KPMG

cutting through complexity

Overseeing the Financial Robustness of a Promoter in Delivering New Airport Capacity

FINAL REPORT

2017

Important notice

This document (the "Report") was prepared for the Civil Aviation Authority (the "Regulator" or the "CAA") as part of the scope of work as per our Engagement Letter dated 26 April 2016. The work on this Report was largely completed in early 2017.

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Scope of the Report: The Government on 25 October 2016 announced its decision to support a new runway at Heathrow. This is one of the three shortlisted schemes considered by the Government.

As the original scope of our work is to advise CAA on all the three shortlisted schemes; and as majority of the Report had been written at the time of the Government's announcement, it was agreed with CAA that the Report is updated to focus on the selected Heathrow scheme. However, for completeness, the Report includes references to other schemes in some sections.

This Report was issued on 13 February 2017 following which some drafting changes and additional commentary were added based on requests from the CAA.

Executive summary

Objectives of this Report

The CAA (the Regulator) commissioned KPMG to analyse how it could protect customers from the risks of, and the impact on passengers of, a promoter of new runway capacity going into a financial distress.

In order to address this question, KPMG considered how a promoter developing new runway and airport capacity in the South East could experience financial distress in the course of the project development and what ex-ante measures could be used by the Regulator to enhance the financial robustness of the promoter and hence reduce the risk of financial difficulty and distress. The results of this analysis are presented in this Report.

The CAA asked KPMG to focus on regulatory measures that would target financing of the project ('financing measures') as opposed to the wider regulatory framework for airport expansion, while recognising the importance of the latter for financeability and hence also for the risk of distress.

Financing measures should be considered in the context of the overall regulatory framework and measures related to funding and delivery which can also impact on the risk of financial distress. In particular, regulation of funding from revenues from ongoing operations as well as the treatment of costs will affect promoter's risk exposure, financeability, and the effectiveness of any potential regulatory measures targeting financing.

The measures adopted as part of the wider regulatory framework can complement or even substitute potential financing measures, for example, by providing an additional financial buffer or greater risk sharing.

Assumptions

The impact, effectiveness and costs of different forms of intervention critically depend on the vulnerability of the project and the promoter's business to different types of risks, shocks and events that could lead to financial distress.

These risks and events, in turn, depend on the detailed characteristics of the project itself and, in particular, on how the expansion will be delivered, on the regulatory framework, the financing arrangements to be adopted by the promoter, and various other external factors. This means that the analysis presented in this Report critically depends on a large number of assumptions made about these factors, which are not known at this stage.

In particular, the analysis in this Report is guided, but also limited by, the preliminary assumptions about the regulatory regime for the new runway which is based on the current regulatory framework.

Sources of information

This Report relies exclusively on publicly available sources of data and information about the airports' operations and the proposed delivery and financing of the expansion schemes. No assumptions, data or analysis presented in this Report have been reviewed or validated by the airport expansion promoter(s).

The main source of information for this Report is the data, evidence, and analysis published by the Airports Commission. This is supplemented by the information published by the promoter and other publicly available sources, in particular about the airports' operations and financing structures.

Precedents

There is a wide range of regulatory interventions—including both pre-emptive as well as reactionary measures—that might be available to reduce the risk and impact of financial distress.

While economic regulators typically leave financing decisions to the regulated companies themselves, they have used specific, direct and indirect regulatory financing measures in many cases before.

For example, economic licences of many regulated utilities in the UK include requirements to ensure investment grade credit rating. The way the allowed rate of return and the tax allowances are set could have an impact on the regulated company's financing decisions. In some cases, regulation allows for risk sharing of the costs of financing.

Many regulators have also developed a defined set of measures to be implemented in case of financial distress, i.e. in a financial distress scenario.[1] In some other industries there are also special administration provisions to minimise the impact of failure, which could be due to financial distress.

Limitations

The analysis presented in this Report focuses on the potential causes and impacts of financial distress and explores the effectiveness of potential measures to prevent distress in different scenarios. It does not constitute an impact assessment or a cost-benefit analysis of any particular measure or a set of potential regulatory measures.

This analysis also does not consider to what extent any particular measure explored in the course of this study is in line with other regulatory objectives, Regulator's duties, or is/are compatible with the promoter's licence.

Detailed calibration of any potential regulatory measure is outside the scope of this Report and is dependent on the approach to delivery, regulation, funding, and financing of the project. Impact assessment based on a more detailed calibration process might need to be undertaken in due course, if any of the measures were to be considered for implementation.

Schemes considered

Prior to the commencement of this Report, the Airports Commission recommended the new North West runway at Heathrow as the solution to the problem of the lack of runway capacity in the South East. At the same time, three different schemes for runway and airport expansion were still being considered by the Government at the beginning of this study and all three schemes at Gatwick and at Heathrow were explored as part of this study. During this study, the Government announced its support for a new North West runway at Heathrow.[2] Therefore, the analysis presented in this Final Report has considered this particular scheme only.

Overall approach

This Report represents an initial analysis and is not based on any prior work by the CAA on this matter. Most of the analysis was carried out in 5 steps:

- The first step of the analysis was to consider and define the notions of financial robustness, financial difficulty and financial distress.
- In the second step, expansion projects alongside airports' ongoing operations were modelled based on assumed financial structures.

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[1] For example, Ofgem and Ofwat has financial distress manuals.
[2] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

- The third step was to consider potential risks and develop a set of realistic, but still indicative, risk scenarios that could lead to financial difficulty or distress in the course of project development.

- In the fourth step, the financial robustness of the promoter was tested under specific risk scenarios and based on the assumptions about the applicable regulatory regime. This has set the baseline results about the financial robustness of the promoter for withstanding shocks while implementing the expansion project without any additional measures.

- The final step consisted of evaluating different potential financing regulatory measures to mitigate the risks of shock scenarios to conclude about the potential effectiveness and costs of different measures in mitigating the risk of financial difficulty and financial distress.

Defining financial difficulty and distress

There is no one definition of what constitutes a situation of financial distress. This Report assumes a broad definition of financial distress acknowledging that *financial distress* can be defined as a range of events where the promoter cannot sustainably access financial resources to meet its obligations, or the project is no longer viable from a financial perspective, or the promoter faces some *financeability challenges,* where it can still access financing, but this access may be limited and increasingly costly, impacting project delivery or posing future financeability concerns.

Dimensions of financial distress

There are a number of interdependent dimensions of financial distress and financial difficulty. This Report concentrates on four specific dimensions:

(1) Funding (revenues);

(2) Liquidity;

(3) Debt financeability; and

(4) Equity financeability.

These four dimensions of financial difficulty and distress are interdependent—for instance, cash generation ability, especially over the medium term, could be a major driver of debt and equity financeability of the project.

Risks and scenarios that could lead to financial distress

This Report has carefully considered a wide range of risks that could lead to financial distress. There are three, broad types of risks considered in this Report:

(1) Financial market disruption;

(2) Demand shocks; and

(3) Capex and other cost shocks.

A shortlist of material risks was developed based on the expected severity of the impact of each risk depending on its likelihood and potential magnitude. The magnitude of each risk was assessed based on its potential impact on both financial resources and on financial obligations, as well as on the non-financial considerations such as reputation.

The timing of each risk is an important aspect of risk scenarios. The timing of when the risk is known to materialise in the project cycle compared with the time of the impact on financial resources is relevant for determining the nature of the appropriate intervention to manage particular risks. For example, a severe financial market disruption during the peak Capex period could have a significant impact on the promoter's ability to raise the required debt to finance the project, and might leave little time to introduce mitigation.

For each category of risk, individual risks were further identified and grouped based on their characteristics. The additional classification of risks facilitated a better

understanding of the severity of the potential impact of such risks, if they were to materialise, and the suitability of various regulatory measures to address them.

Since the proposed expansion schemes are of a significant size relative to the promoter's existing asset base, Capex or cost shocks represent a key risk for the promoter. Capex shocks were grouped based on the stage of construction during which the particular risk may materialise, i.e. initiation; planning and development; procurement; execution delivery; and handover stage.

The stage at which a Capex shock occurs during a project's construction lifecycle would determine the extent and the impact of the shock on the promoter's financial standing. For example, a significant delay of more than 12 months in the project initiation or planning stage might have (relatively) lower impact on the promoter's ability to raise finance compared to a similar delay during the period of peak debt issuance.

Demand shocks and market risks were similarly grouped, based on the driver of the business risk.

Based on the above, a list of eight specific potential risk scenarios that could lead to financial distress were developed, covering all 3 types of risks mentioned above. A description of each of the eight scenarios was developed, highlighting the importance of that scenario in the context of airport expansion and based on historical evidence, where available.

The eight market scenarios that could lead to financial difficulty or even financial distress analysed in this Report are as follows:

Two financial market disruption scenarios: The *first* financial market disruption scenario represents a 'non-prohibitive' market disruption based on the assumed increase in the cost of debt during the peak Capex period. The *second* scenario is a 'prohibitive' financial market disruption leading to a significant increase in the cost of debt and a restriction on the promoter's ability to raise debt during the period.

Three demand shock scenarios: Three demand shock scenarios were analysed representing a wide range of demand risks. The *first type* was assumed to have the effect of a one-off traffic shock resulting in a month of very low traffic followed by a few months of low traffic. The *second* type of a demand shock assumed very low traffic during the year of the shock, followed by lower growth in demand in the second year. The *third* type of a demand shock was assumed to have the effect of a sustained, low volume growth compared to the growth rate assumption in the Base case.

Three Capex (construction cost) shock scenarios: If Capex shocks are not contained within the supply chain or through market based insurance, then the promoter could be exposed to significant cost overruns. Three Capex shock scenarios were analysed in this Report with different levels of assumed Capex overruns, project delay, and ex post disallowance of overspend.

Mitigations that would normally be expected from the promoter under these scenarios and stakeholder reactions were also identified.

Results from the Base case financeability analysis

In general, stylised financial projections based on the approach and assumptions explained above indicate that, assuming scaling up of the current financial structure to finance the project (which would represent a significant increase in the asset base), Heathrow, as the promoter, is already relatively financially robust and resilient to moderate shocks.

The promoter displays strong cash generation potential and experience of financing and delivering major projects. Initial statements from credit rating agencies also support this view.

The scheme is of significant size and complexity, and exposed to significant third party costs (e.g. surface access and land purchases). The promoter is considered to have experience of successfully delivering major capital projects (e.g., Terminal 5).

The financing requirements for the scheme is very high both annually and in aggregate over the scheme period.

The scale of the Heathrow project, the short period over which the majority of Capex is spent, and the high existing leverage of the business, means that the promoter, while relatively financially robust and resilient to moderate shocks, remains vulnerable to certain risks.

Impact of different risk scenarios and potential for distress

The impact of different risk scenarios were analysed for the Heathrow's North West Runway scheme approved by the Government.

In general, it could be expected that any major shock would be most likely accommodated by delaying the project, which would create additional costs.

A debt market disruption leading to an increase in interest rates may lead to financial challenge due to the scale of the debt financing requirement. In this scenario, the promoter could be exposed to a high cost of debt for a longer period of time.

A severe market disruption, with limited or no access to debt financing, is likely to lead to a financial difficulty or even distress, if not otherwise mitigated. In this scenario, the promoter would not be able to raise the required amount of debt leading to requirements for re-profiling or delaying the project, in addition to potentially bringing in additionally equity to complete the project.

The scale of the Capex requirement also means that Heathrow could be vulnerable to major risks of increased construction costs, which may lead to financial difficulty, especially if there is subsequent disallowance of additional costs incurred.

An increased Capex spend might lead to further dependence on debt financing, where the projected debt issuance programme by the promoter is already of a very significant size in comparison to both previous debt issuances by Heathrow and the size of debt issuance by other regulated companies for large capital projects.

A material Capex overrun would also lead to reputational risk in addition to potential rating downgrade. This can lead to an increase in borrowing costs, leading to further financial difficulty.

The impact of a reasonable demand shock on existing business during construction (informed by historical track record) is comparatively modest, since the extent of reliance on cash flows from existing operations to support the new runway project costs is relatively small compared to the scale of the project.

The track record indicates that the impact of demand shocks at Heathrow in the past has been small. However, any longer term disruption to the existing operations could lead to a financial challenge where the promoter would be exposed to worsening credit metrics at the same time as implementing the Capex project.

Categories of measures supporting financial robustness

There are three broad types of potential regulatory measures that could be considered to limit the risk of financial difficulty or distress: *delivery, funding,* and *financing*; each of which can also be categorised according to the time of their application (i.e., preventative, monitoring or reactionary measure).

Financing measures can influence how the project is financed, including upfront financial requirements or constraints on the adopted financing structure. *Delivery measures* can influence how the project is delivered and managed. *Funding measures* could determine charges for customers and hence revenues and cash flows available to fund the project from ongoing airport operations.

Any potential regulatory measures should be also considered in the context of the promoter's possible mitigation actions. There are some risks that can be, and would be expected to be, fully mitigated by the promoter, e.g. currency risk. Where the promoter cannot fully mitigate the risk or mitigation is costly, the Regulator can evaluate the benefits and costs of additional regulatory intervention compared to a situation where the promoter acts independently.

Four specific regulatory approaches

In addition to the high level analysis of a wide range of potential regulatory measures, the Report includes a qualitative analysis of each of the financial regulatory measures selected for further analysis. Strengths and weaknesses of each of these measures are presented and informed by historical evidence of the application of these measures by other regulators.

The qualitative assessment of a wide range of potential regulatory financial measures and the focus of the analysis on specific measures result in a selection of four types of measures for further analysis: *gearing regulation*, a *minimum liquidity requirement*, a *minimum credit worthiness requirement*, and a *cost of debt risk sharing*.

These four regulatory approaches have been specifically chosen for further analysis in line with the CAA's instructions.

The regulatory approaches tested for its effectiveness in preventing financial distress are therefore:

1: *Maximum gearing regulation*, through either a gearing cap or a partial clawback of tax allowance;

2: *Minimum liquidity requirement* such as e.g. cash reserve requirement with potential additional funding allowance, which could include either a cash requirement or requirement for standby facilities;

3: *Minimum credit worthiness*, requiring either a minimum credit rating or minimum ratio requirements; and

4: *Risk sharing on the cost of debt*, through sharing of a proportion of the movement in the cost of debt.

Each of these approaches consists of multiple different potential measures and their variants, which are likely to have a broadly similar impact and are therefore assessed together. Notwithstanding the above, detailed specification and calibration of each of the measures could still, in practice, significantly affect the impact, costs, and effectiveness of each measure.

Enhanced information reporting, assessment, monitoring and strengthening of the availability of resources statement are recommended in any case and would be complementary to any of the above approaches.

Assessment of specific regulatory approaches

A combination of quantitative and qualitative criteria was chosen to assess selected regulatory measures.

Regulatory measures provide benefits through their ability to reduce the risk of financial distress scenarios and to minimise the cost of financial distress. The optimal regulatory package should provide the best outcome for customers based on the trade-off between the benefits of intervention and the costs, while ensuring that the project is still financially viable.

Qualitative measures used to test the regulatory approaches include suitability, proportionality, direct and indirect costs of the measures, and trade off with other regulatory goals.

Effectiveness is central to the assessment of different regulatory measures and is undertaken in the following steps: (1) defining financial distress and how it can be

measured; (2) understanding how financial distress could occur; and (3) assessing how measures could increase financial robustness.

The regulatory approaches are assessed based on the definition of financial distress across the four dimensions and eight distress scenarios mentioned earlier.

The first two approaches (*gearing regulation* and *minimum liquidity requirement*) are more complex, but potentially most relevant in the context of financial distress.

Maximum gearing regulation

A gearing cap generates a financial buffer through additional debt capacity, which can be accessed during the project, providing it is relaxed at the right time and can be used at that point in time. This measure effectively substitutes equity for debt, improves free cash flow (liquidity), and debt financeability ratios.

Maximum gearing regulation helps to mitigate the impact of a financial market disruption that increases interest rates, but would be less effective in mitigating the impact of a more severe disruption if access to debt financing is limited or not available.

The ex post effectiveness of this measure would depend on the original calibration of the gearing cap level. A lower gearing threshold could be more effective in mitigating the risks of financial distress, but could come at a considerable cost to equity and the overall cost of capital.

At the same time, some of the increased cost of equity may be mitigated by the improved financial risk profile reflected in the lower cost of equity due to lower leverage; and a lower cost of debt due to any improvement in the credit rating of the promoter and consequently a lower cost of borrowing. However, overall, this measure would still result in a higher cost of capital.

Gearing regulation, when relaxed at the time of a demand shock, would improve the promoter's ability to manage the cash flow impact of the shock, but the demand shock alone is unlikely to lead to a full distress outcome in any case, and the impact of a demand shock might be accommodated by the promoter even without reduced gearing.

In case of a Capex shock, the additional debt capacity could accommodate and finance additional costs. Even in the absence of the gearing cap measure, increased debt financing could be effective in meeting some of the increased financing requirements. In a Capex scenario with a potential risk of disallowance, the measure could improve debt financeability by providing a headroom for any Capex disallowance.

Where there is a risk of moral hazard, the measure could also prevent excessive gearing by the promoter, who might be motivated by an assumption of a degree of additional risk and cost sharing with customers.

Even in the presence of the gearing cap, the promoter could adopt a higher leverage above the licensed entity and outside of the regulatory ring fence. This might result in a debt overhang problem outside the ring fence which could prevent some additional equity from being injected at the time of financial difficulty.

There are also a number of implementation issues to be considered in this context. Maximum gearing regulation measures may also put increased pressure on the equity dimension (i.e., ability of the promoter to access equity capital) of distress, and therefore may even exacerbate the impact of scenarios where equity financeability becomes challenged.

Overall, the analysis indicates that the gearing cap measure might have mixed effectiveness depending on the scenario, and could imply additional costs, depending on calibration.

Minimum liquidity requirement

Minimum liquidity requirement is tested by using a minimum cash reserve requirement.

A liquidity or standby facility requirement may also be considered as a cost effective alternative. A cash reserve requirement measure is assumed to provide immediate access to liquidity in case of a shock.

Compared with other measures, a cash reserve requirement becomes most helpful in the case of a prohibitive debt market disruption.

In the case of a demand risk scenario, the financial challenge can be effectively managed by available cash flows without the need for an additional regulatory measure.

In case of a Capex shock, a cash reserve requirement may provide the required additional headroom and liquidity.

The cash reserve measure could also have the effect of sculpting the debt drawdown profile resulting in lower peak debt issuance, which would somewhat limit the financing challenge of the project as the cash reserves will be built up on a forward looking basis.

The measure may also be applied alongside a funding measure. This could ensure that the additional funding is ring fenced for the purposes of the project.

Though a cash reserve measure would impose an additional cost to service the capital bought in advance to provide liquidity (which could be substantial), this may be partly offset by the potential improvement in the risk profile of the project. The promoter could also potentially benefit from a higher credit rating and a lower cost of debt.

The cash reserve measure modelled, without taking into account any interest income on the cash reserves or any benefit from improved risk profile, could result in a small increase in the WACC.

Overall, the minimum liquidity requirement measure is effective, but would be also costly to implement, especially if a large buffer is to be created.

Minimum credit worthiness

A minimum credit worthiness requirement (either by requiring minimum credit metrics or by setting a minimum credit rating) could have some impact on improving the promoter's financial robustness, but is not considered to be an effective regulatory measure for Heathrow in the delivery of the NWR scheme.

First, at least to some extent, the promoter would be expected to implement it anyway to ensure its ability to access required debt financing in the first place.

Second, credit worthiness measures may not cover all dimensions of financial distress (i.e. equity financeability).

Also, this measure might be difficult to calibrate since the scale of the project and the current regulatory regime may distort relevant financial ratios. A rating requirement is also problematic in the absence of a clear view on the methodology that would be applied.

Both the credit metrics and the credit rating-based measures may be slow in reacting to a potential distress situation (as the Capex project is implemented) and, similarly, for any remedial actions required based on these measures.

The credit worthiness measures also do not provide sufficient protection from the main risk scenarios without additional enforcement measures being considered. Other disadvantages include potential overlap with the existing financing arrangements, the need for the CAA to develop a list of suitable metrics, or to rely on a third party without a clear view of the exact methodology used.

Overall, a minimum credit worthiness might be a more suitable measure to ensure financeability and limited financial risk during normal operations, but would be less effective in preventing financial difficulty or distress in the context of a large Capex project.

Credit worthiness measures may however be used as financial indicators as part of the CAA's monitoring, assessment, and reporting of the promoter's financial risk.

Cost of debt risk sharing

A financial market disruption, leading to an increase in the cost of debt, may pose a financial challenge for the promoter. This approach allows the impact of an increase in the cost of debt to be shared with customers, which is relevant given the scale of the debt requirement.

The effectiveness of such a measure in the year of a non-prohibitive financial market disruption shock, and in the immediate period afterwards, would depend on how it is defined and calibrated. A forward looking measure that adjusted charges in the coming year for forecast interest rates would mitigate the impact on liquidity and credit ratios starting from the year of the shock.

A risk sharing measure would protect the debt and equity dimensions of distress, but would pass on some or all of the additional costs to customers. These costs could be substantial due to the scale of financing required for the project.

Overall, a form of risk sharing of the cost of debt could be effective to reduce financial exposure in some scenarios. It also protects customers from having to pay for financial robustness in advance of the potential shock, but would carry a cost to customers in case of a shock.

Overall conclusions

Heathrow North West Runway is the chosen scheme. This high level, initial analysis based on stylised financial projections indicates that the scheme promoter, Heathrow Airport Limited, is in a relatively robust financial position based on its ongoing cash generation, but is also highly leveraged and is facing a very significant financing need for the new project. It would be particularly exposed to a major financial market disruption, or a major Capex shock along with cost disallowance.

It is unlikely that a single measure could be effective in mitigating the risk of financial distress in all scenarios. Under the assumptions used in this analysis, a combination of regulatory approaches could be considered effective in reducing the likelihood of financial distress, while ensuring a certain level of financial robustness.

A minimum liquidity requirement could be effective in mitigating most of the risk scenarios considered providing they are temporary and limited in scale. A cost of debt risk sharing mechanism could provide focused mitigation of a non-prohibitive financial market disruption risk, which is likely to be material in the context of a runway project, and would avoid upfront costs. A credit worthiness requirement could be considered as a precautionary measure rather than as a preventative measure and could be included as part of an enhanced information reporting and monitoring regime. A gearing cap measure is likely to have mixed effectiveness depending on the scenario, and could be costly in terms of its impact on the cost of capital depending on the level at which it is set.

These conclusions are subject to the assumptions made on the regulatory regime and are based on an analysis of financial distress in isolation. In reality, financial distress is only one consideration within the overall regulatory regime for the new runway, and needs to be considered holistically alongside other elements of the regulatory package, in particular the profile of funding and how cost risk will be managed.

Any additional regulatory measures would benefit from a detailed impact assessment, cost benefit analysis, and consultation with stakeholders, in addition to a clear implementation plan.

Contents

1 Introduction

1.1 Scope and focus of this Report

The CAA (the Regulator) commissioned KPMG to analyse how it could protect customers from the risks of, and the impact on passengers of, a promoter of new runway capacity, going into a financial distress.

In order to answer this question KPMG considered how a promoter developing the new runway and airport capacity in the South East could experience financial distress in the course of the project development, and what ex-ante measures could be used by the Regulator to enhance the financial robustness of the promoter and hence reduce the risk of financial difficulty. The results of this analysis are presented in this Report.

The advice sought by CAA included: regulatory measures that would reduce the risk of a promoter of a new runway capacity going into a financial distressed situation (i.e. preventive measures) and regulatory measures that could be used or deployed closer to the time that a promoter goes (or is expected to go) into financial distress. Based on the above, CAA sought recommendations on the overall regulatory strategy that deals with the risks of financial distress.

Prior to the commencement of this Report, the Airports Commission recommended the new North West runway at Heathrow as the solution to the problem of the lack of runway capacity in the South East. At the same time, three different schemes for runway and airport expansion were still being considered by the Government at the beginning of this study and all three schemes at Gatwick and at Heathrow were explored as part of this study. During this study, the Government announced its support for a new North West runway at Heathrow.[3] Therefore, the analysis presented in this final Report has considered this particular scheme only.

There is a wide range of possible pre-emptive as well as reactionary regulatory interventions that could reduce the risk and impact of financial distress but could also imply additional costs.

The way the allowed rate of return and the tax allowances are set could also have an impact on the regulated company's financing decisions. In some cases, regulation determines risk sharing of the costs of financing. Many regulators have also developed a defined set of measures to implement 'ex post' i.e. in the financial distress scenario.[4] In some other industries there are also special administration provisions to minimise the impact of failure, which could be due to financial distress.

In general, any potential financing measures should be considered alongside the regulatory approach to funding and delivery as part of the overall regulatory package. In particular, regulation of funding[5] from revenues from ongoing operations as well as the treatment of costs will critically affect promoter's risk exposure, financeability, and the effectiveness of any regulatory measures targeting financing that could be considered to reduce the risk of financial distress. The measures adopted as part of the wider regulatory framework can complement or even substitute the financing measures, for example, by providing an additional financial buffer or risk sharing.

1.2 Limitations

There is uncertainty about how the new airport capacity will be delivered. The final decision on the selected option had not been made at the start of this work. Additionally, the details of how the promoter will deliver the project, the financing arrangements and regulatory package

[3] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

[4] For example, Ofgem and Ofwat has financial distress manuals.

[5] Throughout this Report "funding" refers to revenues from regulated and any unregulated activities as opposed to "financing" which refers to debt and equity financing.

continue to be developed. Whichever project is ultimately taken forward, a promoter's decisions on how it is delivered will impact the project risks and the assessment of regulatory measures.

The analysis presented in this Report critically depends on a large number of assumptions made about the project itself and on how the expansion will be delivered, the wider regulatory framework that will be put in place, the financing arrangements to be adopted by the promoter and various external factors, which are not known at this stage. In particular, the analysis in this Report is guided, but also limited by, the preliminary assumptions about the regulatory regime for the new runway, which is based on the current regulatory framework.

Limitations and assumptions underlying this study are set out in detail in section 1.2. Users of this Report should also note the specific assumptions on the stylised financial projections used for the quantitative analysis.

The analysis presented in this Report draws on the Final Report[6] of the Airports Commission as a public source of information. However, the context in which the information was submitted should be acknowledged as there may be significant changes to the drivers and underlying assumptions of the publically available information. Such changes are outside the scope of this Report, unless specific new information is provided by the CAA and identified herein.

This analysis focuses on the potential causes and impacts of financial distress and explores the effectiveness of potential measures to prevent distress in different scenarios; it does not constitute an impact assessment or a cost-benefit analysis of any particular measure or a set of potential regulatory measures.

This analysis also does not consider to what extent any particular measure explored in the course of this study is in line with other regulatory objectives, Regulator's duties, or is/are compatible with the promoter's licence or relevant statutes.

Detailed calibration of any potential regulatory measure is also outside the scope of this Report and is necessarily dependent on the important details about the delivery, regulation, funding, and financing of the project. Impact assessment based on a more detailed calibration process might need to be undertaken in due course if any of the measures were to be considered for implementation.

The analysis in this Report is based on the following constraints, as agreed with the CAA:

- The options for the regulatory strategy are focussed on financing measures and tools. While delivery and funding related measures are included within the review of regulatory measures, the options built predominantly on financing measures.
- The Base case used in this Report assumes a continuation of the existing funding regimes for each airport for Q6 and an extrapolation of the current financing structure.
- The analysis is based on an illustration of the potential actual rather than notional financing structures assumptions and does not model these in detail. We have not considered the cost of debt report[7] commissioned by the CAA (together with Ofwat) during the course of this study.
- Changes in the financial standing of the airports between the date of this Report and the time of implementation of the new regulatory regime, if any, would need to be taken into account.

[6] Airports Commission: Final Report dated July 2015 (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf)

[7] CEPA (August 2016). Alternative approaches to setting the cost of debt for PR19 and H7 (http://www.cepa.co.uk/news-details-ofwat-consult-on-approach-to-the-cost-of-debt?selYear=2016)

- The focus of the analysis is exclusively on the financial robustness of Heathrow (SP) Limited, subject to any specific comments noted in this Report.
- This Report takes a broad definition of 'financial distress' acknowledging that this can correspond to a range of possible scenarios and outcomes, and includes a situation where financeability is challenged, but a promoter is not in a full distress situation.
- This Report considers situations of potential financial distress. However, monitoring of early warning signals such as key credit metrics may support the CAA in identifying false signals of financial distress. This is detailed further in section 3.3.3.
- The focus is on external risks that may cause financial distress. There is no analysis of the risks that may be due to, for example, poor management of the business. Similarly, the consequences of promoter decisions that change its risk profile between now and the implementation of the regulation are not considered.
- The analysis presented in this Report is limited to the impact of the scheme on the promoter of new airport capacity. The impact of the decision on the airport that is not selected to undertake the new airport capacity project is not considered.
- This Report focusses on ex-ante regulatory mechanisms and actions. This includes measures that are set ex-ante and triggered in a distress scenario. However, it excludes reactionary measures that are defined only in a financial distress scenario.
- This is not a financeability study. This Report does not look at the ability of a promoter to raise the required finance to support the development of their scheme or the sufficiency of any price limits set by the Regulator to enable a promoter to raise the required finance. The focus of the study is on financial distress and possible associated regulatory measures.
- The implications of the results of the UK's EU Referendum are evolving and too uncertain to warrant specific discussion within this Report. Selected, potential risks associated with Brexit are highlighted within the risk assessment e.g. demand risks.

1.3 Assumptions

The impact, effectiveness and costs of different potential forms of intervention critically depend on the vulnerability of the project and the promoter's business more generally to different types of risks, shocks, and events that could lead to financial distress. These risks and events, in turn, depend on the detailed characteristics of the project itself and, in particular, on how the expansion will be delivered, on the regulatory framework, the financing arrangements to be adopted by the promoter, and various external factors. This means that the analysis presented in this Report critically depends on a large number of assumptions made about these factors, which are not known at this stage. In particular, the analysis in this Report is guided, but also limited by, the preliminary assumptions about the regulatory regime for the new runway which is based on the current regulatory framework:

- The current regulatory model will continue to exist and is the basis for analysis.
- The CAA is able to open the price cap review at any time (and both the promoter and the airlines can appeal the price cap re-opener). The CAA is aware of the implications of this approach and the potential risks it has on financeability.
- There will be no specific contract between the CAA and the successful promoter for the new runway capacity. Instead, the CAA will rely on policy statements, licence conditions and regulatory precedents to ensure stakeholder confidence in policy stability.
- There will be a single price control, which covers both continuing airport operations and the new runway capacity project.
- There will be a single revenue stream, which will be used to fund both continuing airport operations and the new airport capacity project.

- There will be a single RAB (Regulatory Asset Base), which captures both the existing airport operations and the new airport capacity project.
- The scheme RAB earns a return during construction but is not depreciated until the new assets are operational.
- The WACC over the forecast period for each promoter is assumed as Q6 WACC + 0.5%. This is for illustration only and is not indicative of any potential premium or future allowed returns. Any significant variation to the WACC assumption will have a material impact on the ability of a promoter's forecast cash flows to support the scheme at the time of a shock.
- The Report does not assume any pre-determined role for the Government to support any expansion scheme. The promoter would continue to have access to Government programmes that are available for any infrastructure project, but a special Government support package or guarantee is not considered in this Report.
- It is assumed that 100% of the construction cost risk is borne by the promoter (upside and downside), i.e. there is no risk sharing of costs between the promoter and its contractors or sub-contractors.
- The regulatory measures can be applied at any stage of the delivery of new airport capacity, starting from the announcement of a promoter and scheme.

1.4 Use of quantitative analysis

Financial distress can be thought of as a quantitative metric resulting from insufficient financial resources to meet financial obligations. Quantitative analysis is an important supporting tool in the analysis of financial distress. However, this is primarily a policy study and high level quantitative analysis using stylised calculations is only one component of the analysis.

It is important to emphasise that the financial projections used for this Report (see section 5.1 for the presentation of the financial projections used) are an approximation of the existing and future financial structures that might be adopted by the promoter. They do not necessarily reflect the actual financial structures, or the promoter's views and strategies of how they are planning to finance the expansion project. The financial projections used in the analysis are, where possible, based on relative movements of ratios to the current level rather than using the absolute ratios.

1.5 Approach and structure

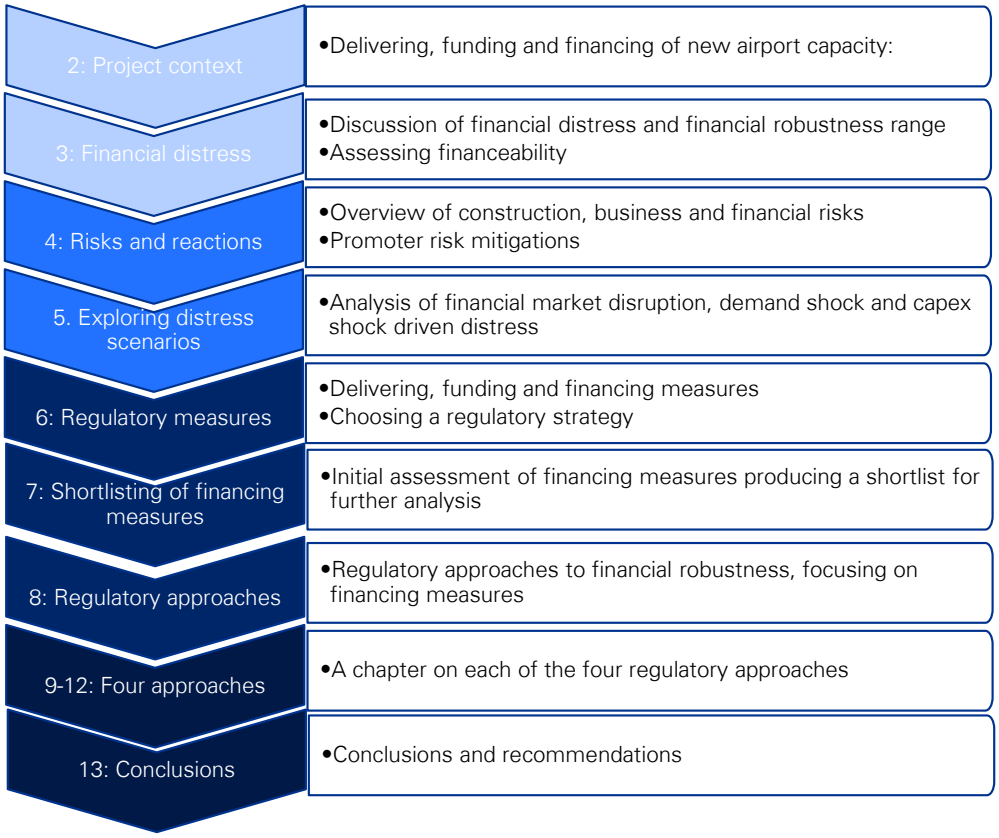
An integrated approach was adopted to identify the regulatory measures that would be effective in reducing the likelihood of a financial distress situation:

- The first step of the analysis undertaken for this Report was to define financial robustness and financial distress. This included establishing criteria for measuring financial distress or financial challenge across various dimensions of distress (liquidity, debt financeability, equity financeability and funding challenge).
- In the second step expansion projects alongside airport's ongoing operations were modelled and certain financial structures were assumed.
- The third step was to consider potential risk scenarios that could lead to financial difficulty or distress in the course of the project development.
- The financial robustness of the promoter was then tested under these specific risk scenarios and based on the assumptions about the regulatory regime that will govern the expansion. Anticipated promoter mitigations were also analysed at this stage. This was used to set the baseline results about the financial robustness of the promoter for withstanding shocks while implementing the expansion project.

- The final step consisted of evaluating different potential financing regulatory approaches to mitigate the risks of these shock scenarios in order to conclude about the potential effectiveness, costs of these measures in mitigating the risk of a financial distress. This Report uses both quantitative and qualitative analysis to test the effectiveness of the regulatory measures.
- Based on an initial qualitative analysis, a set of four financial regulatory approaches were identified and analysed in more detail for their likely effectiveness in preventing financial distress.

The structure of the Report is shown in the figure below.

Figure 1: Structure of the Report



Delivery, funding and financing of new airport capacity

The delivery model, funding framework, and financing structure are three aspects that determine how new airport capacity will be provided.

Section 2 discusses how new airport capacity may be delivered, funded, and financed providing the context for considering financial distress risks and measures.

Defining financial distress and financial robustness

Financial distress and financial robustness are not discrete concepts. Understanding what constitutes financial distress and what defines and determines financial robustness is a pre-requisite to analysing distress risks and regulatory measures.

Section 3 sets out the approach to financial robustness and financial distress. This Report takes a broad view of financial distress including a range where financeability is challenged. Four dimensions of distress are considered: liquidity; debt financeability; equity financeability; and funding. This section also considers the financeability of the airport expansion project as a foundation for understanding financial distress risks.

Financial distress risks and promoter mitigations

While it is not possible to map all possible risks, the source and nature of the risks influences the evaluation of regulatory measures, as do the promoter's mitigating actions and stakeholder reactions.

Section 4 identifies and evaluates a range of possible construction, business and financial risks and discusses the impact of promoter mitigations and stakeholder reactions.

Exploring distress scenarios

Similar to risks, it is not possible to account for all financial distress scenarios. However, it is important to consider how different types of risk may lead to distress and the implications for promoter mitigations.

Section 5 analyses a subset of potential scenarios for financial distress, defined by the risks we have identified. The same set of scenarios are tested for the airport schemes. Where appropriate, the scenarios are calibrated based on the scheme characteristics. The potential mitigating actions by the promoter are also considered.

The approach to constructing the financial projections used in the scenario analysis, along with underlying assumptions, are described in Section 5.

Regulatory measures

There is a range of regulatory interventions that could be used to remedy financial distress risks, including preventative, reactive and monitoring measures. A regulatory strategy or package is likely to consist of a number of different regulatory measures.

Section 6 sets out a list of potential regulatory measures and considerations for the regulatory strategy. The section also considers how these measures may be combined, the interactions with promoter mitigations, and potential criteria for evaluating different approaches.

Section 7 provides an initial assessment of financing measures and their strengths and weaknesses. A set of measures is shortlisted for further analysis.

Regulatory strategies for financial robustness in the delivery of new airport capacity

Financial distress could be caused by any of the individual risks or a combination of a number of unrelated risks. A range of different possible regulatory strategies could be applied in this uncertain environment.

Section 8 sets out four regulatory approaches that focus on financing measures. Each approach could be implemented in a number of different ways and a description is provided for each approach. The section also provides a discussion of the advantages and disadvantages based on the illustrative evaluation criteria set out in section 6.5.5.

Sections 9 to 12 discuss each of the four approaches in turn (maximum gearing regulation, minimum liquidity requirements, credit worthiness requirements and cost of debt risk sharing).

Section 13 provides concluding remarks.

2 Delivery, funding and financing of new airport capacity

2.1 Delivery of new airport capacity

This section describes the airport capacity expansion schemes under consideration, which forms the basis for the financial projections used for analysis in this Report.

Following the conclusion of the Airports Commission in July 2015,[8] three schemes were shortlisted for the provision of new airport capacity in the South East of England:

- Heathrow Northwest Runway scheme promoted by Heathrow Airport Limited;
- Heathrow Extended Northern Runway scheme promoted by Heathrow Hub Limited; and
- Gatwick Second Runway scheme promoted by Gatwick Airport Limited.

Capex forecasts for each of the three options have been reviewed and scrutinised by the Airports Commission. The Airports Commission reviewed the submitted costs and normalized promoter's submissions.[9] This normalization process involved adjustments to base cost estimates to include risk and optimism bias.

This Report uses the outputs from the Airports Commission work as the basis for analysis.[10] This Report does not independently assess or test the outputs from the Airports Commission.

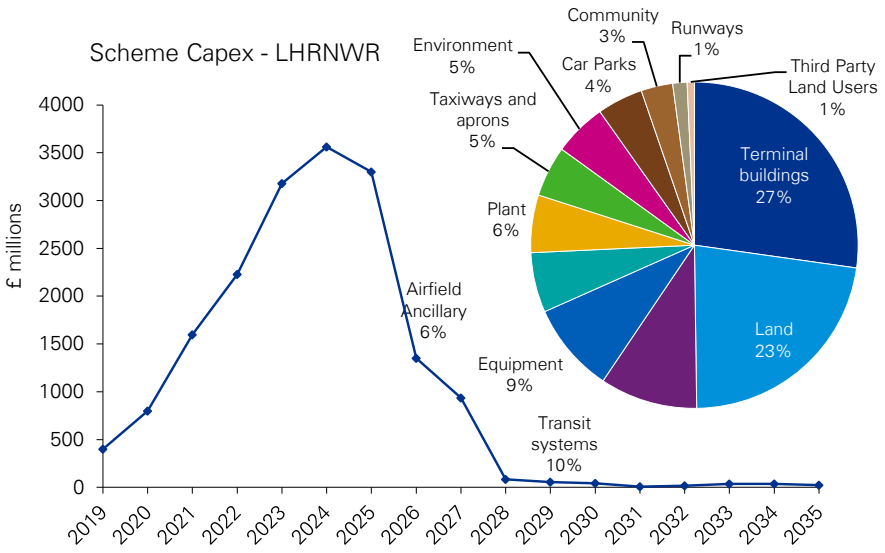
The description below reflects the assumptions underpinning the financial projections that are used in this Report as the basis for testing the potential impact of shocks and resulting distress scenarios (discussed in Section 5 of this Report).

Heathrow North West Runway (HAL NWR): Proposal for a new full length runway (3,500 m) to the northwest of the current northern runway, put forward by Heathrow Airport Ltd.

- This scheme provides for a full-length runway sited further to the north west of the existing airport, aiming to reduce noise and other wider community impacts.
- The scheme would increase Heathrow's capacity to c740,000 air transport movements per year compared to 472,067[11] currently. Annual passengers are forecast to rise from 75m in 2016 to 92m in 2026, [12] the assumed first year of the new runway's operation.
- The total estimated Capex cost for the proposal is £17.6bn, in addition to £5.0bn of surface access costs.[13] The profile and breakdown of the Capex is shown below.

[8] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf
[9] "Appraisal Framework Module 13. Cost and Commercial Viability: Cost and Revenue Identification Heathrow Airport North West Runway" by Jacobs for Airports Commission (Nov 2014)
[10] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf
[11] Heathrow, http://www.heathrow.com/company/company-news-and-information/company-information/facts-and-figures
[12] Airports Commission Funding and Financing Update
[13] Airports Commission : Final Report, July 2015

Figure 2: Scheme Capex—Heathrow NWR [Source: Airports Commission, KPMG analysis]

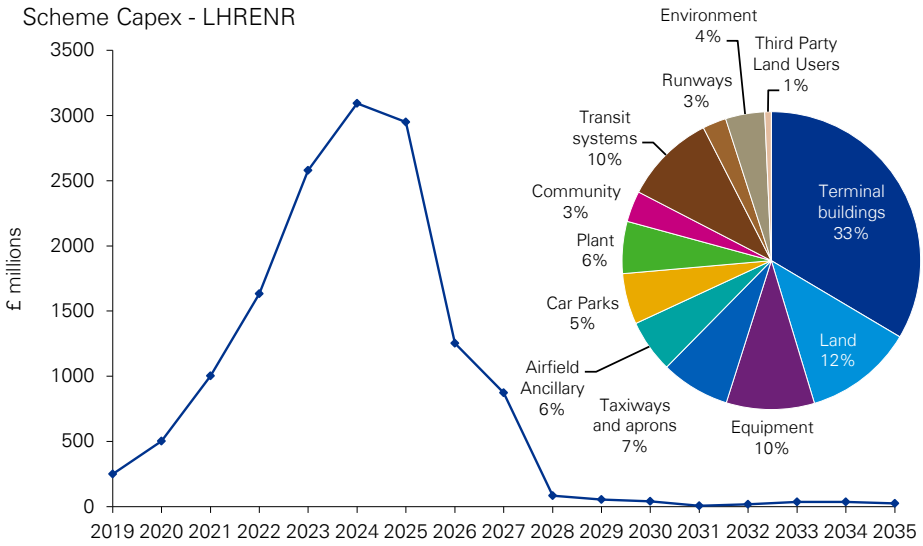


Heathrow Extension of Northern Runway (HAL ENR): Proposal for an extension to the existing northern runway at Heathrow, put forward by Heathrow Hub Ltd.

- This scheme would effectively create two separate runways, each 3,000m in length, with a 650m safety area in between, enabling the runways to be operated independently. The extension to the Northern Runway would allow it to be used for departures and arrivals at the same time.
- The scheme would increase Heathrow's capacity to circa 700,000 air transport movements (ATMs) per year compared to 472,067 currently.[14] The annual number of passengers is forecast to rise from 75m in 2016 to 91m in 2026,[15] the first year of the new runway's operation.
- The total estimated scheme Capex cost is assumed to be £14.4bn in addition to £5.5bn of surface access costs.[16] The assumed profile and breakdown of the Capex is shown below.

[14] Heathrow, http://www.heathrow.com/company/company-news-and-information/company-information/facts-and-figures
[15] Airports Commission Funding and Financing Update
[16] Airports Commission : Final Report, July 2015

Figure 3 – Scheme Capex—Heathrow ENR [Source: Airports Commission, KPMG analysis]



Delivery considerations

The following considerations may influence the choice of delivery strategy:

- **Construction in an operational environment**: Each of the solutions proposed would be built in close proximity to an existing operational airport facility, which it will be connected to. It is expected that the new facilities are designed, constructed, and delivered in a way which minimises any potential negative impact on ongoing airport operations and safety. The promoter will have to sustain existing operations and the associated Capex programme whilst undertaking the expansion project.

- **Complexity of airport projects**: Whilst airports share many of the technical characteristics of other large infrastructure projects, the specialist systems required to operate an airport safely and efficiently will make the expansion project technically challenging to deliver effectively.

- **Wide and diverse range of internal and external stakeholders**: Stakeholders in the new runway capacity project include the Government, the Regulator, air traffic controllers as well as other transportation infrastructure and service providers of interlinking transport infrastructure, such as Network Rail, London Underground, and Highways England, as well as customers. The local and general public are also a significant stakeholder group, including those who work in and around the airport, and those who live in close proximity.

- **Collaborative delivery models**: On large, complex projects the industry has moved away from the traditional Design-Bid-Build (DBB) procurement routes (where a detailed design is prepared and then sequentially tendered) to a more collaborative approach based, for example, on alliances of different suppliers and the developer. This is because the process to develop new infrastructure is expected to take a long time and is characterised by significant complexity and uncertainty. Furthermore, solutions, delivery options and innovations might emerge in the course of the project, especially where the project interfaces with existing facilities.

- More collaborative structures require the parties involved to develop and implement new contractual structures, which aim to optimise the sharing of risks and rewards. These structures influence the overall delivery solution on a progressive, non-sequential basis to reduce delivery timescales and involve a broader set of key stakeholders. This adds complexity in identifying and understanding project risks, e.g. the impact of cost over-run by one contractor on the promoter. A clear and robust contractual allocation of risks is likely to help manage and mitigate project risks.

2.2 Financing new airport capacity

The importance of financing decisions

The new airport capacity expansion schemes are of a large size and significant additional debt and equity will need to be raised by the promoter over a specific period of time to finance their development. The level of new debt required (at the higher end) would be comparable to the size of the entire debt stock of a very large regulated, infrastructure-heavy utility company, such as e.g. National Grid.[17]

The approach to financing the new airport capacity would determine: (a) the robustness of the overall financial structure to potential shocks; and (b) the financial obligations of the promoter. Both of these factors have a bearing on the risk of financial distress and the promoter's ability to mitigate and manage this risk.

Financing context

New airport capacity is currently assumed to be financed through a corporate finance route.

The promoter uses a corporate securitisation structure (structured finance) to raise debt. Bonds are issued through separate legal entities, which then on-lend to the operating entity. Structured finance solutions generally allow for a higher gearing and/or lower cost of debt. Structured finance is supported by covenants linked to, for example, the Regulated Asset Base.

A regulated revenue stream can typically support a relatively high level of gearing whilst maintaining an investment grade credit rating. The ability to increase leverage and retain a high credit rating will be determined by the construction and delivery risks, among other operational risks, as well as the financial exposure implied by the regulatory framework.

In order to understand the impact of risks on the promoter's financial position, financial robustness and distress need to be considered. This is based on the assumptions about the actual (as oppose to notional) financing structure, which is approximated by the financial projections developed for the analysis presented in this Report. While a notional financing structure is often used by the Regulator to set the allowed return, it is the 'actual' financial position and availability and cost of financial resources that could impact the promoter's ability to manage risks effectively.

It is important to emphasise that the financial projections used for this Report (see section 5.1 for the presentation of the financial projections used) are an approximation of the existing and future financial structures that might be adopted by the promoter. They do not necessarily reflect the actual financial structures, or the promoter's views and strategies of how they are planning to finance the expansion project.

Heathrow

Heathrow finances its investments through a mixture of corporate bonds and shareholder equity.

Financial projections used in this Report are based on the understanding that debt is issued predominantly through Heathrow Funding Limited, with subordinate bonds and senior loan facilities also issued by Heathrow Finance PLC and ADI Finance 2 Limited respectively. The diagram below presents the financing structure for Heathrow as of the 31st of December 2015.

The financial projections analysed here are focused on Heathrow SP Ltd and therefore consider only the debt raised within the ring fence and the unsecured debenture to Heathrow Finance plc.

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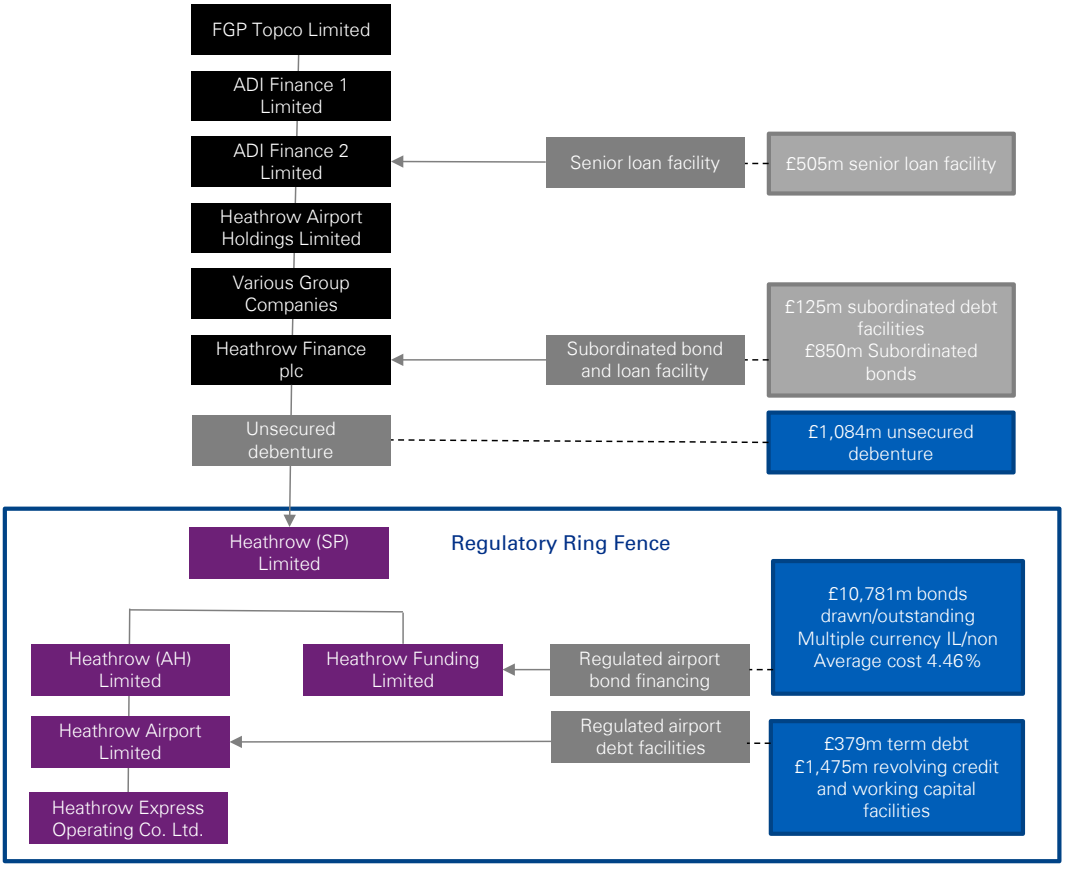
[17] http://investors.nationalgrid.com/~/media/Files/N/National-Grid-IR/Debt16-05-18_v1.pdf
National Grid reported Net Debt of £25.3bn as on 31 March 2016 and noted that on average, it expects to issue £2 to £3bn long term debt each year to fund capital expenditure and to refinance maturing debt.

Figure 4: Finance structure—Heathrow [Source: Heathrow Accounts, KPMG analysis]



Bonds have a bullet repayment profile and are re-financed on maturity.

At the level of Heathrow SP Ltd, the senior Regulatory Asset Ratio (RAR) has a trigger of 70% with a covenant level of 92.5%, and a junior RAR has a trigger of 85%. Heathrow Finance plc has the group RAR trigger level of 90%. [18]

The debt portfolio of HAL includes a proportion in index linked debt, with 9% of the whole portfolio in the form of RPI-linked debt. In addition, HAL has about £5.1bn of index-linked swaps [19] representing about 40% of its debt. At least 87% of the interest rate risk exposure on the existing debt was hedged for the regulatory period ending 31st December 2018. [20]

The table below sets out the various credit ratings for Heathrow Funding Limited.

Table 1: Heathrow Funding Limited ratings [Source: Rating Agency Reports]

	S&P	Fitch
Heathrow Funding Limited	A-, Class A BBB, Class B Outlook stable on Oct 2015	A-, Class A BBB, Class B Outlook Stable on June 2014

[18] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/web-RATIOS.pdf
The document notes that the trigger level for the Senior RAR increases to 72.5% from April 2018. The Group RAR is also noted to increase to 92.5% on repayment of certain debt. Historical ratios at June 2016 are reported as senior RAR at 67.4%, Junior RAR at 79% and Group RAR at 85.3%

[19] https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-SP-Limited-2016.pdf.pdf

[20] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-SP-investor-report-December-2015.pdf

In its rating report for Heathrow Funding Ltd.'s 2015 bond issuance (A- with a stable outlook), S&P expected robust performance over the next two years with respect to passenger numbers, regulatory performance, and profitability, while maintaining a debt-to-regulatory asset base ratio of about 78%. [21]

In its October 2015 note on the rating for Heathrow Funding Ltd., Fitch noted that it does not anticipate any major issues for Heathrow's new runway expansion delivery plans. [22] This note mentioned the strong track record of delivering projects on time and to budget as justification for this view. Fitch noted that the overall planning process would take another five years before any works can begin. In the short to medium term, Fitch did not expect any impact on the notes' ratings, but stated that future developments will be closely monitored. [23]

Moody's viewed the Airports Commission recommendation for a new runway at Heathrow as "credit neutral" for Heathrow Finance Plc. [24] They noted that: "*On the one hand, a new runway would lift the capacity constraints that currently limit Heathrow's ability to accommodate additional demand. On the other hand, the delivery of the proposed scheme presents some challenges given its scale and complexity*". [25]

Moody's report recognised the potentially challenging elements of the scheme including the scheme's intersection with the M25 motorway while also noting Heathrow's experience in successfully managing and delivering large and complex Capex projects such as Terminal 5.

Financing considerations

It will be important for the promoter to have a robust financial plan for the delivery of new airport capacity. The following section discusses some of the relevant considerations in this context:

A **financial structure** that is reflective of the risk associated with the project. A higher financial buffer and lower fixed debt service obligations would provide additional resilience to construction or business risks.

Given the long construction period, the ability to service debt and equity during the construction period could influence the appetite of some of the lenders and investors for the project.

An **investment grade rating** or higher would ensure access to financing. The financeability test often applied to regulated utilities for ensuring access to debt without undue risk is ability to achieve a 'solid' investment grade, interpreted by the CAA as in the region of BBB/BBB+ (using S&P's and Fitch's terminology) and Baa2/Baa1 (using Moody's terminology) [26].

Sufficient financial headroom over the covenants to withstand potential shocks is going to be important for mitigating potential financial risks. The construction spend, as well as other factors, could put pressure on the financial ratios of the promoter and therefore on the level of headroom within the existing covenants. New debt may have more stringent covenants.

Debt issued by the promoter may have a mix of tenors, currencies of issue (sterling and international), interest rate types (fixed and index linked), public and private placement of bonds, sources of debt (bank, bond, multilateral agencies), etc. Diversification is likely to be used to avoid concentration risk, enable the promoter to tap different market segments, and

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[21] Ratings assigned to Class A34 Notes – 21 May 2015, http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/2015-05-01-StandardPoors-Rating-Assigned-A34-Notes.pdf

[22] Fitch affirms Heathrow Funding's Bonds and Heathrow Finance's High-Yield Bond - 14 October 2015, http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Fitch_Rating_Action_Commentary_Heathrow-20151014.pdf

[23] ibid

[24] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/2015-07-01-Heathrow-Finance-plc-Moodys-Issuer-comment.pdf

[25] Ibid.

[26] http://publicapps.caa.co.uk/docs/33/CAP%201103.pdf

support the promoter in withstanding a disruption to any particular segment of the debt market.

Given the size of the project, the promoter might also consider the characteristics and the quantum of debt issuance by other RAB- based utilities at the same time.

The promoter may be required to maintain a **sufficient liquidity** buffer (cash balance along with standby committed facilities) to withstand certain potential disruptions to the normal operation of financial markets and other risk exposures.

Equity providers would have return expectations commensurate with the project risk and might also consider their existing exposure to this asset class.

The promoter, as a private investor, would normally be expected to ensure a competitive financing package that delivers the highest return for an acceptable level of risk, which might create the scope for limiting price increases and risk exposure to customers.

2.3 Funding new airport capacity

Existing funding arrangements

The CAA has determined that both Heathrow and Gatwick have substantial market power, motivating price regulation through the Licences granted to each airport.[27]

The start of Q6 marked a divergence in the regulatory regime at the two airports. Gatwick is regulated using a commitments framework, whereas Heathrow is regulated using a traditional price control, based on the building blocks approach and including the RAB.

Both airports are regulated on the basis of the yield per passenger, which means that they bear the demand risk for the difference between forecast and outturn passenger numbers throughout the regulatory period.

Heathrow

Tariffs are determined based on the 'building blocks' approach, consisting mainly of operating costs, regulatory depreciation, and a return on investment capital.

Over Q6, the total revenue requirement (£2,390m pa average) is made up of 42% operating costs (£989m pa average), 31% cost of capital (£768m pa average) and 27% depreciation (£657m pa average) based on our analysis of the notice granting the licence to Heathrow (April 2014).[28]

The single till model means that commercial and other revenues are deducted from the cost building blocks to calculate allowed aeronautical revenues. Forecast commercial and other revenues averaged £940m pa over Q6, i.e. 39% of the revenue requirement.[29]

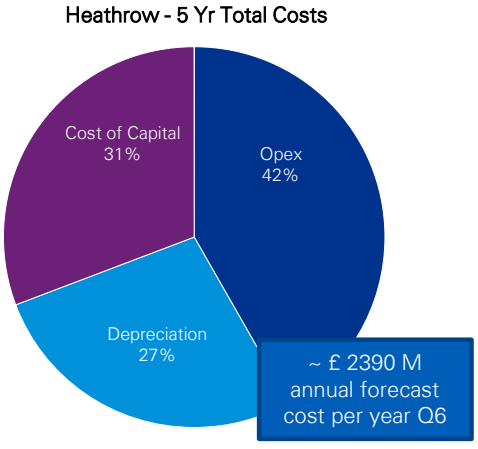


Figure 5: Heathrow 5 year total costs
[Source: Q6 Regulatory Documents, KPMG analysis]

[27] CAA Market power determination in relation to Heathrow and Gatwick airports (Jan 2014) https://www.caa.co.uk/Commercial-industry/Airports/Economic-regulation/Licensing-and-price-control/Airport-Market-Power-Assessment/
[28] Economic Regulation at Heathrow from April 2014 http://publicapps.caa.co.uk/docs/33/CAP1151.pdf
[29] ibid

Heathrow has a RAB of £14,891m as of the 30th of September 2015. [30] The current allowed weighted average cost of capital (WACC) is 5.35% (real, pre-tax), based on a notional gearing of 60%. [31]

A range of price adjustments are applied during the regulatory period including:

- **Development Capex adjustment**: This adjusts aero charges to reflect differences in actual and forecast Capex by adding or subtracting the return associated with the over / under spent Capex. This enables the operator to adjust the scope of the Capex programme in response to passengers' requirements without incurring short term financial penalties or incentives.
- **Capital trigger**: 'Capex triggers' are attached to selected major projects. Where outcomes are not delivered, the return associated with the project Capex is deducted from airport charges. The adjustment is capped at a maximum of 12 months return.

At the end of the regulatory period the CAA performs an ex-post review on any deviation of Capex from what was planned and may disallow inefficient investment.

Funding considerations

The funding structure is a key determinant of the robustness of the promoter to financial distress risks, motivating the following considerations:

- **A balance between different regulatory objectives is required.** Funding measures can be used to increase the financial robustness of the promoter. However, there may be a trade-off with other regulatory objectives such as ensuring continued operation of the airport, ensuring project delivery and financeability, and providing incentives for cost efficient delivery.
- **Adequate and stable funding is essential for access to debt and equity** at competitive rates and for ensuring the debt and equity financeability of the project. The ability of the promoter to access upfront financing, and also to access increased financing during the project if required, will be to an extent determined by the funding arrangements. Regulatory commitments over multiple price controls could also provide increased certainty over future revenue.
- **Existing customers are likely to be sensitive to any significant price increases** resulting from the implementation of the new airport capacity project.

[30] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-(SP)-Limited-Q3-2015-results.pdf
[31] Economic Regulation at Heathrow from April 2014 http://publicapps.caa.co.uk/docs/33/CAP1151.pdf

3 Defining financial distress and financial robustness

3.1 Financial distress and robustness range

Defining a financial distress situation

This section defines potential situations of financial distress, which are later tested using a stylised model under different potential scenarios in Section 5.

There is no single definition of what constitutes a situation of financial distress. Financial distress broadly can be defined as a range of potential outcomes, which present a challenge for raising financing to continue the project, or more narrowly as specific situations of default or insolvency.

A narrow definition of financial distress, which has been used by regulators in the past, is a "*situation where an affected party cannot access the financial resources required to discharge its obligations*" (Ofgem 2008).[32] Under this definition, the promoter would be in financial distress if it did not have access to the resources needed to cover its costs, to make repayments to creditors, and/or to refinance its financial obligations when they are due.

A broader definition of financial distress could include situations of increased financial risk and financeability challenges.

This definition acknowledges that financial distress can be defined as a range of outcomes, where the promoter faces wider financeability challenges (defined as situations where the promoter is assumed to be able to access financing, but this access may be limited and increasingly costly, posing future financeability concerns). These situations would require mitigating actions to continue the project and avoid financial difficulties or distress in the future.

The focus of this Report is on financial distress, but given the importance of the circumstances leading to financial distress and the need for mitigation to avoid financial distress, the analysis also considers scenarios where the promoter might find it difficult to access financing and funding to continue the project before it gets into actual financial distress. These situations could mean that the project is delayed, or that it requires additional financing or funding, which might not be available, or that the project is no longer financially viable in its current form.

There are several circumstances in which financial distress, or financeability challenge that could lead to financial distress, may occur:

1 Liquidity issues, including an inability to raise equity or debt capital at a particular point in time;

2 Breach of covenant; and

3 Insolvency.

A wide range of risks which could lead to financial distress or financial challenge are discussed in Section 4.

Financeability

In a broad sense, a project is financeable if the promoter can access sufficient financing resources to undertake and complete the project.

Financeability is supported by access to external financing as well as by the generation of free cash flow from operations.

Financeability assesses whether a business can reasonably be expected to be able to raise or generate financing to cover capital spending and all other financial commitments, as well as to

[32] https://www.ofgem.gov.uk/sites/default/files/docs/2008/12/position-paper---responding-to-deteriorating-finanical-health-final.pdf

maintain liquidity under its business plan, whilst retaining an acceptable level of creditworthiness and financial risk.

The minimum level of financeability is defined in this Report as the level below which the promoter is still able to access finance, but this access may be limited and costly, posing longer term financeability concerns.

Below the minimum financeability level, project financeability is challenged. In this situation, the project may not meet the narrow definition of 'financial distress', but its financial situation would still pose a concern. Everything above this minimum level is considered financeable.

A project being financeable at the minimum financeability level is not sufficient for it to be considered as financially robust.

Financial robustness is defined as a situation where, considering project risks and the financing strategy adopted, the possibility of financial distress is remote.

This Report takes a broad definition of financial distress, acknowledging that 'financial distress' can be defined as a range where the promoter is in financial distress or faces some financeability challenges, but might not be in a full financial distress situation.

As an illustration, the minimum financeability level can be defined as, say, equivalent to BBB- credit rating with a range of situations where the financeability level could be characterised by a rating below the investment grade level and where the promoter may face some financeability challenge but still able to access financing.

In reality, the level of financeability will be different for each project given the financing strategy adopted.

3.2 Financeability of new airport capacity

It is assumed that the new airport capacity will be financed using a corporate finance approach (in contrast to stand-alone project finance approach), i.e. it is assumed that financing will not be project-specific, but will be raised at the corporate level and supported by ongoing airport operations. The financeability of new airport capacity will be influenced by several factors such as:

Project delivery: Project characteristics, such as the level of complexity and the role of external stakeholders will impact the ex-ante project financeability (the ability of the promoter to access sufficient financial resources). For instance, in their ratings methodology, S&P assess technology and design risks, construction risks and project management risks.[33]

Funding under the regulatory framework: The regulatory framework determines the exposure of the promoter to risks such as cost overrun or demand fluctuation impacting the risks faced by investors. The promoter's ability to set prices, the price elasticity of demand, and the customers' willingness to pay are also important factors.

Financing strategy and market environment: The financing environment (e.g. Brexit impact) and financial structure of the promoter will equally influence the upfront financeability of the project. Existing financing (e.g. the covenants on the existing borrowings), as well as financing for the scheme (e.g. magnitude of the debt requirement) are both important.

Ongoing business operations: Promoter's financial position, and hence financeability, will also be influenced by the strength of ongoing business operations and their cash generation, which are assumed to support financing for the new project.

Project delivery characteristics, the regulatory framework and funding, as well as financing and ongoing business operations may all challenge the financeability of the project. The Base case assumption is that the project is treated as a scaling up of existing operations (see section 1.2). The following table considers this assumption and assesses the implications for project financeability.

[33] Standard and Poor's Project Finance Construction Methodology November 2013

Table 2: Financeability of new airport capacity [Source: KPMG analysis]

Factors	Heathrow
Delivery ■ Exposure to 3rd party cost (for example surface access) ■ Potentially conflicting requirements of external stakeholders ■ Technical/programme management complexity ■ Project implementation in operational environment ■ Exposure to contractor risk	- Exposure to third party costs (e.g. surface access and land purchase) - Based on a political decision as well as airport/customer requirements - Complex interactions of multiple stakeholders, especially on noise and other environmental considerations - High technical complexity but experience in large project delivery - High risk for existing operations as construction is partly within current boundary
Funding ■ Exposure to cost and demand risk ■ Price elasticity and affordability ■ Regulatory discretion ■ Pre-funding	- Full demand risk assumed to continue - Assessed by the CAA as having substantial market power - Inefficient capital expenditure may be disallowed - Limited degree of pre-funding within the current framework assumed to continue
Financing ■ Magnitude of debt requirement compared to market depth ■ Exposure to foreign currency/depth of swap markets ■ Magnitude of equity contribution and financeability of equity	- High annual debt requirement during peak investment period - Will tap a number of different currencies, though likely to hedge all currency risk - Reduced dividends, as dividends are reinvested

3.3 Dimensions of financial distress

3.3.1 Four dimensions of distress

There are a number of dimensions of financial distress and financial difficulty. This Report concentrates on four different dimensions of distress relevant for this analysis to assess risks and potential outcomes in different scenarios.

Liquidity and cash generation

Financial distress will be driven by the promoter's ability to meet its financial obligations.

Liquidity and cash generation are key determinants of the promoter's ability to meet its financial obligations and thus the risk of distress or financial difficulty.

Even if over the long term a promoter is able to generate sufficient cash to meet its upcoming obligations, financial distress can result from a short term misalignment between financial resources and obligations.

Debt financeability

Debt financeability captures the ability of the promoter to access debt at a target level of risk (approximated by a credit rating).

Credit ratings methodologies in themselves capture many factors, including liquidity and cash generation, as well as market position.

Considerations of credit ratings in this Report are an approximation of potential credit ratings and do not necessarily capture all relevant considerations taken into account by rating agencies.

The debt requirement relative to the market size, headroom over debt covenants are all useful indicators of financial risk.

Equity financeability

Equity financeability aims to capture the ability of the promoter to access equity capital, given the risk appetite, potential investment strategies, and equity holders' expectations of returns.

Measuring and determining equity financeability depends on the quantum and type of equity finance required.

Equity considerations can be different depending on the source of equity (for example for a public share sale compared to private placement).

Considerations of equity financeability in this Report are an approximation of potential equity position of the promoter and do not necessarily capture all the relevant considerations that might be taken into account by equity investors.

Funding challenge

Airport's customers will be sensitive to price increases resulting from the implementation of the new runway capacity project.

Customers' willingness and ability to fund the project as well as ongoing airport's operations combined are, therefore, an important component of the overall project financeability.

Significant price increases impacting willingness to pay or fluctuations in demand may lead to a funding challenge, which could result in additional financial challenges in delivering the project.

— The four dimensions listed above can be interdependent. For instance, cash generation ability, especially over the medium term, could be a major driver of debt and equity financeability of the project. Similarly, a funding challenge would be

reflected in cash generation metrics and could affect the credit rating of the promoter (a key driver of debt financeability).

- In principle, in a wide range of scenarios, it might be possible for the promoter or the regulatory policy to mitigate financial difficulties. It is assumed that a situation of financial distress would require sustained financial deterioration. A temporary or limited shock leading to financial stress on a single metric may not lead to distress or financial difficulty which cannot be mitigated.
- Credit ratings are based on a wide range of indicators that capture potential circumstances leading to financial difficulty or distress to varying degrees under different rating methodologies, but it may not be sufficient to solely track a credit rating in order to understand and monitor financial risks.

3.3.2 Measures of distress

There are a range of different ways in which each of the dimensions discussed above can be measured, as illustrated in the table below. Section 5.1.7 provides specific financial metrics that may be used to proxy promoter's financial position on each dimension.

Table 3: Indicative examples of measures of financial difficulty and distress [Source: KPMG analysis]

Dimension	Factors	Illustrative measures
Liquidity	Liquidity	Cash balance in the company, committed but undrawn standby facilities.
	Cash generation	Free cash flow to the firm (pre-financing, post working capital).
Debt financeability	Credit rating	Published credit ratings. Quantitative assessment of credit rating ratios. Qualitative assessment of additional rating criteria.
	Market depth	Ability of the promoter to raise debt financing requirement
	Existing covenants	Headroom on existing covenants
Equity financeability	Equity requirement	Ability of the promoter to raise the equity financing requirement
	Equity returns	Cash flow to equity, return to equity
Funding challenge	Willingness to accept price increase	Average annual price per passenger

3.3.3 Early warning indicators (EWIs)

If the four dimensions listed above are assumed to define the relevant aspects of financial difficulty or distress, then changes in the measures of distress corresponding to these dimensions may be used as EWIs.

For example, the credit rating and financial ratios could be used as some of the measures within the debt financeability dimension. This means that changes to the rating and the underlying financial ratios as well as other rating criteria, may be used as EWIs. If the credit ratings were used as EWIs, then the following factors may be considered:

- Likelihood and magnitude of the impact on specific quantitative rating criteria, e.g. financial ratios;
- Movements in qualitative ratings criteria (e.g. market position); and
- Mitigations that are available to the promoter.

For any EWI, relevant considerations could include frequency and longevity of the impact; lead and lag time for any factor; and the limitations of each factor. Such considerations may support identification of EWIs that might motivate regulatory action.

This approach could support differentiation between true and false signals since not all EWIs would eventually result in actual financial distress.

3.4 Considering regulatory measures to achieve target level of financial robustness

In order to limit the risk of financial difficulty or distress, the Regulator can adopt a number of measures within its discretion to be reflected in the regulatory framework to ensure the desired level of financial robustness in achieved.

It will be important for any such measures to be viable from the promoter's perspective, i.e. not to undermine the project's financial viability and ensure that they can be implemented.

Evaluating a target level of financial robustness and potential regulatory measures to achieve this can be based on an analysis of potential risks that could lead to financial difficulty or distress.

This Report considers potential regulatory measures that can be used to influence the level of financial robustness in four (4) steps as set out below. Two additional steps would be required once the regulatory approach is chosen.

Before these steps are undertaken, the Regulator might want to consider and understand financeability in the Base case.

The definition of the Base case can be the existing regulatory regime and promoter's current financing structure and financing strategy for the airport expansion. This is used as the starting point in this analysis—labelled as 'Step 0' (see Figure 6).

- **Step 1**: Consideration of the Base case financeability, which may result in the need to consider alternative approaches to funding and financing. A preliminary analysis does not indicate any specific reasons to believe that the Base case could not be financeable under current conditions and assumptions (see also Section 3.2).
- **Step 2**: Assessment of how risks and scenarios may lead to financial distress using the four dimensions of financial distress set out in Section 3.3.1.
- **Step 3**: Evaluation of potential, viable mitigations available to the promoter that could reduce or prevent the consequences of financial difficulty or distress.
- **Step 4**: Identification of suitable regulatory measures that may be implemented to prevent financial distress given their potential impact on the promoter, its customers and capital providers.

Subsequent steps once suitable regulatory approach is chosen could be as follows:

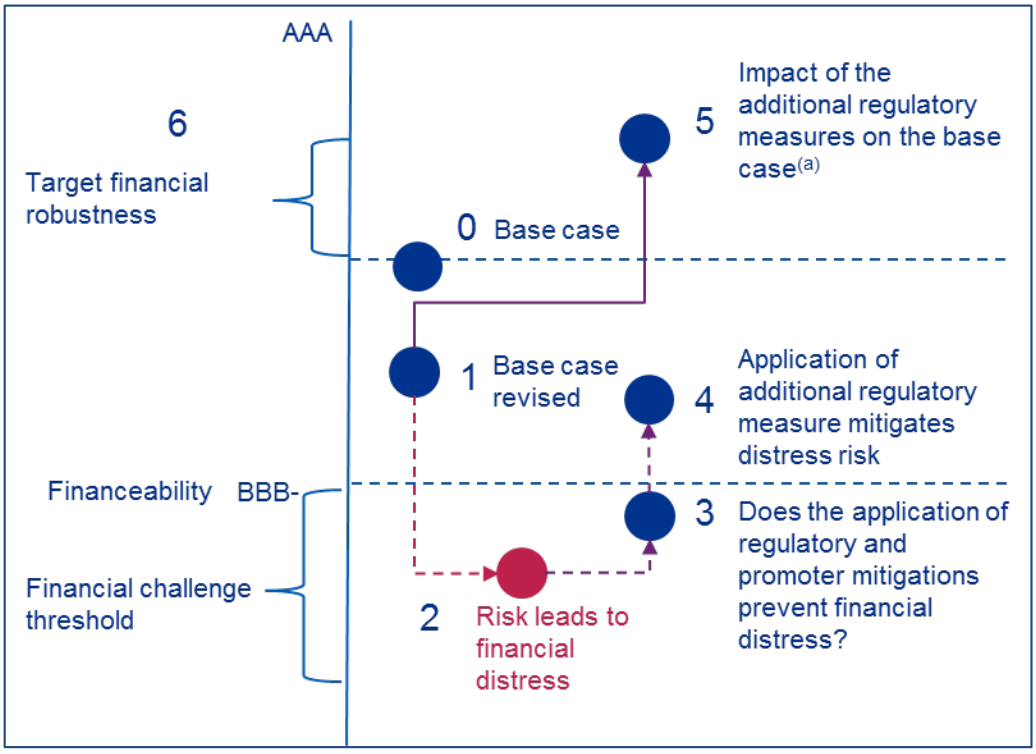
— **Step 5**: Some preventative regulatory measures could be applied ex-ante before any risks materialise (informed by up front considerations of the Base case or alternative approaches or strategies that could be adopted by the promoter).

  It is assumed that the application of such measures would increase the promoter's robustness to financial distress risks while still ensuring the financial viability of the project.

— **Step 6**: Target financial robustness may be defined by the Regulator's objective to limit the risk of delivery of the scheme in different scenarios, benefits of greater financial robustness for customers and costs of adopting greater financial robustness.

  Regulatory measures can be applied in the Base case and considered under alternative approaches to influence the desired level of financial robustness of the promoter.

Figure 6: Illustration of the 6-step approach using credit ratings as a measure of distress
[Source: KPMG analysis]



Step 5 in the figure above shows the implementation of regulatory measures that raise the promoter's credit rating in the Base case. This is for illustrative purposes only—regulatory measures may not necessarily raise the actual rating in the Base case (which may be constrained by other factors not impacted by the regulatory measures implemented).

Step 5 indicates the general impact of potential regulatory measures which would aim to increase the financial robustness of the scheme.

The conceptual approach described above is adopted in the remainder of this Report as a preliminary analysis of financeability and scenarios that could lead to financing difficulty or financial distress. It is also used to consider potential regulatory measures to ensure financial robustness.

4 Identifying risks and potential mitigants

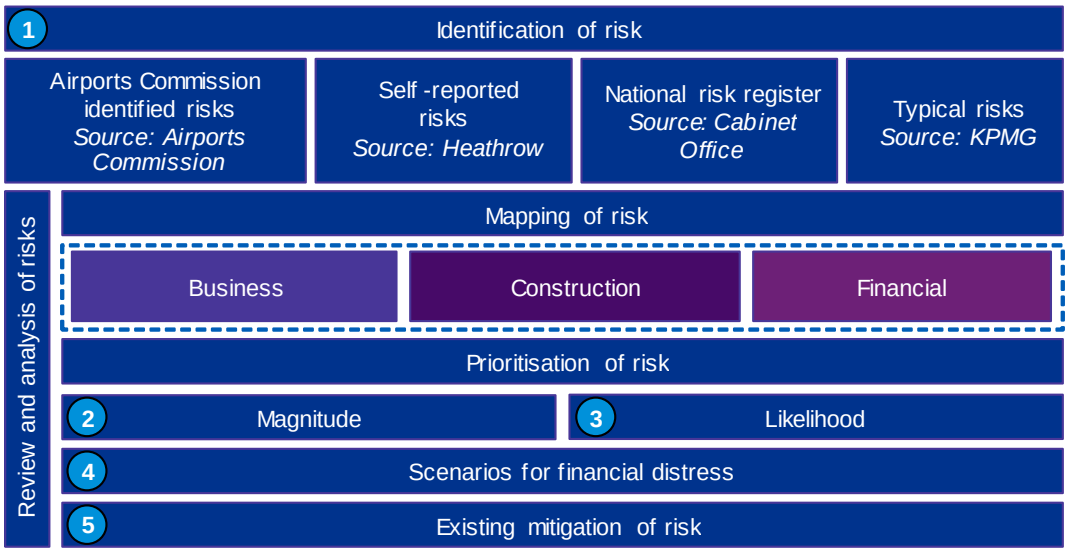
In order to analyse potential circumstances of financial challenge or distress, it is necessary to consider potential risks and scenarios in which such situations may arise.

This section outlines the approach to developing indicative risks and scenarios for consideration, risk allocation and potential mitigating actions. This is then used in the following section to undertake a stylised quantitative analysis of the promoter's financial position under different scenarios that could lead to financial distress.

4.1 Approach to risks and scenarios

This Report sets out a 5-step process for developing the financial distress risks and scenarios in involved in delivering the new airport capacity.

Figure 7: Financial distress risks and scenarios [Source: KPMG analysis]



Step 1: Identification and mapping of risk: The identification and analysis of risks is based on information from several sources. The analysis of risks by the Airports Commission, along with the reports by the promoter and by the National Risk Register that are publicly available, are analysed first. This list is then supplemented with risks identified from market experience of major infrastructure projects and financial markets.

Risks are mapped into three categories: (1) business, (2) construction (delivery), and (3) financial risks.

The selection of risks presented in this Report is not intended to be a comprehensive review of all potential risks or risk scenarios, but provides an illustrative set of some of the key risks that might be present in this context.

A number of other potential risks (for example, other market conditions or political risks) are not considered in this Report. However, any other material risks not considered in this analysis could also, directly or indirectly, impact one, or more, of the risks considered here.

Steps 2 and 3: Prioritisation of risk: The next step is to evaluate the potential magnitude of each risk, based on their impact on both financial resources and obligations, and non-financial impacts e.g. reputation. The analysis then assigns an approximate likelihood score to each risk combined with the evaluation of the impact (magnitude), which provides a shortlist of material risks.

Step 4: Scenarios for financial distress: Next, it is necessary to develop a number of scenarios for financial distress, based on a selection of what are considered to be material risks (see Section 5).

Step 5: Potential mitigations: The final step provides a discussion of the risk mitigation and management techniques that might be available to the promoter. Regulatory measures are considered after consideration of potential promoter's mitigations.

4.2 Airport capacity risks

4.2.1 Evaluating financial distress risks

The severity of the impact of different risks that could materialise will depend on:

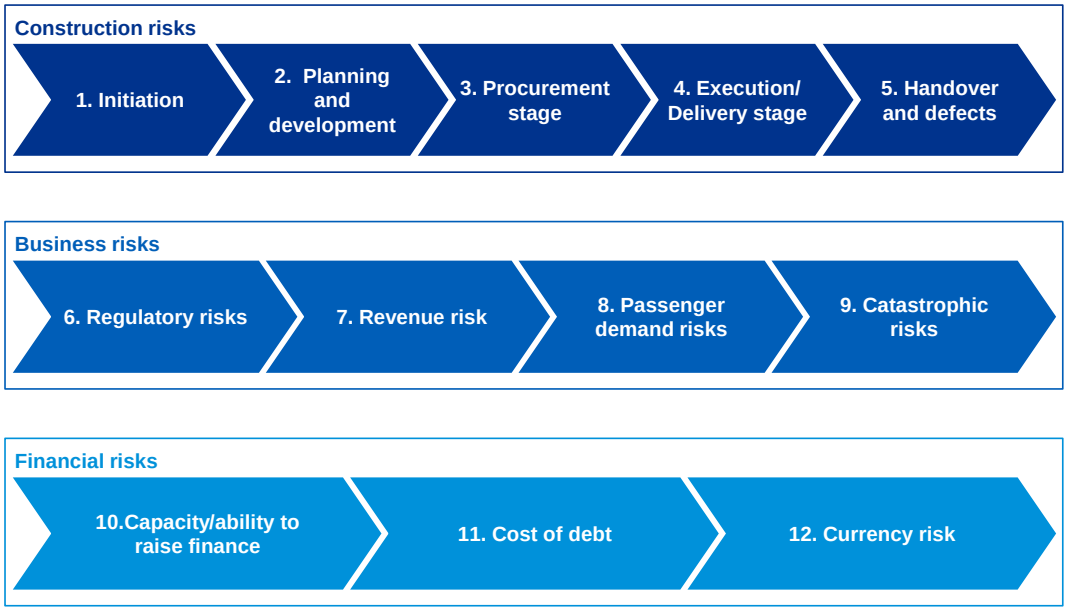
- **Magnitude**: The impact of a risk could be short term or prolonged; one-off or frequent; temporary or permanent;
- **Likelihood**: For risks with comparable magnitude, the higher the likelihood of a risk, the higher the severity; and
- **Timing**: It is important to consider the time at which the risk is known or could occur, compared to the time when it impacts financial resources. The earlier a risk is known, the longer the time the promoter will have to plan remedial actions. The timing of a risk impact during the project life cycle would influence the magnitude of the impact and the nature of the required intervention. The timing of the risk during the regulatory cycle might also be important.

The assessment of the likelihood and magnitude of selected risks is indicative only. This Report does not provide a detailed analysis of all underlying risks and factors that may vary based on specific circumstances, details of the project, and the wider market and policy environment within which the scheme will be delivered.

4.2.2 Risk overview

The risks that are considered in the analysis are grouped into three main categories. In each category the risks are further divided by project stage (for construction risks) or risk type (for business and financial risks).

Figure 8: Categories of risks



4.2.3 Construction risks

Since the proposed airport expansion schemes are of a significant size relative to the promoter's existing asset base, construction-related risks represent a major source of risk for the promoter of a scheme.

Table 4: Construction risks [Source: Airports Commission, Promoter publications, KPMG analysis]

Risk	Likelihood	Magnitude
1. Construction risk: Initiation		
1.1 Delay Significant delay of more than twelve months in the project initiation or planning stage due to planning approval process or other issues. This impacts the timing of construction Capex and the delivery date for new capacity. Potential indirect impacts include increased planning costs, lost business opportunity and potential reputational risk.	**Medium to High** (lack of clear precedence, complexity, risk of challenge, multiple stakeholders)	Medium to High
1.2 Community compensation, environmental compliance or similar issues. Significant increase in Capex cost for complying with environmental and community compensation requirements. This impacts the scale of construction Capex, (further with most of the Capex increase being front-ended for Heathrow schemes).	**Low** (complexity, unplanned environmental compliance requirements, lobby groups)	Medium to High
2. Construction risk: Planning & development		
2.1 Design, Business case, Technology, utilities, project management team Poor planning and design or choice of technological solution leads to higher Capex after construction starts. Though the incidence of the risk is during the planning/ development stage, the impact is mostly unanticipated cost increases during the construction period.	**Low to Medium** (lack of experience of the airport, technology changes, complex program)	Low to Medium
2.2 Enabling works, Flood mitigation Risk of significant delay to construction start and significant construction cost increases. This impacts the timing of construction Capex start and delivery date for new capacity; along with increase in Capex costs.	**Low to Medium** (extent of enabling works requirement, unexpected ground conditions, archaeological findings)	Medium to High
2.3 Surface access Promoter required to contribute additional funds to surface access costs of third parties resulting in a significant Capex increase. The impact of cost increase could be either a fixed upfront contribution or a % of the actual cost which would be known after the surface access cost have been incurred (i.e. promoter also bears risk of cost overrun) Contributions may be paid by the promoter either as upfront payment during construction, annuitized, or spread over a number of years of operation.	**Medium to High** (uncertainty in costs, third party involvement)	Medium

Risk	Likelihood	Magnitude
3. Construction risk: Procurement stage		
3.1 Failed procurement Uncompetitive tenders, poor quality procurement process, successful procurement challenge, etc. resulting in one or more of the following impacts: a) Significant procurement cost increases b) Significant delay to construction after enabling works start. c) Significant increase in the cost of Capex	**Low to Medium** (competing projects for same skills, complex contracting arrangements)	Medium to High
4. Construction risk: Execution/Delivery stage		
4.1 General construction Occurrence of unanticipated or unplanned events. **4.1.1: Unanticipated costs**: Construction cost increase due to unanticipated costs like changes to design during construction, poor forecast during planning, and exposure to commodity prices. **4.1.2: Unexpected events**: Delay to construction due to unplanned events like removal of archaeological findings, an overly aggressive schedule, or aviation operation issues. **4.1.3: Delivery of capacity**: The project is not able to deliver the planned capacity and would require significant intervention and additional work to achieve the original capacity (i.e. either a Capex increase and/or lower capacity addition) **4.1.4: Contractor failure**: Failure of one or more of the main contractors or sub-contractors, leading to re-procurement, resulting in procurement costs, costs of fixing defects and increased costs to completion along with significant associated delay. **4.1.5: Contracting risk**: Poor risk allocation (leads to poor incentives for cost management) and poor contractor structure (e.g. a large number of contractor and sub-contractors, leading to contract disputes) resulting in additional costs for completion and significant delay.	**Low to High** (complexity, lack of precedence, contract complexity, programme risks, lobby groups)	Medium to High
4.2 Third party reliance **4.2.1: Surface access**: Actual delivery of the project may highlight unanticipated increase in surface access costs as well as resulting delays (especially where the promoter bears part of the surface access cost risk). **4.2.2 Land**: Unanticipated delays, increased costs or necessity for additional land through CPO resulting in higher than anticipated costs and delays.	**Medium to High** (significant third party reliance for surface access, land, utilities)	Medium to High
4.3 Integration **4.3.1 Interface with existing operations**: Construction of the new capacity alongside existing operations could lead to additional programme management, utilities diversions, security, access route changes resulting in significant delays, changes to the programme, Capex cost increase.	**High** (brownfield project alongside existing operations, re-provision of existing facilities)	High
5. Construction risk: Handover and defects		
5.1 Handover risks Post-construction completion, significant delays (in excess of six months) in commercial operation start due to integration of new capacity with existing operations (systems, process and operations), or due to prolonged defects rectification period.	**Medium to High** (lengthy handover process, system integration risks)	Medium to High

Risk	Likelihood	Magnitude
Post-construction completion, significant delay to start of commercial operations, may be accompanied by increased operating expenditure and some additional Capex costs		

4.2.4 Business risks

The expansion projects are also subject to a number of business risks, which could impact the promoter's ability to generate revenues.

This section considers only the main potential risks relevant to financial distress in the delivery of the new runway capacity. Risks such as increases in tax or airport operating costs are not included in this analysis.

Catastrophic risks are not scheme-specific and can impact both the existing operations, as well as the expansion project. The impact of such risks could be across all categories of risk, including construction and financing, depending on the nature and timing of the catastrophic risks.

Some of the risks identified here can be related to catastrophic risks occurring outside of the airport, but where the impact of the risk has implications for the airport's operations. This includes, for example, a situation of extreme weather.

The analysis of catastrophic risks draws directly on the National Risk Register.[34] The National Risk Register is published by the Cabinet Office. It is the unclassified version of the National Risk Assessment, a classified assessment of the risks of "*civil emergencies facing the UK over the next five years*".[35] It provides a Government assessment of the likelihood and potential impact of civil emergencies.

Table 5: Business risks [Source: Airports Commission, Promoter publications, Cabinet Office, KPMG analysis]

Risk	Likelihood	Magnitude
6. Regulatory Risks		
6.1 Regulatory: Economic and efficient investment The regulatory regime for the new runway is not yet set. If the scheme cost is subject to an ex-post efficiency review, the airport faces the risk of cost disallowance. Even if costs are deemed efficient, if the allowed yield is only adjusted after the end of the regulatory period, then the promoter bears a cash flow risk.	**Medium** (limited regulatory precedence within the sector, regulatory mechanisms on cost efficiency still evolving)	**Medium to High**
6.2 Regulatory: Discretion Uncertainty on regulatory approach and regulatory discretion.	**Low** (track record of UK regulators in general and the CAA in particular)	**Medium to High**
6.3 Regulatory: Cost of capital The regulatory approach to setting the rate of allowed return would be impacted by a number of factors including the following (non-exhaustive list).	**Medium** (cost of capital is influenced by a wide range of factors)	**Medium to High**

[34] https://www.gov.uk/government/publications/national-risk-register-for-civil-emergencies-2015-edition
[35] Ibid | page 7

Risk	Likelihood	Magnitude
1. The notional financing structure assumed by the Regulator. 2. Uplift in WACC due to different risk profile of the new capacity. 3. The demand risk due to the step change in capacity. 4. The treatment of embedded cost of debt. 5. Single till related assumptions Where revenues are based on the building block approach, the promoter faces a risk associated with the regulatory cost of capital.		
7. Revenue risk		
7.1 Regulatory revenue risk The extent and timing of any cost pass-through is determined by the regulatory determination. The higher the level and certainty of pass-through, the less revenue risk borne by the promoter. The extent of demand risk will also be determined by the regulatory package for the new capacity. For instance, greater demand risk-sharing improves cash flow certainty for the promoter. Financial incentives and triggers also imply revenue risk.	**Medium to High** (Increased capacity reducing or eliminating any "scarcity rates")	High
7.2 Commercial pricing risk Airports are exposed to the ability to price at the cap. Furthermore, revenue uncertainty is greater in a situation where there is a higher step change in pricing.		
8. Passenger demand risk		
Demand risk for an airport would be driven by a number of macro-economic factors including economic growth, fuel prices, political factors (including air quality policy) and price elasticity. Demand risk is relevant for the existing capacity (during the construction phase of the new runway) and new capacity (post commercial operations of the new runway). As the revenue stream from the existing capacity will be used to fund the new capacity, the demand risk on the existing capacity will impact the funding on the new capacity during construction. The step change in capacity and demand risk can create significant uncertainty on revenue generation, affecting the ability to service debt and consequent cost of finance.	**Medium to High** (Multiplicity of internal and external factors impacting demand, "pre-funding" of any type impacting current demand, any need to alter prices to fill the new capacity)	High
9. Catastrophic risk		
Any of the catastrophic risks (for example, pandemic influenza, terrorist attack, severe weather condition, etc.) could significantly impact the operations of the airport. A catastrophic impact can result in one or more of the following. a) Significant Capex cost increase to repair any damage and meet any additional specifications. b) Operating expenditure increase on a permanent basis (for example, increased security costs, insurance costs). c) Reduction in passenger numbers (i.e. lower revenues) in the short term or over a prolonged period of time. d) Re-assessment of the risk for the sector (rating downgrade, increased cost of debt).	**Low to Medium** (As per the national risk register)	High

4.2.5 Financial risks

Financial risks relate to events associated with a change in the availability and/or cost of debt and equity capital available for financing.

Timing of financial risks have a significant bearing on their magnitude. For example, a debt market disruption (e.g. a 'credit crunch') during the peak of the construction period could have a significant impact on the promoter's ability to meet its new project financing and debt refinancing requirements.

Table 6: Financial risks [Source: Airports Commission, Promoter publications, KPMG analysis]

Risk	Likelihood	Magnitude
10. Capacity/ability to raise finance		
10.1 Access to debt: The capacity and ability to raise debt is affected by: **10.1.1 Market liquidity/ disruption**: The size of debt requirement for the new capacity is significant compared to the overall size of the debt market. The depth of the debt market, and impact of any disruption to the debt market, are key risks for the promoter. **10.1.2 Single-name exposure (concentration risk)**: The size of the debt requirements are significant which, has a bearing on the nature of debt providers, number of debt providers, etc.; and this risk is also influenced by demand from competing projects globally. **10.1.3 Credit rating**: While a rating change is not an independent event, and is often triggered by other factors (e.g. change in business risk or weak credit ratios), it can have a significant impact on both the availability of debt and the cost of borrowing. Any change to the credit rating would impact the number and type of investors willing to lend to an airport, and the cost of the debt. **10.2 Equity risk**: The capacity and ability to raise equity is a key risk to the airport. The size of the equity requirement and any requirement to procure equity from new investors would both have an impact. The typical investment period of the investors and return expectations would determine the continued availability and access to equity if there were a change to the schemes risks.	**Medium to High** (Size of the debt and equity requirements and exposure to the global debt markets)	**Medium to High**
11. Cost of debt		
Market conditions (whether or not influenced by any "crowding out" effect of debt issuance for a runway project) might move significantly from the current conditions, such that the cost of debt increases significantly by the time the project starts raising debt. Given the size of a runway project and the length of the construction programme, even small variations between the actual cost of debt and the allowed cost of debt (part of the allowed WACC) can have a significant impact on cash flows and constitute an important financial risk to the promoter.	**High** (Long period of debt issuance)	**Medium to High**
12. Currency risk		

Risk	Likelihood	Magnitude
The project may have exposure to multiple currency markets for debt or for construction contracts, and would require extensive currency hedging arrangements. Any unhedged currency exposure can have a severe impact on costs for the airport	Low (Reliance on currency hedging)	Medium

4.3 Risk allocation

The allocation of risks will determine the vulnerability of the promoter to financial challenge or distress. Risks can be allocated to the promoter and other shareholders such as customers or to third parties, for example, through market-based risk transfer measures. Even where the risks are allocated to other parties, the promoter is still likely to be directly or indirectly exposed to such risks.

This Report does not consider optimal allocation of risks related to the expansion project. Also, there might not be one optimal allocation of risks between different parties.

The promoter can transfer some risks (at a price) through mitigating actions (see Section 4.4). For example, the promoter might transfer risks down the supply chain within the project delivery team or through sub-contractors, but would still bear the residual risk of non-delivery.

The timing of risk transfer is another important factor. For example, the funding mechanism may protect the promoter from some construction Capex risks. However, if adjustments are only made in the following regulatory period, there is still a risk of financial impact on the promoter in the short term, notably through liquidity. In each case, there is uncertainty whether risks transferred over time or to third parties represent a complete risk transfer, which is unlikely to be the case.

The allocation of risks is a relevant consideration when assessing the requirement for regulatory measures and in identifying which measures may be appropriate.[36]

4.4 Promoter risk mitigations

4.4.1 Approach to promoter mitigations

Role of promoter mitigation

The promoter may be able to mitigate certain risks that could lead to financial distress, either through upfront, preventative actions, or ex-post. This will depend on the tools at the promoter's disposal, the decisions of the capital providers, the wider market regime, and the regulatory framework for the airport delivery.

The extent to which promoter's actions can mitigate underlying risks may be limited, as is the period over which such mitigation might be feasible. For example, while certain types of Capex overspend may be ultimately funded under the regulatory regime, the capital providers may not be willing, or able, to provide necessary bridge financing to meet financial obligations in the meantime. At any such point in time, the promoter as a private owner would be expected to take actions to maximise shareholder value.

Even where a mitigation is possible and viable, it may have a negative cash flow impact in the short to medium term. For example, payment of successful claims under

[36] The CAA in its policy on the economic regulation of the new runway sets the principle that "Risk should be allocated to those who can manage it best." This principle is "most likely to protect users' interests (that is, the interests of passengers and those with a beneficial interest in freight), by producing the lowest expected out-turn costs (as incentives to manage costs are maintained) and, through commercial negotiations, reveal information about parties' valuation of risk."
http://publicapps.caa.co.uk/docs/33/CAP1279%20Economicregulationofnewrunwaycapacitynon_confidential.pdf

insurance policies may take considerable time and cost with significant cash flow implications in the meantime.

There are also constraints on the regime for airport expansion delivery that the promoter might be able to influence and hence the level of potential mitigation tools at its disposal, to the extent that they depend on the regulatory framework. For instance, the promoter may have limited influence over the project funding path from customers, as defined by the regulatory framework.

The interaction between promoter mitigations and regulatory measures is discussed in more detail in Section 6.5.2.

Approach to promoter mitigation

Identification of additional regulatory measures may consider mitigations that could be normally expected from the promoter. The promoter's mitigating actions could include actions taken unilaterally by the promoter as well as potential negotiations with the Regulator and other stakeholders. To ensure that certain preventative actions are taken by the promoter, such actions might have to be incentivised or required based on regulatory measures.

This section provides an illustrative overview of the types of mitigation that might be available to the promoter. A detailed discussion and analysis of such actions is outside the scope of this Report. The list of potential mitigations discussed below excludes any regulatory interventions that may be requested by the promoter ex-ante or ex-post (potential regulatory interventions for consideration are identified as outputs from this Report).

Categorising promoter mitigations

Promoter mitigations are categorised based on two aspects (time and type). The same categorisation is applied for regulatory measures.

Table 7: Categorization of promoter mitigations [Source: KPMG analysis]

Time categorisation	Type categorisation
Preventative: put in place ex-ante to protect against future possible shocks, increasing the financial robustness of the promoter. **Reactionary**: taken if a situation of financial distress is forecast (pre-event) or after a distress situation has occurred (post event).	**Delivery**: cover aspects of how the project is delivered and managed. **Funding**: relate to how customers are charged for the project. **Financing**: relate to how the project is financed.

4.4.2 Potential promoter's mitigating actions in project delivery

The promoter's approach to project delivery will be based on determining the delivery model, which could include stakeholder management, the programme delivery team, and the contracting structure. It will also consider mitigations either through insurance or through contracting structures.

Examples of potential preventive mitigations for delivery:

- Comprehensive insurance package covering construction and existing operations;
- Well-developed delivery model that ensures the continuity of existing operations;
- Robust planning and forecasting with sufficient built in resilience and contingencies for reasonably anticipated delays and cost risks;

- Robust stakeholder management and public consultation process to avoid third party delays;
- A robust procurement process for the selection of main contractors and sub-contractors (including establishing their financial standing and financial capacity);
- Well-developed contract structures with limited scope for disputes;
- Appropriate risk allocation/ risk transfer to contractors along with a well-designed incentive regime;
- Strong programme management team with sufficient skilled resources;
- Close co-ordination with third parties to ensure timely delivery of third party services (including surface access) at a pre agreed price; and
- Robust security package from the supply chain including bank guarantees, parent company guarantees, performance bonds, warranties and collateral security where applicable.

Examples of potential reactionary mitigations for delivery:

- Re-profiling or phasing of capital expenditure to align capital expenditure with available financial resources; and
- De-specification of the project where possible.

4.4.3 Promoter mitigations in project funding

The promoter may have limited, direct influence on the project funding path from customers, which will be predominantly determined by the regulatory settlement. New regulatory measures could be introduced to provide the promoter with greater control over revenues—see Section 6.3.2.

Examples of potential funding mitigations:

- Increase in passenger yield within the allowed regulatory cap (subject to market willingness to pay); and/or
- Re-profiling of the tariffs to the extent permitted by the Regulator.

4.4.4 Promoter mitigations in financing of the new runway

The promoter will structure and arrange financing for the new project, including debt and equity. In doing so, it might be able to choose a financing strategy that includes certain mitigations to deal with financing risks. Such mitigations would generally be expected to increase the financial buffer available to the promoter and could be costly to the extent they deviate from an approach that minimises the cost of financing.

Examples of potential preventative financing mitigations:

- Lower gearing to reduce the financial risk and to increase future debt capacity;
- Maintenance of minimum cash balance and sufficient undrawn committed standby facilities to mitigate liquidity risks;
- Appropriate mix of debt products to reduce risk of significant debt issuance or refinancing over a short period of time;
- Reliance on suitable currency and inflation hedging to minimise risks associated with debt repayment or misalignment between costs and revenues; and
- Use of index linked debt to manage the risk of misalignment between income, which is linked to inflation, and interest payments. Derivatives can also be used to convert nominal cash flows into index-linked.

Examples of potential reactionary financing mitigations:

- Additional debt issuance (including through alternative debt products, across different currencies, maturities);
- Reduced distribution to shareholders;
- Negotiation of debt covenants; payment holidays and extension of tenors; relief from covenants;
- Changes to working capital arrangements including revised payment terms; and
- Additional equity injections (albeit this would usually be a last resort option)

4.5 Stakeholder reactions

The delivery of new airport capacity will necessarily be characterised by engagement with a wide and diverse range of internal and external stakeholders, including creditors and shareholders, customers, third parties, and the Government. Their input and their actions may affect the impact of a financial distress scenario and their expected behaviour could have a bearing on the consideration of different potential regulatory measures.

Stakeholders might also engage with, and react to, potential changes to the regulatory regime. For instance, any measures that change the regulatory regime that would have an impact on the allowed revenue could change the upfront expected risk-return profile of the investment. The risk of moral hazard could also influence how different stakeholders may react.

A detailed analysis of potential stakeholder reactions and their implications for the consequences of financial difficulty or distress are outside the scope of this Report. This Report only provides a number of high level examples of potential stakeholder reactions.

Creditors and shareholders:

Shareholders and creditors may be called upon to provide additional financing or to renegotiate new terms in the case of a financial distress situation.

Their behaviour in a financial distress scenario will be determined by the cause and nature of risks and the sustainability of the underlying operations (e.g. its long-run ability to generate cash), and by the overall future viability of the project. Generally speaking, it might be expected that it will be in creditors' and shareholders' interest to resolve a potential situation of financial difficulty and return the business to a sustainable financial position.

For comparison, Ofgem[37] highlighted the interests of creditors in finding a market based solution in the case of Hyder plc, which encountered financial difficulties that resulted in the acquisition of its electricity distribution, water and sewerage businesses by another company.

Customers:

Customers play the key role in funding promoter's operations, representing the main source of revenues, including in new investments.

In a situation of financial distress or financial difficulty, customers may be primarily concerned with ensuring minimal disruption to current airport operations and, secondly, to the delivery of the new runway capacity.

[37] https://www.ofgem.gov.uk/ofgem-publications/50728/12890-financingnetworks080206.pdf

Availability of funding from customers in the case of cost overruns can be considered as one of the key considerations in distress, highlighting the importance of revenues from ongoing operations in such a scenario.

The Government:

The Government could be concerned about the broader economic consequences of a promoter's financial distress, as well as about the potential impact on customers and taxpayers.

There are potential differences in the roles that the Regulator and the Government could play. These are highlighted in the following example.

An example of a potential view from a regulator is reflected in comments by Ofwat in its October 2015 publication:[38] "*Our review of our processes and procedures for when a company may be in financial distress*", where Ofwat notes *"It is possible that a company may fail as a result of the financial problems which it is facing. Ofwat is not required to prevent water companies getting into financial distress or failing in all circumstances. Financial distress and the failure of companies is just part of the normal operation of markets. If we were required to prevent companies failing in all circumstances, this could mean, for example, that inefficient companies were maintained to the detriment of their customers. We interpret our duties to mean that we only need to ensure that efficient companies are able to finance their functions, not any company."*[39]

The Government may take a different position as shown in the following case study on the National Air Traffic Service (NATS).

Case study: NATS[40]

When NATS was threatened with administration in 2002, the Government stepped in to prevent NATS from going into administration. With a new business plan drawn to reflect changing economic conditions, the Government provided NATS with a £65m investment that was matched by BAA and a £30m facility which was matched by the lenders to allow NATS to continue to operate. While this was partly due to the Government's stake in NATS, it was also motivated by the importance of the NATS service and the Government's desire to avoid any impact on operations, e.g. from NATS going into administration.

For the purposes of this Report, we do not assume any intervention by the Government.

Ex-ante agreement on coordination with third parties:

The Regulator might consider a potential coordinated ex-ante response to a hypothetical situation of financial distress. For example, the following case study shows the approach taken by Ofgem:

Case study: Ofgem coordination of third parties[41]

In the event of financial distress, Ofgem has signed a Memorandum of Understanding (MoU) to establish a coordinated response with the Department of Energy and Climate Change (DECC) and HM Treasury. As per the MOU:

HM Treasury will be responsible for proving consent for provision of financial support for companies in administration which includes grants, loans and indemnities.

The Health and Safety Executive (HSE) will coordinate with Ofgem to assess if underinvestment following a financial distress situation may lead to any operational concerns and whether or not mitigating measures are required.

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[38] http://www.ofwat.gov.uk/wp-content/uploads/2015/10/pap_tec20151015findistress.pdf
[39] Ibid | page 2
[40] House of Commons Aviation: National Air Traffic Services (NATS)Standard Note: SN1309
[41] https://www.ofgem.gov.uk/ofgem-publications/50660/mou-published-version-final.pdf

The Pensions Regulator is responsible for ensuring that any pension scheme of the licensee is treated in accordance with the law and regulations as set out in Pensions Act 2004.

5 Analysing distress scenarios and implications

5.1 Approach to stylised financial projections

5.1.1 Analysing possible distress scenarios

This section explores how financial difficulty or financial distress may occur in the delivery of the new runway capacity, and the potential vulnerability of the promoter to different types of shocks.

The purpose of this analysis is to inform the evaluation of potential regulatory mechanisms in minimising the risk of financial distress.

This section has been updated to show only the scenario analysis for the Heathrow North West Runway scheme following the Government's announcement of its support for a new North West runway at Heathrow.[42]

A set of stylised financial projections are used to analyse possible financial distress scenarios and the potential impact on the four dimensions of distress.

The analysis is used to understand how a distress scenario may impact the promoter. This analysis is based on limited public information about the current funding and financing structures, and therefore might not accurately reflect the actual financial structures of the promoter or its financing strategies.

As a large capital project, requiring sizable debt financing and undertaken in the context of an operational airport, three key types of risk events are considered: (1) financial market disruption, (2) demand shocks, and (3) Capex spend shocks. Each risk type captures a number of the main risks identified and described in section 4.2 earlier.

A number of assumptions are made to construct the stylised financial projections. The model is used to inform the potential impact and severity of financial distress risks and does not aim to provide an accurate modelling of the current or future financial position of the airport.

The projections are based on data from the Airports Commission and other public data sources (e.g. Heathrow Annual Accounts). The context in which data was submitted and the date of submission are both caveats to this analysis. Neither the assumptions about the financial structure nor projections have been validated by the promoter.

5.1.2 Methodology

- **Timeframe**: The focus of the financial projections is on the construction period and the initial period of operations. The analysis undertaken for this Report is for the period from 2016 to 2030.
- **Base case**: The 'Base case' is the scenario which assumes that no shocks have occurred, i.e. none of the above mentioned three shocks have materialised. The 'Base case' generates a set of financial projections based on the Q6 determination and the Airports Commission data. This Base case is used as the benchmark against which all scenarios and the potential impact of regulatory measures are assessed.
- **Scenarios**: Eight distress scenarios are analysed. In each scenario, one or more parameters are altered (e.g. capital expenditure), while all other inputs remain consistent with the Base case. All scenarios are described in detail further below.

[42] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

— **Existing financing**: Financing is considered at an aggregate level (i.e. including the airport baseline and the scheme) as it is assumed that the scheme is being financed using a corporate financing route.

5.1.3 Revenue projections

The extent to which external shocks impact promoter's revenues is determined by the regulatory framework. Promoter's revenues are projected based on an assumption about future regulatory determinations, which sets the yield per passenger. A number of subsequent adjustments are then made to approximate the actual revenues from charges. Other streams of revenues are also projected using data from the documents published by the Airports Commission.[43]

Regulatory determination:

A stylised regulatory determination is used to project the allowed yield per passenger. The financial projections are based on the following assumptions:

— The total revenue requirement is calculated based on a forecast of the three building blocks (operating costs, depreciation and cost of capital).

— The Q6 regulatory inputs[44] are used for the period 2016 to 2018. After Q6, the building blocks are projected using assumed Capex profiles, surface access costs, and other costs from the Airports Commission. Post Q6, the WACC is uplifted by 0.5% for illustrative purposes.

— The allowed depreciation is not included in the revenue until the runway becomes operational. All Capex incurred following this date is depreciated based on the average lifetime.

— The net revenue requirement is calculated by subtracting forecast other revenues from the total revenue requirement.

— The regulatory yield per passenger is calculated by dividing the net revenue requirement by forecast passengers.

Actual revenues:

A number of adjustments are made to derive the actual chargeable yield per passenger, which, combined with actual passenger traffic forecasts, determines revenues.

The financial projections are calculated as follows:

— The allowed yield per passenger is adjusted by a stylised version of the development Capex adjustment, which provides the return on Capex over the forecast in the regulatory determination.

— Forecast revenues from charges are calculated by multiplying the chargeable yield per passenger and the forecast passenger traffic.

— Other revenues are also projected using the figures from the Airports Commission.

5.1.4 Financing projections

The approach to financing the airport expansion project determines the promoter's debt and equity requirements and hence their financial obligations. It is assumed that any resulting financial headroom may be used to support the promoter's ability to manage risks of financial distress.

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[43] Airports Commission; Final Report https://www.gov.uk/government/publications/airports-commission-final-report

[44] Economic regulation at Heathrow from April 2014. http://publicapps.caa.co.uk/docs/33/CAP1151.pdf

A stylised version of the promoter financing structure, which may not reflect the actual approach to be adopted by the promoter, is used within the financial projections, capturing existing debt as well as new debt. The characteristics of the current financial structure are scaled up to approximate the new financing arrangements.

None of the assumptions specified below have been verified or tested with the promoter.

Existing financing:

The existing financing arrangements are an important component of future credit obligations, and the existing debt is captured within the financial projections.

The stylised financial projections are calculated as follows:

- Different tranches of debt are modelled separately as they have different interest rates and tenures.
- All existing debt is assumed to be re-financed at the repayment date, with the interest rates forecast in line with the time of refinancing. A notional cost of refinancing is included at 2% of the refinance amount.

The opening Net Debt as of 1 January 2016 is assumed to include:

- £12,078m of bonds raised at the Heathrow Funding level. This includes nominal and index linked debt. £253m of RPI swap accretion (31 December 2015) is also added.
- £387m of term debt raised by Heathrow (SP) Ltd.
- A debenture of £1,084m payable by Heathrow (SP) Ltd to Heathrow Finance plc. The actual debt raised at Heathrow Finance plc (see Figure 4) is not modelled.
- £722m of cash and cash equivalents.

New financing:

Additional financing for the expansion project and other capital expenditure is structured by scaling up the current financing arrangements. New debt is assumed to be available based on the growth in the RAB, which drives revenue and thus the ability to service debt. Heathrow has covenants based on their Net Debt to RAB ratio.

The process for calculating the financial projections are set out below.

- Additional financing is assumed to be available based on the 'economic RAB' (i.e. including the actual Capex expenditure in the year, any disallowance is then subtracted once the allowance/disallowance decision is made by the Regulator in the year in which the decision is made).
- The target debt balance (net of cash balance) is based on the economic RAB and the current level of gearing. Any new investment is therefore reflected in an increase in the target debt balance. In the Base case, new debt is raised to maintain a target debt balance.
- The issuance of nominal and index linked debt is calculated to keep their respective shares in the overall debt portfolio constant. The target share of nominal debt is calculated based on the percentage of nominal debt in the existing debt balance.
- An interest rate of 3% pa is applied to all new nominal bonds, a rate of RPI+1% pa is applied to all new index linked bonds. The interest rate assumption for new loan is based on the average market rates for bonds over last 5 years. The cost of embedded debt has been assumed in line with the contracted rates.
- The promoter is assumed to aim to maintain a constant share of nominal and index-linked debt within their debt portfolio. For the purposes of the projections, and in

order to accommodate accretion and to maintain a constant proportion of index-linked debt within the portfolio, small amounts of index-linked debt are replaced with nominal debt in some years.

Revolving credit facility:

The availability of standby credit facilities can support the promoter in managing the risk of financial distress in case of shocks, e.g. due to disruption in financial markets, as the facility is assumed to be available regardless of the situation in financial markets. The stylised projections include a single facility.

RCF related assumptions for financial projections are as follows:

- There is a single RCF facility carrying an interest rate, if drawn, of 3.5% pa.
- The size of the RCF is scaled up in line with the growth in passengers between 2016 and 2030.
- The current RCF for Heathrow is assumed to be £1,475m. The scaled up RCF used in modelling the NWR expansion project is £2,217m. As noted in Section 10.2, Heathrow Finance also has other undrawn committed term debt and liquidity facilities. These are not assumed to be available for the runway expansion project period nor are any additional RCF or liquidity facilities assumed for the purposes of the stylised modelling.
- The RCF facility is assumed to be fully committed by banks and/or financial institutions with a minimum acceptable credit rating, covering the full period of project implementation. For the purposes of the modelling, the RCF facility is treated as cash equivalent when a minimum liquidity regulatory measure is discussed.

Interest rate and Inflation Swaps:

- HAL has put in place a number of inflation and interest rate hedges. In addition to about 9% of its debt portfolio in the form of RPI-linked debt, HAL has index linked swaps representing about 40% of its debt. In addition, about 87% of the interest rate risk exposure on the existing debt was hedged for the regulatory period ending 31st December 2018.
- HAL has noted that index-linked swaps have been entered into in order to economically hedge RPI linked revenue and the RAB.[45]
- The hedges and other derivatives exposes HAL to adverse movements in the market rates impacting the mark to market value of its hedges. HAL will also need to amend its existing hedges in response to any regulatory change (for example some regulators have amended the measure of inflation from RPI to CPI; and have introduced indexation of the cost of debt).
- Adverse impact on hedges at the time of a shock can further exacerbate one or more dimensions of distress.
- Moody's in its report in February 2012 has cautioned "*that increasingly prevalent characteristics of these swaps, such as break clauses or the requirements to pay down indexation accretion ahead of maturity, mean that these instruments may only provide a short-term cash-flow benefit. Moreover, the use of index-linked swaps may create additional risks in relation to market or counterparty exposure, which can materially affect a company's liquidity position. Index-linked swaps may also affect the recovery prospects of other creditors, particularly in highly leveraged transactions,*

[45] https://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-SP-Limited-2016.pdf.pdf

as payments under the index-linked swaps often rank ahead of other senior creditors' claims in a default scenario." [46]

- The impact of hedges and derivatives are not part of this analysis as the public disclosure of companies swap exposures are limited. The new runway project would also be primarily reliant on new debt issuances.

5.1.5 Costs and depreciation projections

Costs and depreciation are included within the financial projections.

Some operating costs are assumed to be variable, and dependant on passenger numbers. If passenger numbers are lower than forecast, the variable part of Opex costs are proportionately adjusted down.

Outturn depreciation is calculated based on the opening accounting asset base divided by the total asset life. The same asset life assumptions are used to calculate both accounting depreciation and regulatory depreciation.

5.1.6 Cash flows

Poor cash generation may drive financial distress while strong cash generation provides a buffer against potential risks. Cash flows are forecast within the financial projections.

- Operating, investing and financing cash flows are projected.
- Cash flows to equity are calculated once cash costs, capital expenditures, debt drawdowns and repayments are accounted for. Cash flows to equity include allowed depreciation. It is also assumed that the airport is able to gear up to the maximum level at all times. No changes to the financing structure going forward is considered.
- An uplift to the allowed WACC of 50 basis points is assumed throughout the forecast period (i.e. not limited to only to the construction period).
- Equity injection is used in the stylised model to meet any cash shortfall. A £400m minimum cash balance is assumed to be maintained in the Base case and is used in shock scenarios before an equity injection is required.

5.1.7 Outputs

A number of output metrics are examined to consider the impact of different financial distress scenarios on the promoter's financial position and its ability to fund the scheme.

The output metrics reflect the four dimensions of distress (funding challenge, liquidity, debt financeability and equity financeability) to inform which dimensions in which scenarios may pose particular challenge.

The following metrics are used to analyse the potential impact of financial distress scenarios on the four dimensions (all figures are expressed in nominal terms unless otherwise stated):

Table 8: Impact metrics—financial distress scenarios [Source: KPMG analysis]

Metric	Calculation
Funding challenge	
Actual chargeable yield per passenger	See above section on revenues
CAGR from 2016 to 2030	Compounded annual growth rate of the actual chargeable yield
Liquidity	

[46] https://www.moodys.com/research/Moodys-Index-linked-swaps-may-create-risks-for-UK-regulated--PR_236672

(i) Cash balance + undrawn revolving credit facility	The sum of the closing cash balance in the year and the remaining undrawn balance on the revolving credit facility
(ii) Pre-financing cash flow to the firm	The sum of cash flow from operating activities and capital expenditures
Debt financeability	
Moody's airport rating ratios[47]	
(FFO + Cash Interest Expense) / Cash Interest Expense	FFO = Cash flow from operating activities Cash interest expense = total interest expense minus accretion
FFO / Debt	FFO/ total debt balance including indexation
FFO / Debt (Net Debt)	FFO/ total debt balance including indexation minus cash balance
Moody's Debt Service Cover Ratio	As per Moody's Airport Methodology [48]
RCF (Retained cash flow) / Debt	FFO minus dividends / total debt balance including indexation
Leverage ratios	
Net debt to RCV (gearing)	Total debt minus cash balance / RAB (economic) including Capex
Equity financeability	
Equity injection (+ve = injection)	See above section on financing
Dividends (-ve = dividend payment)	See above section on financing – cash flow to equity

Moody's airport rating methodology

The analysis uses elements of Moody's rating methodology for private airports[47] for the purposes of evaluating key credit metrics. The analysis should not be assumed to accurately or holistically reflect Moody's methodology.

Moody's rating methodology uses 7 factors, of which the sixth, Leverage and Coverage, is based on four credit ratios as sub-factors.

The analysis in this Report does not attempt to provide any form of 'shadow rating' using the weighting across factors or sub-factors or predict future or current rating issued by Moody's.

The thresholds implied ratings are used on a standalone basis for each credit ratio. For example, the following table shows the rating thresholds for the FFO/debt ratio used by Moody's.

Table 9: FFO/ Debt ratio rating thresholds [Source: Moody's rating methodology]

Rating	Upper limit	Lower limit
Aaa		*40%*
Aa	*40%*	*25%*
A	*25%*	*14%*
Baa*	*14%*	*8%*
Ba	*8%*	*6%*

[47] Moody's Privately Managed Airports and Related Issuers Dec 2014
[48] Factor 6 (page 23) of Moody's Privately Managed Airports and Related Issuers Dec 2014

B	*6%*	*3%*
Caa	*3%*	

** A bond is considered investment grade if its rating is Baa3 of higher by Moody's (or BBB- or higher by S&P)*

Gearing and RAR ratios

Gearing or Regulatory Asset Ratio (RAR), measured as the ratio of Net Debt to regulatory asset base, is a key financial metric used across regulated sectors, including airports. There are a number of variants to this ratio depending on what is included or excluded in the different components of the ratio.

Some of the common variants of the gearing measure include:

- **The extent of capital spend included in the regulatory asset base**. It is normal for the measure to be calculated on the RAB approved by the Regulator. However, in instances of new or expansion projects, the RAB may include capital expenditure that has been incurred, but that has not yet been subject to an economic and efficiency test by the Regulator (referred to as economic RAB in this Report).
- **Gross versus Net Debt**. While it is normal for any cash to be netted off from the gross debt, in some instances, the measure may also be calculated at the gross level.
- **Sizing of debt based on its seniority**. The quantum of debt included would depend on whether gearing is calculated for the senior debt only, or including different levels of junior debt as well.
- **Treatment of quasi-equity**. The company may use different types of debt financing instruments with some of them having equity like characteristics (and hence a default or a difficulty in servicing a quasi-equity instrument may not necessarily imply a financial distress for the entire company).

For the purposes of this Report, gearing is defined based on the assumptions set out below.

Gearing is assumed to equal to the ratio of Net debt to RAB (i.e., Regulatory Asset Ratio or RAR), as this is the definition currently used by both the Regulator and the rating agencies. In comparison to the Net debt/Enterprise Value definition, the RAR definition is not dependent on fluctuations in the Enterprise Value of the company. However, in instances of a financial challenge or distress, there will be an increasing divergence between the two measures (i.e. Net debt/RAB compared to Net debt/Enterprise Value).

All debt, including sub-junior debt (unsecured debentures) represent obligations payable by Heathrow (SP) Limited to Heathrow Finance plc. Sub-junior debt represented £1,084m of the total debt as at 31 December 2015. Sub-junior debt is included in this analysis as this represents financial obligations for Heathrow and any delay in the servicing of this debt can trigger financial challenge or distress.

The approach and analysis in this section is relevant irrespective of the decision on the treatment of the sub-junior debt (depending on the terms and conditions of the sub-junior debt).

Net debt is calculated by netting cash and cash equivalents (e.g. term deposits) from the total debt figure.

RAB includes capital expenditure added to the RAB in the year in which it is incurred (i.e. the analysis uses economic RAB). Scenario 3C (described below) considers a potential disallowance in the Capex following any economic and efficiency test[49] of the Capex spent by the CAA.

[49] This Report does not look at the regulatory approach for capital costs.

The calculation of the opening gearing (31 December 2015), as used in the stylised calculations, is shown in the table below. The RAR is calculated at a number of different levels within the Group's structure and for different debt seniorities.[50] At the level of Heathrow SP Limited, the senior RAR has a trigger of 70% with a covenant level of 92.5%, and a junior RAR trigger of 85%.

The adopted approach has not been cross-checked against actual financing documents.

Table 10: Calculation of opening gearing [Source: KPMG Analysis]

	Trigger level	At 31 December 2015
		£ million
Closing Heathrow RAB (A)		14,921
Total Senior Debt (B)		10,795
Total Junior Debt (C)		1,670
Total sub-junior Debt (debenture) (D)		1 084
Cash and cash equivalents (E)		-722
Senior Net Debt (F=B+E)		10,073
Senior and junior Net Debt (G=B+C+E)		11,743
Total Net Debt (H= B+C+D+ E)		12,827
Senior RAR (F/A)	70.00%	67.50%
Junior RAR (G/A)	85.00%	78.70%
Sub-junior RAR (H/A)		*86.00%*

5.2 Approach to distress scenarios

Distress scenarios are analysed based on 3 types of risks, which are particularly relevant in the delivery of runway capacity: (1) financial market disruption, (2) demand shock, and (3) Capex shocks.

Three (3) broad types of risks

First, financial market disruption is important due to the large scale of debt assumed to be required to deliver the project, and therefore demonstrates the promoter's vulnerability to any disruption in the debt capital markets.

Secondly, since the project is being undertaken by an operating airport, the ability of the underlying business to generate cash is an important factor in analysing financial distress in the delivery of new runway capacity. Since the promoter bears demand risk, a demand shock can reduce revenues potentially leading to a situation of financial distress.

Thirdly, delivering the new airports expansion is a large and complex capital project. A shock which implies additional capital expenditure may lead to a situation of financial challenge or financial distress for the promoter, who will need to fund and/ or finance the additional costs.

Eight (8) financial distress scenarios

Eight scenarios for financial distress are analysed, covering the 3 types of risks identified earlier, i.e. financial market disruption, demand shock and Capex shock. Each scenario is driven by a single underlying risk, allowing the exploration of the vulnerability of the promoter to different types of shock and if/ how a single shock could lead to challenge or distress.

[50] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/web-RATIOS.pdf

For each type of risk, a number of variants of each scenario is analysed in order to capture a range of different types of shocks, which could have implications for the promoter and for the four dimensions of financial distress discussed earlier. For example a one-off demand shock with a short term impact is expected to have different implications to a longer term shock.

Uncertainty over the final scheme characteristics, as well as the future regulatory regime, means that a detailed assessment of the scenarios which are most likely or most important is not possible.

This Report provides a preliminary analysis of different financial distress scenarios in the delivery of new airport capacity, and assesses how different categories of shock may lead to distress. It is important to note that this is not a prediction of what could happen in reality.

The following table gives an overview of the scenarios modelled.

Table 11: Potential Scenarios—Financial Distress [Source: KPMG analysis]

Risk	Scenarios
Financial market disruption (SC1)	SC1A: Increased cost of debt SC1B: Limited market access
Demand shock (SC2)	SC2A: One off shock SC2B: One-off shock with growth impact SC2C: Lower growth
Capex shock (SC3)	SC3A: Capex shock SC3B: Capex shock and delay SC3C: Capex shock with disallowance

The Report provides a separate section for each scenario covering:

Description of the scenario: The importance of the scenario in the context of airport expansion.

Historical evidence: Analysis of historical and other available evidence to understand the nature and severity of the risk; and the extent to which it can affect major infrastructure projects (or has affected airports in the past), in order to inform the sizing of the risks.

Considerations for scenario analysis: Considerations for analysis of the scenarios in the context of airport expansion.

Scenario analysis: The scenario analysis is presented as follows:

- Scenarios are defined for the associated risk, including the parameters that are varied as part of the scenario (e.g. passenger demand). The impact of the scenario is based, where possible, on historical analysis (e.g. % reduction in demand compared to the Base case).
- The indicative impact of each scenario is analysed based on the stylised financial projections. Impacts and analysis are presented for each scenario. A number of more severe variants were also considered to inform the analysis, though the results are presented based only on the main scenario only.

- The scenario analysis is then presented based on the four dimensions of distress (funding challenge, liquidity, debt financeability and equity financeability—see Section 3.3).

Promoter impact and mitigations: Possible mitigations that the promoter can take are then set out, including changes to the time or scope of the runway project.

5.3 SC1: Financial market disruption scenario

5.3.1 Scenario description

Disruption to the financial market may lead to a distress scenario due to the amount of debt required when access to financial markets might be restricted and the cost of raising debt might increase. This could impact the promoter's financial position (and the robustness of this position) as well as delivery of the project within the planned timescales.

Given that the promoter will be able to access international capital markets, the likelihood of it not being able to access debt markets can be considered low except for the instances of global debt market disruption. At the same time, market disruption may also increase the cost of debt to unsustainable levels and, in the extreme, may result in credit rationing, i.e. not being able to raise required debt.

Financial market disruption is assumed to range from a low, 'non-prohibitive' increase in the cost of debt ("non-prohibitive scenario") to a 'prohibitive' increase in debt costs, effectively limiting the ability of the promoter to access financing or the market not being able to meet the needs of the Capex programme, i.e. quantum of debt required ("prohibitive scenario"). Unavailability of debt is expected to be preceded and followed by significant increases in the cost of debt.

The financial market disruption may also trigger an increase in either, or both, the reference rate and the margin or spread. [51] The spread may also be impacted by promoter's behaviour or promoter-specific events, for instance an extended delay to new runway construction completion due to a technical issue.

5.3.2 Financial markets and lessons from the crisis

The ability of the promoter to access debt at a reasonable cost will be influenced by a number of factors, *inter alia*, the market depth, the single name exposure limit (i.e. how much the market is willing to lend to a single entity), the nature of the project risk, the market cost of debt, and the promoter premium.

The promoter may access international bond markets, supplemented by bank debt. Where bonds are not denominated in GBP (to tap other market segments), the promoter may swap the foreign dominated coupons and principal repayments into GBP to hedge the currency risk. Currency swap markets are highly liquid and commonly used to hedge currency risk.

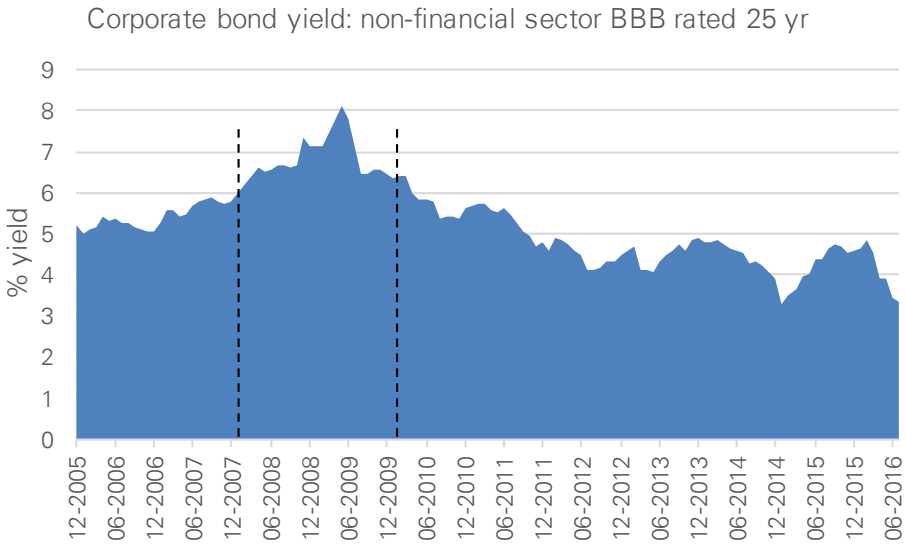
During the financial market disruptions following the 2007-8 subprime crisis, including the Euro-crisis, the increase in market risk made it more difficult to access either debt or equity, resulting in increased capital costs. Furthermore, the risk of illiquidity also increased at the time, i.e. the risk that capital could not be raised.

The 2008 financial crisis may be considered to be an appropriate reference point for financial market disruption. The chart below shows the yield on 25-year non-financial

[51] In the case of a bank loan, the reference rate is normally 3-month or 6-month LIBOR or similar (or the swap rate where floating rates are swapped to a fixed rate), to which the loan margin is added. In the case of a bond issue, the underlying rate (reference rate) is the sovereign yield on a fixed rate bond of similar maturity and/or the swap curve. A credit spread is added. There are also a number of other costs including arrangement fees, commitment fees charged by a bank or issuance costs for bonds.

GBP corporate bonds with a rating of BBB rating over the past 10 years, which captures the impact of the financial crisis on yields.

Figure 9: Corporate Bond Yields [Source: EIKON database, KPMG analysis]



The pre-crisis interest rate was between 5-6% and peaked to over 8% during the crisis. This Report uses the 2008 financial crisis, and the resultant increase in debt costs (+300bps), as an illustrative scenario to assess the potential impact of financial market disruption on the promoter.

Within regulated industries, limited liquidity in the index-linked market narrowed the options for funding. Index-linked debt is used to hedge financing cash flows and RPI linked revenues. The limit on index linked debt availability exposed the industry to additional risk associated with using synthetic (i.e. derivatives-based) instruments.[52] [53]

Where financial market uncertainty increases the cost of longer term debt, corporates may choose shorter term financing solutions (with the intention to not lock into a high cost of debt for a long term, but instead to refinance the short term debt once the market condition improves). However, short term financing creates re-financing risks, which can be significant, as shown by the example of BAA in 2008: The £13.3bn refinancing of the BAA debt was delayed by the worsening of the conditions in global financial markets. Credit agencies threatened further to downgrade BAA debt if the transaction, finally completed in 2008, did not go through.[54]

While a complete unavailability of debt is considered less likely, this risk is considered material enough to warrant specific treatment in certain large infrastructure projects. For instance, the Thames Tideway Tunnel promoter is protected from financial market disruption through two different measures. The Project Licence includes a cap and collar

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[52] Financing Water Infrastructure Beyond 2015 A report for Severn Trent Water December 2012

[53] In February 2012 Moody's noted that 'prevailing market conditions' have made it hard for UK regulated utilities, to fulfil their borrowing requirements using traditional methods like index-linked bonds. Instead, they have made use of derivative products like index-linked swaps to link their borrowing costs to inflation, but these derivatives 'cannot provide the same benefits as the index-linked bonds they seek to mimic. In particular…the existence of break clauses or requirements to pay down indexation accretion in such deals mean that they can provide only a short-term cash-flow benefit. Index-linked swaps may also introduce additional risks for a company's liquidity'.
UK Regulated Utilities: Why Index-Linked Swaps May Not Provide the Same Cash Flow Benefit as Index-Linked Bonds', Moody's Special Comment, 3 February 2012.

[54] Financial Times Reporting 18th August 2008 https://next.ft.com/content/86680760-6d30-11dd-857b-0000779fd18c

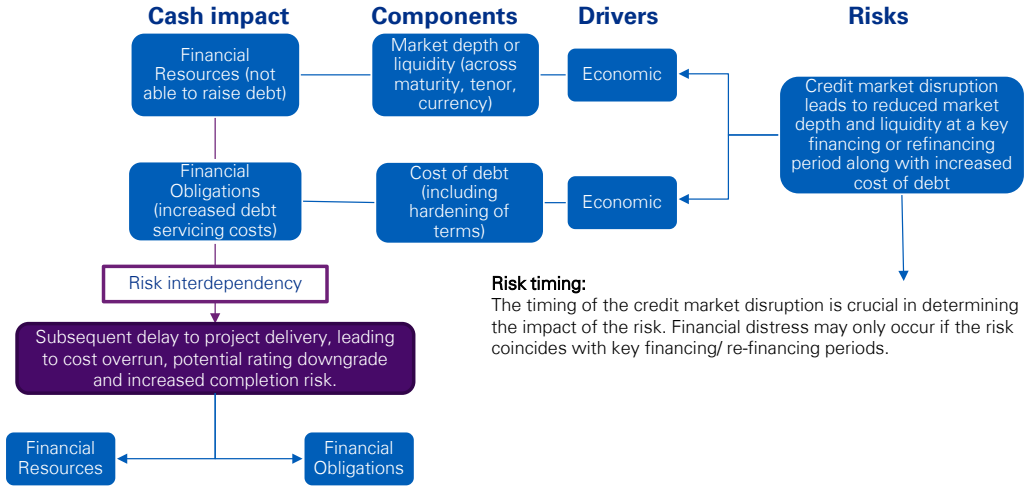
protection mechanism on the cost of debt. [55] Furthermore, the Government Support Package for the Tideway project provides support in specific circumstances of debt market disruption (whereby the Government acts as a lender to the project up to a pre-determined amount). [56]

5.3.3 Considerations for financial market disruption driven distress

A financial market disruption will have an impact on the cost of debt. A severe disruption may lead to reduced ability to access debt and potential delay to project delivery.

The following diagram maps the possible impacts of such a shock,

Figure 10: Impact of Severe Financial Market Disruption [Source: KPMG analysis]



The following factors could influence the impact of this risk:

- **The timing of credit market disruption**: for instance, financial distress will be accentuated if the risk coincides with key financing / refinancing periods.
- **The financing structure** (e.g. gearing, share of index-linked debt, timing of equity and debt raising, and currency denomination of debt issuance): if the promoter adopted a more highly geared structure, or maintained low levels of liquidity, then the impact would be greater as the financial headroom would be lower. In the case of distress at the point of re-financing, a higher re-financing requirement would amplify the problem of financial distress.
- **Availability of alternative sources of finance**: the availability of cash balance and committed undrawn standby or revolving credit facilities would determine the ability to meet any cash requirement to finance the project during this period of reduced debt availability.

5.3.4 Scenario analysis

Two financial market disruption scenarios are analysed:

- **Scenario 1A**: **'Non-prohibitive financial market disruption'** resulting in an increase in the cost of debt by 300bps (in line with increase observed during the financial crisis).

[55] Financing Cost Adjustment mechanism in the project licence. http://www.ofwat.gov.uk/wp-content/uploads/2015/10/lic_lic_baz.pdf
[56] Market Disruption Facility https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/458821/ttt-market-disruption-facility.pdf

— Scenario 1B: **'Prohibitive financial market disruption'** leading to an increase in the cost of debt and a restriction on raising debt during the peak disruption period.

It is important to note that this section has been updated to show only the scenario analysis for the Heathrow North West Runway scheme following the Government announcement of its support for a new North West runway at Heathrow.[57]

5.3.4.1 Heathrow: Scenario 1A Non-prohibitive financial market disruption scenario

Due to the scale of debt issuance that may be required, financial market disruption is an important consideration in the delivery of new runway capacity. Market disruption may have a range of different impacts across different segments of debt capital markets.

As part of the financial projections, an increase in the interest rate on all new debt is used to illustrate the potential impact of such a shock on the promoter and the four dimensions of distress defined earlier. This scenario is modelled as follows:

— A 300bps increase in the cost of debt at the peak of the debt drawdown programme in the financial year 2024 and in the year immediately preceding and succeeding this year (i.e. 2023 and 2025) is modelled.

— No other changes to the Base case are applied (for example, no increase in the allowed rate of return is assumed for subsequent price reviews).

Scenario impact

The increase in the cost of debt over 3 peak years of debt issuance is predicted to result in additional interest costs until the high cost debt is repaid. This has a direct impact on credit ratios and cash available for distribution to equity holders. Based on the financial projections developed for this analysis, an illustration of the impact of the shock (a 300 bps increase in cost of debt over 3 years) is provided below.

Table 12: SC1A Illustrative Impact Overview Heathrow [Source: KPMG analysis]

Impact compared to the Base case	2023	2024	2025
Incremental cash interest costs	c£192m	c£433m	c£650m
Reduction in distributions	c£153m	c£347m	c£523m
Cash Interest Coverage Ratio (pre / and post impact)	2.5x/2.1x	2.6x/1.9x	2.6x/1.8x
FFO / Net Debt (pre / and post impact)	5.2%/4.7%	5.0%/4.0%	5.0%/3.8%

The table below discusses the potential impact across the four dimensions of distress:

Table 13: SC1A Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding challenge:
▪ In this scenario, there is no increase in charges during the regulatory period since there is no cost of debt pass through mechanism.

[57] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

- At the next price review in 2024, if the embedded cost of debt were to be reflected in the WACC, it is assumed that there would be a large, one-off increase in charges of c15% based on stylised modelling.
- This increase would be in addition to the rise in charges under the Base case due to the implementation of the project.
- If the embedded cost were not reflected in the WACC at next price review, then the impact would fall on equity.

Liquidity:

- In terms of liquidity, under this scenario, it is assumed that higher interest costs would lead to a negative impact on liquidity, when measured by cash generation, though standby facilities would remain available.
- This scenario assumes an enduring negative impact on cash flows of c£520m pa due to higher interest costs. The aggregate impact on nominal cash flows would be as much as c£6.2bn over the period to 2035.
- The reduction in cash flows reduces the cash resources available to finance the capital expenditure and may impact project delivery.
- The cash flow impact is assumed to be offset in the next regulatory period, if the embedded cost of debt was to be reflected in the new allowed WACC.
- The RCF remains unused in this scenario given that debt is still available, and increased interest costs are mainly absorbed by lower distributions. The promoter may choose to use the RCF facility depending on the agreed terms.

Debt financeability:

- In terms of debt financeability, in this scenario, there would be a sustained deterioration in credit ratios, with cash Interest Cover falling out of the investment grade range (impacts of all ratios are on a standalone basis for the respective ratio), which could put pressure on the rating.
- The Cash Interest Coverage ratio decreases with a peak impact in 2025 when the ratio would fall from 2.6x to 1.8x (Note that Moody's consider 2.6x to be in "Baa" range while a 1.8x ratio is between Ba (2.5-1.8) and B (1.5-1.8).[58]
- Similarly, the FFO / Debt ratio declines from 5% to 3.8% in 2025 moving towards the lower end of the B range (3%-6%).
- The combined impact of deterioration in some of the ratios could put pressure on the rating.

Equity financeability:

- In this scenario, equity financeability may be challenged, as higher interest costs reduce resources available for distribution.
- An increase in interest costs may result in lower distributions from 2023, with a potential impact of c£500m per annum from 2025 (until the high cost debt is refinanced).
- The longer term implication would depend on the ability to reflect the increase in embedded debt costs in charges.
- If under the future regulatory framework, the embedded cost of debt was reflected in the charges from the next regulatory period onwards, then there would be no long

[58] Baa3 is the minimum investment grade as per Moody's credit rating terminology. A debt issuer or specific debt issuance may be rated investment grade despite one or more individual credit metrics in the below investment grade range.

term impact on equity. The impact on equity during the period until the adjustment is made could be smoothed e.g. through the use of working capital facilities.

Summary

A disruption in financial markets could result in a significant increase in the cost of debt, but with continuing access to debt capital markets.

This may lead to a financial challenge for the promoter, but not a financial distress, based on stylised modelling. The increase in interest costs would impact cash generation (liquidity) and lead to lower distributions and a significant increase in charges depending on the regulatory regime (leading to potential funding challenge, given projected impact on tariffs).

There could be a sustained deterioration in promoter's credit position with cash Interest Cover falling out of the investment grade range, which could put pressure on the rating and promoter's ability to raise funding in the future, at least in the short term.

The assumed high gearing (86%) would amplify the impact of such a shock. It is unlikely that equity alone could absorb such a shock, unless the costs could be ultimately passed on to consumers. Alternatively, the project might be delayed until debt financing can be raised at a lower cost.

5.3.4.2 Heathrow: Scenario 1B Prohibitive financial market disruption scenario

This scenario considers the impact of disruption in the financial market on the promoter. Financial market disruption may restrict the ability of the promoter to access debt or make it prohibitively expensive to do so.

An increase in the interest rate on new debt, combined with a limitation on market access, is used in this scenario to illustrate the potential impact of this type of a shock on the promoter and the four dimensions of distress. The scenario is modelled with the following assumptions:

- A 300bps increase in the cost of debt is assumed in the years immediately preceding and succeeding the peak of the debt drawdown i.e. in 2023 and 2025.
- No other changes to the Base case are applied (for example, no increase in the allowed rate of return is assumed for subsequent price reviews).
- The promoter's ability to raise debt is restricted to the extent that the company cannot raise at an economically acceptable cost any index-linked or nominal bonds in 2024.
- The availability of the RCF is not reduced and assumed to be fully committed and available.
- The impact of the lack of debt market availability is considered for new debt only, not the re-financing of existing debt.

Scenario impact

The scheme will imply a large debt financing requirement in the peak years, as shown in the table below, increasing the potential impact of a prohibitive financial market distress scenario. The new debt requirement will be determined by the total Capex in the year and the target gearing. The scale of the expenditure compared to the existing RAB illustrates the scale of the required investment. Based on the stylised financial projections, an illustration of the impact of the shock is provided below:

Table 14: SC1B Illustrative debt requirement—Heathrow [Source: KPMG analysis]

	2023	2024	2025
New debt requirement (@ 86% gearing)	c£6bn	c£7.5bn	c£7bn
Total Capex (nominal, scheme and for airport baseline)	c£7bn	c£8.7bn	c£8bn
Forecast economic RAB (nominal) closing balance	c£32bn	c£40bn	c£49bn
Capex as % of closing RAB	22%	22%	17%

The following table discusses the potential impact across the four dimensions of distress.

Table 15: SC1B Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding challenge:

- In this scenario, it is assumed that there would be no increase in charges during the regulatory period as there is no cost of debt pass through mechanism.
- At the next price review in 2024, if the embedded cost of debt were to be reflected in the allowed WACC, there would be a significant one-off increase in charges of c15%.
- This increase is in addition to the rise in charges under the Base case due to the implementation of the project.
- If the embedded cost were not reflected in the WACC at the next price review, then the impact would fall on equity through reduced distributions.

Liquidity:

- In this scenario, the promoter might face a severe liquidity constraint, exhausting the standby credit facility. Higher debt costs would increase future interest costs and reduce future free cash flows that may be otherwise available for financing the project in the following years.
- Since it is assumed that no debt is available during 2024, in this scenario, the promoter would be forced to draw down the RCF in full (£2,217m). There is a risk that RCF may also not be available for drawdown in extreme scenarios.
- This drawdown would not be sufficient to meet the size of the investment required (if available and used for that purpose in the first place) during the peak years of capital expenditure (over £8bn including surface access costs).
- There would be an enduring negative impact on cash flows of c£400m pa due to higher interest costs. The aggregate impact on nominal cash flow would be c£5.1bn over the period to 2035.
- The cash flow impact would be offset in the next regulatory period, if the embedded cost of debt was reflected in the WACC.

Debt financeability:

- In this scenario, the lack of debt availability is the driver of financial distress. Debt financeability may also be impacted due to the increased requirement for debt in subsequent years and the deterioration in credit ratios.
- The Cash Interest Coverage ratio would decrease with a peak impact in 2025 when the ratio falls from 2.6x in the Base case to 1.8x. (Note that Moody's consider 2.6x to be in "Baa" range while a 1.8x ratio is between Ba (2.5-1.8) and B (1.5-1.8)).
- FFO / Debt would decline from 5% to 3.9% in 2025, moving towards the lower end of the B range (3%-6%).
- Some of the credit metrics like the Debt Service Cover Ratio (DSCR) and the retained cash flow to debt ratios would also be impacted. The combined impact of deterioration in the ratios could put pressure on the credit rating.
- The promoter is assumed to have c£2bn of existing debt due to be re-financed in the period 2023 to 2025, of which c£600m falls in 2025.[59] Difficulties in arranging re-financing during this period would exacerbate the overall debt financeability challenge.
- Since debt is assumed to be unavailable in 2024, in this scenario, and the quantum of financing required is significant, the promoter would need to raise an even higher level of debt when the debt market recovers, which would be challenging. This is assuming equity covers the financing gap in the year of disruption and the promoter re-levers in the subsequent years and repays the equity.
- Debt financeability issues in this scenario could result in a downgrade or reputational risks, either of which could further aggravate financial difficulties and increase interest costs or reduce availability of new financing.

Equity financeability:

- In this scenario, equity holders would face a c£4.5bn financing requirement in the year when debt access is restricted, if planned Capex is to be maintained. Equity would also face a longer term reduction in distributions due to a higher cost of debt service.
- The financing requirement of c£4.5bn, which, if planned Capex is to be maintained, would need to be filled in by equity (equivalent to a reduction in gearing of c13%), subject to other mitigations available to the promoter.
- It is possible that equity investors would not be able to provide the further equity required by the project. Obtaining additional equity could be also a time consuming process and could involve significant costs.
- If neither debt nor equity was available, the promoter might have to postpone capital expenditures. This would delay the completion date of the project. Alternatively, equity (if available) may substitute debt in the short term in the year of distress, which could be replaced with debt once debt is available again.
- Equity holders would also face an enduring impact of lower cash flow to equity of c£450m per annum.

Figures 11, 12 and 13 below show the impact of a debt market disruption supported by a short term support from equity, followed by higher issuance of debt when the debt market is active again, along with repayment of the short term equity support. The figures are based on new debt and do not include any refinancing of existing debt.

[59] Heathrow Airport Debt Maturity Profile (Heathrow (SP) Limited and Heathrow Finance plc at 30 June 2016) http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/heathrow-debt-maturity-profile-june-2016.pdf

The promoter will need to bring in equity to the extent of c£4.5bn in order to meet the financing requirement due to restriction in access to debt market in 2024, in addition to drawing down the RCF of £2.2bn, foregoing dividends and utilisation of available cash balance. This additional equity of c£4.5bn is assumed to be repaid through debt issuances in the year immediately following the year when the debt market restriction eases. An equity repayment of c£3.5bn is assumed in 2025 to repay the short term equity support obtained in 2024.

Figure 11: Impact of a prohibitive debt market disruption on debt [Source: KPMG analysis]

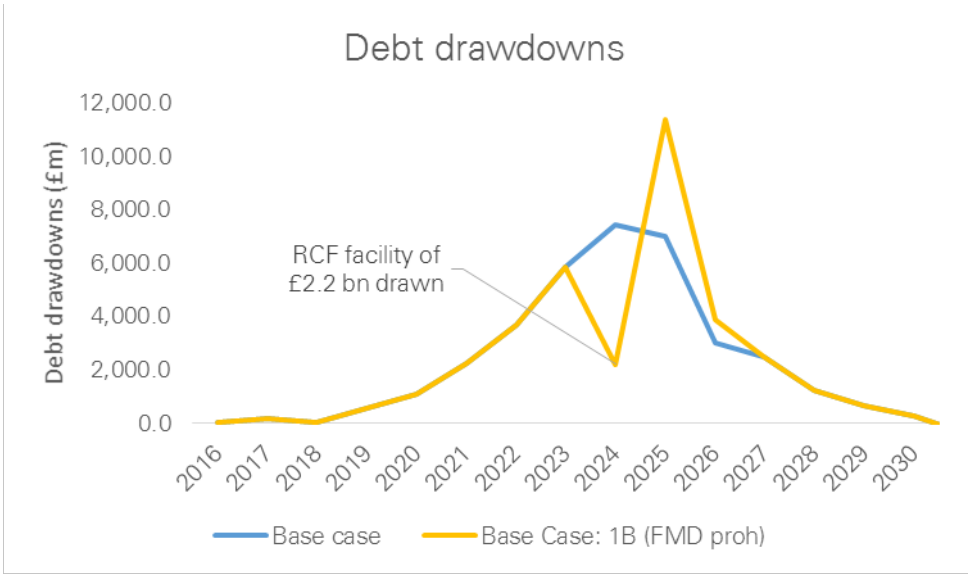


Figure 12: Impact of a prohibitive debt market disruption on equity requirements [Source: KPMG analysis]

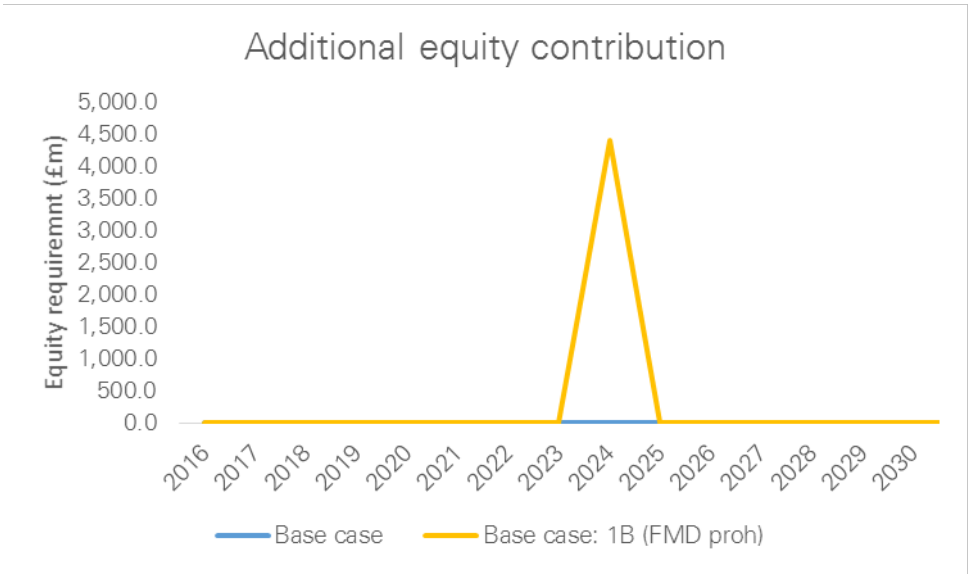
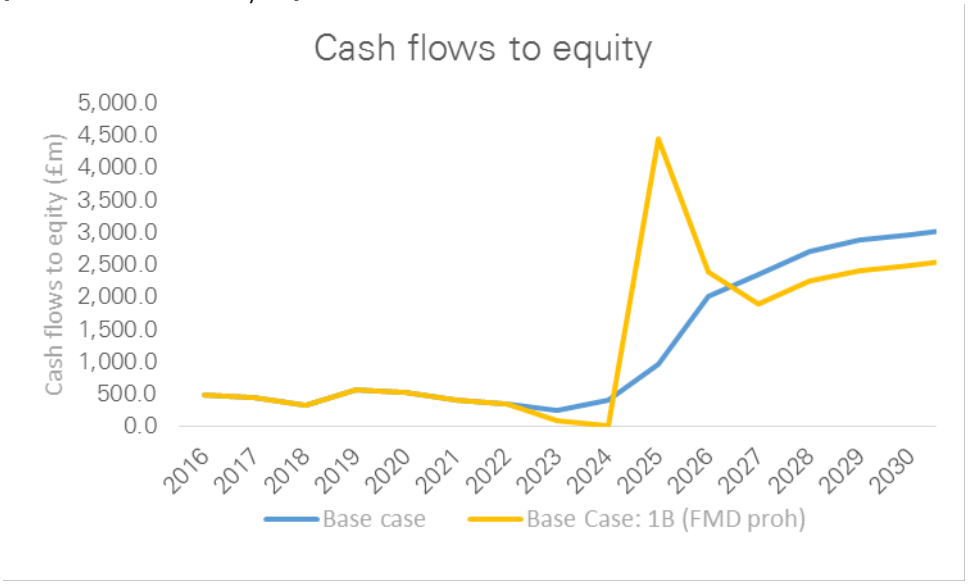


Figure 13: Impact of a prohibitive debt market disruption on cash flows to equity
[Source: KPMG analysis]



Summary:

A disruption in financial markets with credit rationing, which would limit access to debt markets for a year as well as increase the cost of debt, could lead to financial distress in the absence of mitigation.

For the project to continue, there would be a need for a significant equity injection, if the planned capital expenditures were to continue, which might be challenging to secure given the size of the financing requirement in the absence of new debt. Even if the promoter was subsequently able to issue debt and replace equity, this would put pressure on debt financeability, as the debt requirement in the years following the disruption would be already significant and would increase further, and credit ratios would deteriorate. The impact of the shock would be entirely on the equity, if the Capex was to be maintained.

The delayed issuance of debt due to restriction in 2024 does not create a negative impact on the credit metrics compared to the previous non-prohibitive scenario, but the debt could be exposed to consequential cost increases, if the lenders consider the project to be riskier or downgrade the promoter. The enduring increase in the cost of debt would impact cash generation and liquidity and would lead to lower cash flow to equity.

Overall, the promoter would continue to operate as a going concern, but the project would most likely have to be postponed until financing is again available.

5.3.5 Potential mitigating actions by the promoter

A major financial market disruption, leading to an increased cost of debt and in the prohibitive case a restriction on access to debt market, can lead to a financial challenge or distress situation.

Debt market disruption may spread gradually, with liquidity available initially, but at a cost of debt that is considered uneconomical. The promoter may initially be able to tap alternative sources of debt (type of lender, currency, maturity, etc). It is likely that the promoter would firstly exhaust all alternative options, including raising debt from alternative sources (for example, issuance in different currencies; or a higher proportion of index-linked debt). This may limit the impact on the cost of debt and thus the long-term impact on distributions or charges. However, it would be normal to expect that

such alternative sources are also affected during situations of market disruption. Shocks could spread rapidly between different market segments and, therefore, it is unlikely that the promoter would be able to act to offset the cost of debt increase through the use of different credit sources (outside of those already agreed with lenders e.g. committed standby facilities).

The key mitigations by the promoter are likely to be focused on alternative sources of financing. These could include diversifying the sources of debt, including multiple currencies, and multiple debt types. A renegotiation of debt terms and covenants may also be considered. The promoter could mitigate this scenario by increasing available standby/RCF facilities, or by keeping a cash reserve, however this could imply a significant cost of carry.

Re-financing requirements would also be threatened during this period. If the existing debt is due to be refinanced during the disruption period, the promoter could open negotiations with existing bond holders. This would add to the difficulties faced during the period and increase the risk of debt and equity financeability issues, as well as reputational damage. Using an appropriate mix of debt tenors could reduce the risk of significant debt issuance or refinancing requirements in concentrated market segments in a short period of time.

The promoter is also likely to take other measures to improve the free cash flow generation through cost reductions, maximisation of other revenue, and maximisation of revenue from charges if prices are below the regulatory cap. These may be more effective in mitigating a non-prohibitive debt market disruption, as there is a significant debt requirement in the case of a prohibitive debt market disruption.

A promoter facing a severe increase in the cost of debt may seek an interim review of its price control.

A promoter may also choose to delay or re-scope the project if financing is not available, but this could create greater long term issues, including impacting their reputation and relationships with customers. Operation of the existing airport may also be impacted, both directly through a lack of sufficient finance and indirectly due to the resources diverted to manage the debt market disruption risk. The promoter may also look to identify non-scheme Capex that can be delayed or review the project delivery model or scope to identify additional cost savings.

When the debt market re-opens the promoter may phase the debt issuance over a number of longer time to avoid crowding out the market.

While the analysis presented here is focused on a scenario of a market-wide disruption, a project specific event may also lead to increased costs of debt and, in the extreme case, its availability. Regulatory measures may differentiate between the systemic market risks, which would be largely outside the control of the promoter, and the project-specific risks, which are more directly driven by the actions of the promoter.

A project-driven debt market disruption would be especially significant since a failure (e.g. construction problems) would already have occurred to trigger the debt market disruption.

The measures considered in this section are primarily for the systemic risk (e.g. sub-prime credit crisis), which are not due to the promoter's actions. However, some of the measures to mitigate systemic debt market disruption may also be effective during such project specific debt market issues.

5.4 SC2: Demand shock driven distress

5.4.1 Description

Under the current regulatory regime, airports bear demand risk as prices are set based on forecast passenger numbers. Demand risk may result from macro-economic factors

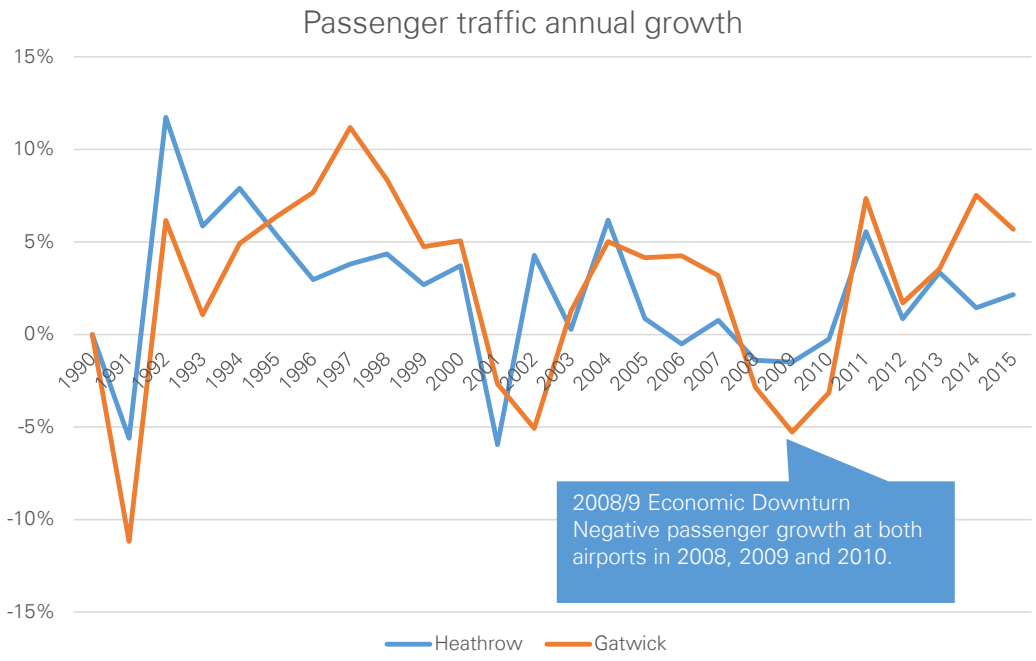
including economic growth, fuel prices, etc. in addition to price elasticity. The opening of new capacity may also change how demand shocks impact traffic.

The intensity and longevity of demand shocks can vary significantly. Demand shocks may occur due to one-off catastrophic events that lead to very low or even nil throughput for a short period of time. Such shocks may or may not impact on the longer term growth. In other scenarios, demand shocks may be less intense at first, but the impact may be more prolonged, and the demand may never return to the pre-event growth trajectory.

5.4.2 Traffic trends and lessons from historic shocks

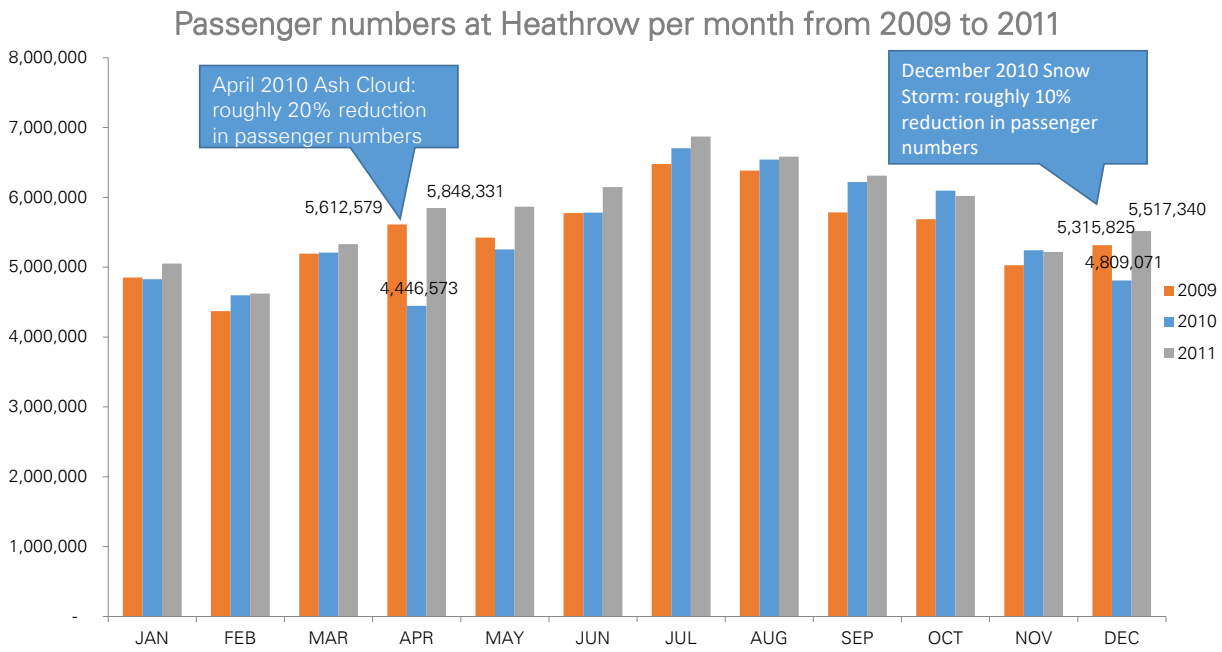
There are many factors that drive passenger traffic demand. Economic and political shocks can lead to a fall in traffic and/or reduction in the long term growth rate. For example, the chart below shows the impact of economic recession in 2008/9 in the changes in passenger numbers at Heathrow and Gatwick. In this example, the impact of the recession is felt over a number of years.

Figure 14: Passenger traffic annual growth—Heathrow and Gatwick [Source: CAA, KPMG analysis]



One-off demand shocks, like extreme weather conditions, can lead to a very low or even zero traffic in the very short term. The Icelandic volcano that caused the 2010 ash cloud or the 2010 snow storm are two examples of this scenario. The chart below shows the impact on monthly traffic figures for Heathrow due to these two events.

Figure 15: Passenger numbers—Heathrow [Source: CAA]



One-off shocks such as those highlighted in the charts above have a significant in-month impact but a limited impact on an annual basis. The following table shows three historical examples of extreme weather conditions impacting passenger numbers at Heathrow along with Gatwick: the 1991 fog; the 2010 ash cloud disruption; and the 2010 snow storm. In each case, the impact of passenger numbers in percentage terms in the month of the incidence and over the year is shown below (noting that, in some instances, the impact is continued to be felt for few months after the incidence albeit at a lower rate). The table below also shows the impact of the September 11 terrorist attack and the 2008-10 economic downturn.

Table 16: Extreme conditions impact on passenger numbers—Heathrow and Gatwick [Source: CAA, KPMG analysis]

% Reduction	Monthly impact		Annual impact	
	HAL	GAL	HAL	GAL
1991 Fog	-25%	-10 to 25%	-2.0%	-1 to -2%
2010 Ash cloud	-20%	-20%	-1.5%	- 1.5%
2010 Snow storm	-10%	-10%	-1.0%	-1.0%
September 11 2001 [60]	NA	NA	-5.0%	-10.0%
2008-10 Economic downturn [61]	-9.5% (max)	-14.4% (max)	0 to -1.5%	-3% to -5%

[60] An approximate impact based on comparison of September 2001 to August 2002 traffic from the same time period in the prior year.

[61] Comparing the start of the impact (i.e. early 2008) with the following year data give an indication of the maximum impact on a single month's traffic. Reduction of 4.8m in 2008/02 to 4.3m in 2009/02. Month 02 (Feb) represents the bottom of the seasonal pattern for HAL. The dip at the bottom of the seasonal pattern is used as a proxy for the reduction here. Month 02 is also used for GAL as there is no consistent seasonal dip.

5.4.3 Considerations for demand shock driven distress

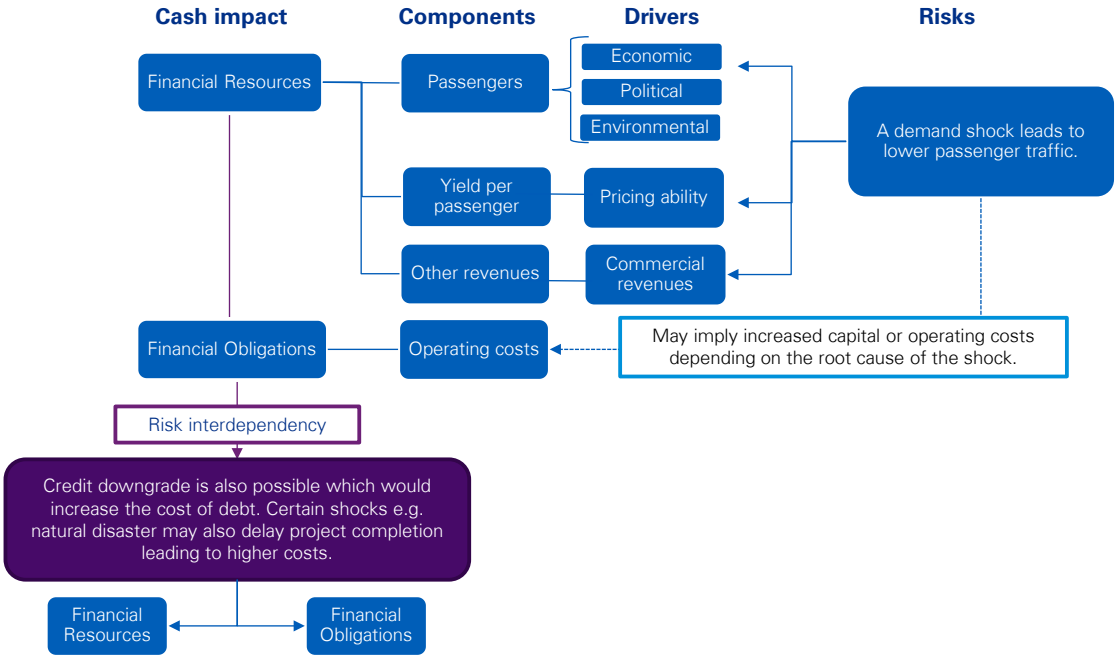
Under the current regulatory regime, the airports bear demand risk within the regulatory period. The timing of a demand shock is an important determinant of the impact of the risk. For example, a shock that occurs towards the end of the regulatory period will be reflected in the subsequent price control, limiting the extent and duration of promoter's exposure to demand risk, if subsequently adjusted and reflected in tariffs.

The extent to which the airport is capacity constrained, and the sensitivity of the underlying passenger demand to shocks, will determine the overall variability of passenger numbers to shocks and the duration of any shock.[62]

Also, since airport capacity utilisation is seasonal in particular at Gatwick, the season during which the demand shock occurs could determine the extent of the impact on annual demand, i.e. a weather disruption resulting in 20% reduction in the peak season (e.g., month of August) may have a significantly higher impact than a disruption during off peak periods like November or February. The impact is also different between the two airports due to varying mix of business and leisure passengers.[63]

Depending on the type and source of the risk, there are range of potential additional impacts which are mapped in the diagram below.

Figure 16: Risk Impact depending on type and source of risk [Source: KPMG analysis]



5.4.4 Scenario analysis

Three demand shock scenarios are analysed:

Scenario 2A: One off traffic shock resulting in a month of very low/zero traffic, and some impact in the following two months—for example, risks due to extreme weather conditions.

[62] Analysis of the variability of traffic at the different airports and the possible impact of the new runway on demand variability is outside the scope of this Report.
[63] The impact of the passenger mix at both airports is captured within the analysis through the use of historic data. No further separate analysis is performed on this.

Scenario 2B: One off traffic shock, with a very low traffic during the month of the incidence, with lower growth in demand in the following year, and with growth not returning to the pre-event level—for example, the impact of a terrorist attack.

Scenario 2C: Sustained lower growth in passenger numbers during the demand shock and thereafter, with growth not able to return to the pre-event level—for example, due to changes in macroeconomic conditions or a political shock.

There are a number of other possible demand shock scenarios. For example, an incidence or failure in the construction project impacting the existing operations. This can take the form of a "minor" incidence (e.g. a construction crane collapse), which also disrupts the existing airport operations for a short period, e.g. a few days; a "major" incidence (e.g., failure of a common infrastructure), which disrupts the existing airport operations for a few weeks, or a "prolonged" incidence (e.g. problems with the IT or system operations integration), whereby the optimal performance of the airport is hindered for a longer period of time, e.g. a few months.

Such risks may also imply increased Capex and other costs. For the purposes of this Report the impact of these additional scenarios are captured within the three scenarios (2A to 2C above).

This section has been revised to show only the scenario analysis for the Heathrow North West Runway scheme following the Government announcement of its support for a new North West runway at Heathrow.[64]

5.4.4.1 Heathrow: Scenario 2A

As the project is being undertaken by an operating airport, the ability of the underlying business to generate revenue is an important factor when analysing financial distress. A demand shock can reduce revenues, potentially leading to a distress situation as the promoter is assumed to bear demand risk. One type of demand shock is a one-off traffic shock resulting in a month of very low/zero traffic, and some impact in the following two months—for example, risks due to extreme weather conditions. One of the main impacts of a demand shock is on passenger numbers.

Within the financial projections, a reduction in passenger numbers compared to forecast is used to illustrate the potential impact of this shock on the promoter and the four dimensions of distress. The scenario is modelled as follows:

- A reduction in traffic of 2% from the Base case in 2024, followed by a return to the Base case passenger traffic volume thereafter.
- This corresponds to the highest of the short-run impacts identified from historical analysis.

Scenario impact

The traffic impact is assumed to be contained within a single regulatory period, meaning that the full risk would be borne by the promoter. Based on the financial projections developed for this analysis, an illustration of the impact of the shock is provided below:

Table 17: SC2A Illustrative impact overview—Heathrow [Source: KPMG analysis]

Impact compared to the Base case (pre and post impact)	2024
Passenger numbers	c80, 830/ c79,213
Revenue	c£4,514m/ c£4,424m
Cash Interest Coverage Ratio	c2.6x/ c2.5x

[64] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

FFO / Debt (pre / and post impact)	c5.0%/ c4.8%

The following table discusses the potential impact across the four dimensions of distress:

Table 18: SC2A Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding challenge:

- In this scenario, there would be no increase in charges as the promoter bears demand risk within the regulatory period.
- The impact on passenger numbers would be contained within a single year (2024), meaning there would be no subsequent impact on charges.
- The long run passenger trend would not be impacted and, therefore, there would be no question about how traffic trends may be reflected in the subsequent price control.

Liquidity:

- In this scenario, lower revenues would lead to a negative impact on liquidity when measured by cash generation, though standby facilities would remain available.
- There would be an immediate deterioration in the free cash flow due to the c£90m fall in revenues from charges as well as from commercial revenues (c£70m reduction in the free cash flow in the year of the shock).
- There would be no requirement to draw the RCF (under the assumption that the impact of the shock is absorbed by any cash reserves and reduced distributions).

Debt financeability:

- In terms of debt financeability, in this scenario, there would be a small deterioration in credit ratios in the year of the shock and pressure on the credit rating is unlikely.
- The magnitude of the impact on the credit ratios would be relatively low with a c20 bps reduction in the FFO to Debt ratio in 2024 from c5.0% to 4.8%, and a circa -0.1x fall in the Cash Interest Coverage ratio from c2.6x to 2.5x.
- There would be no long term impact on the ratios, as the passenger trend would not be impacted (i.e. passenger numbers are assumed to revert to the original pre-event forecast level).

Equity financeability:

- In this scenario, equity would bear a one-off reduction in distributions, which would be low compared to total distributions and may be mitigated or smoothed over time.
- There would be an immediate impact on equity distributions of c£70m reduction in the year of the shock. This is compared to a Base case distribution of c£400m.
- As the shock would be one-off, with limited, if any, implications for the long run passenger growth, the promoter could choose to use working capital facilities to cover any liquidity shortfall rather than reducing distributions.

Summary

A one-off traffic downturn as modelled would be unlikely to lead to a financial challenge or distress situation for the promoter.

Even though the promoter would bear the impact of the downturn in traffic with reduced revenues, there would be a relatively modest negative impact on cash flows and liquidity, and hence limited impact on its credit position and debt financeability.

The promoter would generally preserve its level of financial robustness and access to financing. Equity would bear the impact of lower revenues with reduced distributions, but the magnitude of this effect would be small compared to total cash flows to equity.

It is assumed that the shock would only last in that year and the promoter may be able to at least partly mitigate its impact. There would be no long term impact on any of the four distress dimensions.

5.4.4.2 Heathrow: Scenario 2B

One type of demand shocks is a one off traffic shock, with a very low traffic during the month of the incidence, with lower growth in demand in the following year, and with growth not able to return to the pre-event level—for example, the impact of a terrorist attack.

This scenario is modelled with the following assumptions:

- A reduction in the growth rate of traffic of 8% in 2024, followed by two years of Base case growth rate less 1%, and then a return to Base case traffic level and trend is modelled.

Scenario impact

The traffic impact is assumed to be contained within a single regulatory period, meaning that the full risk would be borne by the promoter. The fall in demand would lead to a reduction in revenues from charges as well as a reduction in other revenues. The consequent reduction in cash flow would imply a fall in distributions, unless offset by other factors. There would be also a limited short term impact on credit ratios. Based on the financial projections developed for this analysis, an illustration of the impact of the shock is provided below:

Table 19: SC2B Illustrative impact overview—Heathrow [Source: KPMG analysis]

Impact in compared to the Base case (pre/and post impact)	2024	2025	2026
Passenger numbers	c80, 830/c73,660	c81,722/c73,736	c91,709/c82,011
Revenue	c£4,514m/ c£4,114m	c£5,169m/ c£4,646m	c£6,933m/ c£6,179m
Cash Interest Coverage Ratio	c2.6x/c2.3x	c2.6x/c2.3x	c3.4x/c3.0x
FFO / Debt	c5.0%/c4.1%	c5.0%/c4.1%	c7.5%/c6.2%

The following table discusses the potential impact across the four dimensions of distress:

Table 20: SC2B Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding challenge:

- In this scenario, there would be no increase in charges since the promoter is assumed to bear the impact of demand risk crystallising within the regulatory period.
- The impact on passenger numbers would be contained within a single regulatory period, meaning there would be no subsequent impact on charges.
- The long run passenger trend would be not impacted and, therefore, there would be no long run impact on charges.

Liquidity:

- In this scenario, lower revenues would lead to a short term negative impact on liquidity when measured by cash generation, though standby facilities would remain available.
- There would be an immediate deterioration in the free cash flow to the firm due to the fall in revenues from charges and commercial revenues (c£300m reduction in the free cash flow in the year of the shock, with a peak impact on cash flows in 2026 of c£575m)
- The total forecast cash flow impact would be circa £1.3bn over the 3 years of the shock.
- There would be no enduring liquidity impact as the passenger traffic volume returns to the forecast level.
- There would be no requirement to draw into the RCF (under the assumption that the shock would be absorbed by any cash reserves and reduced cash flow to equity).

Debt financeability:

- In terms of debt financeability, in this scenario, there would be a deterioration in credit ratios, though only two metrics are projected to fall to a lower rating bracket and the risk of downgrade may be low.
- There would be no immediate impact on the ability of the promoter to access debt or on its cost.
- There would be an immediate impact in the credit ratios of the firm. The DSCR would fall from 1.6x to 1.4x in 2024 and 2025 (note that Moody's consider 1.6x to be in the B range, while 1.4x is in the Caa range). This may have an impact on the overall rating depending on the changes to other rating factors in the rating methodology.
- The peak impact on the Interest Cover ratio would be 0.4x in 2026 (from 3.4x to 3x) with a 1.26% (from 7.5% to 6.2%) impact on the FFO/Debt ratio in 2026 (note that, according to Moody's methodology, Interest Cover ratio will fall to a lower rating band).
- There may be a risk of a rating downgrade, especially if the duration of the shock is uncertain at the time. Whether such a shock would lead to a downgrade or credit warning would depend on the impact or position of other rating factors and the rating agencies' expectations on the duration and impact of a shock.
- The regulatory regime would be anticipated to protect, to some extent, from this risk, since, if the traffic impact were to endure, it is assumed that it would be reflected in subsequent price controls.

Equity financeability:

- In this scenario, equity bears a sizeable reduction in distributions over the period of the shock.
- There would be an immediate impact on equity distributions reflecting the impact on post interest cash flow (c£300m reduction in the year of the shock, with a peak impact on cash flows in 2026 of c£575m).
- This is compared to a current annual distribution of c£400m, and forecast cash generation for distribution of c £2bn in 2026 based on stylised modelling.
- As the shock would be a one-off with limited, if any, implications for long run passenger growth, the promoter may choose to partly offset the impact on distributions with working capital facilities.

- If the duration of the shock is uncertain at the time, then any headroom on liquidity would be likely to be reserved to meet in case of a sustained impact.

Summary

A three year traffic shock, as modelled, may lead to a degree of financial challenge for the promoter.

The promoter would bear the impact of the downturn in traffic with reduced revenues over the three years of the shock. The negative cash flow impact would be reflected in lower credit metrics which could threaten debt financeability. However, the pressure on the rating might not be severe.

Equity would also be impacted by the lower revenues, though the forecast distributions would be sufficient to absorb the shock, with remaining cash available for distribution. There would be no longer term impact on any dimension of distress.

5.4.4.3 Heathrow: Scenario 2C

This scenario concerns a type of a demand shock that is reflected in a sustained lower growth in passenger numbers, with growth unable to return to the pre-event level—for example, due to changes in macroeconomic conditions, a political shock or changing public attitude towards air travel.

In the financial projections, a reduction in passenger numbers compared to the forecast is used to illustrate the potential impact of this shock on the promoter and the four dimensions of distress. The scenario is modelled using the following assumptions:

- There is a zero growth in the baseline traffic between 2024 and 2026.
- The increase in capacity due to the opening of the new runway in 2026 is included.
- Subsequently, passenger traffic grows at the Base case growth rate less 1% in perpetuity (i.e. demand growth does not recover to the original trajectory).

Scenario impact

A demand shock is analysed through a reduction in passenger numbers compared to the forecast.

In this scenario, the traffic impact extends beyond a single regulatory period. However, within the regulatory period, risk would be borne by the promoter. Initially, the fall in demand would lead to a reduction in revenues from charges as well as other revenues. The consequent reduction in cash flow would imply a fall in distributions and deterioration in credit ratios. Based on the stylised financial projections, an illustration of the impact of the shock is provided below:

Table 21: SC2C Illustrative impact overview—Heathrow [Source: KPMG analysis]

Impact in compared to the Base case (pre/and post impact)	**2024**	**2025**	**2026**
Passenger numbers	c80, 830/c80,065	c81,722/c80,065	c91,709/c90,053
Revenue	c£4,514m/ c£4,472m	c£5,169m/ c£5,062m	c£6,933m/ c£6,803m
Cash Interest Coverage Ratio	c2.6x/c2.5x	c2.6x/c2.5x	c3.4x/c3.4x
FFO / Debt	c5.0%/c4.9%	c5.0%/c4.8%	c7.5%/c7.2%

The following table discusses the potential impact across the four dimensions of distress:

Table 22: SC2C Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding:

- In this scenario, it is assumed that there would be no immediate increase in charges as Heathrow bears the demand risk within the regulatory period. In the following period charges would increase to reflect the lower traffic.
- There would be no immediate impact on customer charges as the demand risk is borne by Heathrow.
- During the period 2029 to 2033, the charges would be 3-4% higher than in the Base case.

Liquidity:

- In this scenario, lower revenues lead to a negative impact on liquidity when measured by cash generation, although the magnitude would be minimal and standby facilities would remain fully available.
- There would be an immediate deterioration in the free cash flow to the firm due to the fall in revenues from charges and commercial revenues (c£30m reduction in the free cash flow in the year of the shock, with a peak impact on cash flows in 2026 to 2028 of c£100-120m).
- The total forecast cash flow impact would be c£440m during the regulatory period with limited subsequent impact, since it is assumed that charges would be uplifted to reflect lower passenger numbers.
- There would be no requirement to draw on the RCF (under the assumption that the shock would be absorbed by any cash reserves and reduced distributions).

Debt financeability:

- In terms of debt financeability, in this scenario there would be a deterioration in credit ratios though no ratios would fall below the Base case thresholds and the risk of downgrade would be low.
- There would be no immediate impact on the ability of the promoter to access debt or on in the cost of debt.
- There would be an immediate, but limited, impact on the credit ratios of the firm. Reflecting the cash flow impact, the deterioration in credit ratios would worsen with the peak impact in 2026-2028. The peak impact on the Interest Cover ratio would be circa 0.1x with a c25 bps impact on the FFO/Debt ratio.
- None of the ratios would fall below the Base case thresholds based on the Moody's methodology.
- There could be a risk of credit downgrade, though the risk would be potentially small, given the relatively small impact on the core ratios and the expectation that volume forecasts would be reset at the next regulatory period.

Equity financeability:

- In this scenario, equity would face a reduction in distributions during the regulatory period, after which it is assumed that charges would be revised to reflect the lower demand.
- There would be an immediate impact on equity distributions reflecting the impact on post interest cash flow (c£30m reduction in the year of the shock, with a peak impact on cash flows in 2026-2028 of c£100-120m), which would be well within the cash flow generation available for distribution during this period.

- There would be no long run impact on equity returns, as it is assumed that volume forecasts would be reset in the next regulatory period for the reduction in passenger numbers. If the reduction in passenger numbers is not fully reflected in the new regulatory regime, the impact would be expected to be around £120m p.a. in 2028 and increasing thereafter.
- The shock may change the perceptions of equity holders on the risk-return profile of Heathrow. In this case, there would be an indirect impact on equity financeability.

Summary

A sustained traffic shock has limited potential to cause financial distress for Heathrow.

The promoter would bear the impact of the downturn in traffic with reduced revenues, impacting cash flow and liquidity. However, the promoter would generally preserve its level of financial robustness and access to financing, as the impact on the credit position is limited and no ratios would fall into a lower rating bracket. Equity would bear the impact of lower revenues through reduced distributions but the magnitude of this effect would be small compared to total cash flows to equity.

Charges are assumed to be revised upwards in the subsequent regulatory periods to reflect any long run reduction in traffic. Any long run impact would be, therefore, borne by customers rather than equity holders.

5.4.5 Potential mitigating actions by the promoter

The regulatory framework means that the promoter bears the risk of demand shocks.

For a one-off shock within a year (2A), it is likely that the promoter would have sufficient financial capability to absorb the impact of this risk. The promoter may choose to smooth the impact on equity over time (given that the shock is short term) through the use of cash and standby facilities. As an alternative, the promoter may be able to flex working capital arrangements or restrict distributions to conserve cash.

The impact of a longer term shock (2B, 2C) may be largely absorbed by reduced distributions, or through drawdown of working capital facilities. The promoter may take measures to smooth the impact on equity, especially if the shock is expected to be short term, or if the next regulatory settlement is expected to reflect the change in demand (limiting the period over which cash flow is impacted).

The extent of headroom in gearing is another mitigating factor as the promoter would be able to draw additional debt.

The promoter may also mitigate both the short term cash flow impact and/or the long term impact on charges through cost reduction measures. Cost flexibility may be limited in the short term, but may increase over the medium term. Certain forms of demand shock may, however, imply additional Opex or Capex costs for the promoter, which could be mitigated by other cost reduction measures.

A severe downturn, the impact of which is uncertain, may also lead to reputational risk. A promoter may need to re-scope or delay certain aspects of scheme or other Capex in response to a reduction in demand.

5.5 SC3: Capex shock driven distress

5.5.1 Description

An unanticipated event leading to an increase in the scheme Capex requirements may lead to a financial distress situation. If risks are not contained with the supply chain or through market based insurance measures, then the promoter faces increased costs, while revenues are fixed by the regulatory determination.

Construction risks may occur at any stage during the project:

- Initiation (e.g. environmental restrictions increase Capex costs in the initial years of the project through higher compensation requirements).
- Planning & development (e.g. poor planning and design or choice of technological solution leads to higher Capex after construction starts).
- Procurement stage (e.g. failed procurement resulting in re-run of the supply chain procurement).
- Execution/delivery stage (e.g. failure / insolvency of a major contractor).
- Handover and defects (e.g. issues with system integration on handover).

Any of the catastrophic risks (e.g. pandemic influenza, terrorist attack, severe weather condition, etc.) may also potentially increase construction Capex costs (in addition to impacting the operations of the airport) through e.g. the need to rebuild some facilities, increased build specifications, incorporation of additional features, etc.

Capex overrun may be associated with a project delay, which would further increase the risk of financial distress, as it would delay the point at which the new runway can start generating revenues.

The timing of an event over the project cycle could have an important bearing on the nature and extent of distress risk and also inform the type of measures required. For example, an event requiring a change in the project design early in the project life-cycle would mean the cost increases are all anticipated and the promoter would have a reasonable amount of time to determine any changes required to their financing strategy.

However, the same level of Capex change and costs, if required by an event while the project is in the middle of construction may (a) increase the cost of carry of the already incurred project spend; (b) require changes to the existing Capex already incurred; (c) require additional financing within a relatively shorter time; and (d) amplify the extent of the impact of the risk event in credit ratios and key metrics.

Similar to a Capex shock scenario is a scenario where costs increase due to a significant variation in the project scope. While the outturn impact of an increase in Capex costs is the same, this scenario would have different implications for the promoter depending on the rationale for the scope increase. A variation of this could also be an increased exposure to surface access costs.

5.5.2 Lessons from previous major projects

Cost overrun is a significant concern on large complex infrastructure projects, such as the new runway scheme. Evidence from the 2015 Global Construction Survey[65] indicates that "*Looking back over the past 3 years, fewer than one-third of all respondents' projects managed to come within 10 percent of the planned budget, with the energy and natural resources, and especially the public sector, performing considerably worse than other industries*."

Within the airport sector there are often cited examples of major projects that experienced a large cost overrun. For example, see the following case study on Denver Airport, which had 131% Capex increase and 1.5 years delay:

[65] https://www.kpmg.com/Global/en/IssuesAndInsights/ArticlesPublications/global-construction-survey/Documents/global-construction-survey-2015.pdf

Case Study Denver Airport [66]

Description of project failure:

- Construction cost overrun from $1.3bn first budget estimate to $3.0bn actual (131% increase).
- Planned project duration of c4 years compared to circa 5.5 years taken: delay in project delivery of c1.5 years.
- Baggage system was also never fully operational.

Main reasons for failure

- Design complexity (e.g. allocation mechanism).
- Time management.
- Procurement non-compliant and contract award to non-bidder.

5.5.3 Considerations for Capex shock distress

The regulatory regime and delivery structure for the new runway are not yet known. Both would have an important impact on the vulnerability of the promoter to Capex shocks. For instance, the contractual structure would impact the degree to which Capex shock is borne by the contractors rather than by the promoter.

The regulatory regime determines the cost risk that is borne by the promoter, the incentive regime on project performance, and the timing of revenues. Under the current regulatory regime, the airports bear some risk associated with Capex overrun. It is possible that additional expenditure is considered as inefficient and, therefore, not included in the RAB in the subsequent regulatory periods.

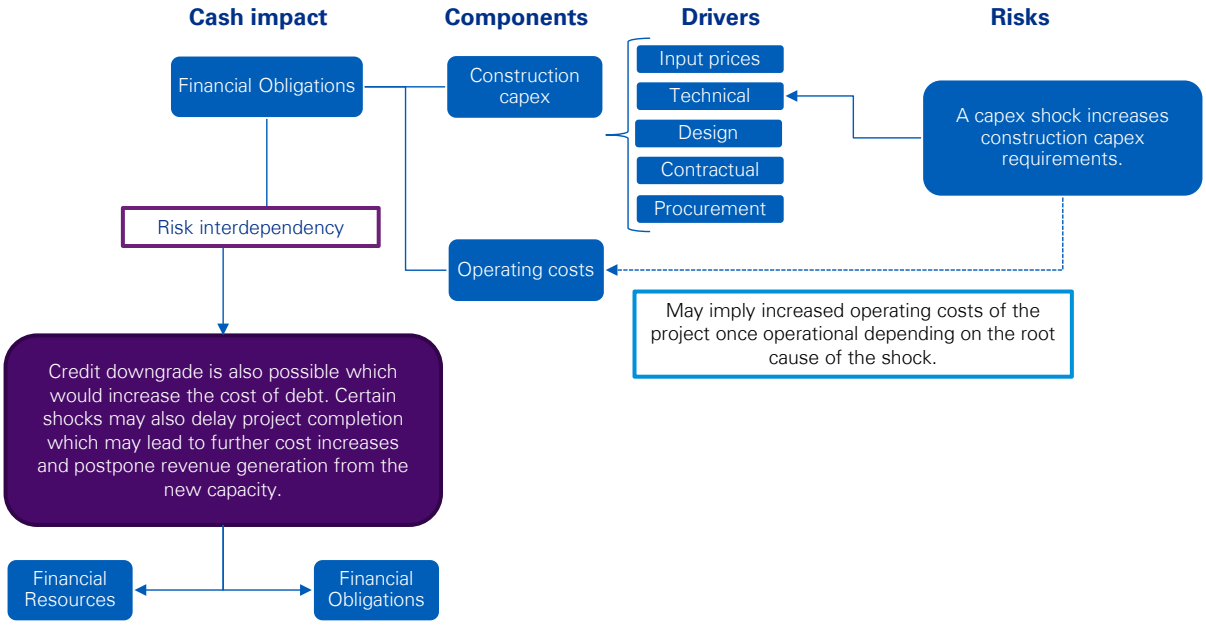
The approach to depreciation and pre-funding within the regulatory regime is especially important in determining the impact of any Capex increase and delay. Under the current assumptions, depreciation is only charged on the project once operational. For Heathrow, a delay in Capex is adjusted for at the end of the regulatory period (through the intertemporal indifference adjustment) meaning an unanticipated delay will not lead to a delay in depreciation within the regulatory period. However, the development Capex adjustment provides a return on overspend on a forward-looking basis.

Capex overruns are also often associated with project delay and may lead to indirect impacts such as financing issues, management distractions and impact on existing operations.

Depending on the type and source of the risk there are range of possible additional impacts which are mapped in the diagram below.

[66] United States General Accounting Office Denver International Airport Statement May 1995, KPMG analysis

Figure 17: Impact of Capex shock distress [Source: KPMG analysis]



5.5.4 Scenario analysis

A number of major infrastructure projects, including airport projects, have experienced capital cost overspends and delays. Each project is unique. It is not within the scope of this Report, nor is the level of project details sufficiently developed, to forecast the risk or the extent of a potential cost overrun.

The three schemes would all be considered to have a considerable risk of Capex overspend due to several factors including the complexity of the project, implementation alongside an operational airport, the wide range of impacted stakeholders, and the importance of external factors e.g. land price as well as reliance on third parties and other stakeholders.

An assumption of 30% for cost overrun is used for this analysis. As per the Global Construction Survey 2015,[67] "*over half of all the respondents state that they suffered one or more underperforming projects in the previous financial year*", and over the past 3 years, fewer than one-third of all respondents projects managed to come within 10 percent of the planned budget. For comparison, a 30% increase in base Capex costs has been used in Thames Tideway Tunnel to establish the "threshold outturn" up to which the investors would be required to arrange financing for the project.[68]

In this section three Capex shock scenarios are evaluated assuming the main features of the current regulatory regime.

- **Scenario 3A: Capex overrun by 30% during the construction period.** The Capex overspend is applied on the surface access costs as well. The overspend is applied only on the scheme costs and not on the baseline Capex (i.e. Capex not associated with the scheme). The effect of the Capex overspend is to increase the Capex costs in each period by 30% while retaining the overall Capex spend profile.
- **Scenario 3B: Capex overrun of 30% along with 12 months delay.** The Capex overspend is applied as in the case of scenario 3A. The increased Capex costs have a

[67] KPMG Global Construction Survey 2015 https://assets.kpmg.com/content/dam/kpmg/pdf/2015/04/global-construction-survey-2015.pdf
[68] KPMG analysis of Threshold Outturn over the Annual Base Case Forecast in the Project Licence http://www.ofwat.gov.uk/wp-content/uploads/2015/10/lic_lic_baz.pdf

profile of spend that closely mirrors the original Capex spend profile but is applied over a longer construction period, including the additional 12 months delay period.

- **Scenario 3C: Capex overrun of 30% with a 50% disallowance at the end of the regulatory period.** No development Capex adjustment is applied in this scenario.

This section has been revised to show only the scenario analysis for the Heathrow North West Runway scheme following the Government announcement of its support for a new North West runway at Heathrow.[69]

5.5.4.1 Heathrow: Scenario 3A

Delivering the new runway scheme will be a complex, large capital project. A shock which leads to additional capital expenditure may lead to a situation of financial distress for the promoter, who will be required to both fund and finance the additional costs. The main impact of such a shock will be an increase in the level of scheme capital expenditure, if delivered to the original scope and timeframe. Other impacts, depending on the shock, may include increases in Opex costs and/or Capex costs associated with the existing airport operations.

Within the financial projections, an increase in scheme Capex is used to illustrate the potential impact of this shock on the promoter and the four dimensions of distress. The scenario is modelled with the following assumptions:

- A 30% Capex overrun applies during H7 (2019 to 2023), the main period of construction.
- The promoter is able to access additional debt on the Capex overspend while maintaining the gearing taking into account the Capex overspend.
- The Capex overspend is added to the regulatory RAB at the end of the regulatory period. In periods of Capex overspend this overspend would result in a higher gearing based on regulatory RAB while the gearing, including the Capex overspend, is maintained at the target gearing.

Scenario impact

As the additional Capex would not be reflected in the RAB until the end of the regulatory period, the shock would increase the ratio of debt to the RAB. The increase in capital expenditure would reduce cash flow to the firm, which, along with increases in the stock of debt, would impact credit ratios, notably FFO/Debt.

Based on the financial projections developed for this analysis, an illustration of the impact of the shock over the construction period to runway opening (i.e. 2019-2026) is provided below.

Table 23: SC3A Illustrative impact overview—Heathrow [Source: KPMG analysis]

Impact compared to the Base case (pre / and post impact)	**Construction period (2019- 2026)**
Total cumulative scheme Capex (Nominal)	c£27,135m/£34,418m
Cash Interest Coverage Ratio (minimum to 2026)	c2.3x/c2.3x
FFO / Debt (minimum to 2026)	c5.0%/c4.3%

The following table discusses the potential impact across the four dimensions of distress:

[69] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

Table 24: SC3A Illustrative impact on distress dimensions [Source: KPMG analysis]

Funding:

- In this scenario, there would be an immediate increase in charges due to the development Capex adjustment, followed by a larger increase in subsequent periods, as additional spend would be reflected in the RAB.
- There would be an immediate increase in charges due to the development Capex adjustment, which, assuming it is applied in the case of the scheme, would provide a return on incremental Capex. The adjustment would increase over the years of the Capex increase as it accounts for the cumulative overspend. By 2023 (the last year of Q7) the impact would be a c3-4% increase in charges.
- A larger impact on charges would occur in the subsequent periods. The size of the impact would depend on if any of the Capex overspend is disallowed in the ex-post efficiency review. An assumed 95% pass through would lead to an increase in charges of c7-8% compared to the Base case.
- The forecast increase in charges (CAGR to 2030) would be an additional RPI+0.7% over and above the rise in charges under the Base case.

Liquidity:

- In terms of liquidity, in this scenario, there would be an increased short term cash requirement, which could motivate a drawdown of the standby facility. Duration of the term cash impact depends on how additional spend would be reflected in charges and how it would be financed.
- A 30% increase in Base case Capex would imply circa £7.3bn additional spend.
- The negative cash flow impact from the increase in Capex would be compounded by the additional interest costs on the debt used to finance the incremental Capex. This would be offset by the positive impact of the development Capex adjustment.
- The RCF could be used in the short term to finance increased Capex cost. The additional financing requirement could be only partly met by the RCF facility, sized at circa £2.2bn.
- The need to use this facility would depend on when the over spend was forecast and the ability of Heathrow to increase their nominal or index linked debt issuance to respond to the increased financing requirement.
- The headroom in the lenders covenants on gearing would provide an additional liquidity buffer, as the promoter would be able to use this headroom to raise additional financing by gearing higher. A headroom of 1% below the class B trigger of 85% for distribution lock-up would provide an additional liquidity buffer of above £100m[70].

Debt financeability:

- In this scenario, debt financeability could be challenged by the significant additional financing requirement. Additionally there would be a negative impact on credit ratios increasing over the period of the shock, which when considered alongside other factors such as the risk of disallowance could put pressure on the rating..
- Heathrow would require additional debt financing of c£5.9bn over the period 2019-2023 to finance the over spend.
- Assuming the current gearing were maintained, a fall in the financial ratios might not, on its own, put substantial pressure on the rating. There would be a negative,

[70] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-BAML-High-Yield-conference-10-Sep-2014.pdf.

though limited, impact on the credit ratios, which would be increasing over the period 2019-2023.

- The peak impact in 2023 would be a marginal 0.2x fall in the Interest Cover ratio from c2.5x to 2.3x (note that, according to Moody's, this would take it below the investment grade threshold for Baa- of 4.5x to 2.5x) and a 90bps fall in the FFO/Debt ratio from 5.2% to 4.3%. The Moody's Debt Service Coverage ratio would also be impacted with a peak fall by 0.2x in 2023.

- There could be a heightened risk of credit downgrade when considering the need for additional financing, the impact on credit ratios as well as qualitative aspects, such as market position which could be jeopardised by the increase in charges.

- The extent to which the additional Capex would be financed through debt, and thus result in a decline in the ratios, would depend on the extent to which dividends are retained or equity is injected (usually as a last resort).

- The risk of Capex disallowance by the Regulator would impact the debt financeability of the project and the headroom that would need to be maintained in the gearing in order to prevent covenant breach in the event of a disallowance.

- The change in the risk profile of the project (due to Capex overrun) could also result in an increase in the cost of debt not only for the incremental debt but for all future debt issuances. Any increase in debt costs is not considered in this stylised model analysis, as the extent of increase depends on a number of factors.

- The existing debt covenants would pose a barrier, which the promoter could choose to manage through reliance on equity injection or through renegotiation of existing conditions with lenders, which may be a lengthy process.

Equity financeability:

- In this scenario, equity would face a net impact of circa £1bn, which could be fully covered by retention of distributions throughout the years of the shock; however, additional equity injection may be required e.g. due to concerns over the Debt/RAB ratio.

- Equity holders would be impacted in the short term as the fall in cash flow would be reflected in lower distributions.

- The reduction in distributions would be limited as Heathrow accesses additional debt during the period. Assuming the current gearing is maintained, £1bn of distributions could be retained with c£1.3bn still being distributed. Heathrow could decide to retain further distributions, either to provide for Capex cost disallowance or to minimise the impact on long term credit ratios.

- Equity providers may also be required to make additional equity injections, especially if there were concerns over the amount of debt compared to the RAB.

- Similar to debt, equity financeability could be challenged if there is a forward looking expectation of ex-post disallowance.

Summary

A shock which causes an increase in the capital expenditure required to complete the expansion may lead to financial challenge for the promoter.

For the project to continue, without a change in the scope or timeframe, there would be a need for significant additional financing from debt and equity, and additional funding from customers. Depending on the regulatory framework, the increase in charges that would result from the additional expenditure may lead to affordability concerns for customers. Debt financing could become challenging due to scale of the additional debt requirement, the fall in the credit ratios, the increase in leverage, and

the potential for Capex disallowance. The extent to which debt could be used to fulfil the financing requirement would be limited by e.g. the high assumed gearing.

Equity would face a notable reduction in distributions and could be required to make additional injections, for instance if there are concerns about the promoter's leverage. The long term impact on equity will depend on the degree to which the increase in Capex costs is passed on to customers. Any standby liquidity facilities could also be used as an additional source of financing in the short term.

Overall, while it may be possible to secure financing and funding for the additional spend, the shock may result in the need to re-scope or delay the project.

5.5.4.2 Heathrow: Scenario 3B

The scenario is modelled based on the following assumptions:

- A 30% Capex overrun is assumed during H7 (2019 to 2023), the main period of construction.
- There is a 12 months delay to the commercial operations date from 2026 to 2027. The delay is known at the start of the regulatory period and, therefore, no depreciation allowance is calculated before 2027.

Scenario impact

The increase in capital expenditures would reduce cash flow to the firm, which, along with the increases in the stock of debt, would impact credit ratios, notably FFO/Debt. It is assumed that the delay in project delivery would be known during the price control process meaning that there would be no depreciation allowance in 2026 in this scenario. This would lead to a negative impact on cash flows and credit metrics, in addition to the deterioration that would be caused by the additional required capital expenditure.

Based on the financial projections developed for this analysis, an illustration of the impact of the shock in the year of delay (i.e. 2026) is provided below:

Table 25: SC3B Illustrative impact overview [Source: KPMG analysis]

Impact compared to the Base case (pre / and post impact)	**Construction period (2019- 2026)**
Debt closing balance	c£27,135m / c£34,418m
Revenue (2026)	c£6,930m / c£6,440m
Cash Interest Coverage Ratio (2026)	c3.4x / c2.7x
FFO / Debt (2026)	c7.5% / c5.0%

The following table discusses the potential impact across the four dimensions of distress:

Table 26: SC3B Illustrative impact on distress dimensions—Heathrow [Source: KPMG analysis]

Funding:
▪ In this scenario, it is assumed that there would be an immediate increase in charges due to the development Capex adjustment, followed by a larger increase in subsequent periods, as additional spend would be reflected in the RAB. ▪ There would be an immediate increase in charges due to the development Capex adjustment, which would provide a return on incremental Capex (under the assumption that this would be applied in the case of the scheme). The adjustment

would increase over the years of the Capex increase, as the adjustment accounts for the cumulative overspend.

- A larger impact on charges would occur in the subsequent periods. The size of the impact would depend on whether any of the Capex overspend is disallowed in the ex-post efficiency review.

- The forecast increase in charges (CAGR to 2030) would be an additional RPI+0.7% over and above the rise in charges under the Base case.

- As the runway would be not operational for a further period of 1 year, airlines would be paying the cost of capital for the project without having the benefit of the project (albeit the depreciation allowance in the revenue would also be delayed for the delay period of one year).

Liquidity:

- In terms of liquidity, in this scenario, there would be an increased short term cash requirement, which may motivate a drawdown of the standby facility. The longer term cash impact depends on how additional spend would be reflected in charges and how it would be financed.

- A 30% increase in Base case Capex would imply circa £7.3bn additional spend.

- The negative cash flow impact from the increase in Capex would be compounded by the additional interest costs on the debt used to finance the incremental Capex, offset by the positive impact of the development Capex adjustment. Cash flow would also be negatively impacted in 2026, as the depreciation allowance would not be applicable during the period of delay.

- The RCF could be used in the short term to finance increased Capex cost. The additional financing requirement could be only partly met with RCF facility, sized at circa £2.2bn.

- The need to use this facility would depend on when the over spend was forecast and the ability of Heathrow to increase their nominal or index linked debt issuance to respond to the increased financing requirement.

- The headroom in covenants on gearing would provide an additional liquidity buffer. A gearing differential of 1% below the class B trigger of 85% for distribution lock-up would provide an additional liquidity buffer of above £100m.[71]

Debt financeability:

- In this scenario, debt financeability may be challenged by the significant additional financing requirement, leading to a peak Debt/RAB ratio of over 100%, assuming the current gearing is maintained. Additionally, there would be a negative impact on credit ratios increasing over the period of the shock, which, when considered alongside other factors such as the project delay, could put pressure on the credit rating.

- Heathrow would require additional debt financing of c£5.9bn over the period 2019-2023 to finance the assumed overspend. The delay in runway operational date, and the subsequent impact on revenues, would lead to a further financing shortfall. Heathrow would require an additional circa £1bn in 2026, which would be paid back over the life of the asset.

- There would be a negative, though limited, impact on the credit ratios, which would be increasing over the period 2019-2023. The peak impact in 2026 (due to a delay in

[71] http://www.heathrow.com/file_source/Company/Static/PDF/Investorcentre/Heathrow-BAML-High-Yield-conference-10-Sep-2014.pdf.

the Scheme depreciation start) would be c0.8x fall in the Interest Cover ratio from 3.4x to 2.7x, and a c243bps fall in the FFO/Debt ratio from 7.5% to 5.0%.

- The Moody's debt service coverage ratio would also be impacted with a peak fall by c0.5x in 2026.
- Credit metrics would be impacted in 2026 with sizeable negative impacts in the year across all of the Moody's ratios, as the depreciation allowance would not be applied in the year of delay.
- The risk of a downgrade would be heightened, especially if the rating agencies were uncertain about the duration of the final delay.

Equity financeability:

- In this scenario, equity would face a net impact ofc£1bn, which could be fully covered by retention of distributions throughout the years of the shock, however further equity injection could be required e.g. if there were concerns over the Debt/RAB ratio.
- Equity holders would be impacted in the short term, as the fall in cash flow would be reflected in lower distributions.
- The reduction in distributions would be limited, as Heathrow accesses additional debt during the period. £1bn distributions would be retained with c£1.5bn still being distributed, assuming the current gearing is maintained. Heathrow could decide to retain further distributions either to provide for any Capex cost disallowance, or to minimise the impact on long term credit ratios.

Figures 18 and 19 below show the impact of a Capex overrun with a delay (along with the impact of a prohibitive financial market disruption scenario for comparison). The increased Capex costs result in an increased annual debt requirement. There is a minimal additional equity requirement as distributions are withheld to finance the equity proportion of the cost overrun, resulting in a lower distribution during the period of Capex overrun.

Figure 18: Impact of prohibitive debt market disruption and Capex overrun scenarios on debt drawdown [Source: KPMG analysis]

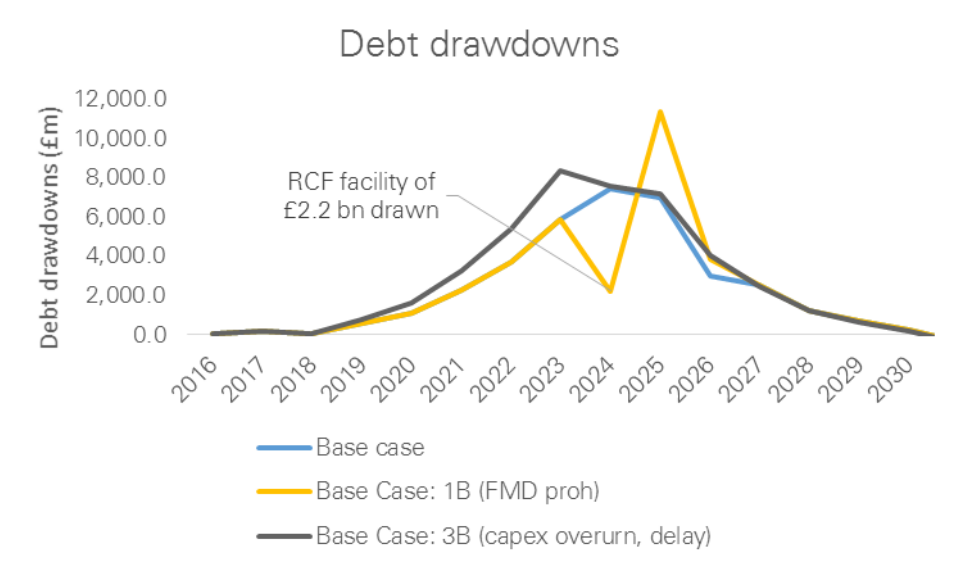
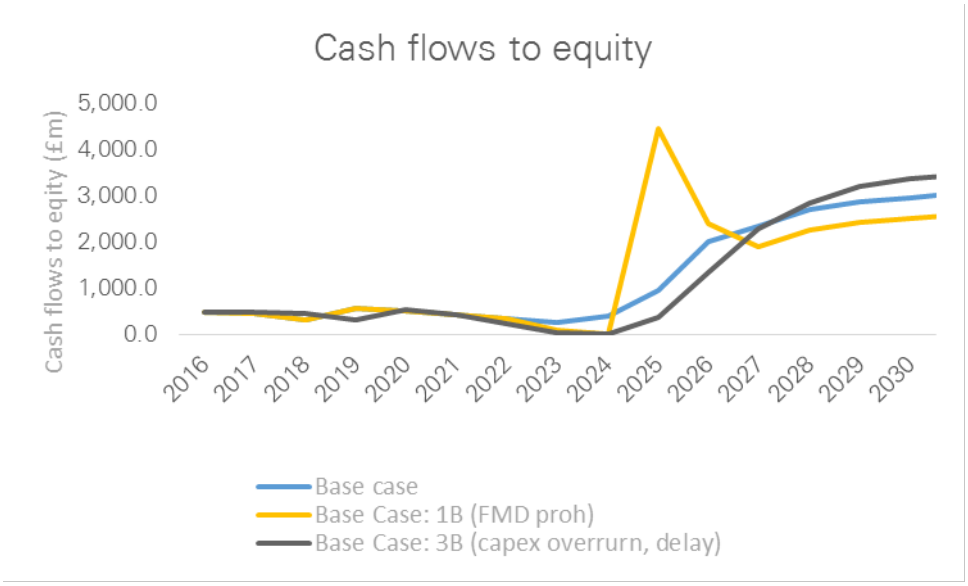


Figure 19: Impact of prohibitive debt market disruption and Capex overrun scenarios on cash flows to equity [Source: KPMG analysis]



Summary

A shock which significantly increases the capital expenditure required to complete the runway scheme and delays the runway opening date may lead to financial challenge for the promoter.

For the project to continue, without a change in the scope or a further delay, there would be a need for significant additional financing from debt and equity and additional funding from customers. Depending on the regulatory framework, the increase in charges that would result from the additional expenditure may lead to affordability concerns for customers, who would also be also concerned by the delay in delivery.

The credit position of the promoter may be affected due to the large additional financing requirement in addition to potential concerns over the runway project following the overrun and delay. The extent to which debt could be used to meet the financing requirement would be limited due, in part, to the high assumed gearing.

Equity would face a notable reduction in distributions and could be required to make additional injections, for instance, if there are concerns over the promoter leverage. The delay to completion would delay recovery of capital. The long term impact on equity will depend on the degree to which the increase in Capex costs is passed on to customers. Any standby liquidity facilities could also be used as an additional source of financing in the short term.

Overall, while it may be possible to secure financing and funding for the additional spend, the shock may require re-scoping or delaying the project.

5.5.4.3 Heathrow: Scenario 3C

An increase in the scheme Capex, followed by partial disallowance at the end of the regulatory period, is considered to illustrate the potential impact of this shock on the promoter and the four dimensions of distress. The scenario is modelled based on the following assumptions:

- A 30% Capex overrun is assumed during H7 (2019 to 2023), the main period of construction.

— 50% of the overrun is disallowed at the following regulatory period. The development Capex adjustment is not applied.

Scenario impact

The analysis shows that the shock of this scale would lead to an increase in scheme Capex, 50% of which is then assumed to be disallowed at the end of the regulatory period.

Based on the financial projections developed for this analysis, an illustration of the impact of the shock at the end of Q7 (i.e. 2023) is provided below:

Table 27: SC3C Illustrative impact overview [Source: KPMG analysis]

Impact compared to the Base case (pre / and post impact)	**Construction period (2019- 2026)**
Total Q7 scheme Capex (nominal)	c£27,135m / £34,418m
Capex disallowance (2023)	c£0m / £3,749m

The following table discusses the potential impact of this scenario across the four dimensions of distress:

Table 28: SC3C Illustrative impact on distress dimensions [Source: KPMG analysis]

Funding:

- In this scenario, there would be no immediate increase in charges though charges would rise in subsequent periods to reflect the 50% allowed overspend.
- There would be no immediate impact on charges.
- The forecast increase in charges (CAGR to 2030) would be an additional RPI+0.7% over and above the rise in charges under the Base case.

Liquidity:

- In terms of liquidity, there would be an increased short term cash requirement, which could motivate a drawdown of the standby facility.
- The negative cash flow impact from the increase in Capex would be compounded by the additional interest costs on the debt used to finance the incremental Capex.
- The lack of the development Capex adjustment would also reduce the cash flow compared to the other scenarios where it is assumed that a return on Capex would be allowed for as additional spend is made.
- Compared to the scenario where 95% of costs are passed through, there would be an additional long term liquidity impact due to the reduction in the RAB, and thus in the allowed return on capital and depreciation.
- RCF could be drawn in the year to finance the overspend, in addition to either increased bond issuance or equity impact.
- Any headroom in the lenders covenants on gearing would provide an additional liquidity buffer.

Debt financeability:

- The nominal RAB would decrease by c£3.75bn in the year of disallowance, which would result in a reduced debt capacity of c£3bn, assuming the current gearing level was not exceeded.
- There would be a negative though limited impact on the credit ratios which would be increasing over the period 2019-2022. The peak impact in 2022 would be a 0.25x

fall in the Interest Cover ratio from 2.6x to 2.3x and a 107bps fall in the FFO/Debt ratio from 5.7% to 4.6%. The Moody's debt service coverage ratio would also be impacted with a peak 0.2x fall in 2022.

- The long term impact on ratios would depend on any changes to the financing structure following the disallowance. If the debt balance were constrained relative to the RAB requiring immediate equity injection, then there would be no long run impact. If the original debt was maintained, then there would be a long term impact on ratios as the ratio of Net Debt (which drives interest costs) to RAB (which drives revenues) would rise.

Equity financeability:

- In this scenario, equity holders could be required to provide a sizeable injection following the disallowance, if current gearing were to be maintained. Equity would already face a net impact of circa £1bn from the Capex shock, though this could be fully covered by retention of distributions throughout the years of the shock.
- Equity holders would be impacted in the short term, as the fall in cash flow would be reflected in lower distributions.
- The reduction in distributions would be limited, as Heathrow accesses additional debt during the period. £1bn distributions would be retained with c£1.1bn still being distributed, assuming the current gearing was maintained taking into account the Capex overspend.
- Heathrow could decide to retain further distributions, either to provide for any Capex cost disallowance, or to minimise the impact on long term credit ratios.
- As it is assumed that the allowed borrowing in any year would be proportionate to the RAB including the Capex overspend, the disallowance would result in an immediate requirement for equity injection of c£3.1bn in order to maintain the baseline gearing. This amount could also be partly met through cash.
- Compared to a scenario where 95% of costs are passed through, equity would face a long term reduction in distributions due to the reduced RAB and revenue allowance.

Summary

A sizeable regulatory disallowance following a shock which increases the capital expenditure required to complete the runway scheme would be likely to lead to financial distress for Heathrow.

Firstly, the Capex shock would require significant additional financing from debt and equity in order for the project to continue. The financeability of the promoter may be challenged due to the scale of the additional requirement and the potential expectation of a regulatory disallowance. The disallowance would reduce expected future revenues over the lifetime of the runway reducing the promoter's credit position and ability to generate cash for distribution.

The extent of the distress would depend on how equity holders reacted to the situation and the impact they faced. Following the disallowance equity holders would be required to make a sizeable injection if target gearing were to be maintained. The ability of the promoter to part absorb the shock through debt would be limited by the assumed high opening leverage (86%).

Overall, the promoter could face initial difficulties raising financing to cover the additional Capex if the disallowance were anticipated, the regulatory disallowance would then pose a further equity challenge and the promoter is likely to re-scope or delay the project following such an event.

5.5.5 Potential mitigating actions by the promoter

A Capex overspend has an immediate impact on promoter liquidity, debt and equity financeability. The availability of cash balance and quantum of any standby or RCF facilities would influence the extent to which the promoter is able to withstand such additional financing needs. A promoter may choose to draw on existing revolving credit or standby facilities to mitigate any need for debt issuance or equity impact. However, having facilities large enough to cushion substantial shock would create a significant cost of carry. In the initial year of the shock the standby facility may be used, followed by increases in debt issuance in the subsequent years. A greater reliance on debt financing would pose risks for debt financeability and negatively impact credit metrics.

The response by the promoter is expected to include a combination of lower distributions, use of standby facilities and issuance of debt, with any additional equity requirements kept to a minimum. The final solution could depend on a number of variables including the risk that additional costs are not reflected in future charges, the impact on long term credit ratios and likelihood of any rating downgrade.

The equity impact can be mitigated by a high proportion of pass through to customers and, or, faster recovery of costs. However, this can increase funding challenge. The potential for funding challenge and the extent to which overspend is passed on to customers determines the longer term severity of financial challenge/distress. Where demand is more elastic, there is a risk that airlines may choose to move their operations: the risk being higher in the context of increased competition from other airports and surplus capacity being created once the new runway capacity is commissioned.

The promoter may mitigate both dimensions by re-profiling or reassessing expenditures. This would mitigate a potential distress by delaying Capex obligations and thus also funding and financing requirements. However, any such changes to the baseline Capex programme may have a negative impact on the project's ability to meet the objectives set for the project upfront.

The promoter could also take preventative measures against certain types of Capex shock. This includes design and delivery management as well as more contractual options (e.g. insurance and risk sharing within the supply chain).

The nature of the impact of a 50% disallowance would depend on whether it was anticipated. If the disallowance is anticipated, the promoter may implement appropriate mitigation, like e.g. de-gearing, in order to limit the extent of the impact in the year of disallowance. The promoter may also take upfront actions to delay or cancel other capital projects and reduce other costs. If the disallowance is higher than anticipated, then the promoter may take immediate actions to overcome the effect of the disallowance in the year of its application.

5.6 Summary of the impact of shocks under different scenarios

Financial market disruption

A disruption in financial markets resulting in a significant increase in the cost of debt may lead to a financial challenge for the promoter. An increase in interest costs would impact cash generation (liquidity), the promoter's credit position (debt financeability), and lead to lower distributions (equity financeability), as well as a significant increase in charges, depending on the regulatory regime (leading to potential funding challenge given projected impact on tariffs). It is unlikely that equity alone could absorb such a shock, unless the costs could be ultimately passed on to consumers.

If the disruption was more severe and included a period where the promoter could not access debt financing, it would lead to financial distress in the absence of mitigation. The size of the financing requirement would imply a large equity injection if planned expenditures were to be maintained. Even if the promoter was subsequently able to issue debt and replace equity, this would put pressure on debt financeability as the debt requirement in the years following the disruption, already significant, would further increase and credit ratios would deteriorate.

In both scenarios, the project may be delayed until the debt market disruption is over.

Demand shocks

The potential for a demand shock to lead to a financial distress/challenge situation would depend on the length and severity of the shock. Within the regulatory period the promoter would bear the impact of a downturn in traffic through reduced revenues. Reduced revenues would have a negative impact on cash flows and thus liquidity and equity, through reduced distributions or even a requirement for some new equity injections.

A one-off traffic downturn, as modelled in this Report, would be unlikely to lead to a financial challenge or distress situation and, due to the limited impact on revenues, the promoter would generally preserve its level of financial robustness and access to financing. It is assumed that the shock would only last a year and, therefore, it may be absorbed without a material impact on financeability, or the impact may be smoothed over time.

A three year traffic shock, as modelled in this Report, may lead to a degree of financial challenge. The negative cash flow impact would be reflected in lower credit metrics, which could threaten debt financeability, and have an impact on equity. However, there would be no long term impact on any dimension of distress as defined earlier, and standby facilities and cash reserves might be used to offset any equity impact.

A sustained traffic shock again has potential to cause a situation of a financial challenge, depending on how different dimensions are impacted, and if the promoter is able to reduce or re-profile Capex or Opex in response to the demand downturn. There may be an increase in charges at the next regulatory settlement to reflect the lower traffic (impacting the funding challenge dimension). Debt financeability may be challenged, if there were concerns over the customer affordability of increased charges or the competitive position of the promoter. The fall in revenues would also impact equity and the effect could be sustained, if charges were not increased to reflect the lower traffic trend.

Capex shocks

A shock, which caused an increase in the capital expenditure required to complete the runway scheme, may lead to financial challenge for the promoter. For the project to continue, without a change in scope or timeframe, there would be a need for significant additional financing from debt and equity and additional funding from charges.

Depending on the regulatory framework, the increase in charges that would result from the additional expenditure may lead to affordability issues for customers who would also be concerned over any delay to project delivery. How the financing requirement would be met would depend on a range of factors with a lower existing gearing potentially allowing for a greater portion to be met through debt. Any standby liquidity facilities could also be used as an additional source of financing in the short term. Debt and/or equity financeability may be challenged, especially if there was uncertainty over the possibility for future overspend, if there were concerns about the affordability of the additional Capex, or if the project was also delayed.

A sizeable regulatory disallowance following such a shock would be likely to lead to a situation of financial distress. First, the initial ability of the promoter to finance the additional Capex would be further challenged by the potential expectation of a regulatory disallowance. The disallowance would reduce expected future revenues over the lifetime of the runway reducing the promoter's credit position and ability to generate cash for distribution. The extent of the distress would depend on how equity holders reacted to the situation and the impact they faced. Following the disallowance, equity holders would be required to make a sizeable injection if target gearing were to be maintained.

Overall, while it may be possible to secure financing and funding for the additional spend, the shock may motivate the promoter to re-scope or delay the project. A regulatory disallowance would increase the likelihood of changes to scope or timeframe of the runway project.

5.7 Multiple risks and risk correlation

Multiple risks occurring simultaneously or in sequence can exacerbate distress. Experiences of Eurotunnel and NATS show how multiple events may lead to a distress outcome. Eurotunnel suffered from lower than forecast demand, cost overrun, and financial difficulties resulting in multiple debt restructurings including the write off of a significant amount of debt and equity over the project lifetime.[72] NATS suffered from a downturn in revenues as air traffic fell following September 11; and had also undergone the PPP process (part sale of shares) and had high levels of debt and limited equity.[73]

Certain risks are correlated or can have a direct causal relationship. For example, a catastrophic event like a major terrorist attack can also result in some economic slowdown in the short term, which can impact demand as well as the financial standing of one or more of the construction companies involved in scheme delivery. This is especially important when considering financing risks as the financial markets are sensitive to increased likelihood or occurrence of risks and are quick in responding to the impact of an actual or perceived risk (for example, through an immediate devaluation of currency or increased debt cost or credit rating warnings).

Analysing multiple risk scenarios is especially complex given the number of possible permutations. Indirect impacts increase the severity of multiple risks, meaning the overall effect may be greater than the sum of the impacts of individual risks occurring separately. This is discussed below with an example a financial market disruption and Capex shock.

Example: Interaction between financial market disruption and Capex shock

Financial market disruption could coincide with a related or unrelated event, which leads to a significant increase in scheme Capex costs. The risks associated with a project's exposure to the debt market is amplified due to the increased capital expenditure requirement.

There is also a potential interaction between the two risks.

- Lack of debt during a market disruption may lead to Capex delay, which increases the overall project cost, as the original delivery plan and contracts may need to be revised.
- Uncertainty over a Capex shock could be reflected in charges and may lead to a promoter-specific financeability shock, increasing the cost of debt.
- Debt market disruptions can materially impact the financial standing and cash-flows of key supply chain members and contractors indirectly impacting the project (in addition to the direct impact on project).
- Re-financing requirements might be also affected.

[72] https://www.nao.org.uk/wp-content/uploads/2012/03/10121834.pdf; https://next.ft.com/content/7c13c392-5c65-11de-aea3-00144feabdc0

[73] House of Commons Aviation: National Air Traffic Services (NATS)Standard Note: SN1309

The impact of debt market disruption and Capex shock may be further exacerbated if:

- The Capex shock occurs in the execution stage (i.e. the promoter has limited time to plan for and mitigate increased costs).
- Previous increases in Capex limit available promoter mitigations.
- The promoter's financing structure has limited flexibility (e.g. high gearing, low level of cash flow generation from operations, low liquidity provisions, or similar).

6 Potential regulatory measures

6.1 Identifying potential regulatory measures

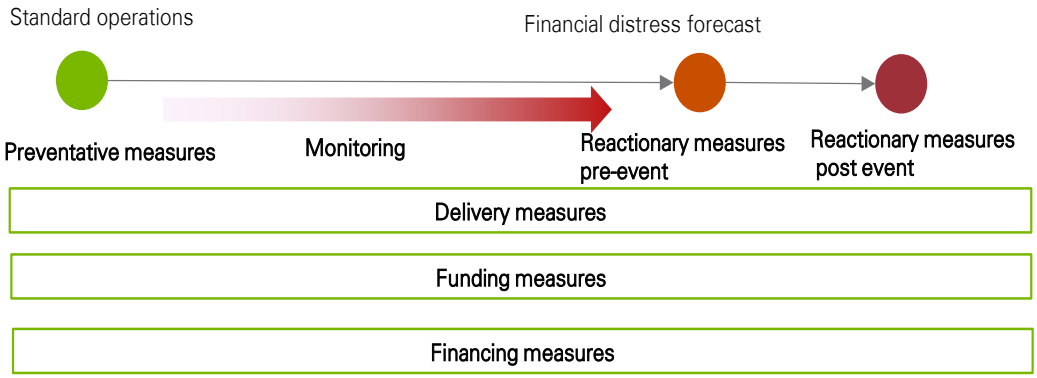
There are three broad types of potential regulatory measures that could be considered to limit the risk of financial difficulty or distress; each of which can also be categorised according to the time of their application, as illustrated in the diagram further below.

This Report focuses on regulatory measures that are defined ex-ante, including preventative measures and reactionary measures defined up front. The Report does not consider reactionary measures that might be identified or explored in the actual financial distress scenario.

The options for the regulatory strategy discussed in this Report focus on financing measures, although all three types are discussed in this section.

The overarching consideration for any regulatory measure should be a clear understanding of what is the market failure that is being addressed and associated costs.

Figure 20: Potential measures to limit the risk of financial distress [Source: KPMG analysis]



Time categorisation:

Preventative measures: These measures can be applied ex-ante to protect against future risks. The measures may de-risk the project in light of specific risks, or increase the ability of the promoter to manage outturn risks.

Reactionary measures: These measures can come into effect if a situation of financial distress or financial difficulty is forecast (pre-event), or after a distress situation has occurred (post-event).

The 'pre-event reactionary measures' can reduce the risk of a financial distress event occurring in the first place (for example, by providing resources to cover obligations or by transferring financial obligations to other parties).

The 'post-event reactionary measures' focus on reducing the impact of a situation of financial distress, including the potential impact on customers, on the promoter, and other stakeholders.

Type categorisation:

Delivery measures: These measures can influence how the project is delivered and managed. The less intrusive measures could include, for example, reporting requirements and passive or active monitoring. More intrusive measures could specify how risks are allocated or transferred, providing they are within the scope of the regulatory regime and regulatory discretion.

Funding measures: These measures determine how customers are charged for the project. These measures may be used to de-risk the project, e.g. through defining cost pass through, or to increase financial resources available to the promoter during project delivery, e.g. using 'pre-funding', or allowing for higher revenues. A regulatory regime that determines an approach to funding which lowers the project risk might also support the ability of the promoter to access low cost finance.

Financing measures: These measures can influence how the project is financed, including upfront financial requirements or constraints on the adopted financing structures. Financing measures provide for upfront control of financial risks, e.g. a requirement to maintain an investment grade credit rating or, more directly, through a gearing cap, and are likely to increase overall costs. Assurance or reporting on the financing of the project are also part of this category.

Considering regulatory measures

Role of the Regulator vs the promoter: The Regulator can take measures influencing the delivery, funding, and financing of the project. The regulator's ability to influence different aspects of delivery of the new airport capacity might vary across different constituent projects of the overall programme, and will be different from that of the promoter—see Section 6.5.2.

Rules based vs outcomes based: Rules-based measures correspond to more direct rules-based regulation and could restrict how the promoter operates. Outcomes-based measures can specify the required outcomes, but leave the decision on how this is achieved to the regulated company.

Discretionary vs prescriptive measures: Measures are prescriptive where the mechanism and its impact are more fully defined upfront. All measures considered in this Report are at least partly defined ex-ante. The comparison between prescriptive measures (e.g. defined treatment of cost risk) and discretionary measures (e.g. scope for a change in the regulatory determination in the price re-opener) is important in comparing and assessing different potential measures. In general, the use of discretionary measures increases the regulatory risk and could increase the cost of capital, but provides greater flexibility to the Regulator ex post.

Monitoring: Monitoring and information reporting measures and requirements, which can include EWIs (see Section 3.3.3) can be applied to support the Regulator in identifying increases in the risk of financial distress in the course of the project that may be, at least partly, borne by customers, and to trigger reactionary pre-event measures. Where applied, EWIs would need to be identified, measured, and monitored ex ante. EWIs may also trigger requirements for enhanced monitoring.

Costs and limitations: There are limits to the use of each of the regulatory measures which can be related to the scope of regulatory discretion, the scope of regulation, the potential costs of these measures (including the costs to customers), expected effectiveness, the costs of implementation, overall complexity of the regulatory regime, interactions with other aspects of the regulatory regime, and the Regulator's capacity to take actions for implementation.

Understanding the full costs of different regulatory measures in terms of public and private benefits is outside the scope of this Report, but might be an important aspect of regulatory considerations.

Stakeholder reactions: Both preventative and reactionary measures may also impact stakeholders' behaviour ex-ante as well as during a distress event. Reactionary measures do not need to be triggered to have a material impact. For example, conditional dividend lock ups (which limit distributions to equity once triggered) may increase the required returns from equity investors up front.

6.2 Regulating project delivery

Delivery measures cover aspects of how the project is delivered and managed. They aim to influence how the promoter is planning to deliver the project.

6.2.1 Considerations for delivery measures

Project management and delivery: Delivery measures may be used to control how risk is transferred and managed. Any regulatory intervention in the Project may be challenging given information and skills asymmetry. Delivery measures may have an impact on the approach adopted by the promoter, especially in the context of the airport capacity schemes being undertaken by private companies which already have experience in delivery.

Approval and control: A regime could include approval rights over certain aspects of airport delivery, for example customer approval of scope. Third parties may become involved in, or have influence over, certain aspects of project delivery or management as a reactive measures to distress (pre-event or post event). Financial distress may also be managed in the long term by a re-scoping of the Project in order to reduce required future expenditure, or change the profile of spend.

Information and review: Information, review and early identification measures can support the Regulator in implementing reactive pre-event measures by providing early warning signals for distress. The information requirement and review process can range from mild to intrusive. The asymmetry of information between the Regulator and the promoter, and the incentives to reveal accurate information may also to be taken into account.

6.2.2 Measures

The list of potential measures listed below is based on case studies and industry experience. This is not a complete list of all possible interventions within the delivery space, but provides an overview of potential options.

Preventative delivery measures:

1. Board assurance: Promoter board-level assurance of programme delivery structure, timing and other key performance indicators. Delivery assurance measures may integrate with assurance on other aspects of the project e.g. financing (see Section 6.4).
2. Operational restrictions: Restriction on non-regulated operations or activities outside of the core remit. This is common within regulated entities and is incorporated as part of the "restriction on activities" conditions for both airports.
3. Board level representation: Membership of programme delivery boards or bodies e.g. Crossrail, HS1 and HS2 have a Project Representative whose responsibility it is to provide assurance on project progress and risks. Many projects also have a specific Management Board that may have an active role or focus on informing and coordinating stakeholders.
4. Delivery flexibility: The Regulator may support a more flexible approach to project delivery through its treatment of uncertain areas of spend. For instance, Ofgem introduced Strategic Wider Works,[74] which allows for projects to be defined according to evolving requirements.
5. Supply chain risk transfer: Management of the supply chain (and risk transfer between the promoter and the supply chain) is traditionally the role of the promoter. The Regulator could also take measures to incentivise or ensure efficient risk transfer within the contracting structure. For example, in the case of Thames Tideway Tunnel, risk sharing was reflected in the contractual arrangements with

[74] https://www.ofgem.gov.uk/electricity/transmission-networks/critical-investments/strategic-wider-works

pain-gain sharing included in the construction contracts.[75] Risk and incentives could also be transferred through interfaces with other delivery bodies, e.g. Highways England or National Rail.

6. Market based risk transfer measures: Incentives or requirement for market based risk transfer measures: for example, exchange rate hedging where operating or capital expenditures and revenues are mis-aligned. While the Regulator could intervene to ensure such measures were in place, it is likely that any substantial mis-alignment would be managed normally by the regulated entity. For instance, once a project is certain to proceed, the promoter could use foreign exchange contracts to hedge material capital expenditure in foreign currencies.

Reactionary delivery measures:

7. Remedial plans: Under certain conditions, the promoter or an external party may be required to draw up remedial plans. This could be an ex-ante requirement that such plans will be drafted in certain events. There are a range of possible levels of oversight, ranging from approval of plans to a declaration from the promoter that plans are in place.
8. Alternative delivery plan: Up-front agreement of an alternative delivery plan with a lower scope or a change in the spend profile. The plan would be implemented based on prescriptive or discretionary triggers when the risk of distress is above an acceptable level according to certain metric, for instance, following a force majeure event.
9. Step in rights and control triggers: Engagement of third parties in any aspect of project delivery based on a prescriptive or discretionary trigger. A third party would be identified ex-ante. The step in rights on the Crossrail project are provided as a case study.

> **Case Study: Crossrail Step in rights[76]**
>
> Sequential right of 'step-in' by the sponsors if the project is forecast to cost more than the Anticipated Final Crossrail Direct Cost.
>
> The first Sponsor Intervention Point (IP0) occurs if the forecast out-turn cost is greater than the P50 cost estimate. At this point, Crossrail may be requested to submit remediation plans to TfL showing how it would ensure the project is delivered for the Target Cost.
>
> At the second intervention point (IP1) defined as the P80 level, and only once it is clear that an element of the contingency held by TfL will be required, TfL are able to step in and replace Directors and senior Executives, taking more responsibility for the project.
>
> At the third intervention point (IP2), if the TfL contingency fund is exhausted, DfT can intervene, or TfL can hand the project to DfT.
>
> This approach allowed single decision making at potential crisis points rather than joint sponsor decision making which carries the risk of delays or even non-decision.

10. Special Administration: Special Administration ensures continued provision of services when the business is insolvent. Investors bear an increased risk as the primary consideration is supporting operations. Special Administration is in place in Water, Energy and Rail (see case study on Railtrack below).[77] This allows the appointment of a Special Administrator if specific conditions are satisfied, e.g. an entity in unable to pay its debts, and other remedial actions fail. The objective of the Special Administrator is to ensure the continuation of service and well-

[75] https://www.neccontract.com/About-NEC/News-Media/Thames-Tideway-tunnel-project
[76] http://learninglegacy.crossrail.co.uk/documents/lessons-learned-from-structuring-and-governance-arrangements-perspectives-at-the-construction-stage-of-crossrail/
[77] https://www.ofgem.gov.uk/ofgem-publications/50728/12890-financingnetworks080206.pdf

ordered transfer of activities. For example, Ofgem[78] anticipates that the energy administrator will, in addition to being responsible for continued operations, consider restructuring, identify price control and Capex plan changes, including the criticality of investment and the impact of any delay on customers.

Establishing a Special Administration regime is a costly and lengthy process due to the inherent complexities in setting up the process and the involvement of multiple shareholders. Even where a Special Administration regime is in place, when triggered, it may be highly disruptive and costly to implement. In the context of a large capital project, invoking a Special Administration may potentially increase the cost of the project (due to stalled activities, re-procurement of supply chain, transfer of know-how, etc) compared to other options.

Case study: Railtrack[79]

Railtrack plc was put into administration on 7 October 2001, justified, according to the Department for the Environment, Transport and the Regions (DETR) by the company's inability to pay its debt.

The administrators were responsible for the running of Railtrack until it emerged from administration in 2002.

As per the terms under the 1993 Act, the business should be managed in a manner "which protects the respective interests of the members and creditors" and to ensure continuation and transfer of the company's operations.

A parliamentary briefing[80] notes the conflict this generated: *"The interests of the creditors and shareholders also needed to be protected but were not more or less important than the company being kept as a going concern."*

6.3 Regulating project funding and tariffs

Funding measures relate to how customers are charged for the project.

6.3.1 Considerations for funding measures

Risk allocation: The funding structure can be used to transfer risk to customers. Risks may be shared, promoter risk exposure may be capped, or the full risk may be passed on to customers. Measures to de-risk the project provide the promoter with additional financial resources contingent on pre-defined events. For example, the pass through of increased cost of debt. In an extreme event, the Regulator could use a full cost recovery regulatory regime, however this would have adverse implications for other regulatory goals, notably appropriate risk allocation and incentives for cost efficient project delivery.

Financial buffer: The funding structure can be used to generate a risk buffer to increase the ability of the promoter to manage financial risks. Such measures provide additional financial resources upfront, increasing the ability of the promoter to manage financial risks, for example a higher WACC. However, such measures do not directly reduce risk exposure, but help manage the risk exposure. The ability of the promoter to manage pricing and revenue also impacts the promoter's ability to increase revenues to offset financial shocks. Price commitments or customer contracts give greater flexibility to manage in-year prices and revenues.

Cash flow risk: Even if the promoter bears no revenue/cost risk (e.g. full pass through of the cost of debt), they may still bear cash flow risk, which can also contribute to financial

[78] https://www.ofgem.gov.uk/ofgem-publications/50667/guidance-document-final-oct-09.pdf
[79] https://www.ofgem.gov.uk/ofgem-publications/50728/12890-financingnetworks080206.pdf
[80] researchbriefings.files.parliament.uk/documents/SN01076/SN01076.pdf

distress. Cash flow risk can be minimised by allowing a forward looking pass through into costs based on the latest forecast for costs in the year.

Regulatory discretion: The pass through of risks to customers may be defined upfront based on measurable risk outcomes or risk sharing arrangements. Alternatively, ex-post discretion may be used to determine how/if financial risks will be passed on. The Regulator may also take a prescriptive approach to the financial buffer generated through funding measures, e.g. by specifying a reserve account and the conditions when it may be used.

6.3.2 Measures

Preventative funding measures:

Regulators usually lean either towards measures that de-risk the project, or those that generate financial buffer or flexibility. The specific objectives of the Regulator will determine the attractiveness of different options, which have different implications for the outcome and risk profile of the regulated entity/project.

De-risking the project

11. **Demand risk**: Change in funding mechanisms to protect the promoter from demand risk, for instance through a revenue based determination, e.g. Ofwat PR14 or a demand risk sharing mechanism, e.g. NATS RP2.
12. **Opex risk**: Pass through of operating costs, similar to Q6 treatment of security costs arising as a result of changes to security standards, and business rates deviation from forecasts at Heathrow, or through alternative arrangements. A discretionary approach to Opex risk could be taken through a more frequent Opex reopener (i.e. de-linked from the price determination period).
13. **Capital expenditure risk**: Pass through of capital cost, either via a full pass through or risk sharing. The options range from full pass through of all costs, to all costs being subject to an ex-post economic and efficiency review. The Regulator may allow separate categories of costs to be treated differently with specific risk contingencies approved ex-ante only for certain categories of costs.
14. **Capital costs**: The regulatory regime could de-risk capital costs, tracking actual cost of debt, or gearing, rather than fixed assumptions. Thames Tideway uses a pass through mechanism for changes in the cost of debt beyond a dead-band.
15. **Indexation adjustments**: Regulated prices or revenues are often linked to inflation indices. True-ups may be applied to adjust for the difference between forecast and actual inflation. Additionally, different price indices may apply to different cost elements, e.g. the construction price index.
16. **Extended regulatory commitments**: The Regulator may make extended regulatory commitments. At a minimum, this may be through policy statements on long term regulatory approaches. Alternatively, the Regulator could implement a bespoke price control period for the runway Capex, or an extension of the usual cycle of around 5 years (covering all airport costs). For example, the Thames Tideway Tunnel has a bespoke regulatory cycle for the construction phase, before reverting to a 5 year price control cycle during operations. Ofgem applies 8 year control periods for the RIIO controls.[81]

Generating financial buffer/ flexibility:

17. **Asset pre-funding measures:** Pre-funding broadly covers all approaches which allow the project to earn revenues on assets before they are operational. There is a wide range of pre-funding options available to regulators.

[81] https://www.ofgem.gov.uk/network-regulation-riio-model/riio-ed1-price-control

18. Return on capital during construction period: Allowing a return on assets under construction is often applied within regulated industries, including at Heathrow. This is a type of pre-funding as revenues are generated before assets are operational.

19. Forward looking: A forward looking liquidity adjustment may be applied allowing for a return on future Capex. This is applied in the Thames Tideway regulation where return is allowed on one year look forward Capex. In this case, the company is required to maintain a liquidity buffer to cover certain periods of forward looking Capex.

20. Sculpting of depreciation: This method can be used to recover depreciation costs before assets are operational. For example, the Commission for Aviation Regulation (CAR) is allowing for sculpting of the depreciation of any new runway at Dublin.[82] Similarly, taking a Totex approach to revenue regulation would allow for some capital expenditure to be recovered as 'fast money' in year rather than through depreciation. This approach is currently used by Ofgem and Ofwat.

21. Re-profiling of revenue requirements: Pre-funding measures are not explicitly linked to a single cost building block. For example, the re-profiling of prices during the delivery of the T5 project.

22. WACC: This could be used to allow for an increased financial buffer. This may be a WACC re-profiling where the future WACC is reduced to allow for greater buffer during delivery. Alternatively, the WACC may be increased with specified conditions that a reserve should be generated to help manage financial risks (contingent pre-funding).

23. Opex recovery: Increased speed of Opex cost recovery. Bringing forward operating costs is another option, but as Opex is generally recovered in the year that it is spent, this is less common.

24. Pricing flexibility: Increasing pricing flexibility within the regulatory period can support the promoter in managing financial distress risks. For example, through price commitments or a commercial contracts based arrangement. In a free market, the promoter could increase charges during the construction period, exploiting the existence of scarcity in capacity and generating financial resources required during the project's construction. Once operational, prices could fall to fill the increased available capacity. Increased pricing freedom would allow the promoter to better manage demand risk and the profile of revenues, although the market power of the promoter in the earlier period needs to be considered in this context.

Reactionary funding measures:

25. Price control re-opener: A price control re-opener could be applied pre-event in the case of significant cost risks. The re-opener could be either discretionary or based on a trigger. Ofwat's 'Notified Items' adjustment allows for an effective re-opening of the price control for 'material' cost items that are under the list of 'Notified items'.

26. Force majeure provisions: Additional funding provisions may be activated in case of a force majeure event. Such measures could equally be captured in the risk sharing arrangements, for example, risk sharing up to a threshold before the price control is re-opened (as applied in the Thames Tideway Tunnel regime).

6.4 Regulating financing of the new runway project

Financing measures relate to how the project is financed, including any upfront requirements, and constraints on the financing structure and protections.

[82] Commission for Aviation Regulation (Oct 2014), Maximum Level of Airport Charges at Dublin Airport 2014 Determination

6.4.1 Considerations for financing measures

Financial buffer: Financing measures provide upfront control of financial risk, creating a financial buffer to protect against financial distress shocks. Financial buffers may be created indirectly through less intrusive measures, e.g. requirement to maintain an investment grade credit rating, or more directly through more intrusive measures such as a gearing cap. The buffer could then be used during distress, e.g. relaxation of a gearing cap.

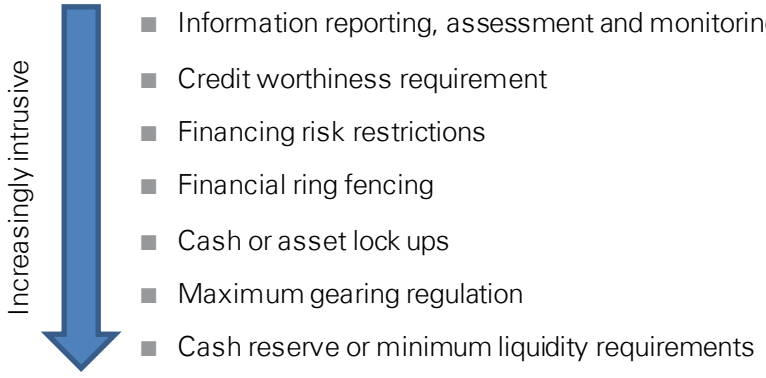
Financial freedom: The regulatory measures typically impose a cost on the promoter, limiting their financial freedom. For example, providing only an implicit incentive to deter high gearing allows the company to retain freedom over managing their financing structure, but does not create a requirement of lower gearing. Mechanisms that limit gearing provide greater certainty, but may imply a greater cost for both the promoter and for customers, as well as regulatory costs. Strong measures that constrain financial freedom also need to be enforceable as the promoter bears the cost of their implementation.

Notional vs actual financing structures: Regulators often consider a notional rather than actual financial structure to ensure that consumers do not bear the consequences of a promoter's decisions on the actual capital structure. Some measures can be applied on either a notional or actual basis. Measures applied to the actual structure could include gearing caps, or may be based on the difference between notional and actual, e.g. tax claw back. The impact of such measures could be different depending on whether they were assessed on a notional basis, compared to an actual basis.

6.4.2 Measures

Financing measures vary according to the control implied over the promoter's choices. The figure below lists potential financing measures, broadly in the order of the strength of the intervention.

Figure 21: Potential financial measures [Source: KPMG analysis]



Preventative financing measures:

27. **Information reporting, assessment and monitoring**: Information reporting, assessment and monitoring can be used as an early warning signal to inform the Regulator about financial distress risks and the financial standing of the promoter. The Regulator may, in addition to monitoring metrics, undertake a financial robustness assessment, for example as part of the price review process. The CAA currently considers financeability within the price review process for Heathrow and analyses a number of credit ratios. Prescriptive measures may make use of early warning metrics automatically to trigger additional measures, though ratios may be distorted in the short term by market forces.
28. **Credit worthiness requirement**: A requirement to maintain a certain credit rating or minimum credit ratios. This may be an absolute obligation, for example Ofgem requires an investment grade rating, or based on 'reasonable endeavours' of the

company. The Regulator could alternatively impose requirements on a defined number of key financial ratios, for example minimum cover ratios.

29. Financing risk restrictions: The Regulator imposes measures to limit the financing risk exposure of the promoter. For instance, a requirement for currency swaps for non-GBP debt or restrictions on debt maturity concentration. This could also involve limiting the use of different debt types or requiring the indexation risk to be swapped out/hedged. For separately financed projects, the Regulator may also stipulate a minimum upfront equity requirement, as used in the case of Thames Tideway, or minimum additional equity injections. This is not considered relevant in this case.

30. Financial ring fencing: Financial ring fencing conditions can include a number of measures, including assurance of adequate resources, restriction on activities, restriction on investments or holdings, and the requirement for an ultimate holding company undertaking. Ring-fencing arrangements are common in regulated industries, though with varying strengths and focus. For example, Ofgem limits the relative turnover of non-core business[83]. CAA's agreement is required for all non-core business at Heathrow.

31. Gearing regulation: A gearing cap is a rules-based way to avoid the risks associated with high gearing. For instance, the NERL licence requires "*reasonable endeavours to ensure that at 31 March and 30 September of each year … the total amount of Gearing … shall not exceed 65 per cent*".[84] A gearing cap may be set on an absolute level or based on an annual or rolling average basis. Mechanisms to dis-incentivise high gearing (e.g. tax claw back) may be also considered; for example, the CAA has imposed a tax clawback mechanism for NATS, in combination with a gearing cap.

32. Cash reserve or minimum liquidity requirements: A reserve account is similar to a lock-up in the effect that it precedes equity in the financing waterfall. However, it differs in the fact that it is held regardless of any triggers. Reserve accounts are more common in project financing structures, e.g. debt service reserve account, maintenance reserve account. While avoiding concerns over the effectiveness of triggers in responding to distress, a reserve account can limit the financial freedom of the promoter, even in normal operational conditions, potentially implying a greater cost. For example, Thames Tideway Tunnel is required to maintain sufficient reserves sized to meet the look forward Capex requirements. The Regulator may alternatively require a promoter to secure a minimum size of standby facilities instead of holding cash.

Reactionary financing measures:

33. Cash or asset lock ups: A cash or asset lock up is a reactive restriction on use (or transfer out of the regulated entity) of cash, including any lean or charge created on the assets that is created outside of the existing financing arrangements. This also covers the use of assets as collateral. A lock-up may be triggered by a number of factors, including breaching of financial distress metrics, e.g. investment grade credit rating, or similar. There can also be a cap on the distributions above a pre-agreed level during the construction period as used in the Thames Tideway Tunnel project.

6.5 A regulatory strategy for financial distress

6.5.1 Approach to choosing a regulatory strategy

This Report discusses possible regulatory strategies for the CAA to mitigate or reduce the risks of financial distress, taking into account the interaction of regulatory measures with promoter mitigations and interactions between different measures. Each regulatory

[83] Ofgem Transmission Licence: Standard Conditions – 31 March 2016 p.367
[84] Air Traffic Services Licence for NATS (En Route) plc June 2016 p.34

strategy can be assessed against a range of criteria in addition to the primary consideration of effectiveness of the measures in mitigating financial distress risks.

Full evaluation and calibration of regulatory measures are not part of this Report. The assessment made within this Report is indicative and based on a set of assumptions and approximations on the delivery, funding and financing of new airport capacity.

6.5.2 Interactions between regulatory measures and mitigations

Even in the presence of severe risks, regulatory measures may not always be the optimal response. The promoter has the critical role in mitigating and managing different risks.

The relationship between regulatory measures and promoter mitigations:

- Different areas of influence: The Regulator and the promoter traditionally have different spheres of influence. For instance, the promoter traditionally has a strong role in determining project delivery and financing, while the Regulator may focus primarily on setting the funding structure, and ensuring the costs are efficiently incurred. Areas of influence may differ for preventative or reactionary mitigations/measures.
- Complementarity: Financing and funding go hand-in-hand. Short term issues may be solved by the promoter through financing mitigations (e.g. negotiation of extended payment terms), but investors will require confidence in future funding and in the regulatory regime itself.
- Impact on project delivery: The promoter may be able to mitigate a scenario for financial distress by delaying the delivery of the project, however this may be an undesirable outcome, which could motivate regulatory measures. The impact on project delivery is considered in Section 5 when discussing the need for regulatory measures in each scenario considered in this Report.
- Moral hazard:[85] While developing a regulatory package, the CAA, the Government and other stakeholders, may consider the risk of a promoter continuing to gear up on the assumption that this would transfer some of the risks to customers rather than letting the airport fall into financial difficulties.

6.5.3 Ensuring measures are robust to a range of risks

Certain measures may be effective against specific financial distress risks. If a promoter is particularly vulnerable to specific risks, then more targeted measures can be used.

Risk-specific measures may be more appropriate where the risk is identifiable ex-ante and measurable ex-post e.g. cost of debt increase, and land price indexation. Specific measures may be also appropriate where there are stand-alone, unique risks, which are significant enough to require targeted measures. For instance, allowing a re-opening of the regulatory settlement in certain circumstances.

Section 5 assessed potential impacts of financial distress scenarios driven by financial market disruption, demand shocks, and Capex shocks. All three categories of shocks are capable of leading to a financial challenge/distress situation, though the likely impact on the four distress dimensions defined earlier differs across scenarios considered and depends on the regulatory framework and actions taken by the promoter.

Vulnerability to a range of different types of risks may motivate an approach that provides general robustness rather than focussing on specific risks. However, there is a cost to

[85] This moral hazard risk is also noted in the DTI/HM Treasury report on the consequences of increased gearing: "...if investors believe that in the event of financial distress the political risks of business failure would be unacceptable and that Government would bail out the company, the full social costs of the increased risks of financial distress may not be priced into the cost of debt" DTI /HM Treasury, The Drivers and Public Policy Consequences of Increased Gearing (October 2004)

customers (e.g. additional funding) or to the promoter and its shareholders (e.g. gearing cap) of ensuring increased robustness.

The scale of the project and consequent financing requirement mean that the promoter is particularly exposed to debt market shocks and additional capital costs. The exposure to a cost of debt increase may motivate a specific risk sharing arrangement.

6.5.4 Combining regulatory measures

The interaction between regulatory measures can inform how they are combined within a regulatory strategy.

Measures may be complementary or substitutable. For example, a requirement to maintain an investment grade credit rating would reduce the need for an intrusive financial structure related conditions.

Certain measures may also be used in tandem and can be 'layered' so that the regulatory control and cost are proportionate to the risk impact. For example, using implicit or explicit incentives to deter gearing with a relatively high cap as a back stop (i.e. unlikely to bite in normal circumstances).

A regulatory approach can consist mainly of reactive measures, with little or no change to the regulatory environment under standard operations. Alternatively, high risks and costs of financial distress may motivate a more preventive approach, which impacts operations regardless of whether risks occur or not.

Delivery, funding and financing measures may all be used to counter financial distress risks and combined in a regulatory package. The mix of different types of measures may reflect the role of the Regulator in each domain, as well as the trade-offs with other regulatory objectives.

Monitoring and reporting are an important part of the regulatory strategy. Early warning signals may trigger enhanced monitoring or additional measures.

These considerations are reflected in the Ofgem approach to financial distress, set out below:

Case Study: Ofgem's approach to financial distress[86]

Preventative

Monitoring of financial health and financial ring fencing within the Licence. The ring fence conditions require the Licensee to:

- Give notice to Ofgem before disposal of any network assets
- Provide assurance of sufficient financial resources to carry out its licenced activities
- Restrict activities within the ring fence
- Maintain of an investment grade credit rating.
- Not incur any indebtedness or liability other than on specified terms or for permitted purposes
- Obtain an undertaking from parent company and other ultimate controllers

Reactionary

Ofgem has power to act where its monitoring process identifies deteriorating financial health or a break of financial ring fencing provisions is observed.

- Where a licensee experiences a reduction in investment grade status it may trigger cash lock up provisions.
- A price control re-opener can be used to re-set the revenue allowance.
- If distress continues Ofgem may take more severe measures.
- A trade sale would allow an external company to purchase assets of the entity in distress whilst maintaining operations.
- If the company became insolvent special administration may be used. The

[86] https://www.ofgem.gov.uk/ofgem-publications/50667/guidance-document-final-oct-09.pdf

that they will refrain from taking any action that may cause breach of licence.	administrator would manage the affairs of the company with the aim of returning to a situation of sustainable operations.

6.5.5 Complementary and substitutable measures

The degree to which measures are complementary or substitutes should be considered when choosing potential regulatory approaches.

Certain financing measures can be substituted for each other, i.e. have broadly the same impact. Measures with a similar impact can be grouped under a single approach, for instance credit rating requirements and minimum ratio requirements, which ensure a minimum credit worthiness of the promoter. A gearing cap, a partial tax clawback, minimum standby requirements, or a restriction on distributions have broadly the same impact of providing a minimum debt capacity, and depending on how the regulatory measure is defined, reducing upfront gearing.

Funding measures may complement financing measures, e.g. additional funding. Funding measures may also substitute for financing measures where a specific risk can be identified and managed through a targeted measure. A restriction on distributions, a reserve account, or agreed use of cash reserves to reduce the debt requirement, can all be used to ensure that additional funds are used to increase the financial resilience of the promoter.

6.5.6 The use of reactionary and preventative measures

Reactionary, ex-ante measures (i.e. measures that are imposed ex-ante, but have an impact only when a risk materialises) impose limited costs in standard operations and, when correctly calibrated, can be effective and adapted as the financial distress situation evolves.

Reactionary measures aimed to ensure that the airport continues operations might not provide significant benefits. The underlying cash generation potential of the airport provides protection in the case of financial distress as all parties would be aligned in ensuring that operations continue.

Preventative measures rely less on triggers making them attractive as financial distress is difficult to predict and may result from a combination of unrelated risks. Preventive measures are also not exposed to the risk of setting up an inappropriate trigger or calibration of the triggers, but still require calibration of the parameters up front.

Preventative measures typically imply a cost to the promoter in standard operations (i.e. even where no risks have materialised) and, in some instances, may be considered to be limiting financial flexibility and increasing the cost of financing. The justification for preventative measures is stronger if:

- The expected likelihood and impact of risks are high;
- There is a high degree of certainty that risks would lead to a significant impact;
- Risks may rapidly lead to a challenge or distress situation (limiting the use of reactionary measures);
- The Regulator has a limited ability to monitor distress and implement reactive measures (even where they are defined ex-ante); and
- The likely costs are limited and are outweighed by expected benefits.

Stacking or layering of different ex-ante reactive measures, which are sequentially triggered as the financial distress metrics worsen may be attractive, providing an approach that is both targeted (to specific financial challenge or distress risk) and

proportionate (measures increasing in strength as the likelihood or severity of risk increases).

6.5.7 Regulating delivery, funding and financing

Delivery, funding and financing measures may all be used to counter financial distress risks and combined in a regulatory package.

Financing measures relate to how the project is financed, including any upfront requirements, constraints on the financing structure, and protections. Financing measures provide upfront control of financial risk and can create a financial buffer to protect against financial distress shocks, which could then be used during distress. The measures impose a cost on the promoter, limiting their financial freedom and may overlap with existing financing arrangements, which protect debt holders.

Funding measures could be used to address financial distress risks, for instance through risk sharing mechanisms or pre-funding. The use of funding measures may be limited by a trade-off between de-risking the project and providing incentives for cost efficient delivery. Funding measures may also be limited by customers' willingness to pay. Customer charges are already forecast to increase due to the new airport capacity expansion project and, while Heathrow have high utilisation levels, some customers may consider alternative airport capacity (e.g. Stansted) or if there are no alternative services, decide not to travel at all.

Delivery measures can also be used as part of a regulatory strategy to counter financial distress risks, for example by ensuring up-front agreement of an alternative delivery plan with variant scope or spend profile.

6.5.8 Evaluation criteria

Regulatory measures provide benefits through their ability to prevent financial distress scenarios and to minimise the cost of financial distress to customers and users. The optimal regulatory package provides the best outcome for the customer based on the trade-off between the benefits of intervention and the costs.

The UK Government sets out a number of key principles for economic regulation.[87] Building on these criteria in the context of the delivery of new runway capacity, a list of illustrative criteria can be proposed. These are divided into three core criteria, focusing on the ability of the regulatory package effectively to mitigate financial distress risks in a targeted and proportionate way and three supplementary criteria, which cover the costs and trade-offs.

Core criteria

1. **Effectiveness**: Effectiveness of the regulatory package in countering the financial distress, as defined by its impact on the four dimensions (funding challenge, debt financeability, equity financeability and liquidity).
2. **Suitability**: How targeted the regulatory package is to the issue of financial distress. Measures are poorly targeted where market fluctuations or external events lead to a breach in the requirement.
3. **Proportionality**: The degree to which the regulatory package is proportionate to the outturn risk. While it might be beneficial to some extent to have a dynamic regulatory approach that reacts proportionately to risks, it is often more complex to design, calibrate and implement, and increases regulatory risk in line with regulatory discretion. It would imply an information requirement during its design, and regulatory oversight during its implementation.

[87] UK Government Department for Business Innovation and Skills, Principles for Economic Regulation 2011.

Supplementary criteria on implementation and costs

4. **Direct cost of regulation**: Measures should be simple to understand and implement. The Regulator and the promoter face direct costs of implementation and monitoring. The calibration or definition of certain measures may be difficult, for example in the context of complex financial structures. The promoter also bears direct compliance costs and information requirements. Other stakeholders may also face a cost of their involvement in the design and implementation process.

5. **Trade-offs with other regulatory goals and impact on promoter incentives**: Limiting the risk of financial distress cannot be considered in isolation as it is intrinsically linked to other regulatory objectives, such as ensuring continued operation of the airport, project delivery, financeability, and providing incentives for cost efficient delivery. Specific regulatory measures to protect against financial distress, such as a gearing cap, can influence the whole regulatory package and promoter's behaviour. For example, the risk of financial distress could be reduced by setting a low gearing cap (i.e. requiring a high portion of equity financing either from injection or dividend holidays). However, this can be weighed against any potential change in the allowed rate of return, the required degree of pre-funding, or other costs to ensure that the project is financeable and viable.

6. **Other indirect costs and distortions**: Other indirect costs are any costs in addition to the direct costs of implementing and complying with the regulation. For example, the debt re-financing or renegotiation costs that would be associated with the introduction of special administration. Distortions can be viewed as anything that drives outcomes from those that would be expected in a competitive market.

6.5.9 Example regulatory approaches to financial distress

As illustrated in the following two case studies, a regulatory package for a distress scenario could include a broad range of regulatory measures across delivery, financing and funding. It is also possible that additional measures are introduced by the Government or other stakeholders.

Case study: Composite solution for NATS

When NATS went into a financial distress situation after September 11, the Regulator along with the Government and the lenders agreed to a 'Composite Solution', which included the following:

- Cost reduction commitments on NATS (of just over 10% of the total costs over four years);
- Bringing in a new corporate shareholder;
- A temporary working capital facility;
- Additional equity by the Government and by the new investor;
- Relaxation of the price caps by the Regulator;
- Relaxation of bank covenants (which were changed to be more in line with corporate finance rather than project finance structure); and
- Introduction of an automatic risk sharing mechanism for the first control period for reducing the impact of future traffic fluctuations on NATS.

Case study: Thames Tideway

In the case of Thames Tideway Tunnel, Ofwat's regulatory measures are supplemented by the conditions imposed by the Government as the provider of a Government Support Package. Ofwat's regulatory measures are largely based on the existing regulatory regime for the water sector, but also included, *inter alia*:

- A regulatory ring fencing including the conduct of the company, composition of the board, dividend policy meeting certain requirements, and a requirement to maintain an investment grade credit rating;
- A cost of capital (bid by the selected bidder) fixed for the entire duration of the project construction;
- All allowable Capex up to a 'threshold outturn' during the construction added to the RAB in a mechanistic calculation;
- An additional revenue building block for the look forward Capex;
- Requirement for the promoter to finance all costs up to the pre-determined threshold outturn level;
- Specific financial incentives on Capex performance and timely delivery; and
- A real cost of debt protection mechanism to protect the promoter from market cost of debt movements subject to dead-bands and sharing.

The regulatory package for Tideway was supplemented by the Government Support Package, which protected the company from certain extreme risk scenarios including debt market disruption scenario.

7 Qualitative assessment of regulatory financial measures

7.1 Shortlisting financing measures

Delivery, funding and financing measures may all be used to counter financial distress risks and can be combined in one regulatory package. In fact, the measures are not mutually exclusive and a combination of these measures could form a comprehensive package of regulatory measures.

As required by the CAA, this Report focuses on financial measures (i.e. regulatory measures primarily relating to how the project is financed). This section provides a qualitative assessment of the identified financing measures. Other measures such as Special Administration Regime are therefore not considered.

The following measures are assessed:

- Information reporting, assessment and monitoring (e.g. transparency measures, robustness assessment);
- Credit worthiness requirement (includes discussion on minimum credit rating and minimum ratio requirements);
- Financing risk restrictions (e.g. maximum exposure to currency or indexation risks);
- Ring fencing (for the promoter this includes the robustness assurance measure);
- Gearing regulation (includes gearing cap and clawback of tax allowance);
- Cash or asset lock ups; and
- Minimum liquidity requirements (includes cash reserves, reserve accounts and standby facility requirements).

The strengths and weaknesses are presented for each of the above. Where appropriate, variants of the measures are presented separately. Measures are either taken forward for further analysis as part of the core approach, taken forward as a supplementary measure to the core approach, or dismissed if qualitative assessment indicates a potential negative net benefit.

7.2 Information reporting, assessment and monitoring

Information reporting, assessment and monitoring can be used to inform the Regulator about current and/or forecast financial standing and the financial distress risks of the promoter. The Regulator may also undertake a financial robustness assessment, for example as part of the price review process. In the previous regulatory settlements, the CAA has undertaken financeability assessments within the price review process for both Heathrow and Gatwick, and analysed a number of financial ratios as part of this assessment.

Information reporting, assessment and monitoring measures may all be used as early warning signals to automatically trigger additional measures.

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of information reporting, assessment and monitoring.

Table 29: Strengths and weaknesses of information reporting, assessment and monitoring
[Source: KPMG analysis]

Strengths	Weaknesses
— Low cost to the promoter, especially if aligned with current reporting regime (to a large extent the reporting measures will already be in place) — Low direct cost to the Regulator to implement — Could be linked to discretionary intervention by the CAA — The measures can have built-in tests to require further reporting or more frequent reporting, i.e. reporting and monitoring could become more frequent and intensive if metrics indicate an increase in risk	— Metrics need to be selected with clear definitions and an understanding of the implications of changes in a specific indicator — Market fluctuations may distort metrics, i.e. the Regulator may in some cases need to interpret the reports and take a view on whether the metrics indicate a need for intervention or not — Historic measures will have a lag; while any forecast may include optimism bias — Reporting measures are not effective on their own to manage the risk of financial distress, but will need to be part of a broader set of measures — Any discretionary intervention based on monitoring would take additional time and would leave stakeholders uncertain about how the CAA would act — Financeability assessment is generally carried out on a notional basis, which does not reflect the actual financial robustness

Information reporting, assessment and monitoring is effective in that it provides an input to trigger additional, more interventionist reactionary measures. The reporting measures are therefore taken forward as supplementary measures, which would be part of a package of other preventative or reactionary measures.

7.3 Credit worthiness requirement

A regulatory requirement to meet minimum credit worthiness may be implemented through a minimum rating requirement or minimum credit metrics requirement. Many of the regulators have a minimum rating requirement of either an investment grade credit rating (of BBB- or above), or a strong investment grade credit rating (of say, BBB+ or above).

The minimum credit ratio requirements may include FFO/Debt and Cash Interest Coverage ratios, in addition to other measures, such as DSCR and retained cash flow/debt ratios. For the purposes of this study, four credit metrics applied by Moody's are used, as stated in Section 5.1.7. Any relaxation of the requirement by the Regulator may either be through a temporary drop of the requirements (rating or ratio), or changes to the thresholds.

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of a credit worthiness measure, distinguishing between a credit rating requirement and financial ratios requirement.

Table 30: Strengths and weaknesses of a credit worthiness measure [Source: KPMG analysis]

	Strengths	Weaknesses
Measure		
Minimum credit worthiness requirement	— Incentivises improved Base case financial structure — Encourages preventative actions by the promoter to ensure the credit requirements are met, which also mitigates the risk of financial distress — Where appropriate, the Regulator may relax the requirement to provide additional flexibility to a promoter in the event of a potential distress — Effective in maintaining debt financeability — Setting transparent measures early in the process would mean that the promoter has clarity of the requirement, flexibility as to how to meet the requirements, and time to plan and implement appropriate actions in advance — May be consistent with existing debt covenants at different levels	— Requires the CAA to develop an appropriate list of metrics to measure credit worthiness or alternatively rely on third party validation (e.g. credit rating) — Credit worthiness metrics based on current financial standing may not be a strong indicator of future financial standing. In the case of credit worthiness based on forecast metrics, it would rely on the strength of the forecast — The promoter may act as it chooses within the requirement, meaning that only the mitigation of the debt financeability (and to an extent liquidity) impact is ensured — Most suitable in situations where the financial distress risk is predictable based on movements in credit metrics, and where the impact is primarily on debt financeability
Variants		
Minimum rating requirement	— Credit ratings agencies provide an experienced and independent assessment of creditworthiness — Accounts for a range of different qualitative and quantitative factors — Low implementation cost for the Regulator	— The rating is focussed on debt financeability — 'Catch all', general metric — Any lag time between the changes to the underlying financial conditions and potential changes to the rating by the rating agency — Lack of transparency for the Regulator about the full rationale for rating changes
Minimum ratio requirement	— Can be more precise — May provide greater transparency — Metrics and thresholds can be tailored as needed — Forecast and historic elements could be included	— Removes third party validation and monitoring — Relies on choice of correct metrics and thresholds and requires interpretation — Higher cost of regulation

	— Reporting requirements can be defined	— Active involvement needed by the Regulator in setting up and monitoring the measures or delegating to a third party

A credit worthiness requirement has potential to improve the financial robustness of the promoter, depending on the exact requirement and nature of the project. A credit rating requirement may be more attractive as it allows the Regulator to draw on the experience and independence of the credit rating agencies, although given the scale of the project it is arguable that calibration of selected metrics by the Regulator may be appropriate. A credit worthiness measure may need to be supported by an appropriate incentive scheme or disincentives, and specifying remedial actions. A credit worthiness measure is one of the four approaches analysed further in this Report.

7.4 Financing risk restrictions

The Regulator imposes measures to limit the financing risk exposure of the promoter. For instance, a requirement for currency swaps for non-GBP debt. This could also involve limiting the use of different types of debt financing or requiring the indexation risk to be swapped out/hedged.

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of measures to restrict financing risk.

Table 31: Strengths and weaknesses of measures to restrict financing risk [Source: KPMG analysis]

Strengths	Weaknesses
— Targets specific and identifiable risk — Risk may be sizeable given the magnitude of the debt requirement — Can manage specific financial flows, e.g. restrict specific exposures	— Promoter already experienced in managing these types of risk without regulatory intervention — Promoter anticipated to manage this risk for the new investment in line with their overall financing strategy (and any additional regulatory requirement may be restrictive) — Additional regulation on this would fetter promotor's flexibility in structuring an appropriate financing solution for the new runway project — Need to consider shared responsibility for the implied choice of financing approaches — Higher cost of capital

Regulation in this area does not appear to be beneficial in general since the promoter is already experienced in managing these risks and is anticipated to manage them similarly for the project. The choices made by the Regulator might be suboptimal and may imply shared responsibility. The risks protected by this measure are arguably of secondary concern compared to a debt market disruption or a major Capex shock. This measure is therefore not shortlisted for further analysis.

7.5 Financial ring fencing

Financial ring fencing conditions can include: (a) introduction of new financial ring fence conditions; and (b) strengthening the existing financial ring fencing conditions. Introduction of new financial ring fencing conditions is outside the scope of this Report. For the purposes of this Report a strengthening of the financial ring fence includes only provisions currently within the relevant licences, i.e.:

1 A requirement to provide an annual certificate of adequate resources;

2 A restriction on business activity;

3 A requirement for an ultimate holding company undertaking (from the covenantor); and

4 An obligation to report changes in the companies banking ring-fence.

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of a strengthening of the four existing financial ring fencing measures.

Table 32: Strengths and weaknesses strengthening the four existing financial ring fencing measures [Source: KPMG analysis]

	Strengths	Weaknesses
Strengthened certificate of resources	— Could provide more information on upcoming financing and cash resources related risks — Could be used as an Early Warning Signal — Incentivises prudent financial management — Provides forward looking insight for the Regulator — Increased frequency of reporting could also be considered either as a standard measure or as a reactive measure.	— To be effective it needs to be complemented by additional reactive or enforcement measures e.g. cash lock-ups
Additional restrictions on business activities	— Further restriction on existing non-core business activities could prevent risks from non-core activities being transferred to the core business	— All existing business activities have been agreed by the CAA (and the new runway project does not alter the principal business activities of the promoter other than undertaking a significant expansion project) — Non-core activities are not a major source of risk in the delivering of runway capacity — Any restriction on existing (non-core) business activities could have a significant impact on the business plan of the airport and could also be considered intrusive. — The promoter already has an incentive to remove non profitable businesses.

		— Time consuming and costly as would need to re-visit existing decisions on non-core business
Ultimate holding company undertaking	— While the undertaking from the ultimate holding company can be strengthened, the holding company already has a significant financial incentive through its existing investments — Additional protections and financial commitments	— Difficult to implement, enforce and monitor — Provides limited effectiveness in mitigating or managing financial distress risks — Costs of implied guarantees
Reporting on the ring fence provisions required by finance providers and monitoring	— More detailed reporting could provide an indication of changes that alter the financial risk profile	— Provides limited effectiveness in mitigating or managing financial distress risks — Regulator may not be well placed to decide if changes are appropriate or not

The CAA currently includes the requirement for Heathrow's directors annually to certify if they expect to have adequate resources (financial, staff, other) to continue to operate over the next 24 months. The CAA must be informed as soon as possible if circumstances change. Strengthening this statement may be beneficial, for instance combining it with more direct reporting on financial forecasts, statements from the board, etc. As noted in Section 6, this is part of the reporting measures and is taken forward as supplementary measures to be considered in combination with other measures.

An initial assessment of the strengths and weakness as set out above does not clearly indicate that strengthening of any of the other existing ring fence measures would be beneficial in the context of the risks considered by this Report. These measures are not shortlisted for further analysis.

7.6 Gearing regulation

A gearing cap is a rules-based measure to avoid the risks of high gearing. For instance, the NERL licence requires "*reasonable endeavours to ensure that at 31 March and 30 September of each year …the total amount of Gearing … shall not exceed 65 per cent*".[88]

The promoter can address the regulatory requirement in a number of ways. For instance, a gearing cap can be achieved by restricting dividends or through additional equity injections. The cap may also be relaxed by the Regulator in the case of distress, giving the promoter potentially greater financial flexibility. The Regulator could also provide an incentive to reduce gearing (e.g. through a clawback of the tax allowance).

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of gearing regulation.

[88] Air Traffic Services Licence for NATS (En Route) plc June 2016 p.34

Table 33: Strengths and weaknesses of gearing regulation [Source: KPMG analysis]

Strengths	Weaknesses
— Generates financial buffer in terms of additional debt capacity within the regulatory ring fence via reduced gearing up front — Allowing the CAA and other stakeholders a level of ex-ante assurance on the financial robustness of the promoter — Could provide additional debt capacity if the Regulator relaxes the requirement in specific circumstances	— Impose potentially significant additional costs during 'normal' operations in the absence of any shock — Definition and calibration of the measure may be time consuming and costly — Integration of measures within the existing financial arrangements would also need to be considered — In an operating entity, there is an immediate need for de-leveraging, depending on where the cap is set. Alternatively, the promoter will need to be allowed sufficient time to achieve the target

Gearing regulation would provide a financial buffer in the case of financial distress, albeit at a cost to the promoter. Based on the above analysis, this measure is shortlisted for further analysis.

7.7 Cash or asset lock up

A cash or asset lock up is defined for the purposes of this analysis as a reactive restriction on the use of cash or assets or their transfer out of the regulated entity. This includes any lien or charge created on the assets outside of the existing financing arrangements.

A cash lock up could also be implemented through a restriction on distributions either completely (full cash lock up) or with distributions permitted up to a certain level (for example through a pre-agreed cumulative yield cap over the restriction period). There can also be an upfront cap on the distributions above a pre-agreed level during the construction period as used in the Thames Tideway Tunnel project. This section focuses on a reactive limitation on cash or asset usage. An upfront cap on distributions up to a pre-agreed level is not considered relevant in the case of existing companies undertaking an expansion project, as in the case of the new runway project.

The lock up would need to be triggered for example through establishing an Early Warning Signal.

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of cash or asset lock up.

Table 34: Strengths and weaknesses of cash or asset lock up [Source: KPMG analysis]

Strengths	Weaknesses
— Limited impact on the promoter if risks do not occur (i.e., though the measure is set ex-ante the impact is only if measure is triggered) — Could be layered to correspond to increasing levels of risk — The measure is focussed on a specific period and is dropped as soon as the EWS is mitigated or once the CAA is satisfied that the risk of financial distress or financial challenge has dropped to an acceptable level	— Needs to be triggered early enough to effectively lock up resources — May not be effective in some scenarios as the trigger and subsequent lock up will not help sufficiently mitigate the impact of a risk scenario — Choice and calibration of triggers would be complex — Multiple trigger may be required. (For instance, Ofgem changed the triggers for their cash lock up adding additional triggers to the original condition regarding breaching of the investment grade credit rating [89]) — A discretionary trigger would increase the reaction time and increase the cost of regulation for the CAA — The promoter is already required by the licence to protect core assets — The promoter may already be incentivised to reduce distributions to protect project delivery e.g. due to the funding structure, financial delivery triggers or reputation — May overlap with existing financing arrangements

A lock up applied to any other assets other than cash has limited benefits except in scenarios where there is a sale of core assets that may impact operations. The promoter is already motivated by the licence to protect core assets and therefore we consider any further regulation for asset lock up unnecessary.

A cash lock up may be effective in certain situations, though careful calibration of the choice of triggers is required; and will require active involvement by the CAA. The requirement may also overlap with existing financing arrangements. A cash or asset lock up is not shortlisted for further analysis based on the initial assessment. However, the CAA may consider this further as an alternative to the cash reserve requirement analysed in the next section.

7.8 Cash reserve or minimum liquidity requirements

A requirement to maintain cash reserves can be implemented through either a reserve account or specific standby liquidity facilities. The Regulator may either specify the requirement, or leave the choice to the promoter, potentially with additional conditions (e.g. x% greater reserve requirement if held in standby liquidity facilities). The size of the requirement can be based on forward looking Capex requirements, on the overall forwarding-looking cash requirement of the business, or on a fixed cash reserve profile.

[89] https://www.ofgem.gov.uk/ofgem-publications/50582/changes-ring-fence-conditions-network-operator-licences.pdf

Strengths, weaknesses and net benefits

The table below presents, at a high level, the strengths and weaknesses of a cash reserve requirement.

Table 35: Strengths and weaknesses of a cash reserve requirement [Source: KPMG analysis]

Strengths	Weaknesses
— Guarantees a minimum level of liquidity to absorb shocks — Can be sized with different conditions across the life of the project (e.g. sizing based on forward looking Capex requirement) — Conditions of use (of the cash reserve) can be specified with consideration of different types of financial distress shocks	— Clear trade-off between size of requirement and cost is required: a too small requirement offers only minimal protection where as a large requirement implies a high cost — Imposes a cost even if risks do not materialise — There is a direct cost to the promoter either in the cost of carry if a cash reserve is required or in the commitment and arrangement fees for the standby facility — The conditions associated with the cash reserve would need to be set out in detail by the Regulator — Could motivate a need for increase in the WACC

A requirement to maintain a cash reserve would provide a liquidity buffer, allowing the promoter to better absorb financial and non-financial shocks. The size of the measure could be calibrated to the specific characteristics of the promoter and scheme, providing a net expected benefit to customers based on its ability to absorb risks and protect project delivery. However, the measure may be costly for the promoter to implement.

A cash reserve facility or requirement for a standby facility is normally seen in private finance projects. In some of the green field projects, like Thames Tideway Tunnel, the project is expected to keep a liquidity reserve to meet forecast cash requirements for specific future periods on a rolling basis. Though similar, a liquidity facility to meet the costs of the project is different to specific reserves for example, for debt servicing or for decommissioning in some projects.

Based on the foregoing analysis, cash reserve requirement is taken forward for further analysis and considered as one of the potential regulatory approaches.

7.9 Summary

The following table provides a summary of the initial qualitative assessment of the identified financing measures. Shortlisted measures are analysed further in sections 9, 10 and 11.

Table 36: Summary of the identified financing measures [Source: KPMG analysis]

Measure	Shortlisted for further analysis
— Information reporting and robustness assessment	— Supplementary measure to be considered alongside other approaches
— Credit worthiness requirement	— Shortlisted for further analysis
— Financing risk restrictions	— Not shortlisted as the promoter is considered experienced in managing this risk
— Financial ring fencing	— Strengthening of the availability of resources statement to be considered alongside other approaches. Other measures are not shortlisted.
— Gearing regulation	— Shortlisted for further analysis
— Cash or asset lock ups	— Not shortlisted but the CAA may consider this further as an alternative or variant of cash reserve requirement measure
— Cash reserve requirements	— Shortlisted for further analysis

8 Selected regulatory approaches to financial distress—detailed considerations

8.1 Choosing a regulatory approach to financial distress

We consider in more detail four specific regulatory approaches as detailed and analysed in the subsequent sections of this Report.

There is a wide range of regulatory measures that could be used in the context of financial distress (see section 6). As requested by the CAA, this Report focuses on financial measures (i.e. regulatory measures primarily relating to how the project is financed). This report provides a high level review rather than a detailed cost-benefit analysis of each measure.

The relevance and application of these measures should be ultimately considered carefully in light of the wider regulatory framework and, in particular, in light of the allocation of risks and treatment of costs as part the wider regulatory framework rather than in isolation.

The initial qualitative assessment of potential financial regulatory measures to limit the risk of financial distress resulted in gearing regulation, minimum liquidity requirement, credit worthiness requirement, and risk sharing on the cost of debt being shortlisted for further analysis. Each of these measures is considered further in this section.

Information reporting, assessment and monitoring and a strengthening of the availability of resources statement are complementary to any potential measures considered in this section, as they would provide additional information on financial risks and could trigger potential actions. For instance, such accompanying measures would be required for a relaxation of the gearing cap requirement by the Regulator (as part of the gearing cap measure) in response to an indication of potential financial challenge or financial distress.

The selected approach should be robust to a range of risks, though the vulnerability to increases in the cost of debt due to the scale of the project may motivate a specific, separate treatment.

Preventative measures may be more attractive given that financial distress is difficult to predict and may result from a combination of unrelated risks.

There are a number of substitutable measures that could have a similar impact on the promoter, which could be grouped under a single approach for testing for a minimum level of credit worthiness and hence a given target level of financial risk.

Funding measures can complement financing measures, for instance, by providing an additional financial buffer.

Finally, different measures can be combined for a greater effect, but regulatory management and calibration of a number of measures at the same time, as well as their potential costs and unintended consequences, are likely to be greater as well.

8.2 Four regulatory approaches

Four regulatory approaches to financial distress

Four different approaches are identified and tested in more detail.

- Regulatory Approach 1: Gearing regulation
- Regulatory Approach 2: Minimum liquidity requirement (including a cash reserve requirement with potential additional funding allowance)
- Regulatory Approach 3: Minimum credit worthiness

— **Regulatory Approach 4**: Risk sharing on the cost of debt

The effectiveness of each approach is considered using stylised financial projections and a qualitative analysis subject to limitations and assumptions explained earlier in this Report.

Testing the regulatory approaches

The four regulatory approaches mentioned above are tested using stylised financial projections. The effectiveness of each approach is assessed by considering how each measure could impact on the four dimensions of distress, in relation to different types of risks identified earlier, i.e. financial market disruption, demand shock, and Capex shock. Each approach is modelled using an indicative financial regulatory measure(s) and sizing.

In the course of this project, the Government has announced its support for the new North West runway at Heathrow.[90] As stated earlier, this section is, therefore, focused solely on this scheme.

Calibration of regulatory measures

Detailed calibration of regulatory measures is not within the scope of this Report as it is dependent on the final details of the delivery, regulation, funding, and financing of the project. Further consideration and calibration of any potential measures would be required if any of the measures were to be considered for implementation.

Supporting measures

Information monitoring, assessment and reporting measures may be used to support any of the above approaches. Any reactive measures, including relaxation of the gearing cap or relaxation in minimum liquidity requirement in case of a potential risk of financial challenge or financial distress, would be informed by monitoring key EWIs.

Metrics within the four financial distress dimensions

A combination of quantitative and qualitative key metrics can be used to monitor the impact of each measure on each of the four dimensions of financial distress. This could be used in addition to metrics that would be normally used to monitor the progress of the expansion project.

This Report considers metrics across the four key financial distress dimensions in addition to project deliverability.

The key metrics considered have a varying degree of correlation and expected interaction among themselves. Monitoring mechanisms should aim to avoid relying on multiple metrics that reflect the same underlying risk, while ensuring that all key risks are covered.

Furthermore, the key metrics have different degrees of lag time in capturing the movement in the underlying factors. The strength and quality of quantitative forward looking metrics depends on the strength and quality of the underlying assumptions used in the forecast.

Finally, it is important to bear in mind that tracking debt-related metrics only (as set out in section 3.3.2 in further detail) is not sufficient for the full understanding and monitoring of financial distress. For example, the ability of the equity to step in to mitigate risks under various scenarios is a key aspect of financial robustness that should be tested.

8.3 Existing measures and assumptions

The regulatory measures embedded in the current regulatory regime may already provide the promoter with some protection against the risk of financial distress. The assumptions made for the purposes of the stylised financial projections for this analysis may also

[90] https://www.gov.uk/government/news/government-decides-on-new-runway-at-heathrow

provide additional protection. These should be acknowledged before assessing potential regulatory approaches.

Measures within the current regulatory regime

The current regulatory regime includes a number of measures that may protect a promoter against financial distress. The extent of protection offered to the promoter depends on the nature of the regulatory regime. The current protections include:

- Sharing of certain cost risks with customers, including for items such as security costs;
- An ex-post review of Capex overspend to allow it to be reflected in the following regulatory settlement, if appropriate;
- The development Capex adjustment provides a return on overspend of development Capex on a forward-looking basis, i.e. if an overspend is forecast and included in the calculation in the charges consultation presented in the preceding August, then charges could be adjusted upwards accordingly. Any reconciliation with actual spend would be made in subsequent periods.

Measures embedded in the stylised financial projections

The stylised financial projections include a number of assumptions which may also provide some protection against financial distress. In addition to the stylised modelling of the regulatory measures currently in place, the following assumptions are made:

- An increase in the allowed return by 0.5% post Q6;
- The promoter can borrow against the nominal RAB up to the current gearing level but cannot gear up above this level;
- The promoter can borrow against a Capex overspend up to the current gearing level;
- In a situation of financial market shock, a revolving credit facility is assumed to be available and can be fully drawn down. This assumes the standby liquidity facility is from a bank or financial institution of acceptable credit rating and the facility is available for the period of construction. If the facility is not available for drawdown, an equal amount of equity would be required (as the facility is assumed to be used only where there is no surplus available for distribution and no cash balance in the business);
- Foreign currency risk is fully hedged by the promoter;

The financial projections assume an extrapolation of the assumed current financial structure of the promoter.

9 Gearing cap regulation

9.1 Description of the regulatory approach

The CAA has asked KPMG to explore gearing cap as one of the potential regulatory approaches to limit the likelihood of financial distress. This section considers the hypothesis that a regulatory intervention to control gearing could generate a financial buffer, reduce the level of financial risk, and increase robustness to financial distress risks.

The effectiveness of a gearing cap approach will depend on its impact on: (a) an improved financial risk profile; and (b) a well-timed relaxation of the gearing cap by the Regulator at times of financial challenge or financial distress to allow the promoter to use the additional debt capacity.

Gearing cap regulatory measures can be categorised on two dimensions, as 'rules-based' or 'incentives-based' mechanisms:

- **Rules-based**: a gearing cap sets an explicit constraint on the debt to asset ratio.
- **Incentives-based**: an adjustment to the tax allowance could provide a disincentive from increasing leverage. This could provide an incentive to reduce gearing instead of introducing an explicit gearing cap. Any such measure may also take into account the impact of anticipated changes in the tax treatments (e.g. the Base Erosion Profit Shifting (BEPS) initiative).[91]

Other measures may have a similar effect as the gearing cap regulation, i.e. reduce actual gearing adopted by the promoter and provide a minimum debt capacity that may be used in the case of a shock. These include:

- **Implicit constraint**: A minimum requirement for standby liquidity facilities could require the promoter to have sufficient headroom in the Base case to draw this facility without breaching existing triggers and covenants. This could, implicitly, constrain the promoter's ability to gear up in the Base case. If the standby facility is considered outside of any gearing requirements, then the impact would be different as it would not necessarily imply de-leveraging per se. The quantum of standby facilities available to the project and to the business overall would be limited by lenders' views of the underlying credit risk; any facilities would also include a cost of carry. Section 10 on the minimum liquidity requirements considers standby facilities as part of cash equivalents.
- **Need-based**: A restriction on distributions would limit the cash flow to equity while operating cash flows are not impacted. This would also reduce the need for debt finance.

In line with the CAA's requirements, this Report focuses on direct, 'rules-based' regulation of gearing (i.e. a gearing cap) and its potential effectiveness.

[91] As a result of the OECD's Base Erosion Profit Shifting ("BEPS") initiative, the UK Government announced in the 2016 Budget its intention to introduce new rules to limit interest deductibility for UK corporation tax purposes on both related party and shareholder debt. These rules are likely to take effect from 1 April 2017 and HMT is currently consulting on the detailed policy design and implementation of the proposed interest limitation rules into UK tax legislation. It is anticipated that further rules will be developed to ensure that the restriction does not impede the provision of private finance for certain public benefit projects (i.e. infrastructure) in the UK where there are no material risks of BEPS and also to address volatility in earnings and interest. Any impact of BEPS on airports or new runway project is not within the scope of this Report.

9.2 How the approach is tested

The key steps in the analysis testing a potential gearing cap measure include:

1. Defining the gearing cap measure;
2. Initial calibration of the measure; and
3. Evaluation of the effectiveness of the measure across the four dimensions of distress specified earlier (i.e. funding challenge, liquidity, debt financeability and equity financeability) under financial market disruption, demand and Capex shocks.

Definition of the gearing cap measure

A potential gearing cap mechanism could be defined as follows: *A gearing cap target based on Net Debt at sub-junior level to be achieved three years before the peak Capex spend year using the Base case Capex spend profile. The gearing cap target is maintained till the year in which at least 85% of the forecast Capex spend is completed. A target gearing is also set for each of the years before and after the years in which the gearing cap is achieved and maintained.*

The potential approach to setting the gearing cap is based on the following considerations:

- In principle, the promoter has various resources available to meet a particular gearing cap target, e.g. through restricting distributions; reducing reliance on debt; bringing in additional equity (when required); or a combination of these and other approaches.
- It is assumed that a gearing cap target could be met by the promoter without bringing in additional equity, for example by retaining some of the distributions during the project development. However, there may be a need for a gearing cap to be met over a defined period of time, in which case the promoter might need to bring in additional equity to meet this regulatory requirement.
- Phased implementation of the gearing cap target: for the purposes of this analysis, it is assumed that a gearing cap target is introduced for each of the years up until 2021 (i.e. three years before the peak Capex spend year) and after 2027 (or later, if there is a delay in completing 85% of the forecast project spend).
- The annual gearing cap target may be pre-set taking into consideration forecast distributions. The annual gearing cap target is assumed to apply for some period after 2027 as well so that there is continued (albeit reducing) level of maximum gearing based on the financial buffer available as the project construction reaches completion and undergoes testing and commissioning.
- The gearing cap target can be tested annually or more frequently. The CAA may consider an approach whereby the gearing level is measured monthly. Under the monthly testing approach, the promoter could be required to demonstrate compliance with the measure on a rolling average basis over a certain period of time. This may be accompanied by a restriction on the extent to which gearing may exceed the threshold in any given period.

Initial calibration of a gearing cap measure

An illustrative specification and calibration of this measure can be based on the following three principles.

1. Firstly, for a gearing cap to be effective, it will need to be set at a particular level:
    - Lower than the gearing achieved in normal business conditions, i.e. before the start of the new runway project implementation. The difference between the current level of gearing in the normal business conditions and the gearing cap during runway project would represent the extent to which the measure may be able to mitigate the impact of any risk scenarios during the implementation of the runway project;

- Lower than the level of gearing restriction(s) set by the existing lenders which are already in place; and
- Higher than the notional gearing. This would allow for a level gearing potentially closer to the efficient level, within a regulatory assessment period. It would create the challenge in establishing an appropriate gearing level at the time of regulatory assessment.

2. Secondly, a gearing cap measure should not be unduly restrictive or require the promoter to incur disproportionately high cost, or result in a significant increase in the cost of capital. An unduly restrictive and costly measure in itself can introduce a level of financial challenge for financing. A narrow or restrictive gearing cap measure could also restrict the business from achieving an efficient financial structure in the medium and long term. For example, the promoter may have to significantly alter the financing strategy that it would have otherwise deployed to achieve an efficient financial structure in the longer-term, and hence could increase the cost of capital.
3. Thirdly, for an existing company, any approach to setting a gearing cap measure would need to be mindful of the prevailing levels of gearing and the extent to which the proposed gearing cap deviates from the current level of gearing. It may not be reasonable to expect additional equity to be bought in to bridge the entire gap immediately and therefore the promoter may need to be given time to achieve the target gearing cap along a pre-agreed 'glide path'.

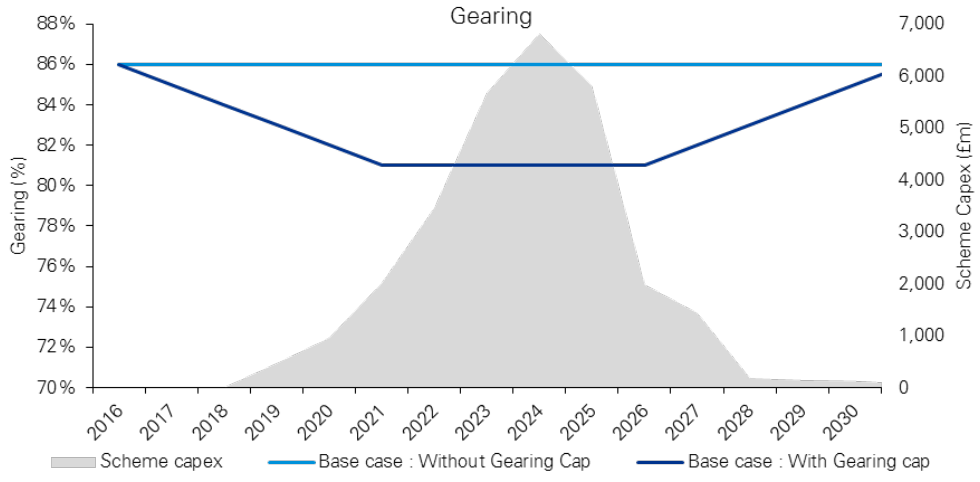
Based on the above principles, this illustrative analysis assesses the effectiveness of a gearing cap target assumed to be 81%.

The analysis assumes that the gearing cap target is achieved by 2021, three year before the peak Capex spend year of 2024. The gearing cap is maintained from 2021 to 2026, and thereafter relaxed from 2027, with the cap reaching the level from before the regulatory measure is in place by 2031.

These assumptions are made for illustration only and not should be assumed to reflect the appropriate level of this measure to be adopted.

The figure below illustrates a potential gearing path with and without a gearing cap regulation, against the scheme Capex.

Figure 22: Gearing in Base case with and without gearing cap [Source: KPMG analysis]



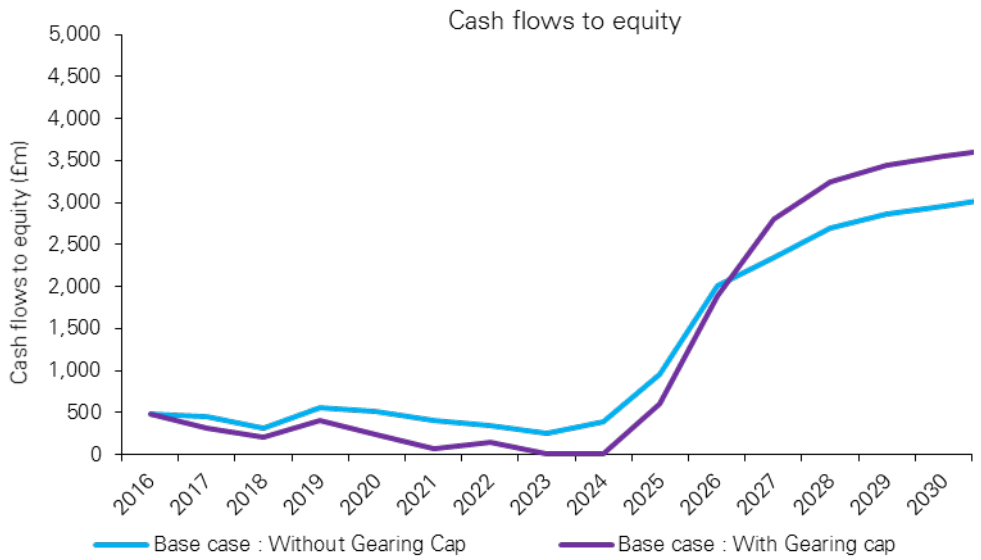
Achieving the gearing cap through reduced distributions: The modelling is based on the promoter retaining some or all of the surplus that would otherwise have been distributed (with no new equity being invested) to reduce the quantum of debt issued and bring the gearing down on the 'glide path' towards the target. A minimum cash balance of £400m is also assumed to be maintained throughout the construction period.

If the gearing cap measure is implemented without a glide path, the promoter would be required to bring in additional equity to meet the regulatory requirement. Based on the forecast 2017 estimates, this would imply a requirement potentially to retain the entire estimated cash flows to equity of c£450m and also to bring in an additional c£400m of equity to comply with the above definition of the gearing cap.

The figure below illustrates how the gearing cap is achieved by reducing distributions and then later how it allows for increasing cash flows to equity as it is gradually relaxed.

The delta between the two cash flows to equity lines up to 2024 represents the amount of cash withheld to meet the gearing cap target. From 2027, the cash flow to equity with the gearing cap measure is higher as the gearing cap is gradually relaxed to reach the current level of gearing by 2031.

Figure 23: Cash flows to equity in Base case [Source: KPMG analysis]



9.3 Quantitative assessment of the effectiveness of maximum gearing regulation

Overall effectiveness

A gearing cap measure would create a financial buffer enabled by reduced gearing. The effectiveness of the gearing cap measure would be based on:

- **A reduction in financial risk**: De-gearing would reduce the debt financing requirement (but increase equity financing), improve free cash flow (liquidity), and debt financeability ratios. This would enable the project to withstand additional business and financial risk;
- **A reduction in exposure to debt markets and any potential debt market disruption**; and
- **The promoter having an additional debt capacity in the Base case:** The Regulator can relax the gearing cap in specific circumstances thereby providing flexibility to the promoter to raise additional debt. This might be particularly applicable in the case of a Capex shock.

The benefits of a gearing cap come at a cost to equity, due to reduced distributions (and/or additional equity injections) over the 'glide path' and during the entire period over which the cap is applied. Customers may face increased charges in the Base case, if a lower level of gearing is reflected in a higher allowed WACC in line with the resulting higher cost of capital.

Effectiveness in a financial market disruption

The following sections present the results of the analysis of potential effectiveness of this measure in case of the financial market disruption, demand, and Capex shocks, as defined before. For demand and Capex shocks, one of the severe shock scenarios is considered to test the effectiveness of the measure.

A minimum debt capacity could be effective in a situation of *non-prohibitive financial market disruption* (scenario 1A).

A lower debt financing requirement could reduce the promoter's exposure to increases in cost of debt, limit the impact on cash flows, and support higher Interest Cover and FFO/Debt ratios.

Based on stylised financial projections, a gearing cap could reduce the impact of a 300bps increase in the cost of debt over a three year period by c£100m per year between 2024 and 2028.

In the Base case, the improved financial risk profile may also enable a higher credit rating and hence lower the cost of debt for the promoter.

In a *prohibitive financial market disruption* (scenario 1B), the impact of the approach would be limited and additional action by the promoter would be required. In this case, the equity would need to provide financial support until debt markets recover. On recovery in the debt market, the equity should be able to recover any short-term support it has extended during the disruption period.

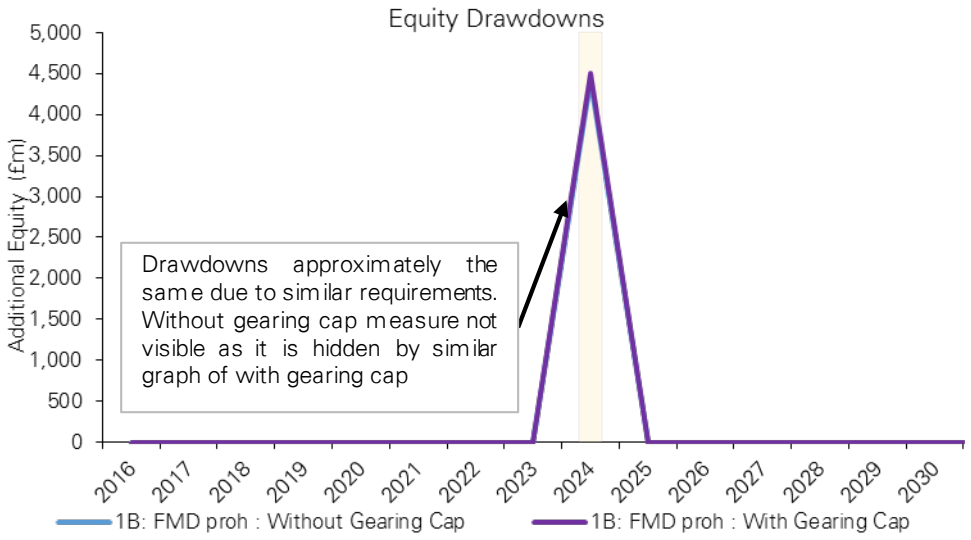
The requirement for equity to bring in about £4.5bn to meet the project costs in 2024 (when the debt market is assumed to be unavailable) cannot be mitigated by the gearing cap measure.

Although the gearing cap reduces the debt requirement in the Base case for 2024 by about £400m, this benefit is offset by the reduction in distributable surplus by a similar amount in the same year since the cash flows to equity are used to meet the gearing cap requirement (see Figure 23 above where the cash flows to equity under the gearing cap regulation are nil in 2024 in the Base case).

The requirement for drawdown is illustrated in the chart below.[92]

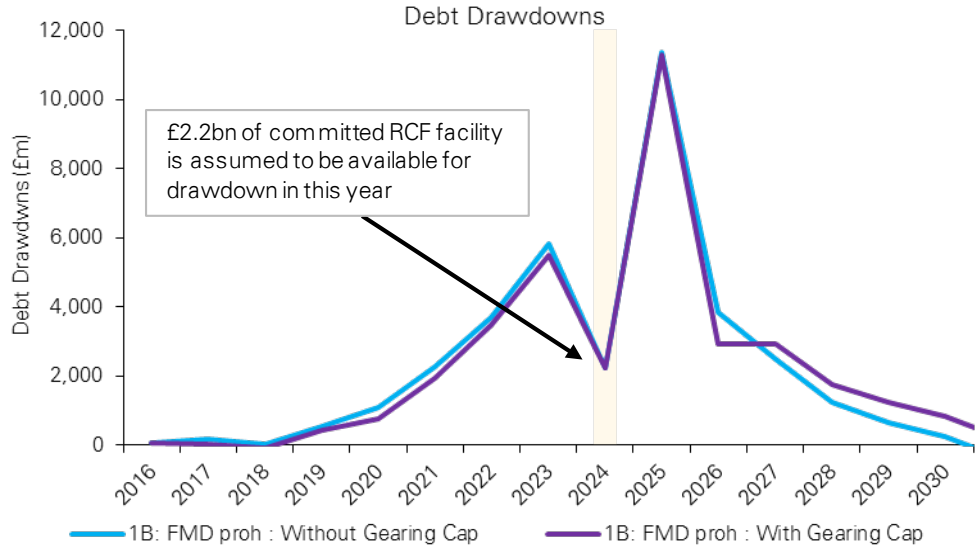
[92] The shaded areas in the graph indicate the period during which the scenarios are applied (see section 5 for further details on each of the scenarios).

Figure 24: Equity requirements in financial market disruption scenario [Source: KPMG analysis]



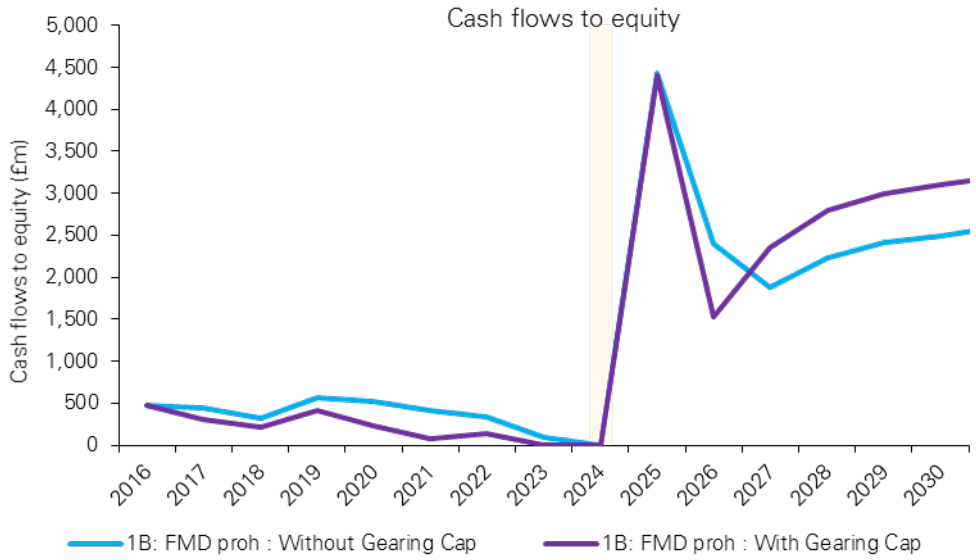
The equity requirement shown above is in addition to c£2.2bn of standby RCF facility being drawn (in both with and without gearing cap cases). In the event of a difficulty in accessing the standby facility, this amount would also need to be met by equity.

Figure 25: Debt requirements in financial market disruption scenario [Source: KPMG analysis]



The additional equity amount is released to equity once the debt market recovers leading to a 'spike' in the cash flow to equity in 2025 as shown below.

Figure 26: Cash flows to equity in a financial market disruption scenario [Source: KPMG analysis]



Effectiveness in a demand shock

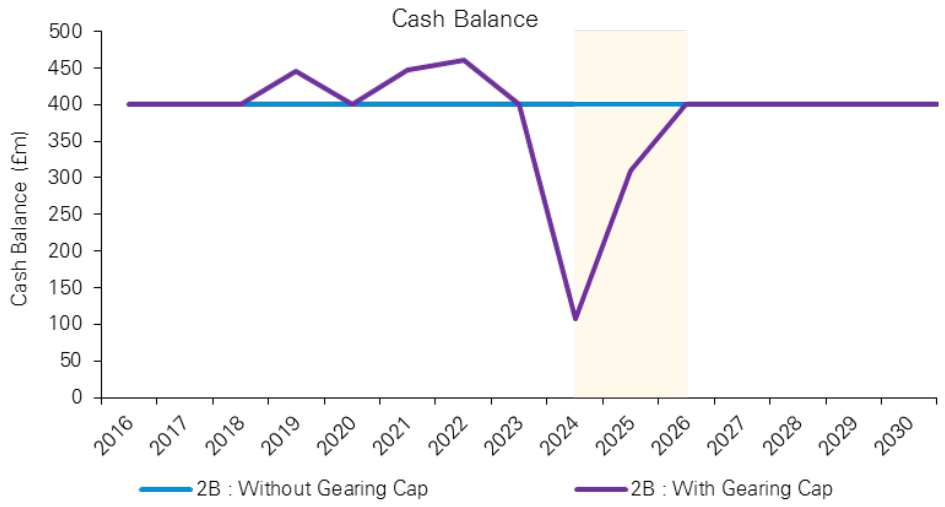
In the case of a ***demand shock***, additional debt capacity may help to mitigate the risk; but this may not provide significant additional benefits compared to the status quo.

In the Base case, the gearing cap measure could result in an improvement in post financing costs cash flow due to reduced interest costs. At the same time, the lower level of cash flows from operating and financing activities due to maximum gearing regulation could reduce the extent to which cash flows may be available to meet any impact due to a demand shock. The impact of a demand shock will need to be met by available cash, additional equity, or relaxation of the gearing cap.

As shown in the graphs below, with the gearing cap measure as defined, a lower free cash flow due to a reduction in traffic growth by 8% followed by two years of a 1% reduction in growth compared with the Base case (Scenario 2B), would result in a reduction of the available cash balance to offset the lower free cash flow. The cash balance would be sufficient to meet the cash flow shortfall and there would be no requirement for additional requirement for equity, or the need for any relaxation of the gearing cap. Without the gearing cap measure, the impact would be absorbed by the remaining cash flows to equity without any requirement to use the available cash balance.

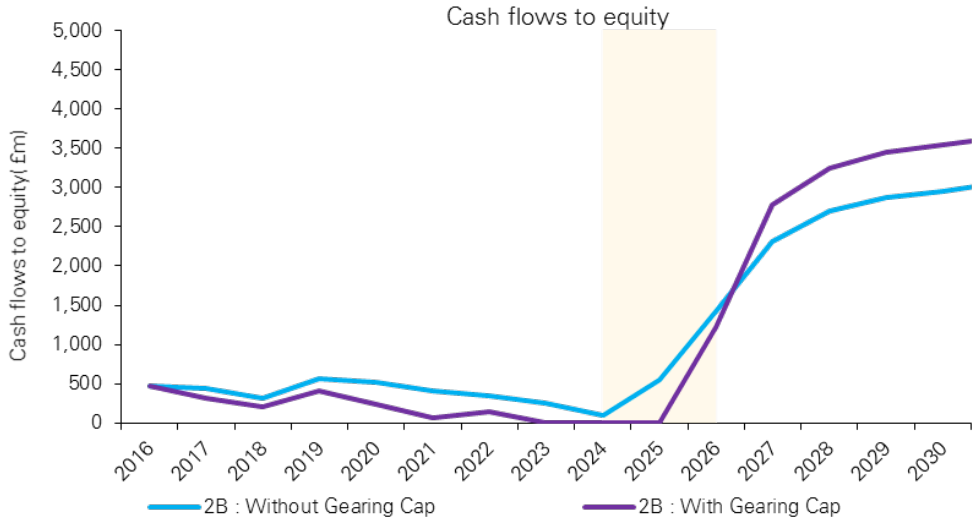
A gearing cap of 81% would lead to an increase in average free cash flow of c£300m per year and prevent the sustained fall of the DSCR into the Caa range.

Figure 27: Cash balance in a demand shock scenario [Source: KPMG analysis]



As shown on the graph above, the minimum cash balance of £400m remains constant without a gearing cap, since the reduction in cash flow during a demand shock is entirely borne by lower distributions, as shown in Figure 28 below.

Figure 28: Cash flows to equity in a demand shock scenario [Source: KPMG analysis]



Effectiveness in a Capex shock

In the case of a ***Capex shock,*** gearing regulation could be effective by creating additional debt capacity. Relaxation of the gearing cap could mitigate the impact of a Capex shock on liquidity and equity.

As noted in Section 5, the promoter may be able to meet the increase in costs due to a Capex shock using available distributions rather than an equity injection. This is enabled primarily by the promoter being able to issue debt at the target gearing on the Capex overspend (assuming that any Capex overspend is economically and efficiently incurred).

A 30% overrun in the Capex (Scenario 3B) would result in an additional c£7.2bn (nominal) Capex requirement. In the Base case without gearing cap, c£6.2bn of Capex overspend would be financed with additional debt at the target gearing assumption of 86% and the remaining spend would be financed mostly via reduced cash flows to equity.

With a gearing cap at 81%, the quantum of debt available would be reduced to c£5.9bn with the remaining financing required to be bought in by the promoter, either through reduced distributions or increased equity capital.

The effectiveness of the gearing cap is also dependent on the Regulator relaxing the gearing cap in situations of financial challenge or distress, and the promoter having sufficient time to utilise additional debt capacity.

The gearing cap measure could be also effective in scenarios where there is a disallowance of Capex overspend, as the measure provides an additional headroom over the debt covenants.

The positive impact on post-financing cash flows may have limited impact on liquidity when compared to the size of the additional Capex spend, although it protects credit ratios, mitigating the impact on debt financeability.

The improved financial risk profile with the gearing cap could help a promoter in continuing to access debt markets at competitive rates in some scenarios of an increase in Capex when debt financeability may be challenged otherwise due to scale of the additional debt requirement and the fall in the credit ratios.

9.4 Assessment of gearing regulation—other criteria

Suitability and proportionality

A regulated business in normal operating conditions (i.e. with no major Capex programme) might be incentivised to gear up to take advantage of:

- Tax benefit (tax shield) due to increased gearing, reduced equity requirements and a lower cost of capital[93]; and
- Where there is a risk of business stress or even business failure, there might be expectation of risks being shared with customers.

Undertaking a large and complex construction project may increase motivation associated with the factors listed above.

While allowing the CAA and other stakeholders a level of ex-ante assurance on the financial robustness of the promoter, a gearing cap requirement would impose additional costs on the promoter in the course of 'normal operations'. The promoter would incur additional costs from restrictions on the financing structure and, most likely, result in a higher cost of capital, which would need to be passed on to customers to make the project financially viable. It would also impose additional costs on the Regulator and on the promoter to implement and monitor such a measure, and to avoid unintended consequences.

Since the gearing cap measure imposes costs in 'normal operations' before any shocks occur or specific risks materialise, the measure may be justifiable only if the risks of financial distress are high, distress is likely to occur suddenly, if financial headroom in the Base case may otherwise be limited, when there is a demonstrable benefit of the regulatory measure in different risk scenarios, and the upfront cost is acceptable.

Limiting the timeframe for the application of such measures, for instance, only during the full or part of construction phase, could be used to limit associated costs. A gradual application of the measure can be applied such that the gearing cap level is achieved and maintained only during the years of the highest level of Capex, but the measure would be also most expensive for the promoter during the same years of peak financing requirement.

[93] This may be accompanied by higher borrowing costs, lower credit rating, etc as the gearing increases

Under alternative measures, like the tax-allowance claw-back, the promoter and the customers could lose the benefits of a higher gearing associated with a lower cost of capital, whilst still bearing the risks.

There are mixed views within the industry on such measures, for instance a joint report from Severn Trent Water and National Grid noted[94] that "*The Competition Commission appeared to reject claw back of the tax benefits of higher gearing in its report on price limits for Bristol Water, where it noted that cost of capital, financeability and tax should all be assessed using a consistent gearing assumption. However, we consider that, in order to encourage equity financing, regulators should continue to claw back the tax advantage of debt.*"

Direct costs to promoter and customers

A gearing cap measure implies an additional cost due to limitations to the optimal financing structure. In the absence of a pass through of the additional financing costs, these cost would have to be borne entirely by the promoter through significantly reduced distributions (as the distributions are restricted in order to meet the gearing cap requirement), or by bringing in additional equity. At the same time, the distributions to equity would be higher than in the Base case once the gearing cap requirement is relaxed and the promoter is able to increase leverage in due course so the impact of this measure is partly a matter of timing.

Based on stylised financial projections used in this analysis, the cost to customers, if the full cost (of the 81% gearing cap regulatory measure) is passed on, could be an increase in the WACC by c50 bps. This is calculated as an increase in the WACC required to enable distributions to the promoter (in present value terms, using a nominal discount rate of 10%, for the period up to 2030) to reach the same level of distributions as would exist without the gearing cap measure.

The Regulator may decide to pass through the cost of the measure to customers (taking into account Regulator's approach to the WACC calculation in subsequent assessment periods).

A mechanism may be put in place to ensure that the benefit of the measure is shared with customers, if any cost associated with its implementation is originally borne by customers (fully or partly), and depending on the occurrence of a risk scenario and/or a relaxation in the gearing cap.

A lower gearing threshold could be more effective in mitigating the risks of financial distress, but would come at a higher cost. Some of the cost may be mitigated by a lower cost of equity due to lower gearing; and a lower cost of debt due to potential improvements in the credit rating of the promoter and consequently a lower cost of borrowing.

Implementation

There are four main considerations in implementing a gearing cap based regulation. This Report does not consider implementation issues for any particular measure in detail, but only comments on implementation issues at a high level.

1. Setting the gearing cap level. Definition and calibration of the measure may be challenging. For example, the exact definition of gearing (e.g. treatment of different potential forms of debt) and how the cap is applied (e.g. on absolute, average or rolling average basis) would need to be set. Section 5.1.7 sets out a number of variants of the gearing definition. Heathrow is also already subject to gearing covenants, as detailed earlier. A gearing cap imposed near or above this level would have limited or no impact.

[94] http://media.aws.stwater.co.uk/upload/pdf/Changing_course_sustainable_financing.pdf

2. **Defining the triggers.** The CAA would need to agree ex-ante with the promoter the circumstances under which the gearing cap would be relaxed in order to allow the promoter to plan financing for the project and risk mitigations accordingly. This will need to strike the right balance between providing some ex ante assurance and retaining sufficient flexibility to adapt to particular circumstances.
3. **Potential for gaming the system.** Gearing cap regulations are complex and there are a number of debt-like instruments which might need to be considered in terms of scope of the measure to ensure the intended impact. The effectiveness and complexity of a gearing cap would also be impacted by the financial and ownership structures of the promoter, for instance if debt is raised using complex corporate structures.

There are a number of other considerations that the CAA might need to take into account:

- The calibration of the gearing cap would need to ensure that the promoter is able to seek an efficient, long-term financing structure, and that their normal financing routes are not restricted. Also, any such regulatory requirement would need to accommodate temporary cash flow fluctuations (for example, through a rolling monthly average measure mentioned earlier).
- Measures like a gearing cap may need to allow for a sufficient time for the promoter to achieve the regulatory target. The effectiveness of any cap will be limited by the time and cost of de-leveraging (where the cap is constraining in the Base case).
- The integration of measures within the existing financial arrangements would need to be considered.
- The measure might need to be accompanied by an appropriate and proportionate sanction in the event of a breach.
- A gearing cap requirement may also act as an additional incentive for the promoter to complete the project on time and to budget. The measure would increase the costs to the promoter of a cost overspend or a delay to the project, as in both instances the negative impact on equity might be higher when compared to the Base case.

9.5 Summary

A gearing cap measure could generate a financial buffer through reduced gearing thereby reducing the debt financing requirement of the promoter (providing equity financing is available to fill in the gap), improving free cash flow (liquidity), and debt financeability ratios.

The effectiveness of a potential gearing cap measure has been tested at a high level based on stylised financial projects for each of the three categories of risk scenarios identified earlier. Overall, the gearing cap measure has mixed effectiveness.

1. It appears that the measure could help to mitigate the impact of a financial market disruption that increases interest rates, although its impact would be limited, reducing the interest costs by c£100m per annum for a 300 bps increase in interest rate.

   It would be less effective in mitigating the impact of a more severe market disruption, where debt market access is limited.
2. Gearing regulation may support the promoter in managing a temporary cash flow impact of a demand shock, however a demand shock alone is unlikely to lead to a full distress outcome and therefore it would be difficult to justify a gearing cap regulation on this basis alone.
3. In case of a Capex shock, the additional debt capacity offered by the measure could mitigate some of the risk. However, in the absence of the gearing cap measure,

available distributions might be sufficient to meet some of the increased financing requirements. In the Capex shock scenario with a potential risk of disallowance, the measure could improve debt financeability by providing a headroom for any Capex disallowance, through relaxation of the maximum gearing cap, assuming the promoter would continue the project.

A lower gearing threshold could be more effective in mitigating the risks of financial distress, but would come at a higher cost. Some of the cost may be mitigated by the improved financial risk profile reflected in a lower cost of equity due to lower gearing and a lower cost of debt due to potential improvement in the credit rating of the promoter, but the overall cost of capital would be expected to increase with additional costs to customers.

Where there is a risk of moral hazard, the measure could prevent excessive leverage due to expectation of a degree of risk sharing with customers in case of financial difficulty. However, the need to access debt capital markets continuously to finance the project acts in a sense as a natural limitation to leverage without any regulation.

There are also a number of challenging implementation issues to be considered in a gearing cap based regulation. Implementation issues in this case are likely to be more challenging than in case of a 'steady state' business without a large Capex project.

Gearing regulation measures may also put increased pressure on the equity capital in distress, and therefore may even exacerbate the impact of scenarios where equity financeability becomes challenged.

10 Minimum liquidity requirement

10.1 Description of the regulatory approach

The CAA has asked KPMG to explore minimum liquidity requirement as one of the potential regulatory approaches to limit the likelihood of financial distress. This section considers the hypothesis that a regulatory intervention to require a minimum level of liquidity e.g. in the form of a cash reserve could generate an additional financial buffer, reduce the level of financial risk, and increase robustness of the promoter to financial distress risks.

As an ex-ante, preventative measure, a cash reserve requirement would require the promoter to maintain a minimum amount of cash to meet its future cash obligations. For comparison, a reactionary measure could include a cash lock up, whereby the promoter would be required to lock up cash in certain circumstances.

As an alternative to the cash reserve measure, the Regulator may set a liquidity reserve requirement, leaving the choice of how this requirement is implemented to the promoter (for example, the promoter could hold a cash reserve or arrange a standby facility or use a combination of the above).

If applied, a standby facility would need to be arranged in the form of bank financing, and might require minimum credit rating. The facility would need to be fully committed and available for the full duration (or most part) of the construction period.

The Regulator may also impose an increased reserve requirement, if liquidity requirements are held mostly in the form of standby facilities.

10.2 How the approach is tested

Definition and initial calibration of a cash reserve requirement measure

In broad terms, a mandated minimum liquidity requirement would provide the promoter with additional resources to manage distress risks in all scenarios. The extent of mitigation of particular risks would depend on the initial sizing of available facilities/cash reserve in comparison to the severity of the scenario.

The size of the reserve requirement can be based on a number of parameters including: (a) the forward looking cash requirements for the business (excluding distributions); (b) the forward looking Capex requirement for the runway project or some of its parts; or (c) a fixed minimum liquidity profile.

Similarly to the approach to a gearing cap, calibration of the cash reserve requirement measure would be an iterative process.

It is normal for airports to maintain a minimum level of liquidity to support their business operations. For examples, as at December 2015, Heathrow Finance reported cash and cash equivalents including term deposits of £727 million, undrawn headroom under revolving credit facilities of £1,475 million, committed term debt financing to be drawn after 31 December 2015 of £240 million, and undrawn headroom under liquidity facilities of £750 million.

As a financial regulatory measure, the Regulator would need to take into account the minimum cash balance to support the normal operations and also decide whether the new cash reserve requirement is in addition to the minimum cash balance maintained for the normal business activities.

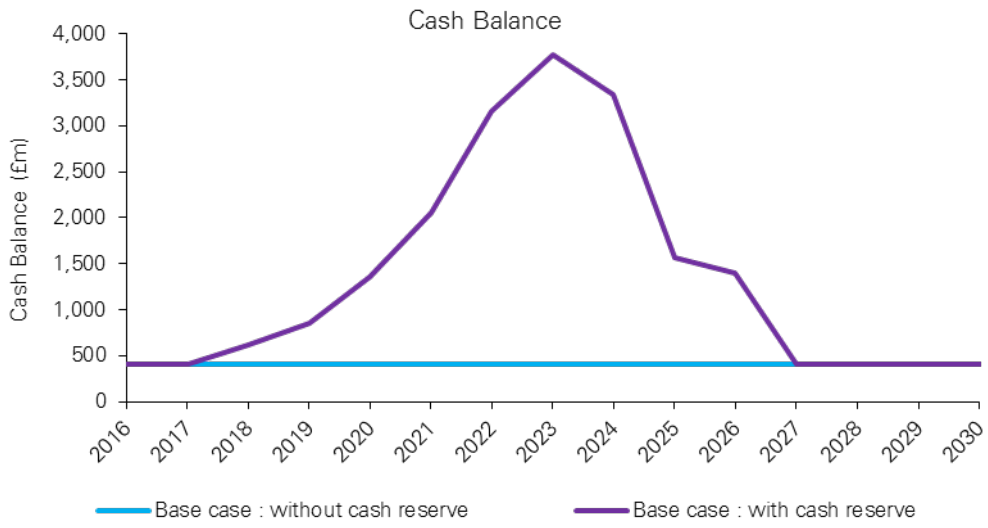
In order to assess the effectiveness of the cash reserve requirement, an illustrative analysis has been carried out. For the purposes of this analysis, no additional standby facilities are considered beyond the Base case assumption of a £2.2bn[95] standby facility.

Definition of a cash reserve requirement: *A cash reserve requirement based on 50% of the next 12 months look forward Capex requirement for the runway project, in addition to c£400m cash balance for routine operations. The cash reserve is maintained until 85% of the forecast project cost for the runway project is incurred.*

The CAA may also prescribe how the cash reserves are built up, how any standby facilities are treated, and what would be the treatment of the financial resources kept in reserve. Cash reserve balances are taken into account for the calculations of Net Debt and hence RAR.

The impact of the cash reserve requirement on the forecast cash balance in the Base case is shown in Figure 29 below.

Figure 29: Cash balance in Base case with and without cash reserve requirement
[Source: KPMG analysis]



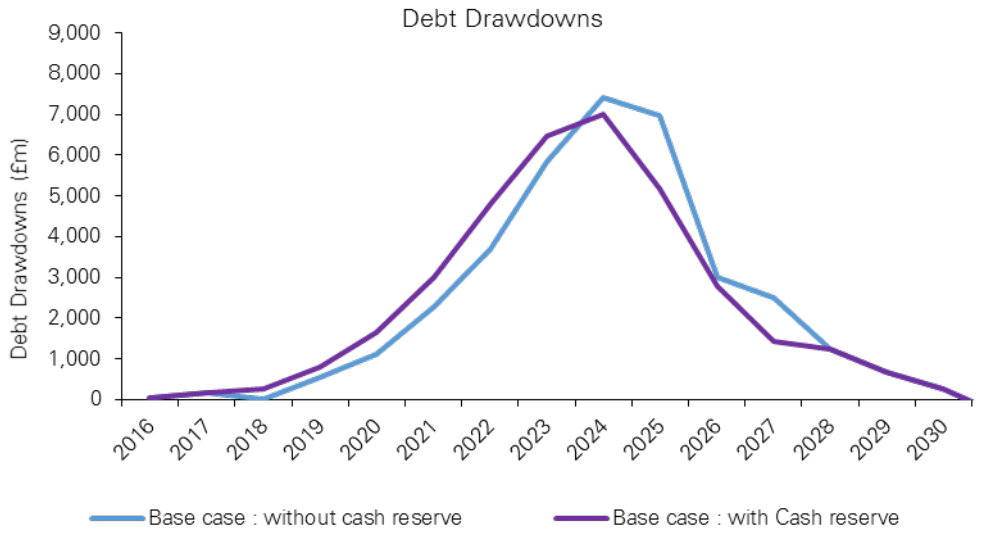
Treatment of other balances and facilities: The Regulator may decide whether the cash reserve is in addition to the minimum cash balance kept for normal operations. This may be influenced by a number of factors including: (a) in the event of a shock, all available cash would be normally used by the airport first for meeting the requirements of its operations; and (b) in the event of a risk scenario, the promoter may delay the Capex project resulting in reduced cash requirement for the expansion project.

The promoter would be expected normally to meet the forward looking liquidity requirement through a combination of additional debt and retained distributions (or, if required, an additional equity injection).

The extent of additional borrowing in the Base case with and without cash reserve is shown in Figure 30 below. The effect of the cash reserve measure is to draw a part of debt financing available in advance. When the peak Capex spend is reached, the debt financing requirement is reduced in line with the reduction in the forecast annual Capex spend. The annual debt financing requirement profile is marginally brought forward by this measure, as shown in the figure below.

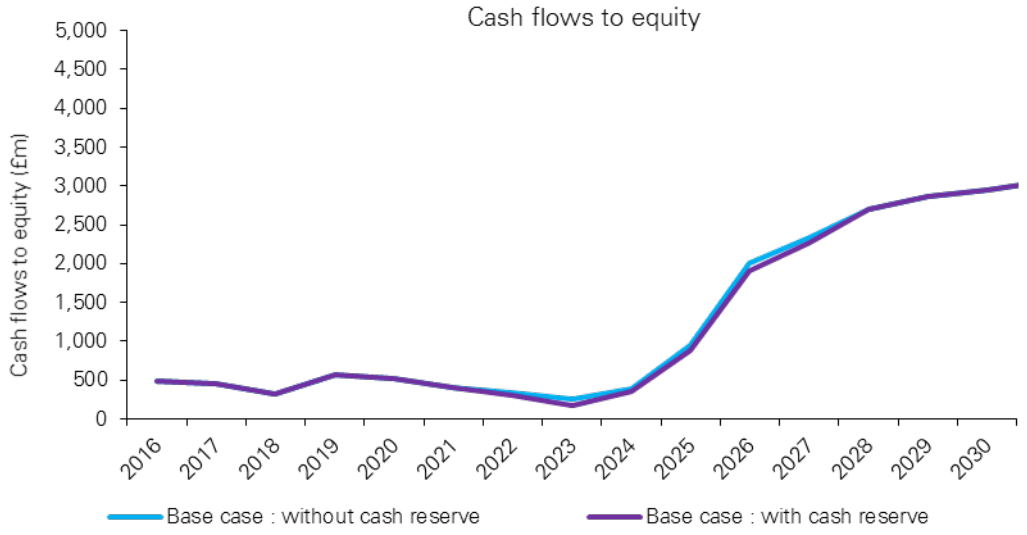
[95] The approach to estimation of the standby facility is set out in section 5.1.4

Figure 30: Debt drawdown in Base case with and without cash reserve requirement
[Source: KPMG analysis]



The figure below shows the impact of a cash reserve measure in the Base case on cash flows to equity. There is a marginal, almost negligible, reduction in cash flows to equity in most of the years when the regulation is applied. The promoter is able to maintain most of the cash flows to equity as the cash balance is available for RAR calculations.

Figure 31: Cash flows to equity in Base case with and without cash reserve requirement
[Source: KPMG analysis]



In case of specific shocks, the CAA may relax the cash reserve requirement to mitigate the impact on the promoter. This could be with the provision that the cash released through the relaxation of the cash reserve requirement is not used for distributions.

10.3 Quantitative assessment of the effectiveness of minimum liquidity

Overall effectiveness

The effectiveness of the liquidity measure could be achieved primarily by providing liquidity in the form of readily accessible cash balances (or, if permitted by the Regulator, in the form of standby facilities and/or cash equivalents).

The benefits of additional liquidity would come at a cost to equity, due to capital being bought into the business in advance of the actual Capex spend. Customers may face increased charges in the Base case, if the cost of this liquidity is reflected in a higher WACC, or in the revenue allowances more generally.

The accelerated borrowing requirement under this measure could also have an impact on some of the credit ratios. For example, the Interest Cover ratio could reduce from 2.6x to 2.3x in 2022, and the FFO to Net Debt[96] could reduce from 5.76% to 5.44% in the same year. This does not assume any reduction in the cost of borrowing.

Effectiveness in a financial market disruption

The following sections present the effectiveness of a cash reserve requirement measure in the stylised scenarios of financial market disruption, demand shock, and Capex shock. For demand and Capex shocks, one of the more severe impact scenarios is used in each case to consider effectiveness of this measure.

A minimum liquidity requirement impacts each of the financial market disruption scenarios differently. In the case of *non-prohibitive financial market disruption* (Scenario 1A), the nature of the impact of an increase in the cost of debt depends on the timing of the shock and the financial strategy of the promoter.

For example, an increase in the cost of debt in the initial years (when debt issuance is higher compared to the Base case without a minimum liquidity measure), the increased borrowing along with the increased cost of debt could have a negative impact on selected credit ratios. The impact could be about 0.1x to 0.3x reduction in the Interest Cover ratio, and about 0.20% to 0.30% lower FFO to Net Debt ratio (compared to the shock occurring without this regulatory measure).

At the same time, the promoter might be able to manage some of the impact of such a shock by adapting its financing strategy (maturity of the debt, currency, etc). The Regulator may also agree for relaxation of the cash reserve requirement, e.g. if the non-prohibitive market scenario disruption (i.e. an increase in the cost of borrowing) is considered to be temporary in nature.

This measure is also expected to be effective in a *prohibitive financial market disruption* (Scenario 1B), as the project would have immediate access to cash (subject to the Regulator relaxing the requirement to maintain a minimum cash requirement at an appropriate time) to meet its financing requirements, if the debt market becomes illiquid for a period of time.

The extent to which a cash reserve requirement could mitigate a shock modelled under the prohibitive debt market disruption scenario would be directly influenced by the approach used to set the cash requirement.

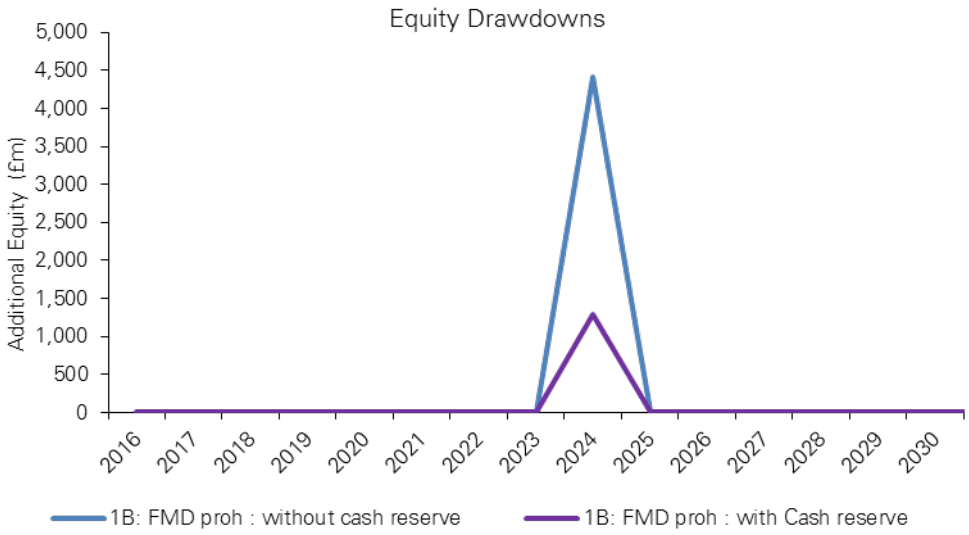
In the stylised modelling used for this analysis, a cash reserve requirement set at 50% of the next 12 months forecast Capex is assumed, which would imply that about 50% of the Capex spend in the year (or approximately 6 months of the Capex spend) can be met

[96] Moody's Rating Methodology: Privately managed airports and related issuers (Dec 2014), in footnote 7 notes "We use a measure of total (gross) debt for scoring this sub-factor, as operational airports do not typically carry large cash balances. However, analysts may find it analytically useful to also consider FFO / Net Debt when the track record of the issuer indicates material cash balances are held as part of pre-funding strategies, and this may be reflected in ratings".

by the cash reserves. This is in addition to further Capex that may be financed with committed standby facilities.

In a prohibitive financial market disruption scenario with no access to debt markets for 12 months, the cash reserve measure could reduce the requirement for additional equity from about £4.4bn without the measure to about £1.3bn with the modelled cash reserve measure.

Figure 32: Equity draw down requirement in prohibitive financial market disruption
[Source: KPMG analysis]



Effectiveness in the Demand shock scenario

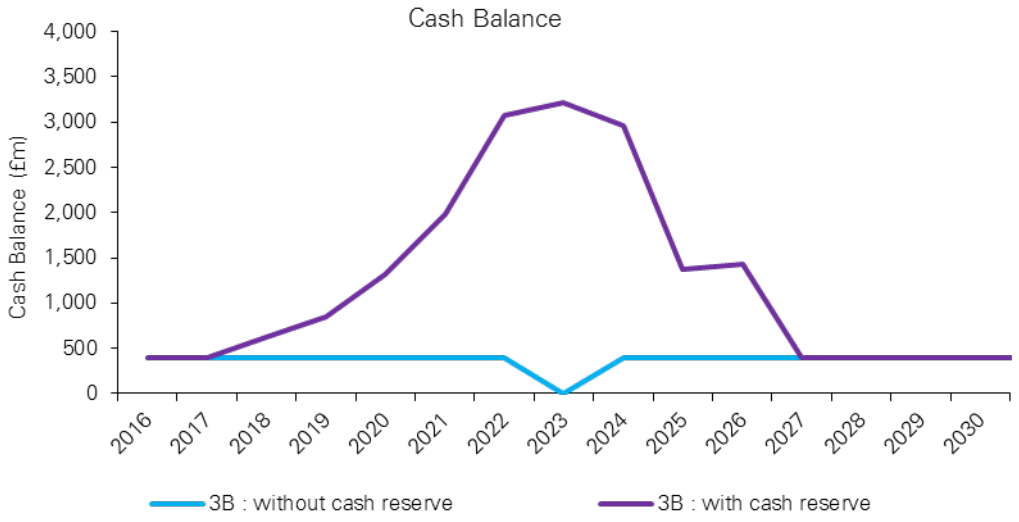
Since, as noted earlier, the ***Demand shock*** scenarios may not lead to financial distress but to some financial challenge, this could be mitigated with a cash reserve as the latter provides for a direct liquidity buffer. In isolation, improving financial resilience for this type of a shock alone may not require additional measures since the promoter may be able to manage the impact of the demand shock by using resources assumed to be available in the Base Case.

Effectiveness in the Capex shock scenario

In the ***Capex shock*** *scenario,* the additional financial buffer offered by this measure can provide support through immediate access to cash to finance any unforeseen increase in costs. As shown in Figure 33 below, based on stylised modelling, only a portion of the cash reserve might need to be used in order to meet the Capex shock assumed in Scenario 3B, implying significant headroom (of c£3.2bn in 2023) in the cash reserves, compared to a cash reserve of c£3.8bn in 2023 without any Capex shock.

For comparison, in the absence of a cash reserve regulatory measure, a Capex shock may be financed by using the entire available cash balance, available distributions, and, in addition, require a nominal c£130m equity injection in 2023. Alternatively, if the Capex shock is expected in advance, the promoter may withhold distributions in the earlier period to finance the expected financing requirement.

Figure 33: Cash balance after a Capex shock with delay (Scenario 3b) [Source: KPMG analysis]



10.4 Assessment of the minimum liquidity requirement—other criteria

Suitability and proportionality

The minimum liquidity requirement measure would impose costs in the course of 'normal operations' before any risks occur. The costs would be borne by the promoter, which, in the extreme, could undermine financial viability of the project, unless a partial or full pass through of the costs are agreed by the Regulator. Limiting the timeframe for the application of the measure, for instance by making it applicable only during some stages of construction, could limit the costs.

The calibration of the cash reserve requirement would also need to strike a balance between the requirement for a high cash reserve in case of the debt market disruption scenario and a relatively low level of cash reserve requirement in the other scenarios.

Direct costs to promoter and customers

The cost of the minimum cash reserve requirement may be measured as the difference in the return to the promoter with and without the measure.

A liquidity requirement could result in additional costs of about c£850m; this does not take into account the interest income on the cash balance, or the potential lower cost of debt due to additional financial buffer.

If the reserve requirements are met (either in part or in full) through standby facilities, then the promoter will incur commitment and arrangement fees instead of the full cost of additional capital employed; there might be also an impact on equity through increased debt, all other things being constant. These costs might be lower that the costs associated with a cash reserve, depending on specific market conditions. However, standby facilities may not provide the same level of resilience at the time of a shock unless they are assumed to be accessible at all times and without delay.

This measure could be associated with an increase in the WACC due to the cost of the additional financial capital used to provide liquidity. The extent to which customers are faced with a higher cost will depend on the degree to which it is reflected in the allowed return.

Applying a minimum liquidity reserve requirement together with an additional funding allowance

A cash reserve requirement may be combined with an additional funding allowance. The reserve requirement would prevent additional funding being distributed. The cost of meeting the requirement could be fully met by an increase in funding (e.g. it could be fully funded by customers and then returned to customers once the project is delivered). Alternatively, the cost may be shared between customers and equity holders, with the additional funding allowance applied to meet part of the requirement.

The Regulator may require the additional funding (fully or partly) to be returned to customers after the construction period depending on the outturn risks.

In the case of the Thames Tideway Tunnel, the Infrastructure Provider (IP)'s licence includes a Liquidity Building Block, which allows a return on the 'look forward' Capex spend (as reflected by forecast RAB in the following year), in order to fund the IP's cost of maintaining a liquidity to meet future project spend.

Implementation issues

The Regulator will need to set out the conditions for the cash reserve, including acceptability and terms for any standby facilities.

How the reserve requirement is defined will determine any additional monitoring and reporting requirements. This is likely to be part of the broader regulatory framework for the new runway capacity with small additional implementation cost specific to this measure.

The CAA would also need to decide on the parameters for this measure (for example, whether the measure is applied on an average monthly basis, moving average basis, annual basis, etc). This would determine the extent of flexibility offered to the promoter in managing short term fluctuations vs availability at all times. This would also determine the extent of monitoring that would be required by the Regulator.

The CAA would also need to define the conditions for the use of these cash reserves. A simple condition could be triggered with minimal intervention from the CAA.

Trade-offs with other regulatory goals and impact on promoter incentives

Given the potential cost of this measure to the promoter, there is an incentive to minimise the requirement. If the measure is based on a forward looking project Capex, this may motivate an underestimation of forecast Capex. Alternatively, the project may be re-profiled to reduce the cost of measure.

As in the case of the gearing cap measure, a cash reserve requirement would also penalise the promoter and act as a disincentive, if there is project cost increase or delay to the project. In both instances, the aggregate quantum of cash reserve required to be maintained during the construction period would increase compared to the Base case.

10.5 Summary

A minimum liquidity reserve requirement measure would provide access to immediate liquidity in case of a shock. The effectiveness of this measure has been tested using stylised financial projections for each of the three categories of risk scenarios identified earlier.

1. A cash reserve requirement, is most effective in the case of a **prohibitive debt market disruption**. Immediate access to a minimum level of liquidity enables the project to proceed despite the lack of liquidity in the debt market.
2. In the case of a **Demand risk scenario**, the financial challenge can be effectively managed by available distributions even without this additional regulatory measure.

3. In the case of a **Capex shock scenario**, a cash reserve requirement would provide additional headroom and liquidity. However, the cash reserve required is lower compared to the reserve requirement for managing a prohibitive financial market disruption risk.

The measure may also be applied alongside a funding measure to create a financial buffer in the first place; this would need to ensure that the additional funding is ring-fenced for the project.

Though a cash reserve measure would impose an additional cost to service the capital bought in advance to provide liquidity, this may be fully or partly offset by any potential improvement in the risk profile of the project. The promoter could also potentially benefit from a higher rating and a lower cost of debt, if the liquidity reserve is funded by customers, or by equity.

Based on stylised financial modelling and the assumptions discussed earlier, the cash reserve measure considered in this analysis (without taking into account any interest income on the cash reserves or any potential benefit from the improved risk profile), could result in a WACC increase of c15bps.

11 Minimum credit worthiness requirement

11.1 Description of the regulatory approach

The CAA has asked KPMG to explore minimum credit worthiness requirement as one of the potential regulatory approaches to limit the likelihood of financial distress. This section considers the hypothesis that a regulatory intervention to require a minimum credit worthiness could reduce the level of financial risk and increase robustness to financial distress risks.

This approach is based on potential regulatory measures that would ensure a minimum level of credit worthiness that would reduce financial risk. There are multiple ways to measure credit worthiness. The Regulator could apply a measure based on:

- Credit rating; and/or
- Credit ratios/other metrics.

In order to provide greater financial headroom to meet the additional risk due to the expansion project, the credit worthiness requirement would need to be set at a level higher than the level currently achieved or expected in normal business conditions before the implementation of the expansion project.

For a credit rating requirement, the Regulator would need to consider, for instance, whether the requirement is for a strong investment grade rating, or a standard investment grade rating; or whether the measure is a strong covenant or based on reasonable endeavours.

Applying a strong investment grade requirement would give additional buffer in the case of a shock, but would impose greater restrictions on the financing strategy of the promoter. A weak investment grade credit rating requirement may mean that the promoter is exposed to a higher risk of a downgrade to sub-investment grade under the same shock.

Applying a regulatory measure by imposing minimum financial ratios could provide more flexibility to the Regulator in selecting credit metrics that may allow for a more targeted approach to risk in general, or the type of risk and/or financial exposure that is especially critical. A set of credit ratios may need to be identified and calibrated by the Regulator, taking into consideration the expected financial impact of the expansion project.

For the purposes of this analysis, four credit metrics used by Moody's have been used as potential financial metrics. The Regulator may select a range of different metrics. Table 37 below provides a categorisation of some of the key financial ratios that could be considered:

Table 37: Categorization of key ratios [Source: KPMG analysis]

Category	Measures
Cash flow measures Cash flow measures are used as the basis for assessing business risks and debt-servicing ability. There are a range of measures available which are used to different extents by the different ratings agencies.	**Typical ratios**: EBITDA measures operating earnings before interest, taxes, depreciation and amortisation. Due to the limitation of EBITDA as a measure of cash flow, metrics such as funds flow from operations (FFO) are used. FFO is measured after cash payments for taxes, interest and preferred dividends. Example(s): Retained Cash Flow / Debt.

Category	Measures
Short term liquidity measures Short term liquidity measures consider the ability of a company to service credit commitments due within the year.	**Typical ratios**: The ratio of FFO to short term debt service (of gross interest and debt due in one year) is an example of the measure normally used by Fitch. Example(s): FFO/ short term debt service (principal and interest) costs
Coverage ratios Coverage ratios measure the company's ability to meet their financial obligations.	**Typical ratios**: FFO/debt is one of the most widely used ratios and is also one of the core ratios for S&P and Moody's. It indicates the cash generation ability of an entity compared to its total debt. Other measures compare cash generation to interest expenses (cash Interest Cover) or to total debt and debt expense liabilities (debt service coverage ratios). Examples(s): Cash Interest Cover: (FFO + Cash Interest Expense)/ Cash Interest Expense. FFO / Debt; or FFO / Net Debt. Debt Service Coverage Ratio (using a debt service annuity with an appropriate concession period assumption of, say, 100 years).
Leverage ratios Leverage ratios capture a company's reliance on debt.	**Typical ratios**: The most common financial leverage ratio is the debt-equity ratio. Ratings agencies, instead of referring directly to gearing focus on cash flow measures such as retained cash flow (RCF) to debt (Moody's) that provide an indicator of financial leverage as well as the strength of cash flows after dividend payments. Examples: Debt to RAB; or Net Debt to RAB. Net Debt to Adjusted EBITDA.

11.2 How the approach is tested

Assessing a credit worthiness requirement using four credit metrics

In order to test the effectiveness of a credit metrics-based regulatory measure, a set of credit metrics and corresponding thresholds would need to be specified. The approach to identify a set of relevant credit metrics is based on: (a) identification of suitable, potential credit metrics; (b) setting the appropriate threshold for each of the credit metric; and (c) assessing the impact of different scenarios on these credit metrics.

The four credit metrics in Moody's airport ratings methodology are used to assess the effectiveness of a minimum credit worthiness requirement: the Interest Cover ratio; the FFO/debt ratio; the DSCR; and the RCF/debt ratio. Ratio definitions are detailed in Section 5.1.7. For each ratio, Moody's assign bands associated with the rating grades ranging from Aaa to Caa.

The 2016 ratios are not impacted by the expansion scheme and, as such, are used to provide the baseline comparison to understand the impact of the expansion project on general credit worthiness. Other factors such as financing policy, the regulatory regime, and the promoter's competitive position in the market could also influence the rating.

The expansion project is a particularly large and complex infrastructure project in its own right. However, as set out in the assumptions in Section 1.2, the project will be carried out and will become a part of the existing airport. Based on that, it is assumed that there will be a single RAB and the cashflows from ongoing airport operations would be one of the sources of financing for expansion. In view of this, it is assumed that both the ratios and the rating bands for each of the ratios will remain the same as used by Moody's in its existing airport rating methodology. However, it is possible that the rating agencies may adapt the existing rating methodology in this case to reflect a change in the risk profile due to the expansion project.

The impact of the new runway scheme on the four metrics

An understanding of how the new runway scheme may impact credit worthiness (measured through the four metrics) provides a baseline to assess how a credit worthiness requirement could be applied, and whether it could be effective in limiting the likelihood of financial distress.

Under stylised assumptions for this analysis, the FFO/debt and the DSCR ratios fall into a lower rating band as a result of the expansion project. Under the existing regulatory regime, project Capex is not depreciated until the new assets are operational. As a result, the ratios deteriorate during the construction period before the expansion Capex starts depreciating in 2026. This is shown in the charts below.

Figure 34: Impact of runway project on FFO/debt [Source: KPMG analysis]

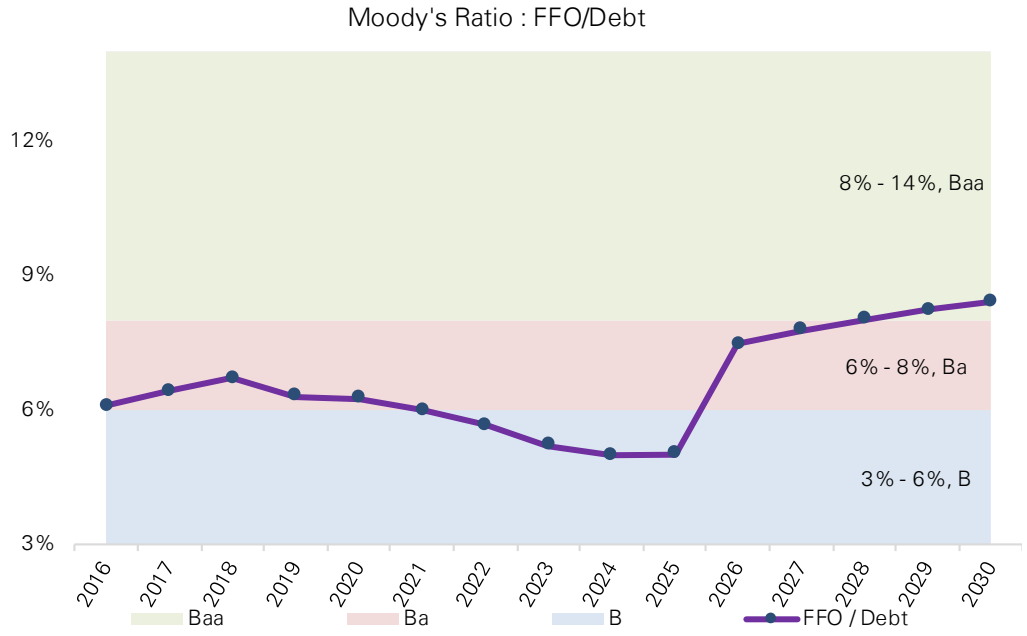
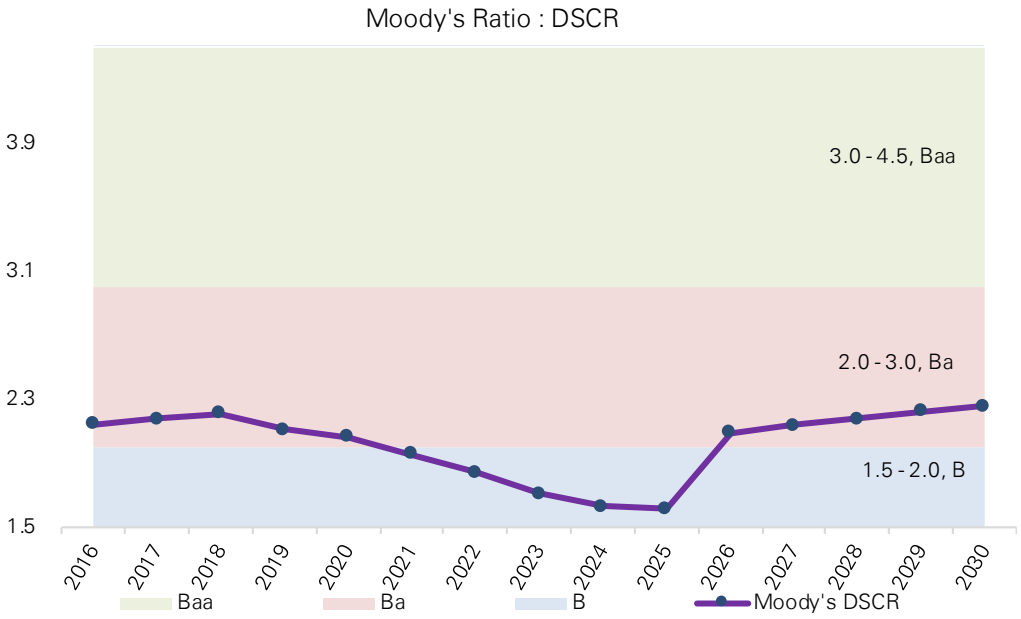


Figure 35: Impact of runway project on DSCR [Source: KPMG analysis]



In the Base case, the FFO/Debt and DSCR ratios are in the bottom quadrant of the Ba range. This leaves little headroom above the lower band. Over the construction period, the ratios move into the B-range from 2021 to 2025. This, on its own, might not imply a risk of a downgrade since the ratios are only one factor in the rating methodology.

In the case of a financial distress scenario, ratios may fall further.

Assessing a credit worthiness requirement using a minimum credit rating

A credit rating-based regulatory measure would require the Regulator to set the minimum acceptable credit rating during the implementation of the expansion project. The framework for using a minimum credit rating based measure to prevent financial distress is discussed in Section 3.4.

11.3 A ratio requirement

A ratio requirement based on current HAL thresholds

The Regulator may set a credit worthiness requirement to meet the baseline thresholds (2016). The illustrative financial projections therefore imply the following ratio requirements.

Table 38: Impact of the runway on Moody's ratios [Source: KPMG analysis]

Ratio	2016	Rating	Regulatory band
(FFO + Cash Interest Expense) / (Cash Interest Expense)	2.30	Ba	1.8 : 2.5
FFO / Debt	6.10%	Ba	6.0% : 8.0%
Moody's DSCR	2.14	Ba	2.0 : 3.0
RCF / Debt	2.67%	B	2.0% : 4.0%

Under this measure, as a minimum, the promoter would be required to take preventative actions to maintain the FFO/Debt and DSCR metrics in the same rating band as in 2016.

The promoter would likely take measures to ensure some headroom above the requirement to reflect the increased risk at the time of implementation of the expansion project and in case a shock occurs. The additional headroom secured up front would be especially important where the likelihood of potential financial risks materialising is high

or difficult to predict. Action may be required if a risk occurs in order to keep the metrics above the required thresholds.

The promoter would have a range of options for how to achieve this requirement. For example: reduced gearing by restricting dividends, reduced costs, a re-scoping of or reduction in Capex, or, in some instances, additional equity injection.

Depending on how the measure is defined and implemented, the promoter may have discretion on the approach to meet the regulatory requirement, meaning that only mitigation of potential risks to debt financeability (and, to some extent, liquidity) would be ensured. The impact on other dimensions would depend on the promoter's actions. An up-front, or reactive, de-leveraging, while protecting debt financeability, would put additional pressure on equity.

Given the scale of the debt requirement and the structure of the existing regulatory regime, the promoter would need to reduce gearing to about 70% to avoid the above four ratios falling below the existing baseline rating thresholds. As shown in Section 9, a reduction in gearing would be effective in mitigating the impact of some of potential financial distress risks (e.g. by reducing exposure to a debt market disruption and improving the liquidity position).

Assuming that the regulatory regime and the principle of pre-funding is unchanged, and that no additional funding is provided, a requirement to maintain the existing rating band for these metrics in all the years would be costly. The cost would be higher if the promoter is required to build some headroom into the ratios to prevent the thresholds being breached in the event of a shock.

Due to the expected high cost of imposing a set of effective measures based on financial ratios, the CAA could limit the regulatory requirement to selected credit metrics, or impose higher thresholds at the cost of some effectiveness of the measure.

The Regulator could relax the thresholds to allow FFO/Debt and DSCR to drop to a lower rating band during the construction period. However, even if appropriate metrics and thresholds could be selected, a credit ratio requirement is likely to have limited effectiveness when such an intervention would be most beneficial.

11.4 A rating requirement

Credit rating agencies provide an experienced and independent assessment of creditworthiness, which takes account of a range of qualitative and quantitative factors. This makes a credit rating-linked approach attractive. Imposing a credit rating requirement (instead of requirements on certain credit ratios) removes the need to identify appropriate metrics or other indicators to be monitored and interpreted, and the need for determining the right thresholds.

A rating requirement would, to some extent, avoid the need for relying on a pre-defined list of quantitative factors that impact the financial standing of the promoter. Rating agencies typically take a more holistic view, meaning that changes in ratios over the construction period may not necessarily imply a change in the rating.

The promoter would also be expected to structure their financing to retain an investment grade, or a strong investment grade rating, during the project. For comparison, currently, Heathrow is rated at A- for Class A and BBB for Class B debt with Fitch. Moody's are expecting limited impact on the rating due to the expansions project, as referenced earlier.

It is difficult to establish the exact cost or effectiveness of a rating requirement without either clear specification of the methodology that would be applied by the rating agencies at the time of the expansion project, or obtaining a private rating. Each rating agency normally sets out a list of key credit ratios to be considered as part of its rating methodology and the corresponding thresholds, or a range, for each of the ratios, for each credit rating band. The weightings assigned to each credit metric could be different, and the approach would be informed by the overall rating methodology.

The current rating methodologies for airports provide only for normal maintenance capital expenditure but may be adapted by the rating agencies to reflect the risks associated with the implementation of the expansion project.

11.5 Non–quantitative assessment of credit worthiness regulation

Suitability and proportionality

Debt financeability is one dimension of financial distress and while customer affordability and equity financeability could be factored into the rating consideration (for example, when a major Capex project is considered), the fundamental purpose of a credit rating is to reflect the promoter's ability to meet its credit obligations.

A credit worthiness measure would be, therefore, most suitable in situations where the financial distress risk is based on movements in the credit rating or in the ratios, and where the impact is primarily on debt financeability. Based on the analysis of how the expansion project may impact the ratios in the Base case, and the main risks of financial distress, the credit ratios may not cover all dimensions of potential financial distress.

The suitability of this measure is also limited as credit worthiness metrics based on the current financial standing may not be a strong indicator of future financial standing. This is especially the case when the company is implementing a large and complex construction project, which will fundamentally change its business profile. Conversely, a requirement based on forecast metrics would have to rely on the strength of the forecast.

The use of reactive measures, based on triggers linked to the rating or key financial metrics, may provide a targeted approach that increases as risks increase, thereby ensuring the measure is proportional to the risk.

This approach also relies on the calibration and setting of appropriate triggers. A decision to link reactive measures to changes in the rating would need to be taken with great caution.

This approach is not unprecedented. For example, Ofgem changed the triggers for the cash lock up by adding additional triggers to the original condition on breaching of the investment grade credit rating. [97]

Additional implementation issues

A number of implementation issues are relevant when considering any credit worthiness -based regulatory measure:

- The existing measures are designed for normal operations. Extensive adaptation of the existing measures and careful calibration would be required to reflect project-specific risks of the final design of the expansion project.
- In case of a credit rating, neither the Regulator nor the promoter would have control of how the ratings are assessed, although the Regulator might retain discretion in terms of its implications.
- A credit worthiness approach may be constrained by the time delay between the occurrence of a breach and when the breach becomes actually visible. For example, a credit rating downgrade may occur after the event leading to the downgrade. Similarly, a deterioration in credit metrics may only be known after financial information is prepared and reported.

[97] https://www.ofgem.gov.uk/ofgem-publications/50582/changes-ring-fence-conditions-network-operator-licences.pdf

- If the risk materialises within a short time period, and no preventative action is taken, the measures under this approach may have a perverse impact. The promoter may need to take actions to meet the regulatory requirement while also trying to contain the impact of the risk with limited financial flexibility. This approach may also produce an unintended incentive to delay the project, or de-scope Capex, in order to meet ratio requirements.
- This approach may overlap with existing financing arrangements, e.g. any covenants in existing agreements to maintain minimum rating thresholds of ratings-based triggers.
- There may be also circumstances where there is a divergent view on the credit standing of a promoter, as implied by the ratios, and the movement (or the lack of it) in the actual rating, since quantitative financial analysis is only one part of the credit rating evaluation.

11.6 Summary

A minimum credit worthiness requirement would be expected to improve promoter's financial robustness, but is unlikely to be an effective regulatory measure for the delivery of the NWR scheme.

Specifically, credit worthiness measures may not cover all dimensions of financial distress (e.g. equity financeability). Currently, CAA's analysis of credit ratios as part of its licence [98] is limited to 6 ratios, all of which are primarily focussed on debt financeability, whereby the CAA analyses whether the forecast performance is consistent with a solid investment grade based on an assumed notional gearing of 60%.

In order to ensure financial robustness of the promoter, an approach based on credit worthiness might need to expand to cover other dimensions of distress, and would have to be based on the actual financial structure.

A credit metrics requirement might not be appropriate given the scale of the project; the current regulatory regime may also distort ratios. Application of a rating requirement would not be considered appropriate without a clear view on the methodology that would be used for calibration and implementation.

Both credit metrics and credit rating-based measures may be slow in reacting to a potential distress situation, and the promoter and the CAA may have limited time (as the project is implemented) to take any remedial actions based on these measures.

Moreover, the credit worthiness measures might not provide sufficient protection from the main risk scenarios without additional enforcement measures being considered.

There are also a number of other disadvantages including potential overlap with existing financing arrangements, the need for the CAA to develop a list of suitable metrics, or to rely on a third party, without a clear view of the exact methodology used.

More appropriately, such measures may be used as EWIs as part of the CAA's monitoring, assessment and reporting of financial risk.

[98] Economic regulation at Heathrow from April 2014 http://publicapps.caa.co.uk/docs/33/CAP1151.pdf

12 Cost of debt risk sharing

12.1 Description of the regulatory approach

The CAA has asked KPMG to explore cost of debt sharing as one of the potential regulatory approaches to limit the likelihood of financial distress. This section considers the hypothesis that a cost of debt risk sharing measure could reduce the level of financial risk and increase robustness to financial distress risks.

The consideration of this measure is motivated by the scale of debt requirement.[99]

There are number of ways to implement the cost of debt risk sharing (in addition to the 'fixed allowance' approach currently used by the CAA). The application would depend on how the potential adjustment is calculated:

- The measure may be applied based on a market benchmark interest rate, or on the actual cost of debt of the promoter in certain circumstances.
- The measure may be calculated based on notional or actual gearing.
- Charges may be adjusted on a forward looking basis (i.e. providing additional funding in the year the shock occurs), in the year after the shock (T+1) or later.

12.2 How the approach is tested

A number of different options for implementation of this measure by the Regulator are assessed using illustrative financial projections. These high level tests provide some insight to the effectiveness of such a measure and its potential impact.

- The forecast cost of new debt (in the Base case scenario where no risks occur) is used as the basis for the risk sharing measure (i.e. any costs over this forecast are shared). Any changes due to re-financing of existing debt are not included.
- The measure is assumed to pass on 50% of any increase in the cost of new debt compared to forecast.
- The revenue adjustment is either based on the actual gearing, or adjusted to provide a revenue adjustment based on the notional gearing level.
- The revenue adjustment is made on a forward looking basis (i.e. in year). In reality, the adjustment is likely to be made in a subsequent year, leading to an additional cash flow risk.
- The measure is assumed to apply until the next regulatory period when the WACC is re-set, taking into account the existing and forecast debt.

12.3 Quantitative assessment of risk sharing on the cost of debt regulation

Risk sharing on the cost of debt could be effective in the financial market disruption scenario, as it could help to protect liquidity, improve debt and equity financeability, but impose conditional higher charges.

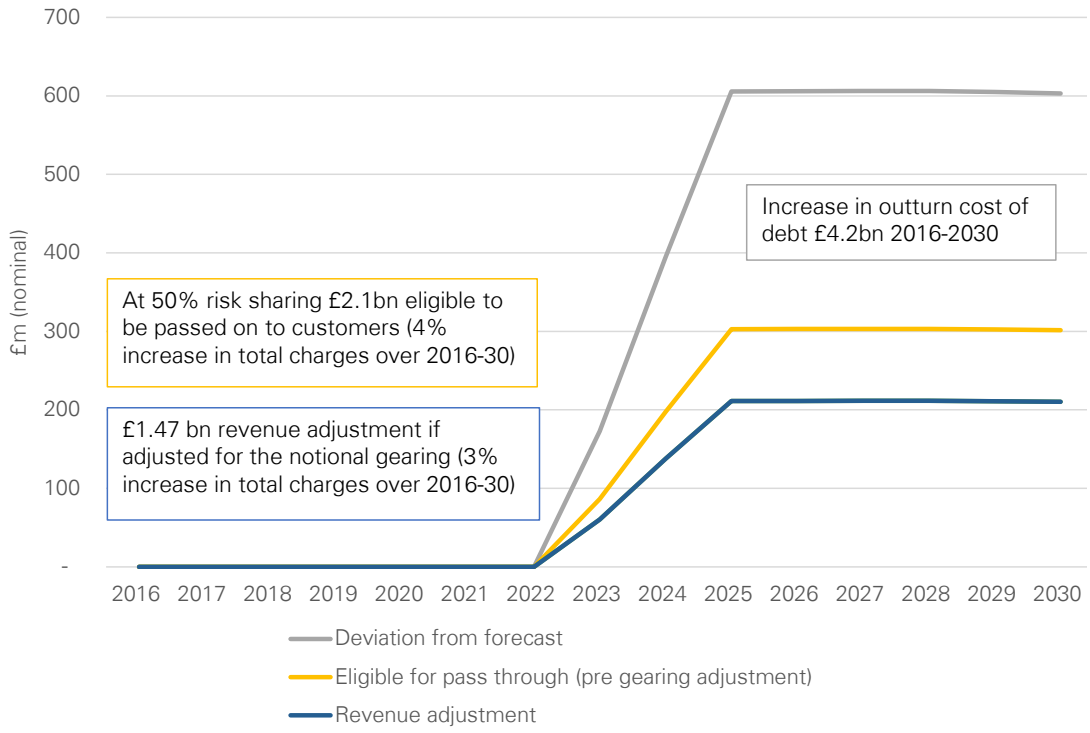
A 300bps increase in the cost of debt over the 3 years at the peak of debt issuance programme could result in an increase in the outturn cost of debt by as much as £4.2bn

[99] This Report is based on the Q6 regulatory regime and therefore does not consider any changes to the treatment of the cost of debt (including indexation of debt) that may be implemented following the recommendations of the joint study by the CAA and Ofwat.

between 2016 and 2030. The increase in the cost of debt is applied on the underlying reference rate rather than on the margin.

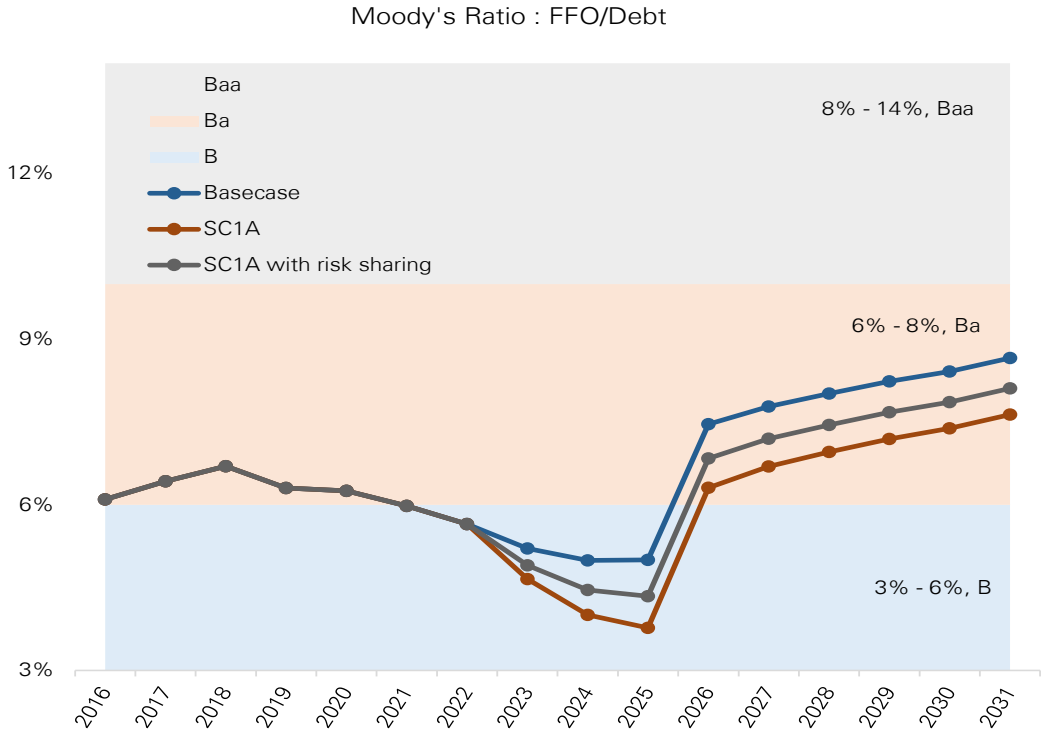
A 50% risk sharing of the cost of debt, if implemented on a forward looking basis, would protect financial robustness, increasing free cash by a cumulative c£470m over the three years of the shock, based on stylised financial projections, if based on the actual gearing, and c£330m if based on the notional gearing. Equity holders would be protected to an equivalent amount and distributions would be reduced. Customers would instead share the cost through increased charges of £2.1bn under a 50% risk sharing arrangement, or £1.5bn in case of 50% risk sharing with adjustment for notional gearing, as shown in the chart below.

Figure 36: Impact of financial market disruption [Source: KPMG analysis]



A risk sharing measure would also protect credit metrics. For illustration, the following chart shows the FFO/debt ratio in the Base case under the non-prohibitive financial market disruption scenario (SC1A) and when risk sharing is applied.

Figure 37: Impact of debt risk sharing on FFO/debt [Source: KPMG analysis]



The effectiveness of such a risk sharing arrangement would be limited during in the prohibitive financial market disruption scenario since the main cause of distress in this scenario is assumed to be the lack of liquidity. The additional cash flow provided by this measure would be limited compared to the additional cash requirement if debt is not available.

12.4 Non–quantitative assessment of the cost of debt regulation

Suitability and proportionality

The cost of debt sharing measure has the benefit of being set ex-ante, but there is no cost to either customers or the promoter unless a shock occurs, i.e. the measure is proportional to the risk and efficient, providing that the cost of debt financing is still minimised.

The application of this measure would be consistent with the fact that, at the time of implementation of the expansion project, the promoter would have limited flexibility on timing of debt issuance without materially impacting project delivery in the event of a financial market disruption.

The measure is targeted at financial market disruption scenarios and, therefore, suitable if the cost of debt is considered a major risk, i.e. sufficient to motivate additional pass through to customers.

The measure will be also viewed favourably by the ratings agencies, which may result in an improved rating and a lower cost of borrowing in the Base case.

Implementation and costs

There are a number of alternative approaches in terms of how a cost of debt sharing measure could be applied. The CAA has considered the cost of debt sharing measure in previous regulatory determinations and has retained the current approach of a fixed allowance. A key implementation consideration for the CAA would be designing this

mechanism in a way in which it would provide the right level of risk allocation between the promoter and customers, both in terms of the upside and downside risks.

Other implementation considerations include:

- The measure may be based on a market benchmark interest rate, or may apply on the promoter's actual cost of debt, in which case the promoter's actions may also lead to an increase in the cost of debt, or lead to moral hazard. In such cases, a sharing mechanism could ensure that the promoter has an incentive actively to monitor and mitigate the risk, and to keep the cost of debt as low as possible.
- A pass through mechanism focused on the market-wide metric of the cost of debt could provide an incentive for the promoter to mitigate the risk within its control, whilst also allowing for the exogenous drivers of risk in the case of a financial market disruption to be shared with customers. However, such an approach would be less effective in mitigating a company-specific distress risk.
- There may be additional cost and complexity due to the potential requirement to adjust for notional gearing to ensure that customers do not bear the risk of excessive leverage.
- The effectiveness of such a measure at the time of a shock, and in the immediate period afterwards, would depend on how the measure is designed. A forward looking calibration would mitigate the uncertainty, but limit flexibility in its application.

12.5 Summary

A financial market disruption, leading to an increase in the cost of debt, may pose a financial challenge for the promoter (see Section 5.3). A regulatory measure to share a potential increase in the cost of debt would allow for the impact of an increase to be shared with customers. This could be appropriate given the scale of the debt financing requirement.

The effectiveness of the measure in the year of the shock, and in the immediate period afterwards, would depend on how the measure is defined and calibrated. A forward looking measure that adjusted charges in the coming year in line with interest rates could mitigate the impact on liquidity and credit ratios ahead of a shock.

A cost of debt risk sharing measure would protect both the debt and equity dimension of distress, but would pass on some or all of the additional costs to customers. These costs could be substantial due to the scale of financing required for the project.

13 Conclusions from the analysis of selected potential regulatory measures to limit the risk of financial distress

Financial distress is an important consideration in the delivery of new runway capacity

Designing, developing and building additional airport capacity in the South East will be a significant undertaking. A situation of financial distress when delivering new airport capacity may have a significant impact on customer costs and benefits, potentially delaying the operational date, and leading to higher costs.

Understanding the role of regulation in preventing, monitoring and potentially reacting to financial distress is both crucial and complex.

There is a wide range of potential preventative as well as reactionary regulatory measures available; many regulators have developed a defined set of measures to be applied in the case of a financial distress of the licenced operator. [100]

Four specific regulatory approaches

This Report presented high level analysis of a wide range of potential regulatory measures as well as a detailed qualitative analysis of each of the financial regulatory measures selected for further analysis.

Strengths and weaknesses of each of these measures were presented and informed by historical evidence of the application of these measures by other regulators.

The qualitative assessment of a wide range of potential regulatory financial measures results in a selection of four types of measures for further analysis: a *gearing regulation*, a *minimum liquidity requirement*, a *minimum credit worthiness requirement*, and a *cost of debt risk sharing*. These four regulatory approaches have been specifically chosen for further analysis in line with the CAA's instructions.

The regulatory approaches tested for its effectiveness in preventing financial distress are therefore:

1: *Maximum gearing regulation*, through either a gearing cap or a partial clawback of tax allowance;

2: *Minimum liquidity requirement* such as, e.g. cash reserve requirement with potential additional funding allowance, which could include either a cash requirement or requirement for standby facilities;

3: *Minimum credit worthiness*, requiring either a minimum credit rating or minimum ratio requirements; and

4: *Risk sharing on the cost of debt*, through sharing of a proportion of the movement in the cost of debt.

Each of these approaches consists of multiple different measures and variants, which are likely to have a broadly similar impact and are therefore assessed together.

Notwithstanding the above, detailed specification and calibration of each of the measures could still significantly affect their impact, costs, and effectiveness.

Enhanced information reporting, assessment, monitoring and strengthening of the availability of resources statement are recommended in any case and would be complementary to any of the above approaches.

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[100] For example, Ofgem and Ofwat has financial distress manuals.

Assessment of specific regulatory approaches

A combination of quantitative and qualitative considerations was explored to assess selected regulatory measures.

Regulatory measures provide benefits through their ability to prevent financial distress scenarios and to minimise the cost of financial distress to customers. The optimal regulatory package should provide the best outcome for customers based on the trade-off between the benefits of intervention and the costs, while not undermining business and financial viability of the expansion project.

Qualitative measures used to test the regulatory approaches include suitability, proportionality, direct and indirect costs of the measures, and trade off with other regulatory goals.

Effectiveness is central to the assessment of different regulatory measures and is undertaken in the following steps: (1) defining financial distress and how it can be measured; (2) understanding how financial distress could occur; and (3) assessing how measures could increase financial robustness.

The regulatory approaches are assessed based on the definition of financial distress across the four dimensions and eight distress scenarios specified in the Report.

The first two approaches (*gearing regulation* and *minimum liquidity requirement*) are more complex, but potentially most relevant in the context of financial distress.

Gearing regulation

A gearing cap could create an additional financial buffer through additional debt capacity, which can be accessed during the project, providing it is relaxed at the right time and can be actually used at that point in time. This measure effectively substitutes equity for debt, improves free cash flow (liquidity), and debt financeability ratios.

Gearing regulation would directly help to mitigate the impact of a potential financial market disruption that increases interest rates, but would be less effective in mitigating the impact of a more severe disruption where debt market access is limited.

The ex-post effectiveness of this measure would depend on the original calibration of the gearing cap level. A lower gearing threshold could be more effective in mitigating the risks of financial distress, but would come at a considerable cost to equity and the overall cost of capital.

Customers may face increased charges even in the Base case, if a lower gearing is reflected in a higher allowed WACC.

At the same time, some of the increased cost of equity may be mitigated by the improved financial risk profile reflected in the lower cost of equity due to lower leverage; and a lower cost of debt due to any improvement in the credit rating of the promoter and consequently a lower cost of borrowing.

In case of a Capex shock, the additional debt capacity could accommodate and finance additional costs. However, in the absence of the gearing cap measure, available distributions might be effective on their own in meeting some of the increased financing requirements.

In a Capex scenario with a potential risk of disallowance, the measure could improve debt financeability by providing a headroom for any Capex disallowance.

Where there is a risk of moral hazard, the measure could also prevent excessive gearing by the promoter motivated by the increased value of a publicly funded bailout in case of a financial distress. However, arguably, this is already achieved to a large extent by the actual financeability limitations of the promoter adopting high leverage in the first place.

Even in the presence of the gearing cap, the promoter could adopt higher leverage above the licenced entity and outside of the regulatory ring fence. This might result in a debt

overhang problem outside the ring fence and also prevent the additional equity from being injected at the time of financial difficulty.

There are also a number of implementation issues to be considered in this context. Gearing regulation measures may also put increased pressure on the equity dimension of distress, and therefore may in extreme exacerbate the impact of scenarios where equity financeability becomes challenged.

Overall, the gearing cap measure has mixed effectiveness and could be costly to implement.

Minimum liquidity requirement

Minimum liquidity requirement is tested by using a minimum cash reserve requirement. A liquidity or standby facility requirement may be considered as a cost effective alternative.

A cash reserve requirement measure is assumed to provide immediate access to liquidity in case of a shock.

Compared with other measures, a cash reserve requirement becomes most helpful in the case of a prohibitive debt market disruption.

In the case of a demand risk scenario, the financial challenge can be effectively managed by available distributions without the need for an additional regulatory measure.

In case of a Capex shock, a cash reserve requirement would provide the required additional headroom and liquidity.

The cash reserve measure also has the effect of sculpting the debt drawdown profile resulting in lower peak debt issuance, which limits the financing challenge and hence financing risk during the construction phase.

This measure may also be applied alongside a revenue funding measure to pass on some or all of the costs of this measure to customers. This could ensure the additional funding is ring fenced and earmarked for the purposes of mitigating project risks.

Though a cash reserve measure would impose an additional cost to service the capital bought in advance to provide liquidity (which could be substantial), this may be partly offset by the potential improvement in the risk profile of the project. The promoter could also potentially benefit from a higher credit rating and a lower cost of debt, although the overall costs of financing would still be expected to increase.

Overall, the minimum liquidity requirement measure would be effective, but could be also costly to implement, especially if a large financial buffer is to be created.

Minimum credit worthiness

A minimum credit worthiness requirement could have some impact on improving the promoter's financial robustness, but is not considered to be an effective regulatory measure in this case.

First, to some extent, the promoter would be expected to implement it anyway to ensure its ability to access debt capital markets in different scenarios and on the required scale.

Second, credit worthiness measures may not cover all dimensions of financial distress (i.e. equity financeability).

Also, a credit metrics requirement is not considered appropriate since the scale of the project and current regulatory regime may distort ratios. A rating requirement is equally considered to be problematic without a clear view on the methodology that would be applied. Based on the methodology applied, a company may be able to maintain an investment grade rating while one or more credit metrics used by the rating agency may be in the sub investment grade (as defined by the rating agency for each factor or credit metric in their rating methodology).

Both the credit metrics- and the credit rating-based measures may be slow in reacting to a potential distress situation to take any effective remedial actions required based on these measures.

The credit worthiness measures do not appear to provide sufficient protection from the main risk scenarios for Heathrow, without additional enforcement measures being considered.

Other disadvantages include a potential overlap with the existing financing arrangements, the need for the CAA to develop a list of suitable metrics, or to rely on a third party without a clear view of the exact methodology used.

Overall, a minimum credit worthiness requirement might be a more suitable measure to ensure financeability during normal 'business as usual' operations, and may not be as effective during exceptional circumstances of delivering a large Capex project.

These measures may, nevertheless, be used as useful, additional Early Warning Indicators as part of the CAA's monitoring, assessment, and reporting of the promoter's financial risk.

Cost of debt risk sharing

A financial market disruption, leading to an increase in the cost of debt, may pose a financial challenge for the promoter. This approach allows for the impact of an increase in the cost of debt to be shared with customers, which might be justified by the scale of the debt financing requirement for this project.

The effectiveness of this measure in the year of the shock, and in the immediate period afterwards, would depend on how the measure was to be defined and calibrated. A forward looking measure that adjusted charges in the coming year for forecast interest rates would mitigate the impact on liquidity and credit ratios starting from the year of the shock.

A cost of debt risk sharing measure would protect the debt and equity dimension of distress, but would pass on some or all of the additional costs to customers, but only in specific scenarios. These costs could be substantial due to the scale of financing required for the project.

Overall, a form of risk sharing of the cost of debt could be both effective to reduce financial exposure in some scenarios and also mean that customers do not have to pay for financial robustness in advance of the potential shock.

Overall conclusions and next steps

This Report provides the first step for the CAA to develop an appropriate regulatory response to the risk of financial distress in the delivery of the new runway capacity.

Stylised financial projections indicate that Heathrow in particular is in a relatively robust financial position, but is also highly leveraged and is facing a very significant financing need for the new project. It would be particularly exposed to a major financial market disruption or Capex shock with cost disallowance.

It is unlikely that a single measure could be effective in mitigating all potential risks leading to financial difficulty or distress. Under the assumptions made, a combination of regulatory approaches could be considered effective in reducing the likelihood of financial distress while ensuring a certain level of financial robustness, but also implying additional costs to customers.

A minimum liquidity requirement could be effective in mitigating most of the risk scenarios considered providing they are temporary and limited in scale. A cost of debt risk sharing mechanism could provide focused mitigation of a specific risk which is material in the context of a runway project without upfront costs. A credit worthiness requirement could be also considered as a precautionary measure rather than as a preventative measure and could be included as part of an enhanced information reporting and monitoring regime. A gearing cap measure might have limited effectiveness, and

could be costly in terms of its impact on the cost of capital depending on the level at which it is set.

These conclusions critically depend on the assumptions made about the regulatory regime and are based on an analysis of financial distress in isolation and based on stylised financial projections.

In reality, financial distress is only one consideration within the overall regulatory framework, and needs to be considered holistically alongside other elements of the regulatory package—for example, the approach to pre-funding, how cost risk will be managed, and how the allowed return will be set.

Any additional regulatory measures would benefit from a detailed impact assessment, cost benefit analysis, and consultation with stakeholders in addition to a clear implementation plan.

14 Glossary of terms and acronyms

ATM	Air Transport Movement
CAA	Civil Aviation Authority
BAA	British Airport Authority
Capex	Capital Expenditures
Covenants	A covenant is a promise in an indenture, or any other formal debt agreement, that certain activities will or will not be carried out.
CPI	Construction Price Index
Credit crunch	An economic condition in which investment capital is difficult to obtain. Often an extension of a recession, a credit crunch makes it nearly impossible for companies to borrow because lenders are scared of bankruptcies or defaults, resulting in higher rates.
Currency Swap	Involves the exchange of interest and sometimes of principal in one currency for the same in another currency. Interest payments are exchanged at fixed dates through the life of the contract.
Derivatives	A derivative is a security with a price that is dependent upon or derived from one or more underlying assets
DSCR	Debt Service Cover Ratio
EWI / EWS	Early Warning Indicator or Early Warning Signal
Ex-ante	Derived from the Latin for "before the event," is a term that refers to future events, such as future returns or prospects of a company
FFO	Funds From Operations
Force majeure	An event that is a result of the elements of nature, as opposed to one caused by human behaviour.
GAL	Gatwick Airport Limited
HAL	Heathrow Airport Limited
Hedging	An investment to reduce the risk of adverse price movements in an asset
Insolvency	Insolvency is when an organization, or individual, can no longer meet its financial obligations with its lender or lenders as debts become due
Interest coverage ratio	A ratio used to determine how easily a company can pay interest on outstanding debt, calculated by dividing a company's earnings before interest and taxes (EBIT) during a given period by the amount a company must pay in interest on its debts during the same period.
NATS	National Air Traffic Services
Nominal bonds	A bond which makes payments of a fixed amount, rather than a fixed real (inflation-adjusted) value.
Ofgem	Office of Gas and Electricity Markets
Ofwat	Office of Water Services
Price elasticity	A measure of the effect of a price change on the demand for a product or service.
RAB	Regulatory Asset Base
RAR	Regulatory Asset Ratio

RCF	Revolving Credit Facility
Ring fencing	The legal walling of certain assets or liabilities within a corporation
RPI	Retail Price Index
Totex	Total expenditure
WACC	Weighted Average Cost of Capital

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