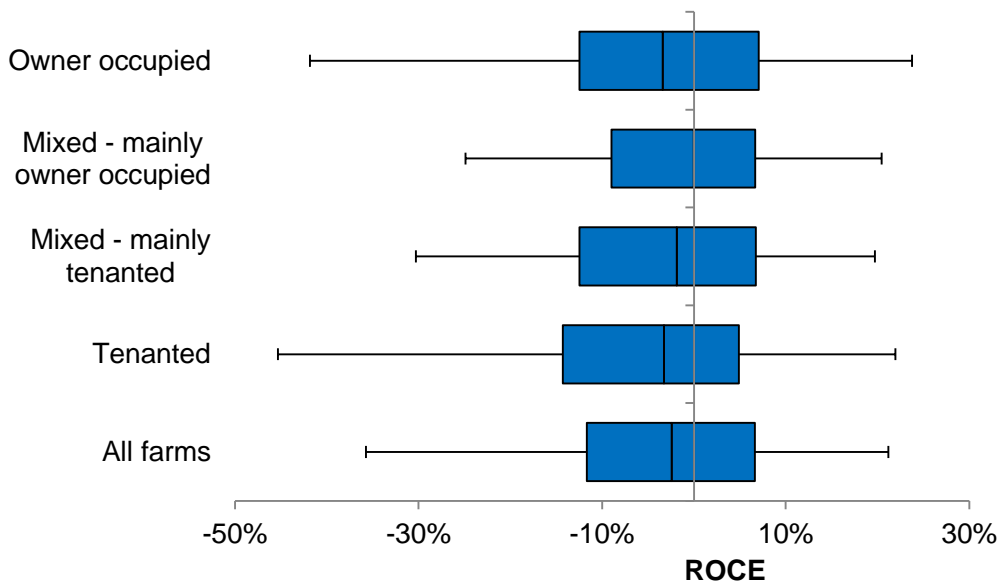
**Figure 6.4 Box plot showing spread of ROCE by farm tenure.**



- (a) Within each blue box, the vertical line represents the median ROCE, with the box itself showing the spread between the first and third quartiles. Thus 50% of farms lie within the range shown by the blue box. The horizontal lines to each side indicate the spread between the lowest 5% of farms and the top 5% of farms. Thus 90% of farms lie within the range indicated by the lines.
- (b) The median value for 'mixed – mainly owner occupied' is zero.

There is a wider variation in ROCE scores when the value of land is excluded (Figure 6.5). The median scores for each farm tenure groups is still zero or negative but those farm tenure groups which own land (owner occupied, mixed – mainly owner occupied and mixed – mainly tenanted) all have a far more broad distribution, more similar to that of tenanted farms.

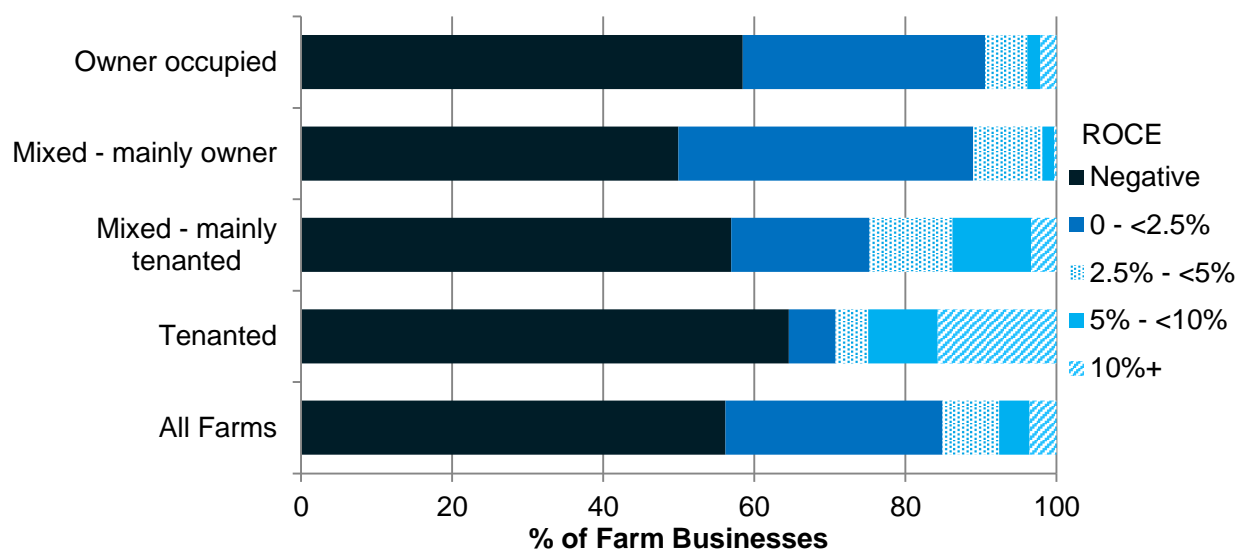
**Figure 6.5 Box plot showing spread of ROCE by farm tenure, excluding the value of land from assets.**



- (a) Within each blue box, the vertical line represents the median ROCE, with the box itself showing the spread between the first and third quartiles. Thus 50% of farms lie within the range shown by the blue box. The horizontal lines to each side indicate the spread between the lowest 5% of farms and the top 5% of farms. Thus 90% of farms lie within the range indicated by the lines.
- (b) The median value for 'mixed – mainly owner occupied' is zero.

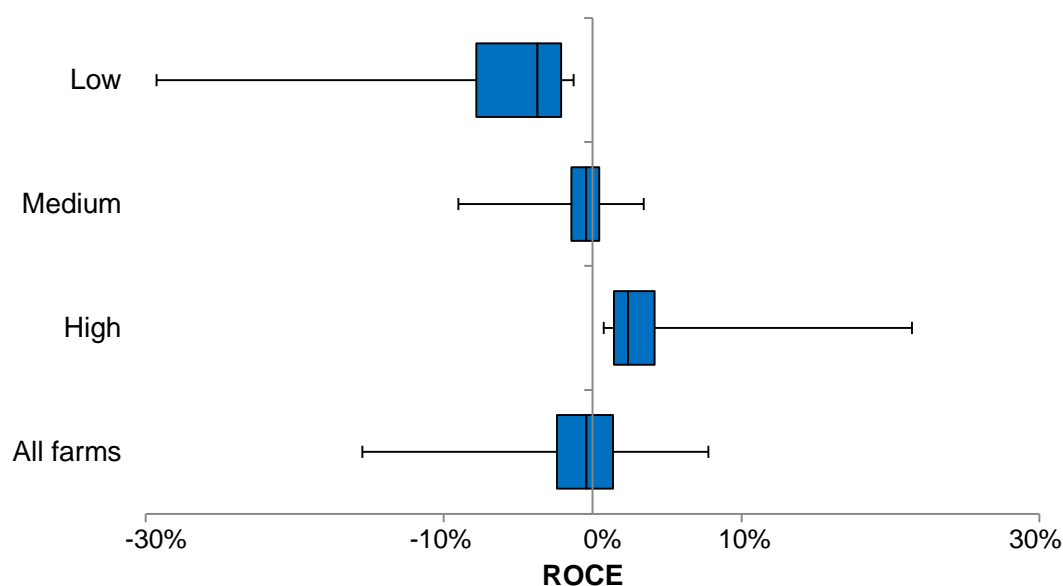
Almost two thirds of tenanted farms (65%) had a negative ROCE (Figure 6.6) compared to 50% of mixed – mainly owner occupied.

**Figure 6.6 Distribution of ROCE by farm tenure.**



Higher economically performing farms tended to have a greater ROCE than those exhibiting a poorer performance (Figure 6.7). The lowest and highest 25% of performing farms had a median ROCE of -3.7% and 2.4%, respectively. Almost all (90%+) of farms from the low performing band had a negative ROCE, while almost all (90%+) of those farms from the high performing band had a ROCE greater than 0, suggesting that a farms economic performance is linked closely with its ability to get a return from capital employed (Figure 6.7, Figure 6.8).

**Figure 6.7 Box plots showing spread of ROCE by farm economic performance.**

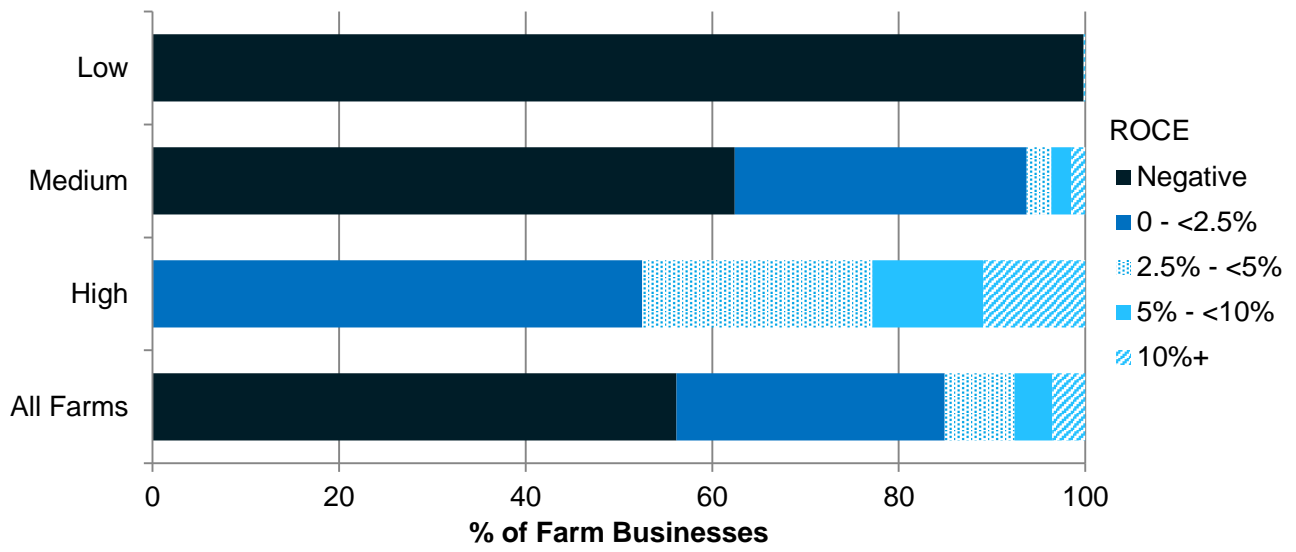


(a) Within each blue box, the vertical line represents the median ROCE, with the box itself showing the spread between the first and third quartiles. Thus 50% of farms lie within the range shown by the



blue box. The horizontal lines to each side indicate the spread between the lowest 5% of farms and the top 5% of farms. Thus 90% of farms lie within the range indicated by the lines.

**Figure 6.8 Distribution of ROCE by farm economic performance.**



## Survey details

### Survey content and methodology

The Farm Business Survey (FBS) is an annual survey providing information on the financial position and physical and economic performance of farm businesses in England. The sample of around 1,750 farm businesses covers all regions of England and all types of farming with the data being collected by face to face interview with the farmer. Results are weighted to represent the whole population of farm businesses that have at least 25 thousand Euros of standard output<sup>24</sup> as recorded in the annual June Survey of Agriculture and Horticulture. In 2016, this accounted for approximately 56,700 farm businesses<sup>25</sup>.

For further information about the Farm Business Survey please see:

<https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/series/farm-business-survey>

### Data analysis

The results from the FBS relate to farms which have a standard output of at least 25,000 Euros. Initial weights are applied to the FBS records based on the inverse sampling fraction for each design stratum (farm type by farm size). These weights are then adjusted (calibration weighting<sup>26</sup>) so that they can produce unbiased estimators of a number of different target variables.

The data used for this analysis is from those farms present in the Farm Business Survey for 2009/10 to 2016/17 that have complete returns on their assets and liabilities. In 2016/17 this subsample consisted of 1750 farms. This subsample has been reweighted using a method that preserves marginal totals for populations according to farm type and farm size groups. As such, farm population totals for other classifications (e.g. regions) will not be in-line with results using the main FBS weights, nor will any results produced for variables derived from the rest of the FBS (e.g. Farm Business Income).

### Accuracy and reliability of the results

We show 95% confidence intervals against the results. These show the range of values that may apply to the figures. They mean that we are 95% confident that this range contains the true value. They are calculated as the standard errors (se) multiplied by 1.96 to give the 95% confidence interval (95% CI). The standard errors only give an indication of the sampling error. They do not reflect any other sources of survey errors, such as non-response bias.

For the Farm Business Survey, the confidence limits shown are appropriate for comparing groups within the same year only; they should not be used for comparing with previous years since they do not allow for the fact that many of the same farms will have contributed to the Farm Business Survey in both years.

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<sup>24</sup> For a definition of standard output please see the UK classification document here:

<https://www.gov.uk/farm-business-survey-technical-notes-and-guidance>

<sup>25</sup> Prior to the 2010/11 campaign, the coverage of the FBS was restricted to those farms of size  $\frac{1}{2}$  Standard Labour Requirement (SLR) or more. For a definition of SLR please see the UK classification document here: <https://www.gov.uk/farm-business-survey-technical-notes-and-guidance>

<sup>26</sup> Further information on calibration weighting can be found here:

<https://www.gov.uk/farm-business-survey-technical-notes-and-guidance>

We have also shown error bars on the figures in this notice. These error bars represent the 95% confidence intervals (as defined above).

Figures based on less than 15 observations have been highlighted in the tables.

### **Statistical methods**

Generalised linear models were fitted to examine which of five predictive variables (farm type, size, tenure type, region and economic performance) were related to each of the response variables of interest (liability, gearing ratio, liquidity, interest payments as a proportion of FBI and ROCE). In each case the distribution of the response variable was examined, and if necessary log 10 or square-root transformed to conform to assumptions of normality. Where a binomial response variable was used (i.e. farms having a liquidity ratio of less than 100%) a binomial based generalised linear model was fitted using a binomial error distribution and a logit link. No statistical model was fitted to the net worth data, as no suitable model structure was found for the data which satisfied assumptions of normality.

In all instances a model simplification procedure was used; firstly all parameters were fitted and then a backwards stepwise approach was used to drop the non-significant terms. Where a parameter was of borderline significance the predictions were examined to see if there was a logical pattern and then judgment used to determine whether to retain or drop the parameter from the model. The fit of each model was inspected using plots of model residuals.

### **Availability of results**

This release contains headline results for each section. The full breakdown of results, by farm type, farm size tenure, region and economic performance can be found at: <https://www.gov.uk/government/statistics/balance-sheet-analysis-and-farming-performance-england>

Defra statistical notices can be viewed on the Food and Farming Statistics pages on the Defra website at <https://www.gov.uk/government/organisations/department-for-environment-food-rural-affairs/about/statistics>. This site also shows details of future publications, with pre-announced dates.

### **Data Uses**

Data from the Farm Business Survey (FBS) are provided to the EU as part of the Farm Accountancy Data Network (FADN). The data have been used to help inform policy decisions (e.g. Reform of Pillar 1 and Pillar 2 of Common Agricultural Policy) and to help monitor and evaluate current policies relating to agriculture in England (and the EU). It is also widely used by the industry for benchmarking and informs wider research into the economic performance of the agricultural industry.

### **User engagement**

As part of our ongoing commitment to compliance with the Code of Practice for Official Statistics <http://www.statisticsauthority.gov.uk/assessment/code-of-practice/index.html>, we wish to strengthen our engagement with users of these statistics and better understand the use made of them and the types of decisions that they inform. Consequently, we invite users to make themselves known, to advise us of the use they do, or might, make of these statistics, and what their wishes are in terms of engagement. Feedback on this notice and enquiries about these statistics are also welcome.

## Definitions

### Mean

The mean (average) is found by adding up the weighted variable of interest (e.g. liabilities or net worth) for each individual farm in the population for analysis and dividing the result by the corresponding weighted number of farms. In this report average is usually taken to refer to the mean.

### Percentiles

These are the values which divide the population for analysis, when ranked by an output variable (e.g. ROCE or net worth), into 100 equal-sized groups. For example, twenty five percent of the population would have a net worth below the 25th percentile.

### Median

The median divides the population, when ranked by an output variable, into two equal sized groups. The median of the whole population is the same as the 50<sup>th</sup> percentile.

### Farm Type

Where reference is made to the *type of farm* in this document, this refers to the 'robust type', which is a standardised farm classification system.

### Farm Sizes

Farm sizes are based on the estimated labour requirements for the business, rather than its land area. The farm size bands used within the detailed results tables which accompany this publication are shown in the table below. Standard Labour Requirement (SLR) is defined as the theoretical number of workers required each year to run a business, based on its cropping and livestock activities.

Farm size	Definition
Spare & Part time	Less than 1 SLR
Small	1 to less than 2 SLR
Medium	2 to less than 3 SLR
Large	3 to less than 5 SLR
Very Large	5 or more SLR

### Farm Economic performance

*Economic performance* for each farm is measured as the ratio between economic output (mainly sales revenue) and inputs (costs). The inputs for this calculation include an adjustment for unpaid manual labour. The higher the ratio, the higher the economic efficiency and performance. The farms are then ranked and allocated to performance bands based on economic performance percentiles:

- **Low performance band** - farms that were in the bottom 25% of economic performers
- **Medium performance band** - farms that were in the middle 50% of performers
- **High performance band** - farms that were in the top 25% of performers.

## **Assets**

Assets include milk and livestock quotas, as well as land, buildings (including the farm house), breeding livestock, and machinery and equipment. For tenanted farmers, assets can include farm buildings, cottages, quotas, etc., where these are owned by the occupier. Personal possessions (e.g. jewellery, furniture, and possibly private cash) are not included.

## **Net worth**

Net worth represents the residual claim or interest of the owner in the business. It is the balance sheet value of assets available to the owner of the business after all other claims against these assets have been met. Net worth takes total liabilities from total assets, including tenant type capital and land. This describes the wealth of a farm if all of their liabilities were called in.

## **Liabilities**

Liabilities are the total debt (short and long term) of the farm business including monies owed. It includes mortgages, long term loans and monies owed for hire purchase, leasing and overdrafts.

## **Tenant type capital**

Tenant type capital comprises assets normally provided by tenants and includes livestock, machinery, crops and produce in store, stocks of bought and home-grown feeding stuffs and fodder, seeds, fertilisers, pesticides, medicines, fuel and other purchased materials, work in progress (tillages or cultivations), cash and other assets needed to run the business. Orchards, other permanent crops, such as soft fruit and hop gardens and glasshouses, are also generally considered to be tenant-type capital.

## **Return on capital employed (ROCE)**

Return on capital employed (ROCE) is a measure of the return that a business makes from the available capital. ROCE provides a more holistic view than profit margins, focusing on efficient use of capital and low costs and allowing an equal comparison across farms of differing sizes. It is calculated as economic profit divided by capital employed.

## **Liquidity ratio**

The liquidity ratio shows the ability of a farm to finance its immediate financial demands from its current assets, such as cash, savings or stock. It is calculated as current assets divided by the current liabilities of the farms.

## **Gearing ratio**

The gearing ratio gives a farm's liabilities as a proportion of its assets.

## **Utilised Agricultural Area (UAA)**

Utilised Agricultural Area (UAA) is the crop area, including fodder, set-aside land, temporary and permanent grass and rough grazing in sole occupation (but not shared rough grazing) i.e. the agricultural area of the farm. It includes bare land and forage let out for less than one year.

## **Farm business income (FBI)**

Farm Business Income (FBI) for sole traders and partnerships represents the financial return to all unpaid labour (farmers and spouses, non-principal partners and directors and their spouses and family workers) and on all their capital invested in the farm business, including land and buildings. For corporate businesses it represents the financial return on the shareholders capital invested in the farm business. Note that prior to 2008/09 directors remuneration was not deducted in the calculation of farm business income.

Farm Business Income is used when assessing the impact of new policies or regulations on the individual farm business. Although Farm Business Income is equivalent to financial Net Profit, in practice the measures are likely to differ because Net Profit is derived from financial accounting principles whereas Farm Business Income is derived from management accounting principles. For example in financial accounting output stocks are usually valued at cost of production, whereas in management accounting they are usually valued at market price. In financial accounting depreciation is usually calculated at historic cost whereas in management accounting it is often calculated at replacement cost.