



# SSRO

Single Source  
Regulations Office

*Assuring value, building confidence*

Cost risk and incentives in qualifying  
defence contracts: Recommendations to  
the Secretary of State for Defence  
November 2017

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# Summary

1. This report has been developed by the Single Source Regulations Office (SSRO) to assist the Secretary of State for Defence in concluding his first review of the Single Source Procurement Framework (introduced by Part 2 of the Defence Reform Act 2014 and Single Source Contract Regulations 2014). It addresses issues raised by the Ministry of Defence (MOD) and its single source contractors on the pricing of cost risk and incentives in qualifying defence contracts (QDCs) regulated under the Framework. The report assembles the evidence currently available to the SSRO about the pricing of cost risk and incentives in QDCs. It includes analysis of data on QDCs agreed in 2015/16 and 2016/7, the first two years of the Framework.
2. Economic theory indicates that profit-maximising companies in single source (monopoly) supply relationships will put upward pressure on prices. The converse may apply where there is only a single (monopsony) customer for a particular range of goods or services. The asymmetry of information about costs that exists between a supplier and its customer may limit the customer's ability to ascertain whether it is securing value for money. These market failures are pertinent to the acquisition by the MOD of defence equipment and support for which there is only one supplier. The current statutory arrangements for the pricing of QDCs and reporting by contractors, described briefly in Section 1 and Appendix 3, aim to address these issues and achieve a balance between value for money in government expenditure and fair and reasonable contract prices for contractors. They provide a consistent framework to inform contract negotiations. As this report and its appendices explain, there are many aspects to the pricing of QDCs. The Framework is sophisticated and capable of delivering a wide range of contract price and contract profit outcomes.
3. The MOD and its contractors both seek changes to the way that the Framework addresses cost risk and incentives that would allow for the agreement of a wider range of profits in QDCs than is currently achievable. Their proposals are described in Section 2 and include changes to the way that cost risk is addressed within Allowable Costs in QDCs and how risk acceptance by contractors is rewarded through adjustments in determining contract profit rates. The MOD believes changes will enable it to secure better value for money as it will be able to agree contracts that transfer more cost risk to contractors to incentivise better performance. Contractors believe changes will allow them to earn higher profits as a reward for bearing more risk. The SSRO agrees that contractors who take on and are successful at managing more cost risk in delivering a QDC should expect to earn greater rewards than those who do not.
4. In common with many commercial agreements, there are a variety of uncertainties and discrete risks that impact on the ability of the MOD and contractors to determine, at the start of a QDC, what the outturn Allowable Costs and, consequently, profit or price will be. Section 3 of the report describes a range of risks that were reported to us by stakeholders during our study which may impact on the delivery of QDCs. Some relate to the activities undertaken in QDCs. Others are more general business risks, which may be heightened or lowered by contracting with the MOD. Some risks can be more easily quantified and attributed to QDCs than others. Some, by virtue of their potential impact, will usually be borne by the MOD.

5. While many risks to costs have been identified by stakeholders, we note in Section 4 that it is difficult to quantify from the information available in statutory reports the scale of the cost risk in QDCs to which the MOD and contractors are currently exposed. Contractors take different approaches to cost and risk estimation and contract reports provide only a limited insight into the provisions of specific contracts. There is also limited empirical evidence of how well the QDC pricing arrangements take account of risk and incentivise contractor performance due to the small number of contracts which have so far completed. Over time, the data provided in statutory reports will offer valuable insight concerning the effect that the management or materialisation of risk has on the actual profits earned in QDCs.
6. Section 5 of this report examines variation in the pricing of QDCs using the different pricing methods permitted by the Framework. The pricing method is one of the key mechanisms for apportioning cost risk and incentivising contractors to manage this. Section 6 of the report examines the use of the cost risk and incentive adjustments that form part of the process to calculate a contract profit rate for a QDC. That section also contains simulations of how contract profit rates agreed at contract start may, subject to contractor performance, translate into actual contract profit rates at contract completion.

### Conclusion and recommendations

7. It is for the Secretary of State to decide what, if any, changes should be made to the pricing of QDCs in relation to cost risk and incentives. The SSRO is responsible for keeping the Act and Regulations under review, issuing statutory guidance, and the collection and analysis of data from QDC contractors. The SSRO notes that the current arrangements provide a good deal of flexibility around the pricing of QDCs. The analysis in this report indicates that the range of QDC profits attainable within the current Framework compare favourably to the range of corporate profits<sup>1</sup> reported by the MOD's prime contractors. The SSRO has previously considered the financial health of the MOD's single source supplier base and concluded that they were, in general, attractive to investors and providing them with reasonable rates of return.<sup>2</sup>
8. We recognise that the current range of the cost risk adjustment is considered to be arbitrary and that widening the ranges of the cost risk and incentive adjustments would increase the scope for the MOD and contractors to agree QDCs with different risk sharing arrangements than they appear able to at present. We understand that doing so may be advantageous to reduce the MOD's exposure to cost risk and to reduce the potential for contracts to be exempted from the Framework and, therefore, not subject to regulation. However, there are aspects of the proposals put forward by the MOD which the SSRO believes require further development or clarification prior to implementation. We highlight these below.

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1 Our analysis examined the ratio of profit (earnings before interest and tax (EBIT)) to the costs of production (turnover minus EBIT).

2 SSRO (2017) *Developing the SSRO's Approach to Calibrating Profit Rates in Single Source Contracts: Discussion Paper*; SSRO (2017) *Annual Report on the Single Source Regime 2017*.

9. We support the aim of the MOD's proposal to introduce a more quantitative and structured basis for determining the scale of the cost risk adjustment to ensure that this better reflects the risk borne by the contractor that actual Allowable Costs vary from estimated Allowable Costs. However, we would welcome sight of the MOD's assessment of the data available to commercial teams to implement the proposal. It appears that the data required to calculate cost risk adjustments using the method proposed is only likely to be available for larger projects. Even where available, different estimation practices pose a challenge to the consistent assessment of risk in QDCs. We would also welcome sight of the MOD's proposals for pricing cost risk in QDCs where data from cost models is not available. In the short term, modifications to the SSRO's statutory guidance on Allowable Costs and adjustments to the baseline profit rate, or to the MOD's internal guidance for commercial teams, could provide further clarity for the contracting parties on how data from cost models, where available, among other factors might inform the agreement of the cost risk adjustment for a QDC.
10. At present, the legislation requires a baseline profit rate set by the Secretary of State (the starting point for determining the profit rate for a QDC) which is adjusted up or down to reflect relative variances in the level of cost risk observed in specific QDCs. The current baseline profit rate methodology provides a robust, empirical benchmark of the profits earned by companies (including many of the MOD's prime contractors) that undertake activities similar to those performed in QDCs. It is an essential element underpinning how the Framework achieves value for money for the government and fair and reasonable prices for contractors. We understand that the proposal to introduce a quantitative and structured approach to determining the cost risk adjustment assumes that the adjustment is added to a 'floor' profit rate (which is intended to reward a contractor for providing capability where there is low or negligible cost risk). We would welcome further clarification from the MOD on the relationship of its proposed 'capability' rate to the current baseline profit rate methodology and the evidential basis on which it proposes such a rate would be determined. We consider that care should be taken that any proposed approach to pricing QDCs is permitted by the legislative framework and that it does not undermine the methodology used by the SSRO to determine its recommendation to the Secretary of State for the baseline profit rate.
11. If the MOD is minded to increase the limits of the cost risk and incentive adjustments, it should also consider carefully the circumstances in which larger adjustments may be applied, including the regulated pricing methods for QDCs described in the Regulations. The MOD would like changes to be implemented by 1 April 2018 but it has not yet completed a formal assessment of the potential impact of its proposals. An impact assessment, using data from existing and potential QDCs, would allow the MOD to demonstrate the effect of proposals on its ability to transfer cost or performance risk to contractors and the consequential impact of this on value for money for government and fair and reasonable contract prices.

12. The SSRO would welcome the opportunity to work with the MOD and its contractors to further explore and develop any change proposals. However, given the scale of the work required, we think it unlikely that this could be completed in the current cycle of legislative review. Such work might include further examination of:
  - a. the risk estimation practices employed by the MOD and its contractors;
  - b. the way that cost risk and incentive adjustments have been determined in QDCs agreed to date;
  - c. the extent to which the MOD has transferred cost risk to QDC contractors and how much cost risk it has retained related to QDCs;
  - d. the way that risk taking and risk management informs the current baseline profit rate methodology; and
  - e. the returns on capital employed by QDC contractors and shareholder value.
13. Regardless of any changes to the Regulations, the SSRO has highlighted in Section 7 some aspects of its current guidance which might be improved to aid the MOD's and contractors' assessment of the appropriate contract profit rate adjustments to account for risk transfer and to provide a performance incentive. Subject to the outcome of the Secretary of State's review of the legislation, the SSRO will consider what, if any changes are required to its guidance on risk and incentives and will consult publicly, as usual, on any proposed changes prior to implementation.
14. The SSRO welcomes the feedback it has received from stakeholders on the baseline profit rate methodology during its work on cost risk and incentives. We will consider this further in developing the approach to be taken for the 2019/20 BPR recommendation. Work to prepare the SSRO's recommendation for the 2018/19 baseline profit rate is under way using the prevailing methodology.

# 1. Introduction

## Background

- 1.1. The Single Source Procurement Framework was introduced by the Defence Reform Act 2014 (the Act) and Single Source Contract Regulations 2014 (the Regulations). It put in place measures to ensure that, when the government does not secure the benefits of competition,<sup>3</sup> contracts for military goods, works and services are priced such that:
  - a. the government obtains good value for money in its expenditure; and
  - b. contractors are paid a fair and reasonable price under those contracts.<sup>4</sup>
- 1.2. In 2016, the Ministry of Defence (MOD) reported that single source procurement accounted for around 40 per cent of its overall procurement budget.<sup>5</sup> The total price of qualifying defence contracts (QDCs) agreed by the MOD and contractors in 2016/17 was £7.9 billion (£7.2 billion of Allowable Costs and £0.7 billion of profit).<sup>6,7</sup>
- 1.3. The SSRO has a statutory duty to keep Part 2 of the Act and the Regulations under review to ensure that good value for money and fair and reasonable prices are being achieved in QDCs. The Secretary of State for Defence is expected to complete his first periodic review of the Framework in December 2017.
- 1.4. This report aims to describe the evidence available to the SSRO on cost risk and incentives. The information and findings presented in this report and the SSRO's commentary on factors that should inform any changes to the Regulations will support the Secretary of State in concluding his review of the Framework.

## Contents

- 1.5. This report considers:
  - Section 2 – what changes the MOD and contractors think should be made in relation to risk and incentives;
  - Section 3 – how risk is commonly defined, the types of risk affecting QDCs and how risk affects prices and profits;
  - Section 4 – evidence on the estimated scale of cost risk;
  - Section 5 – how the choice of pricing method and contractor performance affect contract profits;

<sup>3</sup> The Ministry of Defence may enter into a contract without competition in cases where there is only one supplier; where it has an urgent requirement; where it is deemed desirable to maintain sovereign capability; or where there are national security considerations.

<sup>4</sup> Appendix 3 provides a summary of the approach to pricing qualifying defence contracts as specified by the Act and Regulations.

<sup>5</sup> Ministry of Defence (2016) *The Defence Equipment Plan 2016*.

<sup>6</sup> SSRO (2017) *Annual Qualifying Defence Contract Statistics: 2016/17*.

<sup>7</sup> References in this report to QDCs also includes qualifying sub-contracts (QSCs) unless otherwise stated. The circumstances in which a contract becomes a QDC are described in section 14 of the Act and in Regulations 6-9. The circumstances in which a contract becomes a QSC are described in section 29 of the Act and in Regulations 58-61.

- Section 6 – how contract profit rates address risk and incentives and the potential impact of changes to the contract pricing formula;
- Section 7 – the SSRO’s thoughts on how its guidance might be developed, and where improvements in the reporting for QDCs might be useful.

1.6. Two further documents provide supporting information:

- a. a set of appendices to the main report;<sup>8</sup> and
- b. a summary of stakeholders’ written responses to a draft version of the report which was circulated as a discussion paper in early October 2017.<sup>9</sup> The discussion paper contained questions that the SSRO believed merited due consideration before any decision was taken by the Secretary of State to modify the formula for pricing QDCs set out in the Framework.

### Evidence base

1.7. The source of our evidence is identified throughout the document. The findings in this report are based on:

- information provided during 2017 by the MOD and contractors in response to our requests for evidence, in bilateral meetings (where granted), during workshops held in April, June, July and October, and in written responses to a draft version of the report;
- the SSRO’s analysis of data provided by contractors in statutory reports for 88 QDCs agreed during 2015/16 and 2016/17 with a total price of £19.7 billion (£17.8 billion of Allowable Costs and £1.9 billion of profit);<sup>10</sup>
- the MOD’s data on cost estimates for ten procurement projects;
- a desktop review of literature on risk management practice and approaches to pricing risk in international single source defence procurement regimes;
- a review of the published annual reports and financial statements for the MOD and a sample of its prime contractors<sup>11</sup> for single source defence contracts;
- issues identified by the SSRO during its consideration of referrals;

8 SSRO (2018) *Cost risk and incentives in qualifying defence contracts: Recommendations to the Secretary of State for Defence - Appendices*.

9 SSRO (2018) *Cost risk and incentives in qualifying defence contracts: Responses to draft discussion paper*.

10 Part 5 of the Regulations require contractors to submit reports to the SSRO which describe the components of contract price when contracts are agreed and at specified intervals during the life of contracts (depending on the price and duration of the contract). As of 31 March 2017, the SSRO had been notified of 97 contracts that became QDCs in 2015/16 and 2016/17. Contractors have one month after the date the contract becomes a QDC to submit reports, and as of 30 April 2017 the SSRO had received contract reports for 88 contracts that became QDCs by 31 March 2017. The analysis presented in this report is based on those reports unless stated otherwise. All data is based on the most recently submitted report as of 30 April 2017.

11 The MOD agreed QDCs with 45 contracting companies in 2015/16 and 2016/17. Many of these companies are subsidiaries of larger holding companies. The MOD publishes data annually about its spending with contractors and the holding companies with which it has the highest level of spending. Unless otherwise stated we use the term ‘prime contractors’ to mean the holding companies with whose subsidiaries the MOD has the highest level of expenditure.

- a roundtable discussion on risk transfer in public-private procurement in May 2017 attended by representatives of Whitehall departments and UK regulators; and
- engagement with professional organisations including the Institute for Risk Management, the Society of Cost Analysis and Forecasting and the Chartered Institute of Procurement and Supply.

### Exclusions from scope

- 1.8. While relevant to the issue of pricing cost risk in QDCs, the SSRO's study did not set out to examine:
- the MOD's procurement practice;
  - the MOD's project approvals process; or
  - any individual contracts.
- 1.9. This report does not address the cost of risks related to capital financing. Step 6 (the capital servicing adjustment) in the process to calculate the contract profit rate aims "to ensure that the primary contractor receives an appropriate and reasonable return on the fixed and working capital employed by the primary contractor for the purposes of enabling the primary contractor to perform the contract".<sup>12</sup>
- 1.10. While consideration is given in this report to the issue of how risk is addressed in the methodology used by the SSRO to recommend a baseline profit rate to the Secretary of State, the methodology itself was not subject to review in this study. Stakeholders made a number of comments on the methodology in response to the draft version of this report and the SSRO has responded separately to stakeholders on those issues.

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<sup>12</sup> Regulation 11(7).

## 2. Stakeholders' proposals for change

- 2.1. In June 2017, following a review that started in 2016,<sup>13</sup> the SSRO provided its recommendations for changes to the Framework to the Secretary of State.<sup>14</sup> We indicated at that time that two proposals put forward by stakeholders during our review, relating to the way that contract profit rates in QDCs incentivise contractors and reward them for bearing risk, required more detailed consideration. The proposals were:
- a. to expand the range of the cost risk adjustment (step 2 of the process to calculate the contract profit rate): currently,  $\pm 25$  per cent of the baseline profit rate to "reflect the risk of the primary contractor's actual allowable costs under the contract differing from its estimated allowable costs";<sup>15</sup> and
  - b. to increase the limit of the incentive adjustment (step 5 of the process to calculate the contract profit rate): currently up to 2 percentage points is available as "a particular financial incentive as regards the performance provisions of the contract".<sup>16</sup>
- 2.2. The proposals for change highlighted by stakeholders focus on two distinct types of risk; cost risk and performance risk. We think the relationship between them, and their combined potential to incentivise contractor performance and influence contract profit rates, make it important to consider them together.
- 2.3. The ranges of the adjustments at steps 2 and 5 are prescribed in the Regulations. They may only be changed by the MOD through the preparation of a Statutory Instrument that becomes law unless annulled by resolution of either House of Parliament. This is different to the arrangements for other elements that inform the calculation of the contract profit rate for a QDC: the baseline profit rate (step 1); the SSRO funding adjustment (step 4); and the capital servicing adjustment (step 6). These are set annually by the Secretary of State, informed by recommendations provided each year by the SSRO.<sup>17</sup>
- 2.4. The MOD and contractors have discretion within the Regulations to negotiate a cost risk adjustment and/or incentive adjustment in pricing a QDC on a case-by-case basis. The SSRO provides statutory guidance to which the MOD and contractors must have regard.<sup>18</sup> While the incentive adjustment is at the Secretary of State's discretion, a contractor may make a referral to the SSRO for an opinion or determination if it considers the cost risk adjustment is inappropriate.

<sup>13</sup> SSRO (2016) *Review of the Single Source Regulatory Framework: Call for Input*; SSRO (2016) *Review of the Single Source Regulatory Framework: Call for Input - Transparency*; SSRO (2017) *Consultation on Recommendations: Review of Part 2 of the Defence Reform Act 2014 and the Single Source Contract Regulations 2014*.

<sup>14</sup> SSRO (2018) *Recommendations to the Secretary of State: Review of Part 2 of the Defence Reform Act 2014 and Single Source Contract Regulations 2014*.

<sup>15</sup> Section 17(2) of the Act, Regulation 11(3).

<sup>16</sup> Section 17(2) of the Act, Regulation 11(6).

<sup>17</sup> The profit on cost once (POCO) adjustment (step 3) is determined using a calculation set out in Regulation 12, supported by guidance provided by the SSRO.

<sup>18</sup> The current guidance is reviewed in section 7 and Appendix 1.

- 2.5. A key control on the application of the Framework is provided by the requirement that contractors must submit statutory reports on QDCs, which include details of any profit rate adjustments agreed with the MOD.<sup>19</sup>

### Cost risk adjustment

- 2.6. In our review of the Framework<sup>20</sup> both the MOD and contractors explained that the existing range of the cost risk adjustment is not wide enough to correctly reward the diverse range of risk allocations evident across QDCs.

### Contractors

- 2.7. Beyond the purpose stated in legislation, contractors saw the cost risk adjustment as an important mechanism for addressing, on a contract-specific basis, what they perceived to be a lack of comparability in the profile of risk faced by QDC contractors and the (non-defence or smaller) companies in the SSRO's baseline profit rate comparator groups.<sup>21</sup> They noted that the  $\pm 25$  per cent range of the cost risk adjustment had been set arbitrarily and without consideration of the effect that a lower baseline profit rate would have on the range of profits available to differentiate QDCs with varying risk profiles.
- 2.8. Contractors felt that a wider adjustment would facilitate the transfer of risk from the MOD, reducing its exposure to cost risk and increasing certainty about the achievement of value for money. A broader range, they said, would allow the MOD to enter contracts that had a greater range of risks. Contractors focused on removing scope for a negative cost risk adjustment and increasing the limit of the positive cost risk adjustment. Contractors also proposed that the cost risk adjustment should not be linked to the baseline profit rate, as at present, suggesting, rather, that an adjustment that was an absolute value would better reflect the unpriced risk in a contract.
- 2.9. Contractors questioned the limitation imposed by the Regulations that the adjustment should relate only to the variation between estimated and actual Allowable Costs. They indicated that some contractor risk lies outside Allowable Costs. Examples included: risks above the contract pricing estimate; risks that were unknown at contract inception; risks arising from contract terms and conditions, such as liabilities and indemnities; disallowed costs; enterprise risks; and supply chain sustainment. The SSRO understands 'risk outside costs' to mean cost risk which is not accounted for within the Allowable Costs used in the pricing formula. The National Audit Office<sup>22</sup> notes that in the MOD's projects, risk outside costs can take two forms:
- a. modelled risks: where a cost model generates estimates of cost outcomes, the risk outside cost is the difference between the 50th percentile (used for project costing) and the 90th percentile; and
  - b. un-modelled risk: risks that are not included in the cost model but which may, nonetheless, be calculated, such as those with low probability and high impact.

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<sup>19</sup> Part 5 of the Regulations refers.

<sup>20</sup> SSRO (2018) *Recommendations to the Secretary of State: Review of Part 2 of the Defence Reform Act 2014 and Single Source Contract Regulations 2014*.

<sup>21</sup> The SSRO has responded separately to stakeholders on matters related to the baseline profit rate.

<sup>22</sup> Comptroller and Auditor General (2017) *The Equipment Plan 2016-2026*, HC 914 Session 2016-2017.

- 2.10. We provide commentary in Section 7 and Appendix 1 on possible changes to the SSRO's statutory guidance which address the issue of how risks are treated in determining Allowable Costs.
- 2.11. Contractors indicated a need for more consistent application of the guidance on adjustments by the MOD's commercial project teams. They suggested that training in risk assessment and risk attribution would be useful to avoid artificial constraints on the application of the cost risk adjustment and to improve the management of risk to reduce the total cost of acquisition. Contractors wanted a practical method for setting the adjustment that would facilitate agreement between the MOD and the contractor without the need for recourse to third parties.
- 2.12. We understand that contractors may be willing to consider taking on more cost risk if doing so gives them the potential to earn higher profits. Where contractors believe there is an unacceptable risk of making a loss, contractors may seek to push cost risk back to the MOD, for example, by agreeing cost reimbursement rather than firm price contracts, or may choose not to enter contracts.
- 2.13. Contractors commented more generally that profit made up only a small proportion of the price of a QDC. Lower profit rates would, they said, achieve only a small saving for the MOD but could have a disproportionate impact on the financial health of contractors. Contractors noted that where the potential profit to be earned in a QDC fell below the returns available elsewhere it made it hard to justify contract acceptance to investors and shareholders. Low profits, they said, could stifle innovation and limit investment in research and development. The SSRO has acknowledged previously that unreasonably low profits may result in contractors being unable to satisfy their investors' and shareholders' expectations for returns on investment. In the long term, this may result in underinvestment, with consequences for the supply of defence equipment and support.<sup>23</sup>
- 2.14. Contractors viewed the approach taken by the United States government to determining a risk allowance for non-competitive contracts using its Weighted Profit Guidelines as a more proportionate approach than that provided for by the UK Framework. They suggested that consideration be given to developing a UK version of the accepted US Guidelines. The SSRO observes that the approach to risk employed by the United States government needs to be considered in the wider context of the rules that govern that regime, which are different to those in the Framework regulating QDCs. Further consideration of how a US-style approach might be adopted in the UK would be a significant piece of work.

### *The MOD*

- 2.15. The MOD expressed a desire to increase both the positive and negative limits of the current cost risk adjustment and introduce a more quantitative and structured approach to navigating between these points. The MOD said that it wishes to encourage better performance from contractors through the use of firm, fixed or target pricing methods<sup>24</sup> for contracts, which transfer more cost risk to the contractor. It believes the use of such contracts will result in lower prices for equipment and support as contractors will be incentivised to manage risks and costs better.

<sup>23</sup> SSRO (2017) *Developing the SSRO's Approach to Calibrating Profit Rates in Single Source Contracts: Discussion Paper*.

<sup>24</sup> There are six regulated pricing methods for QDCs set out in Regulation 10(1)(b) and described in section 5 of this report.

- 2.16. The MOD reported that the current pricing constraints had resulted in a series of protracted contract negotiations. It was concerned that without the ability to offer higher profits than at present it would be unable, in some cases, to agree performance-based contracts, which would transfer a higher level of cost risk to contractors. The MOD would have to retain the cost risk in these cases. The MOD also noted in response to our review that there are contracts where the current pricing formula may not result in a contract profit rate that is sufficiently low to reflect circumstances where a contractor is exposed to low or negligible cost risk. Because of this, in several cases, the MOD had exempted contracts from regulation under the Framework.
- 2.17. The MOD provided the SSRO with information on a specific proposal that would alter the approach to how QDCs are priced to take account of the risk that Allowable Costs might vary from those expected at contract agreement. The stated aim of the proposed risk pricing mechanism is to ensure that the contractor in a firm, fixed or target-price QDC has only a 10 per cent chance of the expected Allowable Costs not being covered and its expected profit being eroded.
- 2.18. The revised approach would determine a cost-risk-adjusted profit rate by applying a percentage point uplift to a 'floor' or 'capability' profit rate (in the region of 2 to 3 per cent) that the MOD and industry would agree represented the baseline for contracts where the contractor provides capability with low or negligible cost risk. Subject to an upper limit (in the region of 15 to 20 per cent) a positive percentage-point risk adjustment would be determined on a contract-specific basis. The size of the adjustment would be set by the variability observed in the modelled cost estimates for the contract between:
- a. the expected Allowable Costs (taking account of all risks); and
  - b. the Allowable Costs at the 90th percentile (P90) of the outturn range estimated for the contract.
- 2.19. The Allowable Costs to which the contract profit rate would be applied would be the expected Allowable Costs for delivering the contract, taking account of risk. This aspect of the proposal was supported by industry stakeholders.
- 2.20. We welcome the MOD's desire to use empirical data to inform the consideration of risk in QDCs and to assist commercial teams to navigate the available risk adjustment range. However, below we identify areas where we believe clarification is needed from the MOD on its proposal to enable the Secretary of State to make an informed decision on its suitability for adoption.

- a. The MOD has not yet fully explained how its proposal, with a specified floor and ceiling and a mechanism for navigating between these points, relates to the current contract pricing formula which starts with a baseline profit rate determined annually by the Secretary of State (step 1) and adjusts this up or down (step 2) to reflect differences in the risk profile of the Allowable Costs in the contract. The SSRO's baseline profit rate recommendation is based on a methodology that has been developed in consultation with the MOD and contractors. It uses transfer pricing principles to benchmark the profits of a reference group of companies operating in Western Europe and North America undertaking activities comparable to those observed in the delivery of QDCs. Further clarification is needed on what, if any, conceptual relationship exists between the 'capability' profit rate identified in the MOD proposals and the baseline profit rate as currently determined.
- b. The evidential basis for the MOD's proposed 'capability' rate of 2 to 3 per cent for QDCs with low or negligible cost risk appears limited. The MOD should explain further the basis for determining this, considering the information provided in section 6 and Appendix 10 of this report about the risk-free rate of return on capital.
- c. Implementation of the proposal is contingent on an MOD commercial team and contractor having a cost model that provides the required metrics (expected Allowable Costs and associated P90 value) to derive the cost risk adjustment. The MOD told us that three-point estimates are required as part of the approvals process for large projects but would be disproportionate to expect for lower-value projects. Even where data is available, as contractors adopt different approaches to cost estimation, it is unclear that the method will result in a consistent assessment of the risk in contracts in order to determine how profit rates should be differentiated. The MOD should undertake a fuller assessment of the data available to commercial teams to implement the proposal and of the training or support that commercial teams will need to apply the new approach.
- d. The MOD has indicated that the approach would only be applied to larger contracts. The MOD should clarify the basis on which any threshold is to be determined and the approach that would be used to price cost risk in contracts below the threshold.
- e. The MOD should provide its assessment of the expected impact of the proposals on its ability to transfer cost risk to contractors and the consequent impact on value for money for taxpayers and fair and reasonable prices for contractors.

### Incentive adjustment

- 2.21 In our review of the Framework, the MOD and industry stakeholders supported increasing the level of the incentive adjustment. The current level was said to be too low to provide contractors with sufficient incentive to deliver enhanced performance.
- 2.22 Some industry stakeholders suggested that an increase from 2 percentage points to 5 percentage points would be desirable. Some suggested that the incentive payment should be separated from the process to calculate the contract profit rate for a QDC.

- 2.23 We were told by contractors, during our study, that the MOD's commercial teams have expressed a range of views about the purpose of the incentive adjustment and when it should be used. Contractors sought clearer guidance on the application of the incentive adjustment to ensure that that it was used consistently across project teams. The MOD acknowledged that there may have been instances where the incentive adjustment had been used to provide additional reward to contractors that might, more appropriately, have been addressed through a larger cost risk adjustment had that been permissible within the Framework. The MOD indicated that it may, in some cases, prefer to agree contracts containing an incentive for enhanced performance rather than to contract for the higher level of performance at a higher price.
- 2.24 No further evidence of the inadequacy of the current level of the incentive adjustment was provided to the SSRO, for example, on the enhanced performance being incentivised, its value to the MOD, or its cost to contractors to deliver.

## 3. Risk

- 3.1. This section describes what we mean when referring to risk and describes the types of risks affecting QDCs. It also defines cost risk. It is based on:
- a review of relevant literature and discussions with professional bodies and risk management experts;
  - what the MOD and contractors told us during our study;
  - published annual reports and financial statements for the MOD and a sample of its prime contractors;
  - the MOD's standard defence contract terms (DEFCONS) and related guidance; and
  - case examples of cost risk arising from product liability.

### Literature review: generally accepted definitions of risk

- 3.2. In this report, we use the word 'risk' to refer to the 'effect of uncertainty on objectives' in keeping with the definition used by the International Organization for Standardization (ISO).<sup>25</sup> Uncertainty arises where there is limited understanding of an event, its likelihood of occurring, or its consequences. The effects of uncertainty can be negative and/or positive and can impact on all types of objectives (for example, financial, performance, safety, environmental).
- 3.3. The MOD defines a specific incidence of risk in similar terms:<sup>26</sup>
- "A risk is a significant, unplanned, and uncertain event or situation that, should it occur, has an effect on at least one project or programme activity, or business objective... A detrimental risk is often called a 'threat'; and a beneficial risk is called an 'opportunity'."*
- 3.4. The MOD goes on to define uncertainty as the consequence of:
- "...any situation where the outcome cannot be precisely predicted. Uncertainty includes both the variability of estimates... and the potential occurrence of specific threats and opportunities."*
- 3.5. Risks can affect the achievement of objectives at different levels in an organisation, for example, strategic risks; programme risks; and operational or project risks.<sup>27</sup>

<sup>25</sup> International Organization for Standardization (2009) *ISO 73:2009 Risk Management – Vocabulary*.

<sup>26</sup> Ministry of Defence (unpublished) *Acquisition Operating Framework Preferred Terms & Definitions for Risk Management*.

<sup>27</sup> Appendix 4 summarises some key concepts of risk management.

### Workshops: risks identified by contractors and the MOD

- 3.6. During our study, the MOD and contractors told us that when QDCs are signed there can be varying degrees of risk related to uncertainty about:
- the specification of the goods, works or services that are required – for example, where the contract relates to the development of new capability;
  - the time or resources needed to deliver the required goods, works or services – because of novelty, complexity or the necessity of responding to an urgent requirement; and
  - the likelihood of occurrence, or consequential impact, of discrete or interrelated events that are internal or external to the contractor.
- 3.7. Contractors told us that some of the activities undertaken in QDCs are, by their nature, ‘risky’. Risks can arise from:
- the handling of nuclear material or weaponry;
  - the integration of components into complex systems;
  - the developmental nature of contracts which lead to one-off or low-volume outputs, minimising opportunities for contractors to benefit from learning;
  - obsolescence of components or products, particularly during projects with long delivery schedules; and
  - the reliance on government-furnished equipment, which may be delivered late or be unfit for purpose, causing schedule delays with associated costs.
- 3.8. Other risks facing the MOD and contractors are more general in nature, for example:
- supply chain risks;
  - foreign currency exchange rate movements; and
  - inflation.
- 3.9. Some general business risks may be heightened for contractors by doing business with the MOD, such as:
- schedule risks arising from delays in the MOD’s decision-making or the provision of funding approvals;
  - recruitment (for example, where special restrictions may apply about who can be employed, or where specialist skills are needed);
  - site security; and
  - cyber security.
- 3.10. Other business risks may be lower for single source suppliers contracting with the MOD, for example, the risk of failing to win contracts and the risk of non-payment.

- 3.11. We were told that some of these risks can be quantified more easily and accurately than others, using reasonable assumptions and evidence of past performance, to inform estimates of the cost of delivering a QDC. However, some risks, for example, the impact of changes in the law or the potential for recourse to a parent company guarantee,<sup>28</sup> are harder to quantify with any degree of certainty. Assessment of these risks will rely more heavily on professional judgement. Contractors indicated that risks that are easier to quantify should be treated differently to risks that are harder to quantify in the pricing of QDCs. The former would be included in the Allowable Costs while the latter would inform the cost risk adjustment. We provide commentary in Section 7 and Appendix 1 on possible changes to the SSRO's statutory guidance which address these issues.
- 3.12. We note that some risks may materialise after completion of the contract, for example, product failure. Where the contractor has provided warranties for its products, liabilities may persist for many years. In the case of so-called 'enterprise' risks, which apply across multiple activities or contracts, contractors told us it may be difficult to attribute these to QDCs in a way that satisfies the requirements for costs to be considered Allowable, although the MOD contended that this should not be the case.
- 3.13. We understand that catastrophic risks, those with very low probability but very high impact, will not usually be borne by the contractor, but by the MOD.

#### Act and Regulations: definition of cost risk

- 3.14. Cost risk is the risk that actual costs differ from their estimated value. This is defined in the Act and Regulations:

*“the risk of the primary contractor’s actual allowable costs under the contract differing from its estimated allowable costs”*<sup>29</sup>

- 3.15. Cost risk can have a negative or positive impact on contractor profits. The implications of cost risk to the taxpayer is lower or higher contract prices.

#### MOD guidance: the MOD's standard contract terms

- 3.16. The MOD has developed policy and guidance for staff on risk management that aims 'to ensure that risk is managed robustly and to a consistent level of rigour, allowing informed decisions to be made by the right people at the right time'.<sup>30</sup> The MOD has also developed policy and guidance on its approach to procurement for its commercial staff and industry partners.<sup>31</sup>
- 3.17. Where risks materialise, contract terms and conditions determine who pays or benefits. The MOD uses a number of standard contract terms and conditions (DEFCONS) in QDCs, or specific risk transfer provisions, which allocate or apportion risk to one or other party. Some of these create liabilities for contractors which, they said, could be significant. Some, in turn, limit contractors' liabilities or provide indemnity to contractors in the event of specific risks occurring. Examples of DEFCONS include:

<sup>28</sup> A guarantee by a parent company of a contractor's performance under its contract with its client, where the contractor is a subsidiary of the parent company.

<sup>29</sup> Section 17(2) of the Act and Regulation 11(3).

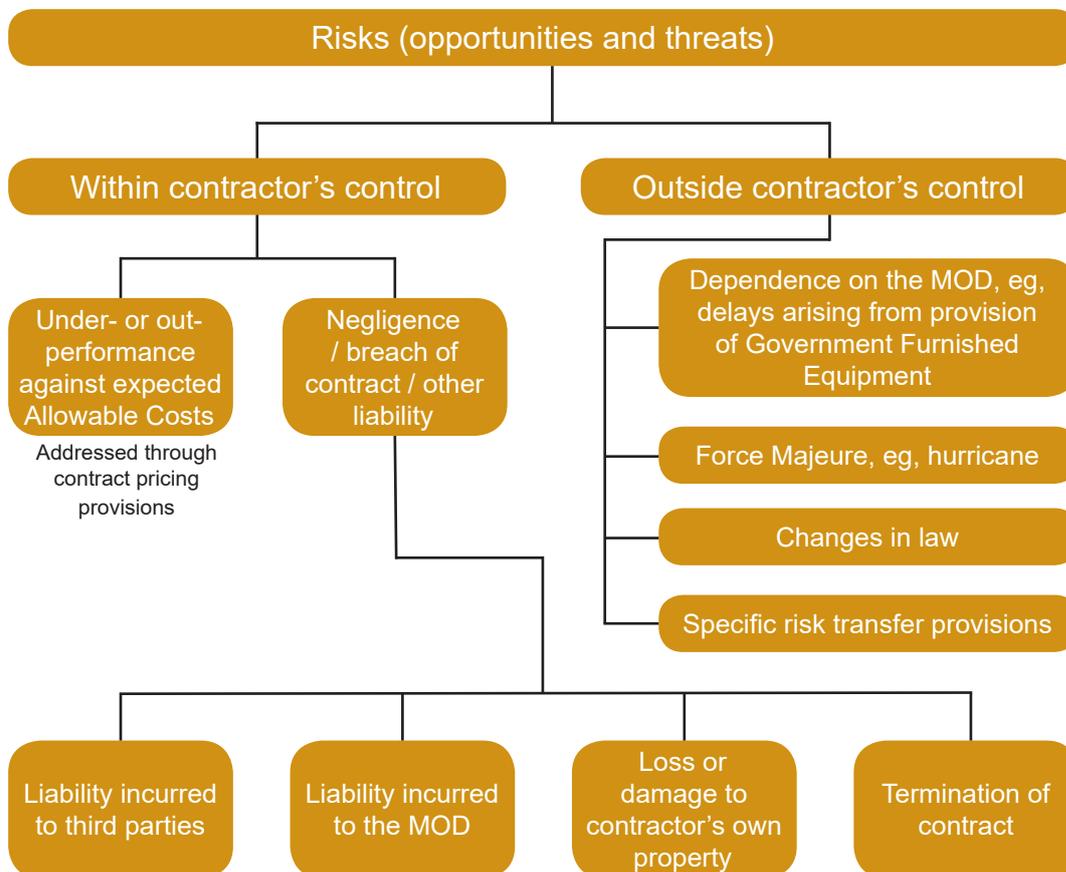
<sup>30</sup> Ministry of Defence (unpublished) *JSP 892 Risk Management: Part 1: Directive*.

<sup>31</sup> Acquisition System Guidance (ASG), formerly the Acquisition Operating Framework (AOF).

- liability for loss or damage to MOD property or buildings by contractors' personnel at government establishments (DEFCON 76);
- liability for loss of or damage to Government issued property (DEFCON 611);
- liability for loss of or damage to goods prior to delivery or if rejected after delivery (DEFCON 612); and
- liability for default (DEFCON 614) or material breach (DEFCON 514) of contract.<sup>32</sup>

3.18. The MOD provided us with details of the principal risks covered by contract terms and conditions (Figure 1) but provided no data on the frequency of use or the magnitude of the cost risk that it or contractors bear as a consequence.

**Figure 1: Principal risks addressed by terms and conditions in MOD contracts**



Source: SSRO from information provided by the MOD

3.19. We have not reviewed individual contracts as part of this study, but believe that it would be useful to explore case studies of how cost risk is allocated via contractual mechanisms, and how these have affected decisions about contract pricing and profit rates. We note, for example, that the MOD holds contingent liabilities related to its procurement of Astute Class submarines and the Type 26 Global Combat Ship, having agreed to limit contractors' liabilities (Box A). Further investigation of such case examples may provide useful insights into the approaches taken to quantifying, allocating and pricing cost risk in contracts.

<sup>32</sup> Ministry of Defence (unpublished) *Limiting a Contractor's Liability and Indemnities: Commercial Policy Statement*.

## **Box A: Examples of the MOD's contingent liabilities**

### ***Astute Boats 5 and 6***

The MOD will hold a contingent liability as a result of placing the Astute Boats 5 and 6 Whole Boat Contracts with BAE Systems Marine Ltd. The contracts will provide production, test and commissioning of the fifth and sixth Astute Class submarines, HMS ANSON and HMS AGAMEMNON. The maximum contingent liability against the MOD is unquantifiable and will remain until the respective Out of Service Date of the submarine.

Within both the Boat 5 and 6 contracts, BAE Systems Marine Ltd limited their exposure to Product Liability to £1 billion per incident and £300 million in any 12-month period. This limits the contractor's exposure for claims by the MOD for losses associated with the product being defective or deficient, and creates an exposure for the MOD for third party claims against the contractor for losses associated with the product being defective or deficient. It is the view of the Department that the likelihood of any claim is remote.<sup>33</sup>

### ***Type 26 Global Combat Ship***

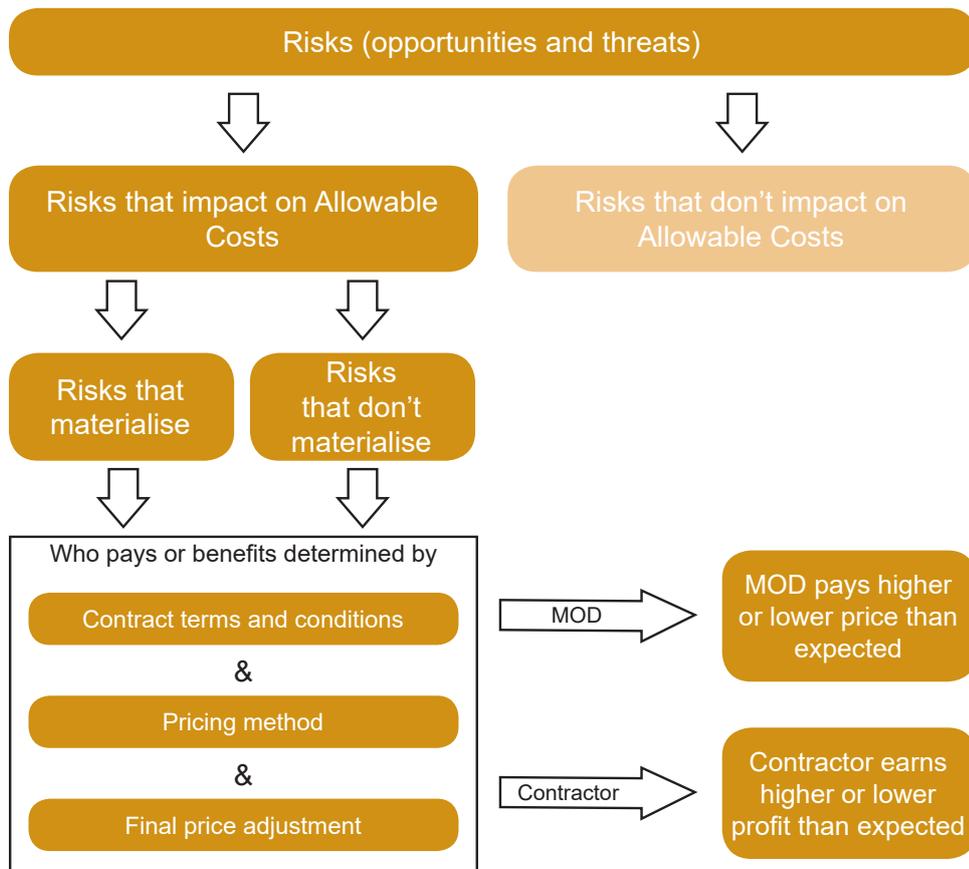
The MOD received approval from HM Treasury to recognise a contingent liability associated with the Type 26 Global Combat Ship Manufacture Phase 1 Contract which will provide for the manufacture and testing of the first batch of Type 26 Global Combat Ships. The maximum contingent liability against the MOD is unquantifiable and will remain until the latest Out of Service Date of the ships manufactured under the contract, in the second half of the 21st century.<sup>34</sup>

### **SSRO comment: the consequences of exposure to risk**

- 3.20. This report is concerned with the risks that impact positively or negatively on Allowable Costs in QDCs. When contractors bear cost risk, they may be able to manage this risk successfully and deliver the contract for an actual cost that is at or below the expected level of Allowable Costs. This will involve both effectively managing risks which might negatively impact on Allowable Costs and seizing opportunities that reduce Allowable Costs. They may, however, be unsuccessful in delivering the contract at or below the expected level of Allowable Costs, being unable to prevent costs increasing or failing to seize opportunities to reduce them.
- 3.21. Depending on the pricing method of the contract, and its terms and conditions, variations from expected performance will have consequences for the price paid by the MOD and the profit earned by the contractor (Figure 2). This can incentivise the contractor to manage risk. For certain contracts, a final price adjustment may also be applied that limits excessive profits or losses (see paragraph 5.7).

33 Earl Howe, Minister of State, Ministry of Defence (2017) *Contingent Liability: Written statement - HLWS596*.

34 Earl Howe, Minister of State, Ministry of Defence (2017) *Contingent Liability: Written statement - HLWS14*.

**Figure 2: How risk may affect QDC prices and profit**

Source: SSRO

3.22. In the event of under-performance, higher-than-expected prices for QDCs may lead to:

- budgetary pressure in the MOD or elsewhere in government; and
- constrained operational capability if equipment and support acquisition has to be deferred or re-specified to remain within departmental spending limits.

3.23. For contractors, earning lower-than-expected profit may reduce their ability to service debts or provide a sufficient return to shareholders.

#### Annual reports: disclosures about risk management by prime contractors

3.24. To form a general understanding of contractors' exposure to risk we reviewed the commentary on principal risks<sup>35</sup> and risk management provided in the annual reports for a sample of the MOD's prime contractors.<sup>36</sup>

<sup>35</sup> A principal risk is defined as a risk or combination of risks that can seriously affect the performance, future prospects or reputation of the entity. (Financial Reporting Council (2014) *Guidance on the Strategic Report.*)

<sup>36</sup> A summary of reported information is included in Appendix 6.

- 3.25. Contractors' annual reports noted a wide range of risks covering all aspects of their activity. Some of the reported risks are common across all companies, for example: IT and security; global economic uncertainty and political risks; competition and market position; laws and regulation; taxation; and environmental regulation. Some are specific to the business activities undertaken, for example: contract cash profiles; dependency on key suppliers and sub-contractors; availability of government and other sources of financing; and product failure. The majority of contractors referred to contract-related risks, for example, termination of contracts and exposure to long-term contract risks.
- 3.26. In order to understand how contractors manage these risks, we reviewed the information they provided in their annual reports on risk management frameworks. Companies reported a variety of mechanisms by which they assess and manage risk including: company boards; audit and risk committees; executive committee; employees; internal and external audit; external stakeholder engagement; monitoring and reporting; risk management policies; risk management systems; and long-term viability assessments.
- 3.27. We also reviewed the financial statements in the group annual reports for this sample of prime contractors to ascertain whether the audited information could shed light on their approaches to risk management and the level of risk held. We particularly focused on reviewing contractors' provisions and contingent liabilities as these can be indicators of the uncertainty facing an organisation. We found that some contractors held low levels of provisions at year end relative to others, and that a number do not report any material contingent liabilities. We recognise that such data provides a snapshot view of a contractor's financial position across all its activities and that there may be several factors affecting disclosures (for instance, differences in accounting policy, behaviours and risk appetites, contract portfolios, operational structures, etc.).
- 3.28. In response to our work contractors told us that, while the MOD would be concerned to know that a contractor had sufficient capacity on its balance sheet to support the risks it was seeking to transfer, a contractor's financial statements would provide a limited picture of risk exposure due to the accounting treatment of long-term contracts. It was suggested that other measures, like the company's weighted average cost of capital (WACC), an indicator of the cost of debt and equity, might be of use. The MOD, however, identified challenges in the calculation of the WACC for companies whose transactions are not subject to market forces. The SSRO has noted previously that the WACC is commonly used by economic regulators to assess the reasonableness of the returns on assets achieved by regulated companies, although there are different approaches to calculating this.<sup>37</sup>
- 3.29. Contractors drew attention to other forms of risk that may not appear on a balance sheet. These included reputational, performance, revenue, investment and cash flow risks. They also noted that an historic appetite for risk was not necessarily an indication of a capacity or willingness to take on future risk.

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<sup>37</sup> SSRO (2017) *Developing the SSRO's Approach to Calibrating Profit Rates in Single Source Contracts: Discussion Paper*.

### SSRO comment: other techniques to manage risk or incentivise performance

3.30. There are a range of techniques to manage risk, but these have not been explored in depth during this study. Examples include:

- *Insurance*: The government usually self-insures as taking out insurance does not generally provide it with good value for money.<sup>38</sup> Contractors may use commercial insurance and this may be an Allowable Cost in QDCs.
- *Diversification*: Diversification of risk may be achieved by holding a portfolio of contracts that have different characteristics, for example, duration, cost risk, customer or supplier. The MOD has entered into long-term agreements with some of its prime contractors, for example, to provide for the sustainment of capability, which may address risks that would otherwise affect QDCs.<sup>39</sup>
- Other risk-transfer mechanisms. These include forward buying, hedging and derivatives.

3.31. There are different techniques to incentivise performance, for example, performance bonds and bonuses, but these have not been explored during this study.

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<sup>38</sup> HM Treasury (2013) *Managing Public Money*, Section 4.4.

<sup>39</sup> See Appendix 7.

## 4. Cost risk

4.1. This section sets out evidence that may help to quantify the scale of cost risk affecting the MOD and its contractors. It is based on:

- data provided by the MOD about potential cost variation in a sample of ten procurement projects;
- data on risk contingency in QDCs as reported by contractors in statutory reports; and
- publicly available information on the MOD's budget and Equipment Plan.

### SSRO comment: cost estimation

- 4.2. The MOD and contractors will, in most cases, agree a detailed estimate of Allowable Costs at the start of a contract based on their understanding of the range of possible project outcomes. There are different ways of estimating costs taking account of risk and uncertainty. The SSRO does not prescribe the method of cost estimation that should be used by the MOD or contractors. Nor do we prescribe the metrics drawn from cost models, and any subsequent adjustments, that should be used to determine the estimated Allowable Costs for a QDC. These matters were addressed in the SSRO's response to a referral for an opinion on the extent to which specified costs in a QDC were Allowable.<sup>40</sup>
- 4.3. While uncertainty in estimating is unavoidable, cost risk may appear higher where cost estimation is poor. The Major Projects Authority identifies over-ambition in the estimation of costs and schedule as one of the most common causes of failure in the Government Major Projects Portfolio.<sup>41</sup> In his 2009 review of defence acquisition, Bernard Gray also found that poor initial estimation or over-optimism about what things would cost or how long they would take to build was a key factor in cost growth.<sup>42</sup>
- 4.4. This report considers the implications of variation from initial cost estimates, but we have not undertaken a detailed examination of the practices that underpin the estimation of costs in QDCs.

<sup>40</sup> SSRO (2015) *SSRO Opinion 1*.

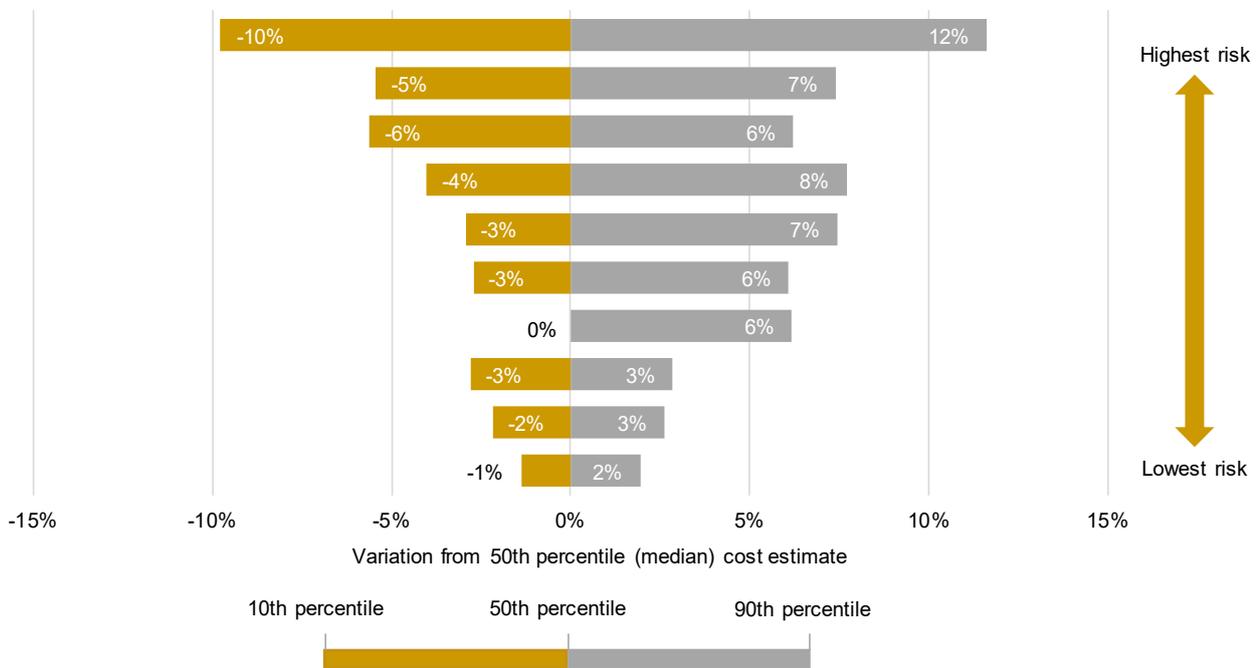
<sup>41</sup> Infrastructure and Projects Authority (2017) *Annual Report on Major Projects 2016-2017*.

<sup>42</sup> Bernard Gray (2009) *Review of Acquisition for the Secretary of State for Defence*. Other factors identified in the report as contributors to cost growth were: changes to requirements which resulted in the renegotiation of contracts using firm, fixed or target pricing; and programme delays and extensions (with resulting costs) which occurred when budgetary pressures in the MOD led to the need for spending to be reprofiled.

**MOD data: cost estimate ranges in historical contracts**

4.5. We asked the MOD to provide us with data from existing equipment and support projects that would help us understand the scale of the potential cost risk in projects. It provided us with data from random simulations for ten projects showing the forecast range of actual costs given by the 80 per cent confidence interval (that is, the variation of the 10th and 90th percentile estimated costs for the project from the 50th percentile or median estimated cost for the project). The contract with the highest variation (highest risk) in the forecast of actual costs had a range around the median estimate of -10 per cent to +12 per cent (Figure 3). The contract with the lowest variation (lowest risk) in forecast costs had a range of -1 per cent to +2 per cent.

**Figure 3: Forecast range of actual costs for a sample of ten MOD equipment and support projects**



Source: SSRO analysis of data provided by the MOD

4.6. Across all ten projects the forecasts predicted that the scale of possible cost growth was greater than the scale of possible cost savings. The average range of the 10th and 90th percentile cost estimates either side of the median was -4 per cent to +6 per cent. If this level of potential variation occurred in relation to the expected Allowable Costs in QDCs (£17.8 billion for QDCs in 2015/16 and 2016/17) we calculate that these could be between £0.7 billion lower than expected or £1.1 billion higher than expected.

### Contract reports: cost variation

4.7. We examined cost variation in QDCs agreed during 2015/16 and 2016/17 at 31 March 2017. We found that Allowable Costs in 25 of 88 QDCs where contractors had been required<sup>43</sup> to provide an update (accounting for 83 per cent of the total price of QDCs) were forecast to increase by a total of £93 million.<sup>44</sup> This is equal to a 0.6 per cent increase in the total Allowable Costs expected in those QDCs within the first year or two of contract signing.<sup>45</sup> Contractors noted that these cost forecasts would become more accurate as contracts approach completion. The MOD noted that reported cost variation may result from changes in contract scope or reporting practices.

### Contract reports: risk contingency

4.8. The Regulations require contractors to record the ‘facts, assumptions and calculations... relevant to any risk or contingency’ included in the Allowable Costs for QDCs in their contract reports.<sup>46</sup> The Regulations do not define what is meant by ‘contingency’. Neither is the term presently defined in the SSRO’s guidance on Allowable Costs or contract reporting. Contractors told us that they estimate costs in different ways and that there was no set approach linking cost risk to risk contingency.

4.9. The MOD’s internal guidance defines ‘contingency’ as ‘resources held in reserve for the unknown i.e. unforeseeable risks’.<sup>47</sup> It makes a distinction, however, between contingency and ‘management reserve’ which it defines as ‘Planned resources set aside for response actions, especially fallback actions, making provision to an appropriate degree for the known aggregated risk’.

4.10. The SSRO understands the term contingency to mean money set aside in a budget for expenditure that may occur as a result of uncertainty in forecasting or the materialisation of risk. It should be linked to known uncertainties or risks.

4.11. We examined the data provided by contractors for QDCs agreed in 2015/16 and 2016/17.<sup>48</sup> Across all QDCs contractors identified a total risk contingency of £97 million (0.5 per cent of total Allowable Costs). Two thirds of this is accounted for by just four QDCs. For one quarter (26 per cent) of QDCs contractors identified a risk contingency of more than 2 per cent of Allowable Costs. For more than half of QDCs (58 per cent) contractors did not identify any risk contingency within Allowable Costs (Figure 4).

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43 In quarterly contract reports, interim contract reports, or contract completion reports.

44 The analysis examines variances between the current expected Allowable Costs (including any changes resulting from contract amendments) and the most recent outturn forecast. Thirteen QDCs reported a variance. Reported increases totalled £106.5 million and reported decreases totalled £13.9 million.

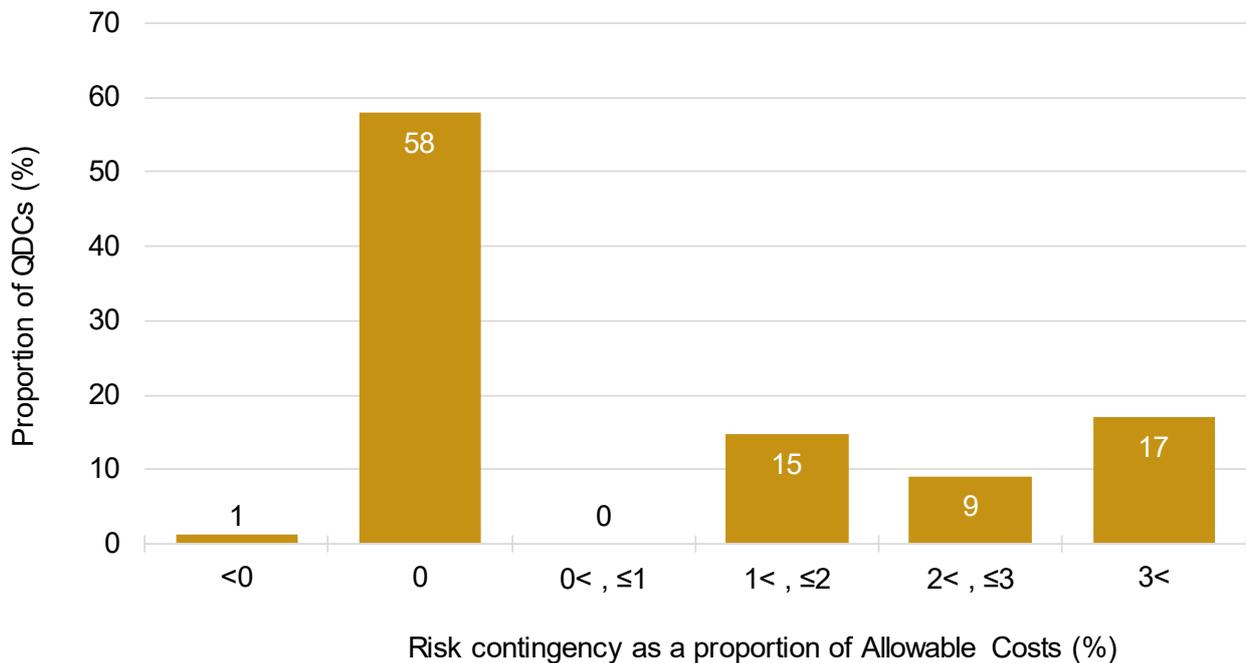
The pricing method of the contracts will determine whether cost increases or decreases result in higher or lower prices for the MOD and/or high or lower profits for contractors.

45 QDCs have an average estimated contract duration of 4.4 years. Of the 88 QDCs agreed in 2015/16 and 2016/17 for which reports were available, 14 (16 per cent) had an estimated duration exceeding 6 years.

46 Regulation 23(2)(e)(i).

47 Ministry of Defence (unpublished) *AOF Preferred Terms & Definitions for Risk Management (by Topic)*.

48 Numerical data on components of contract price, including risk contingency in Allowable Costs, was drawn from relevant fields within contractors’ most recent reports. Quarterly or interim contract reports might include updated figures compared with earlier reports if the price of the associated QDC had been amended.

**Figure 4: Risk contingency as a percentage of Allowable Costs**

Notes: Analysis based on 88 QDCs/QSCs agreed in 2015/16 and 2016/17.

Source: SSRO analysis of contract report data

4.12. As part of their reporting obligations, contractors often provide supporting documents and cost models within their reports. We reviewed cost models for those QDCs where no specific risk contingency had been recorded in the relevant report fields. We estimate that these cost models show an additional £213 million of risk contingency within the Allowable Costs for these QDCs. This additional amount is described in the cost models in a variety of ways, for example, 'risk', 'estimating uncertainty', 'contingency'.

#### Publicly available information: the defence budget

4.13. Defence was the fourth largest public service spending area in 2015/16: £36.6 billion (5 per cent of the total).<sup>49</sup> In 2015, the government committed to increase defence spending by 0.5 per cent above inflation every year until 2021. It aims to continue to meet NATO's target to spend 2 per cent of UK GDP on defence.

4.14. The MOD expects to spend £178 billion on equipment and support over the decade to 2025/26 to provide the UK's Armed Forces with the equipment needed to deliver the levels of military capability set out in the 2015 Strategic Defence and Security Review.<sup>50</sup> The MOD has anticipated the potential for cost risk to materialise in its Equipment Plan. The Plan includes a corporately held contingency of £5.25 billion and specific risk provision within individual project costings of £10.95 billion, over ten years. Together these amounts equate to more than 9 per cent of the core programme spend. The MOD considers this sufficient to deal with any cost growth within the equipment plan and broader risks that may emerge.<sup>51</sup>

<sup>49</sup> HM Treasury (2017) *Whole of Government Accounts: Year Ended 31 March 2016* HC 254.

<sup>50</sup> Ministry of Defence (2016) *The Defence Equipment Plan 2016*.

<sup>51</sup> Ministry of Defence (2016) *The Defence Equipment Plan 2016*.

- 4.15. In 2016, the MOD's annual publication of contract spending<sup>52</sup> reported on the forecast cost of the 12 largest equipment projects on which the main investment decision had been taken.<sup>53</sup> It showed that, compared with the costs at approval, the forecast costs for four projects had increased while forecast costs for six projects had reduced. The associated project summaries<sup>54</sup> showed forecast costs for the 12 projects increased by 9 per cent over the budgeted-for cost. Forecast cost overruns ranged from 13 per cent to 72 per cent. Forecast cost savings ranged from -1 per cent to -12 per cent.
- 4.16. The National Audit Office, in its most recent report on the Equipment Plan,<sup>55</sup> concluded that the risks to affordability are greater than at any point since reporting began in 2012. It noted that: the MOD's Cost Assurance and Analysis Service (CAAS) estimates that the outturn cost of projects in the Plan will be £4.8 billion higher than forecast by project teams; additional commitments made in the Plan in 2016 are yet to undergo detailed project costing; the Plan is contingent on achieving £5.8 billion of savings from existing projects; and exchange-rate fluctuations may impact significantly on the cost of contracts paid for in other currencies.

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52 Ministry of Defence (2016) *Finance & Economics Annual Bulletin: Trade, Industry & Contracts 2016*.

53 The total budgeted-for cost of the projects at the main gate approval point was £60.3 billion.

54 Comptroller and Auditor General (2015) *Major Projects Report 2015 and the Equipment Plan 2015 to 2025: Appendices and Project Summary Sheets*, HC 488-11 Session 2015-16.

55 Comptroller and Auditor General (2017) *The Equipment Plan 2016 to 2026*, HC 914 Session 2016-17.

## 5. Regulated pricing methods

5.1. This section examines how the regulated pricing methods affect the allocation of cost risk between the MOD and contractors. It is based on:

- the description of pricing methods provided in the Regulations;
- the MOD's guidance for commercial staff;
- a review of published annual reports and financial statements for the MOD and a sample of its prime contractors; and
- data on contract pricing methods and cost risk adjustments in QDCs as reported by contractors in statutory reports.

### Publicly available information: description of the regulated pricing methods

5.2. The price of a QDC is determined in accordance with the formula:

$$\text{Price} = (\text{Contract Profit Rate} \times \text{Allowable Costs}) + \text{Allowable Costs}$$

5.3. The Allowable Costs are determined in accordance with the applicable regulated pricing method.<sup>56</sup> In determining whether a cost is Allowable, the MOD and the contractor must be satisfied that it is appropriate, attributable to the contract and reasonable in the circumstances (AAR). The SSRO is responsible for providing statutory guidance, to which the MOD and contractors must have regard, on the principles to apply in determining Allowable Costs.<sup>57</sup>

5.4. The Regulations specify for each pricing method whether the Allowable Costs used to calculate the contract price are:

- a. the estimated Allowable Costs when the contract was signed (which may include estimates of costs associated with risks that have yet to materialise); or
- b. the actual Allowable Costs incurred in performing the contract (which may include the actual costs associated with any risks that have materialised).

5.5. In the absence of specific contract terms and conditions, the pricing method determines which party bears the risk of actual Allowable Costs varying from estimated Allowable Costs. Different elements of a QDC may be priced using different methods.<sup>58</sup>

<sup>56</sup> There are six regulated pricing methods for QDCs set out in Regulation 10(1)(b). Prior to the Regulations coming into force the Review Board for Government Contracts recognised two categories of contracts: 'risk contracts' – those with a pricing arrangement that does not insulate the contractor against loss; and 'non-risk contracts' – those placed on a cost reimbursement basis which insulates the contractor against loss. See Appendix 8 for the detail of contract profit adjustments for risk applicable under the 'Yellow Book' regime.

<sup>57</sup> SSRO (2016) *Single Source Cost Standards: Statutory Guidance on Allowable Costs*. Relevant sections are replicated in Appendix 2.

<sup>58</sup> Regulation 10(3) refers.

5.6. All else being equal, where the contract price is based on estimated Allowable Costs, cost risk is generally borne by the contractor and, if it materialises, results in lower- or higher-than expected profit (subject to the terms and conditions in the contract). Where the contract price is based on actual Allowable Costs, cost risk is generally borne by the MOD and, if it materialises, results in lower- or higher-than-expected prices (again, subject to the terms and conditions in the contract). Target cost contracts using the target pricing method, and other pain-sharing and gain-sharing arrangements, share cost risk between the parties (Figure 5).<sup>59</sup>

**Figure 5: Regulated contract pricing methods**

Pricing method	Description	Risk exposure	
		MOD (taxpayer)	Contractor
<b>Firm</b>	The Allowable Costs are the costs estimated at the start of the contract. The profit earned by the contractor is calculated by applying the profit rate to the estimated costs agreed at the start of the contract.	<b>Low:</b> The MOD bears no risk in respect of the contract price, subject to the final price adjustment (if applied).	<b>High:</b> The contractor bears the risk that variations in the actual Allowable Costs results in profits being higher or lower than estimated at the start of the contract.
<b>Fixed</b>	The Allowable Costs are the costs estimated at the start of the contract, with an adjustment in accordance with a specified index at a specified time or times. The profit earned by the contractor is calculated by applying the profit rate to the Allowable Costs at the end of the contract once the index change is known.	<b>Low:</b> The MOD bears the risk that the application of adjustments results in the contract price being higher or lower than estimated.	<b>High:</b> The contractor bears the risk that variations in the actual Allowable Costs results in profits being higher or lower than estimated at the start of the contract, mitigated by the application of cost adjustments.
		The level of risk borne by each party will depend on how any adjustment mechanism is specified in the contract, and is subject to the final price adjustment.	
<b>Target</b>	Target pricing sets an estimated target cost and target profit. The Allowable Costs are the target costs estimated at the start of the contract. The target profit earned by the contractor is calculated by applying the profit rate to the target costs. An agreed variation mechanism is used to adjust the price payable to the contractor, should the costs change from pre-determined parameters. Cost savings or overruns against the target cost are shared between the contractor and MOD on a pre-agreed basis.	<b>Variable:</b> The MOD and the contractor share the risk that variations in the actual Allowable Costs results in price and profit being higher or lower than estimated at the start of the contract. The level of risk borne by each party will depend on the structure of the target cost incentive fee specified in the contract.	
<b>Volume-driven</b>	The Allowable Costs are the cost per unit at the time of agreement, multiplied by the actual number of units produced by the end of the contract. The costs estimated at the time of agreement may be adjusted in accordance with a specified index at a specified time or times. The profit earned by the contractor is calculated by applying the profit rate to the Allowable Costs incurred at the end of the contract, once the number of units produced are known.	<b>Variable:</b> The MOD bears the risk that variation in actual volume of output results in the price being above or below that which was estimated.	<b>Variable:</b> The contractor bears the risk that variations in the actual Allowable Costs per unit results in profits being higher or lower than estimated at the start of the contract, mitigated by the application of cost adjustments linked to indices or rates.
		The level of risk borne by each party will depend on the MOD's ability to estimate volume requirements, the contractor's ability to estimate costs, how any adjustment mechanism is specified in the contract, and is subject to the final price adjustment.	

59 The specific arrangements by which the effect of cost variation is shared between the parties in target cost contracts can mean that the level of cost risk for either party could vary across a spectrum ranging from that seen in cost-plus contracts to that seen in firm contracts.

		Risk exposure	
Pricing method	Description	MOD (taxpayer)	Contractor
<b>Cost-plus</b>	The Allowable Costs are the actual costs incurred to deliver the requirement, established at the end of the contract. The profit earned by the contractor is calculated by applying the profit rate to the actual costs of completing the work.	<b>High:</b> The MOD bears the risk that variations in the actual Allowable Costs result in the price being higher or lower than estimated at the start of the contract.	<b>Low:</b> The contractor bears no risk in respect of the profit rate.
<b>Estimate-based fee</b>	The Allowable Costs are the actual costs incurred to deliver the requirement, established at the end of the contract. The profit earned by the contractor is calculated by applying the profit rate to the estimated costs agreed at the start of the contract.	<b>High:</b> The MOD bears the risk that variations in the actual Allowable Costs result in the price being higher or lower than estimated at the start of the contract.	<b>Low:</b> The contractor bears no risk in respect of the total profits earned.

Source: SSRO

### Final price adjustment

- 5.7. Regulation 16 specifies that a final price adjustment may apply to contracts priced using the firm, fixed or volume-driven pricing methods where there is variance between the actual and agreed contract profit rates due to differences between actual and estimated Allowable Costs.<sup>60</sup> The final price adjustment is intended to share, between the MOD and the contractor, the pain or gain that occurs when the actual cost of delivering a contract differs from the estimated cost and, consequently, the profit achieved by the contractor differs from that anticipated.<sup>61</sup> Contractors told us that the final price adjustment is a suitable mechanism to address unexpected profits.
- 5.8. The most recently available data<sup>62</sup> show that between 2009 and 2012 the MOD carried out post-costing reviews on 45 contracts with a total value of £3.9 billion. Following these, the MOD negotiated refunds from contractors totalling £30.3 million across 7 contracts.

### Contract reports: contract pricing methods

#### Total price of QDCs by regulated pricing method

- 5.9. We examined the use of different pricing methods in QDCs agreed in 2015/16 and 2016/17. The most-reported pricing method by number of contracts was firm pricing, with 67 of 88 QDCs using this method in at least a proportion of the contract. The most reported pricing method by contract price was target pricing: £6.4 billion (Figure 6).<sup>63</sup> QDCs priced on the basis of estimated Allowable Costs accounted for 53 per cent of the total price of QDCs in 2015/16 and 2016/17.

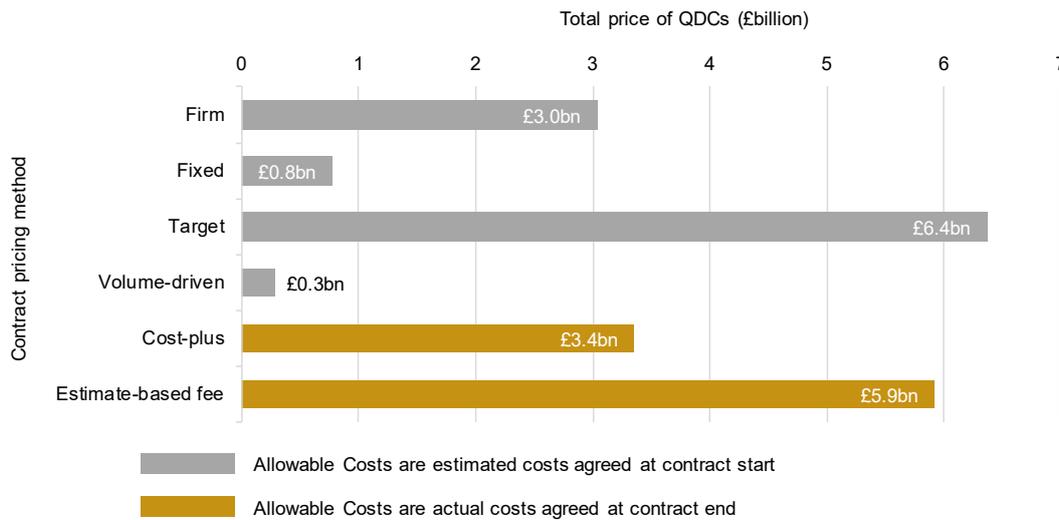
60 The final price adjustment may only apply where the amount of any adjustment would be at least £250,000.

61 See Appendix 3 for detail on the application of the final price adjustment.

62 Review Board for Government Contracts (2014) *Report on the 2014 Annual Review of the Profit Formula for Non-Competitive Government Contracts*.

63 SSRO (2017) *Annual Qualifying Defence Contract Statistics: 2016/17*.

**Figure 6: Contract price by pricing method (£ billion)**



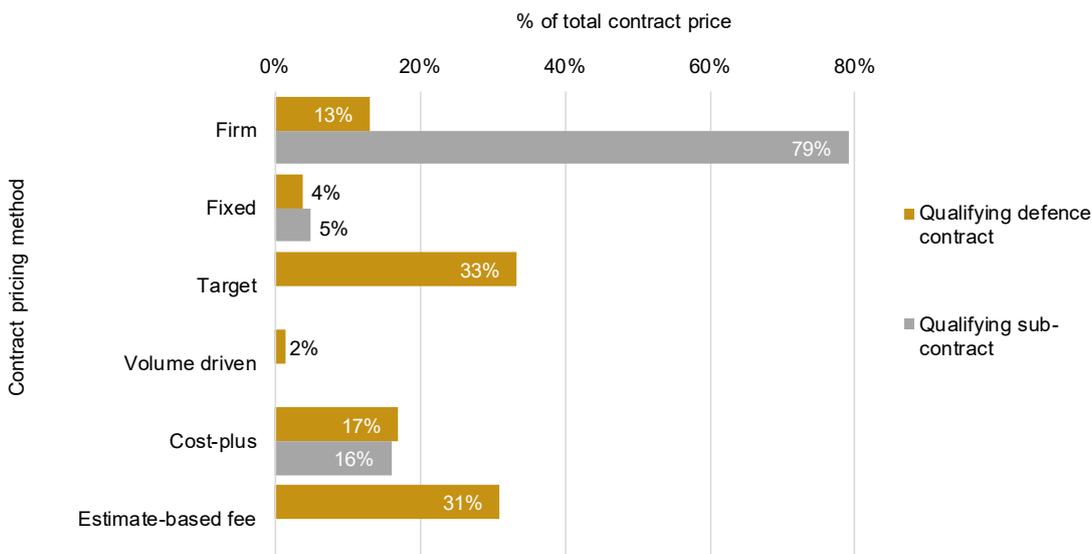
Source: SSRO analysis of contract report data

**Comparison of pricing methods between QDC and QSC**

5.10. The SSRO receives partial data on sub-contracts within QDCs.<sup>64</sup> Contractors reported sub-contracts with a total price of £4.4 billion in 2015/16 and 2016/17. Of these, qualifying sub-contracts (QSCs),<sup>65</sup> which have their own reporting requirements, accounted for £0.7 billion (3 per cent) of the total price of QDCs in those years.

5.11. We examined the pricing methods reported for QSCs and compared this with the pricing methods used for QDCs. We found that the price of QSCs was nearly five times more likely than QDCs to be based on a firm or fixed pricing method (84 per cent compared with 17 per cent) which transfer cost risk to the contractor (Figure 7).

**Figure 7: QDCs and QSCs 2015/16 and 2016/17 by contract pricing method (percentage of total contract price)**



Notes: Analysis based on 75 QDCs and 13 QSCs agreed in 2015/16 and 2016/17.

Source: SSRO analysis of contract report data

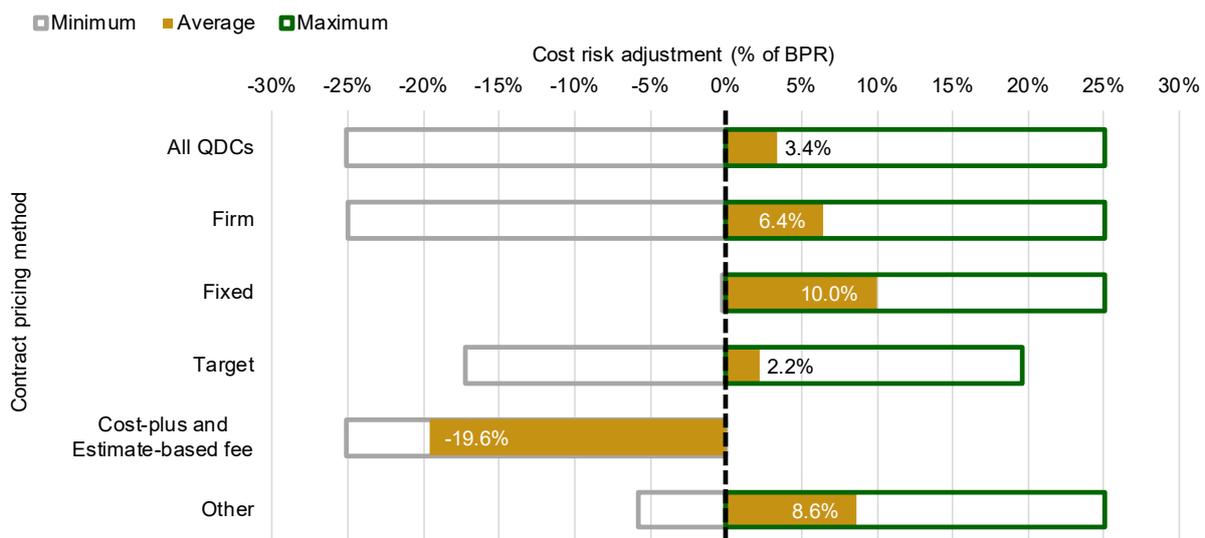
64 Contractors are required to report on the 20 highest-value sub-contracts priced at £1 million or more. Sub-contracts may relate to more than one contract, so may not be fully attributable to the QDC against which it is reported.

65 Those that meet the requirements set out in Part 11 of the Regulations.

### Pattern of cost risk adjustments by pricing method

- 5.12. The regulated pricing method is one of the factors that the SSRO's guidance<sup>66</sup> indicates should be considered by the contracting parties in agreeing a cost risk adjustment. The SSRO's guidance states that contracts based on actual Allowable Costs should (subject to the consideration of other principles highlighted in the guidance) have a -25 per cent adjustment to the baseline profit rate.
- 5.13. We examined the magnitude of the reductions and increases resulting from cost risk adjustments for QDCs with different pricing methods.<sup>67</sup> Across all QDCs in 2015/16 and 2016/17, the unweighted average cost risk adjustment was 3.4 per cent of the baseline profit rate (Figure 8).
- 5.14. QDCs predominantly using the firm pricing method (based on estimated Allowable Costs) had an average cost risk adjustment of 6.4 per cent of the baseline profit rate. This group of QDCs included cases using the full  $\pm 25$  per cent range of the cost risk adjustment permitted by the Regulations.
- 5.15. QDCs predominantly using the fixed pricing method (based on estimated Allowable Costs that may be indexed) had the highest average cost risk adjustment (10.0 per cent of the baseline profit rate).
- 5.16. For QDCs predominantly using the cost-plus or estimated-based fee pricing methods (based on actual Allowable Costs) the average cost risk adjustment was -19.6 per cent of the baseline profit rate. There were no positive cost risk adjustments for contracts using these pricing methods. This pattern of cost risk adjustments is consistent with our guidance.

**Figure 8: Minimum, maximum and average cost risk adjustments 2015/16 and 2016/17 by contract pricing method**



Notes: Analysis based on 88 QDCs/QSCs agreed in 2015/16 and 2016/17. Figures in bars represent the unweighted average cost risk adjustment for each group. QDCs are allocated to a pricing method category on the basis that at least 75 per cent of the Allowable Costs in the contract use that pricing method to calculate the contract price. The Other category includes 2 contracts predominantly using the volume-driven pricing method and 11 contracts where no pricing method used at least 75 per cent of the Allowable Costs in the contract.

Source: SSRO analysis of contract report data

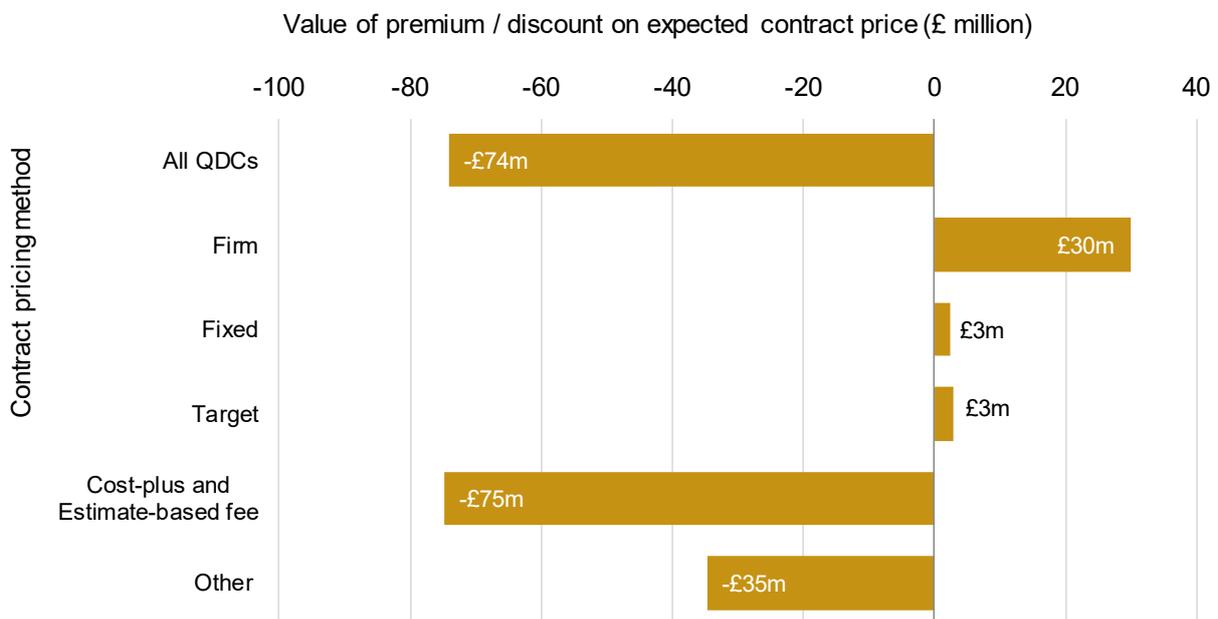
<sup>66</sup> SSRO (2017) *Guidance on the Baseline Profit Rate and its Adjustment 2017/18*.

<sup>67</sup> As QDCs may use a combination of pricing methods the analysis assigned QDCs to a pricing method where at least 75 per cent of the Allowable Costs in the contract related to the pricing method.

*Value of cost risk adjustments by pricing method*

- 5.17. We examined the expected value of the increases and decreases in contract profit rates resulting from cost risk adjustments for QDCs with different pricing methods.<sup>68</sup> Across all QDCs, the cost risk adjustment decreased the expected profits that would otherwise have been earned by contractors by £74 million (0.4 per cent of the total expected Allowable Costs of £17.8 billion). The value of adjustments varies for groups of QDCs with different pricing methods (Figure 9).
- 5.18. QDCs predominantly using the firm pricing method (based on estimated Allowable Costs) had expected Allowable Costs of £2.3 billion. In these contracts, the contractor bears the most cost risk. The MOD paid a premium on these contracts of £30 million (equal to 1.3 per cent of the expected Allowable Costs) compared with the expected price without the cost risk adjustment.
- 5.19. QDCs predominantly using the cost-plus and estimate-based fee pricing method (based on actual Allowable Costs) had expected Allowable Costs of £3.6 billion. In these contracts, the MOD bears the most cost risk. The MOD secured a discount on these contracts of £75 million (equal to 2.1 per cent of the expected Allowable Costs) compared with the expected price without the cost risk adjustment.

**Figure 9: Value of premium/discount on expected contract price (£million) by contract pricing method**



Notes: Analysis based on 88 QDCs/QSCs agreed in 2015/16 and 2016/17. Figures in bars represent the value of the premium / discount for the group of QDCs. QDCs are allocated to a pricing method category on the basis that at least 75 per cent of the Allowable Costs in the contract use that pricing method to calculate the contract price. The Other category includes 2 QDCs predominantly using the volume-driven pricing method and 11 QDCs where no pricing method used at least 75 per cent of the Allowable Costs in the contract.

Source: SSRO analysis of contract report data

<sup>68</sup> As QDCs may use a combination of pricing methods the analysis assigned QDCs to a pricing method where at least 75 per cent of the Allowable Costs in the contract related to the pricing method.

### SSRO comment: pricing method incentives

- 5.20. The MOD's guidance for commercial staff notes that the choice of appropriate pricing mechanisms gives 'a powerful incentive' to contractors.<sup>69</sup> Whether a QDC is priced on estimated or actual costs can influence whether a contractor is incentivised to achieve cost efficiencies.<sup>70</sup> The SSRO is not aware, however, that the MOD provides any specific guidance to commercial staff on the selection of a pricing method for a QDC.
- 5.21. Stakeholders told us that the contract pricing method is generally determined by the level of uncertainty surrounding the cost estimate. Contracts that relate to activities in the early stages of the CADMID cycle<sup>71</sup> tend to have greater uncertainty and risk, and will use a pricing method that allocates risk to the MOD. However, we were told that there are times when the MOD will choose the contract pricing method prior to the determination of cost estimates.
- 5.22. In a contract priced on estimated costs (for example, firm or fixed contracts), the contractor is incentivised to earn additional profit through cost saving relative to the estimated costs. Indeed, the contractor may have a perverse incentive to over-estimate costs in order to increase the probability that it will out-perform estimates.
- 5.23. In a cost-plus contract (priced on actual costs), the contractor does not have a profit-based incentive to reduce costs below the estimated level. Contractors will earn higher cash profits as costs increase.
- 5.24. Contracts using the target pricing method, which include pain-sharing and gain-sharing arrangements, provide an incentive to the contractor to control costs, to the benefit of both parties. Pain-sharing or gain-sharing may also be applied to QDCs using the fixed, firm and volume-driven pricing methods through application of a final price adjustment upon contract completion.

### Annual reports: contract pricing methods

- 5.25. The contract pricing method affects a contractor's exposure to cost risk affecting profit and the MOD's exposure to cost risk affecting price. We noted examples among the MOD's prime contractors' annual reports which provided public statements about exposure to cost risk through the use of different contract pricing methods.

*'A significant proportion of the Group's largest contracts are with the UK Ministry of Defence. In the UK, development programmes are normally contracted with appropriate levels of risk being initially held by the customer and contract structures are used to mitigate risk on production programmes, including where the customer and contractor share cost savings and overruns against target prices... The Group has limited exposure to fixed-price design and development activity which is in general more risk intensive than fixed-price production activity.'*

(BAE Systems Ltd (2017) *Annual Report 2016*.)

<sup>69</sup> Ministry of Defence (unpublished) *Commercial Policy Group Guideline No 2 - Incentivisation Of Contractor Performance*.

<sup>70</sup> Similar issues were noted by PwC in its review of regulatory incentives for Ofwat (PwC Economics (2017) *Refining the Balance of Incentives for PR19*).

<sup>71</sup> Concept, Assessment, Demonstration, Manufacture, In-service and Disposal.

*'Under [risk and revenue sharing] contractual arrangements, the key commercial objectives are that (i) during the development phase the workstream partner share in the risks of developing an engine by performing its own development work, providing development parts and paying a non-refundable cash entry fee; and (ii) during the production phase it supplies components in return for a share of the programme revenues as a 'life of type' supplier...'*

(Rolls-Royce Holdings plc (2017) *Annual Report 2016*.)

*'While fixed-price contracts enable us to benefit from performance improvements, cost reductions and efficiencies, they also subject us to the risk of reduced margins or incurring losses if we are unable to achieve estimated costs and revenues... Fixed-price development contracts are generally subject to more uncertainty than fixed-price production contracts.'*

(The Boeing Company (2016) *The Boeing Company 2016 Annual Report*.)

### Contract reports: relationship between pricing method and activity

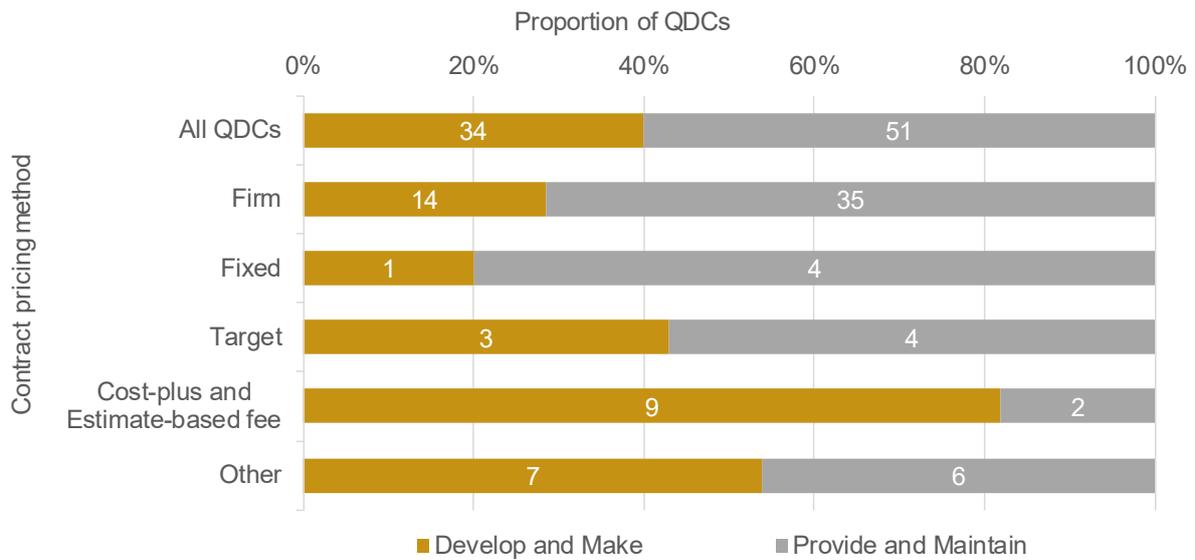
5.26. The MOD has a well-established acquisition model that recognises six phases in the product life-cycle: Concept, Assessment, Demonstration, Manufacture, In-service and Disposal (CADMID). The QDCs agreed in 2015/16 and 2016/17 relate to a range of activities predominantly in the Demonstration, Manufacture and In-service phases.

5.27. Based on the activities undertaken in QDCs, the SSRO developed four activity types that underpin its benchmarking of company profits as part of the baseline profit rate methodology.<sup>72</sup> These are:

- Develop and Make (D&M) – for activities within concept, assessment, demonstration, manufacture and disposal phase contracts;
- Provide and Maintain (P&M) – for activities within 'in-service' phase contracts and contracts for the provision or availability of equipment;
- Ancillary Services – including back office and routine support services, for example, clerical work or upkeep of grounds and facilities; and
- Construction – applicable to contracts for construction or related activities, which include architectural, engineering and/or building services.

5.28. We examined the relationship between the main pricing method for QDCs agreed in 2015/16 and 2016/17 and the contracted activities, using the SSRO-defined activity types (Figure 10). We found that QDCs using the firm pricing method (based on estimated Allowable Costs) most commonly (71 per cent of these contracts) related to the 'Provide and Maintain' activity type. QDCs using the cost-plus and estimate-based fee pricing methods (based on actual Allowable Costs) most commonly (82 per cent) related to the 'Develop and Make' activity type.

<sup>72</sup> For information on the criteria which determine membership of the activity type comparator groups see SSRO (2017) *Single Source Baseline Profit Rate, Capital Servicing Rates and Funding Adjustment Methodology 2017/18*. For information on the profit rates related to the different activity type comparator groups see SSRO (2017) *Activity Type Factsheet*.

**Figure 10: Contract pricing method for QDCs by activity type**

*Notes: Analysis based on 85 QDCs/QSCs agreed in 2015/16 and 2016/17. Figures in bars represent the number of contracts. Three contracts from the Construction activity type are excluded from the analysis. Contracts are allocated to a pricing method category on the basis that at least 75 per cent of the Allowable Costs in the contract use that pricing method to calculate the contract price. The Other category includes 2 contracts predominantly using the volume-driven pricing method and 11 contracts where no pricing method used at least 75 per cent of the Allowable Costs in the contract.*

*Source: SSRO*

## 6. Contract profit rates

6.1. This section considers how exposure to cost risk has been rewarded in qualifying defence contracts (QDCs) to date and includes simulations of the profits achievable by contractors in QDCs in several different scenarios. It is based on:

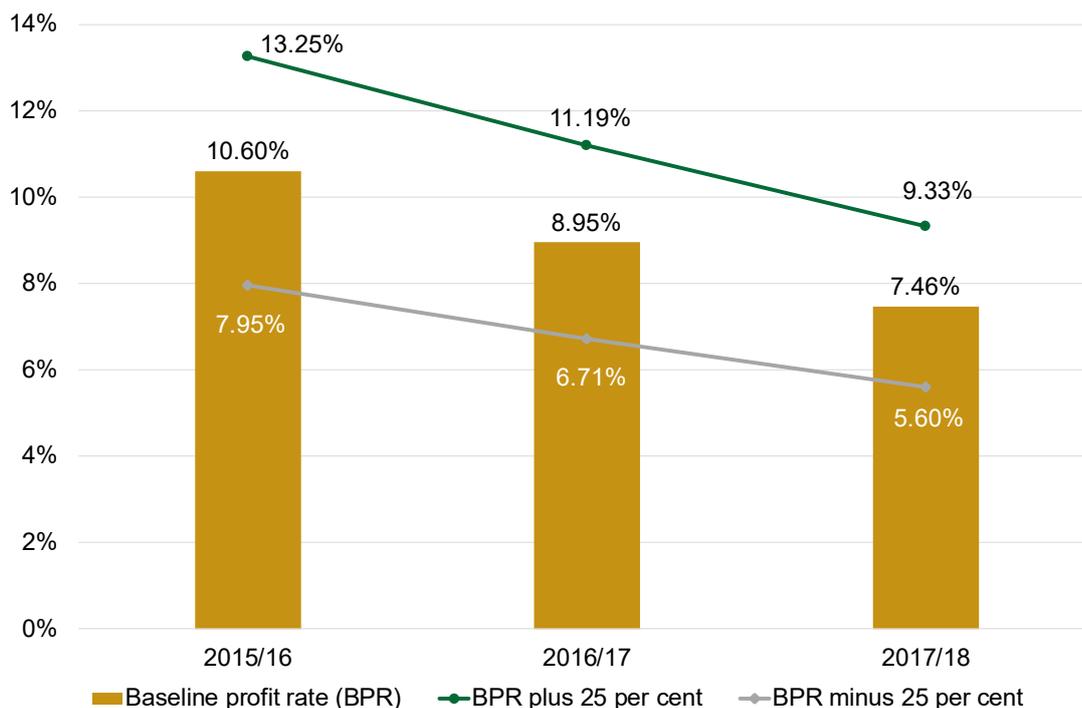
- data on adjustments to the baseline profit rate (BPR) and other aspects of QDCs as reported by contractors in statutory reports;
- data on the profits earned by companies undertaking activities similar to those undertaken in QDCs, which informed the calculation of the 2017/18 BPR recommendation; and
- an Excel-based analytical toolkit that the SSRO has developed specifically to inform this report.

### SSRO analysis: effect of linking the cost risk adjustment to the BPR

6.2. Step 2 of the process to calculate the contract profit rate is an adjustment (up to  $\pm 25$  per cent) to the BPR to reflect the risk of the primary contractor’s actual Allowable Costs under the contract differing from its estimated Allowable Costs.<sup>73</sup>

6.3. Recent reductions in the BPR have narrowed the range of profits available after the application of the cost risk adjustment: from 5.30 percentage points in 2015/16 to 3.73 percentage points in 2017/18 (Figure 11).

**Figure 11: The range of profits available after applying the  $\pm 25$  per cent cost risk adjustment has narrowed**



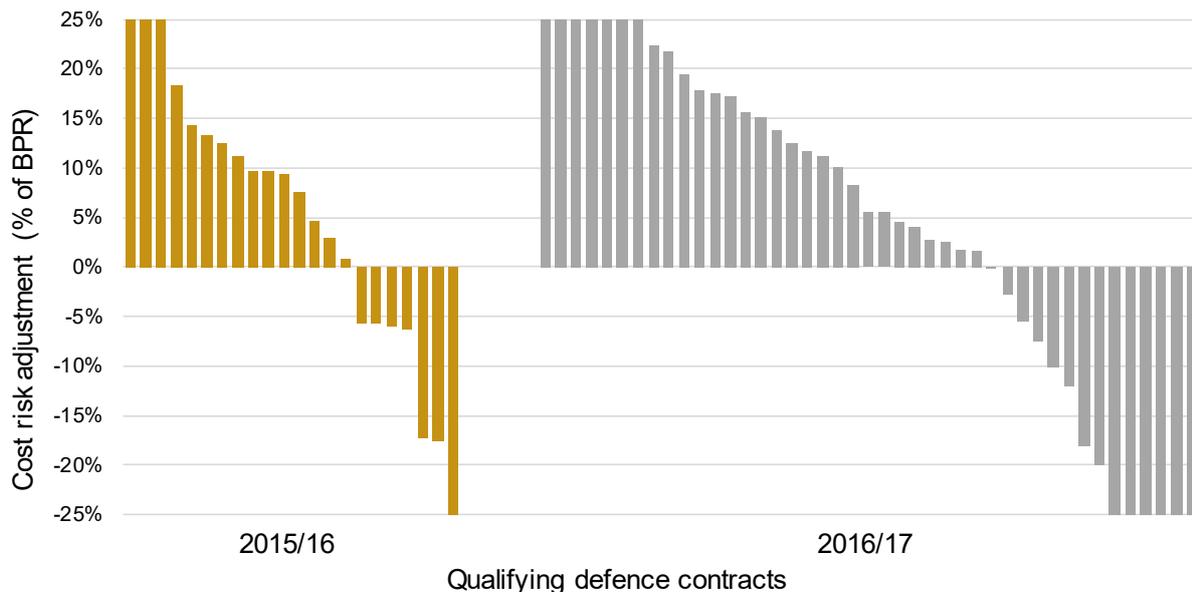
Source: SSRO

<sup>73</sup> Regulation 11(2) refers. See Appendix 2 for current SSRO guidance on application of the cost risk adjustment.

### Contract reports: use of the cost risk adjustment

- 6.4. Half of QDCs agreed in 2015/16 and 2016/17 had a positive cost risk adjustment. One quarter had no cost risk adjustment and one quarter had a negative adjustment. A greater proportion of the cost risk adjustments agreed in 2016/17 were at the extremes of the  $\pm 25$  per cent range than in 2015/16 (Figure 12). Four out of 34 QDCs (12 per cent) had a  $\pm 25$  per cent adjustment in 2015/16 compared with 13 out of 54 QDCs (24 per cent) in 2016/17.

**Figure 12: Cost risk adjustments in QDCs in 2015/16 and 2016/17**



Notes: Chart excludes QDCs with a 0 per cent cost risk adjustment.

Source: SSRO analysis of contract report data

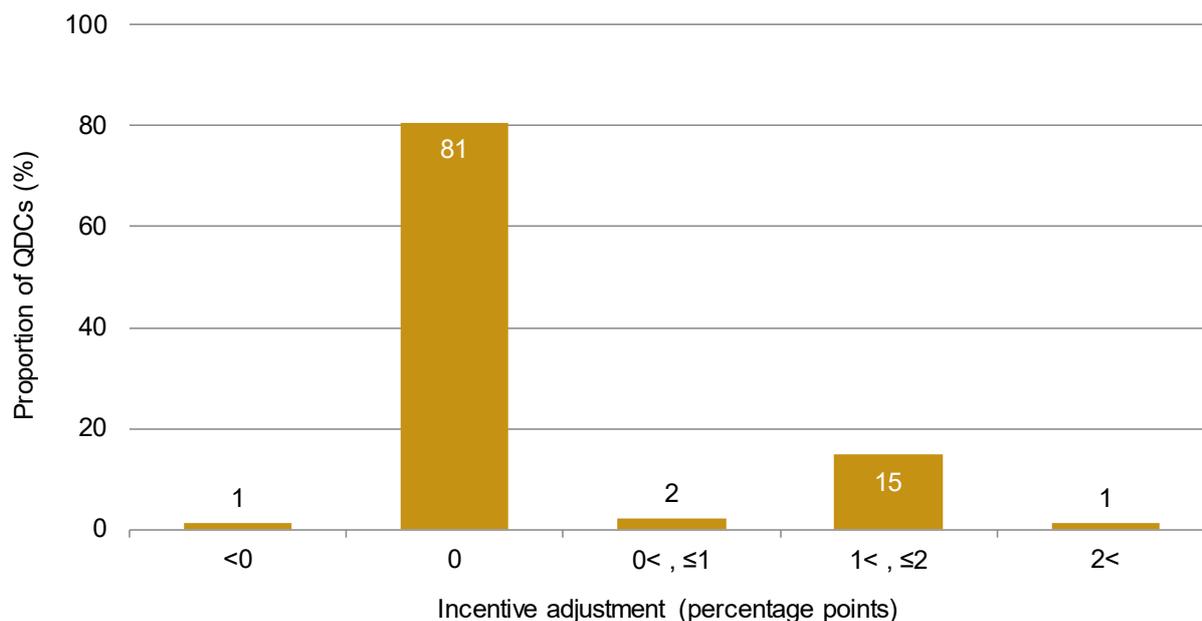
### Contract reports: use of the incentive adjustment

- 6.5. The Regulations allow the Secretary of State to increase the contract profit rate by up to 2 percentage points when this would give the primary contractor ‘a particular financial incentive as regards the performance of provisions of the contract’.<sup>74</sup> In 2015/16 and 2016/17 about one fifth (18 per cent) of QDCs reported a positive incentive adjustment (Figure 13). In 2016/17, the proportion of QDCs/QSCs reporting an incentive adjustment doubled from 12 per cent to 24 per cent.<sup>75</sup>
- 6.6. Across all contracts the incentive adjustment has the potential to increase the profit that might otherwise be expected by £226 million, if contractors deliver the associated performance enhancements. This equates to a 13.1 per cent increase in the total profit that would be paid by the MOD without the incentive adjustment.

<sup>74</sup> Regulation 11(6) refers.

<sup>75</sup> SSRO (2017) *Annual Qualifying Defence Contract Statistics: 2016/17*.

**Figure 13: Incentive adjustments in QDCs 2015/16 and 2016/17**



Notes: Analysis based on 88 QDCs agreed in 2015/16 and 2016/17. One contractor reported a negative incentive adjustment. One contractor reported an incentive adjustment that exceeded the 2 percentage point maximum level described in the Regulations.

Source: SSRO analysis of contract report data

**SSRO analysis: actual profits earned by comparable companies**

6.7. The SSRO’s BPR methodology<sup>76</sup> uses the OECD’s transfer pricing principles<sup>77</sup> to benchmark the historical profits reported by companies in Western Europe and North America that undertake activities similar to those undertaken in QDCs.<sup>78</sup> The OECD’s transfer pricing guidance includes a framework for assessing risks affecting companies to enhance comparability in the benchmarking of profits.<sup>79</sup> The SSRO’s methodology has been subject to wide consultation with stakeholders and is supported by the MOD. The methodology uses data on the actual profits made by companies on their actual costs after the materialisation of risk. There is no measurement of how actual costs/profit varied from estimated costs/profit as this data is not available.

76 SSRO (2017) *Single Source Baseline Profit Rate, Capital Servicing Rates and Funding Adjustment Methodology 2017/18*.

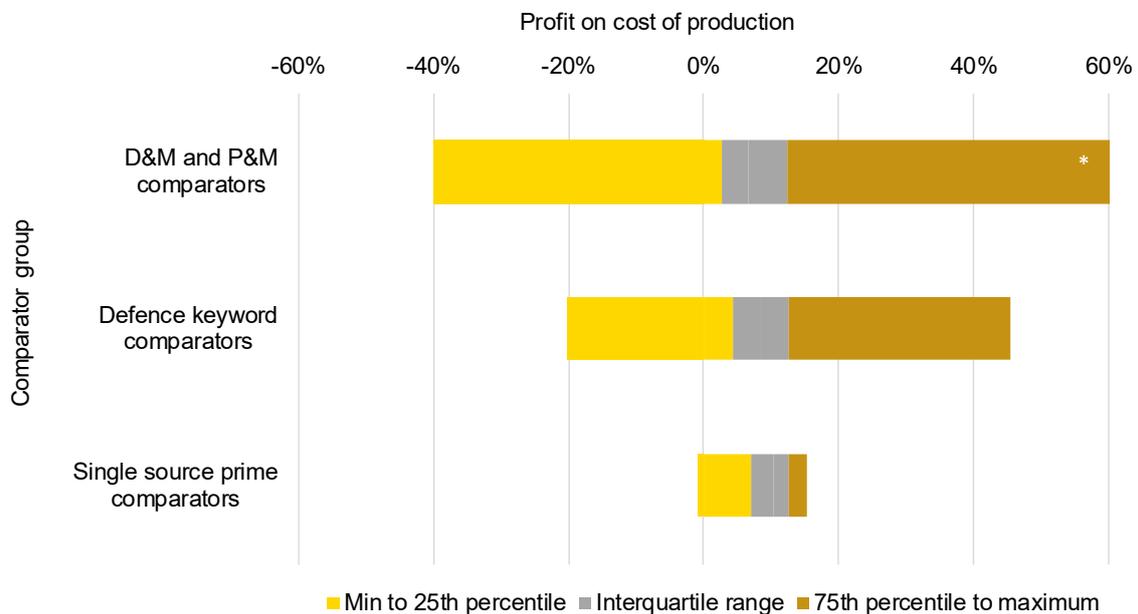
77 OECD (2017) *OECD Transfer Pricing Guidelines for Multinational Enterprises and Tax Administrations*.

78 Transfer pricing is employed extensively by multinational enterprises and tax authorities globally. While the pricing of QDCs is distinct from tax matters, the goal is similar to that of certain transfer pricing methods, which seek to identify an arm’s length profit mark-up by benchmarking returns achieved by comparable companies.

79 Further information on the corporate risks identified by the OECD are provided in Appendix 9.

6.8. We examined the profits reported by companies that feature in the activity type comparator groups that informed the SSRO's 2017/18 BPR recommendation.<sup>80</sup> The BPR recommendation is informed by the profits (expressed as a percentage of the cost of production) earned by companies who meet the criteria to be included in the 'Develop and Make' (D&M) and 'Provide and Maintain' (P&M) activity type comparator groups.<sup>81</sup> Companies in these comparator groups reported profits/losses ranging from -40 per cent to 155 per cent. We observe that the range of profits earned by companies in these groups whose activity descriptors include the word 'defence' is narrower (-20 per cent to 45 per cent) than for the group as a whole. The group of companies in the comparator groups that are prime contractors to the MOD<sup>82</sup> earned a narrower range of profits (-1 per cent to 15 per cent) (Figure 14). We note that the range of activities undertaken by these prime contractors, and their relative exposure to QDCs, varies considerably.

**Figure 14: Profit rates for companies in the baseline profit rate comparator groups**



Notes: The chart shows the reported profits (earnings before interest and tax (EBIT)) as a percentage of the costs of production (turnover minus EBIT) used by the SSRO in determining the 2017/18 BPR recommendation. Comparator groups shown include loss-makers. Loss-makers are excluded in determining the BPR recommendation.

The horizontal axis is curtailed at +60 per cent. The maximum value of the bar marked \* is 155 per cent. D&M = Develop and Make activity type. P&M = Provide and Maintain activity type. Defence keyword comparators = companies in the BPR comparator groups whose activity descriptor includes 'defence'. Single source prime comparators = companies in the BPR comparator groups that were paid more than £50 million by the MOD in 2014/15.

Source: SSRO analysis of Orbis data

6.9. Our analysis indicates that, from the perspective of an investor, the MOD's prime contractors are a less risky portfolio of companies than the wider group of companies in the baseline profit rate comparator groups given the capital invested.

80 Our analysis examined the ratio of profit (earnings before interest and tax (EBIT)) to the costs of production (turnover minus EBIT).

81 For details of the SSRO's baseline profit rate comparator groups see SSRO (2017) *Activity Type Factsheet*.

82 A subset of the D&M and P&M comparator groups paid more than £50 million by the MOD in 2014/15.

### SSRO analytical toolkit: simulation of potential profits and losses

6.10. The SSRO has undertaken three simulation exercises to examine how variation between estimated and actual costs resulting from contractors’ management of cost risk impacts on potential profits (or losses) for contracts using different pricing methods and cost risk adjustments. Our simulations use the 2017/18 BPR as a starting point, but include sensitivity analysis where appropriate (recognising that the BPR may change in the future). The simulations include other assumptions (stated below) about adjustments to the BPR, the extent of cost risk and the level of contractor performance against estimated Allowable Costs.<sup>83</sup> The three simulations are described below.

Simulation description	MOD (taxpayer) perspective	Contractor perspective	Additional comments
1. Profit achievable in a firm price contract	In a firm contract the taxpayer is not exposed to cost risk.	In a firm contract, contractors have an incentive to manage cost risk to earn higher profits. Profit achieved depends on how much cost risk materialises.	Profit achievable is benchmarked against actual profits achieved by companies in the BPR comparator groups.
2. Effect of pricing method on profit rates	The choice of pricing method affects taxpayers’ exposure to cost (and price) risk.	The choice of pricing method affects contractors’ exposure to cost (and profit) risk.	Considers 27 different scenarios. Uses the MOD’s data (from random simulations) on cost risk in historical projects.
3. Premium needed to transfer cost risk to a contractor	How much additional profit might the MOD have to pay to transfer cost risk to a contractor?	How much additional profit might a contractor seek to accept a firm price contract (where cost risk is being transferred) over a cost-plus contract (with no cost risk)?	Examines the relationship between size of the cost risk adjustment and cost risk. Places no weight on the contractor’s ability to manage cost risk or differences in risk appetite between the parties.

#### *Simulation 1: profit achievable in a firm price contract*

6.11. In a firm price contract, the taxpayer is not exposed to cost risk. The profit (or loss) achieved by the contractor is a function of its ability to manage cost risk and achieve ‘out-performance’. This form of contract may incentivise a contractor to manage cost risk successfully to increase profit.

#### **Definition**

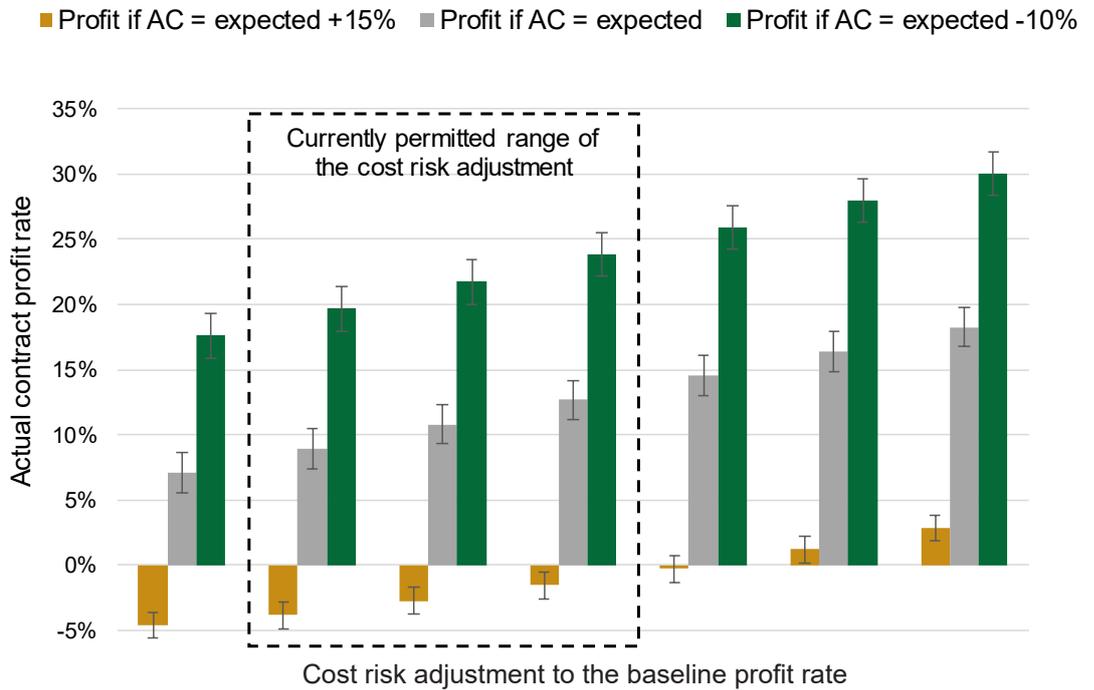
We use the term ‘out-performance’ where the contractor, having delivered the contract below the estimated Allowable Costs, is rewarded with a higher-than-expected profit.

We use the term ‘under-performance’ where the contractor, having failed to deliver the contract within the estimated Allowable Costs, earns a lower-than-expected profit, or a loss if the actual Allowable Costs exceed the contract price.

<sup>83</sup> The SSRO created an Excel-based toolkit to support the simulations.

- 6.12. We simulated the profits that would be earned in a firm price contract if the actual Allowable Costs were 15 per cent higher than expected (under-performance) or 10 per cent lower than expected (out-performance). This range is broadly calibrated with reference to the MOD's data on cost estimation, which showed the largest range from the 10th to the 90th percentile around the median cost estimate to be 12 per cent under-performance to 10 per cent out-performance (see Section 4).
- 6.13. We also considered how the range of potential profits for contractors might vary if the MOD changed the Regulations to allow a greater positive or negative cost risk adjustment to the baseline profit rate than that currently permitted ( $\pm 25$  per cent). For illustration, we considered a range from -50 per cent to +100 per cent.
- 6.14. The expected profits ranged from 7.1 per cent with a -50 per cent cost risk adjustment to 18.3 per cent with a +100 per cent cost risk adjustment (inclusive of a +2 percentage point incentive adjustment that would be paid if the associated performance requirements were met) (Figure 15). In the event the contractor under-performs against the expected level of Allowable Costs by 15 per cent, the contractor would make a loss in all but two of the illustrative contracts: those with a +75 per cent and +100 per cent cost risk adjustment. In the event the contractor out-performs against the expected level of Allowable Costs by 10 per cent, the contractor would make higher-than-expected profits. These ranged from 17.6 per cent with a -50 per cent cost risk adjustment to 30.0 per cent with a +100 per cent cost risk adjustment.

**Figure 15: Contract profit rates in a firm price contract with different levels of cost risk adjustment following expected, under- or out-performance**



	-50%	-25%	0%	25%	50%	75%	100%
Profit if AC = expected + 15%	-4.6%	-3.8%	-2.7%	-1.5%	-0.3%	1.2%	2.9%
Profit if AC = expected	7.1%	9.0%	10.8%	12.7%	14.6%	16.4%	18.3%
Profit if AC = expected - 10%	17.6%	19.7%	21.7%	23.8%	25.9%	28.0%	30.0%
Break even AC variance	7.1%	9.0%	10.8%	12.7%	14.6%	16.4%	18.3%

Notes: AC = Allowable Costs.

The expected profit rate for the contract was calculated using the following assumptions:

- Step 1 – baseline profit rate: 7.46 per cent (rate in 2017/18)
- Step 2 – cost risk adjustment: various
- Step 3 – POCO adjustment: 0 per cent
- Step 4 – SSRO funding adjustment: 0 per cent
- Step 5 – Incentive adjustment: +2 percentage points (maximum permitted)
- Step 6 – capital servicing adjustment: +1.36 percentage points (average in 2016/17)

Break even AC cost variance means the percentage by which Allowable Costs could increase beyond the expected level before all contractor profit is extinguished.

The error bars show the positive and negative variation that would result from a ±1 percentage point variation in the 7.46 per cent baseline profit rate used to inform the analysis.

Source: SSRO

6.15. As a cross-check, we considered how the profits achievable in the simulated firm price contract compared with the actual profits earned by companies in the BPR comparator groups. Our simulation above shows that with the current maximum positive cost risk adjustment (+25 per cent) contractors can achieve profits of 12.7 per cent (including a +2 percentage point incentive adjustment and excluding any under- or out-performance). Contractors that are successful in achieving an out-performance of 10 per cent can generate profits of 24 per cent. Under-performance of 15 per cent would result in a loss of 1.5 per cent. This range of possible profits in a QDC compares favourably with the range of profits achieved by the companies in the BPR comparator groups:

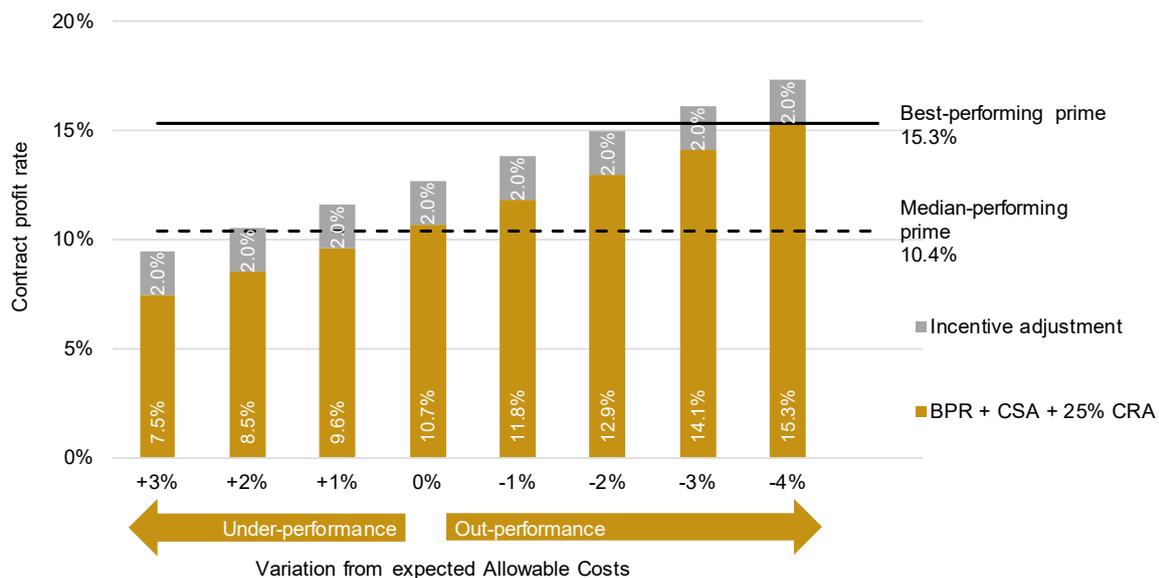
a. whose activity descriptors include the word 'defence' (-20 per cent to 45 per cent); and

b. who are prime single source contractors to the MOD (-1 per cent to 15 per cent).<sup>84</sup>

6.16. We also considered how actual profits achievable in the simulated firm price contract in the event of under- or out-performance compared with the actual profits earned by the companies in the BPR comparator groups that are prime contractors to the MOD. We found that the profit that would be achieved at the expected performance level (10.7 per cent excluding incentive adjustment) was slightly higher than the median profit earned by the MOD's prime contractors (10.4 per cent). To achieve a profit equal to the best-performing prime contractor in the comparator group (15.3 per cent), the contractor in the simulated contract would need to out-perform the expected Allowable Cost level by 4 per cent (Figure 16).

6.17. With a +2 percentage point incentive adjustment (for achieving a level of enhanced performance against contract specification), the contractor can under-perform against expected Allowable Costs by 2 per cent and still achieve the level of profit achieved by the median of the MOD's prime contractors.

**Figure 16: Comparing potential profits in a firm price QDC with the median- and best-performing prime contractor in the baseline profit rate comparator groups**



Notes: The expected profit rate for the contract was calculated using the following assumptions:

- Step 1 – baseline profit rate: 7.46 per cent (rate in 2017/18)
- Step 2 – cost risk adjustment: +25 per cent
- Step 3 – POCO adjustment: 0 per cent
- Step 4 – SSRO funding adjustment: 0 per cent
- Step 5 – Incentive adjustment: +2 percentage points (maximum permitted)
- Step 6 – capital servicing adjustment: +1.36 percentage points (average in 2016/17)

The median- and best-performing prime contractor profit rates are based on the profit level indicators (unadjusted for capital servicing) used to inform the 2017/18 BPR recommendation.

Source: SSRO

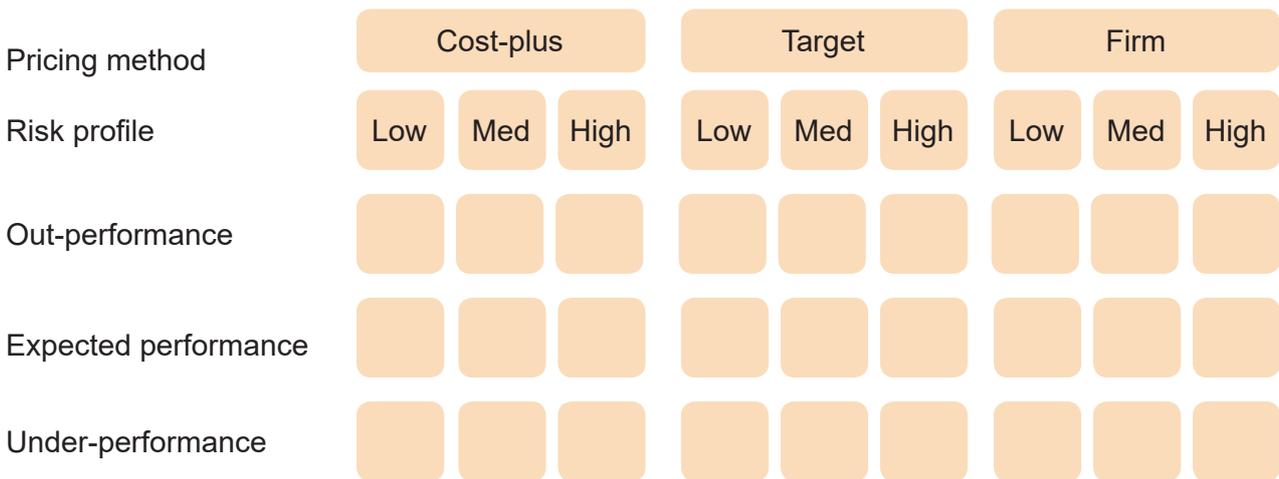
<sup>84</sup> For comparability purposes, the comparator company profit rates quoted include the capital servicing element which would normally be excluded in the calculation of the baseline profit rate recommendation. Loss-makers are excluded in determining the BPR recommendation.

6.18. Our simulation illustrates that, for higher cost risk adjustments (which should be accompanied by exposure to a higher level of cost risk), lower levels of out-performance are needed to secure higher profit rates. Higher risk adjustments give contractors greater protection against losses from under-performance. This may reduce their incentive to avoid under-performance, although contractors told us that they would always seek to maximise performance and returns.

**Simulation 2: Effect of pricing method on profit rates**

6.19. The second simulation examines how the choice of regulated pricing method and the contractor’s management of cost risk affects the actual profit rate in a contract and the contractor’s probability of making a loss. We used the MOD’s data for cost risk in a sample of ten historical projects to construct cost-risk profiles for three illustrative projects and considered different levels of contractor under- or out-performance. In practice, there is a wide range of choices available to the MOD and contractors concerning pricing method, cost-risk and performance level. Our analysis considered 27 scenarios involving different combinations of these variables (Figure 17).

**Figure 17: Scenarios used to examine effect of pricing method and performance on actual contract profits**



Source: SSRO

6.20. We used data from the MOD on ten real projects to define three sample projects with varying degrees of cost risk.<sup>85</sup>

Risk profile	Forecast range of actual Allowable Costs – variance between 10th and 90th percentile values
Low	3 percentage points
Medium	13 percentage points
High	21 percentage points

<sup>85</sup> The characterisations of low-, medium- and high-risk projects were informed by our analysis of the MOD’s data on 10th and 90th percentile cost forecasts for ten real equipment projects.

6.21. We considered three levels of performance.

Performance level	Actual Allowable Costs equal to
Out-performance	10th percentile of cost estimate range
Expected performance	Expected (mean) value of cost estimate range
Under-performance	90th percentile of cost estimate range

6.22. The three contracts used different pricing methods with different cost risk adjustments.<sup>86</sup>

Pricing method	Pain-share / gain-share	Cost risk adjustment
Cost plus	No	-25 per cent
Target cost	50:50	0 per cent
Firm	No	+25 per cent

6.23. The results of the simulation and other assumptions are described below (Figure 18).

**Figure 18: Simulation of actual profits (%) and probability of making a loss (%) in QDCs using different pricing methods with different cost risk adjustments**

Pricing method	Cost-plus	Target cost (50:50)			Firm price		
		Low	Med	High	Low	Med	High
Project risk profile	All	Low	Med	High	Low	Med	High
Under-performance	9.0	9.8	5.7	4.7	10.6	2.7	1.0
Expected performance	9.0	10.7	9.7	10.5	12.5	10.5	11.9
Out-performance	9.0	11.6	12.5	16.3	14.3	16.1	23.2
Probability of loss	0	0	2	2	0	7	9

Notes: The profit rate for each contract was calculated using the following assumptions:

- Step 1 – baseline profit rate: 7.46 per cent (rate in 2017/18)
- Step 2 – cost risk adjustment: Cost-plus, -25%, Target cost, 0%; Firm price, +25%
- Step 3 – POCO adjustment: 0 per cent
- Step 4 – SSRO funding adjustment: 0 per cent
- Step 5 – Incentive adjustment: +2 percentage points (maximum permitted)
- Step 6 – capital servicing adjustment: +1.36 percentage points (average in 2016/17)

The simulated contracts were priced at the 50th percentile of the forecast Allowable Costs range. The expected performance is based on the mean Allowable Costs within the forecast range. Differences between the 50th percentile and the mean may result in an actual contract profit rate that is different to that achieved by the six-step process described above.

Source: SSRO

<sup>86</sup> Our analysis included a final price adjustment in the firm price contract where there was variance between the actual and agreed contract profit rates.

- 6.24. For the cost plus contract the actual profits earned by the contractor in all scenarios was 9.0 per cent as profit is paid at the contract profit rate regardless of the contractor's performance against expected Allowable Costs. For the other types of contract, profits varied in accordance with the degree of under- or out-performance from the expected Allowable Costs level.
- 6.25. In the cost-plus contract, there is no possibility for the contractor to make a loss as profit is paid at the contract profit rate regardless of the contractor's performance against expected Allowable Cost. We calculated the maximum probability of making a loss under the target cost contract was 2 per cent in the high-risk scenario. The maximum probability of making a loss under the firm contract was 9 per cent in the high-risk scenario.

### *Simulation 3: Premium needed to transfer cost risk to a contractor*

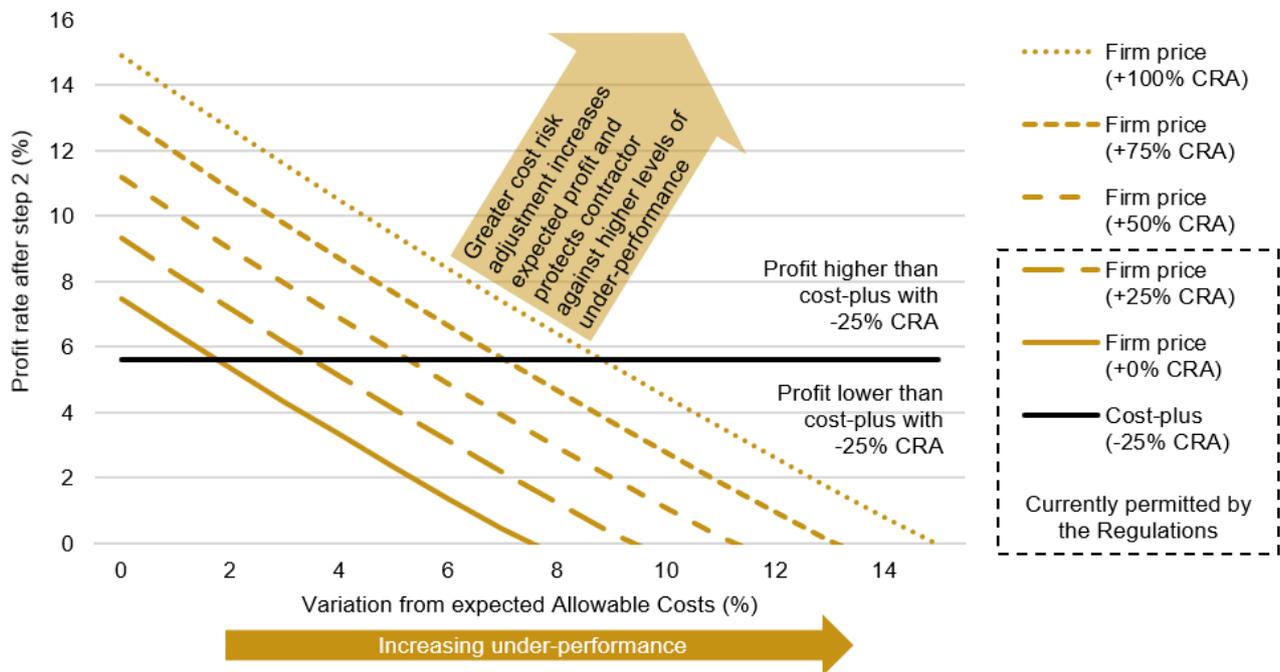
- 6.26. We modelled how the materialisation of cost risk in contracts with different pricing methods and cost risk adjustments impacts on profits. The aim was to understand how perceptions of cost risk might influence a contractor's preference over contract pricing method, and how this would be affected by different levels of cost risk adjustment.
- 6.27. We modelled the profits in a cost-plus contract with a -25 per cent cost risk adjustment (in line with the SSRO's current guidance) as Allowable Costs increased from the expected level. We compared these to the profits earned in a firm contract with varying levels of cost risk adjustment to discover the levels of variation from expected Allowable Costs at which the firm contract becomes less profitable than the cost-plus contract.<sup>87</sup>
- 6.28. This simulation identifies the premium (cost risk adjustment) to the BPR which would make contractors indifferent between a firm price and a cost-plus contract with a -25 per cent cost risk adjustment if a certain amount of cost risk materialises. The point of indifference is the point at which the profit in each contract is equal. Up to this point the profit in the firm contract will be higher. Beyond this point the profit in the cost-plus contract will be higher.
- 6.29. The modelling indicates that a firm contract with a 0 per cent cost risk adjustment would become less profitable than the cost-plus contract with a -25 per cent cost risk adjustment if expected Allowable Costs increased by 1.8 per cent.<sup>88</sup> A firm contract with a +25 per cent cost risk adjustment would continue to be more profitable than the cost-plus contract until expected Allowable Costs increased by more than 3.5 per cent (Figure 19).

<sup>87</sup> The analysis assumed all other adjustments to the baseline profit rate were zero.

<sup>88</sup> The relationship between the cost risk adjustments (CRA<sub>firm</sub> and CRA<sub>costplus</sub>) and the variation in expected Allowable Costs (varAC) is specified as:  

$$\text{CRA}_{\text{firm}} = \text{CRA}_{\text{costplus}} \times (1 + \text{varAC}) + (\text{varAC} / \text{BPR})$$

**Figure 19: Level of variation in expected Allowable Costs at which a firm contract would give less profit than a cost-plus contract with -25 per cent cost risk adjustment (CRA)**



Notes: The analysis excludes other adjustments which may occur in calculating the contract profit rate for a QDC. The expected contract profit rate after step 2 is based on the 2017/18 baseline profit rate of 7.46 per cent.

Source: SSRO

6.30. We also examined how much cost risk would need to materialise before a firm contract became less profitable than a cost-plus contract for three levels of cost risk adjustment above the levels currently permitted by the Regulations: 50 per cent, 75 per cent and 100 per cent. The levels of variation in expected Allowable Costs at which these contracts become less profitable than the cost-plus contract were, respectively, 5.3 per cent, 7.1 per cent and 8.8 per cent.

6.31. This simulation suggests that contractors will be more inclined to take on firm contracts when they perceive there to be limited cost risk. They will prefer the cost-plus contract when cost risk is perceived to be high. Consequently, where cost risk is high or difficult to manage, the MOD may find it difficult to persuade contractors to enter into contracts (firm, fixed or target) where greater levels of cost risk are transferred from the MOD to the contractor.

### SSRO comment: risk-free rate of return

- 6.32. The MOD asked us to consider how the concept of a risk-free rate of return<sup>89</sup> might apply to the cost risk adjustment used in the determination of the contract profit rate. The SSRO's guidance specifies that the maximum negative cost risk adjustment (-25 per cent) should be applied to the BPR where there is little or no risk to the contractor's profit. However, the profit rate at this full negative adjustment (5.60 per cent in 2017/18) should not be conflated with a risk-free rate of return in the conventional sense as the contract profit rate in QDCs is applied to the Allowable Costs (the cost of production). It is not a return on capital.
- 6.33. The lack of direct comparability between the risk-free rate of return on capital and the BPR presents a challenge to the integration of a risk-free rate into the cost risk adjustment. The closest parallel is the approach used for the step 6 capital serving adjustment (which uses corporate bond data to determine the capital servicing rates applied to fixed and working capital employed in QDC delivery).

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<sup>89</sup> Appendix 10 describes the concept of the risk-free rate of return on capital and its application in economic appraisal and regulation.

## 7. Potential roadmap to adapt statutory guidance

7.1. This section summarises the SSRO's proposals on how its statutory guidance on risk and incentives in Allowable Costs (AC)<sup>90</sup> and the application of the six-step process to calculate the contract profit rate (CPR)<sup>91</sup> might be improved, within the current legislation. We also consider areas where improvements in the reporting for QDCs might be useful. Subject to the outcome of the Secretary of State's review of the legislation, the SSRO will consider what, if any, changes are required to its guidance and will consult publicly, in due course, on any proposed changes.

### Aims of changes to the guidance

7.2. The SSRO has undertaken an initial review of its current statutory guidance on risk and incentives, taking into account previous stakeholder feedback. The details of this review are presented in Appendix 1. The sections in the existing Allowable Costs and CPR guidance which reference risk and incentives are replicated in Appendix 2, for ease of reference. We note contractors' desire for greater consistency and clarity in the guidance.

7.3. The overall aims of any changes to the guidance would be to provide greater clarity on the Allowable Costs which may be exposed to risk and about why, when and how to apply the step 2 and step 5 adjustment. In particular, the SSRO wishes to improve how it explains:

- a. the purpose of the step 2 and step 5 adjustments;
- b. the approach to determining the step 2 and step 5 adjustments; and
- c. the meaning of terms, and ensuring that these are used consistently.

7.4. Improved guidance would provide clearer direction to the MOD and contractors on the considerations and supporting evidence which should be relevant in the determination of the step 2 and step 5 adjustments to ensure that contract prices:

- a. provide value for money for the government; and
- b. are fair and reasonable for contractors.

7.5. During our study, contractors expressed a desire for fewer reporting requirements. We were told that contractors took different approaches to risk reporting and that any changes in QDC reporting would need to reflect this. Improvements in reporting guidance may assist contractors in understanding and meeting their reporting obligations under the Regulations and encourage reporting of risk, incentives and pain-sharing and gain-sharing arrangements in target price contracts in a more consistent manner. The aim of such improvements would be to provide relevant data for contract price estimation and scrutiny throughout the life of contracts. It would also enable appropriate benchmarking of factors affecting costs and profit by the MOD and, when requested, the SSRO.

90 SSRO (2016) *Single Source Cost Standards: Statutory Guidance on Allowable Costs*.

91 SSRO (2017) *Guidance on the Baseline Profit Rate and its Adjustment 2017/18*.

## Summary of proposals

### *Allowable Costs and contract profit rate*

7.6. We propose to:

- a. update the Allowable Costs guidance on risk to more clearly align it with the principles of the AAR<sup>92</sup> test, the cost risk adjustment and the incentive adjustment (AC paragraphs 9.8 to 9.10);
- b. provide any information, in addition to the legislation, that is required to clarify the purpose and role of the step 2 and step 5 adjustments in contract pricing (CPR paragraphs 6 and 14);
- c. provide a more comprehensive presentation of the role of the six regulated pricing methods, the final price adjustment and any other methods of risk allocation in the apportionment of cost risk between the MOD and contractor in the application of step 2 (CPR paragraph 7);
- d. clarify the rationale for the principles of the cost risk adjustment and their role in determining the quantum of this adjustment, simplifying their presentation where possible (CPR paragraph 8);
- e. note the relevant considerations when determining if a step 5 adjustment may be appropriate given the characteristics of the contract (CPR paragraph 15); and
- f. include additional guidance on the principles to consider when determining the quantum of the step 5 incentive adjustment (CPR paragraph 16);

7.7. A set of more detailed proposals are outlined in Appendix 1.

7.8. Any changes to the Regulations concerning the adjustments at steps 2 and 5 of the process to calculate the contract profit rate would need to be reflected in the SSRO's statutory guidance.

### *Reporting*

7.9. Within the current legislation, the SSRO believes there may be aspects of reporting that would benefit from further consideration. Some of these improvements may require changes to the SSRO's reporting system (DefCARS) and reporting guidance. We are considering:

- a. clarifying the guidance to set out what documentation in relation to the contractor's risk methodology and risk assessment could be submitted to 'describe the calculation' of the cost risk adjustment (Regulation 23(2)(d)) and to provide the 'facts, assumptions and calculations' of any risk contingency included in the Allowable Costs (Regulation 23(2)(e)(i));
- b. whether elements of the risk modelling process could be reported in a standardised way, such as confirmation of the methodology used and provision of data that describe the risk profile (for example, the minimum, 10th percentile, 50th percentile, 90th percentile and maximum estimated Allowable Costs where available) and where the estimated Allowable Costs used to determine the contract price sit on that profile (Regulations 23(2)(d) and 23(2)(e)(i));

<sup>92</sup> Appropriate, Attributable and Reasonable. See SSRO (2016) *Single Source Cost Standards: Statutory Guidance on Allowable Costs*.

- c. whether standardised collection of data on the incentive adjustment is possible, for example, concerning the metrics measuring enhanced contract performance for which any incentive payment will be made and how performance against those metrics at different levels impacts on contract price (Regulation 23(2)(d)); and
  - d. improvements in how reporting of target pricing is applied in target cost incentive fee contracts, for example, what the incentive is for, and what the pain-sharing and gain-sharing arrangements are (Regulation 23(2)(f)).
- 7.10. If there were changes to legislation which widened the range of the adjustments at step 2 and 5, there may be a need for increased levels of reporting by contractors about the adjustments made in determining the contract profit rate, to reflect their significance in contract prices.

