An Independent Review for the Secretary of State for Business, Innovation & Skills:

IPOs and Bookbuilding in Future HM Government Primary Share Disposals

Undertaken by a panel of the Lord Myners, CBE (Chair), David Challen, CBE, Professor Francesca Cornelli, Jitesh Gadhia and Huw Jones

16th December 2014

Disclaimer

This report has been prepared by the Panel for the purpose of assisting the Secretary of State for Business, Innovation and Skills in considering the IPO and Bookbuilding process. The opinions, comment and observations set out in the report are given solely for that purpose and should not be relied on by any other party.

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The Rt Hon Vince Cable MP
Secretary of State
The Department for Business, Innovation and Skills
1 Victoria Street
London
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16th December 2014

Dear Secretary of State

Thank you for inviting me to chair the panel to review the IPO bookbuilding process.

The final report represents the work of a number of individuals. I would like to express my deep appreciation to fellow panel members David Challen, Professor Francesca Cornelli, Jitesh Gadhia and Huw Jones for their expertise and wholehearted commitment. They have been forensic in their reading and assessment of extensive background materials and evidence submissions, incisive in their questioning of the many experts with whom we met, and thoughtful in their development of our conclusions and recommendations.

As a panel we are grateful to those who have supported us through the process: BIS Officials Jonathan Walker, Tom Child and James Coppin, and Raja Patnaik of London Business School. Our thanks are also due to the numerous individuals and institutions who contributed written submissions, attended interviews and responded to our follow up questions. The report owes much to the honesty and insight of the evidence presented to us.

In conducting the review we closely followed the terms of reference you set out for us. As such, we have not considered matters such as Royal Mail's capital structure, property valuation/clawback or dividend policy.

Within the report, I would like to highlight the academic thinking on bookbuilding and alternative structures (summarised in Appendix 2) which has helped to frame our analysis and thinking. The business community has often overlooked the work of academics in fields such as capital management and governance. There is much that government and business can gain from working more closely with our universities.

You did not ask for an opinion on the success or otherwise of the Royal Mail sale but it is appropriate for me to record that I regard the privatisation to have been a complex exercise executed with considerable professionalism. The standard bookbuilding process does have inherent limitations. Some of these were evident in this transaction. It is possible that the

Royal Mail issue might have priced a little higher had the bookbuilding process formally tested interest at levels above 330p per share, but I do not believe that this would have led to an IPO priced anywhere close to the level of initial trading, for reasons which we explain in section 4 of the report.

Our recommendations to you are presented in sections 1 and 9 of the report.

Finally, I would like to communicate the panel's pleasure at having had the opportunity to be involved in this fascinating review process. We hope that our observations will be of help to you as Secretary of State and your Ministerial colleagues in this and future governments and that this review might form the catalyst for discussions between Government, market authorities and financial intermediaries to improve the IPO process.

Paul Myners

1. Introduction

1.1. Background to the Review

1.1.1. In its April 2014 report 'The Privatisation of Royal Mail'[1], the National Audit Office ('NAO') recommended that HM Government ('Government') consider alternatives to the bookbuilding process in the context of future Government primary share disposals.

1.1.2. In response to this, in July 2014 the Secretary of State for Business, Innovation and Skills (BIS), the Rt. Hon. Vince Cable MP (the 'Secretary of State') asked Lord Myners to lead a panel of relevant experts (the 'Panel') in conducting a review.

1.1.3. Alongside Lord Myners, the Secretary of State appointed four other experts from the financial sector and academia to the Panel. These were David Challen, Professor Francesca Cornelli, Jitesh Gadhia and Huw Jones.

1.2. Terms of Reference

1.2.1. Our review, which is presented to the Secretary of State in this report, considered the bookbuilding process for the Royal Mail Group ('Royal Mail' or the 'Company') Initial Public Offering (IPO) and other recent IPO bookbuilding processes. Our terms of reference were to consider issues including:

- Whether pilot fishing through a small group of investors before launch of an IPO is an appropriate way of carrying out the initial part of the bookbuilding process – this is discussed in sections 3, 4 and 8;
- The process for selection of pilot fishing institutions – this is discussed in sections 3, 4 and 8;
- Whether it is right that the institutions that participate in pilot fishing exercises be given preferential allocations – this is discussed in sections 3, 4 and 8;
- Whether the bookbuilding process in primary sales can be adapted to allow for further price discovery – this is discussed in sections 3, 4, 5 and 8; and
- Whether alternative IPO methods can adequately accommodate specific requirements such as retail offers and the ability to allocate to a high quality investor list – this is discussed in sections 3, 6, 7 and 8.

[1] http://www.nao.org.uk/wp-content/uploads/2014/04/The-privatisation-of-royal-mail.pdf

1.2.2. Our review covered IPO processes only, focusing on their efficiency in price discovery, and so for the avoidance of doubt excluded past or prospective processes involving shares which already have a publicly listed price, including the Government's holdings of bank shares.

1.3. Overview of the Review Process

1.3.1. In September 2014 we wrote to 97 individuals and institutions[2] inviting written submissions to inform the review process. To ensure full and frank engagement, submissions were invited on the basis that the information and views provided would be treated in the strictest confidence and that contributions would not be attributed to individuals or institutions in this report. We also received a number of unsolicited submissions, for which we record our gratitude.

1.3.2. Over the period September 2014 to November 2014 we conducted over 25 interviews in support of the review process. Interviews were held with a broad range of individuals and institutions. These included institutions from the financial services industry, academics, and those who had been involved in the Royal Mail IPO, including officials within BIS. As with the written submissions, interviews were conducted on the basis that all comments would be treated in the strictest of confidence by the Panel and not referenced by name in the report.

1.3.3. Professor Francesca Cornelli, supported by Raja Patnaik, a London Business School PhD student, provided a perspective on the large body of existing academic literature in relation to IPOs and associated analysis for the review. Their work is reflected throughout the report and in particular in section 5, section 8 and Appendix 2.

1.3.4. A small secretariat staffed by officials from the Shareholder Executive ("ShEx") within BIS supported us throughout the review. These officials had not been involved in the Royal Mail sale process.

1.4. Summary of Panel Recommendations

1.4.1. Bookbuilding in its current form is not perfect. However, there do not appear to be better alternatives. So we must focus on improving bookbuilding practice and outcomes. We believe that it is inevitable that bookbuilding will transition over

[2] See Appendix 1 for a complete list of those who were approached by Lord Myners for views (or who approached the Panel of their own volition) and those who were invited to be interviewed by the Panel.

time to a more digital online auction with more transparent rules. We believe this has significant advantages over a bookbuild based on non-binding expressions of interest and involving an opaque and discretionary approach to allocation. Auctions address many of the conflicts of interest associated with bookbuilding and are likely to be considerably cheaper in terms of fees.

1.4.2. Set out below are our recommendations as discussed throughout this report and repeated in section 9:

1.4.3. **There are a number of changes to United Kingdom market convention and, in some cases, regulation that we recommend should be actively encouraged.** We believe that these would benefit price discovery in primary share disposals across the market, not just for Government. Whilst this does not fall directly within the ambit of the Secretary of State we are persuaded that Government could have a valuable role to play in encouraging a dialogue on these issues between regulators and market participants. These changes include:

- More flexibility to set a wider price range and ability to move the price range;
- Publication of a prospectus as early as possible in the process;
- Enabling research by as broad a range of research firms as possible, including unconnected analysts;
- Changing the current approach to research blackout periods to enable better investor education;
- Considering standardised shareholding disclosure requirements for all institutions;
- Discussing with index providers whether accelerated entrance to indices could be more widely available; and
- Revising withdrawal right requirements, particularly as technology enables faster response time.

1.4.4. **Secretaries of State should ensure that in circumstances where orders are clustered at the top or bottom of the range, the range is then moved or expanded whenever practical. This would improve price discovery by achieving a bell shaped curve of demand. Furthermore, and in support of this, they should be bold in adopting innovative bookbuilding approaches, including launching with an unpriced prospectus.** Bookbuilding in its standard form has real limitations, including in circumstances when demand is particularly strong and the range cannot be increased. In these situations orders (often inflated) will bunch at the top of the range, making allocation subjective and preventing full price discovery. We recommend consideration of the following alternatives to the standard process in future Government sales:

- Launching a two stage process with an un-priced prospectus followed by a price range supplement. This is the approach sometimes taken in continental European markets, and we believe that it has considerable attractions for all IPOs, not just privatisations, in helping to achieve optimal price discovery.
- Adopting an innovative approach which combines the best elements of the United States and United Kingdom approaches to bookbuilds – i.e. a full process of early investor engagement with an acknowledgment, without the current stigma, that the price range will be changed if demand levels prove unexpectedly high or low.
- Setting a wider initial price range. Given the additional complexities and uncertainties that a privatisation entails, and the likelihood that caution will dictate a conservative approach to setting the bottom of the range, our view is that a range wider than current market convention may well be appropriate.

1.4.5. **Future Government primary share sale processes should also give careful consideration to selling in tranches the stake to be sold:**

- The decision on the size of stake to be sold will need to support the achievement of the sale's objectives.
- In some situations testing the market with a smaller initial sale may give meaningful pricing information to Government and enable the market to develop familiarity with the asset prior to a more significant issue.
- Government should seek to retain flexibility in terms of the eventual stake to be sold for as long as possible during the process in order to be able to respond to market feedback.

1.4.6. **A key debate for any Secretary of State considering future Government primary share disposals should be whether or not to include a retail offer.**

- There is a legitimate desire to enable broad public access to sales of Government assets, particularly for a household name such as Royal Mail.
- A retail offer can also add price tension to a sale process and this should be more fully exploited in the future.
- However, a full retail offer considerably increases the complexity and rigidity of an offer process. This can impede ultimate price discovery.
- In deciding whether to include a retail offer, we recommend that careful consideration is given to the breadth of retail involvement sought. An intermediaries offer is less accessible but reduces logistical challenges.

1.4.7. **Future primary share sales by the bookbuild method should ensure that the allocation criteria incentivise the role of pilot fish in price leadership.** We believe that pilot fishing can be an important and positive part of an IPO process, enabling

early engagement with potential investors. However allocation criteria should be clear that price leadership throughout the entire process will be rewarded, not just at an early stage.

1.4.8. **Whilst we understand that a degree of discretion will sometimes be required in the allocation of shares we believe that a 'cleaner', more transparent auction process should be encouraged.** Allocation criteria should also be considered that encourage transparency and that seek actively to discourage inflated orders**.** As technology advances there should be the possibility of leaving less space for subjective allocation that is open to accusations of partiality, and rather to create a more automated rules-based approach. **We think it inevitable that the bookbuilding process will transition to a more digital online auction based on binding bids. We encourage industry leaders to take up the challenge to transition book building towards a more auction-like, transparent mechanism and simultaneously to work proactively to develop digital online auctions given that these address concerns raised with us regarding bookbuilding.** A more appropriate allocation to index funds may also assist aftermarket stability.

1.4.9. **We recommend that Government make maximum use of in-house skill and experience where available to provide additional challenge to sale processes.** One example of this would be to consider a larger role for the Advisory Board of the Shareholder Executive given the range of skill and experience contained therein. Constructive and informed challenge of the bookbuild is essential throughout the process. It has been difficult for us to conclude whether the level of challenge around the Royal Mail bookbuild was as robust as it should have been.

2. United Kingdom Privatisation History

2.1. A Brief History

2.1.1. In the course of conducting the review we received submissions from and spoke with a number of individuals who were closely involved in and/or have conducted analysis of United Kingdom privatisations of the 1970's, 1980's and 1990's. It is relevant to the review to note some of the key features of these earlier privatisations.

2.1.2. That era of privatisation was inspired by a desire to free companies from Government control where there was no perceived rationale for continued public ownership. The private sector was considered in many cases to be better placed to make investment decisions and drive efficiency and improvement.

2.1.3. Retail participation was frequently sought in these privatisations for the dual purpose of broadening share ownership (then Government policy) and providing additional demand to increase price tension in the process.

2.1.4. The early privatisations were, by their very nature, experimental as Government lacked experience in bringing companies to market. Fixed price sales or sales by tender were the common routes to market in the 1970's and 1980's (see section 8 for an explanation of the three primary IPO pricing methods: fixed price, tender and bookbuilding). The share prices of many of the companies privatised using these methods increased significantly in the early days of trading. Indeed, academic studies have shown that privatisation issues have tended to outperform conventional IPOs (see Appendix 2).

2.1.5. By the 1990's Government, in particular HM Treasury, had developed greater expertise and was able to challenge more robustly the advice and influence of investment banks and financial institutions. At roughly the same time there was a move in the United Kingdom towards using bookbuilding for IPOs, which had become the predominant method for pricing and allocation in the United States.

2.1.6. Government developed clear principles of share allocation and wrote these into prospectuses to ensure transparency of the allocation process. In 1998, the Public Accounts Committee published a very helpful report on "Getting Value for Money in Privatisations" which drew upon the experience of 150 privatisations and set out the key lessons learnt together with case studies of good practice as well as examples of shortcomings in previous privatisations.

2.1.7. In more recent times, privatisations have been less frequent. The last Government IPO before the Royal Mail privatisation was Qinetiq in 2006. Over time, as might be expected, the experience of handling large privatisations largely dissipated with limited institutional memory remaining within Government.

3. Royal Mail IPO

3.1. Sale Objectives

3.1.1. The sale objectives Government set itself in the Royal Mail IPO[3] were:

'To sustain the universal postal service for the benefit of all users by securing Royal Mail's future through the introduction of private sector capital and associated commercial disciplines.'

This was to be achieved through:

'i) delivering a sale of shares of Royal Mail within this Parliament;

ii) creating an employee share scheme that, as decided by Parliament, will lead to at least 10% of the Company in employee ownership to drive strengthened employee engagement;

iii) delivering a financial outcome for the taxpayer, which when considered in the context of the overarching policy objective, represents overall value for money.'

3.2. Routes to Market

3.2.1. Two options were identified for the privatisation of Royal Mail: an IPO and a private sale, probably to private equity or trade buyers. Following serious consideration of both routes, by March 2013 an autumn 2013 IPO was identified as the lead option. The terms of reference of this review are focused on the route which was chosen - the IPO process.

3.2.2. On 10th July 2013 the intention to IPO, subject to meeting sale objectives, was made public by BIS in a report to Parliament and the Intention to Float (ITF) was released on 12th September 2013 confirming the decision to proceed with the lead option of an autumn 2013 IPO.

[3] "Royal Mail" – Written Ministerial Statement by the Rt. Hon Michael Fallon MP – 25th April 2013 (http://www.publications.parliament.uk/pa/cm201213/cmhansrd/cm130425/wmstext/130425m0001.htm#13042544000002)

3.3. Challenges to Achieving the Objectives

3.3.1. Successive Governments had failed to achieve a sale of Royal Mail. In the 2013 IPO Government faced a number of challenges in achieving its policy objective of privatising Royal Mail whilst maintaining the universal postal service. These included:

- There was limited expertise within Government in managing privatisations due to the time elapsed since these were regularly being conducted (i.e. throughout the 1980's and 1990's);
- There were high risks associated with a failure to achieve the sale once the intention to float ('ITF') was announced. These included the political consequences of another aborted or unsuccessful transaction, the potential damage to any future attempt at privatisation and the financial consequences arising from the fact that the value of Royal Mail in public ownership was considerably below the valuation potentially achievable in the private sector. This led to a highly cautious approach being taken by Government and its external advisers;
- The conventions of Parliament and restrictions created by the parliamentary calendar limited Government flexibility in terms of the announcement and timing of a sale;
- The Company had only recently emerged from many years as a loss making business. It was in an increasingly competitive market sector and faced significant structural challenges, including the requirement to maintain the Universal Service Obligation ('USO'). A plethora of risk factors was identified in 36 pages of the September 2013 prospectus and the results announced by the Company in November 2014 demonstrate the continuing reality of the challenges it faces;
- To sustain the USO post privatisation required a supportive investor base which would enable the Company to invest to remain efficient, competitive and solvent. Should the Company be unable to maintain its commitments under the USO, these obligations would revert to Government under European law;
- There was the threat of industrial action by the Royal Mail workforce during the period leading up to and during the IPO bookbuilding process. This not only had implications for the timing of the offer but also influenced the market's view of the Company; and
- The timeframe Government had established for the sale (autumn 2013 to spring 2014) overlapped with a period of macroeconomic uncertainty related to the possibility of a debt default by the United States Government which could have had adverse consequences for the equity markets and for a successful flotation.

With the IPO markets open and no certainty that this would continue or that macroeconomic conditions would improve between autumn 2013 and spring 2014, Government chose to proceed.

3.4. Other Challenges to the Process

3.4.1. The sale process had other complexities, including:

- Government had concluded that it was obliged to sell a majority stake in Royal Mail to achieve deconsolidation and meet HM Treasury's required level of non-state ownership to enable the Company to access private borrowing. Institutional investors had also expressed a strong preference for sale of a majority stake; and
- The inclusion of a full retail offer, with provision for direct postal applications as well as applications online and via intermediaries, made it more difficult for Government – which was already proceeding with caution and apprehensive of failure – to contemplate changes to the price range during bookbuilding (discussed further in section 7).

3.5. Key Participants

3.5.1. The Royal Mail IPO involved a wide range of organisations and institutions. We have sought clarity about their roles and relationships to support our understanding of the process.

Government

3.5.2. The role of the Government officials (ShEx within BIS and HM Treasury transaction teams, overseen by a committee of senior officials and the Permanent Secretary of BIS acting as Accounting Officer), was to receive, challenge, and present issues to Ministers for decision on the basis of advice from the external advisers.

3.5.3. As would be expected in the sale of a public asset, Ministers were the ultimate decision makers in the transaction. On key decisions throughout the process (e.g. pricing and allocation principles) Ministers had advice put to them by officials. This advice represented the final views of the external advisers as refined following challenge from officials.

3.5.4. Ministers then considered and reflected that advice in the decisions that they took.

3.5.5. ShEx has a corporate governance role looking after a number of commercial public bodies and has a corporate finance capability. However, on large transactions, and especially for a privatisation such as Royal Mail, ShEx procures external professional advice as it does not have the required equity capital market expertise in house.

3.5.6. The ShEx Advisory Board was – as its title suggests – purely advisory and although it was informed of developments, it did not take any decisions or have access to the same advice or briefing papers as Ministers.

The Company

3.5.7. Royal Mail was heavily involved in the investor education process. A number of individuals highlighted the important role that Royal Mail's management played in this process by presenting a positive equity story about the Company against a complex and uncertain backdrop of past losses, poor profitability and strained industrial relations.

3.5.8. Royal Mail was not a direct participant in bookbuilding and share allocation, although the Company was invited to provide views on the prioritisation of investors for allocation.

External Advisers

3.5.9. In support of the Royal Mail sale the Government appointed a number of external advisers through a formal tender process. Lazard was appointed as independent adviser to Government. They were appointed to advise on the strategic options for Royal Mail, routes to market, and the subsequent execution of a transaction.

3.5.10. Goldman Sachs and UBS were appointed as joint global coordinators to lead a syndicate of seven banks which also included Barclays, BofA Merrill Lynch, Investec, Nomura and RBC Capital Markets.

3.5.11. We have had detailed discussions with Lazard, Goldman Sachs and UBS, probed the information presented to us and cross checked it with other sources. Those discussions were valuable in enabling us to understand the advice which Government received during the sale.

3.5.12. The role of global coordinators is well established. However, the appointment of independent advisers is a more recent development and we considered it important to understand fully their role in the process. In the case of the Royal Mail sale, the independent adviser role included providing advice on: route to market, selection of bookrunners, allocation principles, price range, bookbuild process and share

allocation. Throughout the IPO process Lazard's function was to provide a view independent from the global coordinators and to test their assumptions and processes. The independent adviser role is in a large part designed to address the potential for bookrunners to have a conflict between their duty to the vendor and their close relationships with institutional investors.

3.5.13. We note the view of the Association of British Insurers (ABI) - who 'believe that, in many cases, particularly on larger or more complicated transactions, independent advisers can play an important role in ensuring that the syndicate is well managed, that the right information and advice is provided both to and by the issuer and that the syndicate's and that the issuer's interests are protected'[4]. The Rt. Hon Lord Lawson, in his memoirs[5], states that an independent adviser provides 'an extra line of defence' for Government.

3.5.14. For those who favour the use of independent advisers it is the lack of commercial relationships between independent advisers and investors that provides appeal but this can also limit the value of their feedback.

Investors

3.5.15. A range of types of investor might seek to buy shares in a company at IPO. In the Royal Mail IPO investors were broadly categorised by the global coordinators in the bookbuild and allocation processes as being one of 'pilot fish' (discussed below), 'other long only' or 'hedge funds', and 'retail'. Such classification does not reflect the fact that many institutions manage both long only and hedge-fund like portfolios.

3.6. Pilot Fishing

3.6.1. The period leading up to the Royal Mail IPO included an extremely thorough market education process – considered necessary in light of the complexity of Royal Mail as a business.

3.6.2. The key periods of education were:

- Early engagement - 112 meetings/calls in five rounds of market engagement pre pilot fishing (see below) that started in November 2011 with 65 investors contacted, 35 potential pilot fishing accounts identified and 58 roadshow meetings held;

[4] Association of British Insurers, 'Encouraging Equity Investment', July 2013.
[5] 'The View from No.11: Memoirs of a Tory Radical', October 1992.

- Pilot fishing - 21 institutions shortlisted prior to the ITF announcement in September 2013; and
- Pre-deal investor education and management roadshow following the ITF - a total of 548 institutions were contacted, over half of which were outside the United Kingdom.

3.6.3. In line with our mandate, we were particularly interested in the pilot fishing process. Pilot fish are institutions with whom a seller engages at an early stage in a sale process to test potential demand and price range expectations. Typically they are institutions who are considered to be likely to be supportive investors in the company, as well as representing a broad range of investor types.

3.6.4. The institutions invited to participate in early engagement formed a typical list, being well established institutional investors with a track record of stable and supportive investment and/or a proven record of participating in IPOs. Having participated in the early engagement period, the 21 pilot fish for Royal Mail were essentially 'self-selecting' from this list as institutions which had shown continued interest in the form of close engagement with Royal Mail management and were believed to have a deep understanding of the Company. Given the value attached to their feedback (as discussed below) the selection of pilot fish does merit careful consideration.

3.6.5. As well as long term investors, short term investors represent a significant proportion of the equity market. Their inclusion in the pilot fishing process is therefore important to ensure it covers a representative cross-section of the market, as all investors and not just long term investors determine trading prices.

3.6.6. The concept of pilot fishing was broadly supported by most of the institutional investors from whom we received comments. Anything which enables investors to inform themselves better about a company is welcome. There was acceptance that early involvement by and feedback from investment institutions justified some degree of reward at share allocation although this should be more transparent as described below.

3.6.7. Pilot fish in the Royal Mail IPO were given encouragement by the global coordinators that the Government would recognise clear and committed pre-launch size and value indications as a key allocation criterion. However, this favourable treatment could have been more transparent and should also have been dependent on other factors such as price leadership throughout the bookbuild. Without this requirement there was no pressure on them to keep contributing to price discovery as others moved up through the range towards the top. These are broader points which we will discuss further in section 8.

3.7. Setting the Price Range

3.7.1. It is customary to set a price range for an IPO in order to provide guidance to potential investors on the expected value of the Company at float and to help the global coordinators secure interest. This process is discussed further in section 8.

3.7.2. The setting of the price range will be determined by a number of factors, including feedback from potential buyers. Their feedback needs to be handled with considerable care given that the primary interest of a buyer is in keeping the offer price low. Making a judgement on this and balancing that feedback against other valuation metrics is a key role for the global coordinators and (if appointed) the independent adviser in the period prior to the IPO.

3.7.3. In the case of Royal Mail, feedback from pilot fish was used to inform Government (via the global coordinators and independent adviser) about how investors valued the business and the factors which were either supportive or detrimental to their valuation – including the dividend yield, industrial relations issues and the possibility of strike action.

3.7.4. Pilot fishing feedback gave Government the confidence to signal its intention to float. It also informed the setting of the bottom end of the IPO price range at 260p. This was close to the price (250p) where the pilot fish suggested the IPO would be supported by them despite uncertainty caused by issues such as potential strike action. Hence pilot fish institutions initially played an important role in setting the minimum level at which the Royal Mail IPO could be priced and launched with a high degree of confidence. This feedback effectively anchored the range. Having 'bulletproof' confidence in the bottom of the range being achievable on the basis of a verbal commitment from pilot fish was of greater importance to Government, which had set itself the clear objective of privatising Royal Mail, than might have been the case for a private seller who would be unlikely to set the bottom of their range on the same basis.

3.7.5. As explained in section 8, price ranges, once set, are seldom moved upwards in IPO processes in the United Kingdom. As a result, setting the bottom of the price range also had the effect of placing a ceiling on the maximum price that could be achieved given normal market practice of price ranges being a certain width, circa 20%.

3.7.6. The range eventually adopted for Royal Mail was based on an assessment by external advisers of the Company's fundamental value, including benchmarking against comparable trading companies. These metrics were a combination of dividend yield – which became an important valuation parameter – and earnings

multiples. This range from 260p to 330p was slightly wider, at 27%, than normal for a United Kingdom IPO.

3.7.7. The view of the external advisers was that the top of the price range of 330p represented an 'aspirational' level based on the fundamentals of the business as it would have implied a premium to comparable companies on some important metrics. In particular it equated to a forecast dividend yield of 6.1%, below that of bpost (7.4%) and Austrian Post (6.2%) and a forecast EV/EBITDA of 5.6x, above PostNL (4.8x), bpost (5.1x) and FedEx (5.4x)[6]

3.7.8. The 27% price range could have been still wider considering the uncertainty as to how the Company would be valued by the market. In our view, such a high profile IPO was capable of supporting a wide pricing range.

3.7.9. That said, we understand that the inclusion of a retail offer in the Royal Mail IPO was also a factor in setting the price range. Retail investors, who do not have access to analyst reports or company management, are price takers and need clear price guidance. A very wide range would have been a difficult proposition for Government to make to retail investors.

3.7.10. Furthermore, others have commented that a wider range would have risked becoming meaningless, and deterred investors from investing time in the process.

3.7.11. It is clear from our work that setting the initial price range is an absolutely critical part of the IPO process. We have more to say on this in section 8.

3.8. The Bookbuild

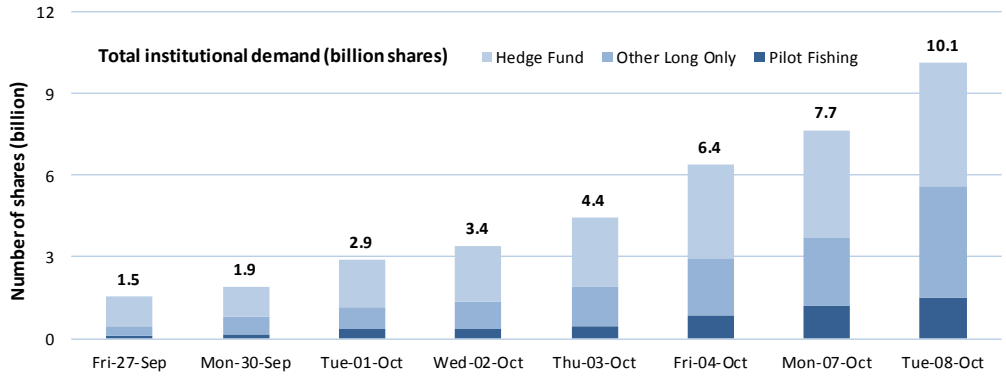
3.8.1. Bookbuilding is the process by which the global coordinators receive indicative orders over a number of days from potential investors at various price points within the range (260p-330p in the case of Royal Mail) in order to find the highest single price at which all the shares offered can be sold. Throughout the bookbuilding period, the syndicate release messages, agreed with the vendor, to institutional investors to communicate the evolution of demand and price range and with the expectation that these will be more widely communicated in the market.

3.8.2. The Royal Mail bookbuild began on Friday 27th September 2013 and completed on Tuesday 8th October 2013, 8 working days in total.

[6] Source: global coordinators to the Royal Mail IPO – contemporaneous December 2014 consensus estimates

3.8.3. The chart below[7] illustrates how institutional demand built each day during the bookbuild. Institutional orders began strongly and continued to grow throughout the period, with a significant increase in levels of interest at the top of the range over the bookbuild period. The chart shows the level of demand in billions of shares with corresponding coverage multiples displayed in tabular form. The coverage multiples represent how many times the available shares were subscribed for.

Royal Mail Institutional Demand at 330p – Shares & Coverage – 27th September to 8th October 2013



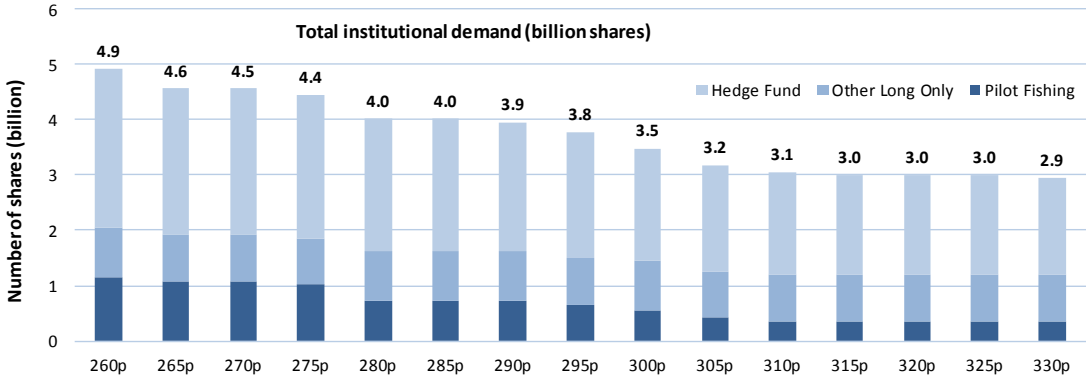
Coverage (x)								
Pilot Fishing	0.2	0.4	0.8	0.8	1.1	2.0	2.8	3.5
Other Long Only	0.9	1.5	1.9	2.4	3.3	4.9	5.8	9.6
Hedge Fund	2.5	2.5	4.1	4.8	6.0	8.0	9.3	10.6
Total	**3.6**	**4.4**	**6.8**	**8.0**	**10.4**	**14.9**	**17.9**	**23.7**

Note: Coverage multiples determined on basis of 33.0% of base deal to retail (equivalent to 28.7% allocation post greenshoe)

3.8.4. The following five charts[8] illustrate demand in billions of shares at various prices throughout the range at snapshots in time during the bookbuild. Again, with corresponding coverage multiples displayed in tabular form.

[7] Source: global coordinators to the Royal Mail IPO
[8] Source: global coordinators to the Royal Mail IPO

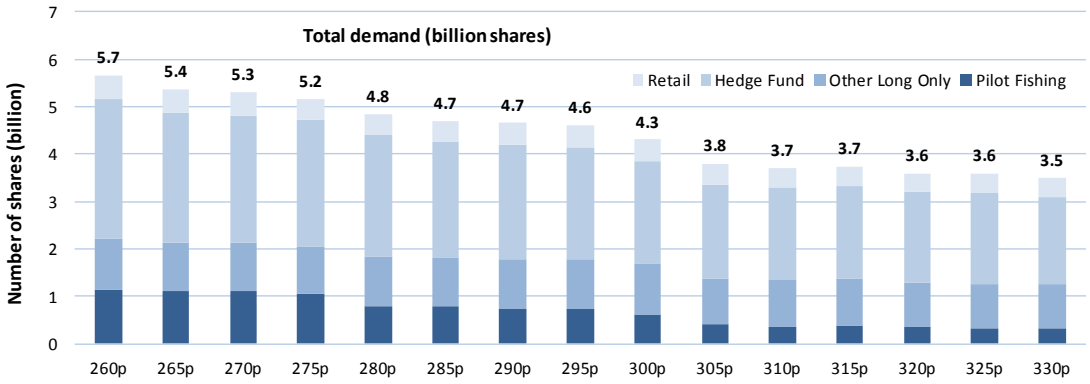
Royal Mail Institutional Demand at Various Prices in the Range – Shares & Coverage – at 1900 Hours on 1st October 2013 (Day Three of Bookbuild)



Coverage (x)	260p	265p	270p	275p	280p	285p	290p	295p	300p	305p	310p	315p	320p	325p	330p
Pilot Fishing	1.9	1.8	1.8	1.7	1.2	1.2	1.2	1.1	0.9	0.7	0.6	0.6	0.6	0.6	0.6
Other Long Only	1.5	1.4	1.4	1.4	1.5	1.5	1.5	1.4	1.5	1.4	1.4	1.4	1.4	1.4	1.4
Hedge Fund	4.8	4.4	4.4	4.3	4.0	3.9	3.9	3.8	3.4	3.2	3.1	3.0	3.0	3.0	2.9
Total	**8.2**	**7.7**	**7.6**	**7.4**	**6.7**	**6.6**	**6.5**	**6.3**	**5.9**	**5.3**	**5.2**	**5.1**	**5.0**	**4.9**	**4.9**

Note: Coverage multiples determined on basis of 60% entire deal

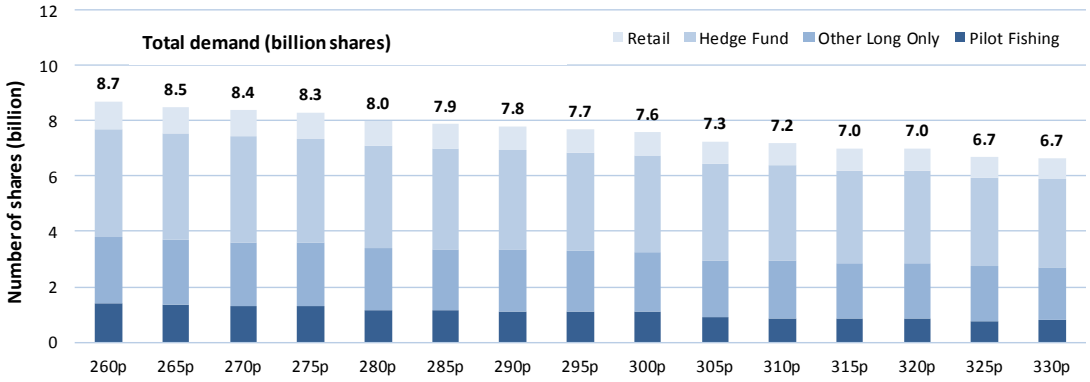
Royal Mail Demand at Various Prices in the Range – Shares & Coverage – at 1900 on 2nd October 2013 (Day Four of Bookbuild)



Coverage (x)	260p	265p	270p	275p	280p	285p	290p	295p	300p	305p	310p	315p	320p	325p	330p
Pilot Fishing	2.8	2.7	2.7	2.6	1.9	1.9	1.8	1.8	1.5	1.0	0.9	0.9	0.9	0.8	0.8
Other Long Only	2.6	2.5	2.5	2.4	2.6	2.5	2.5	2.5	2.6	2.4	2.4	2.4	2.3	2.3	2.3
Hedge Fund	7.2	6.7	6.6	6.5	6.2	6.0	5.9	5.8	5.3	5.0	4.9	4.8	4.7	4.7	4.6
Retail	1.2	1.2	1.2	1.1	1.1	1.1	1.1	1.1	1.1	1.1	1.0	1.0	1.0	1.0	1.0
Total	**13.9**	**13.2**	**13.0**	**12.7**	**11.7**	**11.5**	**11.4**	**11.2**	**10.5**	**9.5**	**9.2**	**9.0**	**8.9**	**8.8**	**8.7**

Note: Assumes retail demand of £500m; coverage multiples determined on basis of 30% base deal to retail on entire deal of 60%

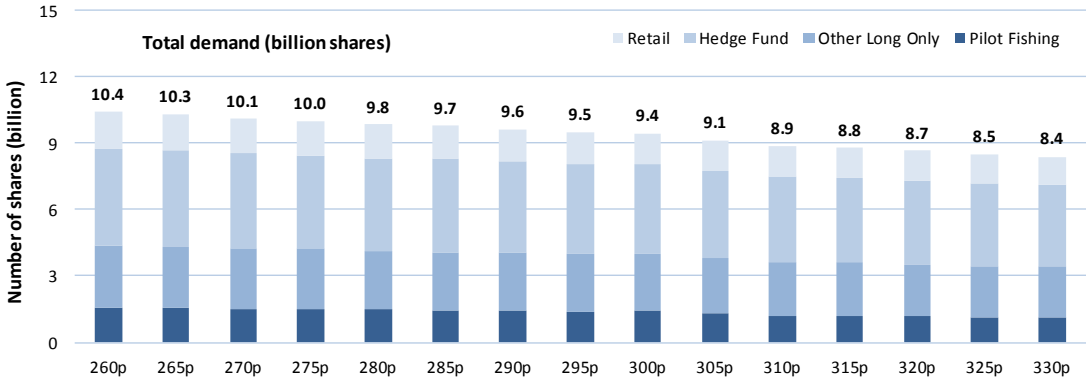
Royal Mail Demand at Various Prices in the Range – Shares & Coverage – at 1700 Hours on 4th October 2013 (Day Six of Bookbuild)



Coverage (x)															
Pilot Fishing	3.4	3.3	3.2	3.2	2.8	2.8	2.7	2.7	2.7	2.2	2.1	2.1	2.1	1.9	1.9
Other Long Only	5.8	5.7	5.6	5.6	5.5	5.4	5.4	5.3	5.2	5.0	5.0	4.9	4.8	4.8	4.7
Hedge Fund	9.5	9.4	9.3	9.1	9.0	8.9	8.8	8.7	8.6	8.4	8.3	8.2	8.1	7.8	7.7
Retail	2.4	2.3	2.3	2.3	2.2	2.2	2.1	2.1	2.1	2.0	2.0	2.0	1.9	1.9	1.9
Total	**21.1**	**20.7**	**20.4**	**20.2**	**19.5**	**19.3**	**19.0**	**18.8**	**18.6**	**17.7**	**17.4**	**17.2**	**16.9**	**16.4**	**16.3**

Note: Assumes retail demand of £970m; coverage multiples determined on basis of 30% base deal to retail on entire deal of 60%

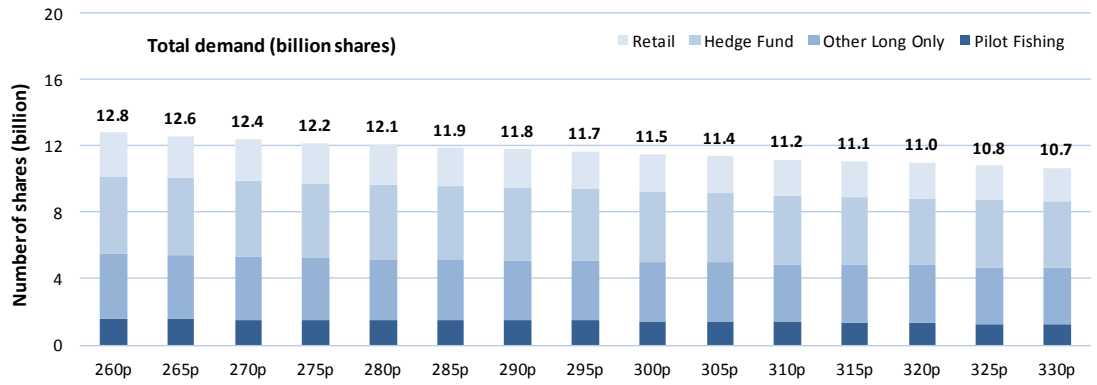
Royal Mail Demand at Various Prices in the Range – Shares & Coverage – at 1700 Hours on 7th October 2013 (Day Seven of Bookbuild)



Coverage (x)															
Pilot Fishing	4.0	3.9	3.8	3.8	3.7	3.6	3.6	3.5	3.5	3.2	3.0	3.0	2.9	2.8	2.8
Other Long Only	7.0	6.9	6.8	6.8	6.7	6.6	6.6	6.5	6.4	6.3	6.2	6.0	5.9	5.9	5.8
Hedge Fund	11.1	10.9	10.8	10.6	10.5	10.6	10.2	10.1	10.0	9.8	9.7	9.6	9.5	9.4	9.3
Retail	4.1	4.0	3.9	3.9	3.8	3.7	3.7	3.6	3.5	3.5	3.4	3.4	3.3	3.3	3.2
Total	**26.2**	**25.7**	**25.3**	**25.1**	**24.6**	**24.3**	**24.0**	**23.7**	**23.3**	**22.7**	**22.4**	**22.0**	**21.7**	**21.4**	**21.1**

Note: Assumes retail demand of £1,659m; coverage multiples determined on basis of 30% base deal to retail on entire deal of 60%

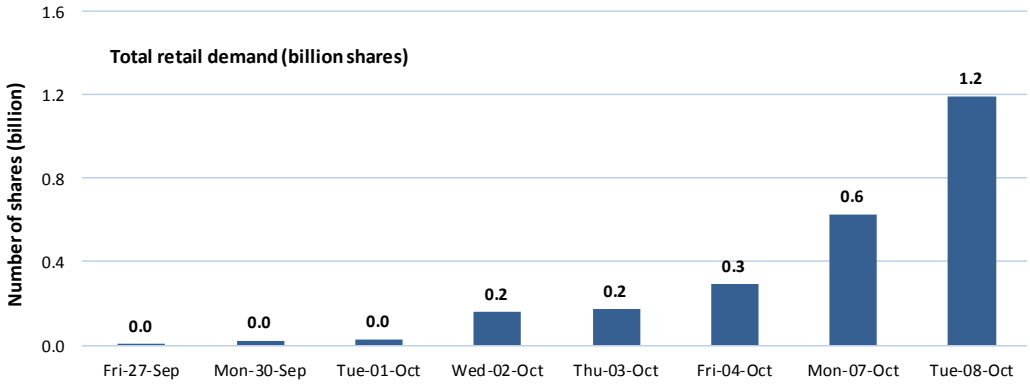
Royal Mail Demand at Various Prices in the Range – Shares & Coverage – at 1700 Hours on 8th October 2013 (Day Eight of Bookbuild)



Coverage (x)														
Pilot Fishing	4.1	4.1	4.0	4.0	3.9	3.9	3.8	3.8	3.7	3.7	3.6	3.5	3.5	3.3	3.3
Other Long Only	10.0	9.9	9.8	9.7	9.6	9.5	9.4	9.3	9.2	9.1	9.0	8.9	8.9	8.8	8.7
Hedge Fund	12.2	12.0	11.9	11.7	11.6	11.4	11.3	11.1	11.0	10.9	10.7	10.6	10.5	10.4	10.3
Retail	6.7	6.6	6.5	6.4	6.3	6.1	6.0	5.9	5.8	5.7	5.7	5.6	5.5	5.4	5.3
Total	**33.0**	**32.6**	**32.2**	**31.8**	**31.4**	**30.9**	**30.5**	**30.1**	**29.7**	**29.4**	**29.0**	**28.6**	**28.4**	**27.9**	**27.6**

Note: Assumes retail demand of £2,742m; coverage multiples determined on basis of 30% base deal to retail on entire deal of 60%

Royal Mail Retail Demand – Shares & Coverage - 27th September to 8th October 2013



Retail Coverage (x)	**0.0**	**0.1**	**0.2**	**0.9**	**1.0**	**1.7**	**3.7**	**6.9**
Cumulative Daily Retail Applications (thousands)								
Direct	5	28	35	43	54	72	224	405
Intermediaries				67		108	173	341
Total				**110**		**180**	**397**	**746**

3.8.5. At the end of the first day, institutions had placed orders for shares at the top of the range (330p) totalling 3.6 times the maximum number of shares on offer. This was despite 330p being supposedly an 'aspirational' price relative to Royal Mail comparators. Over the course of the next eight days the coverage ratio rose to 23.7 times. Orders from pilot fish were initially limited at the top of the range - only 0.2 times total sale coverage on day one, breaking through 1 times on day five and 3.5 times by the end of the process.

3.8.6. Retail orders were much later in their development. Although there were fundamental attractions of the offer to retail (in particular the dividend yield), positive media and political commentary over the second weekend of bookbuilding prompted the fourfold increase in the final two days.

3.8.7. A successful bookbuild should achieve a bell curve of demand showing orders at various prices demonstrating the price at which demand falls away[9]. If observed, a bell curve provides compelling evidence to support the decision on pricing and this data can then be used to inform allocation. In the Royal Mail IPO the clustering of demand at the top of the range from day one meant that this picture of demand was not observed as it was not possible to determine the price point at which demand began to fall below the available supply of shares.

3.8.8. On the basis of significant interest at the very top of the range in the first few days of bookbuilding, and with the benefit of hindsight, the top of the range could have been increased. We acknowledge that this would have added uncertainty and risk. We address below why the range was not revised. By not moving the range, testing above the top of the range was not conducted in any meaningful way.

3.9. Opportunity to Revise the Price Range

3.9.1. To change the price range of the offer during the IPO it is necessary to issue a statement to the stock exchange and to offer both institutions and retail investors the right to withdraw their orders.

3.9.2. Given the time required to communicate a change to the price range, we understand that the last opportunity to make such a change, without impacting the timetable, was Monday 30th September (i.e. day two of bookbuilding), when institutional demand was 4.4 times the number of shares on offer, including 1.9 times from pilot fish and other long only investors. The sale had significant momentum by the close of day two. It is unlikely that the market would have reacted adversely to an increase in the top of the range at this early stage in the bookbuild.

[9] In Cornelli and Goldreich (2003) the elasticity of bookbuilding demand, which is one of the ways the shape of the distribution of bids can be measured, was found to be highly correlated with share price volatility post IPO. This indicates that if there is uncertainty about the stock, opinions of investors will be dispersed. Bookbuilding or any other mechanism cannot ultimately eliminate this fundamental uncertainty. Therefore, the shape of the distribution will ultimately also depend on factors which are beyond the control of the bookrunner but will still be a bell curve.

3.9.3. Any later than this and the process would have involved triggering withdrawal rights, as required under Section 87 of the Financial Services and Markets Act (2000) which we discuss further in sections 7 and 8. This would have taken the date of unconditional trading beyond the date of the Royal Mail strike ballot result.

3.9.4. Had the members voted in favour of a strike and a strike date been announced it would have then required a supplementary prospectus to be issued, again triggering withdrawal rights and a further timetable extension which could have undone the strong momentum of the transaction. This was deemed by Government and external advisers to be particularly risky as this would have meant trading commencing after the potential date of a United States Government default, which could have greatly destabilised world markets. This is further evidence of the risk aversion of all involved.

3.9.5. The key factor that made any change to the timetable difficult was the retail offer, and in particular the postal element of this. We discuss the increased rigidity that a retail offer entails in section 7.

3.10. Other Reasons for Retaining the Range

3.10.1. By the end of day one, most of the pilot fish had placed orders, including some at the top of the range.

3.10.2. Despite the levels of apparent oversubscription, the fact that not all the pilot fish had placed orders at 330p in the initial days of bookbuilding gave rise to caution on the part of the external advisers.

3.10.3. A large proportion of the early orders were from short term investors, many of whom were suspected of seeking to 'game' the process by putting in orders well in excess of actual demand to secure some level of allocation of shares. This inflation of orders may have been exacerbated by the messages coming from the global coordinators about the extent to which the book was covered.

3.10.4. Investors were told on day one of the bookbuild that the book was covered, on day six that the price range had narrowed to the top end of the range and on the final day that the price would be at the top end of the range. This messaging encouraged potential investors to increase their bids on the basis that there was other interest at a described level and they could miss out on an allocation if they did not increase their offer size and/or price level. This practice is known as 'walking up' investors

through the price range. Government was aware of this practice and the messaging and understood it to be one of the claimed advantages of bookbuilding.

3.10.5. When discussions about revising the range took place between Government and external advisers (on day five of the bookbuild), there was no assurance that a higher price could be achieved. It was concluded that in addition to the timetable constraints already noted above, there was limited visibility that reliable demand – as opposed to inflated orders – existed above 330p and so there was not sufficient confidence that increasing the price range would be successful.

3.10.6. The global coordinators advised on day six of the bookbuild against increasing the range and the independent adviser concurred. ShEx reported the advice of the global coordinators and independent adviser to Ministers.

3.10.7. As evidence of the prevailing nervousness, we have been told that even at the levels of total oversubscription illustrated in the charts above, given the level of pilot fish demand there was not complete confidence before the second weekend of the bookbuild that a price above 300p could definitely be achieved. A senior representative from the global coordinators in a conversation with ShEx on Monday 7th October (day seven of the bookbuild) remarked that prior to that weekend they were not completely confident that the transaction would ultimately price above 300p.

3.11. Deal Size

3.11.1. The prospectus allowed for a sale of between 40.1% and 60% of Royal Mail shares (in addition to the employee offer of 10%) which ensured that a majority of the Company would be in private hands following IPO. One of the possibilities in responding to strong demand at the top of an effectively fixed price range would have been to reduce the size of the issue. This could have been done whilst achieving the prospectus objective. We understand that choosing the lower end of the size range (401 million shares) was discussed but the top end (600 million shares) was chosen by Ministers following the bookbuild.

3.11.2. The conclusion was that although it was possible to reduce the deal size, this was rejected based on the following considerations:

- Positive momentum around the IPO, which it was not clear could be replicated in future;

- The desire to have a core of stable investors and the risk that if allocations were scaled back too far they might sell out immediately;
- To reduce the risk to the tax payer from the residual stake, given the challenges and risks faced by Royal Mail; and
- To avoid further and more significant scale back of the retail allocation cap.

3.11.3. The global coordinators also advised that reducing the size of the deal would have been an unusual signal to the markets, although this was not a major factor in the Secretary of State's decision. It is more common for a deal to be increased in size to meet high demand rather than reduced, particularly when pricing is likely to be at the top of the range and therefore represents what the vendor and its advisers believe to be full value for the company being sold. We believe this line of argument is more credible when the vendor is selling all of the shares owned, rather than a part.

3.12. Observations on the Price Range and Deal Size

3.12.1. It is apparent to us that no party was willing to elevate transaction risk. Had bolder advice been given by the external advisers on the basis of the high levels of coverage seen – recognising that, in matters relating to direct market engagement, officials were acting as a conduit for advice to Ministers – and had Government acted on that advice, the sale could have achieved more value by raising the top of the range or withholding more stock for sale at a later date. Not doing so led to a compromised bookbuild. It is unclear to us how much impact the independent adviser had on the bookbuild itself but it was probably more modest than their overall project management role.

3.12.2. We have not uncovered any evidence to challenge the general assertion that it was unlikely that an IPO price greater than 350—360p could have been achieved through the bookbuild process, and we accept that a decision to revise the range would have come with added uncertainty and risk.

3.13. Allocation

3.13.1. As had been the case in earlier privatisations, allocation principles were set in advance through discussions between Government and its external advisers to ensure there was an agreed and transparent basis on which allocations for institutional investors would be made in the event of oversubscription of the order book for Royal Mail.

3.13.2. The objective of the allocation principles was to optimise price whilst establishing a long term, stable and supportive shareholder base. In addition, allocation was intended to create the confidence for a positive aftermarket performance and provide sufficient aftermarket liquidity to support subsequent Government sell-downs.

3.13.3. The allocation principles sought to reward price leadership – i.e. those institutions who had been engaged in and supportive of the process leading up to the IPO, in particular the pilot fish who gave indications of orders before the ITF. Whilst having the confidence to announce the intention to float was important, from our enquiries we conclude that price leadership after the ITF and during the bookbuild itself should have been a greater component of the allocation decision with regard to pilot fish, who had little incentive to lead the bookbuilding pricing since they were assured of favourable allocations.

3.13.4. In addition, the allocation principles sought to achieve a 'high quality' register of investors who were expected to take a long term view on the Company and not sell out of the stock in the event that the shares experienced negative sentiment following IPO. Although this is broadly accepted to be a legitimate desire on the part of any company and vendor, it should be noted that significant increases in the share price will force even those shareholders with a long term outlook to divest should the market price exceed their view of fundamental value.

3.13.5. The final book contained orders from over 700 institutional investors. The global coordinators were responsible for interpreting the allocation principles in developing a suggested allocation for Ministerial approval, with the independent adviser providing a challenge function on behalf of Government. Only those investors who had placed orders at 330p during the bookbuild process were allocated shares.

3.13.6. We observe that, as is normal practice, very small volumes of stock were allocated on an individual basis to some investors. Reflecting the excess of orders for Royal Mail (not to be mistaken for true demand) over available stock, and to avoid the concern that an excessive number of small allocations would lead to investors exiting quickly, a large number of investors (488) were given no allocation even though they had placed bids at 330p. This is normal market practice to ensure that the shareholder register contains investors with a meaningful shareholding in the company.

3.13.7. Of the shares available for sale (i.e. excluding those gifted to employees and those to be retained by Government) Ministers agreed to prospectus guidance of an approximate 70:30, institutional to retail, split. Following bookbuilding there was limited use of clawback with the split adjusted to 67:33 to enable all retail orders of £10,000 and below to receive a round £750 allocation.

3.13.8. This £10,000 cut off was based on advice received that in past privatisations, where similar levels of oversubscription occurred, retail investors were actively displeased to receive an allocation which was so small as to be an irritation. We note that 94.6% of retail applicants placed orders for £10,000 or less (representing total demand of £2.48 billion). The orders placed by the 5.4% of retail applicants who applied for more than £10,000 represented a further £1.45 billion of demand. In a different structure this could have been used to create price tension.

3.13.9. We note that where there is significant oversubscription at the top of the range, decisions on allocation within the agreed allocation criteria have a greater degree of subjectivity. This has the effect of giving greater discretion to the global coordinators. In the case of Royal Mail this also arguably increased the strong position of pilot fish investors on the final register. That position reflected their early involvement in the process as well as their enthusiasm for the story and the perception that they were expected to provide a stable base in the aftermarket, but the other key role of pilot fish, in providing price leadership throughout the bookbuild, was not evident in the case of Royal Mail.

3.14. Conclusions

3.14.1. Given the multiple execution challenges of pulling off a successful sale process, the key participants in the Royal Mail IPO were generally risk averse.

3.14.2. The standard system of bookbuilding that was used in the privatisation of Royal Mail demonstrated its limitations in a situation where orders came in large size at the top of the range during the early days of the bookbuild. The constraints of the range prevented share price discovery above 330p and the degree of oversubscription also meant that allocation was more opaque and subjective than usual.

3.14.3. Price leadership by pilot fish institutions was valuable to Government in providing comfort that a successful sale was achievable at the bottom of the range. However, they did not provide such leadership during the bookbuild process itself where the relatively limited size of orders from pilot fish at the top of the range compared to

other investors led the external advisers and Government to doubt that sufficient levels of demand would be sustainable at a price above 330p. The expectation on the part of pilot fish that they would be rewarded with allocation without necessarily leading the price discovery during bookbuilding considerably limited their motivation to be at the top of the range.

3.14.4. The inclusion of a retail element, and particularly one that encapsulated a full retail offer by post, added significantly to the rigidity of the process given the requirement for withdrawal rights and the impact those rights could have had on the timetable. This complicated any decision to change the offer terms. We explore this more fully in section 7.

3.14.5. There was a narrow window, which closed after the second day of bookbuilding, in which the price range could potentially have been changed without necessarily impacting the timetable in such a way that put the achievement of the sale objectives at risk. Options for doing so were considered but without sufficient confidence or conviction on the part of external advisers. Reflecting the Government's risk aversion, and the absence of serious challenge to the bookrunners by the independent adviser, a generally cautious approach prevailed.

3.14.6. With regard to the premium that could have been achieved above the price range, the lack of visibility above the range that is inherent in the standard bookbuild process makes this difficult to judge but the consensus appears to be that this was of the order of 20p-30p per share, less than 10% above the top of the selected price range. The Panel agree with this conclusion although it remains a matter of conjecture. This conjecture would not have been necessary if demand had been formally tested above 330p. An additional 20p-30p per share is equivalent to £200-300 million of value of the Company, equating to proceeds to Government at IPO of £120-180 million. For the avoidance of doubt, we do not believe that a price anywhere near the levels seen in the aftermarket could have been achieved at listing. The aftermarket conditions were affected by very particular trading patterns, as we will discuss further in section 4.

3.14.7. We seek to address and make recommendations around all these conclusions in the course of this report.

4. Royal Mail – Aftermarket Performance

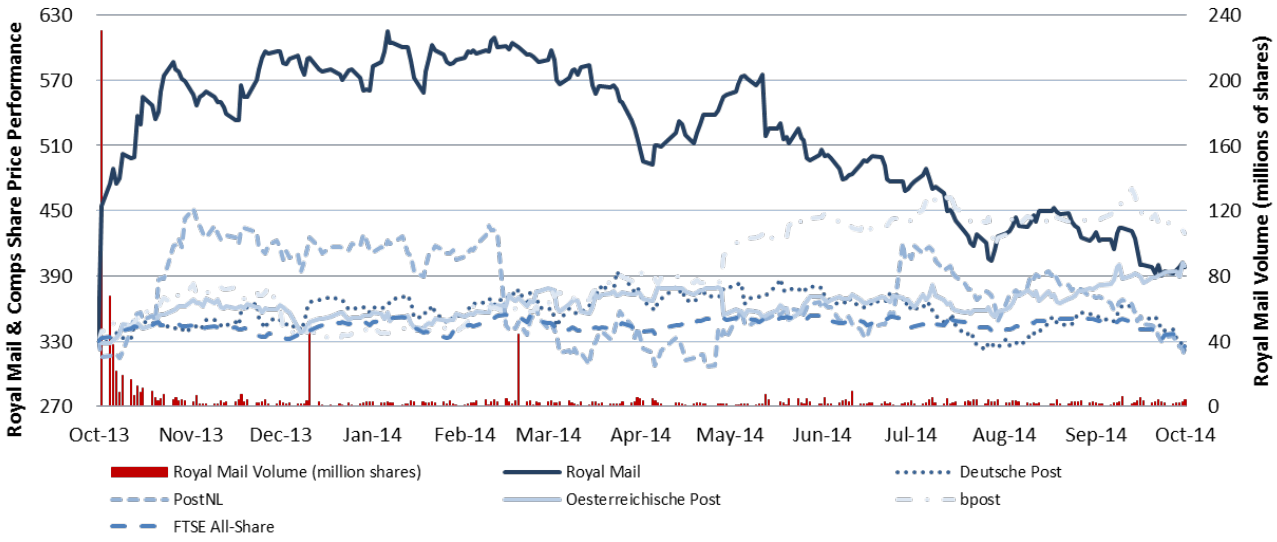
4.1. The Aftermarket

4.1.1. The Royal Mail aftermarket was highly unusual. An exceptional level of concentrated buying of available shares by a small number of institutions fuelled a price spike. Price movement was exacerbated by limited liquidity and the absence of short selling. The price spike precipitated selling by shareholders whose valuation and price targets had been reached. Royal Mail's entry into various indices and the resultant demand in the post IPO market from index tracker investors led to increased demand for shares. The institutions whose buying had driven the price higher were then able to sell their holdings, taking advantage of this. Market trading strategies and share price momentum overtook the fundamentals of the story for a number of months.

4.2. Royal Mail – 12 Months Since IPO

4.2.1. It is relevant to note both the immediate and sharp rise in share price following IPO and the steady decline in price since January 2014 – to a level which many consider to be a reasonable post IPO premium to the original offer price of 330p. The graph below sets Royal Mail's performance against that of comparable listed companies and the wider market.

Royal Mail Share Price v Comps & Market over 12 months from IPO – All indexed to Royal Mail IPO Price – and Royal Mail Trading Volumes



4.3. Initial Price Performance

4.3.1. The IPO was priced at 330p per share. On the first day of trading, 11th October, the shares closed at 455p per share. Two weeks later the price had risen to 555p per share before peaking at 615p per share on 15th January 2014.

4.3.2. A number of factors contributed to this strength. Shortly after the IPO it became clear that several concerns at the time of IPO had not materialised. Early trading took place against the backdrop of an improving stock market with the risk of an immediate United States debt default removed. On 30th October 2013 it was announced that the threatened strike at Royal Mail had been called off by The Communication Workers Union (CWU) and on 9th December 2013 the Company announced that agreement in principle had been reached with the CWU on a range of issues, including pay and protections to terms and conditions.

4.3.3. These factors alone are not sufficient to explain the aftermarket strength. In section 4.4 we set out our thoughts on the trading patterns that affected the Royal Mail aftermarket.

4.4. Major Buying and Selling

4.4.1. In its April 2014 report 'The Privatisation of Royal Mail'[10], the NAO demonstrated that between the IPO and November 2013, of the 20 largest shareholders at the date of IPO, seven had sold all of their shares, four had sold a majority of their shares, two had sold a minority of their shares, two had increased substantially, two had increased modestly and three had held constant.

[10] http://www.nao.org.uk/wp-content/uploads/2014/04/The-privatisation-of-royal-mail.pdf

Royal Mail Group Shareholdings for October 2013 to October 2014

(millions of shares)

Shareholder	Allocation at IPO	Shares held as at 1st Nov 2013	Feb 2014	Mar 2014	Apr 2014	Jun 2014	Aug 2014	Oct 2014
Pilot Fish Institutions								
Threadneedle Asset Management Ltd	19.5	16.3	14.0	14.1	13.6	19.3	17.6	17.6
BlackRock Investment Management (UK) Ltd[1]	19.3	2.7	12.1	10.4	26.1	26.0	31.6	29.3
GIC Private Ltd	19.0	41.0	40.5	40.5	39.7	39.5	40.5	38.7
Lansdowne Partners	19.0	18.1	18.1	15.8	12.1	15.0	15.4	2.0
Capital Research Global Investors[2]	17.5	4.2	0.0	0.0	0.0	0.0	0.0	0.0
Fidelity Worldwide[3]	17.5	6.0	3.9	4.5	6.9	13.1	14.6	14.9
Abu Dhabi Investment Authority	16.0	16.0	0.0	0.0	0.9	0.0	0.6	0.6
Kuwait Investment Office	16.0	16.3	16.0	16.0	15.3	16.3	13.6	14.9
Schroders Investment Management	13.5	0.2	0.0	0.0	0.0	0.2	0.3	0.3
Standard Life	13.5	7.5	1.3	1.3	0.0	0.0	0.0	0.0
Och Ziff Capital Management	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Henderson Global Investors	10.0	1.0	1.5	1.5	1.0	1.1	5.7	7.2
Soros Fund Management	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
JP Morgan Asset Management	6.8	2.5	1.3	1.3	1.2	0.9	0.4	0.0
Lazard Asset Management	6.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Third Point	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Non Pilot Fish Institutions who have held more than 10 million shares at dates shown since IPO[4][5]								
The Children's Investment Fund Management	Not Disclosed	67.8	34.3	17.1	6.0	0.0	0.0	0.0
TIAA_CREF	Not Disclosed	23.0	23.9	22.6	23.6	6.4	4.8	4.7
Goldman Sachs International	Not Disclosed	21.8	5.8	4.7	5.8	2.7	2.8	15.9
Hargreaves Lansdown Asset Management	Not Disclosed	21.3	19.1	18.5	18.6	18.4	18.2	18.5
Artisan Partners	Not Disclosed	16.7	17.6	17.5	19.4	19.8	0.2	0.0
Gazelle Capital Advisors	Not Disclosed	16.0	13.4	13.4	13.4	13.4	13.4	13.8
JP Morgan Securities	Not Disclosed	16.0	8.6	10.9	1.5	0.0	0.0	0.5
Nordea Bank Trading/Market Maker Account	Not Disclosed	10.0	2.3	2.3	2.3	0.0	6.8	0.0
Bank of New York	Not Disclosed	9.3	19.1	16.7	5.7	1.6	0.7	8.2
Route One Investment Co LP	Not Disclosed	6.4	8.7	9.1	9.1	9.3	9.5	10.4
Bessemer Trust Company	Not Disclosed	5.3	12.2	12.2	12.2	17.8	17.8	2.6
Oppenheimer Funds	Not Disclosed	2.4	2.4	14.6	14.5	16.3	16.1	16.7
Norges Bank Investment Management	Not Disclosed	1.7	1.7	1.7	1.7	1.7	1.7	10.2
Legal and General Asset Management	Not Disclosed	0.7	17.4	17.5	18.4	18.5	18.0	18.2
Credit Suisse Securities (Europe) Ltd	Not Disclosed	0.0	10.1	9.2	0.0	0.0	0.0	0.0
Deccan Value Advisors LP	Not Disclosed	0.0	8.1	8.3	8.6	8.9	10.8	11.5
Rabobank Trading/Market Maker Account	Not Disclosed	0.0	7.0	12.7	16.1	7.0	3.0	0.0
Woodford Investment Management LLP	Not Disclosed	0.0	0.0	0.0	0.0	0.0	15.0	25.8

Sources

IPO Allocations for Pilot Fishing investors: Department for Business, Innovation & Skills press release dated 2 May 2014

Shares held from November 2013 to October 2014: Derived from NAO report 'The Privatisation of Royal Mail' and S&P Capital IQ

Notes

[1] Blackrock - assumes all 5 entities listed by Capital IQ under banner of 'Blackrock Investment Management (UK)'

[2] Capital Research Global Investors - assumes 'Capital Research & Management Co' + 'Capital International'

[3] Fidelity Worldwide - assumes 'Fidelity Investments' + 'Fidelity Investments (US)' + 'Fidelity Investments (Canada)'

[4] +10m shares: Entities that held at least 10 million shares at the 1st of at least one month

[5] Excludes HMG and Royal Mail entities

Shares held in December 2014, January 2014 and September 2014 are not published by this source and are therefore not shown above

4.4.2. Given the magnitude of the increase in the share price selling was inevitable. Investors had their own valuation models that led them to conclude that 330p represented good value but those same valuation models were very likely to indicate that the shares were over-valued, compared with other investment

opportunities, at a large premium to the issue price. This would have triggered a requirement for institutions to sell and realise profits in accordance with their investment processes and fiduciary duties to their investors.

4.4.3. There appear to have been only a limited number of major buyers in the first week of trading, the largest of which was The Children's Investment Fund Management ('TCI'). Part of TCI's strategy is described as investing 'opportunistically in dislocations, corporate transformations and special situations.' TCI were allocated only a small number of shares at IPO but according to a regulatory notification made by them on 21st October 2013, held 5.8% of the Company on 18th October (9.7% of the free float). Acquiring well over 50 million shares in the space of a few days is a forceful market action. This represented 15% of the total volume traded in the week from IPO to 18th October. The impact on price of this buying was likely to have been significant.

4.4.4. Whilst it cannot be definitively established it appears that TCI and a limited number of other investors purchased the majority of shares sold by pilot fishing investors. Between IPO and 1st November 2013 the pilot fishing investors sold 122 million shares (or 89 million net of pilot fish buying). Over the same period TCI and four other investors (TIAA_CREFF, Artisan, Route One and Bessemer) appear to have purchased more than 100 million shares.

4.4.5. TCI appear to have subsequently sold the majority of their Royal Mail shares within a short period. As indicated in the above table, their holding had reduced sharply by February 2014 and continued to fall thereafter. A small number of other investors followed a similar pattern of buying and selling. We invited TCI to make a written submission and to speak with the Panel but they did not respond.

4.4.6. Many institutions were firm buyers and owners at 330p but their valuation models and fiduciary responsibilities required them to revisit the decision to retain shares when initial trading took them to such a high premium over the IPO price. There were therefore natural sellers at the premium but the premium itself was due to the strength of buying by a small number of investors who seemed intent on absorbing significant selling. As the price has fallen from its peak a number of the pilot fish institutions that sold out have subsequently bought back in to the Company, for example, Threadneedle, Blackrock, Fidelity and Henderson.

4.5. Indexation

4.5.1. The admission of Royal Mail to key indices led to significant demand for shares from index tracker funds and it is possible that these events provided predictable opportunities for the buying funds to exit sizeable positions.

4.5.2. As the share price increased, Royal Mail's prospective weighting in the index also increased and therefore added to the eventual demand from index funds, creating a self-fulfilling trading strategy. It was put to us by one party that 'TCI squeezed the trading in the aftermarket and sold into the indexing'.

4.5.3. Royal Mail joined the FTSE 100 and FTSE UK All-Share on 23rd December 2013 and the MSCI World on 3rd March 2014. The resultant demand is illustrated by trading volume spikes as shown in the graph at 4.2.1 above.

4.5.4. We note that the rules on entry to the indices are different for the largest IPOs which can join an index shortly after listing under FTSE fast entry rules rather than at the end of the quarter. There may be merit in exploring whether this could be extended for new issues generally, or at least new issues above a lower size threshold than is currently the case. Earlier entry to indices could enable higher demand from and allocations to index funds at IPO and potentially a more stable aftermarket.

4.5.5. We recommend that increased consideration be given to initial allocations to indexed fund investors. Although some funds cannot invest until index entry is achieved, one leading indexed fund investor confirmed to us that there is a degree of flexibility on this.

4.6. Limited Opportunities for Short Selling

4.6.1. Another important element contributing to the strong aftermarket in Royal Mail shares was an absence of opportunities for investors to sell the shares short.

4.6.2. The limitations on shorting in the initial period after listing tend to be of a purely practical nature related to the difficulty of locating shares to borrow. The natural lenders of stock are not able to set up procedures and be in a position to lend in the first few days of trading, particularly before unconditional dealing begins.

4.6.3. There was little stock available to borrow in the first few weeks of Royal Mail trading. There were no shares available to borrow during 'when issued trading', but even when unconditional trading began less than 1% of the institutional free float was shown as out on loan at any time until early 2014. The cost of borrowing was also high, reflecting the lack of available shares to borrow, and similarly did not normalise until early 2014.

4.6.4. This would have inhibited the normal short selling activity which would have been expected in a stock that some institutions considered fundamentally overvalued. The absence of this counterbalancing pressure contributed to the price spike.

4.7. Disclosure Requirements

4.7.1. Our enquiries into the disclosures required of shareholders when changes are made to major holdings in issuer's shares traded on a regulated (Official List) or prescribed market (Aim or Plus) have brought to our attention differences between types of investor entity in reporting requirements.

4.7.2. In the case of United Kingdom issuers, the base provision, under DTR 5.1.2 R[11], is that investors have to notify the issuer and the FCA simultaneously if they acquire or dispose of shares or financial instruments or a combination (direct and indirect) with voting rights which reach, exceed or fall below 3% and every percentage point above 3%.

4.7.3. However, there are a number of exemptions including that regulated investment managers operating on behalf of others are only required to disclose at 5% (as opposed to 3%) and 10%. A significant part of the market therefore only has to first disclose at 5%.

4.7.4. Matters relating to disclosure are complex and so we recognise that that this needs to be considered in a broader context including in relation to the EU Transparency Directive.

[11] The United Kingdom significant shareholding disclosure obligations are detailed in the Financial Conduct Authority Handbook under DTR Disclosure Rules and Transparency Rules.

4.8. Conclusion

4.8.1. The aftermarket in Royal Mail shares was highly unusual with the trading strategies of a small number of investors, most notably TCI, fuelling the share price rise with no downward pressure from short selling.

4.8.2. These aftermarket conditions were extraordinary and were not predictable. Without the impact of this buying we believe that the share price performance of Royal Mail would have been very different.

4.8.3. The unusual aftermarket effectively reversed much of the bookrunners' attempts at allocation to achieve a register of long term high quality investors in response to the requirements of Government. Many were forced to sell when the share price rose sharply, substantially changing the register within the first few days. We discuss the failure of the bookbuilding process in general to secure a shareholder register of high quality investors further in section 6.

4.8.4. We note that Royal Mail shares, a year after listing, were trading in line with their international comparators at a level that would typically be desired following a successful listing.

4.8.5. In relation to share market activity we have found nothing to suggest, nor has it been put to us, that there was any wrongdoing or any contravention of market and regulatory requirements. It is also recognised that investors are entitled to determine their own trading strategies based on what they consider is in their (and their clients') best interests.

5. Volatility in Other Recent IPOs

5.1. Analysis of Recent IPO Volatility

5.1.1. The academic literature provides extensive empirical evidence on IPO underpricing[12] throughout the world and illustrates that substantial volatility in IPO initial returns over time and across countries is a common phenomenon. Appendix 2 provides more details, country-specific statistics and a complete list of references, but in this section we will focus mainly on the United Kingdom.

5.1.2. Historically, IPOs in the United Kingdom have exhibited similar first-day returns to offerings in the United States. From 1959 to 2012, initial returns averaged 16% in the United Kingdom while mean underpricing in the United States amounted to 16.9% for a similar time period (see Table 1 in Appendix 2).

5.1.3. It is important to note that there has been substantial variation in initial IPO returns over time. It is often observed that periods with low underpricing ('cold' markets) are followed by periods associated with high average first-day returns ('hot' markets).

5.1.4. The IPO offering mechanism has also been found to play a significant role in the extent to which new issues are underpriced in the United Kingdom. For the period from 2004 to 2012, fixed price offerings had on average 10% first-day returns, compared to 6% for bookbuilt IPOs (Tastan (2014)) suggesting that bookbuilding improves the efficiency of price discovery.

5.1.5. The table below summarises key figures for large-scale IPOs that were conducted in the United Kingdom since 2009. Offerings are only included where gross proceeds were £300m or more. The results highlight that volatility in post-IPO returns is not uncommon. While first-day returns varied between minus 7% and 40%, long-run performance was even more volatile. The dispersion in returns steadily increased with time. The variability of 12-month returns, which range from minus 67% to 21%, was substantial.

[12] Underpricing is where the IPO offer price is lower than the market price on the first day of trading.

United Kingdom IPOs since 2009 with gross proceeds of £300m or more

All share prices in GBP

			1 Day after IPO		1 Month after IPO		6 Months after IPO		12 Months after IPO	
Date	Company	Offer Price	Share Price	Premium/ (Discount) to Offer Price (%)	Share Price	Premium/ (Discount) to Offer Price (%)	Share Price	Premium/ (Discount) to Offer Price (%)	Share Price	Premium/ (Discount) to Offer Price (%)
18-Jul-14	Spire Healthcare Group PLC	2.10	2.10	0.2%	2.19	4.3%				
10-Jul-14	SSP Group Plc	2.10	2.16	2.7%	2.32	10.5%				
23-Jun-14	AA PLC	2.50	2.32	(7.2)%	2.44	(2.4)%				
20-Jun-14	TSB Banking Group PLC	2.60	2.90	11.5%	2.85	9.5%				
18-Jun-14	Zoopla Property Group PLC	2.20	2.30	4.5%	2.43	10.7%				
12-Jun-14	B&M European Value Retail SA	2.70	2.85	5.6%	2.68	(0.6)%				
23-May-14	Saga PLC	1.85	1.85	0.0%	1.72	(7.0)%	1.57	(15.2)%		
14-Mar-14	boohoo.com PLC	0.50	0.70	40.0%	0.50	0.0%	0.42	(16.5)%		
03-Apr-14	Just Eat PLC	2.60	2.83	8.8%	2.20	(15.4)%	2.94	13.1%		
12-Mar-14	Pets at Home Group Plc	2.45	2.38	(2.9)%	2.10	(14.3)%	1.73	(29.2)%		
12-Mar-14	Poundland Group PLC	3.00	3.70	23.3%	3.70	23.3%	3.19	6.2%		
26-Feb-14	AO World PLC	2.85	3.78	32.6%	3.02	6.1%	2.22	(22.1)%		
25-Feb-14	Kennedy Wilson Europe Real Est	10.00	11.00	10.0%	10.42	4.2%	10.72	7.2%		
12-Nov-13	Just Retirement Group PLC	2.25	2.13	(5.3)%	1.97	(12.4)%	1.57	(30.1)%	1.31	(41.6)%
08-Nov-13	Merlin Entertainments PLC	3.15	3.47	10.2%	3.50	11.1%	3.50	11.2%	3.51	11.4%
11-Oct-13	Royal Mail plc	3.30	4.55	37.9%	5.69	72.4%	5.15	56.1%	3.99	20.8%
20-Sep-13	Foxtons Group PLC	2.30	2.67	16.1%	2.89	25.5%	3.84	67.0%	2.30	0.2%
07-Jun-13	Partnership Assurance Group pl	3.85	4.50	16.9%	4.72	22.6%	3.09	(19.7)%	1.28	(66.8)%
22-Mar-13	esure Group PLC	2.90	3.07	5.9%	2.91	0.3%	2.44	(15.7)%		(2.1)%
11-Oct-12	Direct Line Insurance Group PL	1.75	1.88	7.4%	1.94	10.9%	2.00	14.3%	2.09	19.6%
17-Jun-11	Genel Energy PLC	10.00	9.90	(1.0)%	10.25	2.5%	7.90	(21.0)%	6.05	(39.5)%
21-Jul-10	Ocado Group PLC	1.80	1.67	(7.2)%	1.34	(25.6)%	2.04	13.6%	1.91	6.1%
09-Jul-10	Asia Resource Minerals PLC	10.00	9.92	(0.9)%	9.65	(3.5)%	11.38	13.8%	11.10	11.0%
19-Mar-10	Acacia Mining PLC	5.75	5.75	(0.1)%	5.90	2.6%	5.98	4.0%	5.25	(8.7)%

Source: Bloomberg (as of 5 December 2014)

5.1.6. Unsurprisingly, large IPOs (privatisations in particular) are often executed under intense public scrutiny. The academic literature has documented a significant link between the amount of media coverage and initial returns, Royal Mail, of course, being a case in point. While on average higher levels of coverage are associated with higher post-IPO returns, examples of recent, high profile IPOs again illustrate large return variability.

5.1.7. It is interesting to look at the two most high profile IPOs in the United States in recent years, both of which showed considerable aftermarket volatility. Google used an auction mechanism to take the company public on 19th August 2004. The offering was priced well below the price range (of $108 to $135) at $85 per share. Returns amounted to about 18% on the first day of trading and rose substantially

over the following year. 1, 6 and 12-month returns amounted to 38, 127 and 229%, respectively[13].

5.1.8. In contrast, the bookbuilding process of Facebook's initial public offering (dated 18th May 2012) was characterized by several upward revisions to the pricing range due to strong retail demand. However, during the first day of trading only substantial price stabilisation activities by the bookrunner prevented the price from dipping below the offer price. First-day returns were only 0.6% followed by 1, 6, and 12-month returns of minus 21, minus 48 and minus 31%, respectively[14].

5.2. Conclusion

5.2.1. In summary, high volatility in initial IPO returns is a common phenomenon that is pervasive across varied types of IPOs in different countries, institutional settings and time periods. That said, the Royal Mail IPO was towards the higher end of the scale in terms of price volatility post listing.

5.2.2. IPO pricing is an art rather than a science and a bookbuild includes a high degree of subjective judgement. A perfect IPO outcome – described to us by an experienced city practitioner as a 9.99% premium at the end of day one of trading – cannot be easily achieved or guaranteed.

5.2.3. However, the wide share price variations that we note here suggest that there is merit, not only for Government but for the wider market, in exploring ways to improve the bookbuilding process in order to achieve more consistent outcomes.

[13] Source: Bloomberg. Further information on the Google IPO is presented in section 8
[14] Source: Bloomberg

6. Building a Long Term Shareholder Register

6.1. Desire for a Long Term Shareholder Register

6.1.1. The ambition to build a shareholder register at IPO populated by stable, long term investors is commonly held. It is intended to contribute to a company's ability to thrive in public markets as it is argued that supportive shareholders will enable the company to focus on long term strategy with the scope to access further equity funding as required.

6.1.2. In the case of Royal Mail this was considered to be in the interest not only of the Company but also of Government. With a residual holding of 30%, Government remains a large shareholder in Royal Mail post the IPO. Furthermore, the USO is a key commitment for Royal Mail and one which can only benefit from supportive shareholders. Sustaining this was the primary policy objective of the privatisation.

6.1.3. A stable investor base was one of the key aims of the allocation criteria. Institutions were evaluated by reference to a number of criteria including the likely duration of their shareholding period, their propensity to increase their shareholding in the aftermarket, particularly in a situation of share price weakness, and their track record of participation in comparable companies.

6.2. Formal Agreements to Hold Shares

6.2.1. Although a stable long term shareholder register was an important consideration for Royal Mail, it did not feature explicitly in the sale objectives. The pursuit of a formal commitment from investors to hold shares was considered but rejected as this would have been expensive.

6.2.2. The principal routes by which a formal commitment could be achieved are by way of a lock-up at the time of listing, or by a cornerstone structure whereby some institutions invest prior to listing.

6.2.3. A lock-up involves an agreement between the issuer and an investor that the latter will hold their allocation of shares for a minimum defined period of time (typically 1, 3, or 6 months) after purchase.

6.2.4. We raised this possibility at a number of our meetings but received consistent feedback that a lock-up is difficult to achieve other than at a considerable price discount to a conventional IPO, a discount which in the case of Royal Mail Government would have found difficult to justify on value for money grounds.

6.2.5. Notwithstanding a substantial potential discount many investors would not be able to enter into a lock-up as it would breach their client mandate to hold or dispose of stock at particular price or market levels. Furthermore, some investors must be able to meet liquidity requirements, as might arise from fund redemptions.

6.2.6. Finally, a lock-up does not in itself guarantee that a shareholder will be supportive of a company on an on-going basis, nor is it realistically achievable for more than a few months.

6.2.7. A cornerstone structure involves a limited number of investors committing to purchase a material percentage of a proposed IPO candidate ahead of launch. A key benefit for the investor is the ability to secure a guarantee of allocation. The benefits to the vendor are that the market may take confidence from the existence of cornerstone investors and that the cornerstone investors are expected, as a result of their commitment, to retain their holding in the medium term including a period after IPO. The use of cornerstone investors is established market practice in a number of Asian markets, for example Hong Kong. United Kingdom IPOs have occasionally used this route, for example Glencore.

6.2.8. However, just as for a lock-up, cornerstone investors agree to participate in this way on the expectation that the price they will pay will be at a substantial discount to the future listing price. In the case of a Government IPO, cornerstone investors would need to be willing to accept the risk that the float does not go ahead and that they remain minority shareholders in an unlisted Government controlled company. This would potentially lead to a more substantial discount than for a privately owned company.

6.2.9. A third option, which was used in the retail element of some of the 1980s and 1990s privatisations, is the offer of incentives for long term holders, typically in the form of bonus shares. Again, this comes at a cost to the vendor, and although it encourages the retention of a shareholding, it does not actually enforce it.

6.3. Seeking a Long Term Shareholder Register Without Formal Commitment

6.3.1. Early engagement between a company and potential investors is key to building a relationship and facilitating a better understanding of a company's story. This in

turn can enable the vendor to gauge the likelihood of an investor being a long term supporter. As has been previously noted, the Royal Mail process was praised for its early and thorough engagement with institutions. We endorse this and believe that future transactions should seek to do likewise. As we discuss in section 8, we also believe that market practices could be adapted to encourage earlier information sharing with potential investors.

6.3.2. A key role of allocation in any bookbuild is to seek to ensure that the register at listing is suitable for the company going forward. This is presented as a major benefit of bookbuilding, in that the degree of subjective judgement provided for in the allocation process enables a greater degree of control over this process than would be achievable in a more 'automated' auction system.

6.3.3. Once trading begins shares are openly tradable and a public company does not have the ability to control its register of shareholders. With expressions of demand for Royal Mail clustered at the top end of the range, the bookbuilding process did not provide a reliable indication of likely aftermarket performance.

6.3.4. We note that this puts a considerable amount of influence in the hands of the bookrunners. A key role of the independent adviser is to ensure that the conflicts inherent in the bookrunner role do not skew the eventual allocation.

6.3.5. As discussed in section 4 with regard to Royal Mail, a number of parties have commented to us that in the face of a sharply rising or falling share price even a carefully crafted register can quickly be undone as investors act in line with their fiduciary duty to buy or sell based on targets or fundamental valuation.

6.4. Conclusion

6.4.1. In the case of Royal Mail the challenge of achieving a stable register was exacerbated by two factors:

- The inability to discover the market clearing price because of the rigidity imposed by the price range which prevented a normal bell curve of demand, as discussed in section 3; and
- The extraordinary aftermarket environment, as discussed in section 4.

6.4.2. The pursuit of a long term shareholder register populated by high quality investors is a legitimate objective for an IPO. Options are available that can provide some

degree of formal commitment, albeit at a cost, and in any future Government sale processes such costs will doubtless again be debated against the potential benefits.

6.4.3. However, without a formal commitment to retain shares from shareholders, public companies can do very little to influence ownership and ensure a long term and stable register following listing. This situation is likely to be exacerbated if there is pronounced share price volatility. We therefore believe that this objective should not be overemphasised in future Government asset sales. More important in the Panel's view is the ability of the company, through an IPO, to access long term private capital – regardless of the source of that capital.

7. Retail Offers

7.1. Theoretical Rationale for Retail – Arguments For and Against

7.1.1. Retail has traditionally played an important role in primary sales by Government. Most of the large and high profile privatisations of the 1980's and 1990's had significant retail components. There were both financial and policy reasons for this approach:

- A retail offer potentially gives access to demand from an additional pool of investors. This can add price tension to a process;
- Given that the assets being sold were public, and often household names, it was felt to be appropriate that the shares being sold should be available to the general public; and
- There was an explicit policy objective to broaden public participation in enterprise: the idea of a 'shareholder democracy'.

7.1.2. We heard some views that were less positive on the attractions of a retail component. There were various reasons for this.

7.1.3. Some pointed to the additional complication of a retail offer, which we discuss in more detail below. Others questioned the merits of encouraging investment by individuals in a single share which inevitably carries a degree of risk. Other respondents felt that citizens benefit from a sale even when there is not a retail offer in a number of ways:

- HM Treasury receives the proceeds of such a sale for the public purse.
- Many of the institutional buyers who make up the shareholder base will represent pension fund assets or retail investment funds.
- If one accepts the argument that companies should benefit from greater efficiency resulting from the rigours of being listed, then the benefits should feed through to customers in the form of cheaper and/or better services.

7.2. Different Approaches to Retail

7.2.1. We note that there are different approaches to the retail component of an offer, and that each has its merits and demerits.

7.3. Direct Retail Offer

7.3.1. A direct retail offer makes share applications available to 'the man in the street' as well as to those who wish to invest through intermediaries (typically retail brokers and advisers). Such an offer may be online only or also permitted in hard copy form, i.e. via a paper postal application.

7.3.2. The principal merit, and the political attraction, of this approach is that it creates a level playing field of opportunity for anyone to participate in the offer, even if they do not have a broker (although where online only it may exclude those without internet access). This is therefore seen as the fairest system and thus arguably the most appropriate for the sale of a household name such as Royal Mail. In that particular case there was also logic in allowing postal applications for a postal company.

7.3.3. The principal disadvantage of a direct offer is that it adds considerable rigidity to the process. In particular this can have significant implications should any late change be made to the offer that triggers withdrawal rights:

- Withdrawal rights require a 48 hour notice period for investors to consider any significant change to the offer and, if they wish, to withdraw their order. Had a decision been taken in Royal Mail to change the price range, withdrawal rights would have been triggered. We discuss withdrawal rights further in section 8.
- For any retail offer the number of applications is likely to be many times larger than for an institutions only offer. This will require some processing time in addition to the 48 hour statutory period. In reality, therefore, withdrawal rights being triggered has a much greater impact on timetable in the context of a retail offer of any sort:
    - Briefing intermediaries and receiving agents, preparing and electronically sending out communications to potential investors (2-3 days)
    - Withdrawal period (2 days)
    - Collating the results of the withdrawal process (1 day)
- For a postal offer the 48 hour period also has to reflect postage time and the time taken to print paper communications and to process these when they are returned. In the case of Royal Mail there were almost 60,000 paper applications. This adds 2-3 further days to the process.
- In addition a postal option inevitably adds to the risk of problems with the physical processing of a large number of paper responses. This would be exacerbated if a late change was made within a fixed timetable, given the risk of confusion between responses to the original offer and those to the revised offer.

7.3.4. Retail rigidity is compounded in the case of a sale by Government by the 2011 Military Covenant which states: 'Those who serve in the Armed Forces, whether Regular or Reserve,…should face no disadvantage compared to other citizens in the provision of public and commercial services'. The deemed implication of this commitment for a full direct offer, such as Royal Mail, was that the offer had to be made available to Armed Forces overseas, which had timing implications and also entailed the translation of some of the documentation including the summary prospectus into several languages under local stock exchange regulations.

7.4. Intermediaries Offer

7.4.1. An intermediaries offer entails offering shares to retail clients via retail brokers.

7.4.2. The advantages of this are that it typically accesses the great majority of retail disposable wealth and that it somewhat reduces rigidity – applications are submitted on behalf of clients online, which increases the speed of the process and any changes thereto. Retail brokers will market the transaction and will aggregate orders. (It should nevertheless be noted that, as discussed in 7.3.3 above, any form of retail offer does make withdrawal rights a far more onerous consideration in terms of timing.)

7.4.3. The principal disadvantage is that requiring a broker account to be set up means that the offer is not available as a matter of course to everyone. Whilst anyone can in theory open an account this is not an entirely straightforward process. An intermediary only offer may risk being viewed as exclusive and, potentially, favouring wealthy individuals.

7.5. Incentivising Retail

7.5.1. The privatisations of the 1980s and 1990s regularly included a variety of incentives to encourage retail participation. These included partly paid shares, discounts for retail, customer discounts (e.g. on flights in the case of British Airways) and bonus shares being given to long term holders. Incentives along these lines were considered for Royal Mail but were not pursued:

- The policy objective of 'shareholder democracy' was not considered a principal focus of the Royal Mail sale, and therefore the value for money implications of a discounted offer outweighed the desire to attract more retail demand.

- Royal Mail was not a pure utility business and was operating against an untested market environment, which arguably made it a less appropriate candidate for offering to private investors at a discount.

7.6. Follow-on Retail Offer

7.6.1. We considered the suggestion that it might be possible to have a decoupled retail offer, whereby a price was fixed in the institutional offer and shares then offered to the public at that price (take-up to be clawed back from the institutional offer up to an agreed maximum level).

7.6.2. The advantage of this approach would be that it could enable a shorter bookbuild process, and a simpler offer to retail.

7.6.3. The principal demerits are that in such cases retail demand would probably be binary – very strong if shares were trading up, very poor if they were trading below the issue price. In addition it would send a potentially difficult message that retail had to accept a price set by City institutions, and would not enable the demand from retail to add price tension to the bookbuild process.

7.6.4. We concluded that these drawbacks generally outweigh the benefits of this approach, however it should not be altogether ruled out when retail is a requirement as it enables the main process to be more flexible.

7.7. Approach to Retail in Future Primary Sales by Government

7.7.1. In Royal Mail the decision was taken to have a direct retail offer and an intermediaries offer (as well as an employee offer). This was in line with the privatisations in the 1990s, albeit that the later ones of these had progressively smaller direct retail offer tranches.

7.7.2. The Qinetiq IPO in 2006 had an intermediaries offer but no direct retail offer. We note that there was negative commentary around this at the time, but also that this was not a typical 'household name' privatisation.

7.7.3. It is argued by some that not all candidates for privatisation are appropriate for an offer to private investors, for example if they are likely to exhibit volatile earnings.

7.7.4. If a retail offer is included in future primary sales for reasons that are broader than purely value for money considerations, we believe that it would be helpful for this

to be included as one of the transaction objectives, given that there are potentially negative value for money implications. In such cases Government may well be willing to consider incentives such as those pursued in the earlier privatisations.

7.7.5. We understand the desire to make any offer available to as many citizens as possible, particularly when the company in question has a strong public identity. We also accept that, in the case of Royal Mail, an offer that did not include a postal option would have appeared counter-intuitive. Ministers, officials and external advisers did discuss the merits and demerits of a direct retail offer, but were wary of excluding certain elements of the public.

7.7.6. In future primary sales a similar debate should take place. A direct offer entails significant compromise in terms of restricting flexibility to adapt a process once it has launched. A postal element exacerbates this, and we suggest that, in an ever more digital world, the attractions of including a postal offer may well be outweighed in future by its negative implications. An intermediaries offer accesses the majority of potential retail demand and has fewer, though still significant, restrictions upon flexibility.

7.8. Conclusion

7.8.1. A key decision for any Secretary of State considering future Government primary share disposals will be the role of retail involvement. Any decision to include retail will partly depend on the perceived risk profile of the company being offered for sale.

7.8.2. There is a legitimate desire to seek to maximise public access to such sales, particularly for the sale of a household name such as Royal Mail. We accept that such an approach has clear attractions in terms of creating a level playing field of opportunity for all.

7.8.3. However, a full retail offer adds considerably to the complexity and rigidity of an offer, and in the case of Royal Mail was one factor which made late changes to the structure, including the price range, appear more difficult. A postal offer compounds this. Even for Royal Mail the vast majority of applications were online or via intermediaries, and we question the merits of a postal offer in future transactions.

7.8.4. That said, we observe that the inflexibility of the Royal Mail retail offer reflected the timetable Government had set for the sale as well as factors outside of its control.

Had the window for a sale been movable, then it is feasible that the rigidity of a retail offer would not have had such a significant bearing on the ability to amend the price range as discussed in section 3.

7.8.5. Where retail is included, structures should be pursued which maximise the role that retail demand plays in providing price tension to a sale through clawback arrangements.

8. Alternatives and Enhancements to Bookbuilding

8.1. Background to Bookbuilding – development in the United Kingdom market and intellectual framework

8.1.1. As explained in section 3, leading global capital markets have now generally adopted the bookbuilding process as the most effective way of reaching a market based valuation of a previously unlisted company.

8.1.2. Originating in North America, bookbuilding has been the principal IPO mechanism in the United Kingdom and across Europe and Asia since the 1990's, although with some differences from the model seen in the United States. Pilot fishing is a more recent innovation and one that is not used in the United States due to stricter SEC rules on early communication with investors. In European markets early-look and pilot fishing meetings are now an increasingly normal part of the process, and can enable earlier information flows to both the vendor and potential buyers.

8.1.3. A combination of factors contributed to the migration to open price bookbuilding from the fixed price underwriting that was normal practice in the United Kingdom in the pre-Big Bang era (i.e. pre-1986) but had largely been replaced by the mid-1990's. The most notable is the internationalisation of the United Kingdom equity market (which was 7% foreign owned in 1992 and 60% foreign owned in 2012) and the decrease in the number of institutional investors willing and able to sub-underwrite fixed price IPO risk.

8.1.4. The growing influence of United States investment banks in equity markets across Europe was another major factor.

8.1.5. The 1987 BP IPO forced losses on the United States investment banks which had underwritten the American tranche at a fixed price but without sub-underwriting. This also forced losses on the major United Kingdom institutional investors which had sub-underwritten at a fixed price. The experience led underwriters and sub-underwriters to re-evaluate the balance of risk and reward.

8.1.6. Bookbuilding processes were promoted by the newly integrated investment banks on the grounds that they delivered better valuations than traditional fixed price underwriting. This was on the basis that a robustly run bookbuilding, which delivers a price at the end of a marketing campaign to hundreds of investors, should achieve a higher sale price for the vendor than a system where the price is fixed before fully-

fledged marketing has begun. The academic research supports this theory and provides empirical evidence that bookbuilding has reduced underpricing (see Appendix 2).

8.1.7. Bookbuilding requires minimal capital from the investment banks with, save for settlement risk, no underwriting risk and therefore very limited potential for significant losses. Some have suggested that the fact that the banks do not face the risk associated with overpricing may make them less cautious on price and inclined to push the market further to discover the highest price possible for the vendor. However there is also the conflicting desire not to overprice a sale and alienate the institutions with whom the banks have their most important relationships. In addition, fee structures for banks handling bookbuilding processes do not strongly incentivise price maximisation. The additional fee to bookrunners to secure an incrementally higher price is limited when compared to the risk of the transaction failing, which would lead to no fee being payable.

8.2. A Typical Bookbuilding Process

8.2.1. Bookbuilding is theoretically an effective method of price discovery and allocation. To quote oral evidence from Goldman Sachs to the Business, Innovation and Skills Select Committee hearing on the Royal Mail privatisation 'By the time that we price an IPO, we have undertaken a very comprehensive exercise from a due diligence perspective in terms of preparing the company for the market; there is an extensive engagement with the market around the company; and, on the back of that, we build a book of demand at different prices and are able to price the transaction at a clearing price for the size of deal that we are looking for.'

8.2.2. Under the standard bookbuilding process the bookrunner undertakes roadshows during the period for which the book is open, in order to collect non-binding indications of interest at various prices within the advertised price range. The bookrunner, with agreement from the issuer/vendor, then sets the price based on the demand generated and allocates shares to individual investors. In some cases the bookrunner and vendor or issuer may decide to update the initial price range. However, as we shall discuss later in this section, this is rare in the United Kingdom. Below is an indicative IPO bookbuilding timetable:

Milestone	Timing (approximate)
Analyst Presentation	T-8 weeks
Intention to Float announced and publication of deal research	T-4 weeks
Investor education by research analysts	T-4 weeks to T-2 weeks
Price range setting and publication of preliminary prospectus	T-2 weeks
Management road show and bookbuilding	During T-2 weeks
Pricing and allocation – publication of final prospectus	T
Settlement	T+2 days

8.2.3. A successful bookbuild should produce a bell shaped curve of demand at various prices allowing the bookrunner to accurately determine the market clearing price. If interest is concentrated at the very top of the range and demand has not been tested above that level, as was the case in the Royal Mail IPO, the demand curve will necessarily become a 'cliff edge' on the right of the chart meaning that the bookbuild cannot test whether it is achieving the maximum clearing price. This outcome will also tend to involve a high level of gaming and over-subscription, making allocation more subjective. The vendor and any independent adviser will have less meaningful data available to challenge robustly price and allocation.

8.2.4. We found in our dialogue with market practitioners an acceptance that the bookbuilding process is not perfect, and that in particular it has limitations in the circumstances described above where demand is particularly strong, Royal Mail being a case in point. This is still more the case in markets such as the United Kingdom (and Europe) where there is an expectation that a price range will not be changed. We refer to the NAO's findings on Royal Mail:

'When the Department approached the wider market through a 'book-building' exercise to test demand further, it encountered the inherent limitations of a standard process that is not effective at revealing demand for shares at prices above the high end of the range it set (330 pence) and lacks flexibility for a price increase when demand exceeds expectations.'

8.3. Overview of Current Academic Thinking

8.3.1. The academic literature sees bookbuilding as an auction where the bookrunner has discretion in setting the price and allocating the shares. When comparing the two mechanisms, the academic literature is not limited to the traditional auction formats, but also includes any form of auction where the price and the allocations will depend on several characteristics of the bidders or bids. To the extent that the only objective of the bookrunner is to maximise profits, auction and bookbuilding will be equivalent, since the bookrunner can always adopt the same rules that the auctioneer would follow.

8.3.2. Auctions or bookbuilding are optimal because they elicit information from the investors and thus facilitate price discovery. The price will therefore be set in a more accurate way. However, a necessary condition for eliciting information is that those who give relevant information are rewarded relative to those who do not. The general principles of auction theory show that a necessary condition is therefore that a bidder will need to obtain a higher reward if they reveal (through the bid) their private information. In order to achieve this, the bookrunner needs to slightly underprice the issue (so there is value in receiving shares in the IPO) and allocate more shares to those who provided such information. It is therefore important that a bidder is aware that a stronger or a more informative bid will receive a more favourable allocation.

8.3.3. The debate in the academic literature is whether the bookrunner is really maximising profits and thus behaving as an auctioneer, or is conflicted and really doing favours to clients for different reasons. Several papers bring evidence of this conflict of interest. The institutional investors have an on-going relationship with the bookrunner. It has been documented that institutional investors direct lobbying efforts toward the bookrunner in the form of brokerage commissions. Lead bookrunners often earn excess commission revenues in the period preceding ‘hot’ IPOs. In turn, the bookrunner provides more favourable allocations to institutions that provide the bookrunner’s brokerage arm with the highest commission revenue. Studies about IPOs in the United States have also highlighted more controversial activities like ‘spinning’ (which involves the allocation of `hot’ IPO shares to build relationships that result in subsequent business for the bookrunner) and other activities described in Appendix 2. In addition, the literature has also shown that the bookrunner has a large share of the aftermarket trading and can make additional profits in the aftermarket (see Appendix 2). If the bookrunner is severely conflicted then the bookbuilding process ceases to be an optimal route to price discovery. To that extent, any increase in transparency that keeps intact the

discretion given to the bookrunner can reduce the conflict of interests without undermining the benefits of the bookbuilding process.

8.3.4. The academic literature has also debated why auctions have not been more popular, if bookbuilding has the problems described above. There are two points of view: some papers have found theoretical reasons why auctions are not optimal (see Appendix 2) while others conclude that investment banks have played an active role in impeding the adoption of auctions.

8.3.5. A separate question is why is European bookbuilding different? The bulk of the literature on bookbuilding focuses on the style of bookbuilding observed in the United States, where the bookrunner sets a range and then investors make offers for shares. There is limited academic commentary on the early part of the process, as takes place in Europe, where investors are invited to provide information that is used in setting the price range. From the auction theory point of view, it is essential that incentives to provide information are also present in this early stage. One paper to focus on it (Jenkinson, Morrison and Wilhelm Jr (2006), see Appendix 2 for further detail), suggests that the European method leads to an equivalent equilibrium: selected investors (pilot fish) provide their information early to set the price range and that is why the price range is rarely moved. However, that paper also shows that for the incentives of the mechanism to work (in other words, to be sure that pilot fish investors reveal information truthfully) the pilot fish has to receive fewer shares (for example with a clawback) if by the end of bookbuilding demand is very high at the top of the range. Otherwise the entire mechanism is suboptimal because the pilot fish have no incentive to reveal their private information.

8.4. Traditional Underwriting

8.4.1. In a traditional underwriting, as used in earlier privatisations, the price of the issue is set by the vendor and/or the company in consultation with the main underwriter of the IPO and advertised to institutional and retail investors who place their orders at the fixed price.

8.4.2. We have discussed a return to the traditional underwriting method with a number of market participants and the view has been that with the internationalisation of the equity market as well as the increase in the size of the market, there is simply no longer the appetite amongst the institutional investors to act as sub-underwriters for large IPOs.

8.4.3. The traditional underwriting method relies on market insiders setting the price and as such does not offer a high degree of transparency. It is also limited in its ability to discover price successfully as it does not include extensive discussion with investors prior to fixing the IPO price. On the positive side, underwriting does provide certainty to the vendor that a sale can be made.

8.4.4. While the price will typically be set with reference to an estimate of the fair value of the company, IPOs are normally priced to produce a small premium in the aftermarket. This is in part to encourage investor participation in the process. Additionally, a rise in the price once shares start to trade in the open market creates a positive environment for the company, which is particularly important if further share sales are planned or if the company is planning to seek to raise equity capital from the market. For an underwritten offer, this price discount also reduces the risk of a loss for the underwriters. There is no real incentive for underwriters to set a high price to the benefit of the vendor given the weighting of risk towards them.

8.5. Auction Structures

8.5.1. Straight auctions or tender offers are an alternative to bookbuilding. The process involves selling the IPO under sealed bid auction. In the context of an IPO this is typically an electronic tender offer system where participants tender for shares and where an algorithm allocates stock to the highest bidders, institutional and retail. This algorithm is likely to be determined on the basis of allocation principles proposed by the advisers/vendor, and hence still involves an element of human influence. However, those principles are set down and are thus more transparent than may be the case in bookbuilds, where the allocation principles are deployed by the bookrunners at an allocation meeting held in private, rather than through a more automated and transparent system. The issue price is usually set at the unique market-clearing price that fully satisfies demand (in a uniform price auction and a Dutch auction) or at lower than the market clearing price (in a dirty auction).

8.5.2. Auctions should theoretically achieve maximum price discovery. They are more transparent and the administrators of the auction have little discretion on the allocation of shares. The final offer price is therefore less open to potential manipulation and abuse. There is less incentive to inflate orders in order to game the process under this structure, particularly in structures when the bid is binding.

8.5.3. However, even with greater transparency, the relatively limited number of recent auctions (most notably Google) suggests that these are not yet seen as a compelling

alternative to bookbuilding. In the Google IPO, the structure did not meet Google's original objectives, with value and size outcomes substantially below expectations.

8.5.4. Proponents of bookbuilding argue that an auction gives the bookrunners less opportunity to 'walk investors up the range' to obtain a higher price. Proponents of bookbuilding further suggest that an auction can ultimately achieve a higher price for a 'hot' IPO but will have less ability to take mitigating action if demand is proving disappointing. As discussed in Appendix 2, auctions seem to perform less well when there is uncertainty in the number of investors who will take part in the auction.

8.5.5. The other principal criticism of auctions is that without some form of subjective allocation system there is the potential for an unbalanced shareholder register to be created. The limitations of the process in terms of mechanical pricing and allocation systems has had perverse aftermarket consequences as in the Telecom Argentina IPO where retail investors out-bid institutions and the stock price fell sharply post-IPO.

8.5.6. Allocation criteria could be built into auction systems to mitigate these impacts, for example by limiting the maximum allocation to any one investor, or to a particular investor type.

8.5.7. Further consideration should also be given to vendors and advisers creating and sharing with the market tighter pre-defined allocation rules to minimise subjectivity at the time of allocation. Correctly designed these should provide investors with assurance that allocation will be sensible and incentivise them to reveal information which is helpful to price discovery. This is a broader point which we discuss further in section 8.6 below.

8.5.8. In Australia an innovative hybrid between auctions and bookbuilding has been developed. This system aims to allow fair, orderly and transparent pricing and allocation of new securities 'on-market' by using the existing stock exchange infrastructure. The 'bookbuild' is conducted on-market using a ticker code assigned to the company by the exchange where that code is visible to all market participants who can bid into the book either as principal or on behalf of a client. This gives the issuer control of pricing and allocation parameters but gives full visibility of bid prices (though not size) to interested parties. The combination of these controls with a process that discloses price but not size prevents or at least discourages gaming. We welcome the principles behind this approach and strongly encourage this and any other digital auction method that helps to remove gaming from the process and brings wider transparency to enhance price discovery.

8.5.9. Both the vendor and investors can have a greater level of confidence in an auction process which is transparent, difficult to game and where conflicts of interest are minimised, although the bookrunners are likely to argue that an auction does not allow them to show their commitment to their client by displaying skill in 'walking up the price'. As argued in section 8.3, the academic literature has highlighted the trade-off between the benefits that can arise from giving discretion to the bookrunner (relative to a standard auction) and the conflicts of interests that such discretion can give rise to. Greater transparency in the process can minimise the conflicts of interest, without eliminating all discretion. Moreover, while discretion is useful in some respects, there are ways in which it can be reduced (for example how to allocate among investors with the same characteristics) without reducing the benefits of the process.

8.5.10. In Appendix 2 there is further commentary on the academic debate as to whether bookbuilding is the optimal method to use for an IPO, or whether auctions perform better.

8.6. Price Range

8.6.1. Price range revisions are very uncommon in the United Kingdom and Europe. In the United States, regulations restrict communications that occur during the SEC's IPO approval process. As a result bookbuilding in the United States generally includes no early investor education; the regulations restrict what would otherwise be a natural process. As a consequence of that engagement (and thus price discovery) taking place later in the process, the United States market adapts more easily to changes to the initial price range. From data shared with us, 35% of recent IPOs in the United States priced above the initial range, 44% within the range and 21% below the range. In contrast, the market in Europe is more rigid with the vast majority of IPOs pricing within the range. There had only been four IPOs in the United Kingdom since 2000 where the range was increased. This indicates a high degree of structural inertia and is consistent with academic evidence which shows that bookrunners and investors often have prior expectations about the fair value of the issue and fail to adjust their expectations fully once information about demand is received. Behavioural research has provided substantial evidence that decision makers insufficiently adjust to new information and anchor on prior expectations.

8.6.2. We view this rigidity as unhelpful to ultimate price discovery. The rarity with which ranges are changed makes amending the range very challenging, both logistically and in terms of market messaging. We believe that it should be possible to have a system which combines the positives of both United States and European market

practice – a full process of early investor engagement but an understanding, without the current stigma, that the range may be changed if demand levels prove unexpectedly high or low. We recommend that banks, issuers and investors be more open to changing the range if the findings of the bookbuilding process indicate potential merit in doing so to allow for price discovery above or below the initial range. In the case of Royal Mail, there was confidence gained from pilot fish that the bottom of the range provided a floor price but the perceived rigidity at the top proved to be a barrier to ultimate price discovery.

8.6.3. Another approach to the same end is, of course, to launch with an unpriced prospectus (or one with just a minimum price) and then release a range late in the process via a supplementary, as we discuss and recommend later in this section.

8.6.4. As well as encouraging a more accepting environment for range revisions, we also recommend that in future primary sales, Government considers a wider than standard price range. The desire for certainty at the lower end is understandable but the ability to capture maximum value is also an important objective. Some argue that a price range can become meaninglessly wide, and that this can reduce both potential interest and the ability to 'walk up' investors within the range (as discussed in 8.5.4 above). However, we believe that given the additional complexities and uncertainties that a privatisation entails, a range significantly wider than market norms is defensible and indeed desirable.

8.7. Allocation Criteria

8.7.1. As already discussed in the context of auctions, we are advocates of tight pre-defined allocation rules. In a bookbuilding process clear rules that seek to maximise price discovery and reduce gaming should be considered.

8.7.2. The allocation process has been described to us by many as opaque and there is a good case for improving transparency in the pilot fishing, bookbuilding and allocation processes for a number of reasons. One is to assist price discovery. Another is to mitigate the potential impact of the conflicts of interest that can exist for the major investment banks. It has been put to us that banks can allocate shares to their preferential clients in exchange for their loyalty and continued business. In addition, it was suggested by more than one respondent that greater levels of underpricing lead to more aftermarket trading volume, which increases the revenue of investment banks when they subsequently become the market-makers for IPO firms or agents used for trading in the secondary market. The academic background as to why bookbuilding leaves discretion to the bookrunner and the conflicts of

interest generated by such discretion is discussed in Appendix 2. No suggestions were made to us that such conflicts were evident in the Royal Mail sale.

8.7.3. We believe that pilot fishing can be an important and positive part of an IPO process but price discovery throughout the entire process (not just quasi-underwriting at the start) is an important element of what should be expected from pilot fish. It is unhelpful for the process if pilot fish receive priority allocations without showing price leadership during bookbuilding. If this is the case there is little incentive for pilot fish to reveal their highest price during the bookbuild as they may believe that their earlier work will be rewarded and they will receive a priority allocation in any event by simply bidding at strike and hence following rather than leading the market. Allocation criteria should reflect this requirement. As discussed in section 8.3, and in Appendix 2, a necessary condition for bookbuilding to be an optimal mechanism is that investors conveying information relevant to set the correct price (or price range) should be rewarded. If instead it is clear at the end of the process that some investors have been conservative, or reluctant, when conveying their opinions about share value, then such investors should not be rewarded and receive fewer shares (or none at all). Adding one more stage to the bookbuilding process that allows setting the price range in a more informed way is, obviously, a positive aspect. But if that additional stage has the effect of destroying the incentives to convey the correct information, then this can be more damaging than useful. As we discussed in section 3, the lack of motivation for pilot fish in the Royal Mail IPO to show price leadership during bookbuilding contributed significantly to the deficiencies of the process.

8.7.4. In our enquiries we noted the practice of some investors putting in inflated orders for stock during the bookbuild process. This practice reduces transparency and is misleading to the market as messages go to the market regarding the extent to which the book is covered that may be based on false indications of the amount of stock that the investors in question would actually want to take up if allocated. Inflated orders complicate the picture for advisers and issuers when trying to determine the level of true demand in the book. As a result a high degree of subjectivity is involved in allocations, which in turn reduces the purity of the price discovery process. Whilst it is difficult to prevent entirely the inflation of orders, we believe that allocation criteria that specifically state that orders that appear inflated will be penalised when allocations are made could help to reduce this unhelpful practice. The move we anticipate towards digital auctions would eliminate this practice.

8.8. Sequential Sales

8.8.1. We considered the option of sequential sales as an alternative to a single primary issue. These reduce the risk to the vendor as they enable it to test the market and discover price and demand in advance of selling an entire holding or a large part of a holding.

8.8.2. The bookbuilding process can initially be used but for only the minimum number of shares required by the exchange. For example, in the case of an IPO that is going to be listed on the main market of the London Stock Exchange, only 25% of the shares in the issue need to be sold. For some investors, lock-up options may be set (albeit at a cost as discussed in section 6) to signal to the market the firm's quality and to maintain the credibility associated with long term shareholders.

8.8.3. Once trading is settled and the price is relatively stable, the company/vendor can return to the market and sell further shares. Hence the vendor can take advantage of a higher market price and a lower discount. This is a practice often adopted by private equity managers when they exit their portfolio companies through IPO. In theory prices should be higher if it is assumed that the original offer price was below fair value because of the necessity (discussed earlier) to underprice to launch a transaction. There is, of course, a risk that the price may have fallen, whether for stock specific reasons or reflecting a weaker broader market.

8.8.4. The discount for a secondary sale, frequently set by a bookbuild, is likely to be significantly lower than for a primary IPO because it is set against a known and seasoned market price.

8.8.5. Sequential methods have some downsides, in particular as to the degree of price discovery that is actually possible. In an IPO where a relatively small proportion of the company is sold the free float may not be sufficient for the market to price the issue accurately given the overhang from the vendor and illiquidity can lead to a volatile aftermarket. Hence the price discovery which this process is designed to achieve can be limited.

8.8.6. In future primary sales of public assets, the Government should carefully consider the percentage of the asset being offered in the initial sale and, where a majority sale is not required, Government should probe whether there is merit in the sequential sale route. The 1998 Public Accounts Committee Report 'Getting Value for Money in Privatisations' recommended that Departments should always consider selling shares in stages, with the presumption that unless they can be

confident about pricing the initial share offering they should not sell all the shares at once.

8.8.7. In cases where the market may be wary of Government retaining a majority stake, Government may limit its ability to exercise control by voluntarily ceding voting rights. Any such system would need to meet Government objectives, including in relation to ONS classification. We also recognise that different share classes and suspended voting rights are not in line with the trend in recent years to encourage single share classes and more active shareholder participation, a trend which has been encouraged by Government.

8.9. Possible Changes to Reduce Rigidity

8.9.1. There are a number of areas of broader market practice where we believe changes could be made that would enable a more efficient process.

Issuing a Split Prospectus:

8.9.2. Typically the investor education process takes place over a two week period at the end of which a price range is announced and the management roadshow commences. It is perfectly possible to launch the roadshow without the announcement of a price range and announce the price range and open the book later in the roadshow period. This provides some further time for price discovery based on feedback from a larger number of potential investors, although it would limit the period of time to build momentum in the book.

8.9.3. In relation to the Royal Mail transaction we noted that the early engagement with institutions has been widely welcomed. The most common suggestion that we received in the consultation was that earlier information sharing in transactions would be desirable.

8.9.4. A two stage process can address most of the problems of range and retail rigidity. Dependence on a single document that combines the prospectus and the price range is the cause of many of these problems. This can be effectively addressed by splitting the two. This has already happened in Europe:

- In Germany a ‘decoupled’ method has been developed and was selectively used between 2005 and 2012. This involved the publication of an approved prospectus which did not contain the price range. The prospectus was then used for marketing. Investors were not given any guidance as to the price range and had to

revert to the bank with an indication of interest and their view on pricing. Based on the investor feedback, a supplement to the prospectus setting out the price range was then published and an accelerated bookbuild process undertaken for a period of approximately three days. Finally, a press release announced the offer price.

- This approach has a number of significant advantages. It facilitates a more open discussion about price at the initial stage and the comparatively short bookbuilding period means that the process is less exposed to market volatility.
- The current timetable and marketing process in France is similar to the German route described above. In France, the prospectus is split into two constituent parts, the registration document and the securities note, both of which are stamped by the regulator. The registration document (which contains the company's financial information, including its audited accounts for the last three years) is stamped first and used as the marketing document during pilot fishing. The securities note, which is stamped and issued later, contains an indicative price range, within which final pricing will in principle be made on the basis of the results of the bookbuild. There is no regulatory or technical reason why this approach should not be used in the United Kingdom.
- If this model had been followed for the Royal Mail IPO a number of the timing issues faced by the issue could have been avoided. We believe the United Kingdom market should adopt this as a new standard approach for IPOs. The fact that this has not already happened represents an institutional inertia which we find unhealthy. We believe a two stage process would bring significant advantage to both vendors and investors.

8.9.5. As an amendment to the existing process, we recommend publishing the prospectus earlier so that investors have time to gain a greater understanding of the company. Academic research has tended to show that early sharing of an informative prospectus can enable more accurate pricing – this is further discussed in Appendix 2.

Other Investor Education and Timing Enhancements:

8.9.6. In their report 'Encouraging Equity Investment' published on 11th July 2013, the ABI noted:

'We encourage the practice of early engagement by issuers and vendors with investors up to a year or more before a planned IPO. This should be seen as an integral part of the IPO process.

Investors should ensure that the appropriate resource is committed to such early engagement, even - or particularly - when the IPO pipeline becomes very busy.

A prospectus approved by the UKLA, which is complete apart from pricing or price range and related information, should be issued at least one week earlier than the Pathfinder or Price Range prospectus is issued in current practice.

- This will require eliminating the delay between publication of connected research and the offering document.
- It should be achieved by obtaining regulatory clarification from the FCA that:
    - they will not regard connected research, if prepared and identified appropriately, as part of the prospectus,
    - publication close to the time of the prospectus will not necessarily compromise its independence (in the sense that it is independent of the company), and
    - therefore, temporal separation between connected research and prospectus publication is unnecessary.
    - This should eliminate any residual United Kingdom risk for issuers and underwriters and it will, as a matter of evidence, reduce the likelihood of any successful action in jurisdictions outside the United Kingdom.'

8.9.7. We fully endorse the findings of the ABI with regard to this point. The current system gives institutions the opportunity to access information (which in time will be reflected in the prospectus) earlier through participation in roadshow meetings. Giving all parties access to primary material at an earlier stage, including, importantly retail investors, would allow investors more time to familiarise themselves with a company and put retail and institutional investors on a more equal footing than is currently the case.

Withdrawal Rights:

8.9.8. The withdrawal rights applicable under section 87 of the Financial Services and Markets Act 2000 (FSMA) and reflecting guidance from the European Securities and Markets Authority (ESMA) have onerous implications for any late changes to deal structures. Withdrawal rights are triggered if an issuer has to issue a supplementary prospectus, for example because new material information emerges or the price range is changed.

8.9.9. Recent ESMA guidance has tightened this further. Previous market practice had been to treat withdrawal rights as disapplied if a prospectus had generic wording

about the basis on which pricing and deal size could be determined. ESMA guidance of 2014 indicated that there had to be enough guidance to make the price predictable, and the United Kingdom Listing Authority ('UKLA') has interpreted this as meaning that pricing outside the prospectus range will always trigger withdrawal rights.

8.9.10. We understand that there is a need for withdrawal rights where there is a significant change to an offer. An offer that is being made to 'non sophisticated' investors may have particular sensitivity in this regard. At the same time, the length of time that withdrawal rights can add to a process – as already discussed in section 7, for a full postal offer the 48 hour period can in practice equate to a delay of approximately one week – adds an unhelpful amount of rigidity, deterring vendors from making changes to price and size towards the end of the IPO.

8.9.11. We believe that through technology effective withdrawal rights could be retained in a shorter time period. If this is not the case vendors and issuers may decide that a full retail offer increases the rigidity of a process to such an extent that the associated potential cost of including it is too great. Those interested in the promotion of retail investment, including the London Stock Exchange, should take up the challenge of addressing this issue to find workable solutions to ensure that the protections there for the benefit of retail investors do not end up precluding them from participating in offers.

8.9.12. We also recommend that market participants engage with the UKLA and ESMA on their interpretation of the events which trigger withdrawal rights. For example, it should be perfectly possible to give an 'expected' range but have wording which gives flexibility to price within a somewhat broader range.

Research:

8.9.13. Elimination or at least considerable reduction of the 'research blackout'- the period between the publication of the connected analyst research notes and the prospectus - is an achievable improvement to bookbuilding or any other IPO process. This 10-14 day period is largely self-imposed by investment banks in order to mitigate any potential liability from investors who may claim to have relied on the banks' research, rather than the prospectus, in making their investment decision in an IPO.

8.9.14. The research blackout was introduced when there was much less regulation around the independence of analysts than is now the case. It is now regarded as a

'lose-lose' situation for the issuer, the vendor and the investor. The London Stock Exchange has previously (in 2013) hosted a roundtable on this where participants were supportive of eliminating or considerably reducing the blackout period. We would welcome action on this issue.

8.9.15. Another suggestion that we received was that it would be helpful if a greater level of independent research from non-connected analysts were permitted.

8.9.16. Again, in their report 'Encouraging Equity Investment' the ABI noted that the IPO process should allow at least one of two alternatives to promote the publication of independent research:

1. 'Issuers and underwriters should allow greater access for non-connected analysts to the IPO analysts' presentation or a subsequent similar presentation, such that they are able to have the same information as connected analysts'
2. 'Alternatively, non-connected analysts should be able to publish and distribute research with reference to a prospectus published immediately after the ITF that has been fully approved by the UKLA'

8.9.17. We again fully endorse the findings of the ABI with regard to this point. In the Royal Mail IPO there was a presentation for non-connected analysts at the insistence of the independent adviser.

Conclusion

8.9.18. There are a number of variants to traditional bookbuilding that Government could consider in future transaction processes. We set out our recommendations in full in the next section, but they are summarised in brief below.

8.9.19. Within a bookbuilding context there are other options that should be considered to add flexibility to the price discovery process:

- Wider price ranges would provide more thorough price discovery; and
- The culture of fixed price ranges that prevails in the United Kingdom is unhelpful and market participants should be encouraged to reconsider this structural inertia.

8.9.20. We believe that any move towards a more transparent auction-type process should be encouraged, and that appropriate allocation guidelines could mitigate

some of the perceived investor concerns. The growth of online auctions – such as the Australian system described above – across geographies, products and services is inevitable at some time in the future and will find a role in IPO pricing and distribution. Such a facility should be to the advantage of both sellers and buyers and address many of the concerns about potential conflicts of interest which lie at the heart of bookbuilding.

8.9.21. Allocation criteria generally should reward price discovery throughout the bookbuild process, not just at an early stage. They should actively seek to discourage the placing of inflated orders.

8.9.22. The dependence on a single document that combines the prospectus and the price range is not optimal for price discovery and could easily be addressed by splitting the two , evidenced by current and recent practice in France and Germany where an unpriced prospectus has initially been published followed by a priced supplement later in the process.

9. Panel Recommendations

9.1. Our recommendations for future primary share sales by Government are set out below. We recognise that it is not possible to be prescriptive given that every asset and the circumstances surrounding each sale are different. However, we recommend that all of the following points should be considered in preparing for and executing future transactions.

9.2. There are a number of changes to United Kingdom market convention and, in some cases, regulation that we recommend should be actively encouraged. We believe that these would benefit price discovery in primary share disposals across the market, not just for Government. Whilst this does not fall directly within the ambit of the Secretary of State we are persuaded that Government could have a valuable role to play in encouraging a dialogue on these issues between regulators and market participants. These changes include:

- More flexibility to set a wider price range and ability to move the price range;
- Publication of a prospectus as early as possible in the process;
- Enabling research by as broad a range of research firms as possible, including unconnected analysts;
- Changing the current approach to research blackout periods to enable better investor education;
- Considering standardised shareholding disclosure requirements for all institutions;
- Discussing with index providers whether accelerated entrance to indices could be more widely available; and
- Revising withdrawal right requirements, particularly as technology enables faster response time.

9.3. Secretaries of State should ensure that in circumstances where orders are clustered at the top or bottom of the range, the range is then moved or expanded whenever practical. This would improve price discovery by achieving a bell shaped curve of demand. Furthermore, and in support of this, they should be bold in adopting innovative bookbuilding approaches, including launching with an unpriced prospectus. Bookbuilding in its standard form has real limitations, including in circumstances when demand is particularly strong and the range cannot be increased. In these situations orders (often inflated) will bunch at the top of the range, making allocation subjective and preventing full price discovery. We recommend consideration of the following alternatives to the standard process in future Government sales:

- Launching a two stage process with an un-priced prospectus followed by a price range supplement. This is the approach sometimes taken in continental European markets, and we believe that it has considerable attractions for all IPOs, not just privatisations, in helping to achieve optimal price discovery.
- Adopting an innovative approach which combines the best elements of the United States and United Kingdom approaches to bookbuilds – i.e. a full process of early investor engagement with an acknowledgment, without the current stigma, that the price range will be changed if demand levels prove unexpectedly high or low.
- Setting a wider initial price range. Given the additional complexities and uncertainties that a privatisation entails, and the likelihood that caution will dictate a conservative approach to setting the bottom of the range, our view is that a range wider than current market convention may well be appropriate.

9.4. Future Government primary share sale processes should also give careful consideration to selling in tranches the stake to be sold:

- The decision on the size of stake to be sold will need to support the achievement of the sale's objectives.
- In some situations testing the market with a smaller initial sale may give meaningful pricing information to Government and enable the market to develop familiarity with the asset prior to a more significant issue.
- Government should seek to retain flexibility in terms of the eventual stake to be sold for as long as possible during the process in order to be able to respond to market feedback.

9.5. A key debate for any Secretary of State considering future Government primary share disposals should be whether or not to include a retail offer.

- There is a legitimate desire to enable broad public access to sales of Government assets, particularly for a household name such as Royal Mail.
- A retail offer can also add price tension to a sale process and this should be more fully exploited in the future.
- However, a full retail offer considerably increases the complexity and rigidity of an offer process. This can impede ultimate price discovery.
- In deciding whether to include a retail offer, we recommend that careful consideration is given to the breadth of retail involvement sought. An intermediaries offer is less accessible but reduces logistical challenges.

9.6. Future primary share sales by the bookbuild method should ensure that the allocation criteria incentivise the role of pilot fish in price leadership. We believe that pilot fishing can be an important and positive part of an IPO process, enabling early

engagement with potential investors. However allocation criteria should be clear that price leadership throughout the entire process will be rewarded, not just at an early stage.

9.7. Whilst we understand that a degree of discretion will sometimes be required in the allocation of shares we believe that a 'cleaner' more transparent auction process should be encouraged. Allocation criteria should also be considered that encourage transparency and that seek actively to discourage inflated orders**.** As technology advances there should be the possibility of leaving less space for subjective allocation that is open to accusations of partiality, and rather to create a more automated rules-based approach. **We think it inevitable that the bookbuilding process will transition to a more digital online auction based on binding bids. We encourage industry leaders to take up the challenge to transition book building towards a more auction-like, transparent mechanism and simultaneously to work proactively to develop digital online auctions given that these address concerns raised with us regarding bookbuilding.** A more appropriate allocation to index funds may also assist aftermarket stability.

9.8. We recommend that Government make maximum use of in-house skill and experience where available to provide additional challenge to sale processes. One example of this would be to consider a larger role for the Advisory Board of the Shareholder Executive given the range of skill and experience contained therein. Constructive and informed challenge of the bookbuild is essential throughout the process. It has been difficult for us to conclude whether the level of challenge around the Royal Mail bookbuild was as robust as it should have been.

Appendix 1 – Review Consultation

The list below includes all those approached by the Panel during the course of the review as well as those who contacted the Panel of their own volition.

We are grateful to all those approached who contributed to the review process.

Aberdeen Asset Management	Allen & Overy LLP	Alliance Trust PLC
Ashurst LLP	Aviva Investors	Axa Investment Managers
Bank of America Merrill Lynch	Barclays Investment Bank	BDO LLP
BlackRock Investment Management (UK) Limited		
Canaccord Genuity Ltd.	Capital Research	Chown Dewhurst LLP
Citigroup	Cleary Gottlieb Steen & Hamilton LLP	Sir David Clementi
Clifford Chance LLP	Credit Suisse Securities (Europe) Limited	
Davis Polk & Wardwell LLP	Debt Management Office	Deloitte LLP
Deutsche Bank AG		
Egerton Capital (UK) LLP	John Ellard	Ernst & Young Global Limited
Evercore Partners International LLP		
F & C Asset Management PLC	Fenchurch Advisory Partners	Fidelity Worldwide Investment
Freshfields Bruckhaus Deringer LLP	Fundsmith LLP	
GLG Partners LP	Gleacher Shacklock LLP	Goldman Sachs International
Sir Gerry Grimstone	Grant Thornton UK LLP	Greenhill Europe
Hannam & Partners	Hargreaves Lansdown	Richard Harris, University of Exeter Business School
Ros Hedley-Miller	Henderson Global Investors	Herbert Smith Freehills LLP
Neil Hirst, Imperial College London	HM Treasury	

ICAP plc

J.P. Morgan Cazenove	Jefferies Hoare Govett	Robert Jenkins, London Business School
Tim Jenkinson, University of Oxford	Howard Jones, Said Business School	
John Kay, London School of Economics	Paul Klemperer, University of Oxford	KPMG LLP
Lansdowne Partners (UK) LLP	Meziane Lasfer, Cass Business School	Lord Lawson of Blaby
Lazard	Legal & General Investment Management	Linklaters LLP
London Metal Exchange	London Stock Exchange plc	Mario Levis, London Business School
Makinson Cowell Limited	Marshall Wace LLP	Nigel Mills
Moelis & Company	Morgan Stanley	Alan Morrison, University of Oxford
Newton Investment Management	Northill Capital LLP	Numis Securities Ltd
Odey Asset Management	Old Mutual Global Investors	Ondra Partners
On Market Bookbuilds	Patrick O'Sullivan	
Panmure Gordon & Co	David Parker, Cranfield School of Management	Peel Hunt
Pensions and Investment Research Consultants LTD	David Pitt-Watson, London Business School	Christopher Polk, London School of Economics
PricewaterhouseCoopers LLP		
Redburn (Europe) Limited	Sir Steve Robson	NM Rothschild & Sons Ltd
Royal London Asset Management	Royal Mail Group	
Sanford C. Bernstein, LLC	Schroders plc	Shareholder Executive
Shore Capital Group Limited	Slaughter and May	Smithers & Co. Ltd.
Peter Spira	Standard Life Investments	STJ Advisors LLP

Robert Swannell	Henri Servaes, London Business School
The Children's Investment Fund	Threadneedle Investment Services Limited
UBS Limited	UK Shareholders Association Ltd.
Winterflood Securities Ltd	Woodford Investment Management LLP

Appendix 2 – Academic Literature Review

This review of the academic literature on initial public offerings (IPOs) is by no means exhaustive. It summarizes the most important ideas and conclusions that are within the scope of and relevant to this report. For more general surveys of the IPO literature, please refer to sources such as Ljungqvist (2007), Ritter and Welch (2002) and Ritter (2011).

I. Underpricing – Empirical Evidence

The term "underpricing" refers to the fact that the IPO offering price is on average set below the market-clearing price resulting in a share price increase on the first day of trading. Underpricing of shares in initial public offerings is a phenomenon that has been extensively documented [15]. The academic literature has shown that it is not limited to specific periods or countries and seems to be pervasive across capital markets throughout the world. Table 1 presents information on average first-day returns for 52 different countries[16]. The results illustrate that variation in initial returns across countries is substantial and ranges from 4 to 240%. We now focus in particular on the U.S., Europe and the United Kingdom.

i. **United States**: Column 3 of Table 2 breaks down average IPO initial returns in the U.S. by year for the period from 1980 to 2011. IPO volumes as well as underpricing appear to vary extensively over time[17]. The 1980s observed an average one-day return of around 7%, while the same measure doubled to about 15% in the period from 1990 to 1998 before peaking at 65% during the internet bubble years of 1999-2000 (Loughran and Ritter, 2004). The high levels of underpricing during the late 1990s and early 2000s have often been associated with a shift in IPO firm characteristics, marketing efforts and excessive optimism (Ljungqvist and Wilhelm, 2003). The predominantly young technology firms going public during the dot-com boom were often associated with high uncertainty about true firm value, which has been linked to more underpricing (Beatty and Ritter, 1986). In the post-bubble period from 2001 to 2013, average underpricing in the U.S. reverted back to 13.3%, a figure still substantially higher than averages prior to the 1990s.

ii. **Europe**: As illustrated in Table 1, the cross-sectional differences in IPO initial returns among European countries are substantial but the average one-day return is consistently positive across all countries. While countries such as Austria, Denmark and Norway observe single digit average first-day returns,

[15] Early studies by Logue (1973) and Ibbotson (1975) were among the first to show that.

[16] The information in Table 1 represents data published by Prof. Jay R. Ritter (University of Florida) as of 30th October 2014, which is available on his personal website (http://bear.warrington.ufl.edu/ritter/). Ritter states that "in countries where market prices are available immediately after offerings, the one-day raw return is reported. In countries where there is a delay before unconstrained market prices are reported, market-adjusted returns over an interval of several weeks are reported. All of the averages weight each IPO equally."

[17] See Lowry and Schwert (2002), Lowry, Officer and Schwert (2010), and Ritter (2011).

initial IPO returns in many other countries cluster around the 15% mark (e.g. Belgium, Finland, Italy, and the United Kingdom). Notably, average underpricing is higher in Germany and Switzerland (24 and 27%, respectively) than in most of the other European countries. According to Boulton, Smart and Zutter (2010), some of the cross-sectional differences can be attributed to varying institutional frameworks and governance mechanisms across countries. In contrast to the U.S. market, some European countries (for example, Italy) observed a decline in underpricing over time.

iii. **United Kingdom**: IPO underpricing in the United Kingdom has been well documented[18]. Average initial returns were 16% for the period from 1959 to 2012, which is similar to the U.S. market (16.9% underpricing in approximately the same time period). IPO underpricing in the United Kingdom. has seen a steady increase throughout the last century. Chambers and Dimson (2009) construct a time-series of United Kingdom IPO initial returns reaching back to 1917. They show that despite the increase in regulation and more stringent disclosure requirements initial returns rose from 3.8% in the pre-World War II period to about 9.2% in the period from 1945 to 1987. The authors argue that the improvements were outweighed by other developments, such as `the reduced level of trust between investors, issuers, and sponsors'. According to them banks have, over time, gained more market power and abandoned issue methods that alleviated underpricing. Tastan (2014) studies a sample of 389 United Kingdom IPOs from 2004 to 2012 and shows that fixed price offerings are significantly more underpriced than book-built IPOs (10% vs. 6%).

The following sections summarise several other research areas with respect to IPO underpricing that are relevant to this report:

i. **Time variability in IPO underpricing:** Although underpricing seems to have increased over time in many markets, there is considerable volatility in IPO initial returns. Lowry, Officer and Schwert (2010) find that the average monthly volatility of initial returns is substantial and varies significantly over time. For U.S. IPOs in the time period from 1965 to 2005, they document average underpricing of 22% with a standard deviation of about 55%. Moreover, the authors find that "hot" IPO markets are also associated with higher volatility.
In addition, IPO volume is highly autocorrelated with average initial returns indicating that firms are more likely to go public in times that follow periods of high initial returns.

[18] See Keasey and Short (1992), Brennan and Franks (1997), Espenlaub, Gregory and Tonks (2000), Unlu, Ferris and Noronha (2004), Reber, Berry and Toms (2005), Hill and Wilson (2006), Coakley, Hadass and Wood (2009), and Gregory, Guermat and Al-Shawawreh (2010).

ii. **Information content of IPO prospectuses:** Various studies (starting from Beatty and Ritter (1986) and Beatty and Welch (1996)) document a significant relationship between the information content of an IPO prospectus and the subsequent initial returns. Hanley and Hoberg (2010) illustrate that more informative content in the prospectus is associated with lower levels of underpricing. They argue that "premarket due diligence and disclosure by underwriters and issuers can serve as a substitute for costly bookbuilding". These findings are in line with results presented in Ferris, Hao and Liao (2012) who document a positive relationship between prospectus conservatism and underpricing.

iii. **Long-run performance:** While the evolution of initial returns has received substantial attention in the academic literature, a plethora of studies has also focused on the long-run underperformance of IPOs. Column 4 of Table 2 illustrates the average three-year buy-and-hold returns for IPOs in the U.S. from 1980 to 2012. Market-adjusted returns in Column 5 indicate that IPO firms on average underperform the market during the whole sample period. This result is in line with earlier studies that document similar long-run underperformance for U.S. and European IPOs[19]. In contrast, Brav and Gompers (1997) and Carter *et al.* (2011) argue that this underperformance is not related to the IPO, but rather to firm characteristics. Using a control sample of firms that are similar in terms of size and book-to-market ratios, they show that IPO firms do not perform significantly worse. Moreover, they find that momentum plays a significant role in explaining long-run IPO returns. Raw three-year hold-and-buy returns for European IPOs (London, Euronext, Frankfurt, and Milan) from 1995 to 2008 are presented in Ritter, Signori and Vismara (2013). Splitting the sample of firms by size reveals that long term underperformance in Europe seems to be largely driven by small firms.

iv. **Privatisation and underpricing:** A separate strand of the academic literature specifically focuses on underpricing associated with privatizations. Megginson and Netter (2001) provide an overview of empirical evidence on privatisation IPOs. Studies have examined privatisations in a number of countries including the United Kingdom[20] and show that privatisations on average observe higher initial returns than conventional IPOs. For example, Ljungqvist, Jenkinson and Wilhelm (2000) study 2,051 IPOs including 185 privatizations in 61 different markets (non-U.S.) from 1992 to 1999. They find that privatizations are more underpriced than

[19] Ritter (1991), Loughran and Ritter (1995), Carter, Dark and Singh (1998) study U.S. data and Levis (1993), Espenlaub, Gregory and Tonks (2000) and Schuster (2003) examine European IPOs.

[20] See Huang and Levich (1999), Megginson *et al.* (2000), Lam, Tan and Wee (2007) for international comparisons. Boardman, Laurin and Vining (2002) study privatisations in Canada, Jelic and Briston (2003) use Polish data, and Caves (1990) and Menyah, Paudyal and Inyangete (1995) examine privatisations in the UnitedKingdom.

private IPOs by about 9 percentage points, although the range of outcomes observed is very wide.

II. Underpricing – Theory

i. Asymmetric information: The dominant explanation for underpricing relies on the presence of asymmetric information among the different parties associated with an IPO (the issuing firm, the underwriter, and the investors). Asymmetric information models can broadly be classified into three different categories depending on which party is better informed. The most prominent and widely adopted model to justify underpricing and the use of bookbuilding (which will be explained in subsequent sections) is based on the assumption that some investors are better informed than others. Rock (1986) illustrates (in the context of fixed price offerings) that informed investors can avoid participating in IPOs where the price has been set too high. This creates a winner's curse for uninformed investors: *When receiving shares they will automatically revise downward their estimation of the shares' value.* Therefore, the price has to be set lower to compensate them for this, creating underpricing.
Allen and Faulhaber (1989), Grinblatt and Hwang (1989) and Welch (1989) illustrate that if the issuer is better informed, high-valued firms use underpricing to signal their quality. This allows them to raise capital under more favourable conditions in the future. On the other hand, Baron (1982) assumes that the underwriter possesses superior knowledge about demand conditions, leading to a principal-agent problem in which underpricing is used to induce optimal selling effort.

ii. Litigation: Institutional theories mainly focus on litigation risk. Ibbotson (1975) and Tinic (1988) suggest that by setting the IPO offering price lower than fair value, firms effectively insure themselves against future liability and IPO-related lawsuits. Lowry and Shu (2002) examine 1,841 U.S. IPOs from 1988 to 1995. They show that firms facing higher litigation risk underprice their issues more than other firms.

iii. Control and ownership theories: Control and ownership theories can be categorized into two competing theories. The first one was advanced by Stoughton and Zechner (1998). Their main assumption is that large investors have a superior monitoring ability, which increases the value of a company. Thus, value-maximizing managers favour large shareholders in the allocation of issues. Since it might be sub-optimal for these investors to hold large blocks, the shares are underpriced to provide an additional incentive. In this setting, underpricing does not necessarily pose a cost to the issuer, since absent any monitoring activities by external investors the issues would have been priced at a lower price reflecting higher agency costs. The second type of control and ownership theory

proposed by Brennan and Franks (1997) argues that managers pursuing non-value maximizing behaviour underprice the issue to generate excess demand and ration investors. By allocating smaller stakes across a larger shareholder base, managers reduce external monitoring and thus avoid the risk of interference by larger shareholders. Results of empirical studies provide mixed evidence for this mechanism (Smart and Zutter, 2003; Field and Sheehan, 2004).

iv. Behavioural theories: Behavioural approaches are based on the assumption that either irrational investors drive up the price of IPO shares beyond true value, or that behavioural biases cause issuers to put insufficient pressure on the underwriting banks to have underpricing reduced (Ljungqvist, 2007).
Another strand of this literature argues that IPO mispricing is the result of anchoring. If underwriters and investors have prior expectations about the fair value of the issue and fail to adjust their expectations fully once information about demand is received, this can lead to mispricing in the short- and long term. Behavioural research has provided substantial evidence on the fact that decision makers insufficiently adjust to new information and anchor on prior expectations (Slovic and Lichtenstein, 1971; Tversky and Kahneman, 1974). The subsequent "stock price drift" has been extensively documented in the literature on earnings announcements, analyst recommendations, seasoned equity offerings, and share repurchase announcements (Bernard and Thomas, 1989, 1990; Ikenberry, Lakonishok and Vermaelen, 1995; Michaely, Thaler and Womack, 1995; Womack, 1996).

III. IPO mechanisms

IPO mechanisms can broadly be classified into three categories: Fixed price offerings, bookbuilding and auctions.

i. The fixed price method has historically been the most prevalent mechanism. The offering price is predetermined and cannot be altered once information about demand is received. If the issue is oversubscribed, every investor is rationed accordingly, with no discretion[21]. As highlighted previously, when potential investors have private information about the value of the shares, fixed price offerings will have very high levels of underpricing due to the fear of the winner's curse (defined in section II.i.). The introduction of bookbuilding and auctions can be seen as a response to the winner's curse problem.

ii. Bookbuilding: Over the last decades, bookbuilding has become the dominant method (both in the United Kingdom as well as internationally) to determine the initial investors, the share allocation and the offering price in an initial public

[21] However, more flexible variations (e.g. allowing for allocation preferences with respect to order size) are used in many countries (Jagannathan, Jirnyi and Sherman, 2010).

offering. Bookbuilding can be seen as an auction where the rule according to which the price is set and the allocation of the shares is made is not specified ex ante but left to the discretion of the bookrunner.

iii. Auctions: The most basic form of an IPO auction is a uniform price auction (multi-unit sealed bid auctions). All of the winning bidders pay the same price, which can be at or below the market-clearing price. Many studies refer to the latter case, in which a uniform price auction results in a final price below the market-clearing level, as a "dirty auction" (Jagannathan, Jirnyi and Sherman, 2010). Sealed bid auctions are relatively transparent, giving minimal discretion to the auction administrator. Another type of auction is a pay-what-you-bid or discriminatory auction in which each bidder pays the price they bid. It is somewhat related to Dutch auctions, which are not sealed-bid, descending price auctions (the same issues are sold at many different price levels) (Sherman, 2005). Auctions have enjoyed great popularity and success for the sale of U.S. Treasury securities and government debt instruments.

The theoretical justification for the use of bookbuilding is given in Benveniste and Spindt (1989) and Benveniste and Wilhelm (1990). There are two parts to their arguments. The first part models the process of bookbuilding as an auction (abstracting from the discretion given to the bookrunner) and shows that either bookbuilding or auction methods represent optimal mechanisms to bring a company public. The authors mainly rely on the logic of auction theory or mechanism design to advance their arguments (see Myerson (1981)). As previously mentioned, an auction is optimal in the presence of asymmetric information where certain investors possess more information about the value of the shares than others. In this context, an auction or bookbuilding is optimal if it induces informed bidders to reveal their information to the bookrunner. The informed bidders require an incentive to reveal their information about the share value. Therefore, in bookbuilding, the bookrunner effectively conducts an auction in which investors bid with "indications of interest". The price is set at a level slightly lower than the share value (that was revealed during the process) and the informed investors who revealed their true valuations through their bids receive a more favourable allocation. In other words, informed investors will be willing to bid and reveal their information if in exchange they receive a more favourable allocation of underpriced shares. Thus, some underpricing is necessary both in bookbuilding and in an auction to induce investors to truthfully disclose their information in the process.

These papers also study why bookbuilding leaves discretion to the bookrunner (instead of conducting a regular auction). The authors argue that bookrunner can prioritise regular investors in exchange for their implicit promise to buy both successful ("hot") and less successful ("cold") issues. In other words, regular investors will receive favourable allocations of "hot" issues in exchange for the commitment to buy shares in issues that turn out not to be successful. This is optimal also from the point of view of the company going

public since ex ante it does not know if its issue will be “hot” or “cold”. Thus, the issuer is effectively buying insurance against IPO undersubscription.

In support, Cornelli and Goldreich (2001) show that bidders that reveal more information (for example through limit prices) receive more favourable allocations. They also find, similarly to Jenkinson and Jones (2004), that regular investors receive more favourable allocations. Finally, Cornelli and Goldreich (2003) show that the book indeed contains a lot of information that can be used to forecast the price in the aftermarket (which implies that not all information was subsumed in the IPO price).

These arguments are important because they show that both underpricing and the favouring of some investors can be justified and can result in an optimal outcome and thus are not necessarily evidence for misbehaviour by the bookrunner. The question, however, is to what extent underpricing and favouring is necessary. Loughran and Ritter (2004) argue that the observed level of underpricing is too high to be justified by the above argument and that it is instead the result of conflicts of interest on the part of the bookrunner. The bookrunner has to trade off the interests of the issuer with the interests of the investors, since the latter group includes some of the bookrunner’s regular clientele that will possibly take part in future issues. Some studies have highlighted additional potential conflicts that discretion can bring. Goldstein, Irvine and Puckett (2011) document that institutional investors in the U.S. direct lobbying efforts toward the lead bookrunner in the form of brokerage commissions. Lead bookrunners often earn excess commission revenues in the period preceding ‘hot’ IPOs. In turn, the bookrunner provides more favourable allocations to institutions that provide the underwriter’s brokerage arm with the highest commission revenues. Moreover, bookrunners have been found to engage in ‘spinning’ activities (see Liu and Ritter (2010)). Spinning relates to the allocation of ‘hot’ IPO shares by bookrunners to build relationships that result in subsequent business for the bookrunner. The term ‘spinning’ refers to the practice of immediately selling these allocations in the aftermarket for a quick profit. Studies have further shown that bookrunners enter into so-called laddering agreements with investors. These agreements require the investors to purchase additional shares in the aftermarket as a condition for receiving an initial IPO allocation. The bookrunner benefits from this prohibited practice to the extent that it boosts market prices and decreases the bookrunner’s expected cost of price support. Martin (2010) discusses analysts’ conflicts of interests and shows that analysts employed by the lead bookrunner are more likely to give a positive recommendation in the aftermarket.

If the bookrunner is conflicted and uses its discretion sub optimally, then auctions may perform better. Note that auctions can be designed in a way as to make the allocation of shares dependent on variables other than the bids (such as the type of investors, their nationality, their flipping probabilities, etc.). Therefore, the choice between auctions or bookbuilding is not a discussion of what specific rules to use but rather whether the rules

for setting the price and the allocations can be specified ex ante or whether discretion should be left to the bookrunner.

The downside of giving discretion to the bookrunner (and thus of bookbuilding) is obvious and is the one highlighted before: The bookrunner has a conflict of interest and instead of setting the price and allocating the shares optimally, they will favour their regular clients. Nevertheless, while IPO auctions have been introduced in at least 25 countries[22], they have generally been abandoned in favour of bookbuilding (see Table 3). The rejection of auctions as an IPO mechanism has occurred across a variety of different markets with varying institutional frameworks (see Jagannathan, Jirnyi and Sherman (2014)). This persistent pattern can be interpreted as evidence that investment banks successfully lobby to stop auctions from becoming common (since the fees are higher with bookbuilding and because they can use discretion to their own advantage). Alternatively, studies suggest that discretion in final allocations carries certain advantages (Sherman, 2005). For example, Jagannathan, Jirnyi and Sherman (2014) argue that auctions do not work well when there is too much uncertainty about the number of investors who will take part. They provide some examples of privatizations conducted through auctions in Hong Kong and other parts of Asia where the number of bidders varied a lot from one tranche to the other, which in some cases led to very disappointing performance.

The last issue discussed in the literature is the difference between U.S. and European IPOs. European IPOs usually feature a two-stage process, in which the first stage is used to set the price range. Subsequently, the actual bidding takes place (this is described in the main part of the report). An important feature of this IPO variation is that offerings are rarely priced outside the initial price range. Jenkinson, Morrison and Wilhelm Jr (2006) argue that the first stage in European IPOs allows bookrunners to contact informed investors earlier than otherwise possible and extract information about the optimal price range prior to setting it. Once again, it is important that investors have the right incentives to truthfully disclose information. According to the authors, the following mechanism creates such incentives. First, the bank commits to not pricing the offering above the initial price range, regardless of any information about demand received during bookbuilding. Second, the bank has to favour uninformed investors (more precisely, investors that are not involved in the first phase, in which the initial range was set) in the allocation of shares if the offering is oversubscribed. This way informed investors are incentivised to truthfully reveal their information, since they will otherwise receive lower or no allocations. Suppose informed

[22] Sherman (2005) argues that "uniform price and discriminatory IPO auctions have been tried in many countries, but virtually all have abandoned them. IPO auctions were tried in Italy, the Netherlands, Portugal, Sweden, Switzerland, and the United Kingdom in the 1980s and in Argentina, Malaysia, Singapore, Taiwan, and Turkey in the 1990s, but they were abandoned years before book building became popular. IPO auctions were most robust in France, being used alongside both fixed-price public offers and a restricted form of book building for many years. Even in France, however, IPO auctions were abandoned once standard book building-public offer simultaneous hybrids were allowed."

investors were to provide information during the first stage resulting in a price range which is lower than the fair value price range. Demand for the offering will be very high and during the allocation process informed investors will be crowded out. Therefore, this mechanism creates optimal incentives and results in optimal allocations.

On the other hand, Abrahamson, Jenkinson and Jones (2011) show that fees in Europe are lower, which could be evidence of a collusive market in the U.S.

IV. IPO aftermarket:

i. Momentum plays a significant role in explaining IPO returns in the aftermarket. Hanley (1993) finds that in IPOs where the offer price is set above the pricing range aftermarket returns are even higher. The author argues that the offer price is only partially adjusted when information is received after the setting of the initial price range. Affleck-Graves, Hegde and Miller (1996) extend this analysis and find that initial returns and short-term aftermarket performance are strongly correlated. Krigman, Shaw and Womack (1999) argue that IPO underpricing predicts future long-run returns. They show that "hot" IPOs (IPOs with first-day returns between 10 and 60%) perform considerably better during the first year of trading than IPOs with initial returns below 10%. On average these hot IPOs exhibit one-year excess returns of around 13%.

ii. Another strand of literature emphasizes the role of sentiment investors. Ritter and Welch (2002) argue that optimism among retail investors can partially account for IPO underpricing. Cornelli, Goldreich and Ljungqvist (2006) test this conjecture empirically and find that overoptimistic, small investors contribute substantially to the underpricing of IPOs (see also Dorn (2009) and Chan (2010)), since large institutions that received considerable share allocations will sell to them in the aftermarket if they are willing to pay an excessively high price, but will not sell to irrationally pessimistic investors. Studies such as Derrien (2005) and Ljungqvist, Nanda and Singh (2006) posit that the issuer and regular customers of the bookrunner benefit from the presence of these sentiment investors. Regular investors can sell their allocated stock to sentiment investors in the aftermarket and thus fully realize the "money left on the table". Chemmanur, Hu and Huang (2010) find that institutions sell about 70% of their IPO allocations in the first year. However, in IPOs with weak post-issue performance, they hold their allocations significantly longer and are rewarded by bookrunners with more IPO allocations.

iii. Media coverage is another factor that has been linked to underpricing. Liu, Sherman and Zhang (2007) document a positive relationship between media coverage and underpricing. This effect is even stronger for IPOs that are characterized by high ex ante uncertainty. In a follow-up study, Liu, Sherman and Zhang (2014) positively relate media coverage to long-run IPO performance, liquidity, analyst coverage and institutional investor ownership. Moreover, they find that firms observing high pre-IPO media coverage on average exhibit a lower cost of capital over the three years following the IPO.

iv. Aftermarket liquidity: Ellul and Pagano (2006) argue that investors require compensation in the form of underpricing for uncertainty about liquidity of the shares in the aftermarket. Using a dataset of 337 United Kingdom IPOs from June 1998 to 2000, they find that IPOs associated with a higher risk of aftermarket

illiquidity exhibit higher initial returns (see also Falconieri, Murphy and Weaver (2009)).

v. Price stabilization in the aftermarket: A crucial mechanism present in the aftermarket for most IPOs only becomes active if the IPO observes negative initial returns. In this case, the bookrunner usually initiates market stabilising activities by exercising the so-called overallotment (or "green shoe") option. The overallotment option allows the bookrunner to purchase usually an additional 15% of shares sold from the issuer at the offer price. This option generally expires 30 days after the issue. The green shoe option enables the bookrunner to limit an immediate decline in share price after the IPO without exposing them to excessive risk. Price stabilization activities by the bookrunner, however, are not only limited to the use of the overallotment option. Ellis, Michaely and O'Hara (2000) document that the lead bookrunner acts as the main market maker in the period immediately following the IPO for a sample of 559 U.S. IPOs in 1996 and 1997. The bookrunner, on average, accumulates a substantial position in stocks that trade below the offering price. The authors find that this accumulation "appears to continue for 21 days, suggesting a particular time dimension" for the bookrunner's stabilization activities. Similar evidence for price stabilization in the aftermarket is documented by Lewellen (2006). In particular, she finds that stabilization is stronger when the IPO is underwritten by a larger investment bank and by banks with retail brokerage operations. The latter result indicates that stabilization is beneficial for a broader base of investors and not only for institutional investors as is often suggested in the literature. Jenkinson and Jones (2007) add to the discussion by arguing that bookrunners have additional incentives to engage in price stabilisation. In some cases, bookrunners seem to favour various sellers in the aftermarket and seek to enhance their reputation and gain profits. They document that bookrunners often create naked short positions that are costly in the face of rising aftermarket prices (which is on average the case). The authors show that naked short positions are only loss-making if the premium to the offer price exceeds a certain threshold. Within this limit, covering naked shorts results in a profit to the lead bookrunner (at the expense of the other bookrunners), who as a result has an incentive to keep the level of underpricing low. Therefore, the authors argue that naked short positions align the interests of the issuer and the lead bookrunner.

Table 1: Equally weighted average initial returns for 52 countries

Country	Source	Sample Size	Time Period	Avg. Initial Return
Argentina	Eijgenhuijsen & van der Valk; Dealogic	26	1991-2013	4.2%
Australia	Lee, Taylor & Walter; Woo; Pham; Ritter	1,562	1976-2011	21.8%
Austria	Aussenegg	103	1971-2013	6.4%
Belgium	Rogiers, Manigart & Ooghe; Manigart DuMortier; Ritter	114	1984-2006	13.5%
Brazil	Aggarwal, Leal & Hernandez; Saito; Ushisima	275	1979-2011	33.1%
Bulgaria	Nikolov	9	2004-2007	36.5%
Canada	Jog & Riding; Jog & Srivastava; Kryzanowski, Lazrak & Rakita; Ritter	720	1971-2013	6.5%
Chile	Aggarwal, Leal & Hernandez; Celis & Maturana; Dealogic	81	1982-2013	7.4%
China	Chen, Choi, & Jiang; Jia, Xie & Zhang	2,512	1990-2013	118.0%
Cyprus	Gounopoulos, Nounis, and Stylianides; Chandriotis	73	1997-2012	20.3%
Denmark	Jakobsen & Sorensen; Ritter	164	1984-2011	7.4%
Egypt	Omran; Hearn	62	1990-2010	10.4%
Finland	Keloharju	168	1971-2013	16.9%
France	Husson & Jacquillat; Leleux & Muzyka; Paliard & Belletante; Derrien & Womack; Chahine; Ritter; Vismara	697	1983-2010	10.5%
Germany	Ljungqvist; Rocholl: Ritter; Vismara	736	1978-2011	24.2%
Greece	Nounis, Kazantzis & Thomas; Thomadakis, Gounopoulos & Nounis	373	1976-2013	50.8%
Hong Kong	McGuinness; Zhao & Wu; Ljungqvist & Yu; Fung, Gul, and Radhakrishnan; Dealogic	1,486	1980-2013	15.8%
India	Marisetty and Subrahmanyam; Ritter	2,964	1990-2011	88.5%
Indonesia	Suherman	441	1990-2013	25.0%
Iran	Bagherzadeh	279	1991-2004	22.4%
Ireland	Dealogic	38	1991-2013	21.6%
Israel	Kandel, Sarig & Wohl; Amihud & Hauser; Ritter	348	1990-2006	13.8%
Italy	Arosio, Giudici & Paleari; Cassia, Paleari & Redondi; Vismara	312	1985-2013	15.2%
Japan	Fukuda; Dawson & Hiraki; Hebner & Hiraki; Pettway & Kaneko; Hamao, Packer, & Ritter; Kaneko & Pettway	3,236	1970-2013	41.7%
Jordan	Al-Ali and Braik	53	1999-2008	149.0%
Korea	Dhatt, Kim & Lim; Ihm; Choi & Heo; Mosharian & Ng; Cho; Joh; Dealogic	1,720	1980-2013	59.3%
Malaysia	Isa; Isa & Yong; Yong; Ma; Dealogic	474	1980-2013	56.2%
Mauritius	Bundoo	40	1989-2005	15.2%
Mexico	Aggarwal, Leal & Hernandez; Eijgenhuijsen & van der Valk; Villarreal	123	1987-2012	11.6%
Morocco	Alami Talbi; Hearn	33	2000-2011	33.3%
Netherlands	Wessels; Eijgenhuijsen & Buijs; Jenkinson, Ljungqvist, & Wilhelm; Ritter	181	1982-2006	10.2%
New Zealand	Vos & Cheung; Camp & Munro; Alqahtani; Dealogic	242	1979-2013	18.6%

Country	Source	Sample Size	Time Period	Avg. Initial Return
Nigeria	Ikoku; Achua; Dealogic	122	1989-2013	13.1%
Norway	Emilsen, Pedersen & Saettem; Liden; Dealogic	209	1984-2013	8.1%
Pakistan	Mumtaz	80	2000-2013	22.1%
Philippines	Sullivan & Unite; Dealogic	155	1987-2013	18.1%
Poland	Jelic & Briston; Woloszyn	309	1991-2012	13.3%
Portugal	Almeida & Duque; Dealogic	32	1992-2013	11.9%
Russia	Dealogic	64	1999-2013	3.3%
Saudi Arabia	Al-Anazi, Forster, & Liu; Alqahtani	80	2003-2011	240.0%
Singapore	Lee, Taylor & Walter; Dawson; Dealogic	609	1973-2013	25.8%
South Africa	Page & Reyneke; Ali, Subrahmanyam & Gleason; Dealogic	316	1980-2013	17.4%
Spain	Ansotegui & Fabregat; Alvarez Otera; Dealogic	143	1986-2013	10.3%
Sri Lanka	Samarakoon	105	1987-2008	33.5%
Sweden	Rydqvist; Schuster; de Ridder	374	1980-2011	27.2%
Switzerland	Kunz, Drobetz, Kammermann & Walchli; Dealogic	164	1983-2013	27.3%
Taiwan	Chen; Chiang	1,620	1980-2013	38.1%
Thailand	Wethyavivorn & Koo-smith; Lonkani & Tirapat; Ekkayokkaya and Pengniti; Vithessonthi	500	1987-2012	35.1%
Tunisia	Hearn	32	2001-2013	24.3%
Turkey	Kiymaz; Durukan; Ince; Kucukkocaoglu	355	1990-2011	10.3%
United Kingdom	Dimson; Vismara; Levis	4,932	1959-2012	16.0%
United States	Ibbotson, Sindelar & Ritter; Ritter	12,496	1960-2013	16.9%

Sources: See references listed in Ritter (2003) and updates provided on http://bear.warrington.ufl.edu/ritter/.

Table 2: Initial returns and long run performance of IPOs in the U.S.

Year	Number of IPOs	Average First-day Return	Avg. 3-year Buy-and-hold Return		
			IPOs	Market-adjusted	Style-adjusted
1980	71	14.3%	89.8%	37.0%	18.5%
1981	192	5.9%	12.3%	-27.0%	6.8%
1982	77	11.0%	37.5%	-31.5%	-12.4%
1983	451	9.9%	15.9%	-37.7%	-3.5%
1984	173	3.6%	49.5%	-28.9%	26.1%
1985	187	6.4%	5.6%	-41.3%	-12.3%
1986	393	6.1%	16.9%	-22.6%	-1.3%
1987	285	5.6%	-2.6%	-19.1%	-11.2%
1988	102	5.7%	58.5%	10.5%	37.1%
1989	113	8.2%	49.6%	14.9%	12.2%
1990	110	10.8%	9.7%	-35.9%	-38.4%
1991	286	11.9%	31.2%	-1.8%	5.8%
1992	412	10.3%	37.4%	-0.2%	11.1%
1993	509	12.7%	44.5%	-8.3%	-8.8%
1994	403	9.8%	78.1%	-5.7%	-1.2%
1995	461	21.2%	28.9%	-57.8%	-24.4%
1996	676	17.2%	25.3%	-56.7%	7.2%
1997	474	14.0%	58.4%	-1.8%	22.1%
1998	282	21.8%	23.9%	6.2%	-4.6%
1999	476	71.0%	-47.7%	-32.6%	-60.9%
2000	381	56.3%	-60.2%	-30.9%	-56.8%
2001	79	14.2%	17.8%	14.4%	-28.1%
2002	66	9.1%	68.6%	39.0%	-0.4%
2003	63	11.7%	34.0%	-7.8%	-9.2%
2004	173	12.3%	51.5%	6.9%	-7.1%
2005	160	10.2%	14.2%	2.6%	-9.8%
2006	157	12.1%	-28.8%	-11.2%	-4.1%
2007	159	14.0%	-16.5%	-0.5%	3.7%
2008	21	6.4%	11.4%	8.0%	14.9%
2009	41	9.8%	37.0%	-5.1%	-21.0%
2010	93	9.1%	38.6%	-7.3%	-16.7%
2011	81	13.3%	44.5%	1.4%	-14.9%
2012	93	17.9%	65.8%	30.1%	18.4%
1980-1989	2,044	7.2%	22.5%	-22.6%	2.2%
1990-1994	1,720	11.2%	46.2%	-6.4%	-1.7%
1995-1998	1,893	18.1%	34.3%	-33.9%	1.5%
1999-2000	857	64.5%	-53.2%	-31.8%	-59.1%
2001-2011	1,186	12.2%	22.9%	4.4%	-6.1%
1980-2011	7,700	17.9%	22.2%	-18.7%	-7.0%

Ritter (2014) states that the "equally weighted (EW) average first-day return is measured from the offer price to the first CRSP-listed closing price. EW average three-year buy-and-hold percentage returns (capital gains plus dividends) are calculated from the first closing market price to the earlier of the three-year anniversary price, the delisting price, or 31st December 2013. Buy-and-hold returns for initial public offerings (IPOs) occurring after 31st December 2012 are not calculated. Market-adjusted returns are calculated as the buy-and-hold return on an IPO minus the compounded daily return on the CRSP value-weighted index of Amex, Nasdaq, and NYSE firms. Style-adjusted buy-and-hold returns are calculated as the difference between the return on an IPO and a style-matched firm". Source: Ritter and Welch (2002): Updated 27th March 2014 and available at http://bear.warrington.ufl.edu/ritter/.

Table 3: IPO mechanisms in use across the world

		Auctions		Book Building		
	Traditional method(s)	First introduced	Apparently abandoned	First introduced	Now dominant or gaining?	Hybrid with Fixed Price
Europe						
Czech Republic	Fixed price			2004	yes	yes
Finland	Fixed price			1993	yes	yes
France	Auctions, fixed price	1964	1999*	1993	yes	yes
Germany	Fixed price	1999		1995	yes	yes
Greece	Fixed price			1994	yes	yes
Hungary	Fixed price			1995	yes	yes
Ireland	Fixed price			1992	yes	yes
Italy	Fixed price	1980s	1986	1992	yes	yes
Netherlands	Fixed price	1980s	1989	1994	yes	yes
Norway	Fixed price			1995	yes	yes
Poland	Fixed price	1994	1995	1995	yes	yes
Portugal	Fixed price	1987	1992*	1995	yes	yes
Spain	Fixed price	1988		1993	yes	yes
Sweden	Fixed price	1980s	1980s	1994	yes	yes
Switzerland	Fixed price	Mid-1980s	1987	1995	yes	yes
United Kingdom	Fixed price	1960	1986	1992	yes	yes
N. & S. America						
Argentina	Fixed price	1991	1992	1993	yes	yes
Barbados	Fixed price			Never		
Brazil	Fixed price	Late 1980s	1994	1992	yes	yes
Canada	Book building			Early	yes	yes
Mexico	Fixed price			None yet		yes
Paraguay	Fixed price			Never		
Peru	Fixed price			1996	yes	yes
United States	Book building	1999	Still using	Early	yes	no
Asia/Pacific						
Australia	Fixed price	1999	1999	1993	yes	yes
Bangladesh	Fixed price	Allowed, 2009		Never		
China	Fixed price	1999	2002	2005*	yes	yes
Hong Kong	Fixed price			1994	yes	yes
India	Fixed price	2005*	Still using	1999	Banned, 2005	yes
Indonesia	Fixed price			2000	yes	yes
Japan	Fixed price	1989	1997	1997	yes	yes
Korea	Fixed price	1993		1997	yes	yes
Malaysia	Fixed price	1992	1994	2002	yes	yes
New Zealand	Fixed price			1997	yes	yes
Philippines	Fixed price	1994	1994	1998	yes	yes
Singapore	Fixed price	1991	1994	1999	yes	yes
Sri Lanka	Fixed price			Never		
Taiwan	Fixed price	1995	2003	2004	yes	yes
Thailand	Fixed price			1994	yes	yes
Vietnam	Auctions	2005	Still using	Never		
Africa/Middle East						
Egypt	Fixed price			2000		yes
Kenya	Fixed price			2008		yes

Israel	Auctions, fixed price	By 1980		2008	
Jordan	Fixed price			Never	
Pakistan	Fixed price			Never	
South Africa	Fixed price			1994	yes
Turkey	Fixed price	1994	1995*	1997	yes

Note: *Some unusual features or exceptions (see Table C.1 in Jagannathan, Jirnyi and Sherman (2010) for more detail). A blank in any column means that, to the best of the author's knowledge, the method was not used. The "first introduced" years are the earliest years that Jagannathan, Jirnyi and Sherman (2010) were able to find but may be later than the actual year of first use. On whether the book building method is now dominant or gaining in popularity, the answer is in the judgment of the main source listed in Table C1 of Jagannathan, Jirnyi and Sherman (2010), or the author's best estimate if no other source was available. Source: Table 1 of Jagannathan, Jirnyi and Sherman (2010).

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