



SUNNICA ENERGY FARM DCO EXAMINATION

WRITTEN REPRESENTATION

ANNEX A - LANDSCAPE AND VISUAL IMPACT

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11 NOVEMBER 2022



The contribution of thoroughbred breeding to the UK economy and factors impacting the industry's supply chain

*The Thoroughbred
Breeders' Association*

September 2018

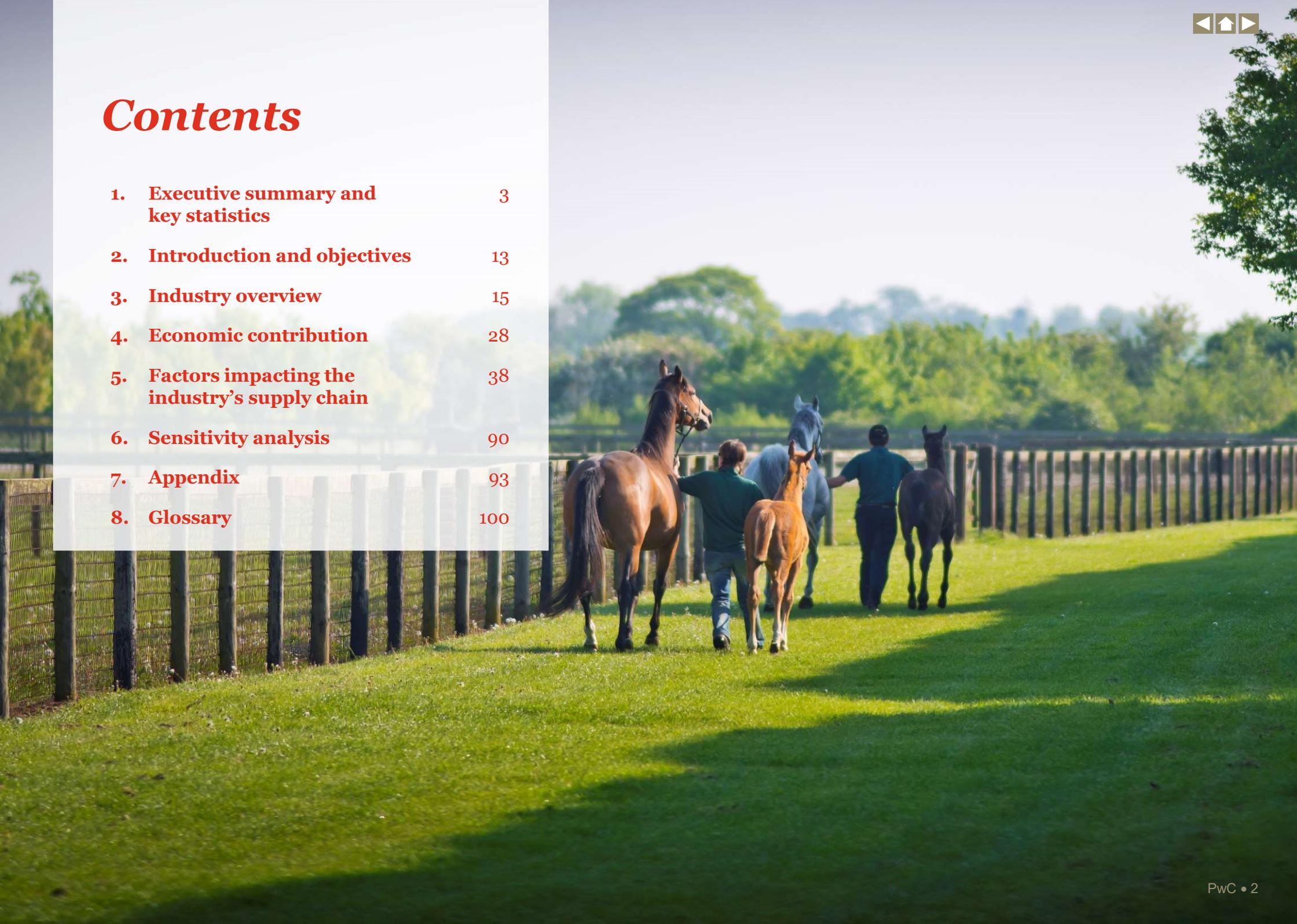
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Executive summary and key statistics

1

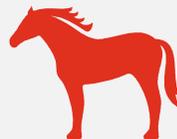


Great Britain's horseracing industry is world-class



World-class race calendar

In 2017, Great Britain (GB) **hosted 24 of the world's top 100 races**, providing an unparalleled stage for the world's best horses



Leading thoroughbreds

GB has the **highest proportion of world-class thoroughbreds** relative to the total number of thoroughbred births, indicating quality bloodlines and training



Substantial economic contribution

The total economic contribution of horseracing to the UK economy is estimated to be in the region of **£3.5 billion**, with over **85,000 jobs** supported by the industry



Second most popular sport in Britain

Horseracing is loved by the British public. **Almost 6 million people attended race meetings in 2017**, making horseracing the second most attended sport in the UK after football



The thoroughbred breeding industry is an essential component of the GB horseracing industry

3,318 breeders

in GB, down from 3,400 in 2013



c.9,000

active broodmares, up from c.8,500 in 2013



4,778 foals born

up from 4,420 in 2013



Over 19,000 jobs

supported by the industry



£427m contributed

to the UK economy in 2017



Close to 90%

of the direct economic impact accrues to the UK rural economy



1 - 3%

Return on capital for the breeding industry compared to average returns in the gambling industry of 22%



66%

of breeding operators surveyed in 2017 were unprofitable, compared to 45% in 2013



353 or 8%

of breeders have left the industry in the last 5 years



-£12,000

estimated loss made on an average filly sold at NH sales



-£23,500

estimated loss made on an average thoroughbred sold at Tattersalls book 3 sale



50%

of NH horses in training are Irish bred, compared to 33% GB bred



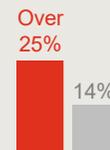
1/3

GB foals produced by breeders with 1-2 broodmares



Over 25%

of stud farms have skills gaps, compared to the 14% national rate



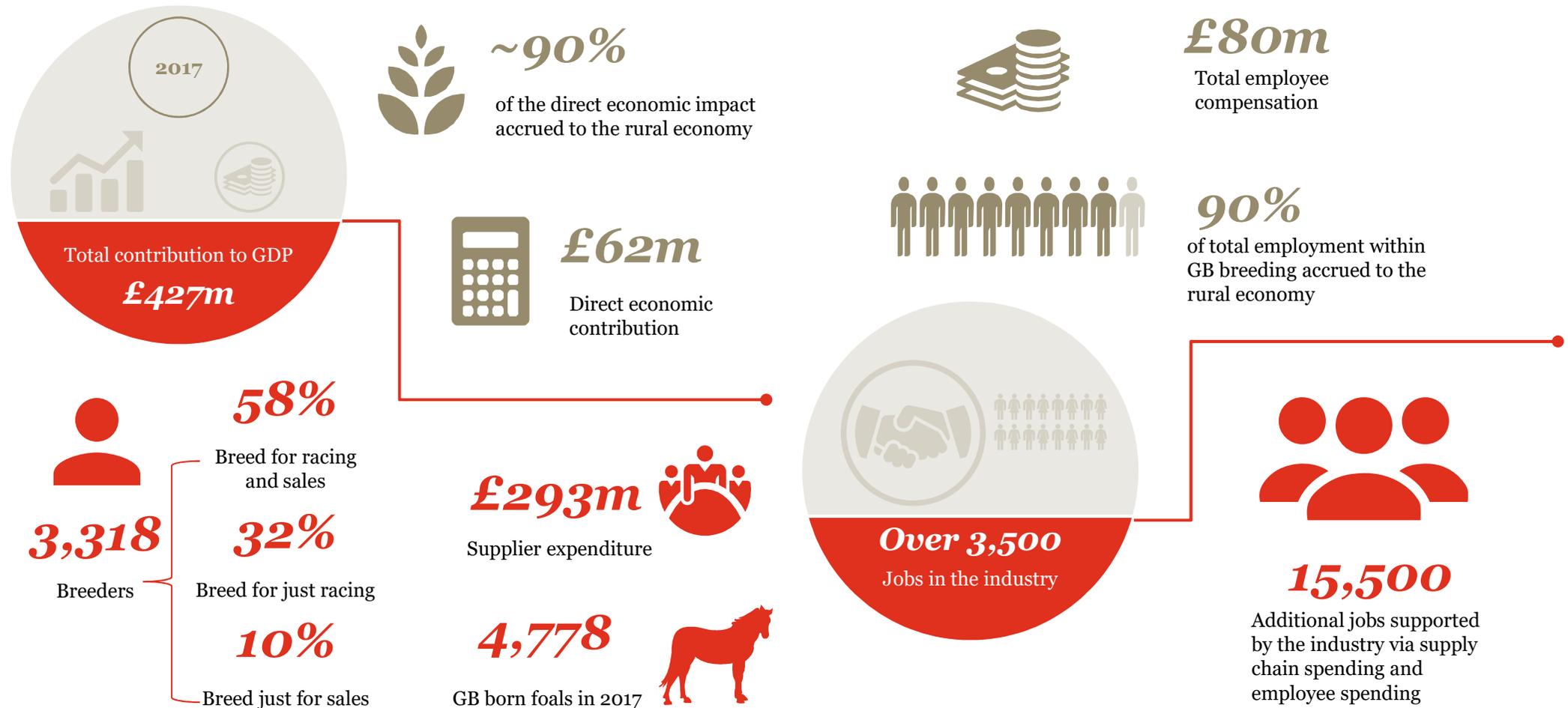
£45 million or 90%

increase in funding from the gambling industry in 2016-17



We estimate that in 2017 the thoroughbred breeding industry contributed £427m to the UK economy and supported over 19,000 jobs

The infographics below illustrate a summary of GB thoroughbred breeding's contribution to UK GDP and employment in 2017

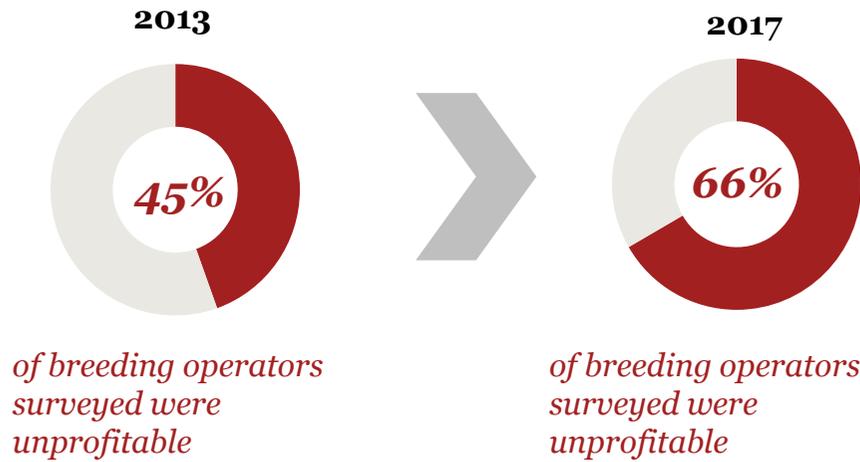


Note: All estimates based on data from PwC confidential survey and industry data.

Source: PwC analysis.

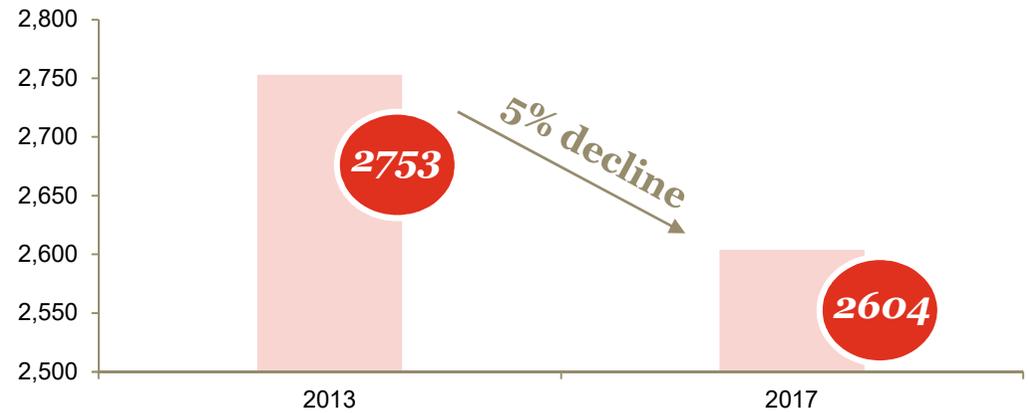
However, over the past four years, reduced profitability has contributed to a decline in the number of small breeders

The number of breeders operating at a loss has risen significantly...



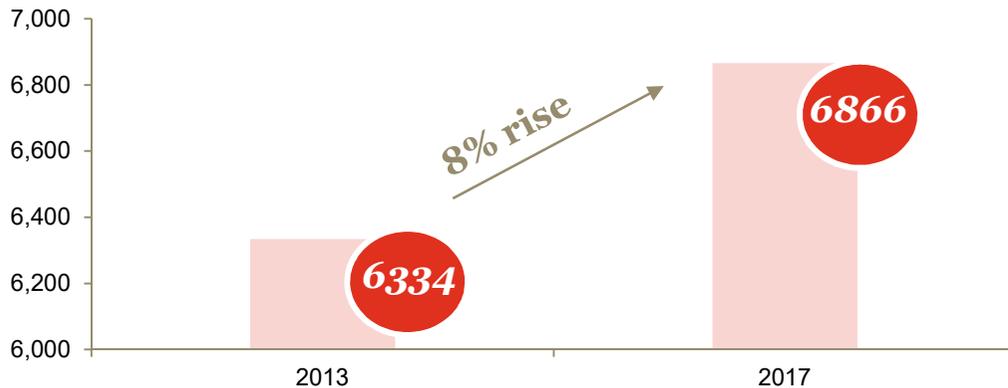
...which has contributed to a decline in the number of small breeders (i.e. breeders with 1-2 broodmares)

Number of breeders with 1-2 broodmares

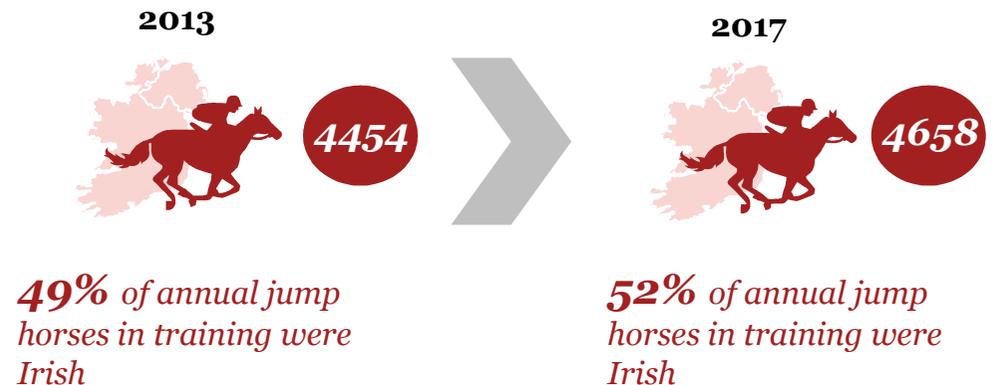


There is also a greater focus on flat racing...

Number of active GB broodmares intended for flat racing



...and GB racing is now more reliant on Irish bred NH horses



Executive summary (1/3)

- Great Britain's thoroughbred industry is recognised globally for its **world class breeding, training and racing**. It has some of the highest quality bloodlines in the world and produces the **highest proportion of thoroughbreds in the world's top rankings** of any breeding country. Great Britain (GB) is also home to the world's most illustrious race meetings - **hosting 24 of the top 100 rated races** – which enables the breeding industry to benefit from some of the best competition in the world.
- Great Britain's favourable breeding environment, high standard of equine welfare laws, excellent infrastructure, and highly skilled staff make it one of the best countries in the world in which to establish a breeding operation. As a result many global breeders locate in Great Britain, injecting substantial foreign investment into the economy and producing well-paid jobs both in breeding and supporting industries.
- We estimate that in 2017 the **thoroughbred breeding industry contributed £427m to the British economy**, supporting over 19,000 jobs. Approximately **87% of the direct economic impact accrued to the rural economy**.
- The GB breeding industry underpins the performance of a number of closely related businesses including thoroughbred auction houses, owners, racecourses, racing media firms and gambling firms. All of which are **dependent on GB breeding industry output for their revenues**.
- However, despite sustaining the entire racing industry, and its sizeable economic contribution in terms of jobs and output, **the future of GB breeding is at risk**.
- **Breeding remains chronically unprofitable for the vast majority of breeders, with many small to medium sized breeders facing extinction if the return on investment does not improve.**
- Industry profitability has deteriorated significantly over the last 4 years. In our 2013 analysis, **45% of breeders surveyed were unprofitable. This has since increased to 66%.**
- While **gambling operators and racing media groups typically achieve returns to capital employed of over 20%, breeders achieve returns around the 1-3% mark**. This makes breeding structurally unsustainable and reduces the attractiveness of the industry to potential new joiners.
- **Polarisation between small and large breeders is growing**, showcased by the sharp contrast in profitability of horses sold at auction. The average filly sold at the Tattersalls Book 1 sale earned an estimated profit of £118,000, while those sold at Book 3 made an estimated loss of £23,500.
- The economic challenges are particularly profound within National Hunt breeding. Demand for fillies remains low and the prices received at auction frequently fail to cover the costs of getting horses to the sale. **At the Tattersalls Ireland NH 2017 sale, the average filly made an estimated loss of £12,000.**
- As a result, breeders are leaving the industry. **In the last 5 years over 350 breeders have exited the industry, representing an 8% decline.**

Executive summary (2/3)

- **To meet the demands of the race calendar, GB racing is becoming increasingly reliant on Irish NH horses, with over 50% of NH horses in training Irish bred, compared to 33% GB bred.** This is in part due to a growing focus on flat breeding - in 2017, 77% of broodmares were intended for flat breeding purposes, compared to 66% in 2008.
- GB's thoroughbred trade deficit has increased substantially. **Since 2012, GB's thoroughbred trade deficit has almost doubled in size,** as the value of imports has grown at a faster rate than exports.
- Both the GB and Irish breeding and racing industries are mutually dependent - GB provides a world class racing programme while Irish breeders provide much of the racing stock for the programme. Therefore both countries have a vested interest in ensuring that their counterpart's racing industry remains robust and sustainable going forward.
- **Staffing is a major concern within the breeding industry.** Over the past four years, it has become increasingly difficult to recruit and retain skilled people. It is estimated that **over one-quarter of stud farms have skills gaps,** compared to 14% of businesses nationally. Moreover, the average age of GB breeders is increasing year on year. **Our analysis indicates that 90% of breeders are aged over 35, while two-thirds of breeders are aged over 55.** As the current generation of breeders enter retirement, they are not being replaced by a younger generation of breeders.
- **Brexit presents a disruptive challenge.** In particular, any reduction to the current Tripartite Agreement (which facilitates free movement of horses between GB, Ireland and France) would have huge repercussions for the British, Irish and French thoroughbred industries, given that there are over **27,000 free horse movements between these countries every year** (constituting c. 87% of total movement across the EU). Further, if restrictions are placed on the movement of skilled workers in the breeding industry, this could exacerbate the already fragile employment situation.
- **Ownership structures within horseracing are changing.** The number of sole owners has declined annually over the past four years, while the number of partnerships/syndicates has risen considerably (c.9% between 2016-17). This rise in syndicate ownership could increase demand for thoroughbreds, although it may also reduce the number of owners that enter breeding, given that syndicates are more likely to sell their thoroughbreds at the end of their racing careers.
- Incentive schemes such as Plus 10 and NH MOPs have started to improve return on investment for breeders. **But financial returns are limited when compared to schemes run by overseas competing breeding industries.** New schemes will take time to drive changes in behaviour and should be viewed as part of a long-term strategy to improve the sustainability of British breeding.
- Recent reforms to the Horserace Betting Levy increased funding from the gambling industry by £45m in the last financial year. Some of the additional funding **should be used to expand existing incentive schemes and create new initiatives to improve the economics of breeding.** In the event that government legislation on fixed odds betting terminals (FOBTs) hinders profit generated from horseracing, **the current level of funding should be safeguarded.**

Executive summary (3/3)

- Approximately 20,000 individual runners are required to sustain the GB race calendar. GB bred horses are the main source of supply, **accounting for close to 50% of all horses in training and racing.**
- Should the economics of breeding continue to worsen or an adverse economic shock (e.g. recession) occur, many small to medium sized breeders will no longer be able to sustain their operations.
- In a scenario where the number of small breeders declines by 25%, **there will be 5% fewer individual runners in GB racing by 2024.** This will result in a **decline in average runners per race from 8.8 to 8.4.**
- With fewer races meeting the 8 runners per race required for each way betting, the **quality of the betting product will deteriorate, along with funding from the gambling industry and media rights payments.**
- To safeguard the GB thoroughbred breeding industry and ensure its future sustainability, **direct intervention is required to increase the financial returns to breeding.** Without it, **the current level of supply will not be maintained, Britain will not be able to sustain its racing calendar, and the finances of all racing industry participants will be severely impacted.**



If the economics of breeding continues to worsen, many small to medium sized operators are likely to be forced out of the industry, reducing the size of the GB foal crop and resulting in a diminished racing product

1. Ageing demographic

- The average age of GB breeders is increasing year on year. Our analysis indicates that 90% of breeders are aged over 35, while two-thirds of breeders are aged over 55
- The industry has struggled to attract a younger demographic to replace them
- Faced with higher property prices and limited wage growth, younger generations are saving for housing and are less likely to join the industry in the future when they have additional income

2. Reduced profitability

- The vast majority of small to medium sized breeders are unprofitable but are involved in the industry due to their love of horseracing and breeding
- Many medium sized commercial operations are also struggling to be profitable, with the prices received at auction frequently failing to cover the costs of production

3. Operators exit

- Should the economics of breeding continue to worsen, breeders operating at the margin may no longer be sustainable, resulting in more breeders leaving the industry
- Alternatively, a negative economic shock such as an unfavourable Brexit outcome or recession could force operators to exit

“ In my position as a stallion manager I am able to see the health of the GB breeding industry first hand. **The traditional small breeder in Britain is heading towards extinction.** The average age of British breeders is increasing year on year, there are **very few of the younger generation of British breeders coming through** to replace them.

4. Reduced foal crop

- Any decline in breeders would have significant implications for the annual GB foal crop - given that GB bred horses account for approximately 45% of the total horses running and training in GB

5. Diminished product

- Further reductions in the number of runners per race will mean that less races qualify for the minimum 8 runners needed for each way betting, thereby impacting betting product quality and funding from the gambling industry

If one quarter of small sized breeders exit the market and are not replaced, this will reduce the annual GB foal crop by 12.5% and will bring runners per race down from 8.8 to 8.4 by 2024

Small breeders (i.e. 1-4 broodmares) account for approximately **50%** of foal production in a given year. If these breeders continue to face economic challenges then they are likely to exit the market. We have illustrated the potential impact of a **50%, 25% and 10%** reduction in small breeders in 2018, which consequently reduces the foal crop size by **25%, 12.5% and 5% respectively**.

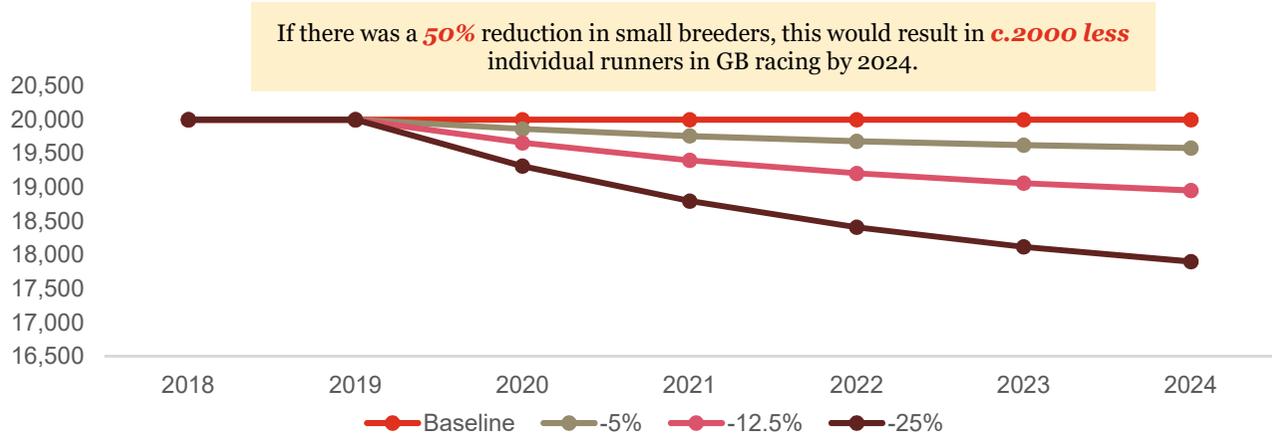
However, we note that this analysis is based on a number of assumptions, and any change in these assumptions would alter the overall impact.

High level assumptions

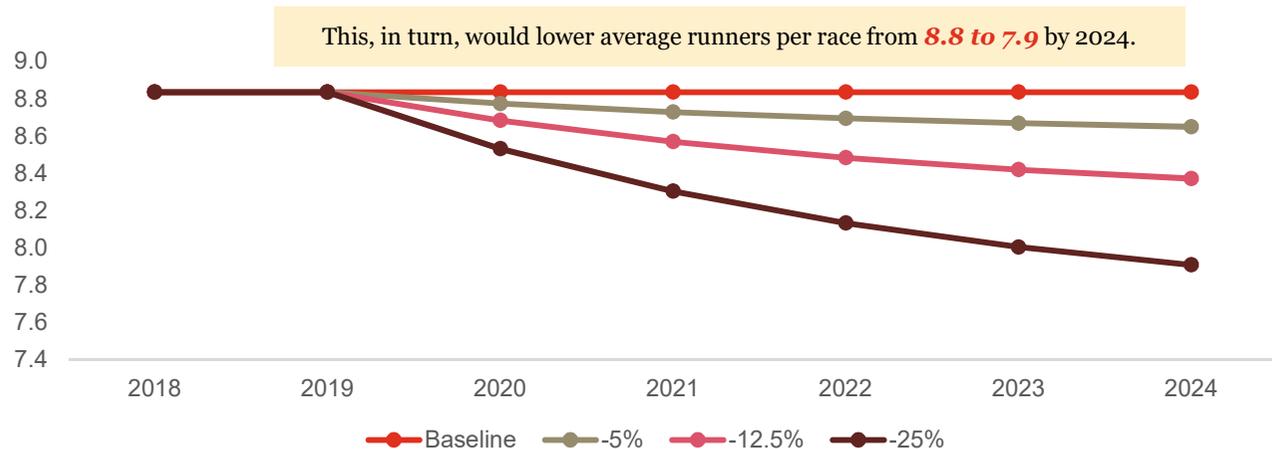
- Small breeders (i.e. 1-4 broodmares account for 50% of foal production in a given year)
- 20,000 individual runners are needed to maintain the GB race card (in line with 2017)
- 10,300 races run each year and there will be no major change in the number of races
- Changes to the size of the foal crop occur in 2018 and are permanent
- There will be no major change in the level of imports / exports
- C. 25% of the horse population retires each year
- Flat horses enter racing as 2 year olds, while jump horses enter as 3 year olds

Impact of reduced breeder numbers on number of individual runners in GB racing and runners per race

Runners in GB racing



Average runners per race



Introduction and objectives

2

Introduction and objectives

PwC was asked to estimate the economic contribution of thoroughbred horse breeding to the UK economy and assess the factors impacting the industry's supply chain



Survey

Surveyed TBA members to understand their perspective on key issues and their financial position.



Economic model

Built an economic model* to assess the direct, indirect and induced impact that thoroughbred breeding has on both the UK and rural economy, using data obtained from the TBA's membership.



Interlinked industries

Analysed breeding, racing and interlinked industry data to assess the current state of GB thoroughbred breeding, as well as the factors impacting the supply chain.



Interviews

Conducted interviews with a wide range of breeding and racing industry stakeholders to obtain additional insight and evidence on the factors affecting the supply chain. We also considered the relative impacts for different types of breeder.



Trend analysis

Undertook extensive trend analysis to understand the challenges facing different breeding operators.

Industry overview

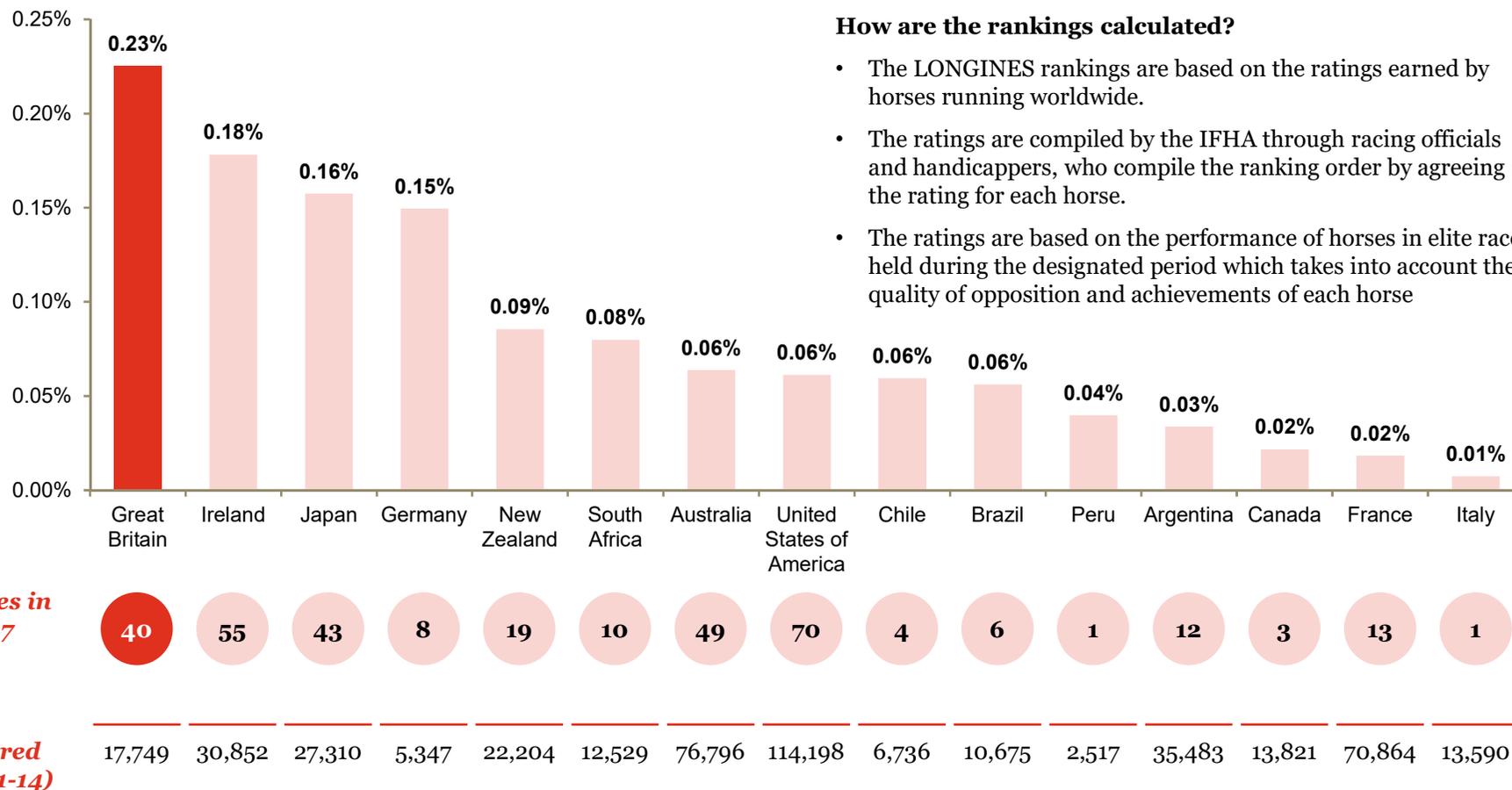
3



GB's ratio of elite thoroughbreds to number of births ranks amongst the world's best, indicating the quality of bloodline within British breeding

Proportion of horses ranked within the LONGINES 2017 top 237 to the number of thoroughbred births (for 3 yr olds and upwards)

We calculated the percentage by dividing the total number of horses within the rankings by the total number of foal births between 2011-2014, as horses born in these years occupy the top ranking spots.



How are the rankings calculated?

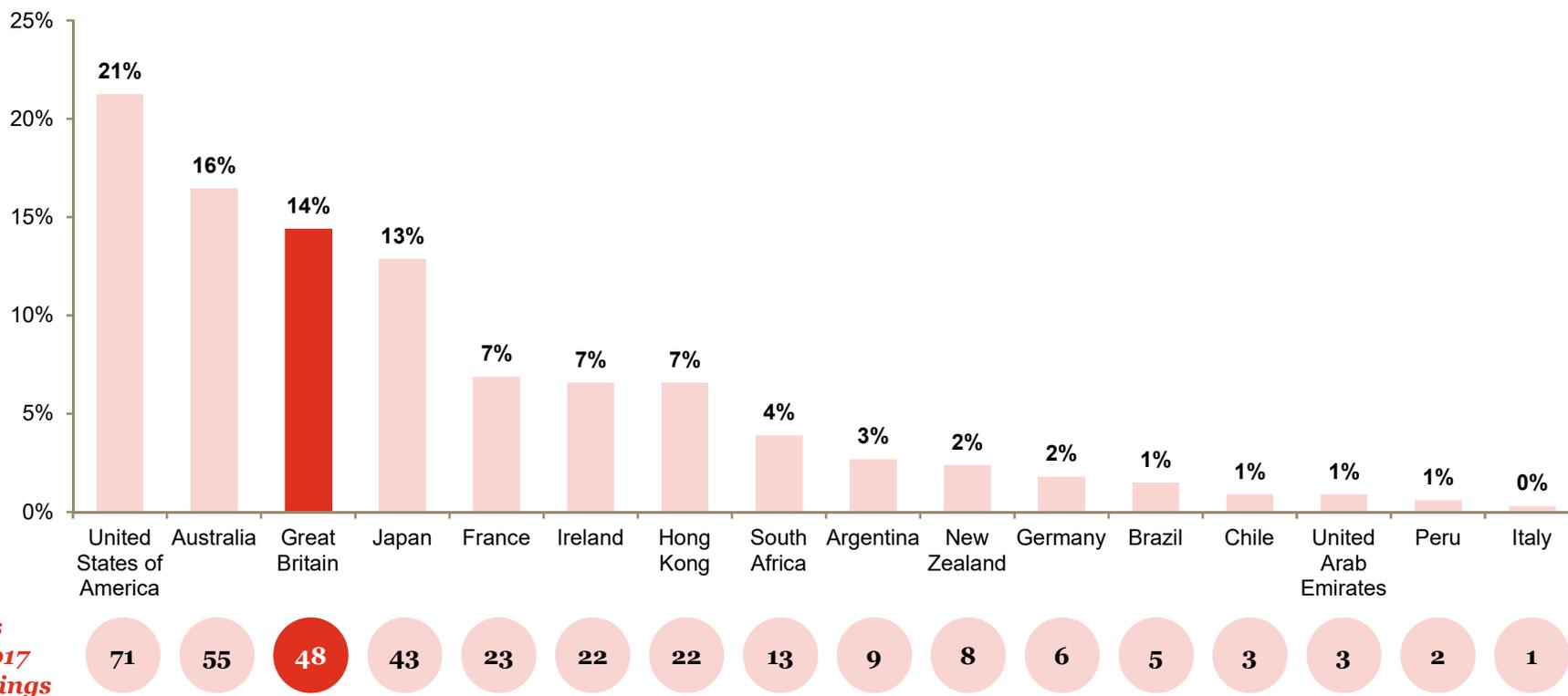
- The LONGINES rankings are based on the ratings earned by horses running worldwide.
- The ratings are compiled by the IFHA through racing officials and handicappers, who compile the ranking order by agreeing on the rating for each horse.
- The ratings are based on the performance of horses in elite races held during the designated period which takes into account the quality of opposition and achievements of each horse

Note: Due to the fact that multiple horses have the same amount of ranking points, there are 334 horses within the top 237 ranking places.

Source: IFHA, PwC analysis.

GB trains the third highest amount of elite thoroughbreds in the world, indicating the depth of talent within the industry

Percentage of horses trained by country within the LONGINES 2017 top 237 rankings (for 3 yr olds and upwards)



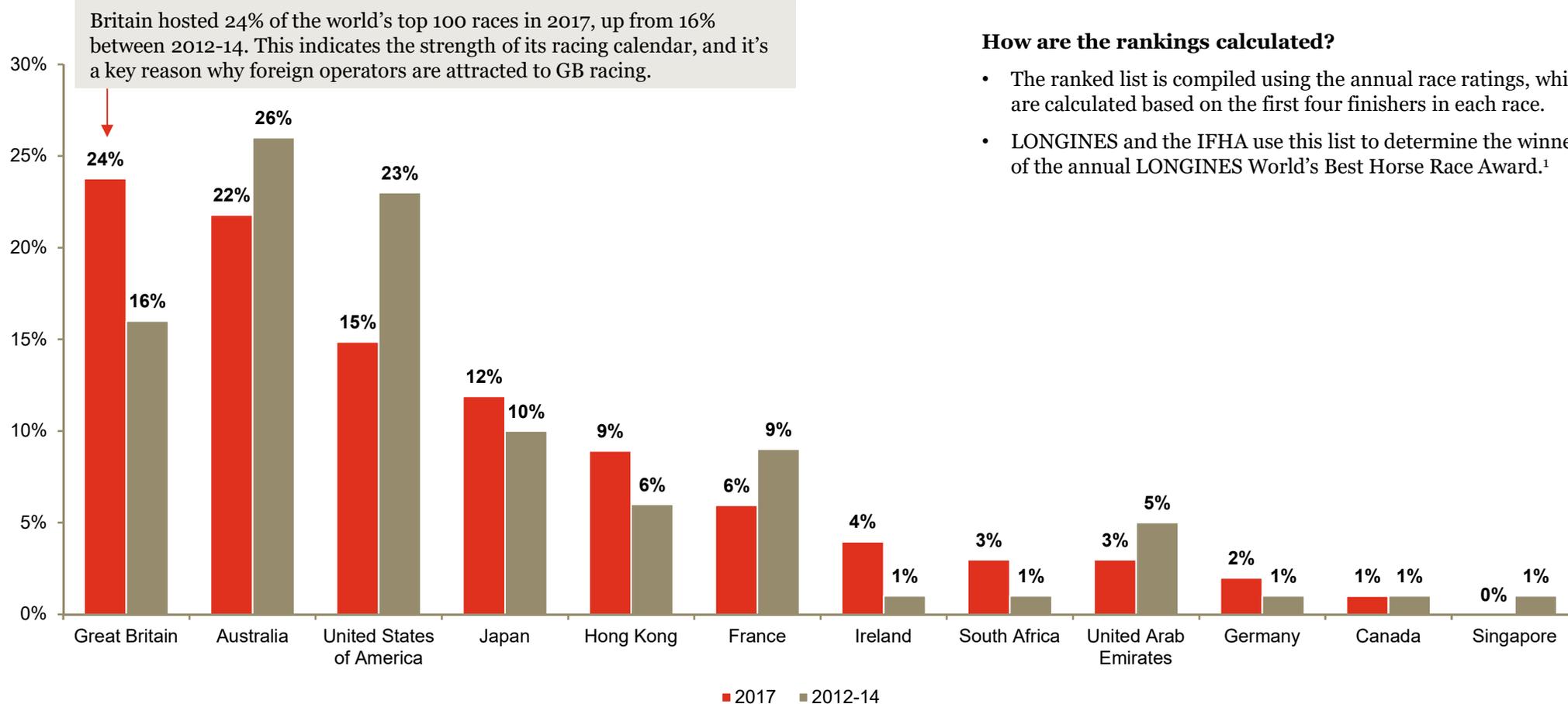
No. of horses trained in 2017 top 237 rankings

Note: Due to the fact that multiple horses have the same amount of ranking points, there are 334 horses within the top 237 ranking places.

Source: IFHA, PwC analysis.

Britain also has more races ranked within the top 100 than any other country, showcasing the strength of its racing calendar

Percentage share of the top 100 Group 1 and Grade 1 races¹ (2012-14², 2017)



How are the rankings calculated?

- The ranked list is compiled using the annual race ratings, which are calculated based on the first four finishers in each race.
- LONGINES and the IFHA use this list to determine the winner of the annual LONGINES World's Best Horse Race Award.¹

Note: ¹ This list ranks races for 3 year old's and upwards. ² In 2015, the IFHA launched their ranked list as an average over 2012-2014.

Source: IFHA, PwC analysis.

The success of the breeding industry is driven by a number of factors, including GB's high quality bloodlines and breeding environment



Prestige

Britain's history of thoroughbred racing and its connection to the royal family has cemented its reputation as one of the most prestigious breeding industries in the world.

It also **hosts 24% of the world's top 100 races**, allowing Britain to be a world stage for the best competition.



Bloodlines

Britain produces some of the highest quality bloodlines in the world – showcased by the fact that **2 of the top 5 rated horses in 2017** were British.

Continued foreign investment from individuals like Sheikh Mohammed means that large breeding operations like Godolphin continue to produce world class thoroughbreds.



Breeding environment

Britain's climate and excellent infrastructure lend itself to the production and rearing of thoroughbred horses.

This has seen many foreign operators (e.g. from Qatar, UAE), use Britain as a base to extend their existing breeding operations.



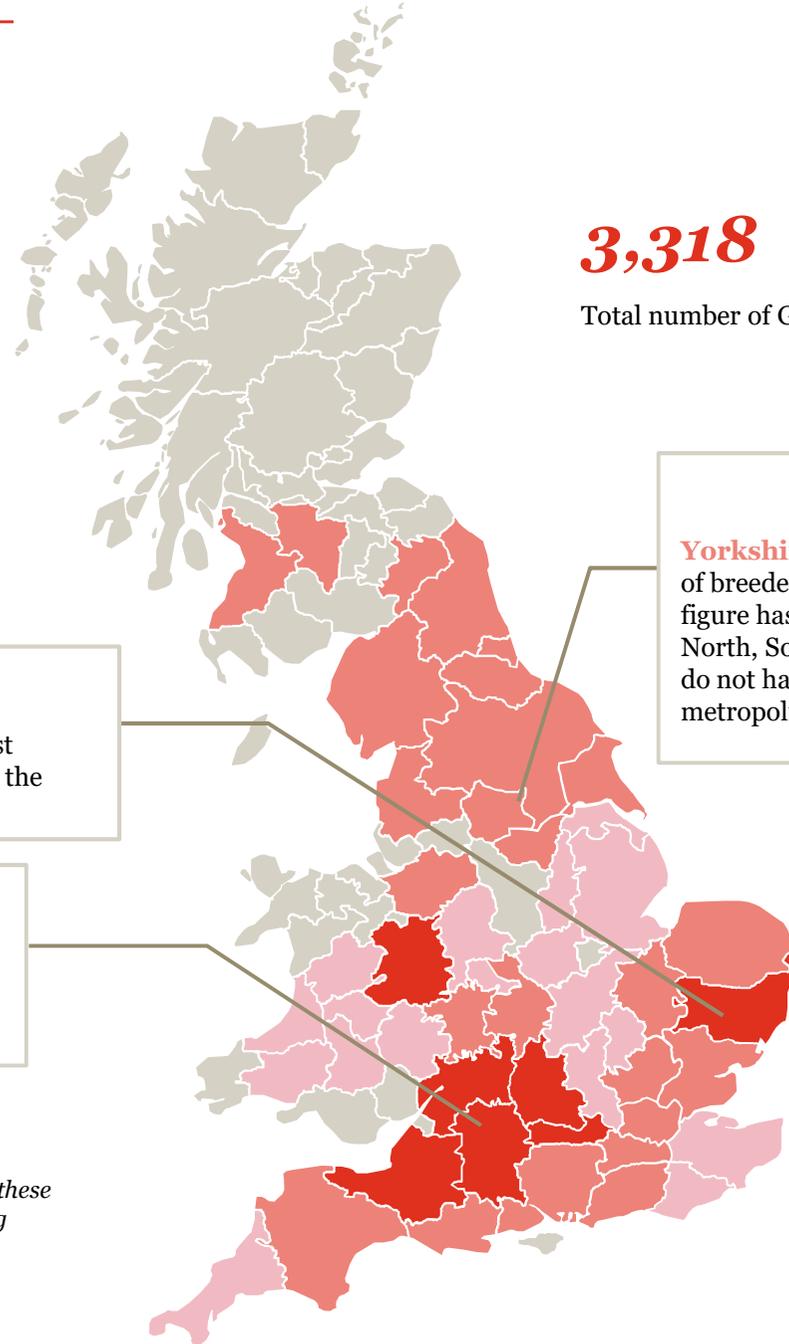
Talent

The staff within the thoroughbred breeding industry are highly skilled.

Britain's established history of thoroughbred breeding has allowed knowledge to be passed through generations, and staff have experience of rearing high quality horses – showcased by the fact that **14%** of the world's elite thoroughbreds were trained in Britain.

Thoroughbred breeders are widely dispersed throughout Great Britain, but there is a particular concentration within the South West

Number of thoroughbred breeders by county



3,318

Total number of GB breeders

356

Suffolk has the largest number of breeders in the country

247

Yorkshire has the second largest number of breeders in the country, although this figure has been divided equally across North, South, East and West Yorkshire as we do not have the specific data for each metropolitan county.

146

Wiltshire has the third largest number of breeders in the country

Key

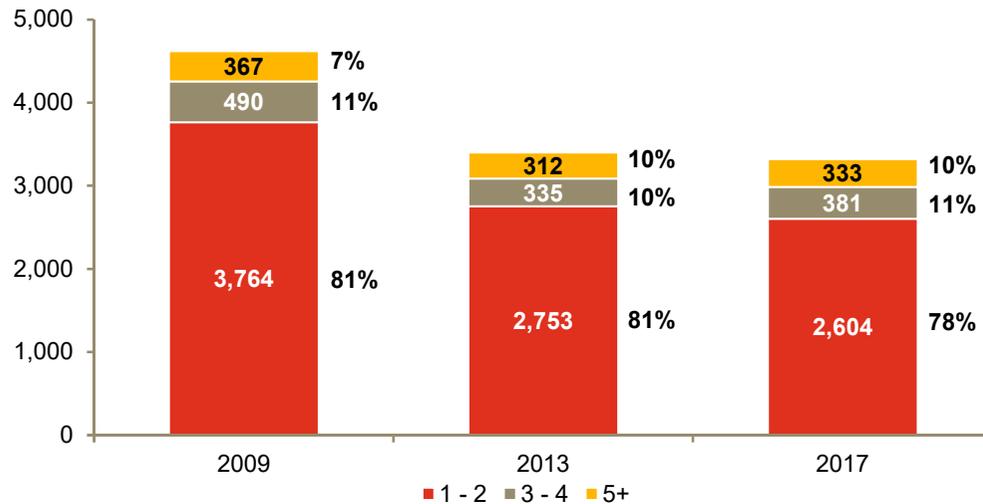
- 0-10 breeders
- 10-50 breeders
- 50-100 breeders
- 100+ breeders

Note: In some instances data was not available for smaller GB counties. In these cases, data from the larger counties was taken and split across neighbouring areas. For example, the total figure for Yorkshire has been split across East Riding of Yorkshire, West Yorkshire, South Yorkshire, and North Yorkshire.

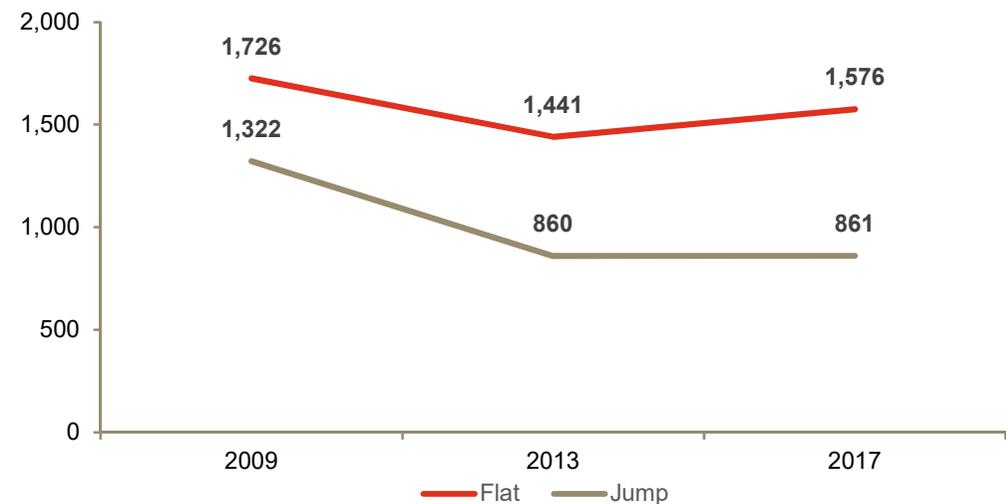
Source: Weatherbys, PwC analysis

The number of breeders owning 1-2 broodmares has declined by c.1150 since 2009, though they still account for the highest proportion of breeding industry participants

GB broodmares owned by breeder



GB breeders by stated purpose¹



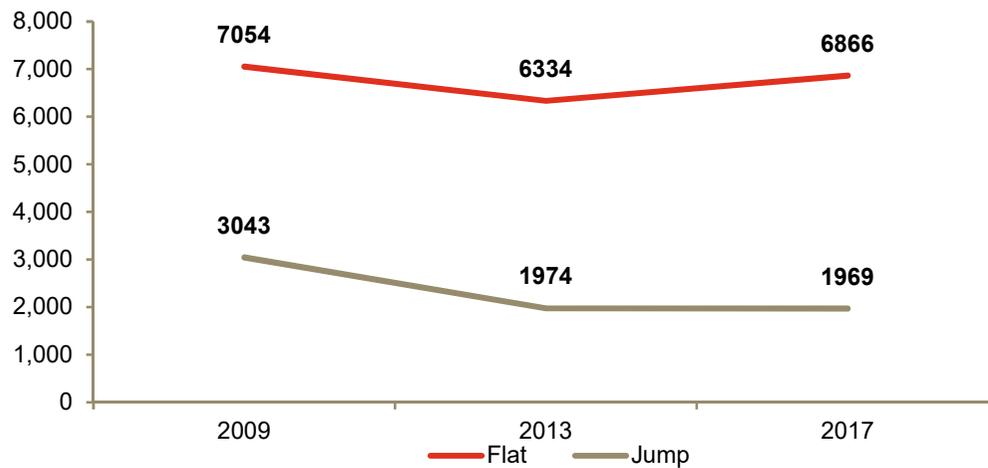
- Over the past 9 years, the number of GB breeders with 1-2 broodmares has seen an absolute decline of **c.~1,150**.
- The number of breeders that have over 5 broodmares has declined less significantly, with the proportional share increasing from **7%** in 2009 to **10%** in 2017.
- Between 2013 and 2017 the number of broodmares owned per breeder did not change significantly suggesting a more stable position.
- Between 2009 and 2013 there was a decline across all categories of breeders but this seems to have stabilised since 2013.
- Proportionately the number of flat breeders increased between 2009 to 2017 from **57%** to **65%**.
- In comparison, the proportion of breeders breeding for jump purposes has declined by 8 percentage points since 2009, falling from **43%** to **35%** over the period.

Note: ¹Between 40-50% of breeders in a given year do not specify their purpose with regards to flat or jump breeding. We have also incorporated those who stated 'dual' purpose into the total jump figures.

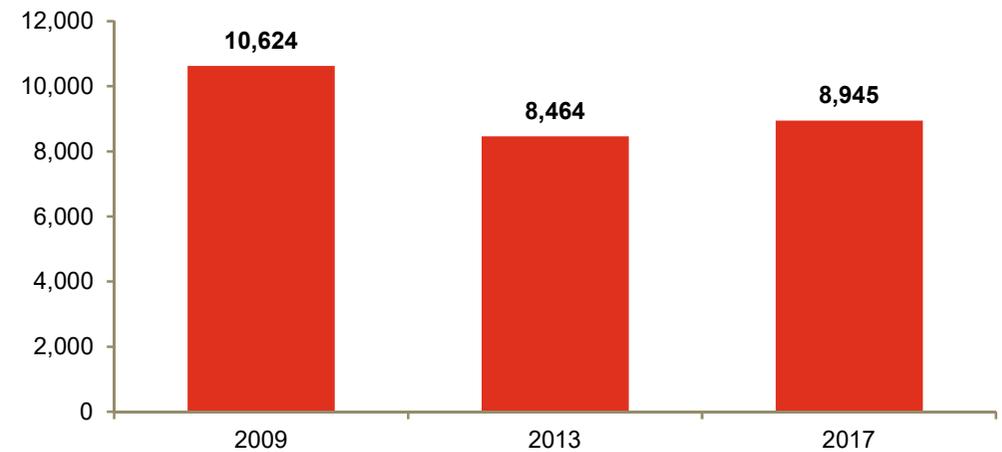
Source: Weatherbys, PwC analysis.

Over three quarters of all active GB broodmares are now breeding for flat-racing purposes

Number of active GB broodmares by intended purpose



Total number of GB mares at stud



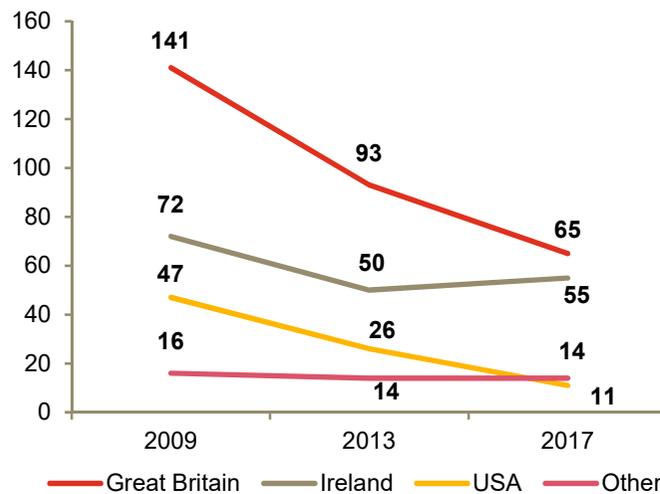
- Since 2013, the number of active GB broodmares breeding for flat-racing purposes has increased by **c.500**. In 2017 **c.77%** of all broodmares were earmarked for flat-breeding, compared to **66%** in 2009.
- In comparison, the number of broodmares intended for jump-breeding has declined by **c.1,000** over the same period. Proportionally, this has seen the number of broodmares intended for jump-breeding fall from **29%** in 2009 to **22%** in 2017.
- The number of GB mares at stud has decreased at a CAGR of **-5.5%** between 2009 and 2013 (**c.1,800 horses**).
- However, the past 4 years has seen more positive signs within the industry, as the number of GB mares at stud increased by almost **500 horses** between 2013 and 2017 (**CAGR 1.4%**).

Note: 'Unspecified' mares are not shown on the graph to the left, which is why the two graphs do not add up to the same number. We have also incorporated those who stated 'dual' purpose into the total jump figures.

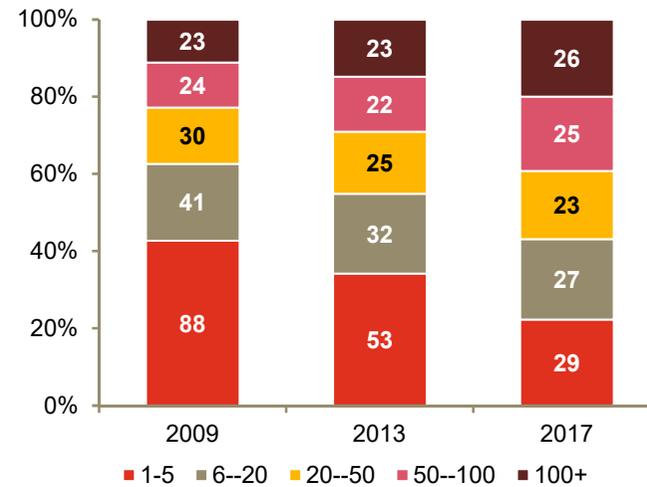
Source: Weatherbys, PwC analysis.

Over the last 8 years the number of GB based stallions has declined, although the increase in the number of coverings per stallion has made up some of the shortfall

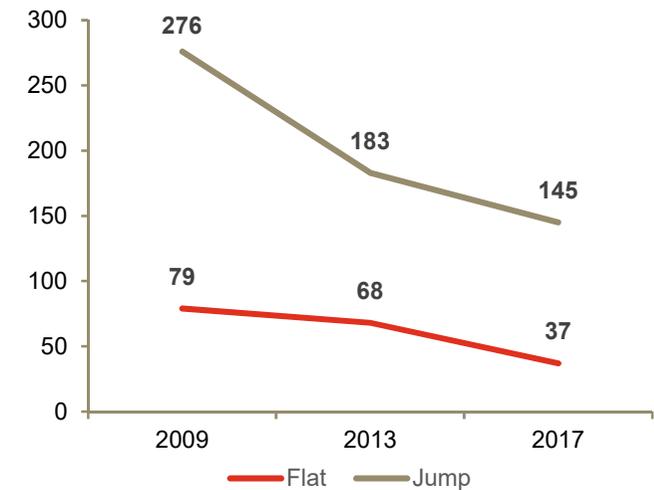
Country of birth of GB based stallions



Mare coverings per stallion by % share of total coverings



GB based stallions by standing purpose



- The number of GB-born stallions based within the country has declined at a fairly dramatic rate over the past 8 years, falling from **141** in 2009 to just **65** in 2017.
- The number of Irish-born stallions based in Great Britain has declined since 2009 but to a lesser extent than GB-born stallions. Proportionally they have increased from **26%** in 2009 to **38%** in 2017.

- The number of stallions covering **1-5 mares** has also fallen sharply over the period, from **88** in 2009 to just **29** in 2017.
- In contrast, those covering over **50 mares** has risen, indicating that the stallion market is becoming more concentrated.

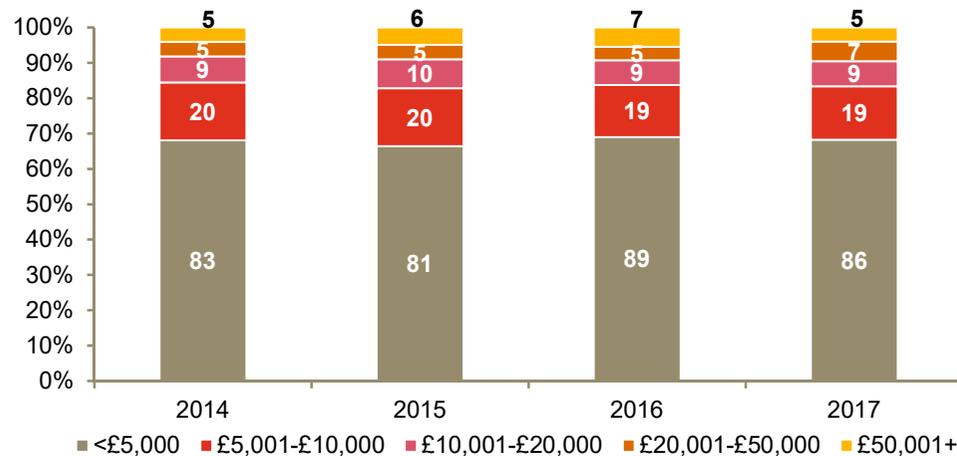
- Unlike the intended purpose of foals and mares, the purpose of stallions has not experienced the same proportionate increase in flat-racing over the past 9 years (unspecified stallions also account for a lower proportion of around 10%).
- Instead, both the number of stallions intended for flat and jump-breeding has fallen significantly since 2009 (**53%** in flat and **22%** in jump respectively).

Note: We have incorporated those who stated 'dual' purpose into the total jump figures.

Source: Weatherbys, PwC analysis.

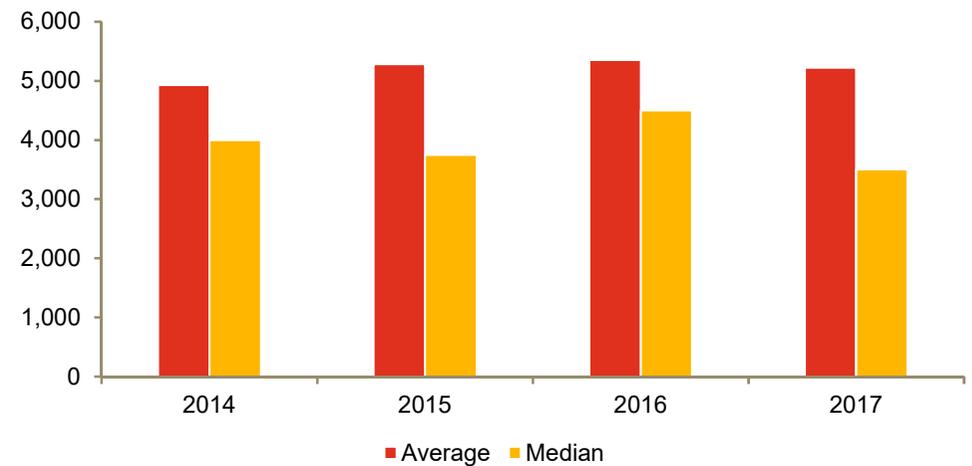
Between 2013 and 2016 there was a large increase in the average nomination fee paid for GB based stallions

Number of GB based stallions in each fee bracket



- Between 2014 and 2017 the proportion of stallions in each fee bracket has remained largely the same, with around 70% in the bottom bracket of £0 - £5,000.
- In 2017, 2 additional stallions were listed in the £20-£50k bracket than in 2016.

Estimated average and median nomination fee for GB based stallions*



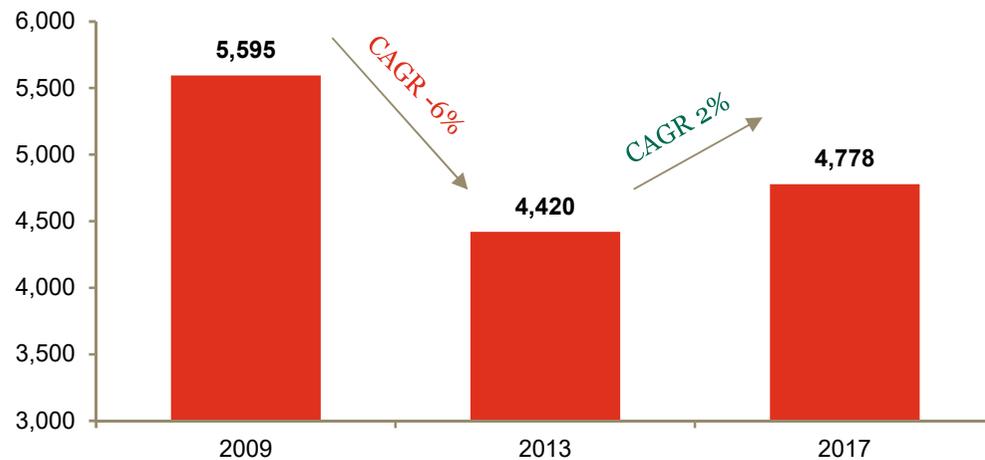
- Between 2013 and 2015 the average nomination fee for GB based stallions increased by over **7%** in consecutive years.
- In 2016 the average fee increased by **1.4%** before a slight fall in 2017.
- The median fee is consistently lower than the average fee, indicating the presence of high quality stallions that command higher fees.

Note: *Calculated using EBF contribution data. This is based on the average value of nominations sold, not the advertised fee.

Source: European Breeders Fund, PwC analysis.

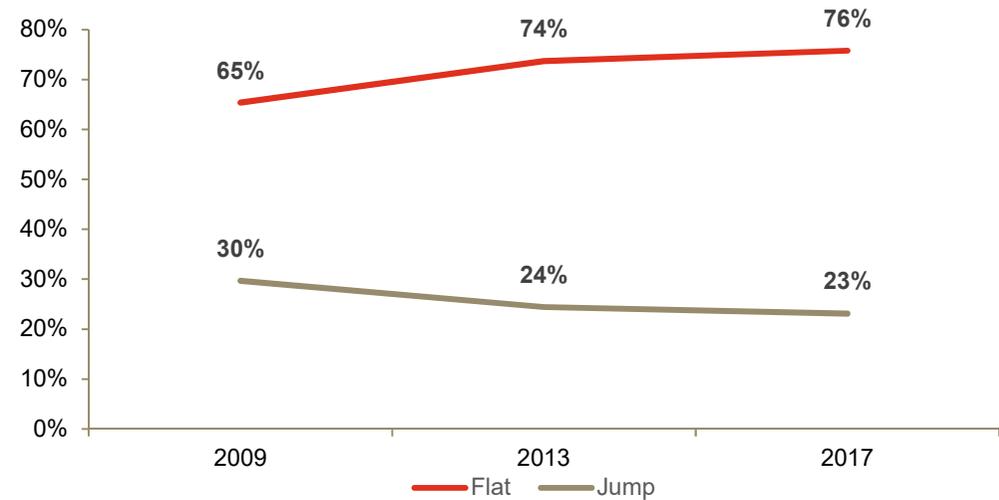
The number of foals has started to recover over the past four years, with an increasing proportion intended for flat-racing

Total number of GB-born foals



- Between 2009-2013, the number of GB foals born each year declined fairly dramatically, at a CAGR of **-5.7%**.
- However, over the past four years, this number has started to recover, with **c.300** more foals born in 2017 than in 2013, representing a CAGR of **2%**.

Percentage of foals by intended career¹



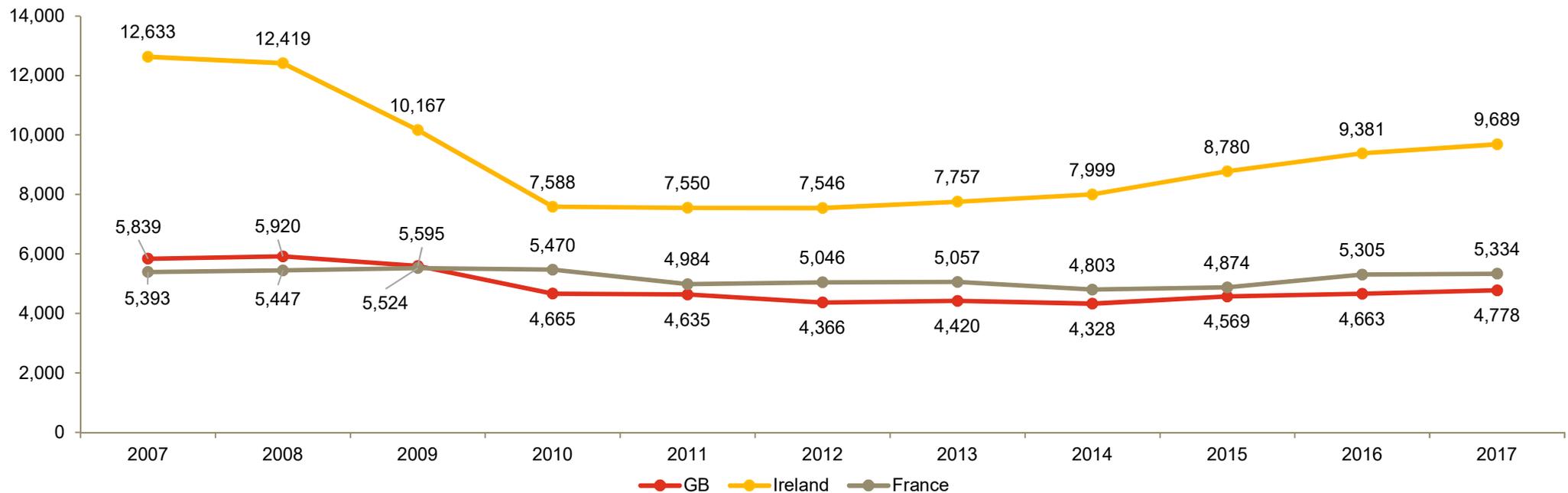
- This growth in the number of foals has been matched in the proportion of foals intended for a career in flat and jump-racing, which saw CAGRs of **2.7%** and **0.6%** respectively since 2013.
- Proportionally, the number of foals intended for a career in flat-racing has seen an increase of **11** percentage points since 2009 (and now constitutes **76%** of all foals).

Note: 'Unspecified' foals are not shown on the 'percentage of foals by intended career' graph, which is why the total percentage does not equal 100%. We have also incorporated those who stated 'dual' purpose into the total jump figures.

Source: Weatherbys, PwC analysis.

However, since 2010 the number of foals born in France has exceeded GB. While the number of foals born in Ireland has grown strongly since 2012

Number of thoroughbred births (2007-2017)

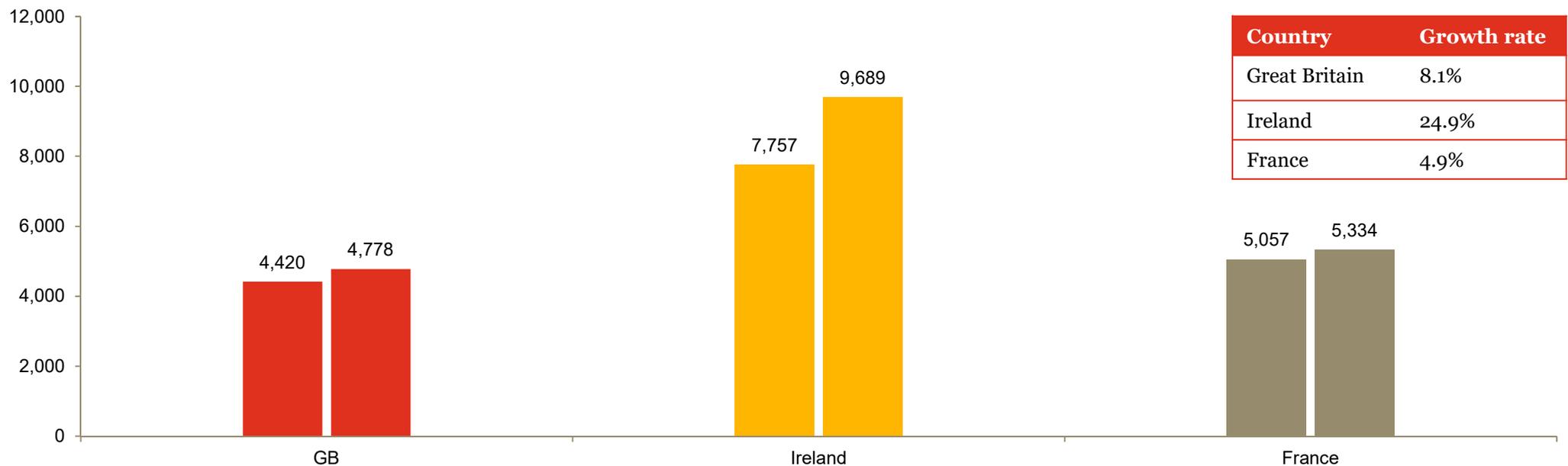


- Before 2010, GB produced more foals than France. But in 2010 this trend has changed, with France achieving a higher birth rate for the past eight years.
- The number of births in Ireland reduced substantially after the 2008/2009 financial crisis. However, since 2012 the birth rate has increased at a steady pace; 28% more foals were born in 2017 than in 2012.

Source: IFHA, Weatherbys, PwC analysis

In 2017, the number of GB thoroughbred births was 8% higher than in 2013, compared to a 5% increase in France. However, the Irish birth rate increased by 25% over the same time period

Number of thoroughbred births (2013 and 2017)



Country	Growth rate
Great Britain	8.1%
Ireland	24.9%
France	4.9%

- Between 2013 and 2017, GB increased its foal crop by c. 350 foals (c.8%). Proportionally, this was at a faster rate than France (c.5%), but it pales in comparison to Ireland, which produced c. 2,000 more thoroughbreds in 2017 than in 2013 (c.25%)



Economic contribution

4



Our approach to estimating the economic contribution of the GB thoroughbred breeding industry to the UK economy

Our approach to the economic impact study used established economic methodologies as well as extensive quantitative and qualitative research.

Economic impact study methodology

Data collection



Information was collected from several sources:

- A confidential PwC survey sent to all registered members of the TBA.
- Interviews and consultations with thoroughbred breeders, owners, trainers, bloodstock agents, industry bodies, and other industry experts.
- Review of previous literature and research on the economic contribution of the sector.
- Analysis of a broad range of external data including from Weatherbys, Tattersalls, the British Horseracing Authority, the International Federation Horseracing Authorities, auction houses and other statistical data in the public domain.

Quantitative and qualitative analysis



- A detailed analysis of survey data and external data was undertaken to build a profile of the average economic impact of different types of breeders. This allowed for a comparison of breeders between the number of broodmares owned.
- This average was scaled up for the entire breeding sector using a number of variables relating to the size and characteristics of the breeder population.
- A bespoke economic model has been built which reflects the linkages of the British breeding sector with the other sectors of the UK economy. This was then used to provide a detailed estimate of the contribution of British thoroughbred breeding to the UK economy, in terms of its direct, indirect and induced impacts.
- This quantitative analysis was complemented with qualitative evaluations of specific characteristics of the breeding industry, such as its contribution to the rural economy.

Reporting



- Preliminary findings discussions were held with the TBA prior to completion of the report.
- This ensured that all findings and conclusions were discussed and agreed before publishing of the final report.

Caveats to our analysis

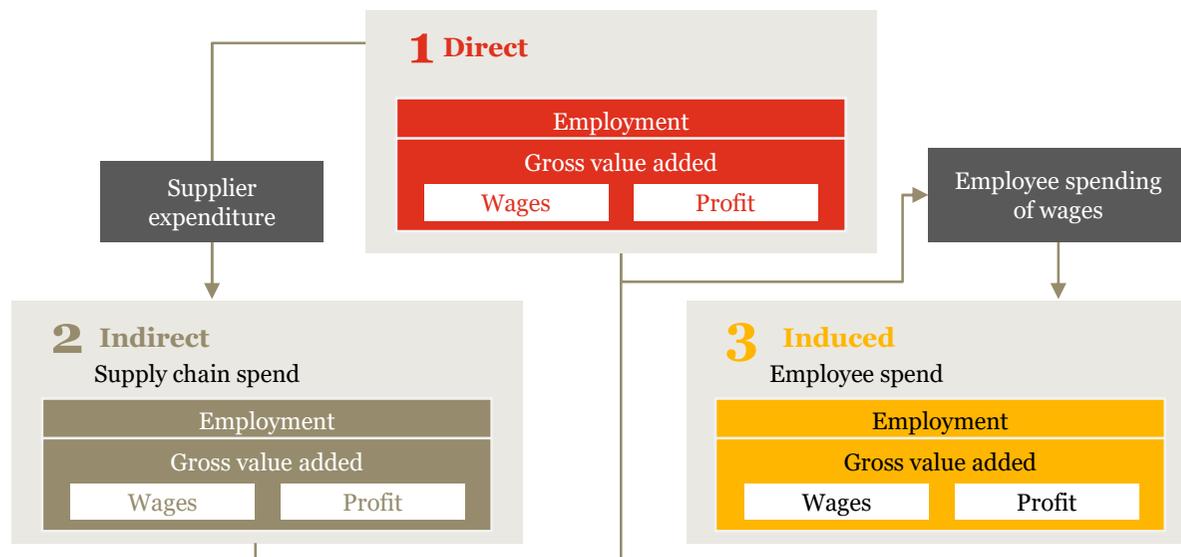
- The results are based on survey data completed by members of the TBA, as well as data from external sources such as Weatherbys.
- The survey data has been cleansed and specific outliers have been excluded from some analyses where identified.
- This type of analysis calculates an industry's economic contribution in a given year. There may be a degree of variability across years depending on the economic cycle and conditions within the specific industry.

The economic impact methodology estimates the direct, indirect and induced impacts of the industry

An economic impact study estimates the **total contribution** of an organisation or sector to the economy. There are three main types of impact which are usually taken into account in an economic impact study – **direct, indirect** and **induced** impacts.

These impacts can be measured in terms of both **gross value added or GVA (GVA is the recognised metric for measuring economic activity at the sub national level)** and **in terms of employment**. All estimates presented in this study are gross rather than net, which means they do not take into account what would have happened to the economy if the horsebreeding sector did not exist. The diagram to the right sets out the approach for estimating direct, indirect and induced impacts.

Definitions for each of the terms used in the diagram can also be found below:



1

Direct impacts

The impact on the economy from the operations of a business. Direct GVA is the sum of profits and wages for the business, while direct employment is the total employment of a business

2

Indirect impacts

The GVA and employment supported in the economy as a result of the supply chain expenditure of a business

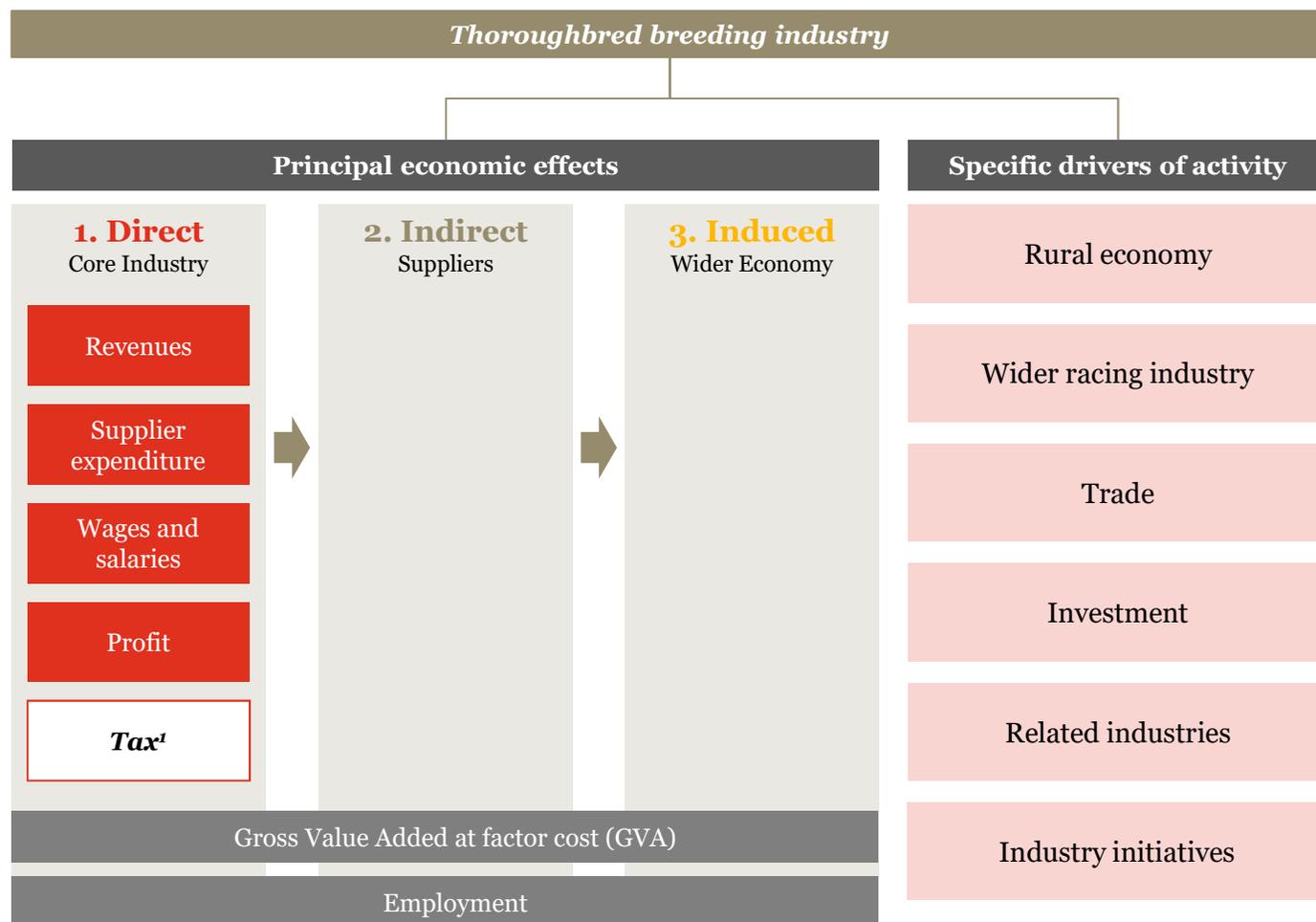
3

Induced impacts

The GVA and employment supported by the spending of a business's employees, as well as the spending of the employees in the supply chain of the business

We have also evaluated other specific drivers of activity within the breeding industry

Economic framework of the thoroughbred breeding industry



Types of economic impact quantified

1. Direct

- The economic impact of all thoroughbred breeders in Britain.
- Includes profits and wages generated by all breeding operations (stud farms, individuals and partnerships).

2. Indirect

- The economic impact supported by the supply chain expenditure of thoroughbred breeders.
- Includes all expenditure on 'upstream' suppliers, such as feed, veterinary bills and rent.

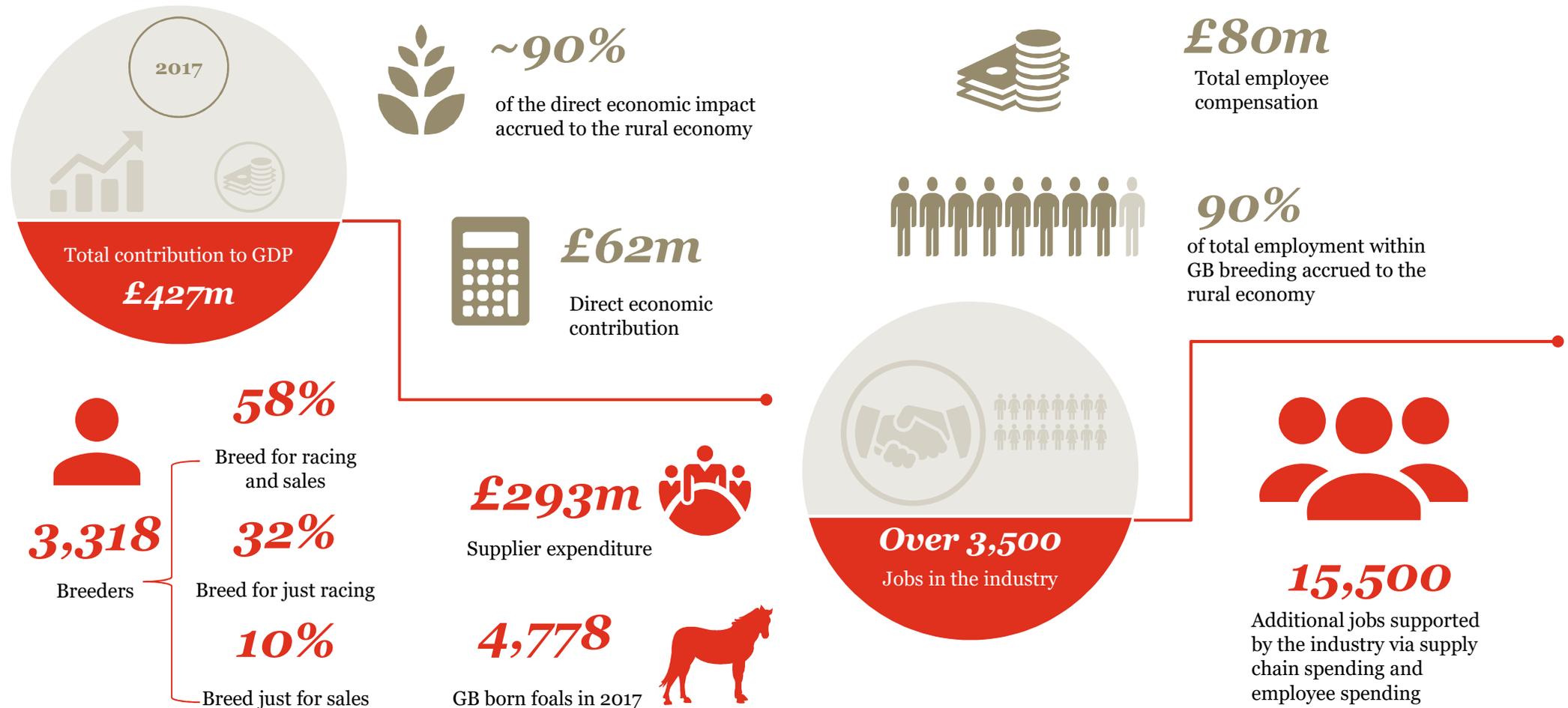
3. Induced

- Refers to the economic impact supported by the employees of thoroughbred breeders spending their wages.
- Also includes employee spending in the supply chain to thoroughbred breeders.

[†] The total tax contribution of the industry was out of the scope of this analysis

We estimate that in 2017 the thoroughbred breeding industry contributed £427m to the UK economy and supported over 19,000 jobs

The infographics below illustrate a summary of GB thoroughbred breeding's contribution to UK GDP and employment in 2017

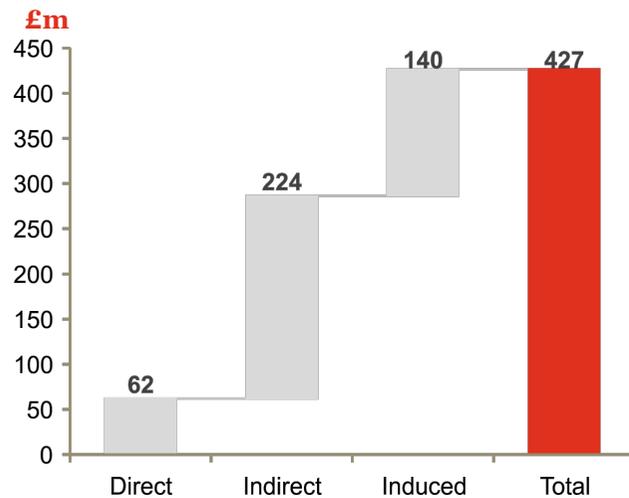


Note: All estimates based on data from PwC confidential survey and industry data.

Source: PwC analysis.

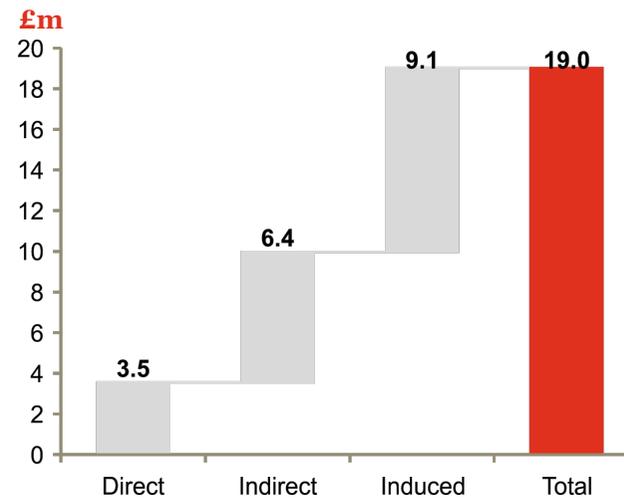
A significant proportion of the industry's economic contribution comes through its spending on suppliers and employee wages

GVA – Direct, indirect and induced impacts



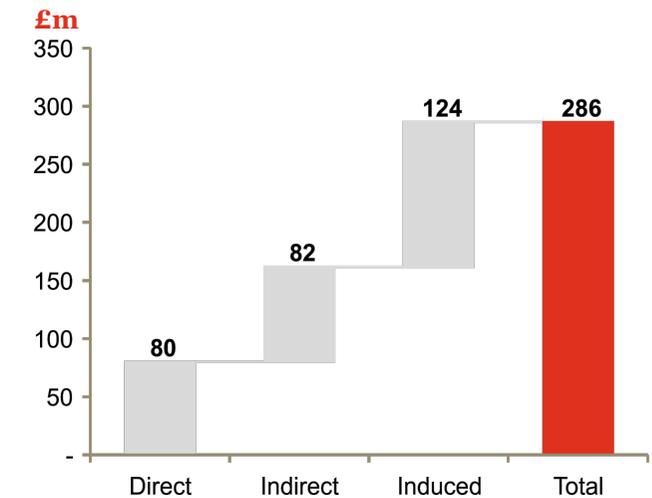
- The GB breeding industry's direct GVA contribution of **£62m** is relatively low due to the high proportion of unprofitable breeders in the industry.
- But the industry's significant spending on suppliers generates a large impact in the UK economy, contributing **£224m** in indirect GVA impacts.
- The spending of breeding industry employees and supplier employees generates an additional **£140m** in induced GVA impact.

Employment – Direct, indirect and induced impacts



- The breeding industry employed around **3,500** people in 2017.
- Spending on suppliers generates an additional **6,400 jobs** in other industries.
- Breeding industry employee spending and the spending of supplier employees generates a further **9,100 jobs** in the UK economy.

Income – Direct, indirect and induced impacts



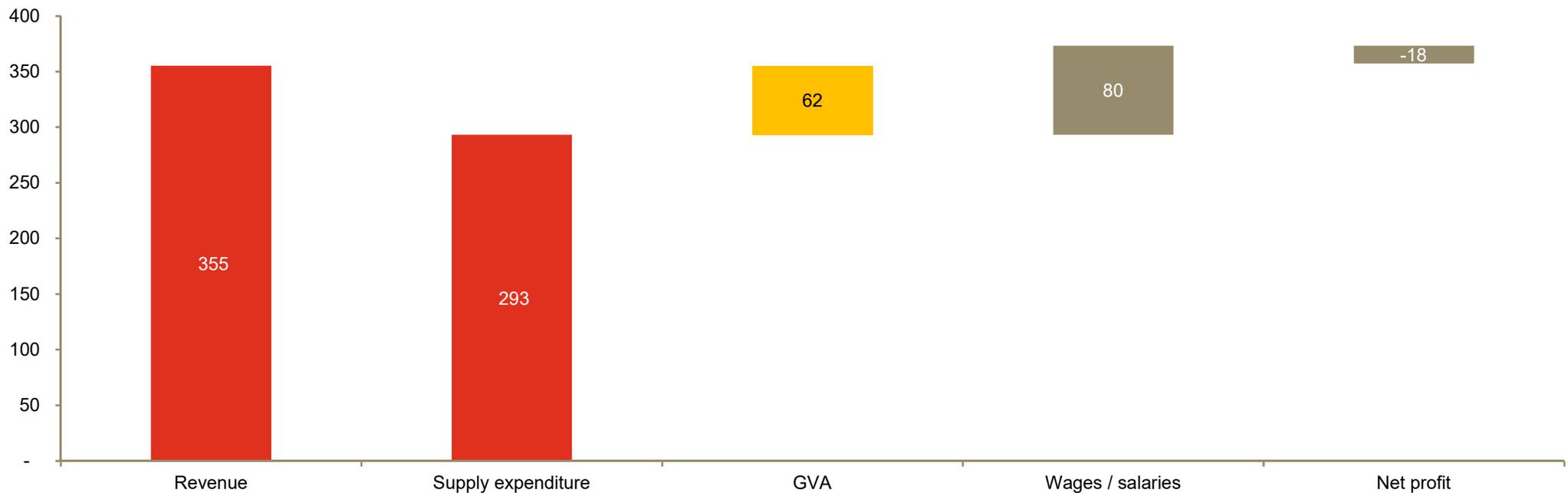
- The breeding industry spends around **£80m** on employee compensation in 2017.
- Supplier expenditure generates an additional **£82m** in employee compensation in the UK economy.
- The spending of breeding industry employees and supplier employees generates an additional **£124m** in employee compensation.

Note: All estimates based on data from PwC confidential survey and industry data. Note that we have rounded figures to the closest million.

Source: PwC analysis.

The direct contribution of the sector is generated through wages and salaries given that the industry as a whole is unprofitable

Composition of GVA at factor cost (£m)



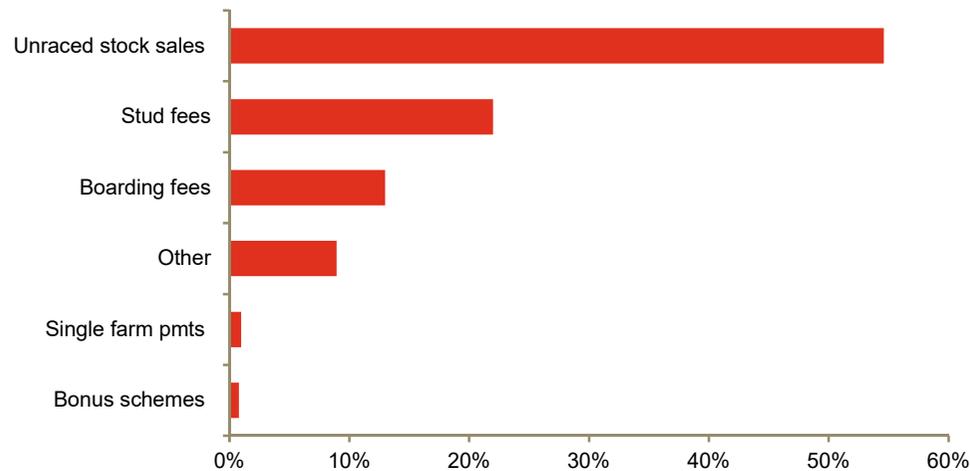
- Direct gross value added (GVA) measures the pre-tax contribution of the thoroughbred breeding industry to economic output. It is calculated by subtracting the total supplier expenditure from the total revenue of the sector. GVA can also be calculated by adding net profits and wages & salaries, which represent the respective incomes earned by businesses and individuals from breeding.
- The direct GVA of the thoroughbred breeding industry is estimated to be **£62m**. The industry generates significantly more income for employees than for business owners, with **£80m** generated through wages and salaries and **-£16m** generated in profits.

Note: All estimates based on data from PwC confidential survey and industry data. Note that we have rounded figures to the closest million.

Source: PwC analysis.

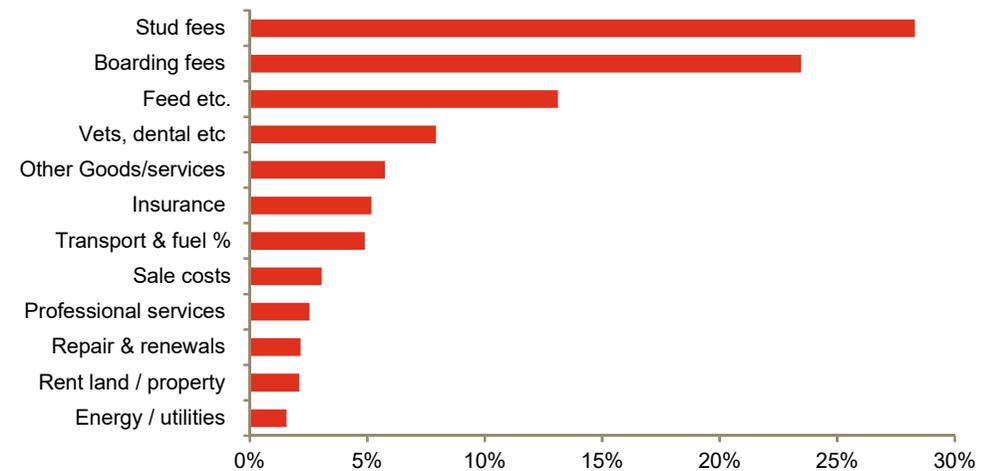
We estimate that unraced stock sales account for over 50% of breeding industry revenue, while stud fees and boarding fees are the largest operating expenses (Excl. wages)

Estimated breeding industry revenue sources (%)



- Using the responses to the confidential breeders' survey we have estimated industry revenue sources. Unraced stock sales account for the highest proportion of revenue at around **55%**.
- Stud fees and boarding fees account for approximately **23%** and **13%** of industry revenues, respectively.

Estimated breeding industry operating expenditure, excluding wages (%)



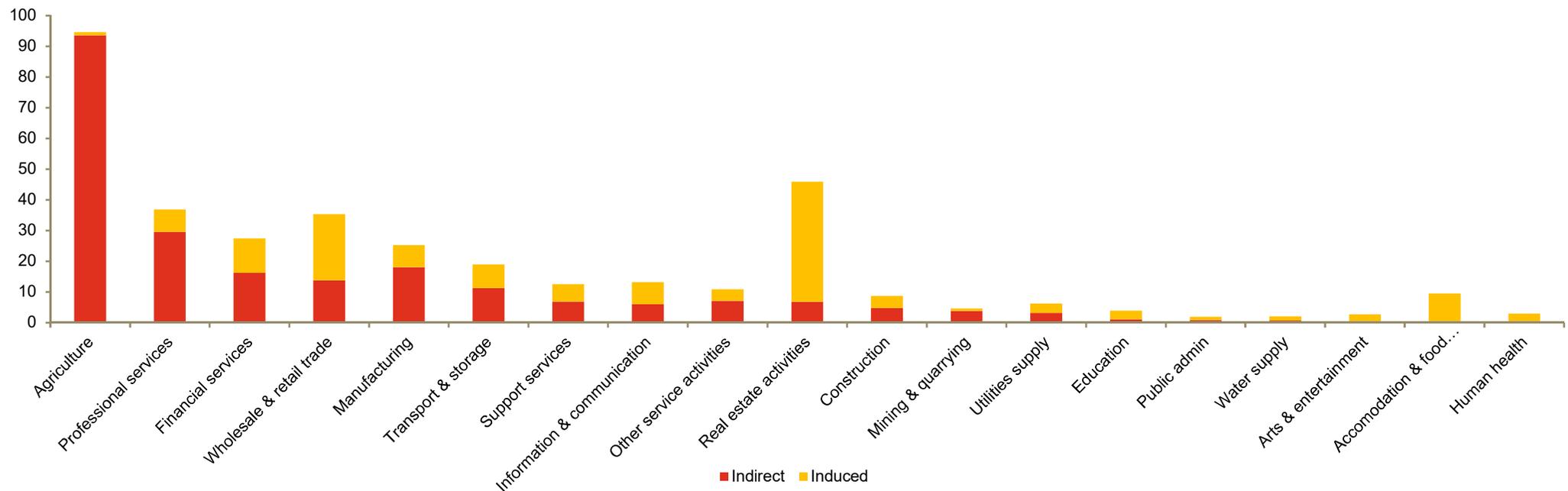
- Stud and boarding fees account for the highest proportion of breeding industry operating expenditure with a combined total of around **50%**.
- Feed costs and vets/dental costs account for around **20%** of industry operating expenditure.

Note: All estimates based on data from PwC confidential survey and industry data.

Source: PwC analysis.

The indirect and induced impacts from the thoroughbred breeding industry are distributed across the UK economy

Indirect and induced GVA impact by sector (£m)



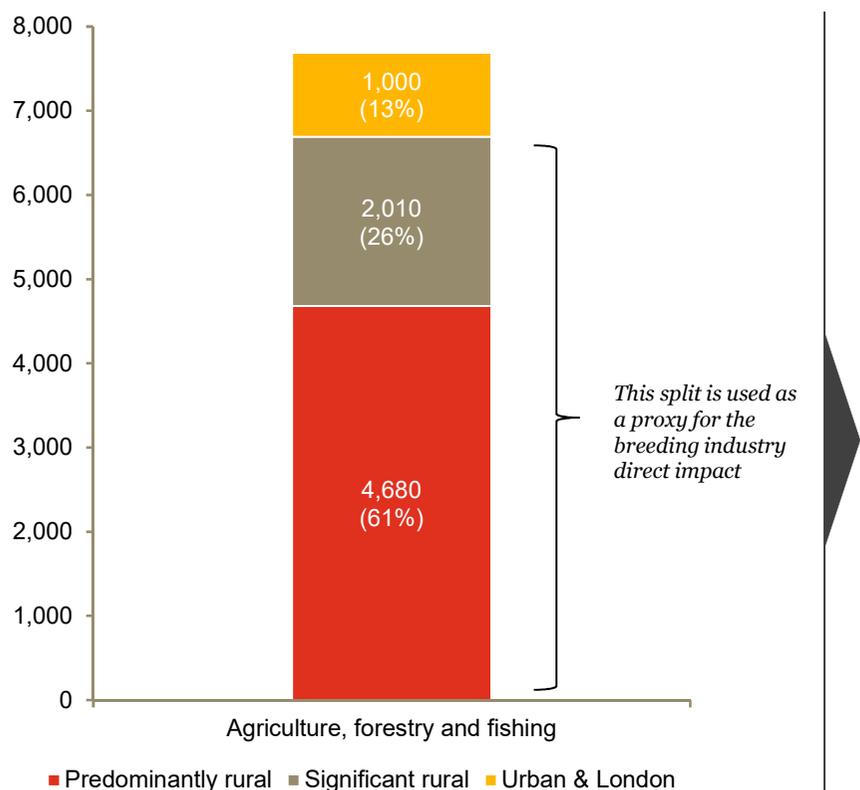
- The largest GVA impact is in the agricultural sector at **£95m**, which is primarily generated by indirect impacts through the spending of breeders on agricultural goods and services such as boarding fees, stud fees, and feed.
- The second largest GVA impact is experienced by the real estate sector at **£46m**. This is driven by the spending of breeding industry employees and supplier employees on rent and real estate.
- The third largest GVA impact is seen in professional and technical services sector at **£37m**. This is as a result of spending by the breeding industry on vets, dental care, and accountants etc.

Note: All estimates based on data from PwC confidential survey and industry data. Note that we have rounded figures to the closest million.

Source: PwC analysis.

Thoroughbred breeding is primarily conducted in local and rural economies, and consequently the majority of its economic impacts are experienced in these areas

UK agriculture, forestry and fishing GVA 2016 (£m)



GB thoroughbred breeding industry

	Predominantly rural	Significantly rural	Total rural
Direct GVA contribution	£38m	£16m	£54m
Indirect and induced GVA contribution	£66m	£28m	£94m
Total GVA contribution	£104m	£44m	£148m
Direct employment (FTEs)	2,163	922	3,085
Indirect and induced employment (FTEs)	5,381	2,293	7,674
Total employment (FTEs)	7,544	3,215	10,759

- Thoroughbred breeding is an activity primarily conducted in local and rural economies and consequently the majority of its direct economic impacts are experienced in these areas.
- The majority of the operational costs involved in producing a thoroughbred are spent with local suppliers including vets, Farriers, feed suppliers and other small agricultural businesses.
- We therefore estimate the British breeding industry's total contribution to the UK rural economy is **£148m**, compared to the overall impact of **£427m**.
- The breeding industry also plays a crucial role in driving rural employment, directly employing over **3,000 people** and supporting a total of **10,759 jobs**.

Note: All estimates based on data from PwC confidential survey and industry data. Note that we have rounded figures to the closest million.

Source: Department for Environment Food & Rural Affairs, PwC analysis.

*Factors
impacting the
industry's
supply chain*

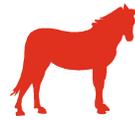
5

We have analysed a wide range of factors impacting the thoroughbred horse breeding supply chain



1. Profitability and return on investment in breeding

- The average return made by sellers in both Flat and NH auctions.
- Britain's prize money compared to its international competitors.
- The average return on capital employed for industry participants.



2. Industry initiatives

- The impact that NH MOPs has had on the demand for fillies in auction sales, and how far it has realised its initial objectives.



3. Interlinkages with the gambling industry

- Horseracing's relationship with the gambling industry and how recent changes to legislation may impact levy revenue, and the subsequent health of the sport.



4. People

- The employment situation within the breeding industry and the initiatives aimed at ameliorating this.



5. Trade performance of GB breeding/racing

- The nature of Britain's imports/exports over the past four years, detailing key growth markets within each.



6. Trends in racehorse ownership

- How financial returns are impacting the nature of horse ownership, and how this may affect the breeding industry going forwards.



7. Brexit

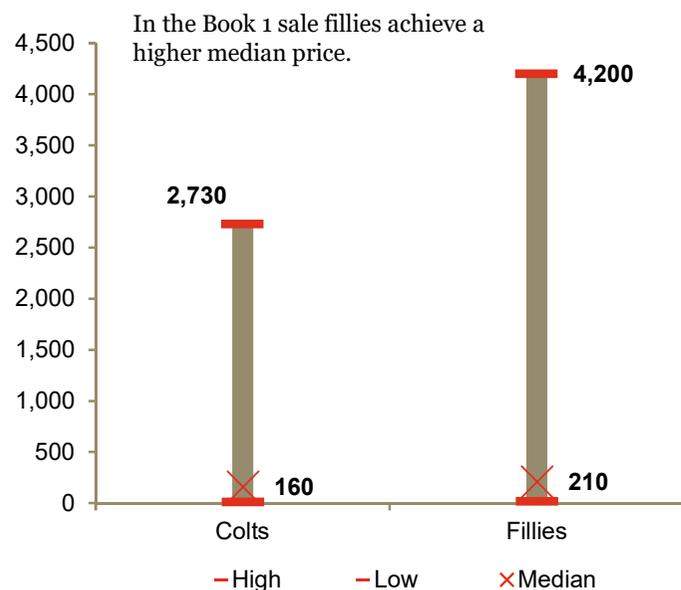
- How Brexit might disrupt the industry, specifically focusing on the impact that it might have on the staffing, financing, and sustainability of thoroughbred breeding.

*Profitability
and return on
investment in
breeding*

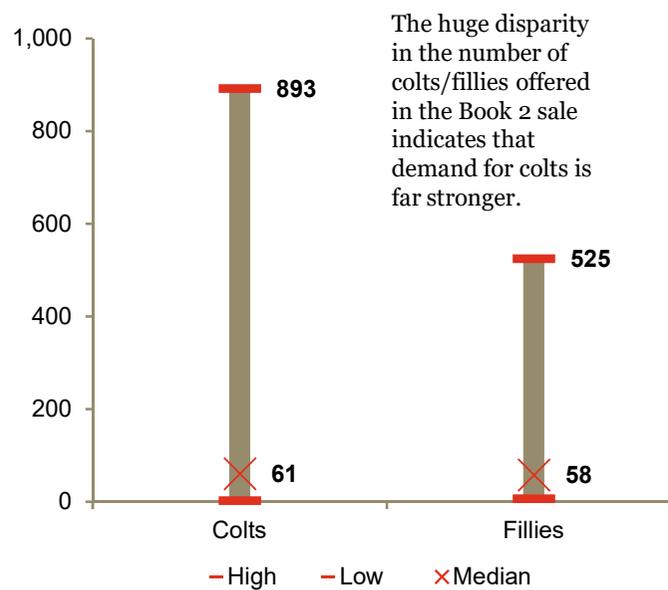
5.1

In the prestigious Tattersalls Book 1 sale, sellers' typically make a profit on horses sold. However, those selling in Book 3 frequently fail to cover production costs

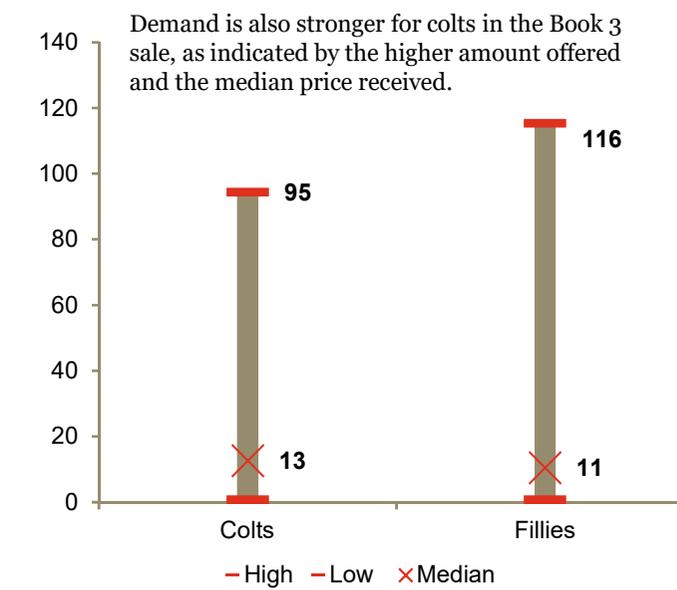
Tattersalls Book 1 sale – Colts and fillies (£ thousands, 2017)



Tattersalls Book 2 sale – Colts and fillies (£ thousands, 2017)



Tattersalls Book 3 sale – Colts and fillies (£ thousands, 2017)



Total number of horses offered	240	202
Total number of horses sold	188	161
Clearance rate	78%	80%

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Total number of horses sold	188	161
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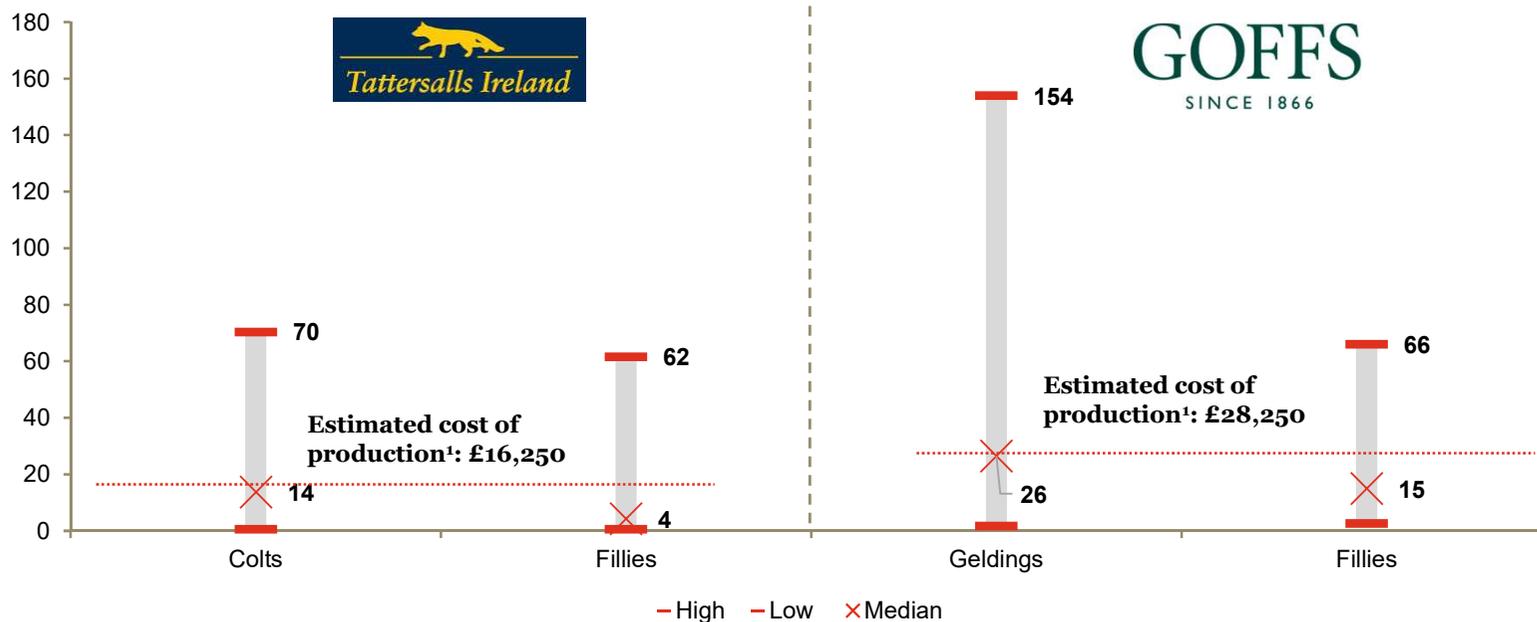
Total number of horses offered	240	202
Total number of horses sold	188	161
Clearance rate	78%	80%

Note: Prices have been converted to £ using a constant rate of 1.05 for Guineas.

Source: Tattersalls, PwC analysis.

This weak financial return is particularly evident in NH auctions, where fewer fillies are offered for sale and those which are sold achieve significantly lower prices than colts. As a result, jump breeders continue to face economic challenges

Ireland NH Sales – Colts, Fillies and Geldings (£ thousands, 2017)



- In NH auctions across both GB and Ireland, the median price achieved for fillies is significantly lower than that of colts, despite the supply of fillies falling in recent years and far more colts being offered in the sales.
- **In many cases, the median return does not cover all of the production costs involved in getting a horse to the sale** (e.g. feed, stallion nomination fees, commission fees, veterinary bills).
- As a result, the long-term economics for NH breeding continues to be at risk. Moreover the profit earned on colts frequently fails to cover the losses made on fillies.

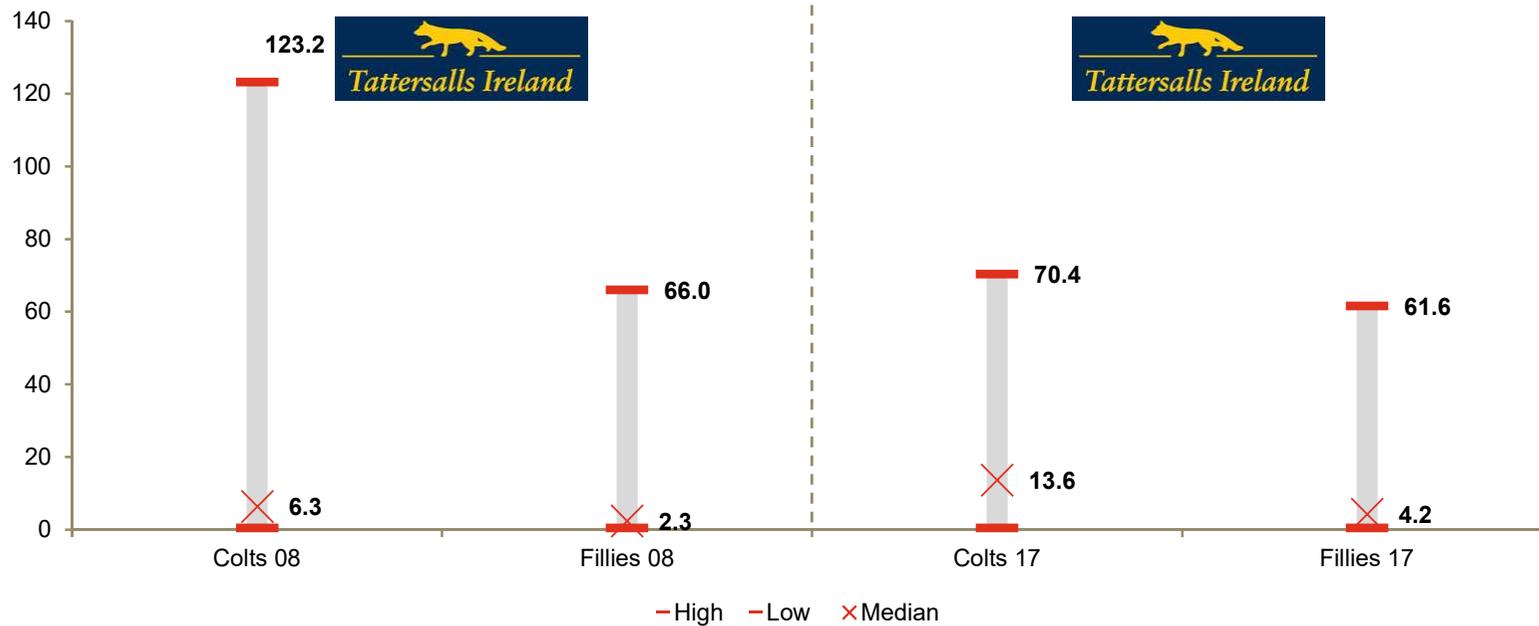
Total number of horses offered	711	283	379	55
Total number of horses sold	549	187	336	45
Clearance rate	77%	66%	89%	82%

Note: Analysis based on Tattersalls Ireland November 2017 sale (which we consider given that it's one of the largest NH sales and UK and Ireland are effectively one market with many of the same breeders selling at both) and Goffs Land Rover 2017 sale. Goffs Land Rover sales data does not contain colts specifically. Prices have been converted to £ using a constant rate of 1.05 for Guineas and 0.88 for Euros. ¹ See appendix for cost of production calculations.

Source: Tattersalls, PwC analysis.

This poor return on investment is particularly worrying given the significant reduction in the supply of fillies over the past 10 years

Tattersalls November NH sale – colts and fillies (£ thousands, 2008 vs 2017)



- The profitability issue surrounding National Hunt fillies becomes even more apparent when comparing the Tattersalls November National Hunt Sale in 2008 and 2017.
- Despite the number of fillies offered falling from **489 to 283**, the median price received has only risen by approximately **~£1,900**, without adjusting for inflation.
- In comparison, the median price of colts has risen by **£7,300** since 2008, though the profit made on these horses is unlikely to offset the loss made on fillies.

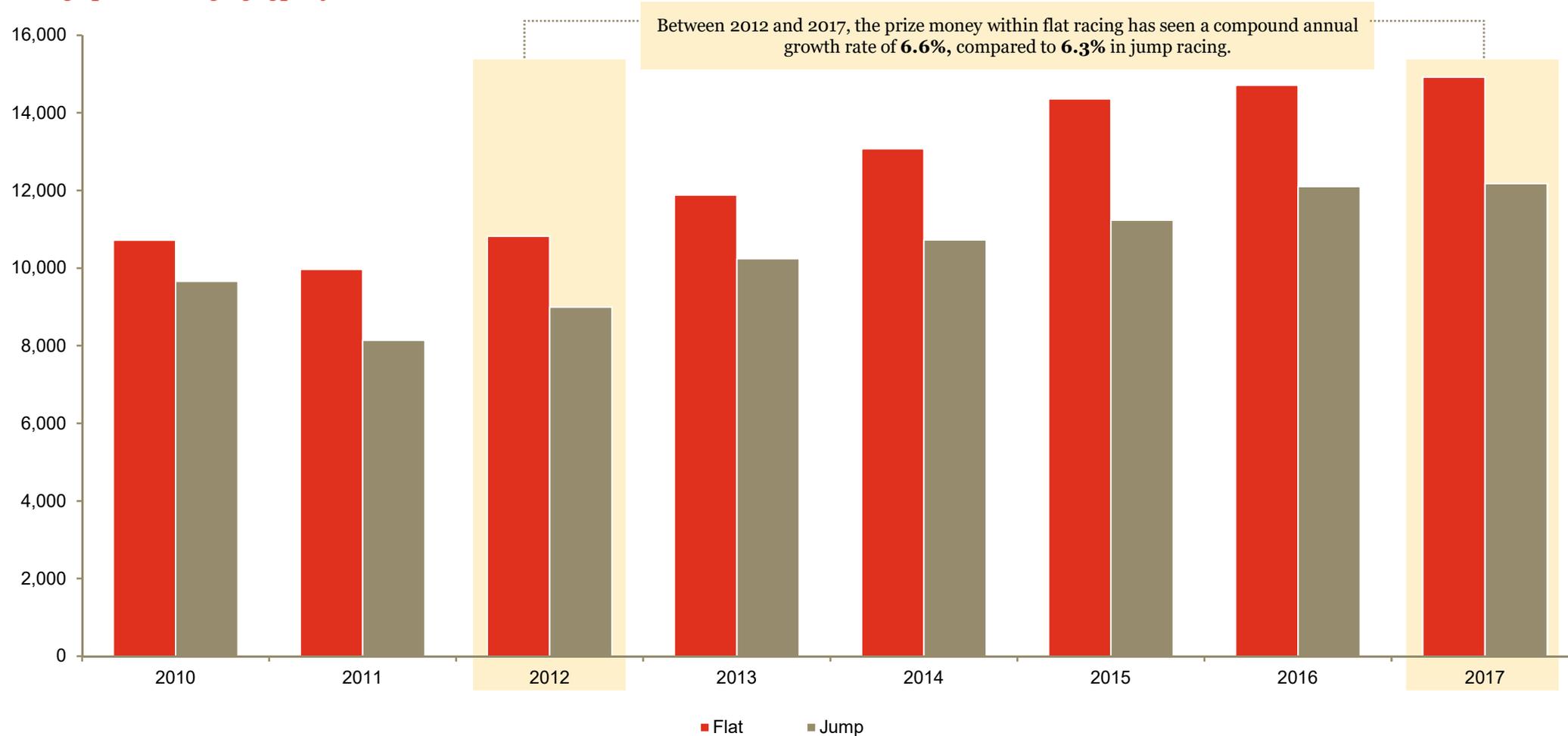
Total number of horses offered	1,095	489	711	283
Total number of horses sold	549	206	549	187
Clearance rate	50%	42%	77%	66%

Note: Prices have been converted to £ using a constant rate of 0.88 for Euros.

Source: Tattersalls, Goffs, PwC analysis.

Low prize money also continues to be a challenge, despite sustained growth in both flat and jump racing over the past 5 years

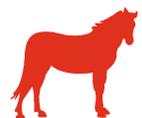
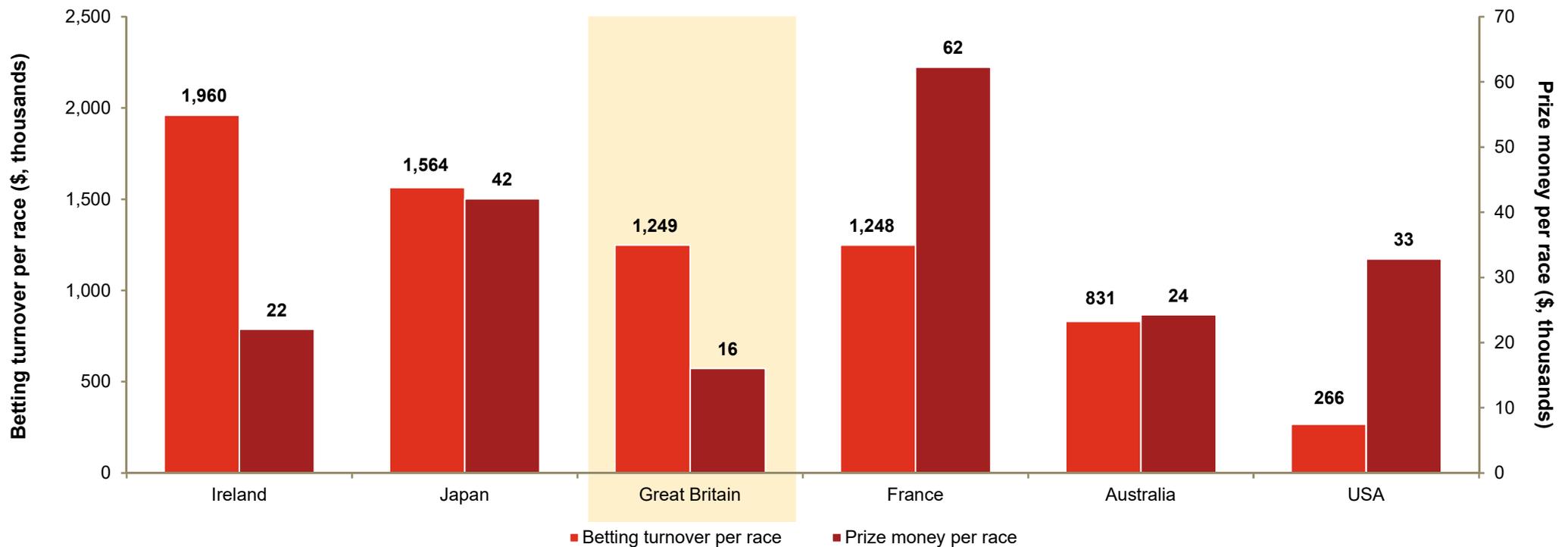
Average prize money by type of race (£)



Source: BHA, PwC analysis.

Great Britain has one of the highest per race betting turnovers in the world, but also one of the lowest amounts of prize money per race relative to other big markets

Betting turnover¹ and prize money per race² (\$, thousands), 2016



Total number of races

2,577

16,346

10,035

7,171

19,393

38,284

Note: ¹Betting turnover is defined as the total amount generated from betting activities both on and off course.

²Trot races have been excluded from this analysis. Hong Kong has also been excluded due to its exceptionally high betting turnover. The calculation for GB differs slightly from the previous slide as it is given in dollars rather than sterling.

Source: IFHA, PwC analysis.

Survey respondents identified return on investment and the superior returns in France and Ireland as two of the most significant factors affecting the industry's supply chain

Return on investment is weak for the majority of small to medium sized breeders, and polarisation between large and smaller operators is growing.

Breeders and owners can achieve superior returns to investment in France and Ireland.

“ For the majority the economics of horse breeding are challenging even before extraneous circumstances are factored in. The suppliers of the middle market are being squeezed and **the lack of financial sustainability for the medium and small breeder is worrying.**”

Breeder

“ I am considering moving more horses to France to take advantage of the breeders’ and owners premiums and **GB needs to catch up on this quickly or it will lose its pre-eminent position.**”

Owner

“ **The market has become very polarised...**rich owners and breeders fight for the best horses and there are just not enough owners to create a strong demand lower down the market, meaning it becomes a real fight to break even let alone make a profit.”

Owner

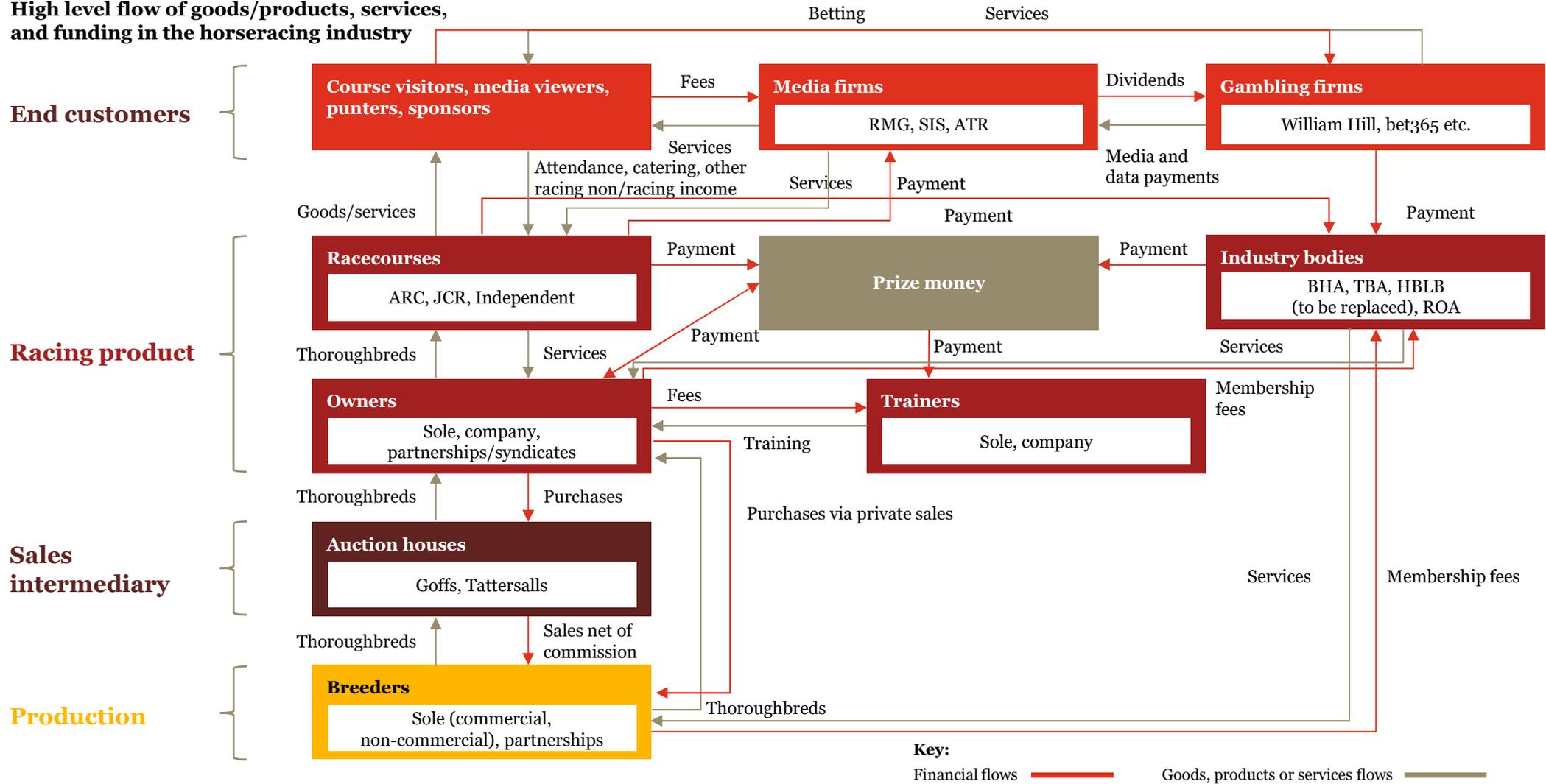
“ For many, **the appeal of greater prize money increasingly points towards owning race horse in France,** with the prospect that French breeding will gain ground as GB breeding retreats.”

Stud farm owner



The entire horseracing industry is dependent on the British thoroughbred breeding industry, but the vast majority of breeders struggle to achieve a return on investment

High level flow of goods/products, services, and funding in the horseracing industry



To assess the relative profitability of horseracing industry participants, we calculated the return on capital employed across the whole industry

Return on Capital Employed (ROCE) is a measure of performance and capital efficiency. ROCE is a function of profitability (EBIT) and activity i.e. how much a business/industry has invested in operating assets to generate that level of profitability.

We have used this ratio to assess the profitability of the British breeding industry in comparison to other horseracing industry participants, including the gambling firms that take bets on horseracing, racecourses, auction houses, and media companies that focus specifically on horse racing. While these businesses/industries are not directly comparable because they are all at different stages in the horseracing industry value chain, and hence offer different services/goods, this analysis provides an indicative assessment of the profitability of each business area.

We focus specifically on calculating the ROCE for:



The entire British thoroughbred breeding industry as estimated through our (PwC) 2013/14 and 2017/18 analyses.



Proxied by Tattersalls Ltd, one of the leading bloodstock auctioneers in Europe.



Proxied by the Jockey Club Racecourses (Holdings) Ltd – the largest racecourse group in the UK by turnover, attendances and contributions to prize money. They own a portfolio of 15 racecourses including Aintree, Epsom Downs and Newmarket.



Proxied by the Racecourse Media Group Ltd, the holding company responsible for a range of media rights management businesses involving 37 UK racecourses.



Proxied by William Hill Plc, one of the UK's largest bookmakers accounting for c. 25% of UK shops, bet365 Group Ltd, one of the world's leading online bookmakers, and BetFred Group Ltd.

Methodology

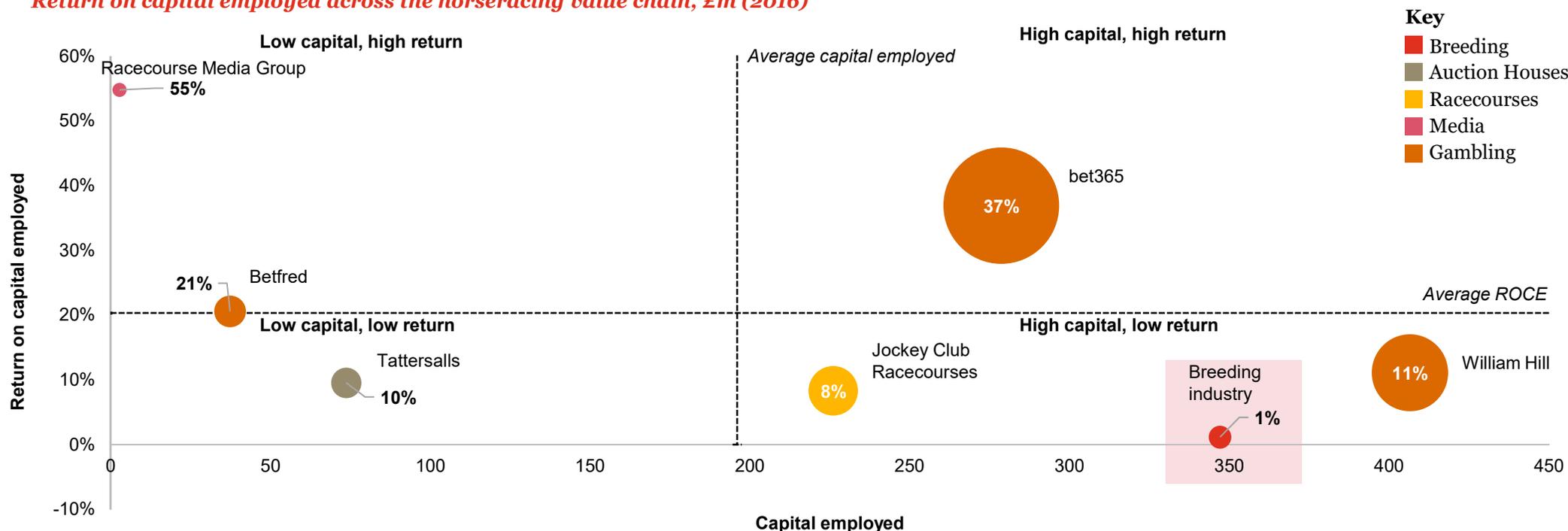
To calculate the ROCE ratio for media, racecourses, gambling firms we used their respective financial accounts for 2016 and took (i) EBIT/operating profit, and divided it (ii) capital employed (i.e. assets – current liabilities).

While this analysis provides a useful comparison there are some limitations to the analysis which we have listed below:

- For gaming companies we cannot separate out the profit (i.e. EBIT) or capital specifically deployed to horseracing from their financial accounts.
- We have therefore estimated horseracing's share of profit and capital employed to be 20% based on horseracing's share of remote betting gross gambling yield (c. 20%, Gambling Commission) and in-shop betting revenues (estimated to be 20%).

Horseracing focused media firms and gambling firms¹ generated the highest ROCE in 2016 while the GB breeding industry produced the lowest return²

Return on capital employed across the horseracing value chain, £m (2016)



- The media industry, proxied by the Racecourse Media Group, generated the largest return on capital employed of c. 55% in 2016.
- bet365 produced the second highest return on capital employment at c.37%.
- The breeding industry generated the lowest ROCE at c.1%.

Note: Size of bubbles indicate absolute magnitude of profit (EBIT) earned in 2016. The mid-point of each bubble represents percentage return on capital employed in 2016 (Y-axis) and capital employed in 2016 (X-axis). The percentage value next to each bubble indicates ROCE.

¹In order to split the ROCE for horseracing operations within gambling firms, we have applied an assumption of 20% of their total profits and total capital employed. This is based on horseracing's c. 20% share of remote gross gambling yield in 2016/17 and horseracing accounting for c.20% of in-shop betting revenues in 2016/17.

²The breeding industry is based on our 2013/14 and 2017/18 analyses.

Source: 2016 Financial accounts for respective industry participants, Capital IQ, PwC analysis

Industry initiatives

5.2

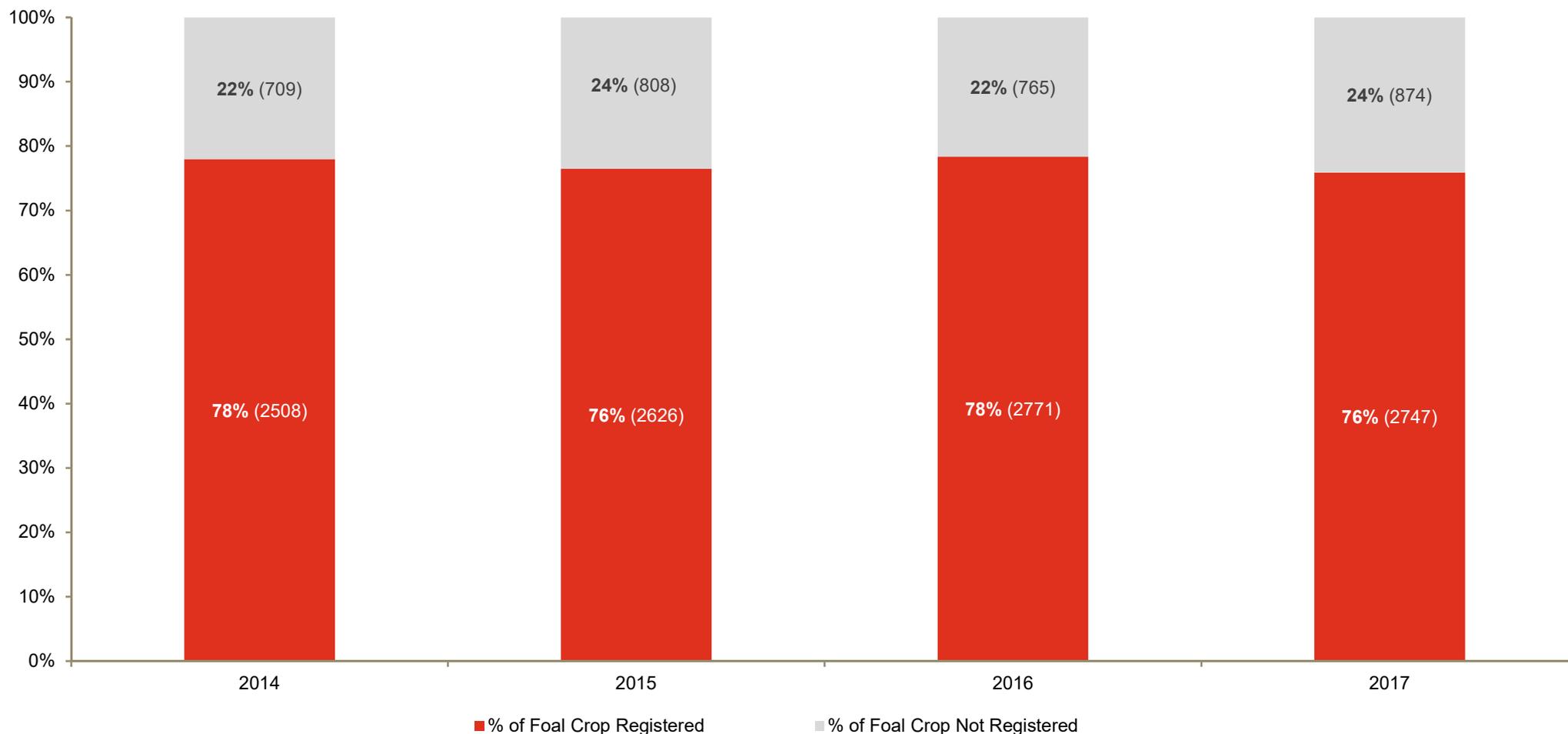


In light of the economic challenges facing the industry, the TBA and other bodies have launched initiatives to try and alleviate some of the financial pressures

Scheme	Objectives	Details of the Scheme
	<ul style="list-style-type: none"> Increase prize money available to owners and breeders. Therefore indirectly helping to boost foal crop numbers, field sizes, fillies in training and ownership numbers. 	<ul style="list-style-type: none"> Plus 10 pays £10,000 bonuses to qualified two and 3 year old winners of Plus 10 races The bonus is shared between owners (75%), 10% to the payer of foal registration (typically breeders), and 10% to the payer of the Yearling registration
	<ul style="list-style-type: none"> Improve demand for National Hunt fillies at auction (thereby financial return for breeders) Encourage more mares to race, and subsequently help to sustain the NH racing programme 	<ul style="list-style-type: none"> NH MOPs is confined to filly foals that were either bred in Great Britain or produced by British-domiciled stallions (and have been nominated as potential NH racehorses by their breeders) Pays £10,000 for wins in Class 1-2 Open races, Class 1-4 Novice Chases & Hurdles. Also pays £5000 for wins in NH Flat races.
 	<ul style="list-style-type: none"> To attract more runners to typically under-contested races. In turn this will help to encourage more betting on British racing. To improve the returns to owners and breeders at the mid-lower tiers of the sport 	<ul style="list-style-type: none"> The schemes sees qualifying races introducing payments of at least £300 for flat and £350 for jumps for horses finishing between 5th and 8th place Any owner who receives a payment must also distribute part of these funds to the trainer of the horse (8%), the rider in the race (6%) and the stable where the horse was trained (6%)
TBA Elite Mares Scheme 	<ul style="list-style-type: none"> Provide an incentive for the best quality mares in GB to use high quality British stallions 	<ul style="list-style-type: none"> Provides subsidised, and in some cases free, nomination fees to mares that have proven themselves on the racecourse or at stud Eligible mares are separated into 3 categories (depending on the pedigree of the mare), which correspond to different discount vouchers applicable to any eligible stallion on the scheme

Over three quarters of the GB flat foal crop are registered to the Plus 10 initiative, indicating demand from breeders for incentive schemes

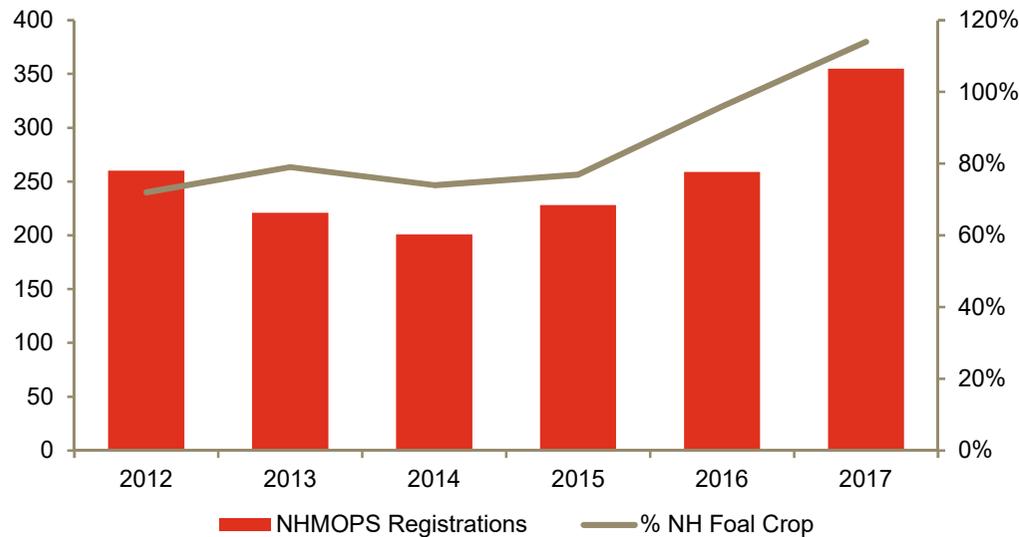
Percentage of GB Flat foal crop registered to Plus 10



Source: Weatherbys, Plus 10, PwC survey, PwC analysis

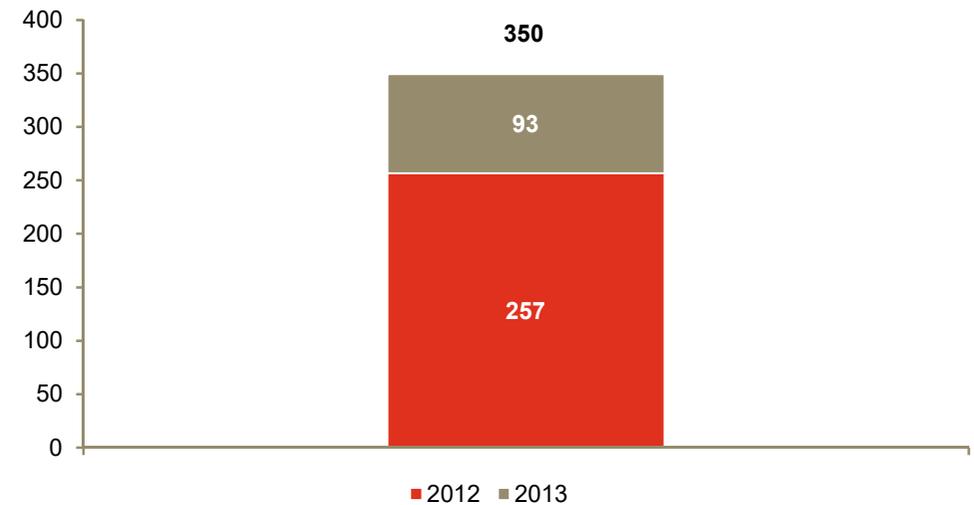
A growing percentage of the National Hunt filly foal crops are registered for the NH MOPS scheme

Number of NH MOPS registered by crop



Proportion of NH foal crop registered

NH MOPS prize money won by foal crop, £ thousands



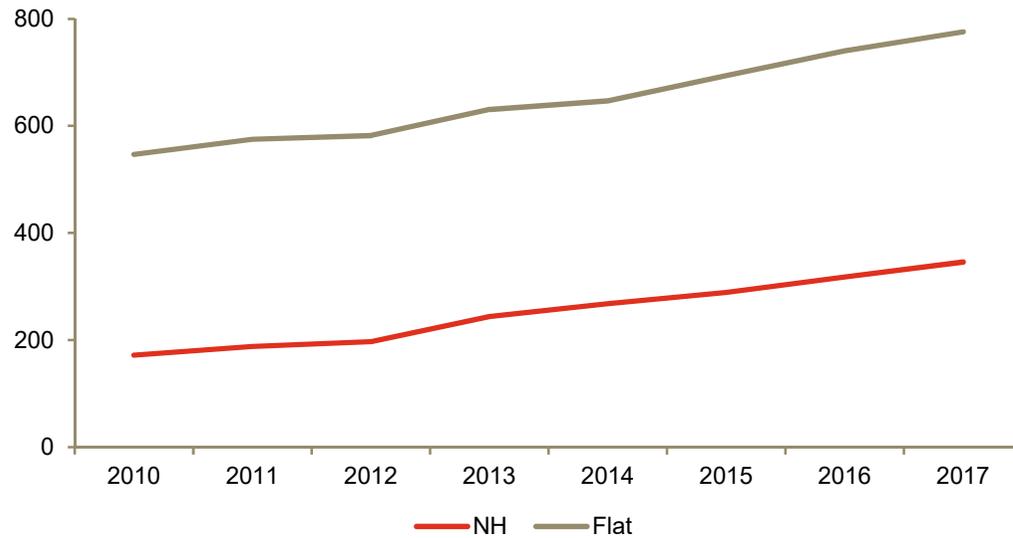
- At least **60%** of each NH Foal crop from 2012 to 2017 are registered for the NH MOPS scheme. A higher proportion of the more recent foals crops are registered.
- This maps NH MOPS registered fillies against the NH Foal crop in GB, but others are eligible, such as horses born and registered abroad but covered by British based stallions.

- NH MOPS registered foals born in 2012 are by far the most successful when it comes to winning the bonus prize money on offer under the scheme, reflecting the fact that these horses have now reached the appropriate age for NH races.
- Given that the scheme is still relatively new, we would expect more winners from the other age crops in the coming years.

Source: TBA, PwC analysis

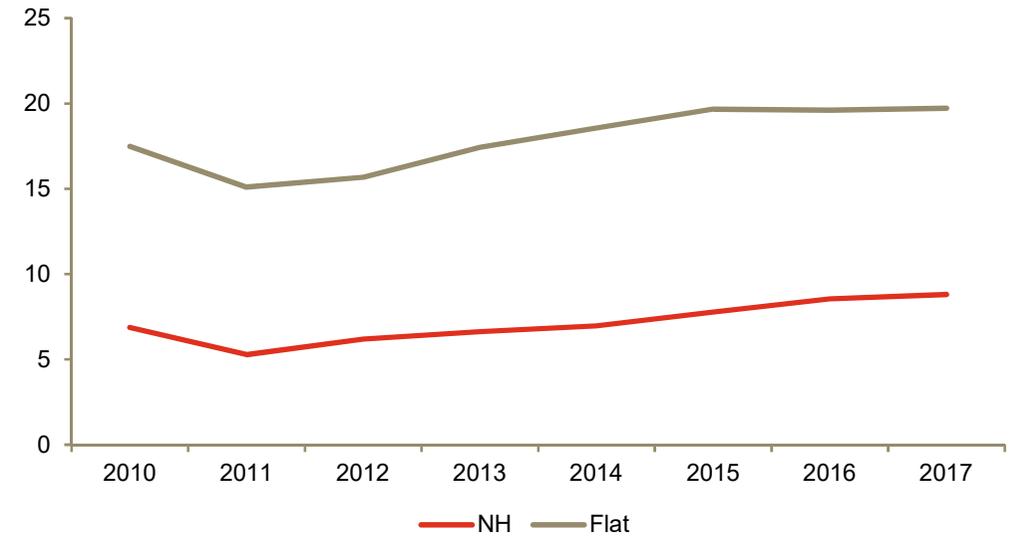
Average prize funds in mare and filly races have also increased in recent years, improving returns for owners. However, overall, NH still lags behind flat on both metrics

Number of mare/filly races



- There has been stronger growth in the number of NH races for Mares and Fillies than flat, albeit from a lower starting base.

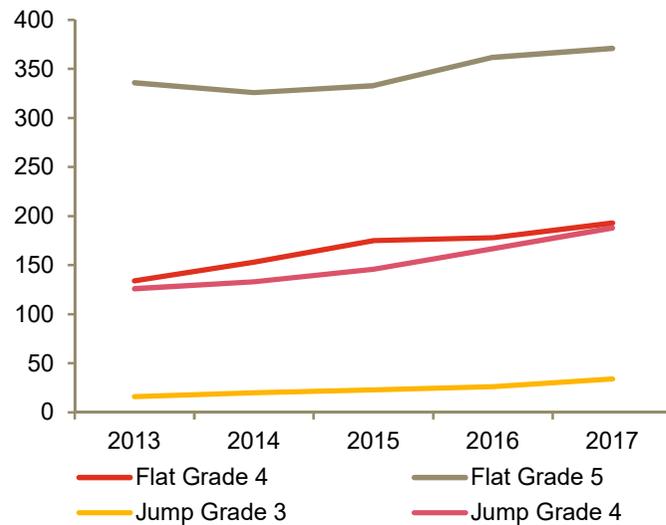
Average prize fund for NH mare/filly races, £ thousands



- The average prize money for NH has also increased but there remains a gap between NH and flat. In 2017, the average prize money for a mares/fillies race was **55%** higher for a flat race than for a jump race.
- There are some 'classic' flat races aimed at fillies/mares that have substantial prize money pots which might contribute to the disparity in average prize money.

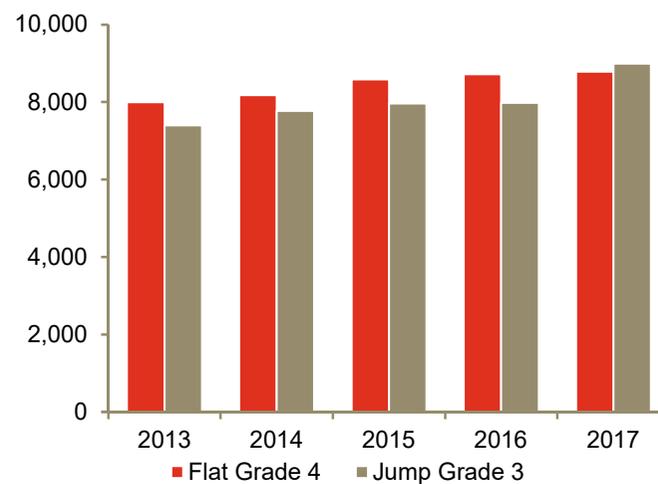
At the lower tiers, however, the average prize fund in mares and fillies races appears to be marginally greater in jump races

Number of mares/fillies races by code and grade



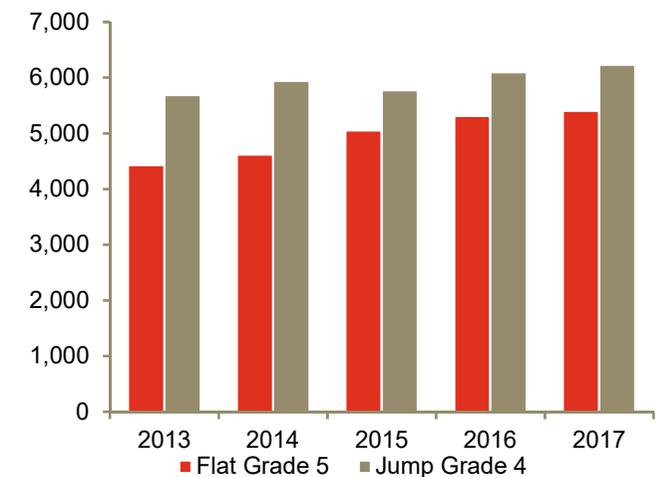
- For the typical mare or filly, who will generally run in the lower classes of race, there are significantly more flat than jump races.
- For example, there were **183** more Flat Grade 5 races than Jump Grade 4 races in 2017 (which are an equivalent level).
- Similarly there were **159** more Flat Grade 4 races than Jump Grade 3 races in 2017 (which are an equivalent level).

Average prize fund comparison for Grade 4 flat and Grade 3 jump mares and fillies races (£)



- Despite jump races having significantly lower average prize funds at the top grade of mares and fillies race, this disparity seems to shift direction at the lower grades.
- For example, in 2017, the average prize fund for mares/fillies Grade 3 Jump races was **c.£200** higher per race than the Flat equivalent.
- In fact, the average prize fund for mares/fillies Grade 3 Jump races grew at a CAGR of **5%**, compared to **2%** in Grade 4 Flat races.

Average prize fund comparison for Grade 5 flat and Grade 4 jump mares and fillies races (£)



- This disparity widens in mares/fillies Grade 5 flat and Grad 4 jump races, where in 2017 jump races averaged **~£800** more per race.
- However, this gap might be in part due to the significantly lower amount of mares/fillies jump than flat races at this level. For example, there were only **34** jump races at Grade 4 in 2017, compared to **193** flat races of a similar quality.

Source: BHA, PwC Analysis

Respondents recognise that incentive schemes are starting to have an impact, but they suggest that more could be done to improve awareness and increase financial returns

Plus 10 is recognised as having improved returns for some within the industry, though its restriction to winning horses has limited its impact for small owners and breeders.

“ Plus 10 is a good initiative **but relatively minor impact in the big scheme of things for breeders**. £7,500 for an owner on top of ~£4,000 prize money is significant but £2,000 for a breeder who possibly lost much more when selling the horse is not that impactful.

Breeder

“ [Plus 10] **helps as a sales incentive for owners at the sales and helps trainers to sell the idea of owning a horse**. Realistically however, these prizes have to be much larger to have a marked impact.

Stud farm manager

“ MOPs is beginning to have an effect in demand for GB-bred mares, but some trainers have been slow to respond. **It will have an effect but it is a slow burn**.

Breeder

“ As a breeder paying a levy to have your yearling Plus 10 qualified is to me **simply another cost to the breeder** set alongside all the other costs of production.

Breeder

“ **I've benefited from Plus 10 and very welcome – though not game changing**. Have a feeling the old system of breeder's prizes might have had more long-term beneficial influence.

Breeder

“ **NH MOPs is slowly becoming an incentive**.

Stud farm owner

NH MOPs is starting to influence demand, though awareness of the scheme could be improved.

Source: PwC survey



*Interlinkages
with the
gambling
industry*

5.3

The gambling industry is undergoing a period of change, presenting both opportunities and threats to horseracing and breeding

The growth of online and mobile gambling

The rapid expansion of online and mobile gambling has increased revenues within the industry, contributing over £5.7bn in horseracing turnover in 2017.

Changes to the Horserace Betting Levy (HBL)

The reforms made to the HBL will extend the existing levy to all overseas operators taking bets from UK customers for the first time. This returned around £95m to horseracing this year, compared to ~£50m in 2016/17.

Innovation

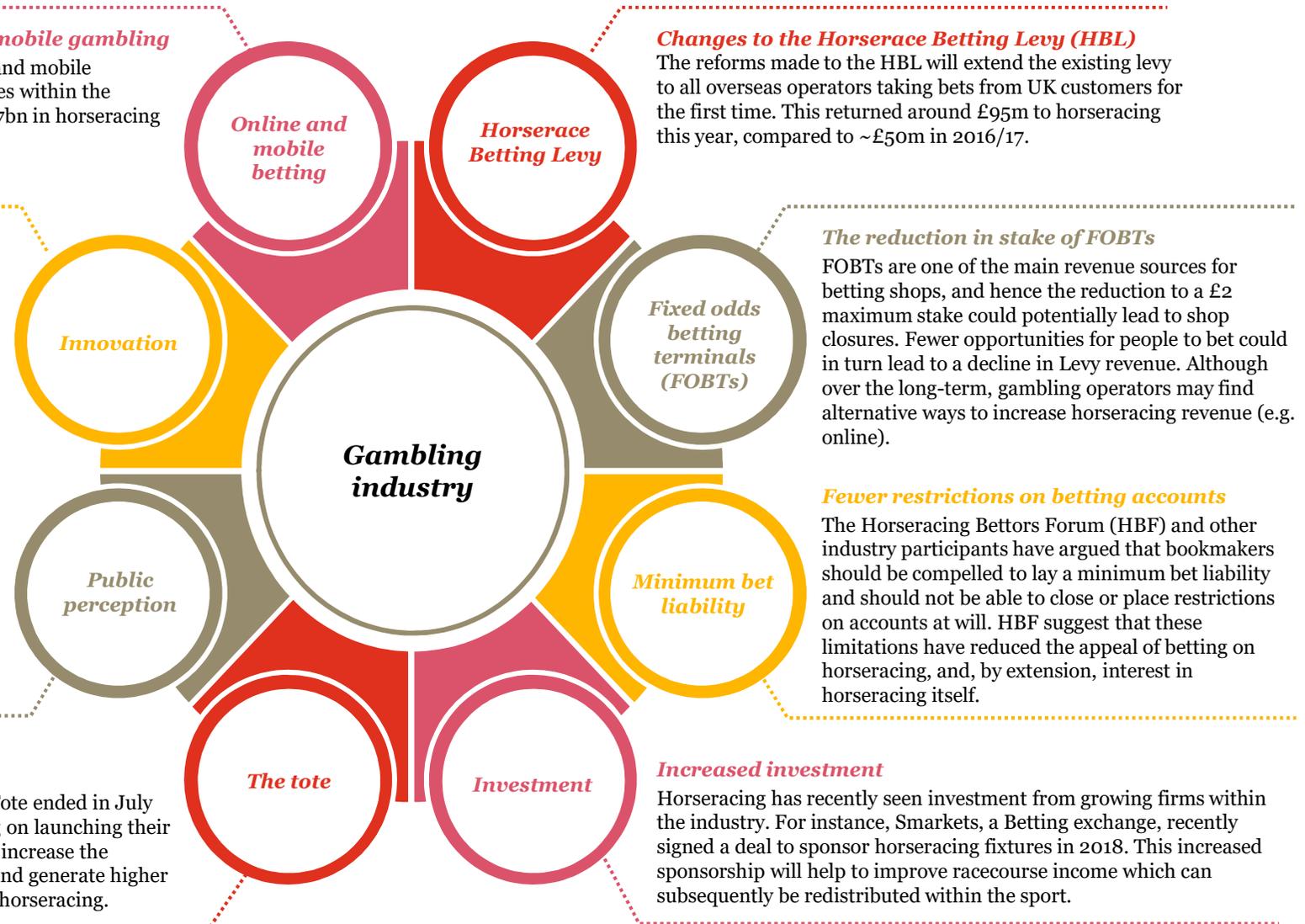
Improved levy revenues could help the sport invest in enhancing the betting product. For example, improved data collection could enable more in-play markets and subsequently improve betting turnover for the sport.

Public perception of gambling

The Government has been urged to restrict gambling adverts due to concerns that people are being inundated with messages that normalise betting. This could have implications for the horseracing industry, and potentially put horseracing TV coverage at risk as this is partly funded by advertising slots sold to bookmakers.

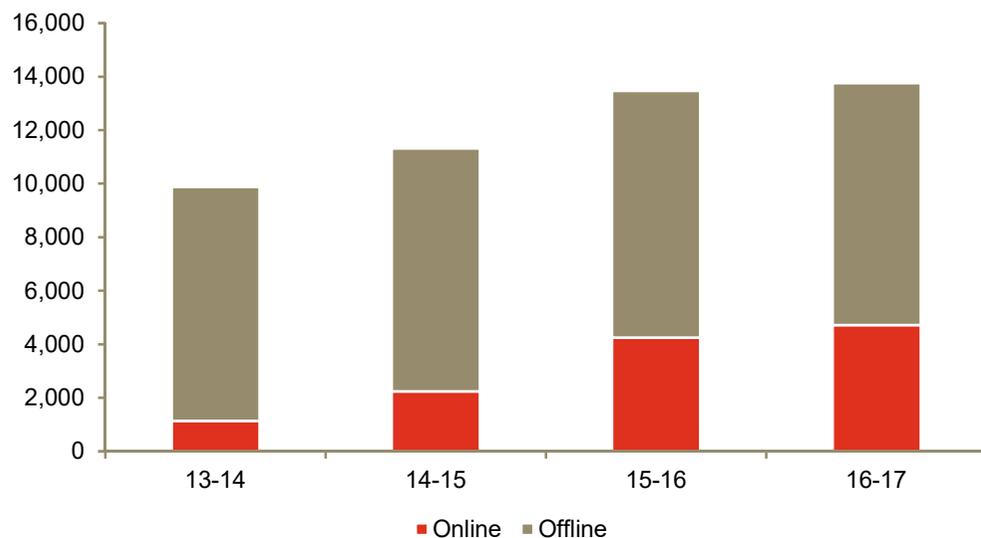
Improvement of the tote

Betfred's monopoly over pool betting through the Tote ended in July 2018, with a consortium of 55 racecourses planning on launching their own operation, Britbet. Modernising the tote could increase the number of betting products offered (e.g. cash out) and generate higher gambling revenues to enable further investment in horseracing.



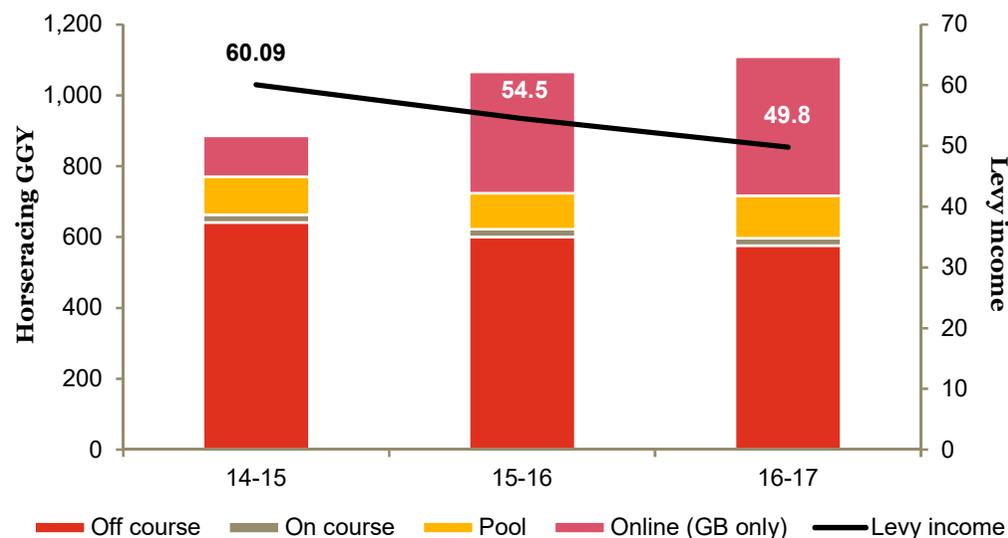
Online gambling has grown exponentially since 2008, and now constitutes over one-third of Gross Gambling Yield (GGY)

Gross gambling yield (GGY), online vs. offline (£m)



- Online betting (i.e. remote betting) has experienced considerable growth over the past four years, rising from **~£1.1bn** in 2013/14 to **~£4.7bn** in 2016/17 (representing a compound annual growth rate (CAGR) of **43%**).
- It now constitutes **over one-third** (34%) of the industry's total GGY, up from **11%** in 2013/14.

Horseracing GGY vs. Levy income (£m)



- This growth has also been seen within horseracing, where the GGY from online has risen from **~£115m** in 2014/15 to **~£392m** in 2016/17 (a CAGR of 50%).
- The change in how customers place bets is also highlighted in the decline of off-course betting, which has fallen from £640m in 2014/15 to £575m in 2016/17 (a CAGR of **-4%**).
- However, despite the recent increase in overall horseracing GGY, the Levy income has declined in recent years. This is expected to change following the recent reforms to the Levy.

Source: Gambling Commission, PwC analysis.

Changes made to the Horserace Betting Levy will enable the racing industry to capitalise on growth in online betting, and will improve relations between the two industries

What is the Horserace Betting Levy (HBL)?

- The HBL is collected by the Horserace Betting Levy Board from the gross profit of betting on British horseracing. The money raised from the Levy is used for:
 - The improvement of breeds of horses;
 - The advancement or encouragement of veterinary science or veterinary education;
 - The improvement of horseracing.

How are the changes enacted to the Horserace Betting Levy likely to impact the industry?

With the extension of the Levy to overseas gambling operators, the racing industry now benefits from additional funding. This can be used to achieve the three aims set out above, as well as three additional goals identified for the increased money:

1. Funding of prize money for lower class races;
2. Recruitment, training and retention within the industry;
3. Regulation and welfare.

The changes made to the Levy will also help to make GB more competitive globally, which in turn should help to maintain foreign investment levels. It will **also improve the relationship between the racing industry and the betting sector**, as the new legislation guarantees the rate paid by bookmakers over the next 7 years, rather than being negotiated annually as it currently is.

Source: Parliamentary Briefing 22 February 2018.

Timeline of the Horserace Betting Levy

1961

The *Betting Levy Act* (1961) introduced a statutory levy on the proceeds of horserace betting, ensuring that some of the proceeds from off-course betting were returned to racing.

2014

The Gambling Act 2014 stated that all remote gambling operators are required to obtain a licence from the Gambling Commission to enable them to transact with British customers and advertise in Britain. It also brought in regulations so that overseas operators would be liable to pay the Levy.

2016

In March 2016, following a number of DCMS consultations, the Secretary of State announced that a revised funding arrangement for British racing, applying to all betting operators, would be introduced.

April 2017

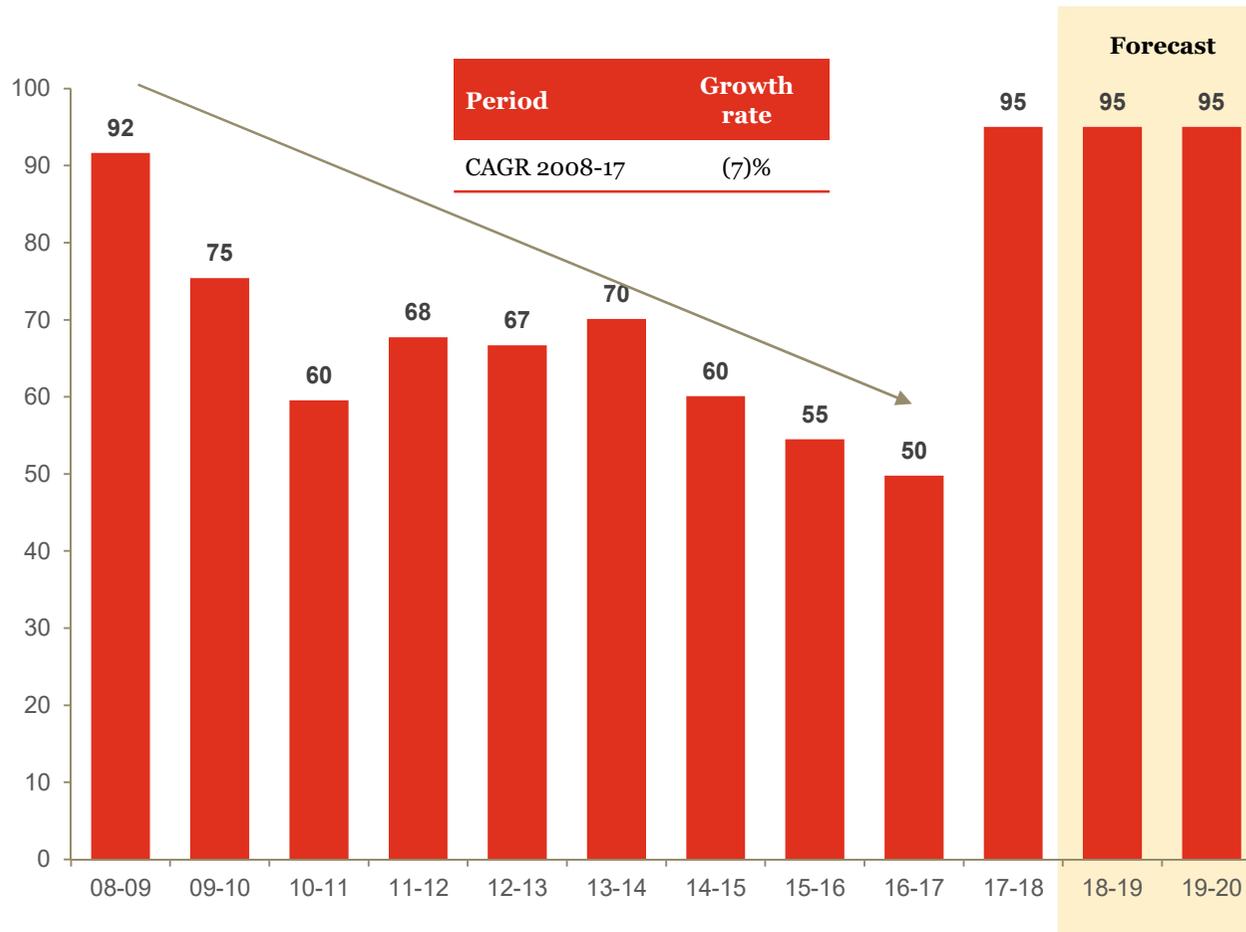
The Horserace Betting Levy Regulations 2017 came into force on 25th April 2017. The Regulations extend the Levy to all gambling operators offering bets on horseracing in Great Britain. The Levy is now calculated at a fixed rate – i.e. 10% of profits on leviable bets which exceed £500,000 in a Levy period.

The Government now intends to make changes to administering the Levy. These include transferring responsibility for collecting and enforcing the Levy to the Gambling Commission and electing a nominated British racing industry body to distribute Levy funds.

December 2017

However, levy revenue is dependent on the continued performance of gambling operators...

Horserace betting levy yield (£m)

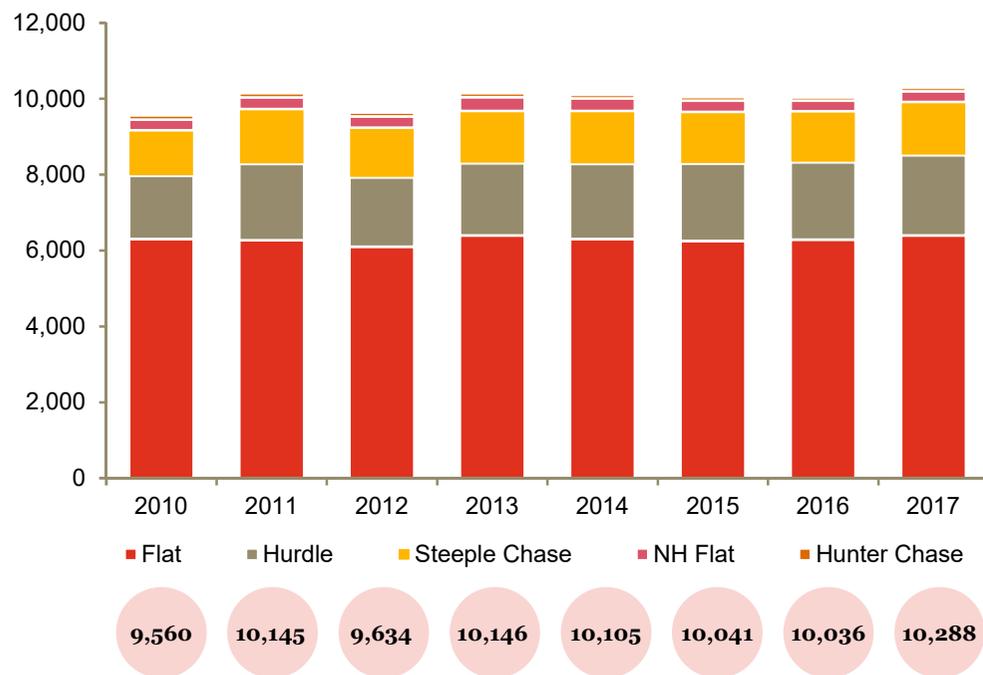


Source: EGR, HBLB, PwC analysis.

- Since 2008, the Levy yield has decreased at a CAGR of -7%, whilst the gambling industry has experienced sustained growth over the period. However, the betting levy reforms raised Levy yield to **£95m** in the last financial year.
- The amount of funding generated by the Levy depends on the gross operating profit of bookmakers, making the health of the sport inextricably linked to the performance of betting companies.
- While there are opportunities for gambling operators to grow to horseracing GGY, (for instance, growth of online markets and different in-play markets) they are also facing a number of regulatory pressures, such as the reduction in FOBT stakes. Industry forecasts suggest the levy yield will remain between **£90-100m** for next two years. However, estimates suggest that levy funding could fall by between **£10-15m** once FOBTs legislation has been implemented in 2020.
- In addition to impacting Levy income, FOBTs legislation could also reduce media rights payments made to the horseracing industry if it leads to betting shop closures. Given that betting shop media rights are responsible for more than half of media rights income, this could have a significant impact on the industry.
- The government has indicated that they are willing to make changes to the Levy in order to protect the current level of funding. Maintaining this level of funding will be essential in ensuring the continued sustainability of the horseracing industry.

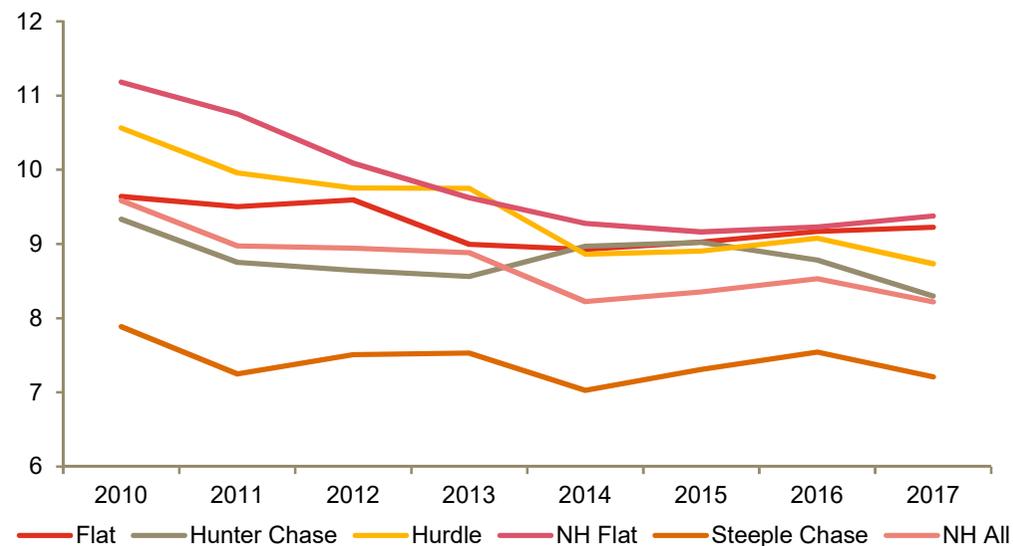
... and the racing industry's ability to supply 8 runners per race, which has been hampered by growing demand for races from the betting industry, and an inability to increase domestic production to meet this demand

Number of races by category



- Between 2013 and 2017 the number of Hunter Chase and NH Flat races fell by **15%** and **20%**, respectively.
- The number of Flat and Steeple Chase races have remained broadly consistent.
- While the number of Hurdle races increased by **11%**.

Runners per race/average field size

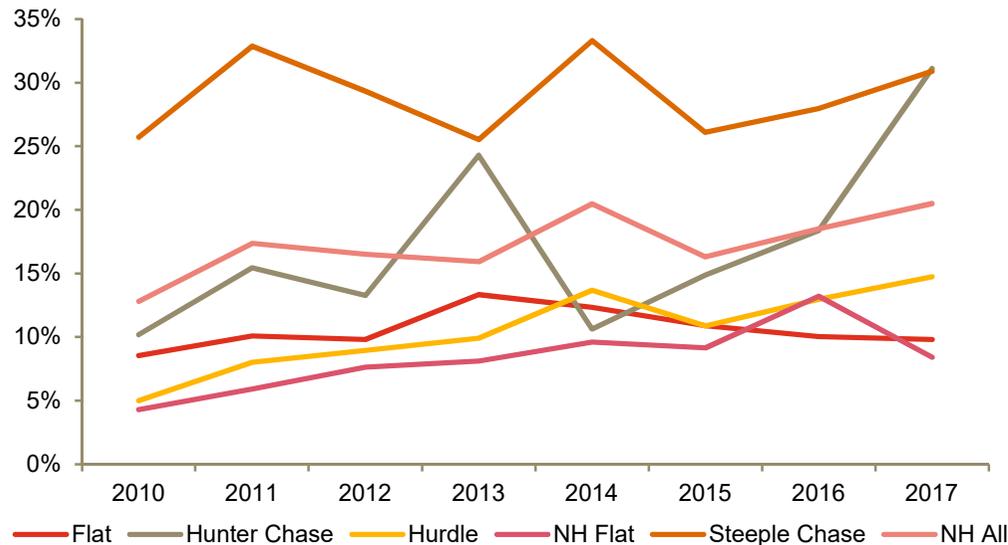


- Across all categories the number of runners per race has continued to follow the downward trend experienced since 2010.
- Between 2013-2017, the average runners per race decreased between **3-5%** for Hunter Chase, NH Flat and Steeple Chase races. This is perhaps due to the increased prize money within flat racing, which in turn may have impacted the number of NH runners per race.
- The number of runners per Flat race increased by **3%**.

Source: BHA, PwC analysis.

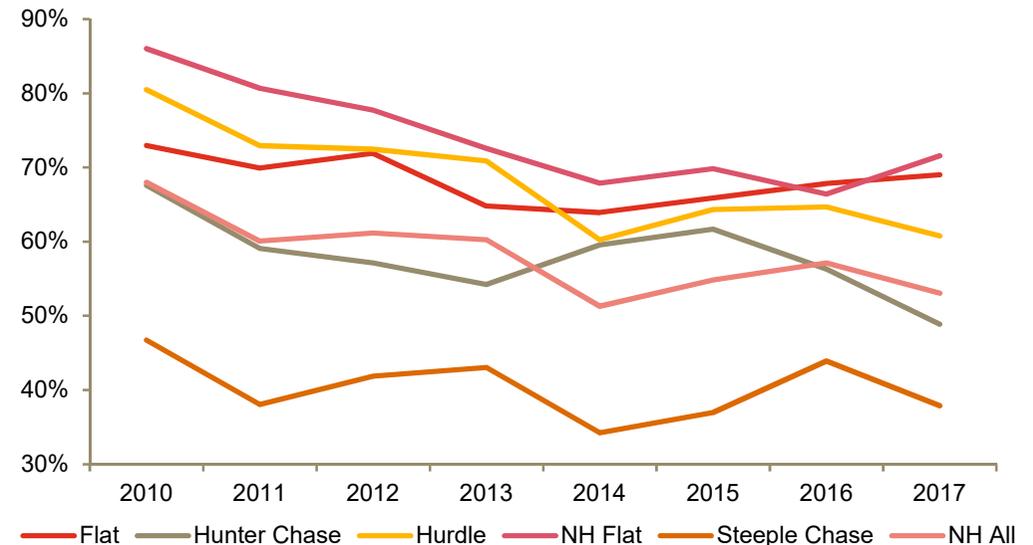
These trends have contributed to a higher proportion of NH races with fewer than 6 runners and a lower proportion of NH races with more than 8 runners

Percentage of races with less than 6 runners



- Since 2014 there has been a significant increase in the percentage of Hunter races with fewer than 6 runners in, increasing from 10% in 2014 to over 30% in 2017.

Percentage of races with more than 8 runners



- Since 2010 there has been 20% decrease in number of Hurdle races that have more than 8 runners, with 10% of the decline experienced since 2013. This decline is mirrored in NH Flat races which have experienced a 15% decline since 2010.
- The percentage of Flat races between 2010 and 2017 has remained broadly consistent around 70%.
- In Jan 2018, the BHA launched the 'Appearance Money Scheme' in an attempt to increase the average amount of runners per race. The scheme guarantees a payment of £300 to the top eight finishers in a race, thereby helping to cover the costs of travel and expenses.

Source: BHA, PwC analysis.

People

5.4



GB has some of the most talented breeding/racing staff in global racing, but both industries face substantial challenges in recruiting, retaining and upskilling staff...

What is the employment situation within the racing and breeding industries?

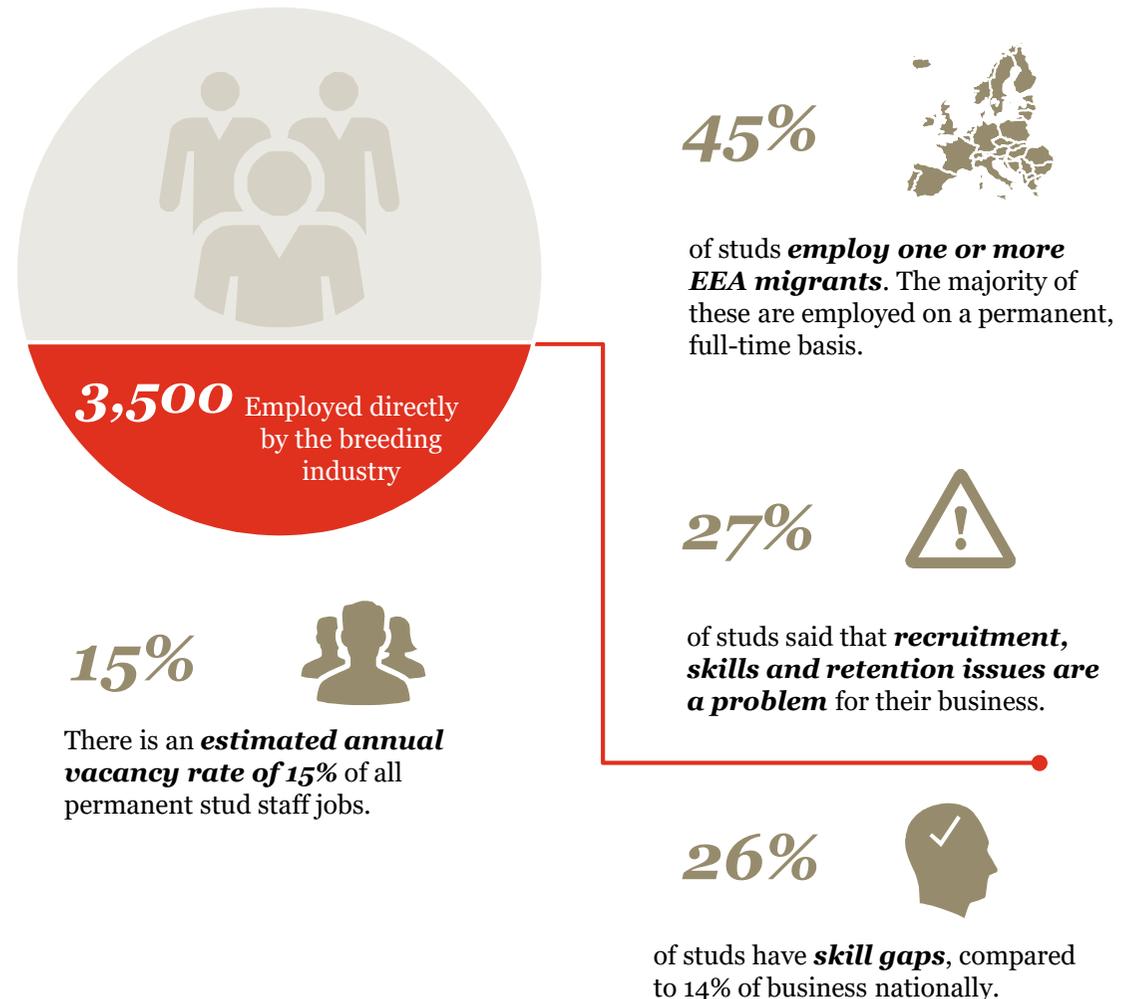
Britain has some of the most skilled breeding/racing staff in the world, with **14%** of top ranked horses trained within Britain. However, the racing industry is currently facing a staffing crisis. Despite **1,366 new joiners** to the industry last year (in part due to additional marketing and advertising from the BHA), there was still a relatively high churn rate amongst employees within the horseracing industry.

While the employment situation in the breeding industry is less severe, breeders still face a number of challenges in attracting and retaining staff. Due to the range of specialist skills needed to work in breeding, it is difficult for stud managers to replace employees when they leave the industry. For example, in a recent survey conducted by the Racing Foundation, **27% of studs** said that recruitment, skills and retention issues are a problem for their business. In the same piece of research, **26%** of studs stated that they have skills gaps, which is significantly higher than the national average of 14%.

These challenges could be impacted further by Brexit. The British thoroughbred breeding industry relies on global and European talent (e.g. **45%** of studs employ one or more EEA migrants), and hence restrictions on the free movement of people could exacerbate the existing staffing shortages.

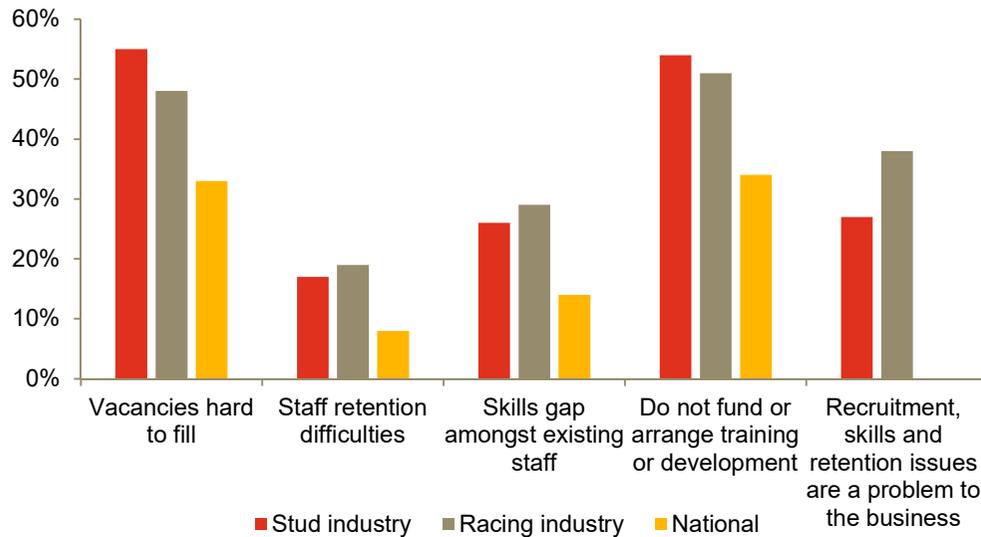
Source: Racing Foundation, TBA, PwC analysis.

Current employment statistics

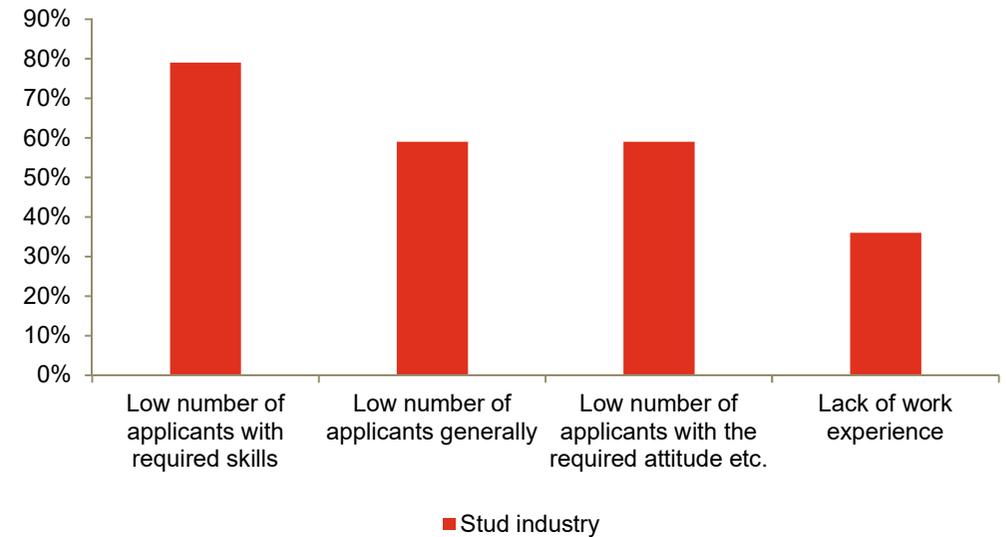


...These staffing issues are particularly profound when compared to businesses nationally

Percentage of companies facing recruitment, skills and retention issues



Reasons for hard-to-fill vacancies



- In a survey conducted by the Racing Foundation, it was found that **c. 55%** of permanent vacancies in studs are hard to fill, compared to only **33%** of businesses nationally
- The breeding industry was also over **twice as likely** to have issues retaining skilled staff compared to the national average (17% vs. 8%).

- The number of applicants with the appropriate skills, the number in general and lack of the required attitude were cited as the main reasons for hard-to-fill vacancies, with studs listing the number of candidates with the necessary skills as the most prominent factor (**c.79%**)

Source: Racing Foundation, TBA, PwC analysis.

The industry has introduced a number of initiatives in a bid to address these challenges, but more support is needed to avoid an employment crisis

What measures are the industry taking to improve recruitment, skills, career development and retention?

In order to improve the staffing situation, the BHA and several industry bodies have taken action to improve recruitment, skills, career development and retention within the industry, including:

- A three-year **£1m** proactive grant from the Racing Foundation to improve skills and retention within the breeding and racing industry;
- Stud staff training at the National Stud from stable staff to management level;
- Welfare and retention projects such as Occupational and Mental Health support; and
- The creation of new initiatives (e.g. Entry to Stud Employment Programme) to bring in new recruits to the industry who might otherwise be excluded from Apprenticeship criteria

Responses to PwC's survey of GB breeders

“The ability to employ experienced capable staff (and retain them) has become increasingly difficult in the last 5 years. Overseas workers are now very hard to attract and the majority of domestic workers do not want to work the hours associated with the industry.

Stud farm owner

“Other countries will have a stronger pool of people to look to. **Unless we can import quality staff the business will fail.**

Industry investor

“Finding good staff is becoming increasingly difficult. People don't want to be stud workers. They don't like the long hours or weekend work. However the truth is very different. Salaries are reasonable. Accommodation is usually free and the opportunities are good, especially for young people.

Stud farm manager

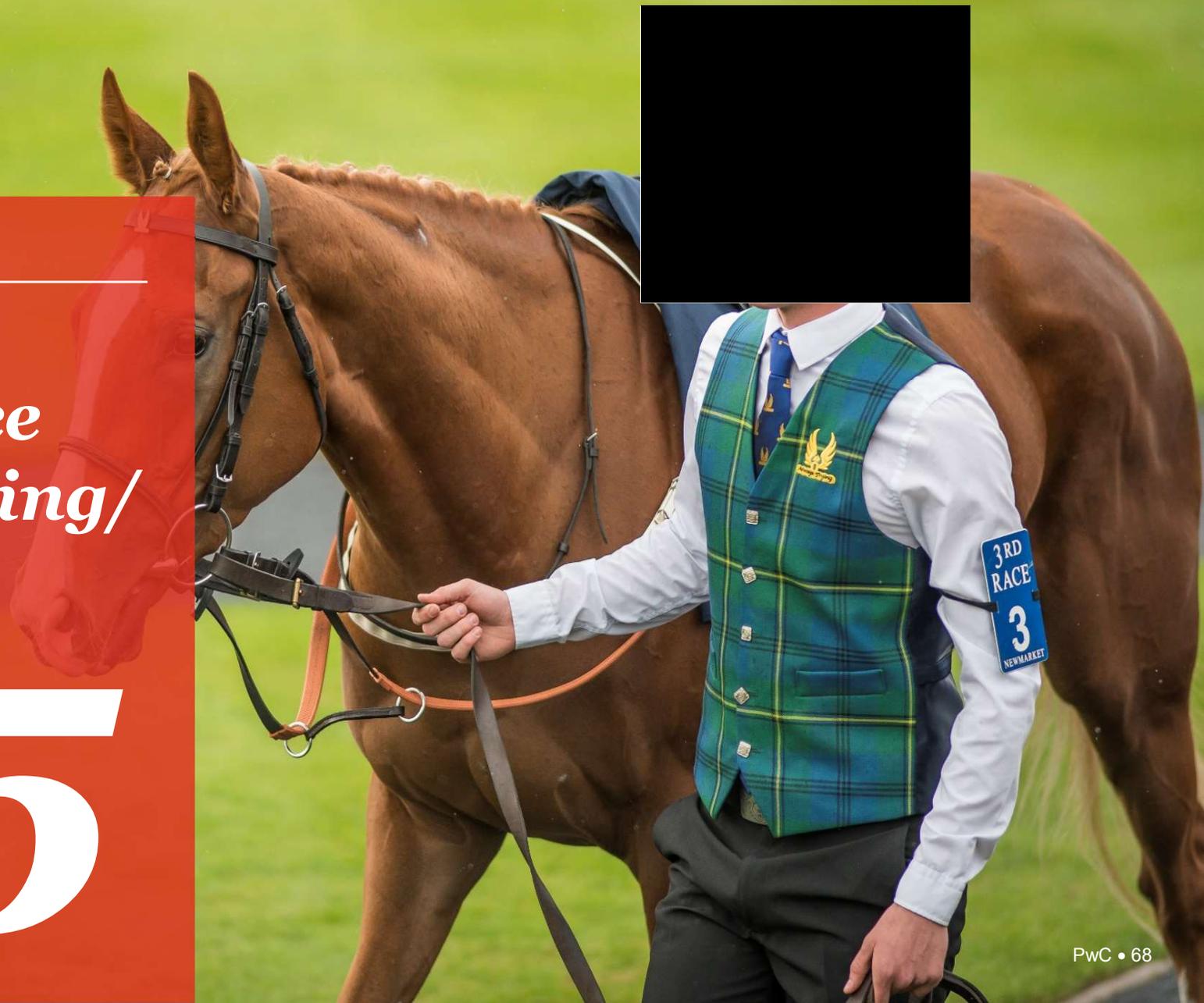
“Attracting good quality staff is very difficult.

Stud farm owner



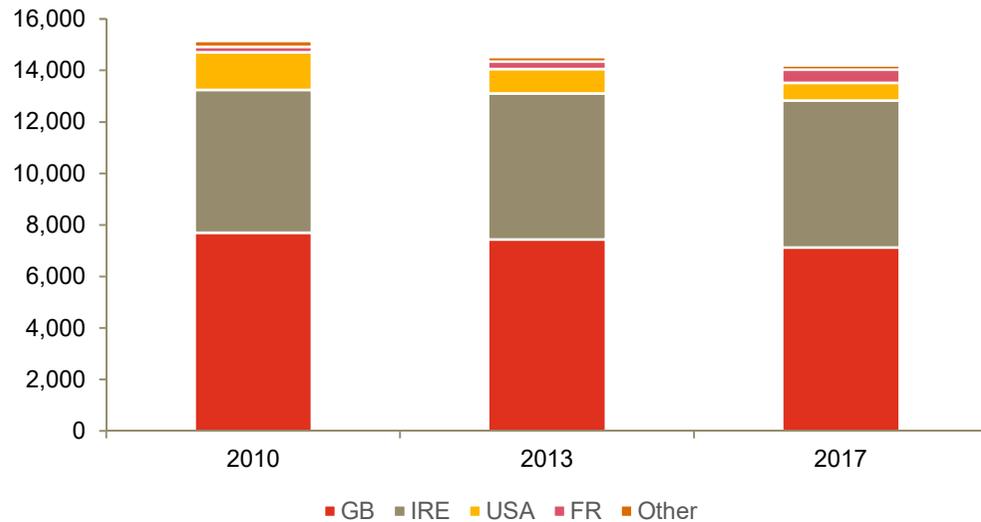
Trade performance of GB breeding/racing

5.5



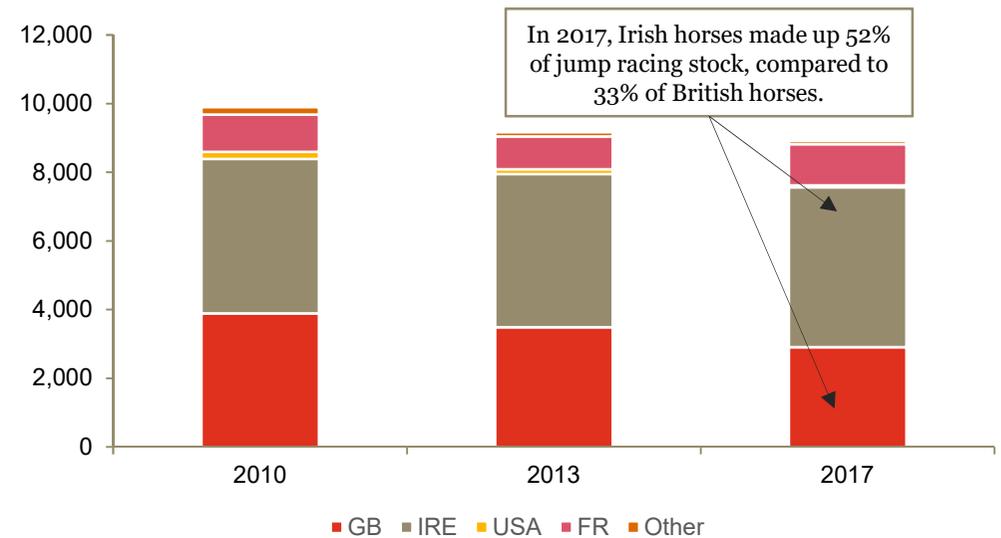
GB is becoming increasingly reliant on foreign horses to meet the demands of the racing calendar, particularly in National Hunt where over half of all horses in training are Irish

Annual horses in training by nationality (flat)¹



- Since 2013, GB has largely maintained its **50%** share of the total flat racing stock.
- Similarly, Irish-bred horses have continued to constitute approximately **40%** of all flat horses in training.

Annual horses in training by nationality (jump)¹



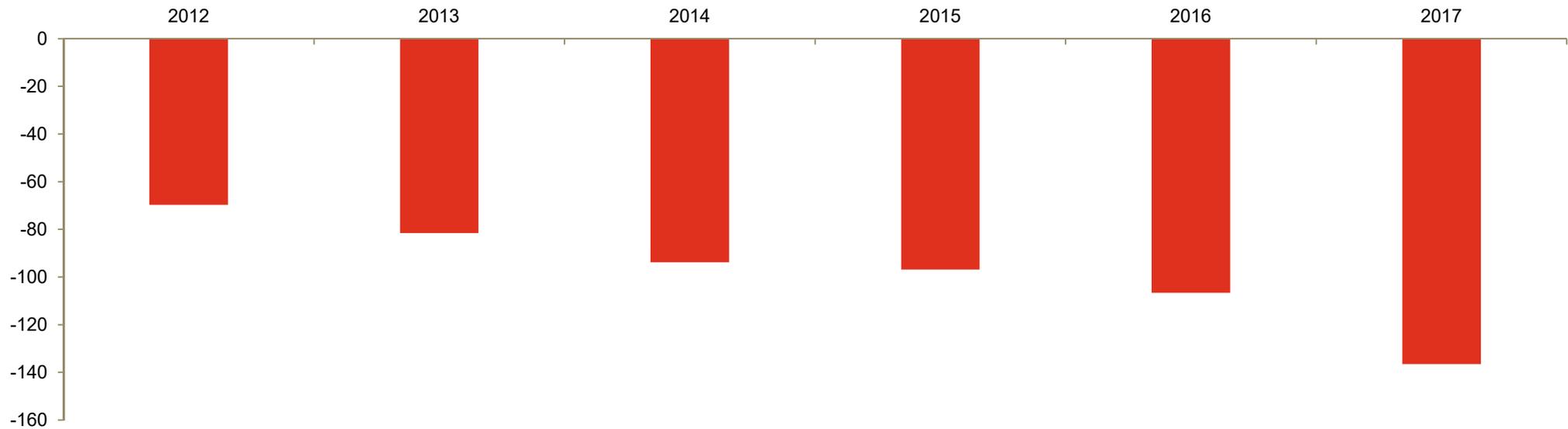
- In contrast, the reliance on foreign horses to sustain the jump racing calendar has increased since 2013, with **Irish horses now constituting over 50%** of all jump horses in training.
- In 2017, GB horses made up approximately one-third of all jump racing stock, declining by **5** percentage points since 2013.
- The uptick in the number of Irish jump horses in GB training is perhaps influenced by the rising unprofitability of producing a national hunt horse, which has forced many GB breeders to leave the industry. Moreover, improved returns within flat racing has meant that over three quarters of all foals, as highlighted previously, are now intended for a career in flat. This has increased the gap between the supply of, and demand for, national hunt horses.

Note: ¹We have excluded 'NULL' horses from this analysis.

Source: BHA, PwC analysis.

Since 2012, GB's thoroughbred trade deficit has almost doubled in size, as the value of imports has grown at a faster rate than that of exports

Net trade position (exports – imports) of GB thoroughbreds sold¹ at auction (£m)



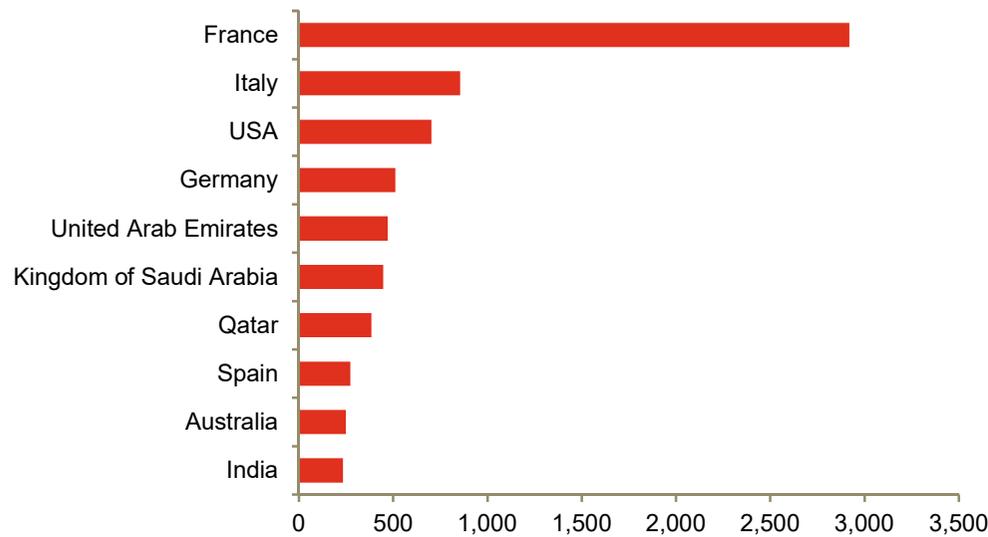
Total value of GB imports (£m)	148	177	194	190	204	265
Total value of GB exports (£m)	79	95	100	93	97	128
Net trade balance (£m)	-70	-82	-94	-97	-107	-137

Note: The value of GB thoroughbred imports/exports has been aggregated from two separate data sources. Due to data availability, the value of thoroughbreds imported/exported from Ireland has been calculated from Tattersalls/Goffs accounts, whilst the value of imports/exports from every other country has been taken from Weatherbys' data. This is because horses travelling between the UK and Ireland are not recorded under the General Stud Book area and hence do not appear in Weatherbys' records.

Source: Weatherbys, Tattersalls, Goffs, PwC analysis.

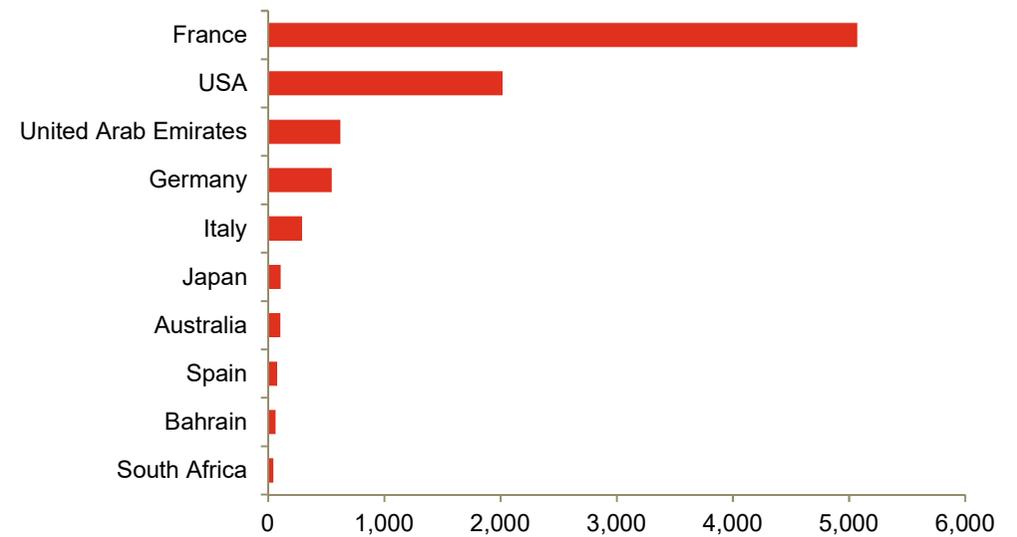
Between 2013 - 2017, Great Britain exported the highest number of horses to France, Italy and the USA¹ (excluding Ireland)

Top 10 Export countries for GB bred horses sold at auction based on total amount exported between 2013-2017¹



- Between 2013 and 2017 GB exported approximately **8,900** horses¹. However this analysis does not include GB's main trade partner, Ireland, because horse movements between the UK and Ireland are not recorded in the Weatherbys General Stud Book.
- Over this period, France imported the largest amount of GB-bred horses, at **c.3,000**.
- Italy imported the second largest amount, at approximately **850**.

Top 10 Import countries for GB bred horses sold at auction based on total amount imported between 2013-2017¹



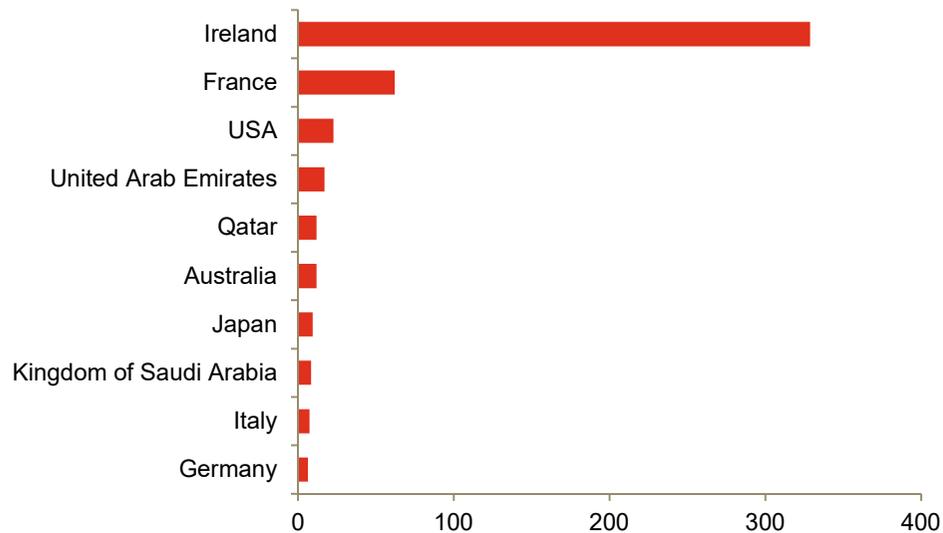
- The vast majority of imports were from the USA and France, which collectively made up over **85%** of total imports.

Note ¹This analysis does not include Ireland as horse movements between the UK and Ireland are not recorded in the Weatherbys General Stud Book.

Source: Weatherbys, PwC analysis.

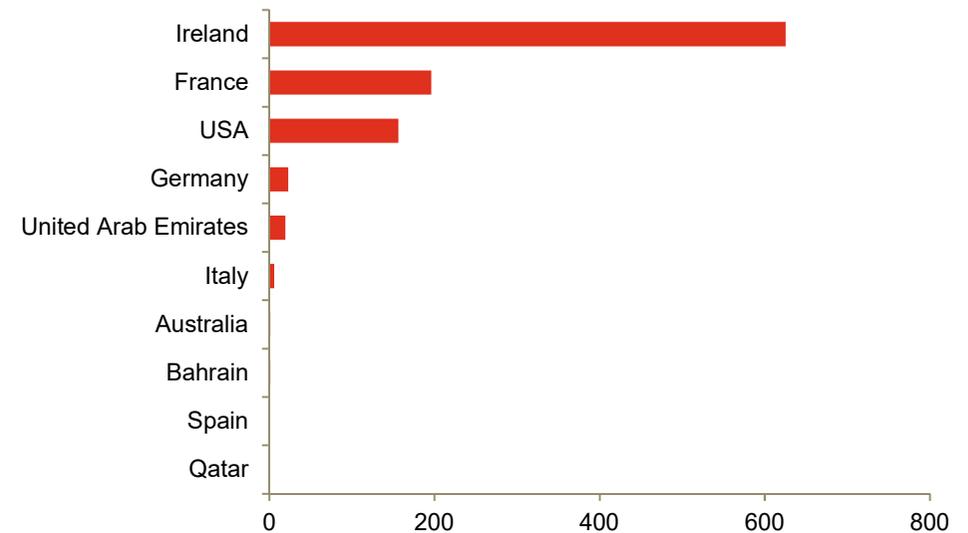
In terms of value, Ireland, France and USA were Britain's dominant trade partners over a four year period

Top 10 Export countries for GB bred horses sold at auction based on total sales value between 2013-2017 (£m)¹



- Between 2013 and 2017 GB exported approximately **£514m** in thoroughbreds.
- Across the same time period, Ireland spent the largest amount on GB-bred horses at more than **£328m**.
- France spent the second highest amount on GB-bred horses, at almost **£62m**.

Top 10 Import countries for horses sold at auction based on total sales value between 2013-2017 (£m)¹



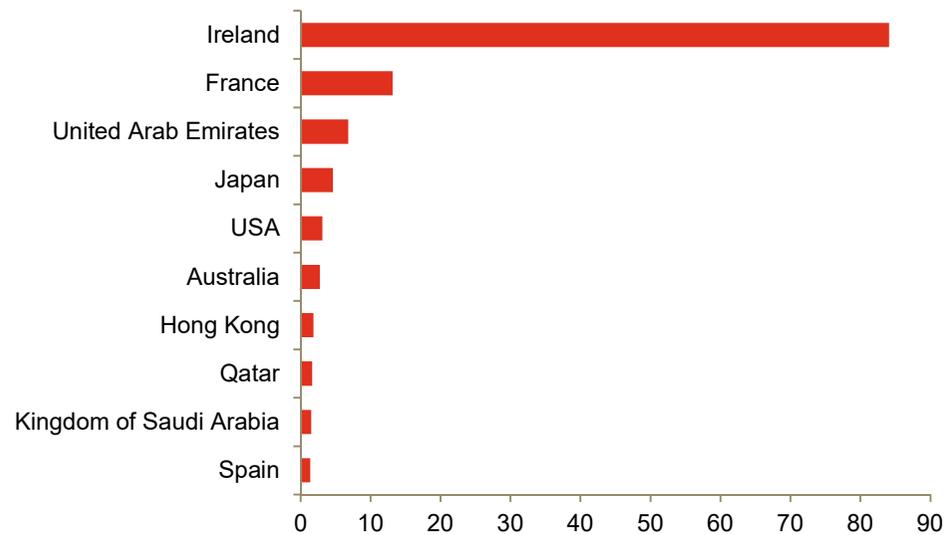
- The vast majority of imports were from Ireland, which makes up over **61%** of total imports.

Note ¹Data for Ireland has been aggregated from Tattersalls and Goffs as movements of horses between the UK and Ireland are not recorded in the Weatherbys General Stud Book

Source: Weatherbys, Tattersalls, Goffs, PwC analysis.

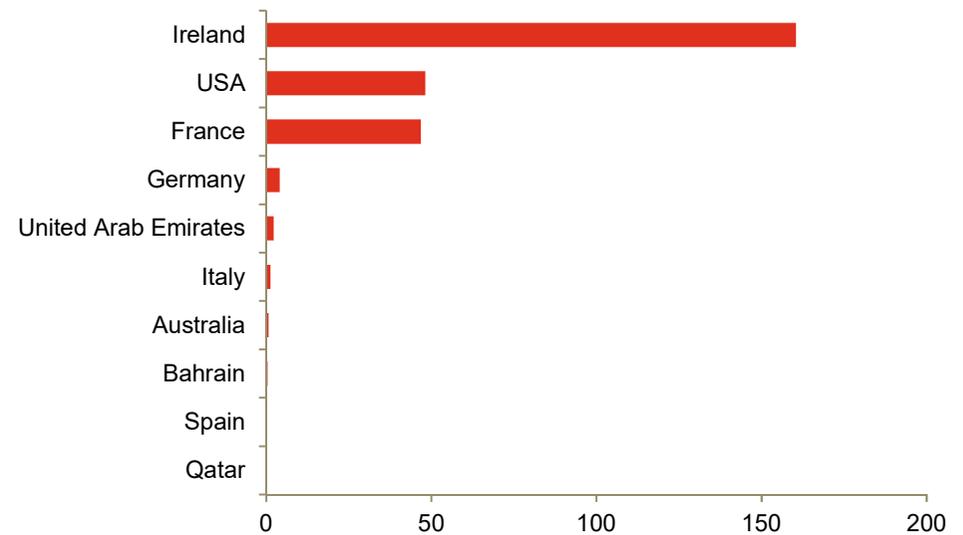
In 2017, the value of Great Britain's imports was over 100% higher than that of its exports, largely due to spending on Irish thoroughbreds

Top 10 Export countries of GB bred horses sold at auction by total sales (£m, 2017)¹



- In 2017, Great Britain exported over **£128m** worth of thoroughbreds to 55 countries.
- Over the year, Ireland spent the largest amount on GB-bred horses, at more than **£84m** (equivalent to 66% of Great Britain's total exports that year).
- France spent the second highest amount on GB-bred horses, at **~£13m**.

Top 10 Import countries for horses sold at auction by total sales (£m, 2017)¹



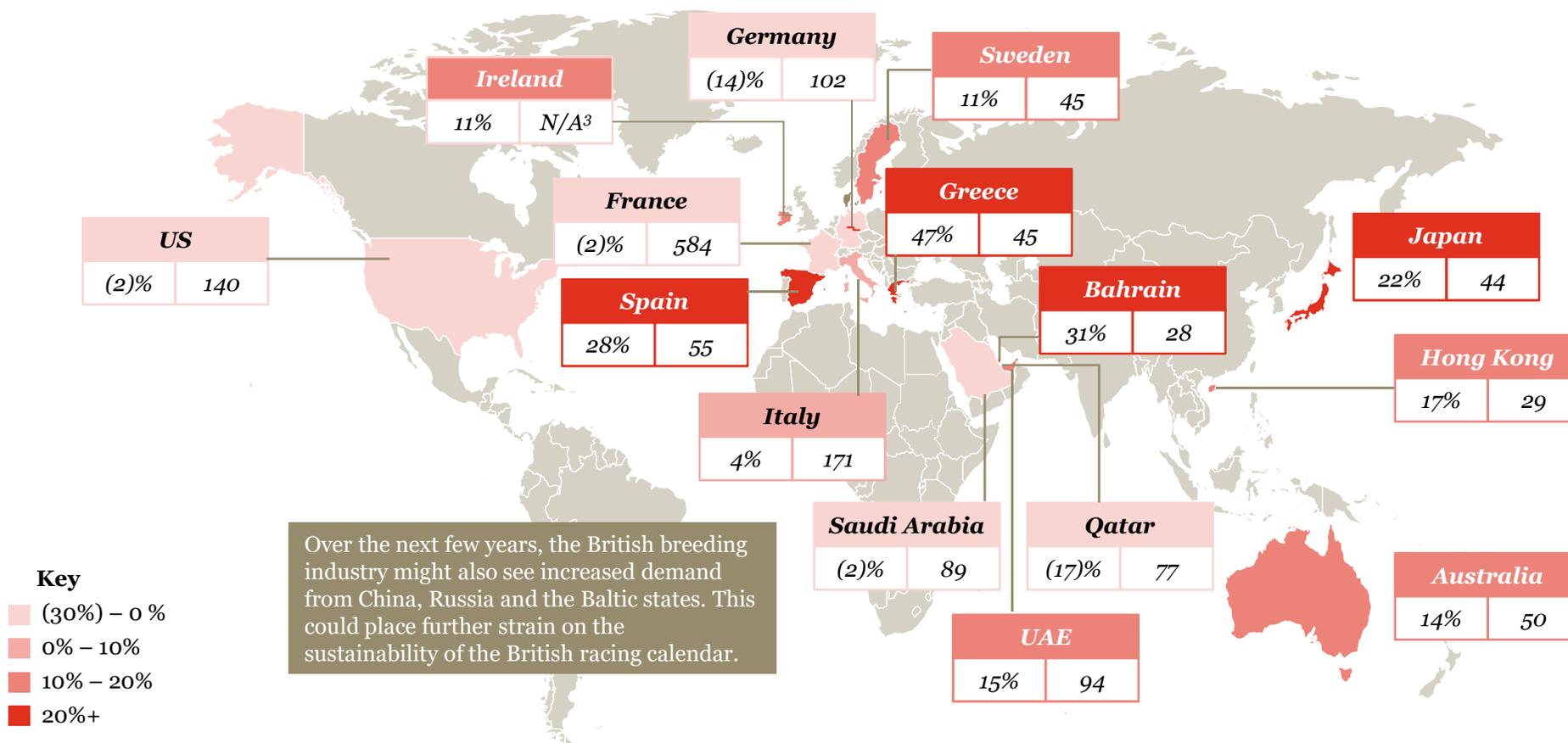
- However, despite exporting a significant amount of thoroughbreds, Great Britain remains a large net importer of horses, with import sales totaling over **£264m** in 2017.
- The vast majority of these imports were from Ireland, which made up **c.61%** of total imports.

Note ¹Data for Ireland has been aggregated from Tattersalls and Goffs as movements of horses between the UK and Ireland are not recorded in the Weatherbys General Stud Book.

Source: Weatherbys, Tattersalls, Goffs, PwC analysis.

However, over the past four years, Britain's thoroughbred export market has grown, with the highest growth in large export markets (in terms of value) being seen in Japan, Hong Kong and the UAE

Top 15 Export countries¹, export value CAGR (2013-17) and average annual number of horses exported (2013-17)²



¹Note This is based on the largest 15 exporters of GB-bred horses in terms of sales value in 2017.

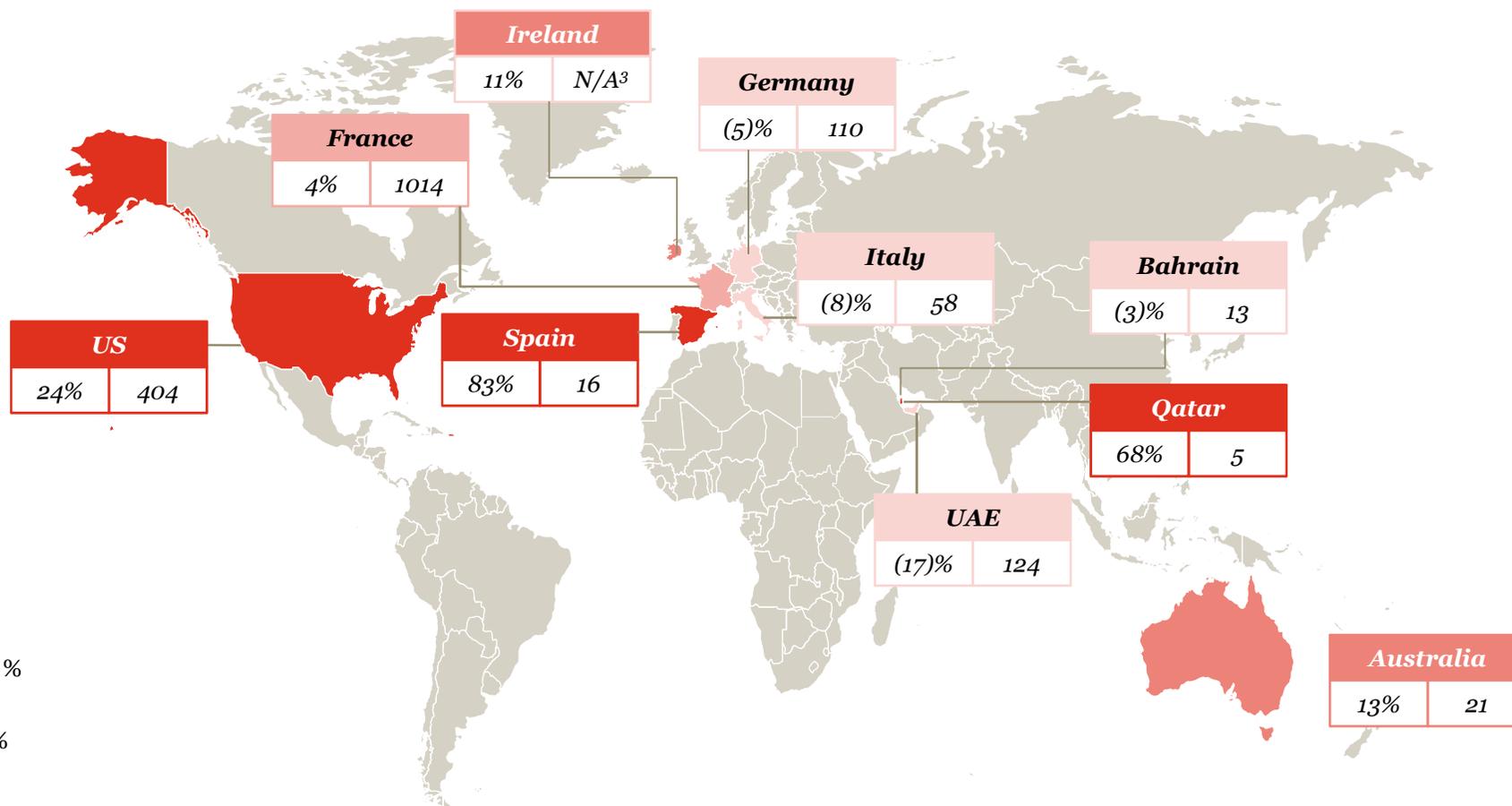
²Average annual number of GB-bred horses permanently exported between 2013-2017.

³The number of horse movements between the UK and Ireland are not recorded in the Weatherbys General Stud Book.

Source: Weatherbys, Tattersalls, Goffs, PwC analysis.

Although, this growth has been outstripped by Great Britain's import market, with Ireland alone seeing a c.£28m increase in its annual thoroughbred exports between 2013 and 2017

Top 10 Import countries¹, import value CAGR (2013-17) and average annual number of horses imported (2013-17)²



Note ¹This is based on the largest 10 importers of GB-bred horses in terms of sales value in 2017. We have not covered the top 15 due to the small amount of imports from countries ranked 10-15.

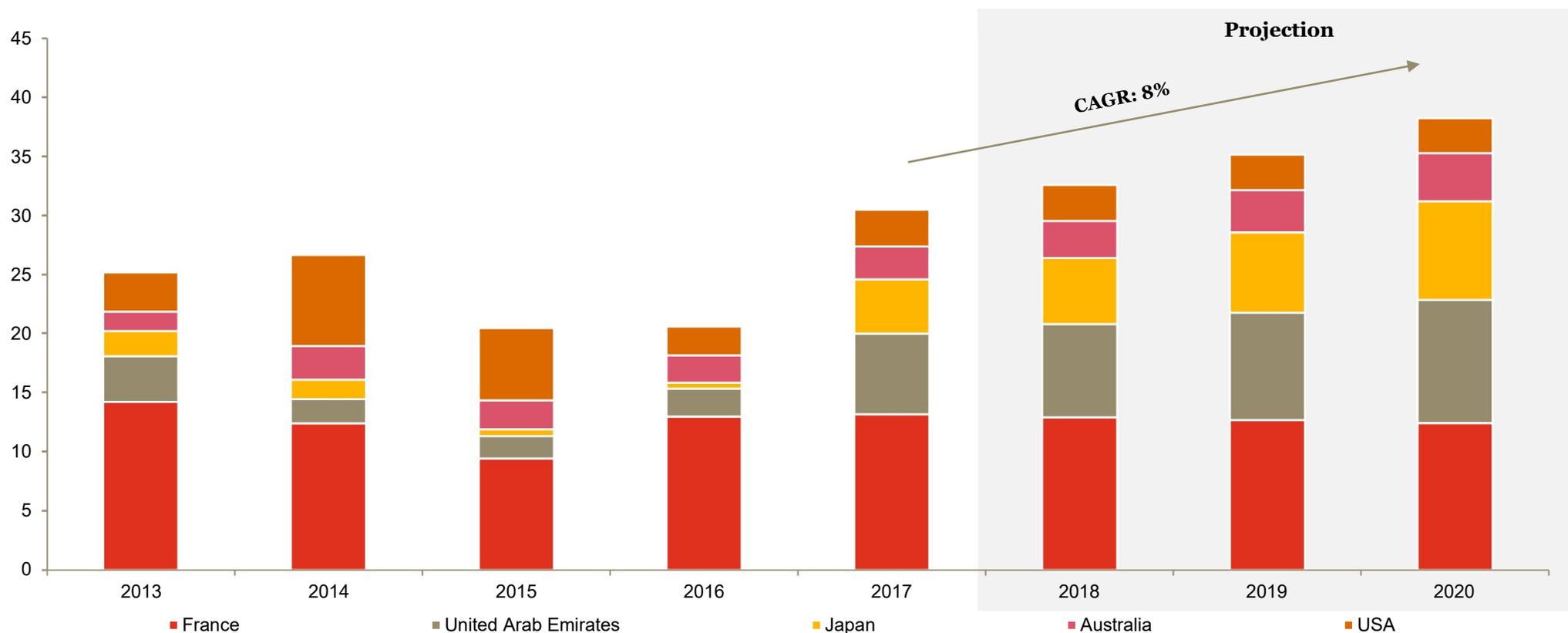
²Average annual number of GB-bred horses permanently imported between 2013-2017.

³ movements of horses between the UK and Ireland are not recorded in the Weatherbys General Stud Book.

Source: Weatherbys, Tattersalls, Goffs, PwC analysis.

Based on recent growth rates, exports to GB's top 5 markets (excl. Ireland) could increase by 8% per year over the next 3 years – potentially placing further strain on Britain's ability to sustain the racing calendar

Growth projection for GB's top 5 export markets (£m)



We've projected exports for GB's top 5 export markets (by total sales in 2017) based on historical compound annual growth rates. When combined this results in a CAGR of **8%** across the 5 markets. If this sales growth rate is maintained this will result in an additional £8m in sales from these markets by 2020. However, an increase in the amount of thoroughbred stock being exported could further hinder Britain's ability to meet the demands of the racing calendar.

Source: Weatherbys, PwC analysis.

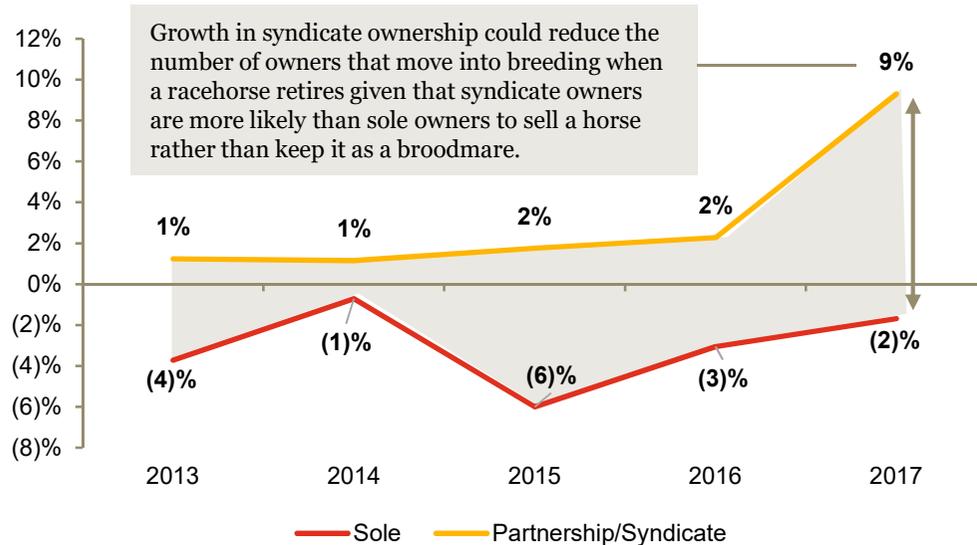


*Trends in
racehorse
ownership*

5.6

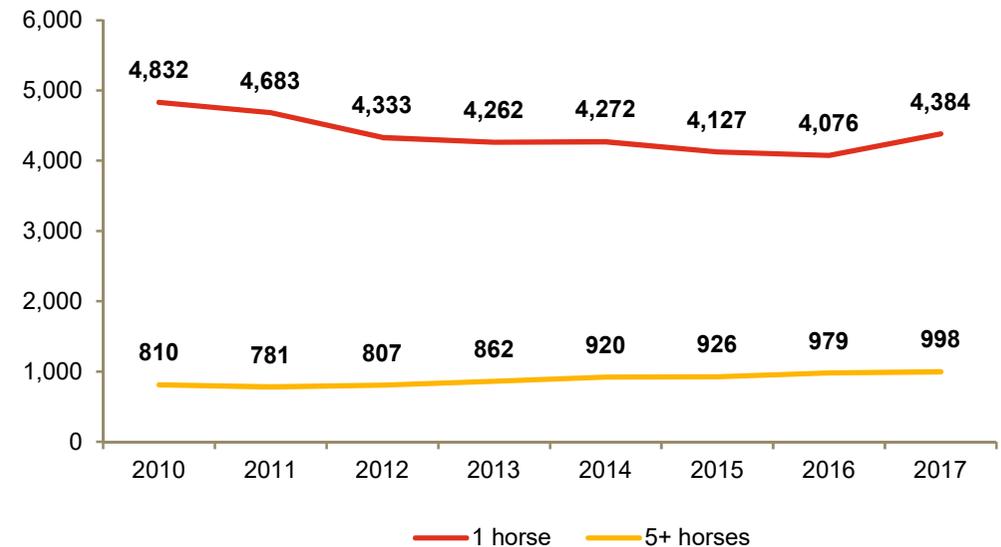
Rising financial costs are changing the nature of horse ownership. This in turn could impact the number of owners that transition racehorses into breeding upon retirement

Percentage change in the number of sole and partnership/syndicate owners



- Over the past four years, the number of sole owners within the industry has fallen at an average annual rate of **3%**.
- In contrast, the number of owners who are part of a partnership or syndicate has risen at an average annual rate of **3%**, with a **9** percentage point spike in 2017.
- One reason for the gradual decline of sole ownership has been the rising financial costs associated with owning a thoroughbred, which has increasingly driven sole owners with a small number of horses to join partnerships/syndicates in order to spread their expenses.

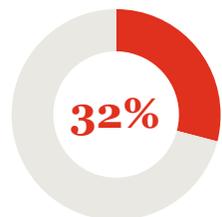
Number of owners by number of horses owned



- Weakened financial returns might have also contributed to the decline in the number of owners who own a single thoroughbred (which has seen a CAGR of **-1%** since 2010).
- In contrast, the number of owners with over **5 horses** has seen a CAGR of **3%** over the same period, suggesting that whilst return on investment for small owners has diminished, this might not necessarily be the case for larger owners.
- However, the **8%** uptick in 2016-17 for owners who have a single thoroughbred might suggest that this trend is starting to reverse, as a result of industry incentives and initiatives.

Source: Racehorse Owners Association, BHA, PwC Analysis.

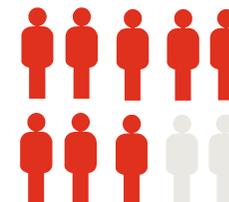
To address financial pressures the BHA have introduced a number of new initiatives. They have yet to take effect but can be expected to improve the returns to ownership



32% of jump horses have **0** annual winnings



8p – the average flat horse (typically running in class 5 races) **returns 8p** in every pound to owners



80% of lapsed owners cited “the cost of keeping a horse in training” as an important factor in their decision to stop owning

What are the current issues facing owners within the industry?

Since 2008, the industry has been losing more owners than it has been acquiring. According to the 2016 Racehorse Owners Survey, the main reason for this is the substantial increase in the cost of ownership¹, which hasn't been reciprocated with a similar increase in average prize funds or additional funding. As such, the nature of ownership is changing, with many small owners having to either exit the industry or join a Partnership/Syndicate. Below, we have noted the three main concerns:



Lack of prize money



The financial costs of owning a horse and keeping it in training



Ownership experience – both at racecourses and with trainers

To address these concerns, the industry has been working on several initiatives:

- 1. Appearance Money Scheme (AMS)** – this will guarantee that a horse finishing in 1st to 8th place will receive a minimum of £300 (Flat) and £350 (Jump), to help to cover travel/race expenses.
- 2. Offer top up payments** to racecourses that invest their own funds in prize money over and above the minimum value required. This will cover Classes 4 to 6 on the Flat and Classes 3 to 5 over Jumps.
- 3. Explore future Prize Money Agreements (PMAs)** to extend to incorporate wider considerations such as investment in the ownership experience, the level of owners' stakes, increased flexibility re distribution of prizemoney, and horsemen promotional support both pre and post-race.
- 4. An Ownership strategy for British racing** is being led by the Racehorse Owners Association, backed by widespread industry support. The strategy has been successful in an application for a £860,000 grant from the Levy Board to assist its implementation.

Note – ¹Over 80% of lapsed owners cited ‘Cost of keeping a horse in training’ as ‘Extremely Important’ in their decision to stop owning, more than any other reason.

Source: BHA, Racecourse Owners Survey, PwC analysis

Brexit

5.7

Brexit presents a disruptive challenge to the GB breeding industry, impacting four key economic components

Brexit

Policy

The tripartite agreement (TPA)

The TPA guarantees the free movement of horses between Britain, France and Ireland for breeding and racing purposes (subject to health checks).

Key issues

- The TPA will hold throughout the transition period which has reduced uncertainty in the industry.
- Under a Hard Brexit scenario¹, in which GB's access to the single market is reduced and no agreement is reached to continue the TPA, thoroughbred movements will require veterinary health checks and temporary admission documents.
- However, if the TPA has to be renegotiated after Brexit, this could enable it to be extended to other countries that demonstrate equally high levels of welfare.

Trade

Imports/Exports

The British racing industry requires a significant amount of horse imports in order to sustain its racing calendar. High quality British thoroughbreds are also highly sought after by foreign investors.

Key issues

- Britain relies heavily on horses from Ireland and France in order to sustain its racing calendar. If tariffs are imposed on Geldings under a Hard Brexit scenario this could reduce the amount of EU vendors selling at British auction houses and vice versa. This would place additional strain on the supply chain and make it more difficult to meet the demands of the racing calendar.

Finance

Investment

The economic performance of the horseracing and breeding industries is closely tied to the performance of the overall economy. Should the economic outlook worsen this could impact demand for thoroughbreds and Brexit-induced uncertainty could deter further investment in the industry.

Key issues

- Economic forecasts suggested that under a Hard Brexit scenario, confidence in the UK economy could dampen with GDP growth potentially slowing as a result.
- As horseracing/breeding is a luxury product, investment in the industry could stagnate as real disposable income falls.

People

Free movement of people

The racing industry is heavily reliant upon the temporary and permanent movement of people between EEA countries.

Key issues

If movement is restricted it could further exacerbate the current employment issues faced by the industry.

- This could be particularly significant for staff that accompany horses travelling overseas for breeding/racing purposes. For example, will they require a visa for short-term travel?
- If staff require visas, this would increase costs and could potentially have negative consequences for the racing product as this may deter owners from entering their horses in overseas races.

Note – ¹In this paper, a Hard Brexit refers to a scenario in which the UK no longer has full access to the single market and reverts to trading under WTO rules. Restrictions are also applied to the movement of labour between the UK and EU.

Changes to the Tripartite Agreement could have a significant impact on the industry's ability to sustain the current racing calendar, but it could also present some opportunities if extended to new countries

What impact could the dissolution of the Tripartite Agreement have on the industry?

Over **27,000** horses travel between GB, Ireland and France every year (**c.87%** of total movement across the EU). If restrictions were placed on travel between these countries it would have a marked impact on the breeding and racing industries of all three countries. In particular, we believe the following are chief concerns:

Given GB's reliance on foreign thoroughbreds to sustain its racing calendar (e.g. **over 50% of current jump horses in training are Irish**), there could be substantial repercussions for the racing product if freedom of movement is not upheld.

There are also worries over whether animal health legislation enshrined within the TPA (such as recognition of Weatherby's Stud Book) will continue following Brexit. This legislation guarantees that racing and breeding stock transported between the three countries is of the demonstrably higher health than the general horse population. But if the TPA was opened up to other countries this could be at risk.

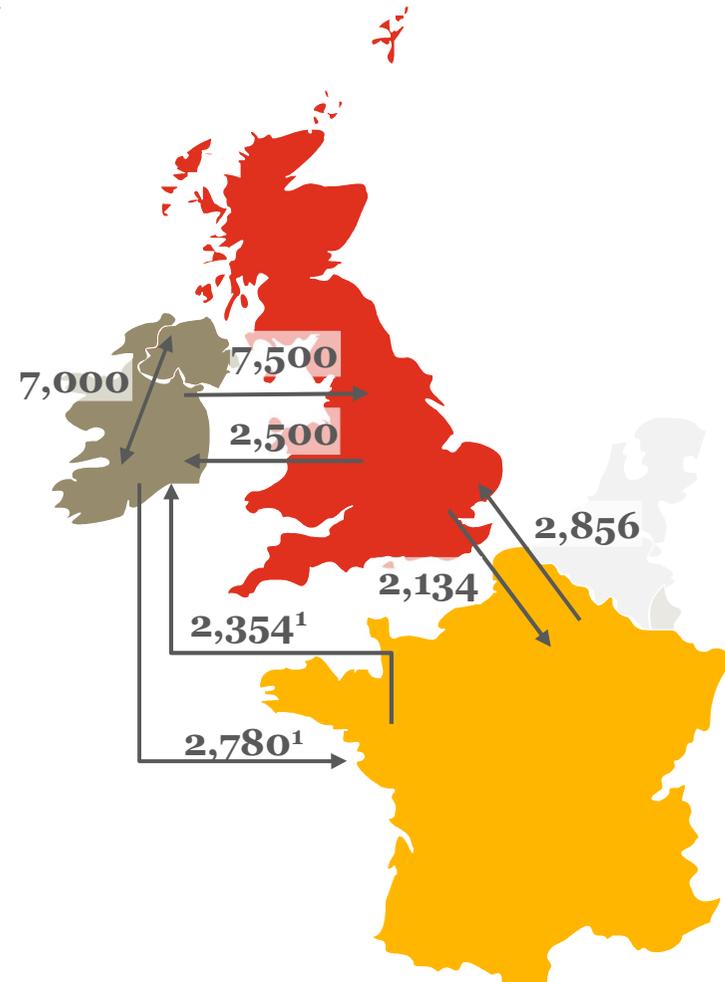
What opportunities does Brexit present for the Tripartite agreement?

1. Given that the TPA is likely to be renegotiated, and potentially even require completely new legislation, this will enable industry bodies to amend and improve several elements of the TPA.
2. Brexit could also provide the opportunity for other countries to enter into the agreement, which could in turn support growth in the racing industry.

Note - ¹It is important to note that the vast majority of transports between France and Ireland are via GB.

Source: Weatherbys

Thoroughbred movement between Ireland, France and Britain under the TPA



Brexit could exacerbate the current employment crisis faced by the breeding and wider racing industry if restrictions are placed on racing talent

How could Brexit affect employment within the Thoroughbred racing and breeding industries?

British racing employs over **20,000** people across 60 licensed racecourses, hundreds of training yards and thousands of breeding operations. Recruitment within horseracing is often difficult due to the technical nature of jobs within the industry, and as such, it is critically important that Britain has access to the best pool of international talent. Brexit could impact the workforce in the followings ways:

1. If the status of current EEA workers is comprised in a post-Brexit immigration system, **this would exacerbate the current shortfall within the industry** (currently **11%** of racing groom roles are drawn from 23 EEA countries, and **45%** of studs employ one or more EEA migrants.). As a result, this might threaten the viability of trainers' businesses, potentially compromising the safety and welfare of horses and staff, and undermining British racing's world-leading status for racehorse training.
2. As of 2011, work riders and stud grooms are no longer on the Migration Advisory Committee's Shortage Occupation List. Should further restrictions be placed on migrants from EEA countries, this would further reduce the industry's access to the best international talent.
3. People travelling with horses (either for racing or breeding) could be subject to **temporary visas for short-term movement**. This will result in visa costs plus the administrative cost of obtaining a short-stay visa.

Current employment statistics



11% of racing groom roles are drawn from 23 EEA countries



Of these, approximately **39%** are from the Republic of Ireland



Our initial estimates suggest that the imposition of short-term visas on all transit staff could cost the industry an additional **£1.7m** a year¹

Note - ¹To calculate £1.7m we took the following steps:

- Took the amount of horses (c.10,000) travelling between Fr, Ire, and GB every year from Weatherbys.
- Assumed that 2 people would travel with each horse (e.g. driver and carer) to get 20,000 people requiring visas each year.
- Applied a short term visa and administration cost (i.e. time it takes to apply for the visa) for each person to get an estimate of c. £1.7m per year.

Source: BHA, PwC analysis

Tariffs on Irish exports could be particularly impactful given the need for imports to sustain the GB racing calendar

How could Brexit impact thoroughbred trade?

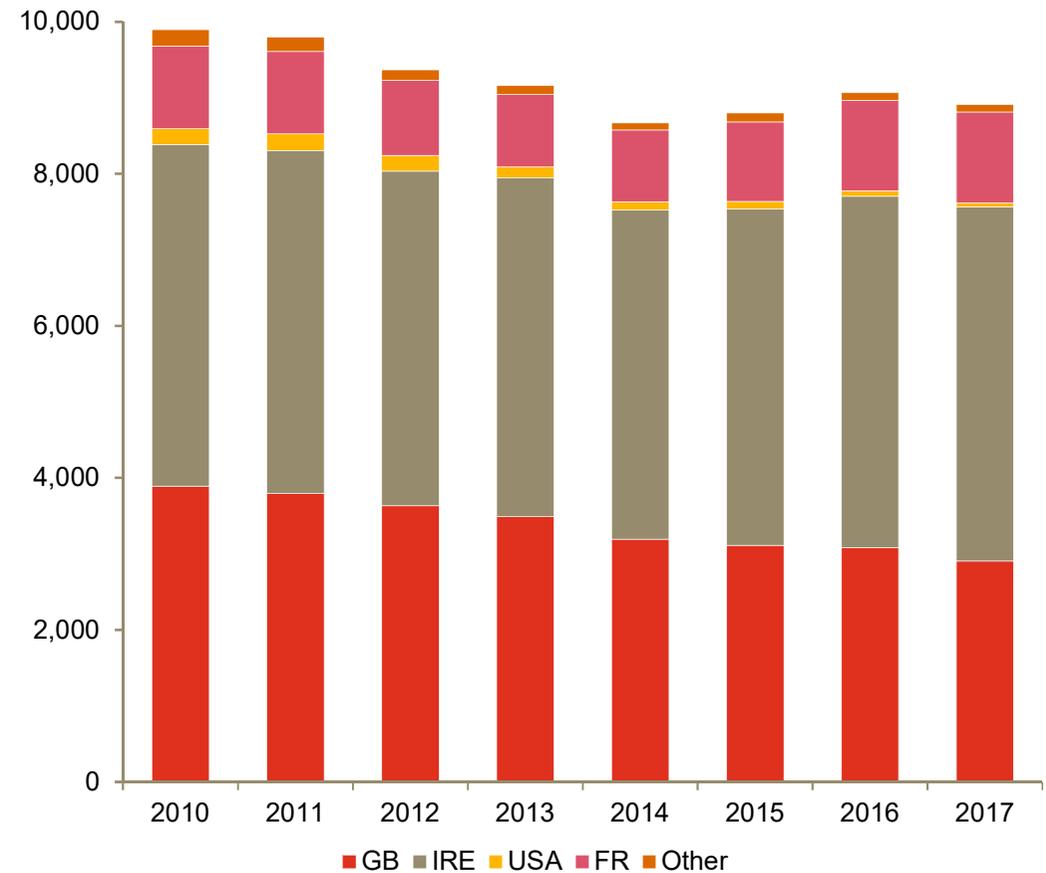
GB is a net importer of horses given that the breeding industry does not produce enough supply to meet the demands of the racing calendar. As such, Brexit could affect the thoroughbred import and export market as follows:

1. A significant amount of horses sold in GB auction houses are foreign horses, the majority of which are Irish. Under a Hard Brexit scenario, geldings from outside GB could become subject to an 11.5% tariff rate, which will add additional costs to trade and could impact the prices received by breeders. This could compromise GB's ability to sustain the racing programme and it would be particularly impactful for jump racing given that **Irish horses make up just over half (52%) of all jump horses in training.**
2. However, some industry participants have argued in favour of tariffs to protect the industry and help GB breeders to compete against overseas industries.

How could consumer confidence impact the industry?

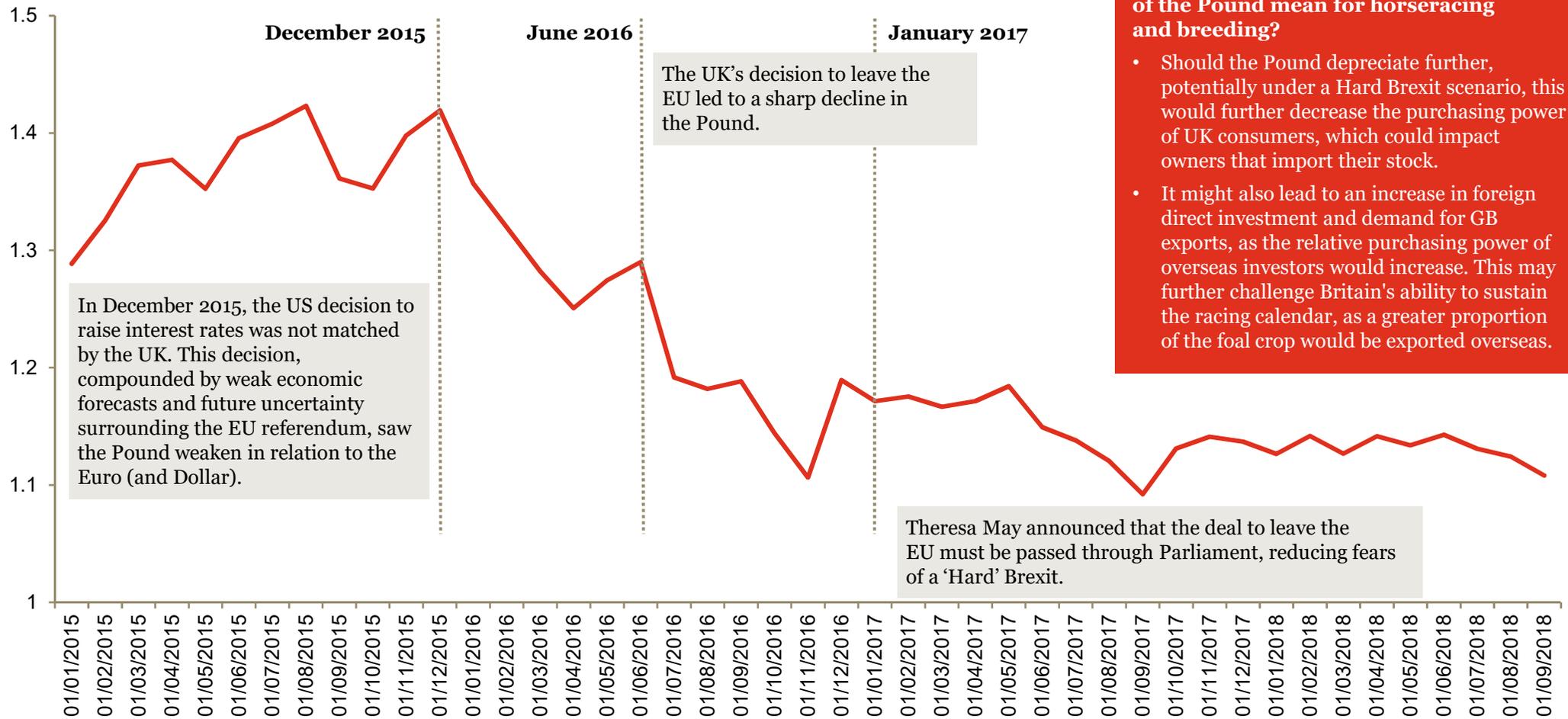
The health of the bloodstock market is typically linked to the economy. Should the UK undergo a Hard Brexit, consumer confidence might weaken which could lead to a decline in the amount spent on thoroughbreds (given that it is a luxury product). As a result, overall investment within the industry would fall which would consequently affect the net income of breeders.

Number of horses in training by nationality (jump)



This could be worsened with the depreciation of sterling following Britain's exit from the EU, which could further reduce the purchasing power of GB buyers and subsequently increased demand for GB thoroughbred exports

Euro/Sterling exchange rate



Source: Thomson Reuters Datastream

Survey respondents perceived Brexit as a disruptive factor, with the movement of horses and the ability to attract staff the main concerns. A minority of breeders view it as an opportunity for protectionism

The potential impact of Brexit on the movement of horses remains a chief concern.

“ Increased difficulty in moving horses would impact racing immediately, reducing its competitiveness considerably.

Breeder

The ability to attract staff could also be severely impacted.

“ Restriction of movement of staff from the EU would have a major impact on both racing and breeding operations, and is a significant threat.

Breeder

However, Brexit could also help to improve the competitiveness of GB thoroughbreds against their Irish and French counterparts.

“ Increased difficulty in moving breeding stock would benefit British breeding short-term, since more British mares visit stallions than vice versa. A WTO tariff on the movement of geldings would also help British vs Irish-bred geldings.

Breeder

“ If the Tripartite Agreement on movement is revoked my mares and foals will not be able to access the best stallions in Europe. This will result in a **dramatic decline in demand for my young stock.**

Stud farm owner

“ The **free movement of people is vital if we are to have enough people to serve our industry**

Stud farm manager

Industry SWOT analysis

5.8



We have summarised the main factors impacting the sustainability of the thoroughbred breeding industry in a SWOT analysis

	Helpful to sustainability	Harmful to sustainability
Helpful to sustainability	Strengths (current internal factors driving industry performance)	Weaknesses (current factors that harm the sustainability of the industry)
	Britain's thoroughbred breeding industry is internationally recognised for its pedigree, prestige and equine welfare laws, helping to attract foreign investors to breed in GB. 	Returns to breeding are very low when compared to international competitors (e.g. breeders premiums, prize money), particularly for small to medium sized operations. 
	Britain has some of the highest quality bloodlines in the world (e.g. two of the top 5 ranked horses in 2017 were British). ¹ 	A sizeable number of breeders are exiting the industry due to retirement or financial costs. This exodus has not been reciprocated with a rise in new entrants, and poses a serious threat to breeding in the short to medium term. 
	Existing staff within the industry are skilled and have experience in training high quality thoroughbreds. 	The industry is facing significant employment challenges with a limited number of skilled staff available. This has been exacerbated by difficulties in attracting new people to the industry. 
	Britain's climate lends itself to the production and rearing of thoroughbreds, and GB is a good location to set up a breeding business due to good infrastructure etc. 	GB is currently heavily reliant on foreign imports to sustain its racing calendar (particularly in National Hunt). 
Helpful to sustainability	Opportunities (new opportunities for sustainable development of the industry)	Threats (external factors that could negatively impact the future sustainability of the industry)
	Improved Levy revenue could allow more funding to be distributed to the breeding industry, helping to improve existing premiums and create new initiatives. 	Brexit is a major concern for the future health of the industry – potentially disrupting movement of horses and staff and increasing breeders' costs of production. 
	Relationships could be strengthened with emerging thoroughbred markets. GB breeding could build an export strategy targeting specific markets. 	Gambling regulation on FOBTs could impact Horserace Betting Levy revenue, which, without government support, could harm breeding. 
	Further engagement with educational institutions and wider promotion of the industry could attract more young people to breeding and improve the employment situation. 	Overseas competition could see domestic operators move and foreign investment attracted elsewhere due to factors such as better prize money and lower production costs. 
	New technology could aid industry performance. 	Growth of overseas markets such as Asia might pose a longer-term threat to Britain's thoroughbred breeding, as stock could be exported overseas. 

Source: ¹IFHA

Key:  → 
Small → Large

Sensitivity analysis

6



If the economics of breeding continues to worsen, many small to medium sized operators are likely to be forced out of the industry, reducing the size of the GB foal crop and resulting in a diminished racing product

1. Ageing demographic

- The average age of GB breeders is increasing year on year. Our analysis indicates that 90% of breeders are aged over 35, while two-thirds of breeders are aged over 55
- The industry has struggled to attract a younger demographic to replace them
- Faced with higher property prices and limited wage growth, younger generations are saving for housing and are less likely to join the industry in the future when they have additional income

2. Reduced profitability

- The vast majority of small to medium sized breeders are unprofitable but are involved in the industry due to their love of horseracing and breeding
- Many medium sized commercial operations are also struggling to be profitable, with the prices received at auction frequently failing to cover the costs of production

3. Operators exit

- Should the economics of breeding continue to worsen, breeders operating at the margin may no longer be sustainable, resulting in more breeders leaving the industry
- Alternatively, a negative economic shock such as an unfavourable Brexit outcome or recession could force operators to exit

“ In my position as a stallion manager I am able to see the health of the GB breeding industry first hand. **The traditional small breeder in Britain is heading towards extinction.** The average age of British breeders is increasing year on year, there are **very few of the younger generation of British breeders coming through** to replace them.

4. Reduced foal crop

- Any decline in breeders would have significant implications for the annual GB foal crop - given that GB bred horses account for approximately 45% of the total horses running and training in GB

5. Diminished product

- Further reductions in the number of runners per race will mean that less races qualify for the minimum 8 runners needed for each way betting, thereby impacting betting product quality and funding from the gambling industry

If one quarter of small sized breeders exit the market and are not replaced by new entrants, this will reduce the annual GB foal crop by 12.5% and will bring runners per race down from 8.8 to 8.4 by 2024

Small breeders (i.e. 1-4 broodmares) account for approximately **50%** of foal production in a given year. If these breeders continue to face economic challenges then they are likely to exit the market. We have illustrated the potential impact of a **50%, 25% and 10%** reduction in small breeders in 2018, which consequently reduces the foal crop size by **25%, 12.5% and 5% respectively**.

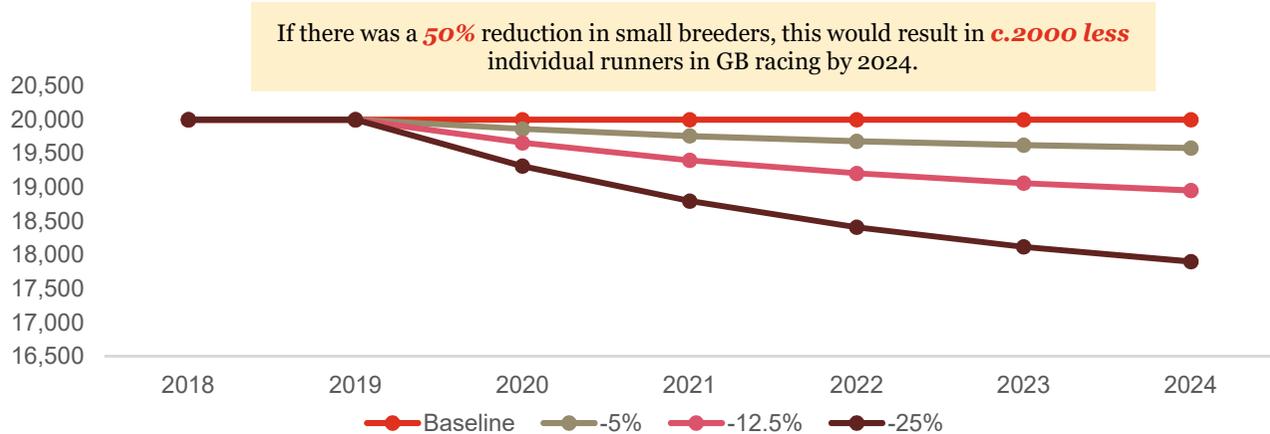
However, we note that this analysis is based on a number of assumptions, and any change in these assumptions would alter the overall impact.

High level assumptions

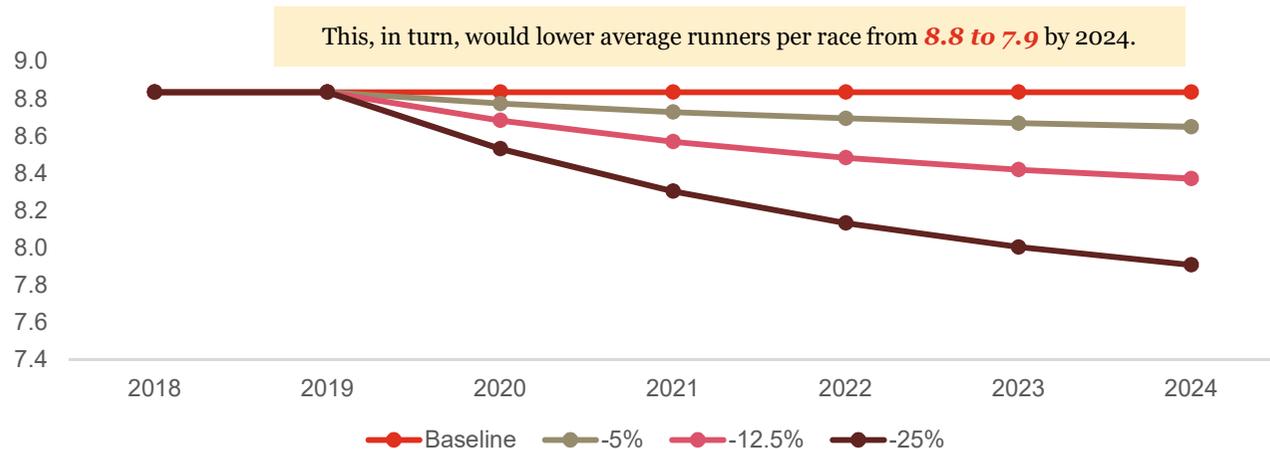
- Small breeders (i.e. 1-4 broodmares account for 50% of foal production in a given year)
- 20,000 individual runners are needed to maintain the GB race card (in line with 2017)
- 10,300 races run each year and there will be no major change in the number of races
- Changes to the size of the foal crop occur in 2018 and are permanent
- There will be no major change in the level of imports / exports
- C. 25% of the horse population retires each year
- Flat horses enter racing as 2 year olds, while jump horses enter as 3 year olds

Impact of reduced breeder numbers on number of individual runners in GB racing and runners per race

Runners in GB racing



Average runners per race



Appendix

7



7.1 Economic contribution methodology 1/4

Definition of key terms



Revenue

The total amount of money that is received over a specified period in return for goods/services, e.g. in the case of stallion services, revenue represents the value of stallion fees received in a given year.



Supplier expenditure

The total spending on suppliers for goods and services within a specified period. Supplier expenditure excludes capital expenditure and wages and salaries, so it is equivalent to operating expenditure minus wages and salaries.



Wages and salaries

The total compensation paid to all employees, including all income taxes and National Insurance.



Profit

Revenue minus supplier expenditure and wages & salaries. Profit represents the income to businesses after operating expenditure but before capital expenditure.



Gross value added (GVA) at factor cost

Gross value added is a measure of the contribution of a sector or business to economic output. GVA is the recognised measure of economic activity at the sub-national level (i.e. for an individual sector, business or region), while GDP is the recognised measure of economic activity at the national level. GVA is measured in factor cost in this study, which means it excludes all taxes and subsidies on production and products.

GVA measures the value added to products during the production process (for example the breeding of a thoroughbred horse), and can therefore be calculated as the value of output minus the value of supplier expenditure. GVA can alternatively be calculated by summing the profits and wages generated during the production process, which represent the income accruing to businesses and individuals as a result of production.



Employment

The number of employees supported within a business or industry. It is measured in full time equivalents (FTEs), where one person working full time for 12 months and two people working 6 months a year are both equivalent to one FTE.



Capital expenditure

The investment of business in assets such as land, machinery and, in the case of thoroughbred breeders, broodmares and studs.

7.1 Economic contribution methodology 2/4 (Cont'd)

Gross value added is the recognised measure of economic output at an industry level

Gross value added is the recognised metric for measuring economic activity at the sub-national level (i.e. for individual sectors, businesses or regions), while gross domestic product (GDP) is the recognised measure of economic activity at the national level.¹ GVA is widely used and recognised by the UK government departments as a measure of economic output – for example the Office of National Statistics use GVA to measure the economic performance of different geographic areas in their 'Regional GVA' publication.²

Throughout this study gross value added is measured in terms of factor cost, which means that all taxes and subsidies on production and products are excluded. This differs from gross value added at basic prices, which excludes taxes and subsidies on products but includes taxes and subsidies on production.

Two of the main methods of calculating GDP and GVA are the income and expenditure approaches. The income approach sums profits and wages, while the expenditure approach sums household and government consumption, investment and net exports. Both approaches produce identical estimates so components across different approaches are not additive - for example, exports and investment could not be added to the GVA from the income approach, as it is already implicitly included within gross operating surplus.



Income approach

$$= \text{w} + \text{i} + \text{r} + \text{p} + \text{SA}$$



Expenditure approach

$$= \text{C} + \text{I} + \text{G} + \text{X} - \text{M}$$

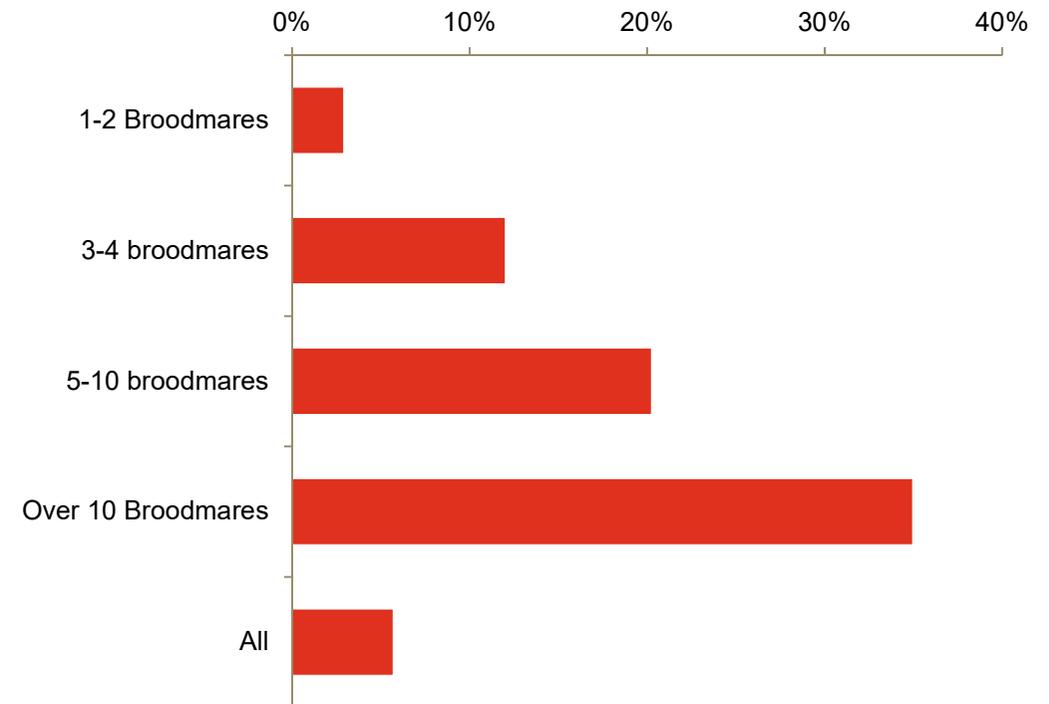
7.1 Economic contribution methodology 3/4 (Cont'd)

The members' survey produced a sample with similar statistical quality to that achieved by the Office of National Statistics' main business survey.

Sample size and stratification

- The members' survey sought to obtain a stratified sample of breeding operations ranging from hobby breeders with 1-2 broodmares to large, professional breeding operations. This would allow for more robust estimates when extrapolating for the entire population of breeders.
- Our questionnaire structure is taken from the Office of National Statistics (ONS) Annual Business Survey (ABS). This is the survey that the government uses to construct its measure of GVA.
- The sample surveyed in the ABS covers a broad range of sectors, and a statistical measure called the coefficient of variation is used to measure the relative precision of survey responses for each sector. It is used by the ONS as a measure of sampling quality for a number of surveys including the ABS (Quality and Methodology Information, Annual Business Survey, 2011).
- The coefficient of variation for the sector closest to that of horsebreeding, 'hunting, trapping and related service activities', is approximately 50%, compared to coefficients of between 40% and 60% for the majority of broodmare categories in our sample (the category with over 10 broodmares shows significantly more variation due to a small number of very large breeders).
- This gives confidence that the survey responses are within the statistical limits of survey quality considered acceptable by the ONS, when they publish at a similar level of granularity.

Sample coverage of survey



7.1 *Economic contribution methodology 4/4 (Cont'd)*

The survey questions were adapted from those used in the Annual Business Survey

The survey of TBA members was based on the Annual Business Survey (ABS), the main survey of UK businesses conducted by the Office of National Statistics.¹ The ABS collects financial information from a sample of 62,000 businesses across the majority of industries in the economy, with the purpose of collecting representative data relating to gross value added and employment for each industry. The results of the survey provide a number of high-level indicators of economic activity, as well as providing an input to the calculation of GDP for the UK.

The questions in the members' survey were adapted from questions used in the ABS. They related to a number of financial variables such as revenue, supplier expenditure and employee costs, which are required in order to calculate GVA. The survey also collected more detailed information on the pattern of supplier expenditure and the sources of revenue for horsebreeders, which were used in the estimation of indirect and induced impacts as described in the following slide.

7.2 Average cost of production for NH sales

In the table below we consider the cost of production for getting a median/average horse to the Tattersalls Ireland foal sale and the Goffs Landrover Store sale. The average cost of production clearly varies depending on the quality of the individual horse taken to the sale (e.g. some horses will have higher stud fees than others etc.). Given that we are comparing the cost of production with the median price we have estimated the cost to produce median/average horses based on discussions with NH breeders. The main difference between the two sales is the 2.5 years additional keep and veterinary charges to get a horse to the Goffs Landrover Store sale.

Cost of production	Tattersalls Ireland foal sale	Goffs Landrover Store sale
<i>Stud fees</i>	£3,500	£3,500
<i>Mare depreciation cost</i>	£2,000 (i.e. mare with 10 years activity at £20,000)	£2,000 (i.e. mare with 10 years activity at £20,000)
<i>Veterinary, farriery, dentistry etc.</i>	£2,000 (Foal £500, Foaling £500, Mare fertility £500, Mare general £500)	£3,000 (same as Tattersalls Ireland sale but an additional £400 per annum for foal for 2.5 years)
<i>Boarding costs (including feed and bedding, repairs and renewals, rent on land)</i>	£5,000 (Mare for 1 year £4,000, Foal from weaning to sales preparation £1,000)	£15,000 (same as Tattersalls Ireland sale but an additional 2.5 years foal keep at £4,000 per annum to sales preparation)
<i>Transport</i>	£1,000 (Mare to/from stallion stud; Foal to sales prep/from sales prep to Ireland)	£1,000
<i>Sales cost</i>	£1,000 (Entry fee £250, 1 month sales preparation £500, sales expenses £250)	£2,000 (Entry fee £500, 2 months sales preparation £1,250, sales expenses £250)
<i>Expenses for keeping mare for years not in foal</i>	£1,750 (estimate based on 1 year in 5, so effectively adds 25% to depreciation, keep and veterinary charges carried by foals produced in other years = £500 + £1,250)	£1,750
Total cost of getting horse to sale	£16,250	£28,250
<i>Sales commission</i>	6% of median/average price for sale to reflect commission paid by vendor to auction house	6% of median/average price for sale to reflect commission paid by vendor to auction house

7.3 Average cost of production for Flat sales

In the table below we consider the cost of production for getting a median/average horse to the Tattersalls Book 1, Book 2 and Book 3 sale. The average cost of production clearly varies depending on the quality of the individual horse taken to the sale (e.g. some horses will have higher stud fees than others etc.). Given that we are comparing the cost of production with the median price we have estimated the cost to produce median/average horses based on discussions with Flat breeders.

Cost of production	Tattersalls Book 1	Tattersalls Book 2	Tattersalls Book 3
<i>Stud fees</i>	£25,000	£11,000	£5,000
<i>Mare depreciation cost</i>	£15,000	£10,000	£3,000
<i>Veterinary, farriery, dentistry etc.</i>	£5,000	£5,000	£5,000
<i>Boarding costs (including feed and bedding, repairs and renewals, rent on land)</i>	£18,000	£18,000	£18,000
<i>Transport</i>	£1,000	£1,000	£1,000
<i>Sales cost</i>	£1,000	£1,000	£1,000
<i>Expenses for keeping mare for years not in foal</i>	£2,000	£2,000	£2,000
Total cost of getting horse to sale	£67,000	£48,000	£35,000
<i>Sales commission</i>	5% of median/average price for sale to reflect commission paid by vendor to auction house	5% of median/average price for sale to reflect commission paid by vendor to auction house	5% of median/average price for sale to reflect commission paid by vendor to auction house

Glossary

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Glossary

Term	Definition
<i>BHA</i>	British Horseracing Authority
<i>CAGR (Compound Annual Growth Rate)</i>	This is a measure of the mean annual growth rate over multiple time periods
<i>GGY (Gross Gambling Yield)</i>	GGY is calculated using the following formula: A (total staked) + B (total amount (exclusive of value added tax) that will otherwise accrue to the licensee in the relevant period directly in connection with the authorised activities) – C (prize money or winnings)
<i>HLB (Horserace Betting Levy)</i>	The HBL is collected through the gross profit earned by bookmakers on betting from British horseracing. Money raised from the Levy is used to: 1) improve breeds of horses 2) advance veterinary science/veterinary education 3) improve horseracing
<i>IFHA</i>	International Federation of Horseracing Authorities
<i>ROCE (Return on Capital Employed)</i>	Measures a company's profitability and the efficiency with which its capital is employed. ROCE is calculated as Earnings Before Interest and Tax (EBIT)/Capital Employed
<i>TBA</i>	Thoroughbred Breeders Association
<i>TPA (Tripartite Agreement)</i>	The TPA is a derogation to the European Community Regulation that allows the free movement of horses between France, Ireland and the United Kingdom





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