

How has the risk of Gatwick Airport changed since the start of Q5?

Note prepared for Gatwick Airport

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1 Summary

This note highlights the main changes in Gatwick Airport's risk profile since the Civil Aviation Authority's (CAA) Q5 decision in 2007–08.¹ The note outlines the implications for estimating the cost of capital for regulatory purposes beyond the Q5 period, based on the risks that prevail under a form of regulation similar to that adopted in Q5. It is without prejudice to the CAA's ongoing review of models of regulation.

The key points of this note are as follows.

- Significant changes in the commercial environment since the Q5 determination mean that a simple update of the cost of capital using the Q5 methodology cannot deliver robust estimates of the cost of capital for London airports in general, and for Gatwick Airport in particular.
- A thorough analysis of operational, financial, and macroeconomic data, combined with a forward-looking assessment of the range of possible commercial outcomes beyond Q5, is essential for robust estimation of the asset beta and to avoid an underinvestment problem.
- The key factors driving increased risk at Gatwick Airport since 2007 include:
 - the 11% shortfall in cumulative outturn passengers relative to the forecast for Q5, the likelihood that outturn passengers will be significantly lower than forecast for the closing year of Q5, and the consequent increase in forward-looking operational leverage;

¹ The CAA published its price control proposals for Heathrow and Gatwick Airports in November 2007, followed by its price control decision for Q5 in March 2008.

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- changes to the business models of airlines and a redistribution of risk from airlines to airports;
- changes to the competitive dynamics between airports—both between the London system and other airports, and within the London system—and the wider range of possible outcomes for airport profitability as a result of competition between airports;
- negatively skewed demand and expected profitability, and the higher cost of capital that this implies relative to an estimate based on the standard capital asset pricing model (CAPM).

As there are a number of drivers of increased asset risk, it would be appropriate to use an asset beta that is significantly higher than in the Q5 determination when estimating the cost of capital to apply for the period beyond Q5. Gatwick's full cost of capital submission will contain the extensive evidence that is necessary for robust estimation of the asset beta.

The rest of this note is structured as follows:

- section 2 considers the Q5 methodology for assessing asset risk;
- section 3 considers the assessment of risk for the period beyond Q5;
- section 4 concludes.

2 Q5 methodology for assessing asset risk

In Q5, the CAA adopted a similar methodology to that recommended by the Competition Commission (CC) in assessing the asset risk for Gatwick.²

- First, an equity beta was determined for BAA plc prior to its de-listing from the stock market in 2006, and this equity beta was converted into an asset beta for BAA.
- Second, the BAA plc beta was disaggregated into asset betas for Heathrow, Gatwick and other activities undertaken by BAA by considering the relative systematic risk profiles of the various BAA businesses.
- Lastly, the asset beta estimates were re-levered into equity betas, using a notional gearing assumption of 60%.³

The CC considered the relative exposure of each airport to systematic risk by looking at a range of factors and applying judgement.⁴ The highest asset beta was used for Stansted, and the lowest for Heathrow. The Gatwick asset beta was positioned between the two, albeit closer to Heathrow than Stansted, which would be consistent with a view that the risk profile of Gatwick had more in common with Heathrow than Stansted.

The Q5 methodology gave considerable weight to empirical observations of BAA's historical share price movements up to February 7th 2006 (ie, the day before Ferrovial announced that it was considering making a bid for BAA).⁵ Since then, BAA has ceased to exist as an entity that owns three London airports (ie, Heathrow, Gatwick and Stansted), with Gatwick being sold in 2009, and Stansted now up for sale.

² Civil Aviation Authority (2007), 'Heathrow and Gatwick Airports CAA price control proposals', November, para 11.16.

³ Competition Commission (2007), 'BAA Ltd: A report on the economic regulation of the London airports companies (Heathrow Airport Ltd and Gatwick Airport Ltd)', presented to the Civil Aviation Authority, September, Appendix F, para 75.

⁴ Ibid., para 75.

⁵ Ibid., para 110.

None of the London airports is publicly listed. Accordingly, there is no recent share price data from which to obtain direct estimates of the equity beta and hence infer the asset beta for any of the London airports, as per the Q5 methodology. Nevertheless, the airports are operating under circumstances that are significantly different from those at the time of the last price review. It is important that these changed circumstances are reflected in the cost of capital estimates in the period beyond Q5.

3 Assessing asset risk for the period beyond Q5

An accurate estimate of asset risk and the cost of capital is dependent on accounting for the risks that Gatwick Airport will face in delivering its business plan for the period beyond Q5.

The key issue is whether the dispersion of outcomes for profitability is wider or narrower when projecting forward from today compared to projecting forward from the time at which the Q5 determination was made. Addressing this issue entails a thorough analysis of the industry structure as it is today and how this compares with the structure at the time of the Q5 determination. This analysis can be split into three levels, as follows.

- 1) How have the characteristics of the combined airline and airport sector evolved?
- 2) How has the distribution of risk between airlines and airports altered?
- 3) How has risk between airports changed?

To provide robust answers to these questions requires a full analysis of the new information that has become available since the Q5 determination.

3.1 Risk assessment framework

As noted in section 2, investors' perception of how Gatwick's risk has changed would ideally be measured by regression analysis to estimate the beta of Gatwick's equity returns, unlevering this beta to estimate the asset beta, and comparing the asset beta at different points in time. As this is not possible, alternative sources of evidence need to be developed.

One possibility is to identify a sample of listed companies with comparable risk exposure, and to use an average of estimates of asset betas for these companies as a proxy measure for the risk of Gatwick. The Q5 methodology cross-checked the Heathrow and Gatwick beta estimates against asset betas for comparator companies—however, comparator asset betas were not used directly for estimating the asset risk for either Heathrow or Gatwick.⁶ This is because the CC considered that differences in comparators' risk profiles and regulatory regimes meant that this approach was not a robust way to derive an asset beta for the UK airports:

Other airports have different risk profiles from Heathrow and Gatwick and we are especially uncomfortable with the setting [of] allowed returns for these two UK regulated airports in line with betas for airports that are subject to different forms of regulation or, in certain cases, no regulation at all...this approach lacks robust validation.⁷

This conclusion, that the betas of listed airports do not provide a robust means of setting allowed returns for UK regulated airports, is likely to be as valid today as it was in 2007. As a result of the break-up of BAA, the regulated airports now face a set of competitive dynamics

⁶ Ibid., para 75 and 77.

⁷ Ibid., para 77.

and risks that were not present in 2007. The risk impact of the new competitive environment is likely to vary across the airports.

Moreover, as the airports will not be under common ownership after Q5, it is even more important that betas are set appropriately on a standalone basis, with careful consideration given to risk differentials between the airports. The risk of creating an underinvestment problem at any one of the three airports is now higher because errors in the estimation of risk differentials will no longer be cancelled out within a group structure that contains all three airports—ie, there is no coinsurance effect with respect to the risk of underestimation of the cost of capital. Robust estimation of these risk differentials based on an analysis of betas for listed airports is made more difficult by the fact that comparisons must be made with three airports, and the sample of airports would therefore need to be split into three segments to provide proxy risk measures for each airport.

As it would not be robust to infer the asset beta for Gatwick from the betas of listed airports, it is important that operational, financial and macroeconomic data is analysed such that the cost of capital estimate for the period beyond Q5 is as robust as possible. Without a robust estimate, there is a high risk of creating an underinvestment problem and an adverse impact on passengers. The following evidence needs to be accounted for in the assessment of asset beta:

- outturn passenger numbers, and how these compare to forecasts made at the time of the Q5 determination;
- the volatility of passenger numbers;
- correlations between passenger numbers and macroeconomic and financial market indicators;
- the range of uncertainty around current passenger forecasts and how this compares to the range of uncertainty in 2007;
- the levels and volatility of aeronautical and non-aeronautical revenue yields;
- different characteristics of the customer base, and how the customer base has changed over time;
- the flexibility of the cost structure of Gatwick airport and the extent to which the airport can or cannot manage the impact of demand shocks on profitability.

Since accurate estimates of asset risk and the cost of capital depend on accounting for the risks that Gatwick Airport will face in the period beyond Q5, it is also important to project forward the analysis of historical data so as to consider the range of potential future commercial outcomes. In this analytical framework, scenario and simulation analysis are tools that can be used to describe potential commercial outcomes and their impact on the business (ie, on passenger volumes, yields, and profitability), as well as quantify the probability of each outcome occurring.

Such analysis provides a means of reflecting a number of potential commercial outcomes that have become more likely in recent years. The following sections outline the main causes of change in Gatwick's risk profile that would need to be considered in this analysis, including:

- different expectations about the forward-looking cost structure of the business;
- evolution of airlines' business models;
- competitive dynamics in the London airports market following the break-up of BAA;
- the impact of competition on the cost of capital;
- asymmetric risk.

3.2 Cost structure

In common with most large infrastructure businesses, Gatwick is exposed to a high degree of operating leverage because the majority of its cost base is fixed.⁸ However, the level of demand risk faced by Gatwick is significantly higher than that faced by core network utilities. When combined with high operating leverage, this demand risk leads to a high level of profitability risk for Gatwick and a risk profile significantly different from that of utilities such as water and energy networks. As outlined in the rest of this section, Gatwick now faces a set of additional demand risks that further increase the difference between the risk profile of Gatwick and those of core network utilities.

Despite growth in 2011/12, the number of outturn passengers at Gatwick over Q5 has been significantly lower than forecasts made before the start of the quinquennium (see Figure 3.1 below). Data for the first half of 2012/13, and expectations for the winter season, suggest a growth rate significantly lower than in 2011/12, and that the gap between the Q5 forecast and the number of outturn passengers will widen again. The CAA has noted that the regulated airports have all experienced the effects of demand risk, and that these effects have been unevenly distributed:

The Q6 review is taking place against the backdrop of a significant downturn in traffic in recent years...Over the period 2007 to 2010, passenger numbers at Heathrow fell by 3.1%. However, Heathrow showed more resilience to the economic downturn over the same period than Gatwick, where passenger numbers fell by 11%, and at Stansted, where passenger numbers fell by 22%.⁹

The profitability implications of demand risk combined with high operating leverage have also been recognised:

Variances between the forecast used to set the price control and actual traffic are a significant contributor to whether the designated airport's financial returns underperform or outperform the price control assumptions...it appears that a significant driver of the under-recovery of cost of capital has resulted from traffic being lower than that assumed for Q5 and that mitigating actions to reduce costs or increase commercial revenues have not compensated for this variance.¹⁰

In retrospect, traffic appears to have been projected from a cyclical peak rather than from a mid-cycle level of traffic, which suggests that the long-term level of demand at Gatwick was overestimated. Implicit in the forecasts made before the start of Q5 is a view that Gatwick would have been able to recover its fixed costs and investments across a volume of demand that now seems high relative to the likely long-term level of demand. For the period 2008–11, a total of 131m passengers used Gatwick Airport, which is 11% lower than the forecast of 147m.¹¹ Comparing demand forecasts today with the previous set of forecasts suggests that outturn passengers will be significantly lower than forecast for the closing year of Q5, and therefore that the level of forward-looking operating leverage is significantly higher than at the start of Q5.

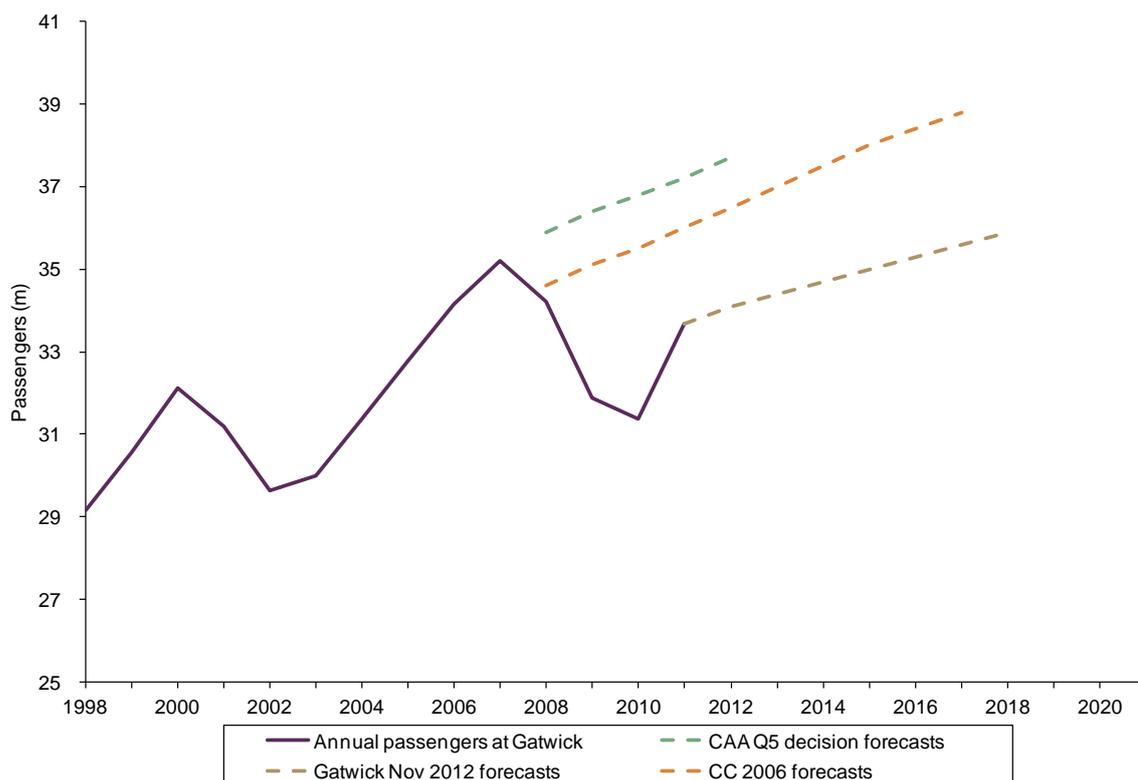
⁸ 'Operating leverage' refers to the proportion of fixed costs in a firm's total cost base, and is positively correlated with volatility of profitability.

⁹ Civil Aviation Authority (2011), 'Review of price and service quality regulation at Heathrow, Gatwick and Stansted airports: Setting the Scene for Q6', Consultation, July, p. 14.

¹⁰ Ibid., p. 14.

¹¹ Competition Commission (2007), op. cit.; Civil Aviation Authority data.

Figure 3.1 Outturn compared with forecast passenger numbers at Gatwick



Note: Annual outturn data is currently available only up to 2011. The Gatwick Airport November 2012 forecasts are based on estimates that are available for 2012/13 and 2018/19.

Source: Oxera analysis, based on Competition Commission (2007), 'BAA Ltd: A report on the economic regulation of the London airports companies (Heathrow Airport Ltd and Gatwick Airport Ltd)', presented to the Civil Aviation Authority, September; and data from the CAA and Gatwick Airport.

Higher levels of operational leverage magnify the impact of demand risk on profitability risk. This applies to all components of demand risk, whether systematic and economy-wide, or non-systematic and diversifiable. Consequently, had there been no changes in forward-looking demand risk since the start of Q5, profitability risk and asset beta would have increased due to higher operational leverage.

3.3 Evolution of airline business models

Demand risk faced by airports is derived largely from the risk faced by airlines, and is accentuated by the ability of airlines to reallocate fleet capacity, magnifying the overall market risk faced by airports. Airlines operating from airports that make up the London system have experienced changes and challenges to their business models since the start of Q5. All airports in the London system are exposed to the evolution of airline business models. However, the impact is likely to vary across airports. This section considers airlines in the following categories:

- low-cost carriers (LCCs);
- full-service carriers (FSCs);
- charter airlines;
- smaller airlines.

3.3.1 Low-cost carriers

The LCC business model has demonstrated increased flexibility in recent years, with airlines re-basing aircraft and changing routes rapidly in order to maximise profits. For example, easyJet has noted that its business model relies increasingly on its ability to rapidly switch

capacity away from under-performing routes and towards markets where better returns are available:

In the past year, easyJet has implemented a new and more rigorous approach to assessing network returns. Routes are measured on the returns they are delivering against the Company's 12% ROCE target. Capacity on underperforming routes is reallocated, or performance managed and profitability improved, to deliver an appropriate return...easyJet has built flexibility into its fleet planning arrangements such that it can increase or decrease capacity deployed, subject to the opportunities available and prevailing economic conditions. The Company also has flexibility to move aircraft between routes and markets to improve ROCE.¹²

This ability to reallocate capacity enables LCCs to increase the variability of their cost base at individual airports and thereby maintain high and stable load factors.¹³ More stable load factors imply higher variability in the number of aircraft movements for any given level of demand risk. As landing charges include components linked to both aircraft movements and passenger numbers, greater variability in aircraft movements allows airlines to match costs more closely to demand, and to reduce volatility of profits at the airline stage of the value chain. However, the corollary of lower airline profit volatility is an increase in the revenue risk of airports. As airports have high operational leverage, the consequence of more stable load factors is an increase in the volatility of profits for airports.

The increased switching by airlines would be expected to increase the volatility of traffic served by the London system, as reallocation of capacity to other European airports is now a more likely scenario than at the time of the Q5 determination. Combined with higher load factors, this has resulted in a transfer of demand risk from airlines to airports, and hence an increase in the sensitivity of airport revenue to global economic shocks.

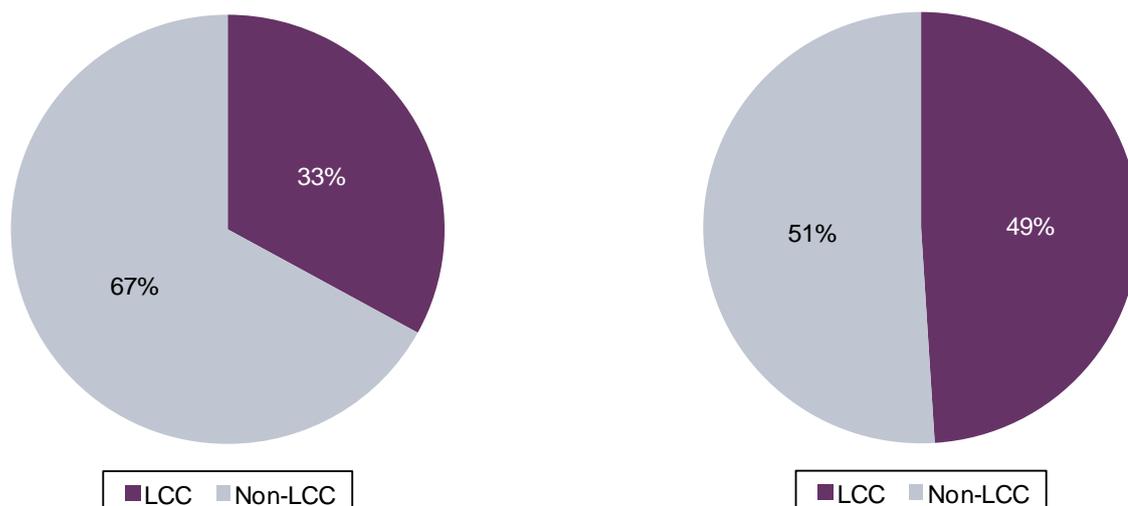
Changes in the LCC model are of particular relevance to Gatwick and Stansted, as low-cost airlines constitute approximately 50% of the traffic at Gatwick, and almost all traffic at Stansted. Moreover, due to an increase in the LCC share of Gatwick's traffic since the start of Q5, the exposure to the LCC business model has increased at Gatwick, which suggests that Gatwick's risk profile has moved closer to that of Stansted. This is illustrated in Figure 3.2 below, which clearly shows the increased market share of LCCs such as easyJet, Ryanair and Flybe at Gatwick since 2007. Moreover, the trend increase of LCC traffic at Gatwick does not appear to be weakening—from the airport's most recent financial results, it is apparent that European scheduled LCCs have made the most significant contribution towards period-on-period passenger growth at Gatwick.¹⁴

¹² easyJet (2011), 'Annual report and accounts 2011', p. 11.

¹³ A load factor is a measure of the degree of utilisation of the total available capacity of an aeroplane—for example, it can be defined as the number of passenger-kilometres travelled as a percentage of the total seat-kilometres available in an aeroplane.

¹⁴ Gatwick Airport (2012), 'Report and Unaudited Interim Financial Statements for the six months ended 30 September 2012', p. 1.

Figure 3.2 Change in market shares of airlines at Gatwick between 2007 (on the left) and 2010 (on the right)



Note: LCC includes easyJet, GB Airways, XL Airways, Flybe, Ryanair, Aer Lingus, and Norwegian Air Shuttle. Non-LCC includes British Airways, Virgin Atlantic, Thomson, First Choice, Thomas Cook, Monarch, and Continental.

Source: Gatwick Airport (2011), 'Airport competition: Competing to grow and become London's airport of choice', November, p. 46.

3.3.2 Full-service carriers

Since 2007, there has been significant growth in FSC alliances, such as oneworld and Star.¹⁵ This gives FSC airlines greater flexibility to reallocate capacity between airports as a means of maximising airline profitability. Reallocation of capacity can occur both within the London system—as in 2007, when British Airways and American Airlines switched flights from Gatwick to Heathrow¹⁶—and between the London system and continental European hub airports. In a similar way to the evolution of the LCC model, this helps FSCs to achieve higher load factors and to reduce operational leverage, transferring risk to airports.

Heathrow and Gatwick are the airports in the London system with the greatest exposure to higher switching by FSC airlines, and both face higher volatility of FSC-derived revenue for the period beyond Q5. Moreover, the increased flexibility of the FSC model further contributes to the competition between Gatwick and Heathrow, the effects of which are described further in section 3.4.

3.3.3 Charters

The relatively high exposure of charter traffic to the state of the economy has become more prominent in recent years. The decline in European charter traffic has accelerated since the start of the financial crisis in 2007–08. This decline is related to a number of factors, including the relatively high sensitivity of charter demand to changes in disposable household income, for both UK-originated and southern European-originated traffic. Competition with LCCs is also a factor in the decline of the charter model.

Charter traffic has declined by around 25% in the London area since 2007. Gatwick has by far the highest exposure to charter traffic among the London airports—for example, in 2011

¹⁵ At least ten airlines have joined the Star Alliance since 2008 (see Star Alliance website: http://www.staralliance.com/assets/doc/en/about/member-airlines/pdf/Star_Alliance_Chronological_May2012.pdf, accessed November 26th 2012). Other carriers, such as Air Berlin and S7 Airlines, have joined the oneworld alliance since 2008, with three further members elected to join in 2012–13 (see oneworld website: <http://www.oneworld.com/news-information/oneworld-fact-sheets/oneworld-at-a-glance/>, accessed November 26th 2012).

¹⁶ Gatwick Airport (2011), 'Airport competition: Competing to grow and become London's airport of choice', November, p. 44.

Gatwick accounted for more than 50% of all scheduled charter flights in the London area,¹⁷ and demand from charter airlines constitutes about 11% of current traffic at Gatwick.¹⁸

To the extent that revenue from charter traffic has become more risky since the start of Q5, this would disproportionately increase the risk profile of Gatwick relative to that of Heathrow or Stansted.

3.3.4 Smaller carriers

The impact of the financial crisis, combined with higher fuel costs and increases in air passenger duty, has weakened the financial position of many smaller airlines. Gatwick caters for a number of smaller airlines and has already experienced the consequences of airline financial distress. For example, since the onset of the financial crisis, a number of airlines that previously operated at Gatwick have ceased operations due to financial distress, including Sterling Airways, Mexicana de Aviación, and Malev.¹⁹ The consequences of these events include declining revenue and less efficient slot usage. The airport also faces non-trivial counterparty risk with respect to the ability of airlines to fulfil their contractual commitments.

3.4 Range of competitive outcomes in the London airports market

In addition to the risk of the London system losing traffic to Continental European and regional UK airports, the break-up of BAA means that Gatwick faces a range of possible competitive outcomes within the London system that did not exist at the start of Q5. One example of this increased range of outcomes is that, after the 'Open Skies' liberalisation in 2009, a number of North Atlantic airlines transferred from Gatwick to Heathrow.²⁰ More recently, a number of other airlines have transferred operations from Gatwick to Heathrow, including Qatar Airways, Royal Air Maroc and Delta Airlines, in order to consolidate their London operations at one airport.²¹

Heathrow currently has capacity to attract a significant volume of traffic from Gatwick. For example the DfT's 'maximum use' scenario assumes that Heathrow can serve 86m terminal passengers without exceeding the current annual cap of 480,000 air transport movements (ATMs).²² With Heathrow having served approximately 70m passengers in the year to November 2012,²³ there is potential for an increase of approximately 23% in passengers through a shift towards larger aircraft and higher load factors.

Furthermore, runway capacity may be increased in Q6—for example, a number of runway optimisation initiatives are currently being trialled, and mixed mode could be introduced relatively quickly. Given the mobility of the long-haul airlines—few airlines have long-term investments that commit them to using Gatwick, and airline alliances are increasingly important—there is potential for a significant volume of the traffic forecast in the Gatwick business plan to switch to Heathrow.

¹⁷ See CAA Airport Data for 2007 and 2011, available at: http://www.caa.co.uk/docs/80/airport_data/2007Annual/Table_04_1_Air_Transport_Movements_2007.pdf and http://www.caa.co.uk/docs/80/airport_data/2011Annual/Table_04_1_Air_Transport_Movements_2011.pdf.

¹⁸ Ibid.

¹⁹ *The Telegraph* (2008), 'Sterling Airline collapse hits hundreds of Gatwick passengers', October 29th, available at: <http://www.telegraph.co.uk/travel/3279343/Sterling-Airline-collapse-hits-hundreds-of-Gatwick-passengers.html>, accessed November 22nd 2012. BTN (2010), 'Mexicana suspends London Gatwick service', August 9th, available at: <http://www.breakingtravelnews.com/news/article/mexicana-suspends-london-gatwick-service/>, accessed November 22nd 2012. BBC News (2012), 'Hungarian airline Malev collapses', February 3rd, available at: <http://www.bbc.co.uk/news/business-16866872>, accessed November 22nd.

²⁰ Gatwick Airport Limited (2010), 'Report and Financial Statements for the period ended 31 March 2010', p. 6.

²¹ Gatwick Airport Limited (2012), 'Directors' Report and Financial Statements for the year ended 31 March 2012', p. 10.

²² DfT (2011), 'UK aviation forecasts', August, p. 43.

²³ Heathrow Airport Limited (2012), 'Heathrow traffic and business commentary 2012', November.

The impending sale of Stansted will introduce a significant but as yet unknown level of demand risk. Stansted already competes with Gatwick for LCC and charter traffic, and, under new ownership, it is possible that it could compete for FSC airlines as well:

To some degree, passenger perceptions of the airport could be changed by the airport itself, for example through marketing itself more aggressively than takes place at present...should Stansted be sold, it might seek to differentiate itself from other airports and market its offer more aggressively than it has in the past.²⁴

The range of potential commercial outcomes for Gatwick is further widened by developments at airports such as Luton and Southend, as well as regional UK airports.

3.5 Competition and the cost of capital

The impact of competition on the cost of capital has been extensively researched. A variety of measures of competition and market power have been used, with studies concluding that there is a negative relationship between the level of monopoly power and beta. For example:

A higher degree of monopoly power in the product market will unambiguously lower the systematic risk of a firm, *ceteris paribus*...Based on the CAPM, the firm with a higher market power in its product market can raise capital at a lower cost (by means of a lower required rate of return).²⁵

Other research has reached similar conclusions.²⁶ The relationship runs in reverse, such that, as the number of actively competing firms in an industry increases, the systematic risk of the firms increases. This suggests that, regardless of the precise nature of the competitive dynamics following the break-up of BAA, these dynamics will have increased the systematic risk exposure of the London airports as a group.

3.6 Asymmetric risk

Gatwick faces an additional dimension of business risk in the period beyond Q5, because the distribution of possible profitability is negatively skewed around the central forecast of the business plan. This is a consequence of negatively skewed outcomes for demand, and the operational leverage generated by fixed costs and investments.

The asymmetry of possible outcomes for demand reflects the relative maturity of the aviation market served by the London system, and hence the limited opportunities for outturn demand to exceed forecasts. Furthermore, the aviation market is vulnerable to shocks that reduce demand significantly below forecast, even if only for a relatively short period of time. The impact of these shocks is apparent in the pattern of passenger demand at Gatwick and Heathrow, as shown in Figure 3.3.

Of particular relevance is the decline in passenger numbers since the start of the financial crisis, which has been larger at Gatwick than at Heathrow. The subsequent rebound in passenger numbers has also been more muted at Gatwick, which is consistent with growth in passenger numbers at Gatwick being more negatively skewed as well as more sensitive to the economy.

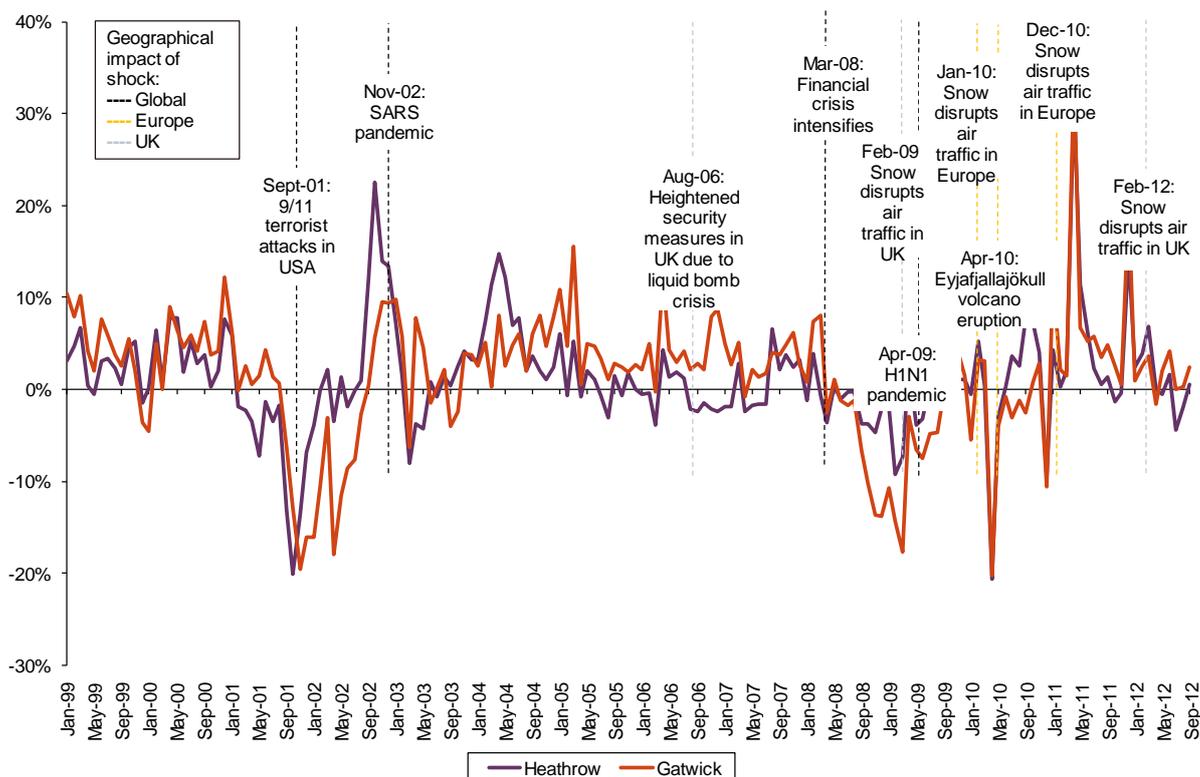
²⁴ Civil Aviation Authority (2012), 'Gatwick – Market Power Assessments: The CAA's Initial Views', non-confidential version, February, para 3.116.

²⁵ Lee, C., Liaw, K. and Rahman, S. (1990), 'Impacts of Market Power and Capital-Labor Ratio on Systematic Risk: A Cobb-Douglas Approach', *Journal of Economics and Business*, **42**, p. 240.

²⁶ Chen, K., Cheng, D. and Hite, G. (1986), 'Systematic Risk and Market Power: An Application of Tobin's q', *Quarterly Review of Economics and Business*, **26**:3. Subrahmanyam, M. and Thomadakis, S. (1980), 'Systematic Risk and the Theory of the Firm', *The Quarterly Journal of Economics*, **94**:3.

Moreover, skewness in profitability is not created solely by skewness in volumes—the wider range of potential commercial outcomes includes greater uncertainty regarding Gatwick’s ability to consistently price up to its cap in the period beyond Q5.

Figure 3.3 Passenger demand at Heathrow and Gatwick since 1999



Source: Oxera analysis, based on data from the CAA.

When combined with operational leverage, a negatively skewed distribution of outcomes for demand entails a negatively skewed distribution of outcomes for profitability. There is a significant body of evidence that shows that investors require higher expected returns for assets where outcomes are negatively skewed and where this skew is correlated with the economy.²⁷ The evidence suggests that negative skew is significant for Gatwick and would therefore be incorporated in the cost of capital.

4 Conclusions

This note has highlighted the main factors influencing changes in Gatwick’s risk profile since the CAA’s Q5 decision in 2007–08—specifically, increased operational leverage; changes to the business models of airlines; a wider range of competitive outcomes; the impact of competition on the cost of capital; and asymmetric risk.

The note has focused on Gatwick’s exposure to systematic and economy-wide risks, and hence on those risks for which a well-diversified investor would require compensation through the expected return on capital. As there are a number of drivers of increased asset risk in the period beyond Q5, it is to be expected that there will be upward pressure on the cost of capital estimate, all else being equal. It is important that these factors are accounted

²⁷ For example, see Harvey, C.R. and Siddique, A. (2000), ‘Conditional Skewness in Asset Pricing Tests’, *Journal of Finance*, 55:3, June, pp. 1263–96; and Kraus, A. and Litzenberger, R.H. (1976), ‘Skewness preference and the valuation of risk assets’, *Journal of Finance*, 31:4, September, pp. 1085–100.

for when estimating the asset beta and the cost of capital for the purposes of regulation in the period beyond Q5—these factors will be addressed in more detail in Gatwick’s full cost of capital submission.